



CARNATION PLANNING AND PARKS BOARD Regular Meeting Agenda

*Chair Ron Lundeen, Vivian Anschell, Daniel Enciso,
Caroline Habell, Joe Mellin, Nathan Sherfey, Wayne Wallace*

DATE: May 28, 2024
TIME: 5:00 P.M.
LOCATION: City Hall (4621 Tolt Avenue)

JOIN ONLINE:

Microsoft Teams Meeting
[Click here to join the meeting](#)
MeetingID:216386824316
Passcode: twfG98

- 1) **CALL TO ORDER:** Co-Chair Ron Lundeen
- 2) **ROLL CALL:** Beth Offeman
- 3) **APPROVAL OF AGENDA**
- 4) **APPROVAL OF MINUTES:**
 - a) April 23, 2024
- 5) **CITIZEN COMMENT & REQUESTS:** *Comments may be submitted in advance by writing or e-mailing clerk@carnationwa.gov, or made in person, or by telephone or computer connection at the time of the meeting. Individual comments shall be limited to three minutes.*
- 6) **PRESENTATION/DISCUSSION:**
 - a) [Tentative] Special Guest Tali to talk about her park vision
- 7) **NEW BUSINESS:**
 - a) Screening and Landscaping Code
 - b) Street Standards
 - c) A new horse at Fred Hockert Park & other repairs
- 8) **COUNCIL NEWS**

- a) Tractor seats are being donated to the Triangle by the Lee Arts Foundation
- b) The Snoqualmie Tribe in cooperation with Lee Arts Foundation is placing a hand-carved bench at Tolt Commons
- c) A parking master plan will be developed in 2025
- d) City Council discussed drafts of transportation, utilities and capital facilities comprehensive plan elements and future land use map
- e) No fees to reserve City parks or facilities

9) OLD BUSINESS

- a) River's Edge Park
- b) Triangle Activation
- c) Summer Camps – **scholarships available**
- d) Summer Fun Community Calendar: <https://www.carnationwa.gov/summer-fun-calendar/>

10) FUTURE AGENDAS:

- a) Regular Meeting: June 25, 2024 – CANCELLED
- b) Special Meeting: June 11, 2024

11) OTHER

12) ADJOURNMENT: Co-Chair Caroline Habel

CARNATION PLANNING AND PARKS BOARD Regular Meeting Minutes 04.23.2024

*Co-Chair Ron Lundeen, Co-Chair Caroline Habell, Vivian Anschell, Daniel Enciso,
Joe Mellin, Nathan Sherfey, Wayne Wallace*

- 1) **CALL TO ORDER:** Co-Chair Ron Lundeen
AT 5:07 P.M.

- 2) **ROLL CALL:** Beth Offeman
PRESENT: Co-Chair Lundeen, Board Member Anschell, Board Member Enciso,
Board Member Mellin, Board Member Sherfey arrived late.
ABSENT: Co-Chair Habell, Board Member Wallace.

- 3) **APPROVAL OF AGENDA**
MOTION BY BOARD MEMER ANSCHELL SECOND BY BOARD MEMBER
MELLIN TO APPROVE THE AGENDA. MOTION PASSED (4-0)

- 4) **APPROVAL OF MINUTES:**
 - a) March 26, 2024
 - b) MOTION BY BOARD MEMBER MELLIN SECOND BY BOARD MEMBER
ANCHELL TO APPROVE MINUTES. MOTION PASSED (4-0)

- 5) **CITIZEN COMMENT & REQUESTS:** *Comments may be submitted in advance by
writing or e-mailing clerk@carnationwa.gov, or made in person, or by telephone or
computer connection at the time of the meeting. Individual comments shall be
limited to three minutes.*
NO PUBLIC COMMENT GIVEN

- 6) **PRESENTATION/DISCUSSION:**
Deputy City Manager Ender gave a presentation of the proposed Future Zoning
Map and detailed scenarios for the Urban Growth Area. Board members
expressed support requiring all new developments to have a buffer area.

- 7) **NEW BUSINESS:**
 - a) Permit Manager Beth Offeman updated Board on Council's directive for Design
Standards refresh and explained Maker's approach to updating the document.
Board reinforced desire to see CBD standards extended to Mixed-Use area,
supported an update to Light Industrial standards and requested all changes be
shown as redlines for easy identification of changes.

- b) Deputy City Manager Ender described the Tree canopy assessment grant she applied for and explained how it will benefit the city if awarded.

8) COUNCIL NEWS

- a) Deputy City Manager Ender announced the Tolt River Terrace Final Plat approval and gave a sales update.
- b) Deputy City Manager Ender explained the plan for the Big Block Patio.
- c) Deputy City Manager Ender gave a Building Moratorium update (currently slated to end in August) and detailed remaining updates to GIS mapping, stormwater and water connection standards.
- d) The City Council's Green Logic Model was explained to the Board by Deputy City Manager Ender.

9) OLD BUSINESS

- a) Update given on River's Edge Park and future playground equipment choices discussed.
- b) End of May start date for Triangle Activation anticipated.
- c) Summer Camp update given.
- d) Summer Fun Community Calendar updated and posted:
- e) Deputy City Manager Ender confirmed addition of heritage tree definition, increased fines and a new utility clause added to the proposed tree ordinance, per the Board's suggestions The City Manager is currently working on a tree policy framework with Council.

10) FUTURE AGENDAS:

- a) Regular Meeting: May 28, 2024
- b) June 25 meeting changed to June 11, 2024

11) OTHER

- a) Arbor Day Celebration on April 27th, 10 am-2 pm at Tolt MacDonald Park

12) ADJOURNMENT: Co-Chair Ron Lundeen

AT 7:09 p.m.

Chapter 15.76 SCREENING, LANDSCAPING AND TREES¹

Part I. Screening and Landscaping

15.76.010 Council findings concerning the need for screening and landscaping requirements.

The council finds that:

- A. Screening and landscaping between two lots lessens the transmission from one lot to another of noise, dust, and glare.
- B. Screening and landscaping can lessen the visual pollution that may otherwise occur within an urbanized area. Even minimal screening can provide an impression of separation of spaces, and more extensive screening can shield entirely one use from the visual intrusion of an adjacent use.
- C. Screening and landscaping can establish a greater sense of privacy from visual or physical intrusion, the degree of privacy varying with the intensity of the screening.
- D. The provisions of this part are necessary to safeguard the public health, safety and welfare.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.020 Applicability.

The requirements of this chapter shall apply to all new nonsingle-family residential development and to existing development and construction whenever any alteration or addition of any existing building or structure exceeds fifty percent of the value of the existing building or structure, as determined by the city of Carnation valuation methods.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.030 Descriptions of screens and landscape types.

- A. Type A Landscaping: Opaque Screen.
 - 1. Intent.
 - a. To provide a dense landscaping screen separating nonresidential and residential uses;
 - b. To encourage plant materials that help to screen uses, while minimizing shade impacts on adjacent properties.
 - 2. Standards.
 - a. For landscaping strips ten to fifteen feet wide:

¹Editor's note(s)—Ord. No. 782, § 2(Exh. A), adopted July 20, 2010, amended Ch. 15.76 to read as set out herein. Former Ch. 15.76, §§ 15.76.010—15.76.130, pertained to similar subject matter and derived from Ord. No. 680, § 1(Exh. A)(part), adopted in 2005.

- i. At least one row of trees with ten feet maximum separation. Utilize tree species appropriate to perform the screening function, but minimize shade and shadow impacts;
 - ii. Shrubs at a rate of one shrub per twenty square feet of landscaped area. Shrubs shall be at least sixteen inches tall at planting and have a mature height of at least three feet. The use of taller shrubs (in place of required trees) that are intended to form a hedge at least eight feet tall may be appropriate in some cases as determined by the city planner;
 - iii. Ground cover.
- b. For landscaping strips wider than fifteen feet:
- i. A minimum of one tree (species as described below) at least eight feet tall for every one hundred fifty square feet arranged in a manner to obstruct views into the property;
 - ii. Shrubs and ground cover as required above.

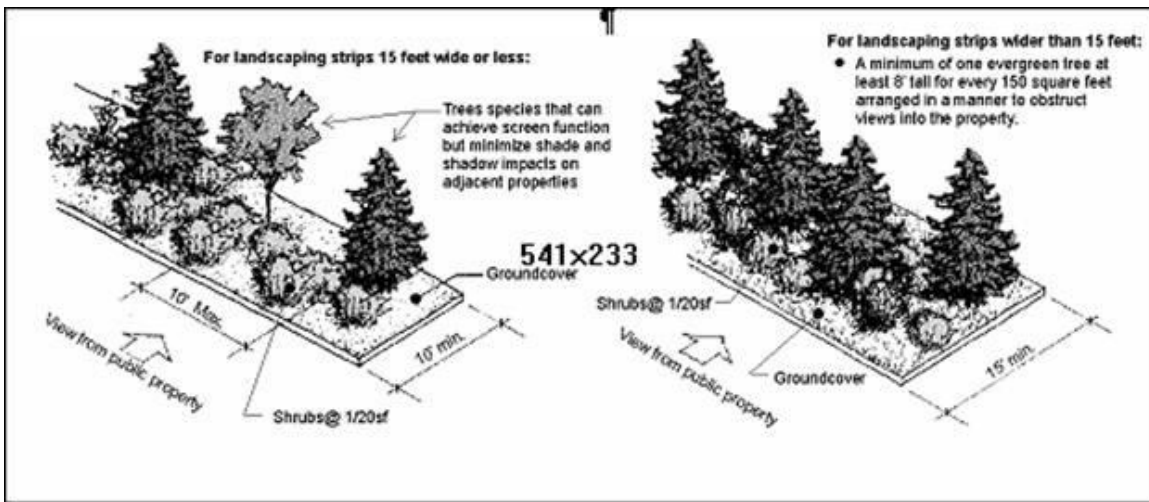


Figure 33: Type A Landscaping.

B. Type B Landscaping: Semi-Opaque Screen.

1. Intent. To provide a moderately dense and naturalistic vegetation screen to offer visual relief and integrate built elements into the natural environment.
2. Standards.
 - a. For landscaping strips less than fifteen feet wide:
 - i. Informal groupings of evergreen and/or deciduous (minimum two-inch caliper as measured four feet from the root ball). Trees to be spaced at an average of twenty feet on-center, but may be grouped in asymmetrical arrangements;
 - ii. Utilize a mix of tree species planted per CMC Section 15.76.070 that are able to perform desired screening function;
 - iii. Shrubs at a rate of one shrub per twenty square feet of landscaped area. Shrubs shall be at least sixteen inches tall at planting and have a mature height of at least three feet;
 - iv. Ground cover.
 - b. For landscaping strips wider than fifteen feet:
 - i. At least one tree per three hundred square feet of landscaped area;

- ii. Tree species, shrubs, and ground cover as required above.

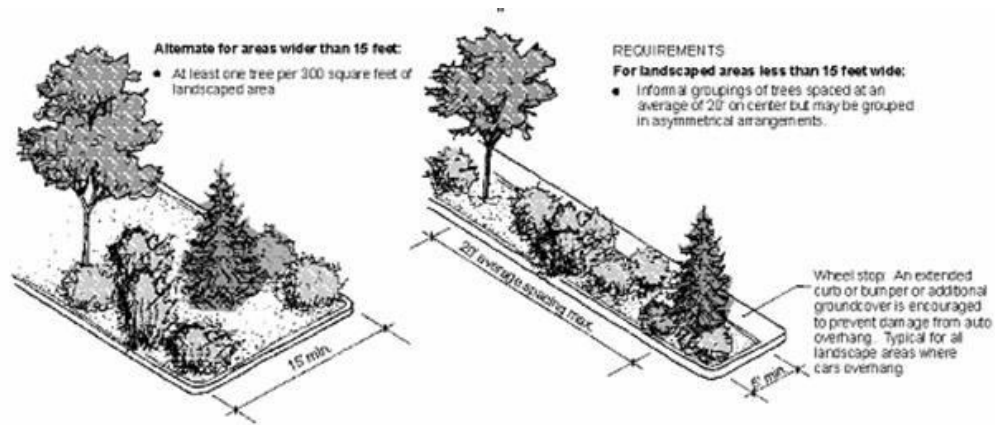


Figure 34: Type B Landscaping.

C. Type C Landscaping: Broken Screen.

1. Intent. To provide visual relief in parking areas and between roadways and buildings where both a canopy of trees and visibility is required.
2. Standards.
 - a. For landscaping strips five to twenty feet wide:
 - i. Trees at twenty feet on-center (minimum two-inch caliper as measured four feet from the root ball);
 - ii. Permitted tree species are those that reach a mature height of between twenty-five and forty feet (tall enough to be able to perform a canopy function);
 - iii. Shrubs at a rate of one shrub per twenty square feet of landscaped area. Shrubs shall be at least sixteen inches tall at planting and have a mature height between three and four feet;
 - iv. Ground cover;
 - v. Care must be taken to maintain visibility into (view from the street) and through the parking lot for safety. Developments should follow the three is to eight rule: Shrubs trimmed to three feet or less and canopy trees trimmed up to eight feet maintain views across the parking lot.
 - b. For landscaping strips wider than twenty feet:
 - i. At least one tree per three hundred square feet of landscaped area or twenty-foot separation (on average). Place trees to create a canopy in desired locations without obstructing necessary view corridors;
 - ii. Tree species, shrubs, and ground cover as required above.

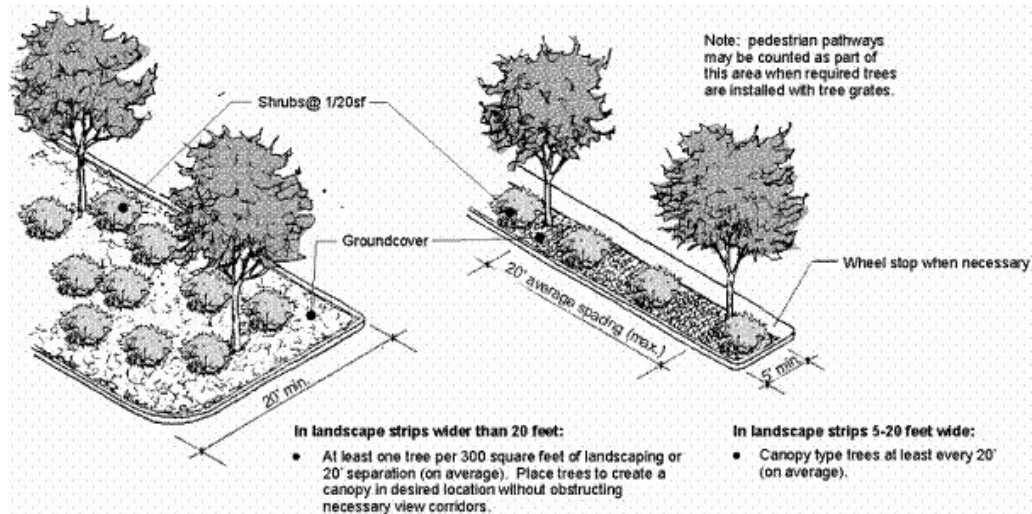
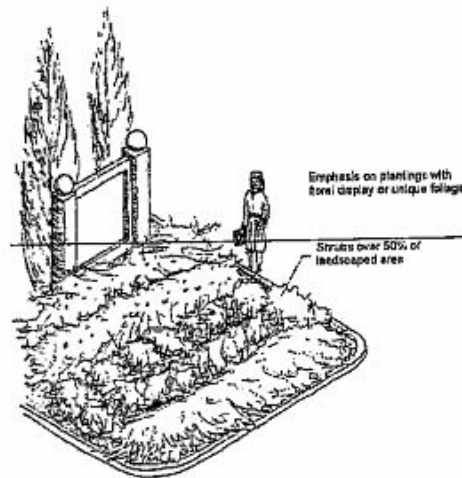


Figure 35: Type C Landscaping.

D. Type D Landscaping.

1. Intent. To create a decorative landscaped display with colorful flowers or foliage as a focal setting for signs, special site elements and/or high visibility or pedestrian areas.



2. Standards.
 - a. Shrubs, at least fifty percent of which must exhibit decorative floral or foliage, shall cover at least fifty percent of the landscaped area. They shall be planted to cover the allocated area within three years.
 - b. The remaining fifty percent of the landscaped area may be planted with low shrubs, ground cover, or cultivated flower beds. Taller trees or shrubs are acceptable behind the sign.



Figure 36: Type D Landscaping.

E. Type E Landscaping.

1. Intent. To enhance natural areas and to integrate developments into existing conditions.
2. Standards.
 - a. Landscaping shall consist of trees, shrubs, and ground covers that are native to the Puget Sound and are appropriate to the conditions of the site. Species are subject to the approval by the city planner. Arrangement of plants shall be asymmetrical and plant material shall be sufficient in quantity to cover the soil in one growing season.

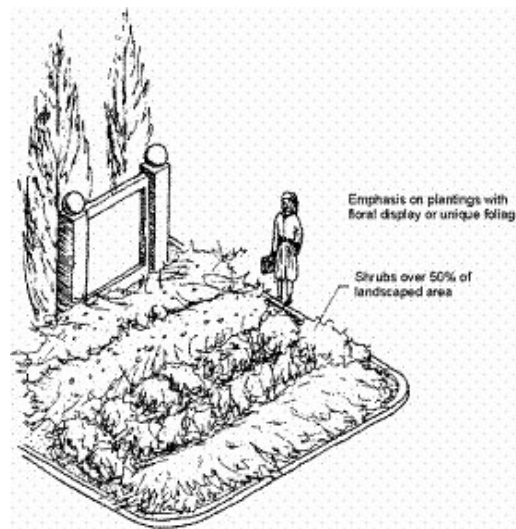


Figure 37. Type E Landscaping.

- b. Minimum twenty feet in width if used as a screen.
- F. Screen Fencing.
- 1. Intent. To minimize visual impacts of uses to adjacent properties, where applicable.
 - 2. Standards.
 - a. Fence or wall at least six feet tall, constructed of masonry, solid wood, or a combination thereof.

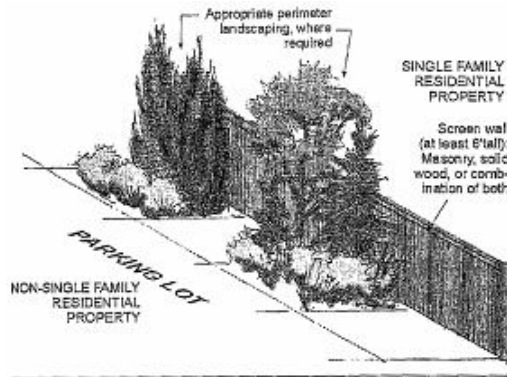


Figure 38. Type F Landscaping.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.040 Screening and landscaping requirements.

The following requirements apply to all nonsingle-family residential uses, unless otherwise noted.

- A. Intent:
 - 1. To define, break up, and screen parking areas;
 - 2. To reduce potential negative impacts on adjacent or neighboring uses;
 - 3. To enhance the aesthetic character of Carnation's built environment.
- B. Standards.
 - 1. All Projects. Buffering, screening, and provisions for required landscaping shall be in accordance with Table 1 below.

Table 1. Perimeter Landscaping Requirements.

Area Where Buffer is Required	Allowable Landscape Types (must choose one)	Minimum Buffer Width
Side or rear yards adjacent to single-family zoned lands or uses	A	10'
	B	10' (with screen fencing)
Side or rear yards of nonresidential uses adjacent to multifamily zoned lands or uses	A	10'
	B	10' (with screen fencing)
Side or rear yard of any light industrial use adjacent to nonindustrial uses or nonindustrial zoned lands	A	10'
	B	10' (with screen fencing)
	A	10'

Side or rear yards of multifamily uses adjacent to nonresidential zones or nonresidential uses	B	10' (with screen fencing)
Between parking lots (10 or more vehicles) and any side or rear yards.	A	10'
	B	5' (with screen fencing)
	C	20'
Between street and parking lots (also see Design Guidelines Section 1.1)	A	10'
	B	10'
	F	5'
Interior parking lot landscaping (10 or more vehicles).	A, B, C, or E	Variable (see CMC 15.76.045 and Design Guidelines Section 5.3.3)
Between sidewalk and building	A, B, C, D, or E	Variable per the Design Guidelines, Section 1 (zero where pedestrian-oriented facades are provided)

Table 1 Exceptions:

Where an alley divides the subject property from a single-family zoned property, developments are exempt from landscaping buffer requirements.

Where special topographic or other site conditions minimize or eliminate the need to provide landscaping buffers, the city planner may reduce or eliminate these requirements.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.045 Landscape requirements for parking lots.

1. Internal landscaping for surface parking lots containing ten or more parking spaces shall be provided. Specifically:
 - a. Canopy trees should be utilized within parking areas.
 - b. There shall be no more than eight parking spaces in a row without a landscaping bed containing a tree, shrubs and ground cover.
 - c. At least one tree for every six parking spaces shall be provided (this excludes trees in the required perimeter areas).
 - d. Wheel stops, curbs or walkways shall be used to protect landscaping from vehicles.
 - e. Minimum required internal surface parking lot landscaped areas:

Total Number of Parking Spaces	Minimum Required Landscaped Area
10—50	15 square feet/parking space
51—99	25 square feet/parking space
100 or more	35 square feet/parking space

2. The landscaping requirement for parking lots of ten or more parking spaces shall be in effect even if the parking lot and/or the number of parking spaces is not required by the application of this title.

3. Architectural elements used as an alternative for landscaping: Trellises or arbors may be substituted for trees if the city planner finds that these architectural elements will provide adequate screening between a parking lot and a street or between a parking lot and any side or rear lot, or that such elements shall provide adequate shading, screening and visual relief, and to reinforce safe pedestrian access routes within the parking area. To be approved, architectural elements must:
 - a. Be at least five feet above the surrounding grades;
 - b. Use horizontal elements to create shade; and
 - c. Contain plantings that at maturity will be integrated with the architectural elements (e.g., vines that will grow up a trellis).
4. Architectural elements that meet the criteria above may be substituted as follows:
 - a. Three hundred square feet of footprint of an architectural element may replace an evergreen tree.
 - b. Five hundred square feet of footprint of an architectural element may replace a deciduous tree.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.050 Flexibility in administration permitted.

- A. The city recognizes that because of the wide variety of types of developments and the relationships between them, it is neither possible nor prudent to establish inflexible screening requirements. Therefore the permit-issuing authority may permit deviations from the presumptive requirements of Section 15.76.030 and may either require more intensive or allow less intensive screening whenever it finds such deviations are more likely to satisfy the applicable intent statements set forth in Section 15.76.030 and the applicable intent statements in Section 15.76.040 without imposing unnecessary costs on the developer. Some examples of permissible deviations may include, but are not necessarily limited to: (1) additional density of vegetation in exchange for a reduction in buffer width, and (2) allowing a greater percentage of nonnative species if these species can be shown to be drought tolerant and noninvasive.
- B. Without limiting the generality of subsection A of this section, the permit-issuing authority may modify the presumptive requirements for:
 1. Commercial developments located adjacent to residential uses in business zoning districts;
 2. Commercial uses located adjacent to other commercial uses within the same zoning district.
- C. Whenever the permit-issuing authority allows or requires a deviation from the presumptive requirements set forth in Section 15.76.040, it shall enter on the face of the permit the screening requirement that it imposes to meet the standard set forth in Section 15.76.030 and the reasons for allowing or requiring the deviation.
- D. If the permit-issuing authority concludes, based upon information it receives in the consideration of a specific development proposal, that a presumption established by Section 15.76.040 is erroneous, it shall initiate a request for an amendment to the Table 1 codified in this chapter in accordance with the procedures set forth in Chapter 15.100.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.060 Combination uses.

- A. In determining the screening requirements that apply between a combination use and another use, the permit-issuing authority shall proceed as if the principal uses that comprise the combination use were not combined and reach its determination accordingly.

- B. When two or more principal uses are combined to create a combination use, screening shall not be required between the component principal uses unless they are clearly separated physically and screening is determined to be necessary to satisfy the standard set forth in Section 15.76.040.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.070 Planting materials.

A. Intent.

1. To encourage the use of attractive and drought tolerant plant materials native to the coastal regions of the Pacific Northwest;
2. To promote tree retention and the protection of existing native vegetation.

B. Standards.

1. All Projects. New landscaping materials shall include species native to the coastal region of the Pacific Northwest or noninvasive naturalized species that have adapted to the climatic conditions of the coastal region of the Pacific Northwest in the following amounts:
 - a. Seventy-five percent of ground cover and shrubs;
 - b. Fifty percent of trees.
2. All Projects. At least sixty percent of new landscaping materials shall consist of drought tolerant species, except where site conditions within the required landscape areas assure adequate moisture for growth.
3. All Projects. Deciduous trees shall have a caliper of at least one and three-fourths inches at the time of planting. The caliper may be averaged, but no individual trees shall have a caliper of less than one and one-half inches.
4. All Projects. Evergreen trees shall be at least six feet in height, measured from the treetop to the ground, at the time of planting. Species that reach a mature height of more than forty feet are generally discouraged as they may provide excessive shade and shadow impacts on Carnation's flat terrain.
5. All Projects. Shrubs shall be:
 - a. Two-gallon size at the time of planting;
 - b. At least sixteen inches in height at the time of planting.
6. All Projects. Ground covers shall be planted and spaced to result in total coverage of the required landscape area within three years as follows:
 - a. Four-inch pots at eighteen inches on-center;
 - b. One gallon or greater sized containers at twenty-four inches on-center.
7. All Projects. Grass and ground cover areas shall contain at least two inches of composted organic material at finished grade.
8. All Projects. Existing soils shall be augmented with a two-inch layer of fully composted organic material tilled a minimum of six inches deep.
9. All Projects. Landscape areas shall be covered with at least two inches of mulch to minimize evaporation. Mulch shall consist of fully composted materials such as yard waste, sawdust, and/or manure. The use of beauty bark as a mulching material is discouraged.

C. Guidelines.

1. All Projects. Deciduous or broadleaf evergreen trees should be planted at least four feet from curbs, especially in front of parking stalls. Where possible, coniferous trees should be planted at least seven feet from curbs.
2. All Projects. The development should plan for the mature size of trees and major shrubs to avoid interference with windows, decks or lighting.
3. All Projects. Grass is acceptable as ground cover in landscaped areas, but not preferred for water conservation and maintenance purposes.
4. All Projects. The use of fruit trees is encouraged to reinforce Carnation's agricultural heritage.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.080 Irrigation and maintenance.

A. Intent.

1. To provide for the long-term establishment and health of new landscape plantings;
2. To ensure the long-term maintenance and attractiveness of landscape plantings;
3. To promote drought resistant planting materials.

B. Standards.

1. All areas where new landscaping is being required shall be provided with irrigation systems. Exception: Areas of undisturbed existing vegetation, low areas with existing high soil moisture conditions, or landscape areas consisting of drought-tolerant vegetation shall not require permanent irrigation systems.
2. All Projects. All landscape areas shall be maintained by the property owner in accordance with the following standards:
 - a. All landscaping shall be maintained with respect to pruning, trimming, mowing, watering, insect control, fertilizing, or other requirements to create a healthy growing condition and attractive appearance and to maintain the purpose of the landscape type.
 - b. Dead, diseased, stolen, vandalized, or damaged plants shall be replaced within three months with the plants indicated on the approved landscape plan.
 - c. All landscaped areas shall be maintained reasonably free of weeds and trash.
 - d. The requirements of this subsection shall be recorded on the landscaped property to apply to all subsequent owners of the property. The covenant shall provide that the city shall be entitled to its costs and attorney fees in any action in which it prevails in enforcing the covenant.
3. All Projects. A maintenance assurance device (MAD) shall be required by the city to ensure that landscaping will be installed and maintained for two years according to the approved plans and specifications. This could be either a CD (certificate of deposit) in the city's name, a letter of credit from the developer's bank, or cash. The amount required must be ten percent of the total cost of the materials. The MAD would be used by the city to hire a contractor to replace lost material due to nonmaintenance.

C. Guidelines.

1. All Projects. New developments are encouraged to use planting materials that require only temporary irrigation systems. Such systems are encouraged to be removed after twenty-four months or two growing seasons, whichever occurs first, provided that the plantings are established.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

Part II. Shading

15.76.090 Council findings and declaration of policy on shade trees.

- A. The council finds that retention of trees is an important means of mitigating development impacts and protecting the public health, safety and welfare by:
 1. Enhancing the economic value of properties;
 2. Reducing soil erosion and runoff from precipitation;
 3. Stabilizing and enriching the soil;
 4. Improving water quality;
 5. Improving air quality;
 6. Moderating the effects of wind and temperature;
 7. Buffering unwanted sound;
 8. Providing and protecting varied and rich habitats for wildlife; and
 9. Providing visual relief and screening buffers.
- B. Based upon the findings set forth in subsection (a), the council declares that it is not only desirable but essential to the health, safety, and welfare of all persons living or working within the city's planning jurisdiction to protect certain existing trees and, under the circumstances set forth in this chapter, to require the planting of new trees in certain types of developments.
- C. The purpose and intent of this part is to:
 1. Minimize the removal of significant trees in order to maintain the quality of the environment;
 2. Encourage the protection of significant trees to the maximum extent possible in the design of new buildings, roadways and utilities;
 3. Mitigate the environmental and aesthetic consequences of tree removal in land development through on-site tree replacement;
 4. Encourage tree protection efforts by granting flexibility of certain other development requirements;
 5. Provide measures to protect trees that may be impacted during construction;
 6. Maintain and protect the public health, safety and general welfare.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.100 Required trees along dedicated streets.

If required by this title or by the city of Carnation street and storm sewer standards, or if the street to be newly created, widened or improved is classified as a local access or neighborhood access roadway in the city of

Carnation street and storm sewer standards, the developer shall either plant or retain sufficient trees so that within the right-of-way there is for every thirty feet of street frontage at least an average of one deciduous tree of two inches d.b.h. (diameter breast height) at the time of planting and with a canopy that starts at least eight feet above finished grade and has or will have when fully mature a trunk at least twelve inches in diameter. Root deflectors shall be provided for all street trees. When trees are planted by the developer pursuant to this section, the developer shall choose trees that meet the standards set forth by the city of Carnation street and storm sewer system standards.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.110 Retention and replacement of significant trees.

A. Tree retention requirements shall be as follows:

Zone	Volume of Significant Trees to be retained	Replacement if required
MU, not located on Tolt Avenue	1 significant tree per 2,500 square feet	1 to 1
MU located on Tolt Avenue	No requirement	
UR5	1 significant tree per 5,000 square feet	2 to 1
UR7.5	1 significant tree per 7,500 square feet	3 to 1
UR10.8	2 significant tree per 10,800 square feet	3 to 1
SR12.5	2 significant tree per 12,500 square feet	3 to 1
MFR	1 tree per 2,500 square feet	1 to 1
CBD	No requirement	
SC	No requirement	
HC	8 significant trees per acre	3 to 1
PU	Where the Public Use abuts a single family residential zone at one or more property line, tree preservation will be required at a rate of 1 significant tree per 5,000 square feet.	
PR	For parks or areas of parks with passive recreation uses, 8 trees per acre. For parks with active recreation opportunities such as ball-fields, tree preservation will not be required.	

- B. The significant trees to be retained shall be calculated from the area of the lot or parcel to be developed, if such trees are present on the lot or parcel prior to development. If the retention of such trees would unreasonably burden the development or in the opinion of the city planner cause a significant safety problem, such trees may be replaced as provided for in this chapter.
- C. The retention or protection of significant trees as provided in subsections (a) unreasonably burdens a development if, to accomplish such retention or protection, the desired location of improvements on a lot or the proposed activities on a lot would have to be substantially altered and such alteration would work an unreasonable hardship upon the developer.
- D. When significant trees are removed because their retention would unreasonably burden a development, said significant trees removed shall be replaced with trees at a ratio provided for in subsection (A).
 - 1. Replacement trees shall be a minimum of two-inch caliper for deciduous trees and six-foot minimum height for evergreen trees;

2. The species of replacement trees shall not be identified as a noxious weed by the most recently available King County noxious weed list and shall not include any species from the list of species identified as nonsignificant in CMC 15.08.
 3. Applicants are encouraged to select replacement trees from the replacement tree list found in the city of Carnation street and storm sewer standards.
 4. The city planner may approve the installation of smaller-sized replacement trees if the applicant can demonstrate that smaller trees are more suited to the species, site conditions, and to the purposes of this section, and are planted in sufficient quantities to meet the intent of this section.
 5. The condition of replacement trees shall meet or exceed current American Nursery and Landscape Association or equivalent organization's standards for nursery stock.
 6. If the replacement trees are to be planted on building lots, the developer shall provide adequate protection from damage during construction as provided for in this chapter, or planting shall occur after construction, in which case a planting plan and security shall be provided to ensure their planting.
- E. Trees located in critical areas or their buffers as determined by a critical areas report approved by the city as part of a development permit shall not be counted towards the tree preservation requirement of this chapter. No clearing of existing vegetation in critical areas or their buffer is allowed except as provided for in Chapter 15.88 CMC.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.120 Reduction of parking requirement permitted to preserve significant trees.

If space that would otherwise be devoted to parking cannot be so used because of the requirements of this chapter, and, as a result, the parking requirements set forth in Chapter 15.72 cannot be satisfied, the number of required spaces may be reduced by up to a maximum of fifteen percent of the required spaces.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.130 Protection of trees during construction.

- A. To ensure long-term viability of existing trees identified for protection, permit plans and construction activities shall comply with the following minimum required tree protection:
1. All minimum required tree protection measures shall be shown on the landscape plan and the site grading plan.
 2. All construction activities, including staging and traffic areas, shall be prohibited within the root protection zone of a protected tree. The root protection zone, also known as the limits of disturbance, shall be determined by a certified arborist hired by the applicant and shall be marked on the construction documents.
 3. To ensure that structures, utilities, and roadways are located an adequate distance from the dripline of a protected tree and to allow adequate room for construction activities, the construction limit line for a structure, utility, or roadway shall be located no closer than the root protection zone of a protected tree.
 4. Except as otherwise authorized by this chapter, no proposed structure, utility, or roadway shall be located in the root protection zone of a protected tree, except where such structure is a raised deck, bay window, or cantilevered or otherwise raised above the ground's surface so as not to disrupt the tree's roots.

5. Sidewalks and utilities may be located within the dripline of a protected tree, provided that construction methods and materials used will result in minimal disruption of the tree's roots, and that additional measures for tree protection are proposed and approved which will ensure the long-term viability of the tree. The city planner may allow construction limits or an alteration of grades within the root protection zone, provided that the applicant submits an evaluation by a certified arborist which demonstrates that the proposed construction will not reduce the long-term viability of the tree.
 6. The city planner may require an evaluation by a certified arborist to determine if protective measures should be required beyond the root protection zone.
 7. Tree protection barriers shall be installed along the outer edge and completely surround the root protection zone of significant trees to be protected prior to any land disturbance.
 8. Tree protection barriers shall be a minimum of four feet high, constructed of chain link, or polyethylene laminar safety fencing or similar material, subject to approval by the city planner. "Tree protection area" signs shall be posted visibly on all sides of the fenced areas. On large or multiple-project sites, the city planner may also require that signs requesting subcontractor cooperation and compliance with tree protection standards be posted at site entrances.
- B. Preventative Measures. In addition to the above minimum tree protection measures, the applicant shall support tree protection efforts by employing preventative measures, consistent with best management practices for maintaining the health of the trees, including but not limited to:
1. Pruning of visible deadwood on trees to be protected or relocated;
 2. Application of fertilizer to enhance the vigor of stressed trees;
 3. Use of soil amendments and soil aeration in tree protection and planting areas;
 4. Mulching over tree dripline areas; and
 5. Ensuring sufficient water availability for tree roots during and immediately after construction.
- C. Prior to final plat, binding site plan, final site development or other regulatory approval required for development, a certified arborist hired by the applicant shall be required to inspect all trees remaining on a site and provide a written report as to the status of such trees. Any protected tree found to be irreparably damaged, severely stressed or dying shall be replaced as provided for in this chapter.
- D. Alternative Methods. The city planner may approve the use of alternative tree protection techniques if applicant demonstrates that a protected tree will be protected to an equal or greater degree than through the techniques listed above.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.135. Designation of protected trees.

- A. The landscape plan and any application and permit plans that cover such areas shall show all trees designated for protection/retention. These areas may be shown by labeling them as "protected trees" or "native growth protection areas" or such other designation as may be approved by the city planner. Protected vegetation, including protected trees, shall not be modified, harmed or removed except as provided in this chapter.
- B. The city planner may require that protected trees be permanently preserved within a tract, easement or other permanent protective mechanism when preservation of significant stands of trees is a condition of the permit. When required, the location, purpose, and limitation of these protected areas shall be shown on the face of the deed, plat, site plan, or similar document and shall be recorded with the King County department of records and elections. The recorded document shall include the requirement that the protected areas

shall not be removed, amended or modified without the written approval of the city manager or his/her designee.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.140 Tree replacement.

- A. All Sites. Replacement trees shall be planted on the site from which significant trees are removed
- B. Tree Replacement Guidelines and Requirements.
 - 1. When individual significant trees are protected, replacement trees should be planted to enhance such trees.
 - 2. Replacement trees shall be planted in locations appropriate to the species' growth habit and horticultural requirements.
 - 3. Replacement trees shall be located to provide screening of the development from adjacent properties, in accordance with CMC 15.76.040.
 - 4. Replacement trees should be planted in areas that connect or are adjacent to native growth protection areas or other open spaces.
 - 5. Replacement trees shall be integrated into the required landscape plans for a development.
 - 6. Replacement trees should not be planted next to or under power lines.
- C. Installation.
 - 1. Installation of required replacement trees shall be performed in a manner that reasonably ensures, to the maximum extent practicable, the tree's long-term health and survival.
 - 2. All required tree replacement and other required mitigation shall be completed prior to issuance of final plat, binding site plan, final site development or other regulatory approval required for development, unless approved by the city planner and bonded in accordance with this title.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.150 Maintenance.

- A. All replacement trees and relocated trees required pursuant to this chapter shall be permanently maintained in healthy condition by and at the sole expense of the property owner unless otherwise approved by the city planner in accordance with this section. The city planner may require that retained trees, replacement trees or relocated trees be permanently designated for preservation within a tract, easement, restrictive covenant or other permanent protective mechanism as a condition of the original permit or approval. When so required, such designation and restriction shall be shown on the face of the deed, plat, site plan, covenant or similar document and shall be recorded with the King County department of records and elections. The recorded document shall include the requirement that the replacement trees and relocated trees shall not be removed or further relocated without the written approval of the city planner. The city planner's decision to approve, approve with conditions or deny any such request shall be processed as a Type II project permit application in accordance with Chapter 15.09.
- B. Cutting and Pruning.
 - 1. Protected trees shall not be topped.

2. Street trees on all public streets shall be cut or pruned only by the city of Carnation public works department, or under the supervision of, or with the approval of, the city of Carnation public works department.
3. Pruning and maintenance of protected trees shall be performed in a manner reasonably calculated, to the extent practicable, to further the long-term health of the tree.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

15.76.160 Enforcement.

Violations of this chapter shall be subject to the penalty and enforcement provisions of Chapter 15.28 CMC.

(Ord. No. 782, § 2(Exh. A), 7-20-2010)

CHAPTER 2: STREET STANDARDS

SECTION 1: STREET CLASSIFICATION

City streets are classified functionally as indicated below. Function is the controlling element for classification and shall govern right-of-way, road width and road geometries. Other given elements such as access, and average daily traffic count, or ADT, are typical.

1. ARTERIAL STREETS

Function – to collect and distribute traffic between SR203 and collectors or local access streets, or directly to traffic destinations such as schools, community centers, athletic fields, shopping centers, multiple residential areas, churches, concentration of offices or clinics, etc., and traffic from neighborhood to neighborhood within a community. Standard profiles have been developed for arterial segments of Entwistle, NE 40th Street, and Larson Avenue.

ADT – Over 5,000

Access – Partially controlled infrequent access to abutting properties. Parking may be restricted.

2. COLLECTOR STREETS

Function- to collect and distribute traffic between arterial streets and local access streets, or directly to traffic destinations; to serve neighborhood traffic generators such as stores, elementary school, church, clinic, multifamily homes, etc.

- 60-foot minimum right-of-way.
- 38 feet of pavement, consisting of two 10-foot travel lanes, and two 9-foot parking lane.
- 6.5-foot sidewalks on both sides. Sidewalk to be adjacent to parking lane if on one side only.
- Curb and vertical gutter adjacent to sidewalk.
- The parking lane may be replaced with two bicycle lanes or a sharrow lane at the discretion of the City.
- Stormwater options include an infiltration trench within city right-of-way.

ADT – 1,000 to 5,000.

Access – Direct access to adjacent properties allowed.

3. MINOR COLLECTOR STREETS

Function- to collect and distribute traffic between arterial streets and collectors or local access streets, or directly to traffic destinations; to serve neighborhood traffic generators such as elementary school, church, multifamily homes, etc.

- 60-foot minimum right-of-way.
- 34 feet of pavement, consisting of two 12-foot travel lanes, and one 10-foot parking lane.
- 6.5-foot sidewalks on one or both each sides. Sidewalk to be adjacent to parking lane if on one side only.
- Curb and vertical gutter adjacent to sidewalk.
- The parking lane may be replaced with two bicycle lanes or a sharrow lane at the discretion of the City.
- Stormwater options include an infiltration trench within the right-of-way.

ADT – 500 to 1,000.

Access – Direct access to adjacent properties allowed.

4. LOCAL ACCESS STREET

Function is to provide for direct access to individual lots and connections to the larger roadway system. Local access streets offer the lowest levels of mobility. A standard profile developed for the “original plat” which shall mean the Tolt Townsite Company Plat of Tolt, Volume 20, Page 43, encompassing the area bounded by Bagwell Street, Milwaukee Avenue, Entwistle Street, and Stewart Avenue. A standard profile is also developed for new developments outside of the original plat boundary.

Original Plat:

- 60 foot right-of way is already established in the original plat
- 2 10-foot travel lanes, 8-feet on street gravel parking on both sides.
- Pedestrian access provided by a 5-foot paved pathway on one side.
- An 8-ft infiltration swale for stormwater management.

ADT- Less than 500.

Access – Alleys are encouraged for parking access.

New Development:

- 48 to 50-foot right-of way.
- 2 10-foot travel lanes, 9-foot paved parking lane(s).
- 6-foot cement concrete sidewalks, curb and gutter on both sides.
- Stormwater catch basins on both sides of the street, water quality and underground infiltration facilities.

ADT- Less than 500.

Access – Direct access to adjacent properties.

5. ALLEYS

Provide very low speed access between land uses and local streets or collectors. The geometry of alleys discourages through traffic movements and usually restricts travel to only those land uses directly abutting the alley.

Alleys can allow driveways, garages and utilities to be removed from the front of houses, thus creating a less cluttered landscape. Removing driveways can allow for more on-street parking. For efficient access for all residences on an alley, alleys shall connect to streets at both ends. Franchised utilities shall be placed in alley when practical. In general, dead-end alleys should only be used where appropriate to site houses to take advantage of public open spaces or to address other site constraints and shall provide a turnaround where the dead-end distance exceeds 150 feet.

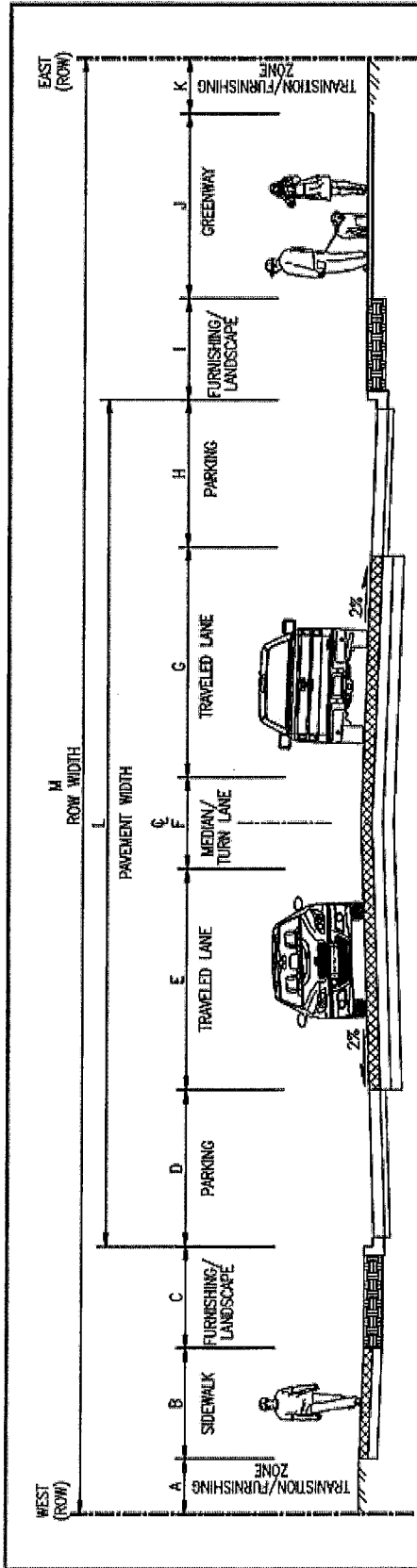
- 16-foot right-of-way width.
- 12-foot wide asphalt width with 3-foot thickened edge asphalt curb shall be provided on one side for drainage control.

Where alleys meet any other street classification, the following signage and demarcation features may be required to enhance sight distance and improve safety.

- Install 8-inch wide white extruded MMA or thermoplastic rumble strip demarcations per detail at a distance 15 feet behind sidewalk (or intersecting street if no sidewalk).
- Paint curbs on intersecting street for a distance of 20 feet on both directions from the alley intersection. Use high visibility industrial enamel safety yellow.
- Limit the height of fences and vegetation on the corner lots of the alley to enhance sight distance.

ADT- Less than 100.

Access- Direct access to adjacent properties, parking not permitted on alleys.

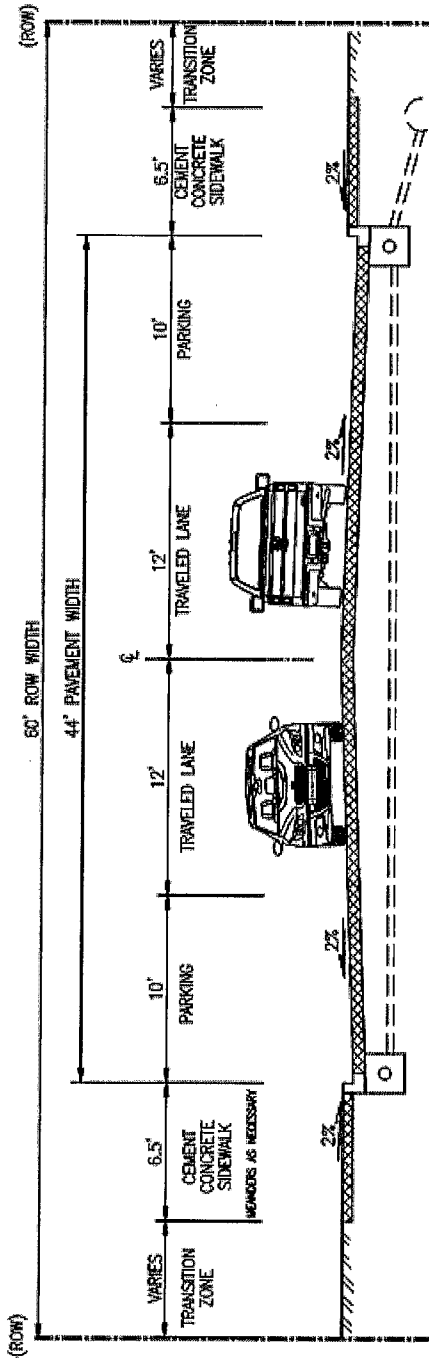


RIGHT OF WAY SECTION DIMENSIONS


SECTION	A	B	C	D	E	F	G	H	I	J	K	L	M
	TRANSITION/ FURNISHING ZONE	SIDEWALK	FURNISHING/ LANDSCAPE	PARKING	TRAVELED LANE	MEDIAN/ TURN LANE	TRAVELED LANE	PARKING	FURNISHING/ LANDSCAPE	GREENWAY	TRANSITION/ FURNISHING ZONE	PAVEMENT WIDTH	ROW WIDTH
TOLT MACDONALD PARK TO FIRE STATION	0'	6'	0'	0'	12'	0'	12'	0'	5.5'	12'	0'	24'	80'
FIRE STATION TO TOLT MIDDLE SCHOOL	5'	6'	0'	8'	12'	0'	12'	0'	5'	12'	0'	32'	60'
TOLT MIDDLE SCHOOL E. BLANCHE ST	0'	6'	5'	0'	12'	0'	12'	0'	5'	12'	0'	24'	60'
E. BLANCHE ST TO E. EUGENE ST	0'	6'	5'	8'	12'	0'	12'	0'	5'	12'	0'	32'	60'
E. EUGENE ST TO ENTWISTLE ST	3'	6'	0'	8'	12'	0'	12'	0'	5'	12'	2'	32'	60'
ENTWISTLE ST TO COMMERCIAL ST	15'		0'	8'	12'	0'	12'	8'	0'	15'		40'	70'
COMMERCIAL ST TO MURKIN ST	0'	8'	7'	6'	12'	0'	12'	0'	7'	12'	4'	32'	70'
IN FRONT OF CEMETERY	0'	7'	5.5'	0	12'	11'	12'	8'	5.5'	12'	0'	32'-45'	65'

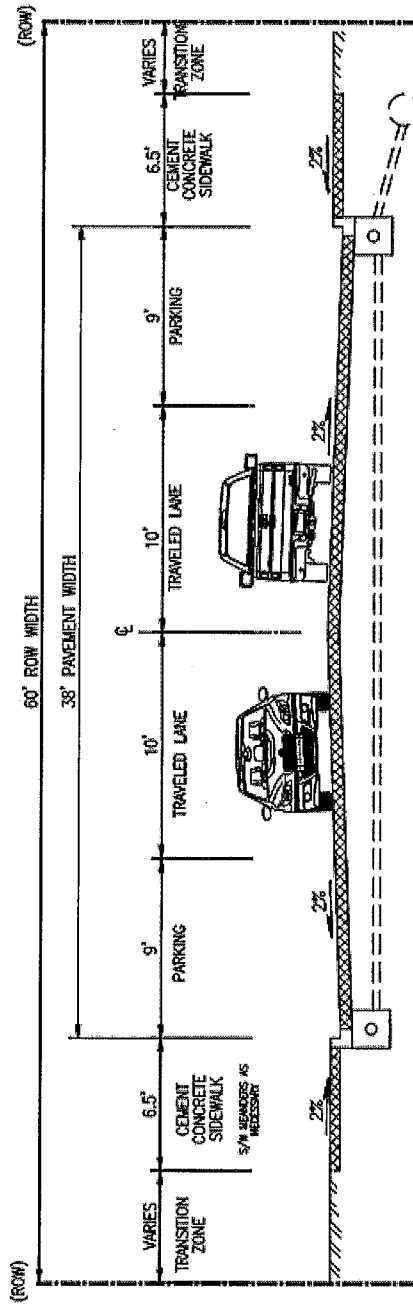
City of Carnation
Right of Way Standards
2018
TOLT AVE
SECTIONS

NOTES:
1. REFERENCE: CITY OF CARNATION TOLT AVENUE ACTION PLAN
FEBRUARY 2013. FOR ADDITIONAL SECTIONS AND TRANSITIONS.



- NOTES:**
1. PARKING LANE AND SIDEWALK ARE REQUIRED ON BOTH SIDES OF THE STREET AT THE DISCRETION OF THE CITY.
 2. A PARKING LANE MAY BE REPLACED WITH TWO BICYCLE LANES OR A SHARROW LANE MAY BE INCORPORATED AT THE DISCRETION OF THE CITY.


<p>City of Carnation Right of Way Standards</p>
<p>2018 ARTERIAL EXHIBIT</p>



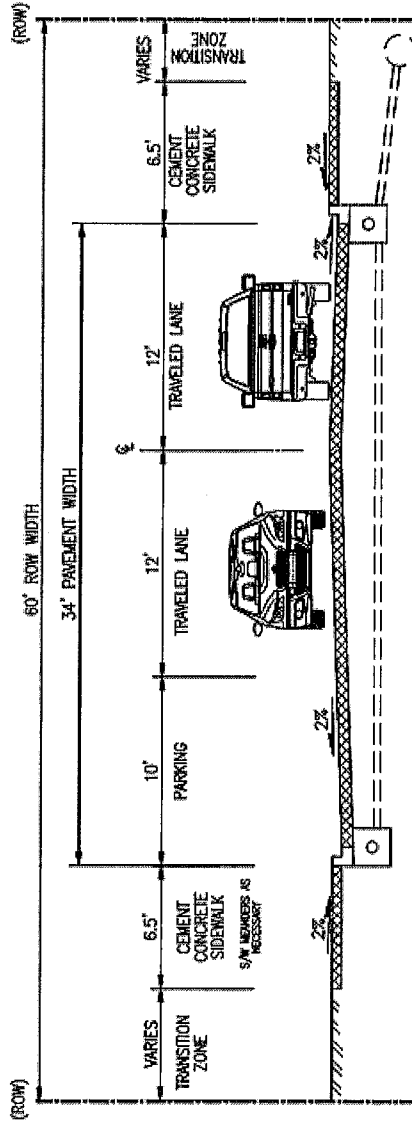
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City of Carnation
Right of Way Standards

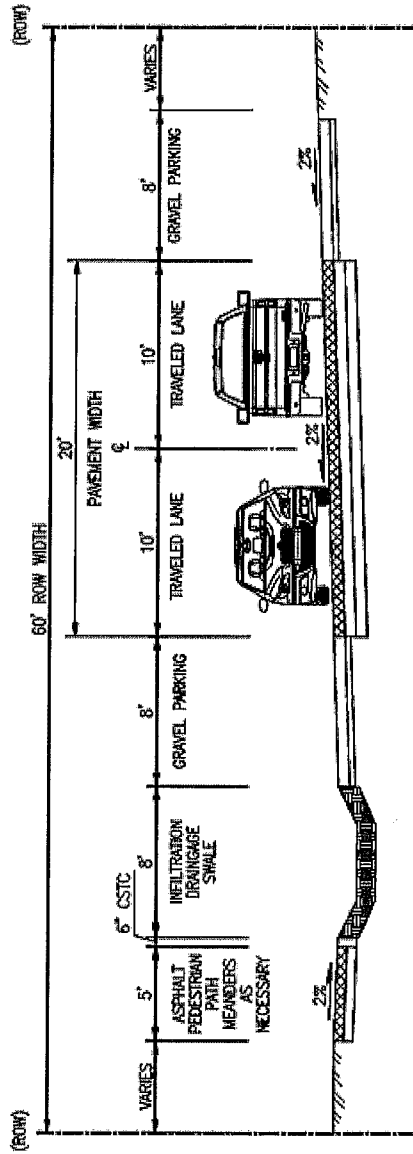
2018
COLLECTOR



NOTES:

1. THE PARKING LANE MAY BE REPLACED WITH TWO BICYCLE LANES OR A SHARROW LANE MAY BE INCORPORATED AT THE DISCRETION OF THE CITY.

	<p>City of Carnation Right of Way Standards</p>
	<p>2018 MINOR COLLECTOR</p>

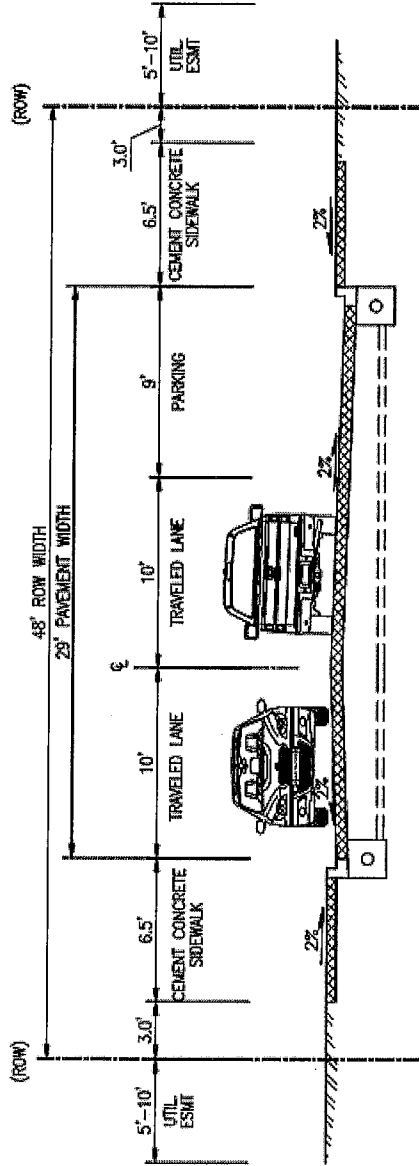


City of Carnation
Right of Way Standards

2018

Local Access Original Plat





NOTES:

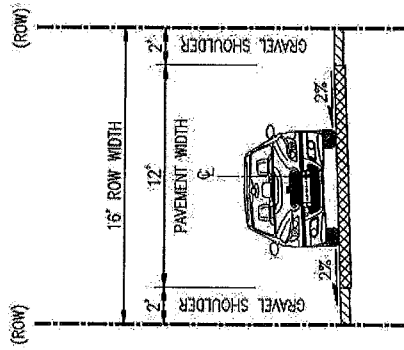
1. AT THE DISCRETION OF THE CITY A SIDEWALK ON ONE SIDE OF THE STREET MAY BE REPLACED WITH AN INFILTRATION SWALE ON DEAD END STREETS.
2. STORM DRAINAGE WATER QUALITY AND INFILTRATION FACILITIES ARE REQUIRED.




City of Carnation
Right of Way Standards

2018

Local Access



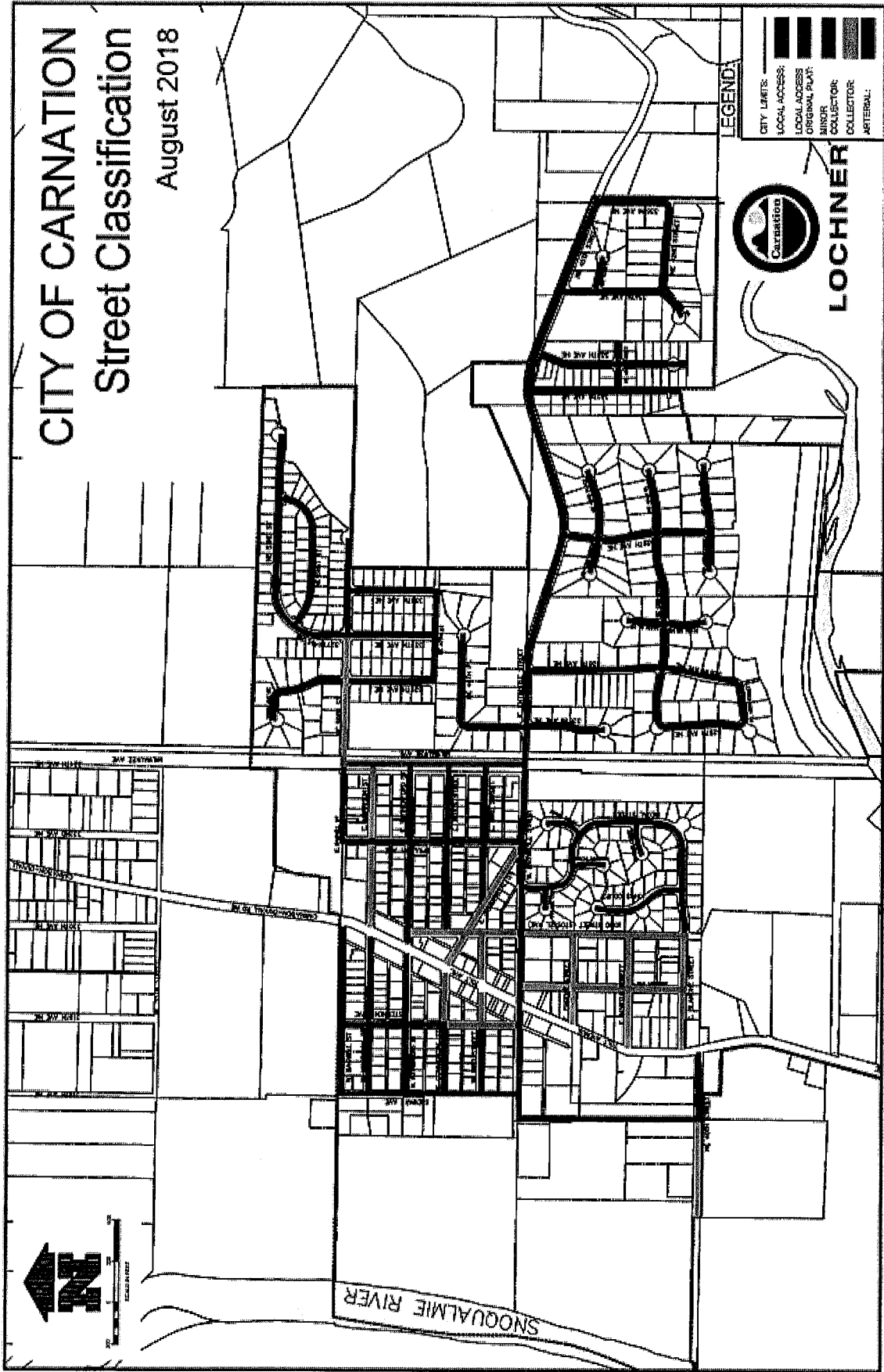
NOTES:
1. STORM WATER MANAGEMENT FACILITIES MAY BE LOCATED WITHIN PROPERTY BEING DEVELOPED.

	City of Carnation
	Right of Way Standards
2018	
ALLEY	

STREET STANDARDS BY CLASSIFICATION

	Right-of-way	Pavement width	Travel Lanes	Parking	Pavement Section	Curb	Sidewalks	Bike Lane
Arterial:	60'	44' (varies)	2-12'	2-10'	6" HMA 4" CSTC 4" CSBC	Vertical	2-6' Cement Concrete	Sharrow
Collector	60'	38' (varies)	2-10'	2-9'	6" HMA 4" CSTC 4" CSBC	Vertical	2-6' Cement Concrete	Sharrow
Minor Collector	60'	34'	2-12'	1-10'	6" HMA 4" CSTC 4" CSBC	Shoulder	2-6' Cement Concrete, may be reduced to one.	Sharrow
Local Access -New Development	48'	29'	2-10'	1 or 2-9' parking	4" HMA 4" CSTC 4" CSBC	Vertical or Shoulder	1 or both sides 6' Cement Concrete Sidewalk	No
Local access: Original Plat	60'	20'	2-10'	2-8' gravel	4" HMA 4" CSTC 4" CSBC	None	5' asphalt pathway (can meander)	No
Alley	16'	12' (may be gravel in residential)	1-8'	None	4" HMA 4" CSTC or 4" CSTC	None	None	No

- Final street cross sections including bicycle lane requirement will be determined by the City. Tolt Avenue pavement section is 14" HMA, 12" CSBC.
- A four-inch compacted section of CSTC is required under curbs and sidewalks.



SECTION 2: OTHER STREET TYPES

Section 2.1 Half Streets

A half street may be permitted as an interim facility if such alignment is consistent with, or will establish, a reasonable circulation pattern and based on an analysis of the number of dwelling units served and/or the ADT that will be generated by the development as determined by the City.

- Right-of-way width of the half street shall equal at least 30 feet; and
- If feasible the half street shall be graded consistent with locating centerline of the ultimate road section on the property line; Pavement width shall be not less than 20 feet.
- The sidewalk shall be constructed as required for the designated street classification.
- Property line edge of street shall be finished with curbing, shoulders, ditches, and/or side slopes so as to assure proper drainage, bank stability, and traffic safety.
- Half streets shall not intersect other half streets unless so approved by the City.

When a half street is eventually completed to a whole street, the completing developer shall reconstruct the original half street as necessary to produce a proper full-width street of designated section with the proper symmetry of a cull crown section, unless an alternatively approved section is granted by the City.

The obtaining of any right-of-way or easements needed to accomplish the above shall be the responsibility of the developer.

Section 2.2 Expansion of existing streets

When an existing asphalt paved street is to be widened, the edge of pavement shall be saw cut to provide a clean, vertical edge for joining to the new asphalt. After placement of the new asphalt section, the joint shall be sealed and the street ground overlaid two inches, full width throughout the widened area. The requirement for overlay may be waived by the City Engineer based on the condition of existing pavement and the extent of required changes to channelization.

Section 2.3 Private Streets

While community street requirements are usually best served by public streets, owned and maintained by the City, private streets may be appropriate for some local access streets. Usually these are minor access streets, either residential or commercial and are secondary accesses.

1. Private streets may be approved under the following criteria:

- Permanently established by right-of-way, tract or easement providing legal access to each affected lot, dwelling unit, or business and sufficient to accommodate required improvements, to include provision for future use by adjacent property owners when applicable.
 - Built to these Standards, as set forth herein.
 - Accessible at all times for emergency and public service vehicle use;
 - Will not land lock present or future parcels
 - Not needed as public streets in the opinion of the Public Works Director.
 - Covenants have been approved, recorded, and verified with the City which provide for maintenance of the private streets and associated parking areas by owners in the development.
 - The private street shall serve four (4) or fewer lots unless otherwise allowed by the City.
 - The private street serves commercial or industrial facilities where no circulation continuity is necessary.
 - The City Engineer and Fire Marshall determine that the access is adequate for health, life, and safety services.
 - Maintained by a capable and legally responsible owner or homeowners' association or other legal entity made up of all benefited property owners.
 - Clearly described on the face of the plat, short plat, or other development authorization as a private street. All private streets shall be clearly signed at the street entrance as a private street.
2. The City of Carnation will not accept private streets for maintenance as public streets.

Section 2.4 Fire Apparatus Access roads

DEFINITION

A fire apparatus access road is a road that provides fire apparatus access from a fire station to a facility, building, or portion thereof. This is a general term that includes all other terms such as fire land, public street, private street, parking lot lane and access roadway.

TIMING OF INSTALLATION

When a fire apparatus access road or a water supply for fire protection is required to be installed, such protection shall be installed and made serviceable prior to and during the time of construction except when approved alternative methods of protection are provided.

WHERE REQUIRED:

1. Buildings and Facilities. Approved fire apparatus access roads shall be provided for every facility, building, or portion of a building hereafter constructed within the City.

The fire apparatus access road shall comply with the requirements of this section and shall extend to within 150 feet of all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility. Only the Fire Marshall or designee is authorized to waive these requirements.

2. **Additional Access.** The Fire Marshall or designee is authorized to require more than one fire apparatus access road based on the potential for impairment of a single road by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access. See Eastside Fire and Rescue website for Fire Lane requirements.

SPECIFICATIONS

1. **Dimensions.** Fire apparatus access roads shall have an unobstructed width of not less than 15 feet in residential streets 3 homes or less, 20 feet in residential areas with 4 or more homes and in commercial and multi-family areas. The Fire Marshall or designee shall have the authority to require an increase in the minimum access widths where they are inadequate for fire or rescue operations.
2. **Surface.** Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus (25 tons unless otherwise specified by the Fire Marshall or designee) and shall be surfaced with Asphalt Concrete Pavement (ACP) so as to provide all-weather driving capabilities.
3. **Turning Radius.** The required turning radius of a fire apparatus access road shall be determined by the Fire Marshall or designee.
4. **Dead Ends.** Dead end fire apparatus access roads in excess of 150 feet in length shall be provided with an approved area for turning around fire apparatus. Fire sprinklers may be installed in lieu of a turnaround if acceptable to the Fire Marshall and the City Engineer.
5. **Bridges and Elevated Surfaces.** Where a bridge or an elevated surface is a part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO Standard Specifications for Highway Bridges. Bridges and elevated surfaces shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. Vehicle load limits shall be posted at both entrances to bridges.
6. **Grade.** If the grade of a fire apparatus access road is 15 percent or greater, the Fire Marshall or designee may require additional fire protection for all structures affected or served by said roadway.

MARKING

Where required by the Fire Marshall or designee, approved signs or other approved notices shall be provided for fire apparatus access roads to identify such roads or to prohibit obstruction thereof. Signs and notices shall be maintained in a clean and legible

condition at all times and be replaced or repaired when necessary to provide adequate visibility.

Fire lane signage and markings shall be consistent with the International Fire Code, Appendix D, Section D103.6, current edition. Fire lanes shall be posted "No Parking – Fire Lane" and "Tow Away Zone." Curbing shall be painted red for vertical curb applications, and/or a four-inch (4") continuous red stripe shall delineate the limits of the fire lane and the no parking zone.

Blue Type-2BB raised pavement markers shall be located on the centerline of all streets, lanes, or alleys perpendicular to fire hydrants.

OBSTRUCTION OF FIRE APPARATUS ACCESS ROADS

The minimum width and clearance of a fire apparatus access road shall not be obstructed in any manner, including the parking of vehicles. This includes any roadway that serves as a fire apparatus access road. Any fire apparatus access road with an emergency vehicle drivable width (capable of supporting 25 tons) of less than 30 feet shall be posted "No Parking" on one side. Any fire apparatus access road with an emergency vehicle drivable width (capable of supporting 25 tons) of less than 24 feet shall be marked as a "Fire Lane" per City of Carnation standards, with no parking on either side.

REQUIRED GATES AND BARRICADES

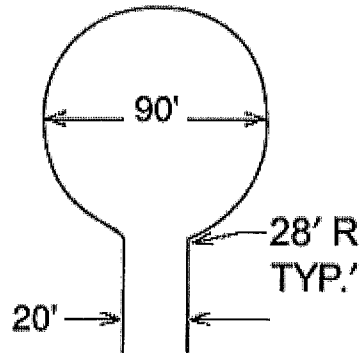
The Fire Marshall or designee is authorized to require the installation and maintenance of gates or other approved barricades across fire apparatus access roads, trails, or other access ways, not including public streets, alleys, or highways. When required, gates and barricades shall be secured in an approved manner.

SECURITY GATES

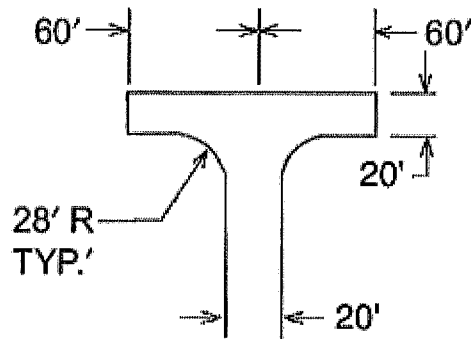
The installation of security gates across a fire apparatus access road shall be approved by the Fire Marshall or designee. Where security gates are installed, they shall have an approved means of emergency operation.

The security gates and the emergency operation shall be maintained operational at all times.

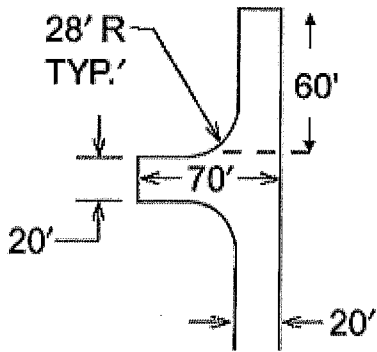
**EASTSIDE FIRE & RESCUE
FIRE APPARATUS TURNAROUND STANDARDS**



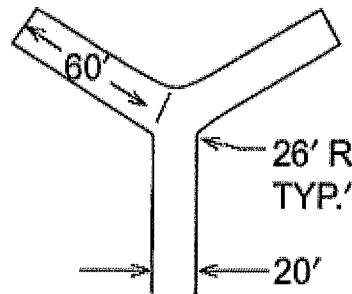
**90' DIAMETER
CUL-DE-SAC**



120' HAMMERHEAD



**ACCEPTABLE ALTERNATIVE
TO 120' HAMMERHEAD**



**ACCEPTABLE ALTERNATIVE
TO 120' HAMMERHEAD**

Maximum 2% cross slope.

12/2018

SECTION 3: STREET DESIGN

Section 3.1 General

Street design must provide for the maximum loading conditions anticipated. The width and grade of the pavement must conform to specific standards set forth herein for safety and uniformity.

All street designs shall be completed by a licensed civil engineer and expert in transportation facility design. All geometrical and design considerations shall be in accordance with the Association of State Highway and Transportation Officials guidelines.

Street and cross section design shall be in accordance with WSDOT/APWA Standard Specifications, the City's Standard Plans, and the following requirements:

- A. One-way Streets. Local access streets, including loops, may be designated One-Way upon a finding by the City that topography or other site features make two-way traffic impractical.
- B. Bus Zones and Turn-Outs. During the design of arterials and neighborhood collectors, the designer shall contact King County Metro Service Planning, phone 206-684-1622 and the Riverview school district to determine bus zone (stop) locations and other bus operation needs. The road project shall provide wheel chair accessible landing pads at designated bus zones and where required shall include turnouts and shelter pads. Pedestrian and handicapped access improvements within the right-of-way to and from the bus loading zone or turn-out from nearby businesses or residences shall also be provided as part of the street improvement. Surfacing requirements may also be affected, particularly on shoulders. See Metro's publication, "Metro Transportation Facility Design Guidelines," if applicable.
- C. Guardrail/Embankment Heights. Guardrail installations shall conform to WSDOT/APWA Standard Plan C-1, Beam Guardrail Type 1 and C-2, Guardrail Placement. End anchors shall conform to WSDOT/APWA Standard Plan C-t, Beam Guardrail Anchor Type 1.

Evaluation of embankments for guardrail installations shall be in accordance with Figure 710-6 of the WSDOT Design Manual.

- D. Off-Street Parking Spaces. The number of off-street parking spaces required shall conform to City of Carnation Code. The specifications for off-street parking spaces shall be as provided in City of Carnation Code.
- E. For all new streets, all base course shall be ATB, 6 inches minimum, except in alleys.
- F. For all new streets, the final asphalt course shall be 3 inches minimum, except alleys. The final lift of asphalt shall be placed only at the direction of the City.

- G. Asphalt pavers shall be self-contained, power-propelled units. Truck mounted type pavers shall only be used for City maintenance and paving of irregularly shaped or minor areas as approved by the City Engineer, or as follows:
- a) Pavement widths less than eight feet; and
 - b) Pavement lengths less than 150 feet.

Section 3.2 Design Considerations

Street design and layout should be based on the function of the street, the loadings on the street, the general terrain, the type of development being served and the vision of the city. As such, street construction plan submittals to the City should include the following information.

- Street classifications
- Design Speed
- Cross section
- Pavement section
- Street plantings/street side facilities
- Traffic control and street name plan
- Number of lots to be served by the street
- Proposed lot loading (from street or alley)
- Forecasted travel demand volumes (vehicular and non-motorized)
- Emergency vehicle access plan
- Parking prohibitions or limitations
- Sidewalk/trail plan
- Other pertinent information

At the discretion of the City, some of the above information may not be required to be shown on street construction plans if it was included as part of the review process for an approved preliminary plat or other development proposal (i.e., number of lots to be served, average lot width, forecasted travel demand volumes, etc.).

A. CONNECTIVITY

Street layout and plat design shall create efficient well-connected streets and alleys. Proposed streets should be aligned with existing streets. The alignment of neighborhood collectors should provide for their continuation into other existing, proposed or potential adjoining parcels. Alleys shall connect to streets on both ends when possible.

Street alignments will relate where practical to natural topography and will be selected so as to minimize grading and avoid excessive runoff. Alignment and connections of newly constructed public streets will be provided in accordance with the following conditions, unless otherwise prohibited:

1. Street connection will be provided to any existing public street or right-of-way abutting the proposed development.
2. Pedestrian and emergency access will be provided to any abutting public school, public building, public park, trail, or bikeways.

3. Streets will be located for the development of adjoining land.

B. ALLEYS

Alley-accessed lots provide for a better street-front pedestrian environment than streets with front load-driveways, because with alleys driveways do not cut across the sidewalk. The use of alleys is encouraged in higher density single family detached and attached housing. In evaluating the extent to which alleys can be provided, the following factors shall be considered:

- pedestrian and vehicular circulation
- logical layout of street system
- the creation of cohesive sense of neighborhood
- topography
- location of sensitive areas
- anticipated traffic volumes on frontage roads

C. CUL-DE-SACS

In most neighborhoods, cul-de-sacs will be allowed only for physical constraints such as wetlands, excessive natural grade differential between parcels, emergency vehicle access needs, or to efficiently serve difficult-to-access areas of lands that could not otherwise be served by connected street.

Where cul-de-sacs are used, they should be the shortest possible length to adequately address the constraint within the neighborhood. Cul-de-sacs will have a maximum length of 500 feet.

The pavement bulb radius shall be 45 feet for cul-de-sacs. Larger radii create large expanses of pavement which may be unsightly and increase impermeable area. The use of an island may be considered, but adequate room should be left for maneuvering.

Cul-de-sac bulbs should not exceed 6% cross-slope grades. Temporary cul-de-sacs may be allowed on neighborhood collectors and local access streets when future extensions of streets are anticipated. A cul-de-sac is considered a vehicle turnaround, which differs from a parking court. Parking courts may be allowed in multifamily lots.

D. DRIVEWAYS

Except as otherwise provided in CMC Chapter 15.96 the following shall apply:

1. A residential driveway shall typically serve only one parcel. A driveway serving more than one parcel may be allowed only with approval from the City.
2. Driveway entrances shall be constructed per WSDOT Standard Details for Cement Concrete Driveway Entrance, type to be determined by City Engineer.

3. All abandoned driveway areas on the same frontage shall be removed and the curbing and sidewalk or shoulder and ditch section shall be properly restored.
4. All driveways shall be constructed of Portland Cement Concrete over a minimum 6-inches of 5/8" minus crushed rock meeting 95% MDD compaction.
5. Grade breaks, including the tie to the roadway, will be constructed as smooth vertical curves. The maximum change in driveway grade will be eight percent within any ten feet of distance on a crest and 10 percent within any ten feet (10') of distance in a sag vertical curve.
6. No driveway, other than one serving a detached dwelling unit, will be approved where backing onto the sidewalk or street will occur.
7. Where driveways cross sidewalks, the thickness of the concrete shall not be less than six inches (6") and be constructed of Class 4000 Concrete.
8. For driveways that serve only single-family residential dwellings, driveway width shall be minimum ten feet (10'), and have a maximum driveway width of 18 feet (18').
9. For driveways that serve multi-family residential dwellings, driveway width shall be minimum twelve feet (12'), and have a maximum driveway width of twenty-two feet (22').
10. For driveways that serve uses other than residential uses, driveway width shall be minimum ten feet (10') and maximum twenty feet (20') for a one-lane, one-way driveway; minimum twenty-feet (20') and maximum twenty-four feet (24') for a two-lane, two-way driveway; and minimum thirty feet (30') and maximum thirty-six feet (36') for a three-lane, two-way driveway. Driveway widths may be increased in order to provide adequate width for vehicles that may be reasonably expected to use the driveway, as determined by the Public Works Director.
11. On frontages 75 feet or less, no more than one driveway per lot shall be constructed; on frontages over 75 feet, two or more driveways per lot may be permitted, subject to approval by the City.
12. No portion of driveway width shall be allowed within 5 feet of side property lines unless it is shared by two parcels. This side property line setback may be reduced by the City Engineer if properties are developed and there is no other reasonable access to the car port or garage.
13. For commercial or industrial driveways with heavy traffic volumes or significant numbers of trucks, the City may require construction of the access as a road intersection. This requirement will be based on traffic engineering analysis submitted by the applicant that considers, among other factors, intersection spacing, sight distance and traffic volumes.

14. Notwithstanding any other provisions, driveways will not be allowed where they are prohibited by separate City Council action or where they are determined by the City to create a hazard or impede the operation of traffic on the roadway.

E. CURBS, GUTTERS AND SIDEWALKS

Curbs, Gutters, and Sidewalks shall be per WSDOT Standard Plans. Only vertical curbs shall be constructed.

1. Subgrade compaction for curbs, gutters, and sidewalks shall meet a minimum 95 percent of maximum density (modified proctor) . The curb, gutter, and sidewalk subgrade shall consists of a minimum 4-inch depth of 5/8" minus crushed rock.
2. Concrete for curbs, gutters, and sidewalks shall be Class 3000 or Class 4000 for driveways, furnished and placed in accordance with WSDOT/APWA Standard Specifications. Cold weather precautions as set forth in WSDOT/APWA Standard Specifications shall apply. The City may reject any of the curb, gutter, and sidewalk based on installation means and methods, performance or aesthetics.
3. Rolled curbs are not allowed.

F. LANDSCAPING PLANTER OR DRAIANGE SWALE

1. A five-foot wide landscaping planter or drainage swale between the curb and sidewalk may be required at the city's discretion. Landscape design shall conform to the approved tree list or swale planting requirements (See Section 4.2.C and Appendix).
2. Spray irrigating may be required within all landscaped right of way and public access easements. For frontage improvement projects, irrigation shall be fed from a private metered water source.
3. Drainage Swales shall comply with the city standard cross section and planting schedule, see Detail DR-1.

G. ROOT BARRIER

1. When sidewalks are constructed beneath a tree canopy or as determined by the city engineer, a root barrier shall be installed a minimum of 24-in deep and shall be made of 1/4" thick nylon fabric set 1/2" below finished grade. The root barrier shall be installed a minimum of ten-feet centered on the tree along the sidewalk or curb sloped as required to avoid undermining sidewalk or pavement.

2. Distance between tree and root barrier to be determined by the city engineer, minimum distance is 3 times the trunk caliper.
3. All roots over 1-in in diameter that are exposed and damaged during construction activities shall be removed with a straight cut.

H. CURB RAMPS

1. On all streets with vertical curb, ramped sections to facilitate passage of handicapped persons shall be constructed through curb and sidewalk at street intersections and other crosswalk locations. Where a ramp is constructed on one side of the street, a ramp shall also be provided on the opposite side of the street. Curb ramps shall be positioned so that a ramp opening is situated within the marked crosswalk or crossing area if unmarked.
2. Curb ramps shall be per WSDOT Standard Plans. Subgrade compaction for curb ramps shall meet a minimum 95 percent of maximum density (modified proctor) and consist of a minimum 6-inch depth of 5/8" minus crushed rock.

I. BIKE LANES

1. Bike lanes shall be provided wherever called for in the Comprehensive Plan or Capital Improvement Program.
2. Bike lanes shall be provided when substantial bike usage is expected which would benefit from construction of a bicycle facility.
3. Bike lanes shall be provided when determined by the City.

J. STRIPING AND SIGNING

3. Pavement markings shall be used on bike lanes and paths according to MUTCD.
4. The design of all signalized intersections shall consider bicycle usage and the need for bicyclists to actuate the signal.
5. Street signs are defined as any regulatory, warning, or guide signs. The developer is responsible for providing all street signs. Street signs will comply with the latest editions of these standards, WSDOT Standards, and the MUTCD.
6. Street name signs will display street names and orientation designation. Public Streets will be indicated by green signs with white lettering. Private Streets will be indicated by yellow signs with black lettering, and the letters "PVT" in the lower right-hand corner of the street sign. Street name signs shall be per the current MUTCD.

7. The developer will provide pavement markings and street signs, including poles and hardware, under the City's direction to establish uniformity.

K. PAVEMENT MARKINGS, MARKERS, AND PAVEMENT TAPERS

1. Pavement markings, markers or striping shall be used to delineate channelization, lane endings, crosswalks and longitudinal lines to control or guide traffic. Channelization plans or crosswalk locations shall be approved by the City Engineer.
2. Pavement markings for legends and crosswalks shall be reflectorized hot applied plastic. Centerlines and lane markings shall employ raised pavement markings consistent with "WSDOT/APWA Standards Plans" H- 5d. Extruded or sprayed markings shall be dressed with glass beads for initial reflectance. All materials shall be designed to maintain reflectance while the material wears.
3. Where pavement widening less than 300 feet in length is abruptly ended and edge lines do not direct traffic to through lanes, lane markers shall be installed at 10 foot centers near the end of the paved area at a 10:1 taper.
4. Crosswalks shall be installed at all intersections controlled by traffic signals and other areas required by the City Engineer including bulbouts for pedestrian safety and traffic calming. Crosswalks shall consist of sets of longitudinal lines eight inches wide by 10 feet and with eight-inch separation. A set of these lines shall be installed between each lane, between the wheel tracks in each lane and at the pavement edges.
5. All pavement markings shall be laid out with spray paint and approved by the City Engineer before they are installed. Approval may require a three working day advance notice to have field lay-out approved by the City Engineer or to make arrangements to meet the City Engineer on site during the installation.

L. SLOPE, WALL, AND DRAINAGE EASEMENTS AND RIGHT-OF-WAY REDUCTION

1. Easements. Either the functional classification or particular design features of a road may necessitate slope, sight distance, wall or drainage easements beyond the right-of-way line. Such easements may be required by the City Engineer in conjunction with dedication or acquisition of right-of-way.

M. ROAD AND SIDEWALK CUTS

All road and sidewalk cuts within public right-of-way shall require a right-of-way permit.

1. Except for emergency situations, open cuts made to the surfacing of any public roadway shall not be made for the periods stated below:

Pavements:

- a) Five- (5) years immediately following new construction or reconstruction.
 - b) Three- (3) years immediately following major resurfacing, (greater than 1.5 inches of new surfacing) this does not include surface treatments such as BST, chip seal, fog seal, slurry seal, etc.
 - c) Two- (2) years immediately following a surface treatment such as BST, chip seal, fog seal, slurry seal, etc.
2. If an open cut is allowed to a public roadway, all joints shall be saw cut prior to patching, and an approved crack sealer shall be used to seal all cracks and joints in the vicinity of the roadway cut(s). Crack sealant shall be rubberized asphalt as specified in WSDOT/APWA Standard Specifications Section 9-04.10 (ASTM D-1190) unless approved by Public Works Director or City Engineer. Plain emulsified asphalt, or “tack” is not an acceptable substitute.
 3. If an open cut is allowed in a cut moratorium section of pavement, the minimum mitigation is to repave ½ the width of the paved surface for a length of one hundred feet (100’) unless the road cut crosses over the centerline, which will require repaving the full-width for a length of one hundred feet (100’). Actual mitigation shall be determined by the Public Works Director.
 4. Temporary restoration of trenches will be accomplished by using minimum two inches (2”) HMA, or two inches (2”) medium- curing (MC-250) Liquid Asphalt (cold mix).
 5. Prior to beginning street trenching work, the contractor will ensure that temporary patching material is stockpiled at the project site, both for completing and maintaining the patching.
 6. All temporary patches will be maintained by the contractor and temporary patches in the travel lane(s) will be made permanent within ten (10) working days, unless approved otherwise by the Public Works Department. Patches that are not properly maintained will be identified by the City Construction Inspector and repaired by the City at the developers/contractors expense.
 7. Asphalt surface restoration within the right-of-ways shall be consistent with the City of Carnation’s Combined Water and Sanitary Sewer Utility Technical Standards, Sections 6.8 – 6.10 and 8.5.D.

N. ROCK FACINGS

1. Rock facings may be used for the protection of cut or fill embankments up to a maximum height of four feet above the keyway in stable soil conditions, which will result in no significant foundation settlement or outward thrust upon the walls. For heights over four feet above the keyway or when soil is unstable, a design prepared by a structural engineer shall be provided. The placement of any rockery type wall is subject to approval by the City Engineer.

2. Keyway

A keyway consisting of a shallow trench of minimum 12-inch depth shall be constructed the full rockery length, and slightly inclined towards the face being protected. It shall be excavated the full rockery width including the rock filter layer. The keyway subgrade shall be firm and acceptable to the City Engineer.

3. Underdrains

- a. A minimum 6-inch diameter perforated or slotted drainpipe shall be placed in a shallow excavated trench located along the inside edge of the keyway. The pipe shall be bedded in pea gravel to a minimum height of 18 inches above bottom of pipe. A filter fabric shall surround the gravel backfill and shall have a minimum 1-foot overlap along the top surface of the gravel.
- b. The perforated pipe shall be connected to an infiltration gallery or to an acceptable outfall.

O. SIDE SLOPES

1. Side slopes shall generally be constructed no steeper than 2:1 on both fill slopes and cut slopes. Steeper slopes may be approved by the City Engineer upon showing that the steeper slopes, based on soils analysis, will be stable.
2. Side slopes shall be stabilized by grass sod or seeding or by other planting or surfacing materials acceptable to the City Engineer.

P. ROADSIDE OBSTACLES

Non-yielding or non-breakaway structures, including rookeries and retaining walls, which may be potential hazards to the traveling public shall be placed with due regard to safety. On roads with a shoulder or mountable curb, hazardous objects shall be placed as close to the right-of-way line as practicable and a minimum of 10 feet from the edge of the traveled way or auxiliary lane.

On urban roads with a vertical curb section, hazardous objects shall be placed at the back of the sidewalk, and as close to the right-of-way line as practical. Such an object shall not be placed in a sidewalk.

For city streets with curbs, a two-foot clear zone applies.