

CITY OF CARNATION

**STREET AND STORM SEWER SYSTEM
STANDARDS**



May 2013

**City of Carnation
4621 Tolt Avenue
Carnation, WA 98014
Telephone: (425) 333-4192
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STREET AND STORM SEWER STANDARDS

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CITY OF CARNATION

STREETS AND STORM SEWER SYSTEM STANDARDS POLICY

Chapter 1 General

The street and storm sewer standards set forth in this document are minimum requirements intended to apply under usual and ordinary conditions. These requirements may be modified if the City finds it advisable.

SECTION 1: DEFINITIONS

- A. “Council” is the City Council of the City of Carnation.
- B. “City” is the City of Carnation in King County, State of Washington.
- C. “City’s Contractor” is the Contractor(s) under contract with the City.
- D. “City Engineer” or “Engineer” shall be a licensed civil engineer and as designated by the City Manager.
- E. “Developer” is any party extending or connecting to the City’s water or sewer system.
- F. “Fire Marshal” is the agent designated by the City Manager. The Fire Marshal for the City is the authorized representative of Eastside Fire and Rescue.
- G. “Inspector” is the City authorized representative assigned to make inspections for compliance with the City specifications and standards.
- H. “Licensed Contractor” is a contractor licensed by the State of Washington.
- I. “Manager” is the City Manager or their designee, of the City of Carnation.
- J. “Owner” as used herein is the property owner constructing the street or storm sewer and its contractor, and any representatives thereof, including builders or engineers acting on behalf of the owner.
- K. “Owner’s Contractor” or is any “Contractor” or agent of the owner authorized to act on behalf of the owner.
- L. “Property” is the Parcel of land associated with any development being improved to these standards.

- M. “Public Works Director” is the director of public works or their designee, of the City of Carnation.
- N. “Storm Sewer” is any lateral, trunk, or other sewer owned or constructed by and/or a part of the public storm sewer facilities of the City.
- O. “Storm Sewer Lateral” is the line which connects at the property or easement line to the City’s storm sewer stub service and extends on private property to the connection at the building, and is owned and constructed by private parties and maintained by the property owner.
- P. “Standard Installation” is an installation requiring only a stub service and a storm sewer to connect the property to the City’s system of storm sewers.
- Q. “Alternative Installation” is one requiring the use of a grinder or booster pump on the property to be served, where permitted by the City.
- R. “Street or alley” is any publicly owned or maintained driving surface.
- S. “Driveway” is any publicly owned and maintained access between a City Street or alley and private property.
- T. “Sidewalk” is any publically owned and maintained pedestrian facility.
- U. “Half-Street” is a street constructed along the edge of development, utilizing a portion of the regular width of right-of-way and permitted as an interim facility pending construction of the other half of the street by the adjacent owner.
- V. “Private Access Tract” is a privately owned and maintained tract providing vehicular access to four or fewer residential properties.
- W. “Private Street” is a privately owned and maintained access provided for by a tract, easement, or other legal means, typically serving three or more potential dwelling units.
- X. “Public Street” is a publicly owned facility providing access, including the roadway and all other improvements, inside the right-of-way.
- Y. “Right-of-Way” is land, property, or property interest (e.g., an easement), usually in a strip, acquired for or devoted to transportation purposes.
- Z. “Street” is a facility providing public or private access including the roadway and all other improvements inside the right-of-way.

- AA. “Shoulder” is the paved or unpaved portion of the roadway outside the traveled way that is available for emergency parking or non-motorized use.
- BB. “Traveled Way” is the part of the road made for vehicle travel excluding shoulders and auxiliary lanes.
- CC. “Public Utility” is a company providing public service such as gas, electric power, telephone, telegraph, water, sewer, or cable television, whether or not such company is privately owned or owned by a governmental entity.

SECTION 2: GENERAL POLICIES

The City has adopted policies to guide in the administration of these standards. A summary of some of the policies are included in this chapter.

These Standards cannot provide for all situations. They are intended to assist, but not to substitute for competent work by design professionals and in construction methods.

These Standards are also not intended to limit unreasonably and innovative or creative effort which could result in better quality, cost savings, or both. Any proposed departure from these standards will be subject to review, approval and acceptance by the City. The City Manager shall retain the ultimate authority to approve or disapprove proposed deviations from these Standards.

The intent of these policies is to establish general rules and regulations for the service and extension of service for the water, sewer, road and storm drainage systems of the City; and to promote the public health, safety, and general welfare of the users these systems in accordance with standards established by the City, county, state and federal governments.

- A. Authorized employees of the city, properly identified, shall have access, upon the permission of the owner or his/her authorized agent, at reasonable hours of the day, to all parts of the premises for which improvements are being constructed within the City for the purpose of assuring conformity to these standards.
- B. Whenever the owner of any premises supplied by the City restrains authorized city employees from making such necessary inspections, work on the improvements may be discontinued.
- C. Any person causing damage to any property belonging to the City shall be liable to the City for any and all damages resulting either directly or indirectly there from.

The Standards shall apply to all newly constructed road and right-of-way facilities, both public and private, within the City of Carnation.

The Standards apply to modifications of roadway features of existing facilities which are within the scope of reconstructions, required off-site road improvements for land developments, or capital improvement projects when so required by the City of Carnation.

The Standards shall apply to utility poles and other public utility facilities within the City of Carnation.

The Storm Sewer Standards shall apply to any new project or re-development that will result in the addition of 1,000 square feet or more of impervious surface to the project side. For purposes of these Standards impervious surfaces are classified as asphalt, concrete, gravel or roof materials.

Section 2.1: Responsibility to Provide Roadway Improvements

- A. Any land development that will impact the service level, safety, or operational efficiency of City roads; or is required by City code, hearing examiner, or City staff determination to improve streets, shall make required improvements in accordance with these Standards. The extent of off-site improvements to serve new developments shall be based on an assessment of the impacts of the proposal by the City.
- B. Any project or development abutting and impacting existing streets may be required to improve the frontage of those streets in accordance with these Standards. The extent of improvements shall be based on an assessment of the impacts of the proposed project by the City.
- C. Any project development that contains internal public streets shall construct or improve those streets to these Standards. The design of all private internal streets shall be submitted for City approval.
- D. All development projects may be required to include pedestrian facilities as a part of the design. Where existing streets are to be modified, pedestrian facilities shall be as determined by the City.

Section 2.2: Variances from these Standards

- A. Variances from these Standards may be granted by the City Engineer with final approval of the City Manager upon evidence that such variances are in the public interest and that requirements for safety, function, fire protection, appearance and maintainability based upon sound engineering judgment are fully met. Variance requests for subdivisions should be proposed at preliminary plat stage and prior to approval of the engineering plans for construction. Any anticipated variances from these Standards which do not meet the International Fire Code shall also require concurrence by the Fire Chief.

- B. Questions regarding interpretation of these Standards may be directed to the City Engineer.

Section 2.3 Call Before You Dig

The owner and contractor are advised that underground utilities such as but not limited to electrical power, natural gas, telephone, cable TV, water system main lines, water system service lines and storm sewer lines are buried within the City's Right-of-Way and on private property. The presence or location of these utilities are not readily identifiable and can only be located by trained personnel.

Underground utilities may be shown graphically in these standards or other documents provided by the City. Any representation of underground utilities is for general informational purposes only. The owner or their agents may not rely upon any representatives of the location or absence of underground utilities in these standards or other documents provided by the City.

The Owner and Contractor must be aware that excavating or digging for any reason on any public properties, public Rights-of-Way, or private properties requires notification of the Utilities Underground Location Center at 1-800-424-5555 no less than 48 hours and two business days prior to excavation. Failure to properly follow the notification procedures to advise public and private utility companies of your plans to excavate may result in serious injuries or fatalities as well as damage to the utility that the Owner or Contractor are responsible for. As a reference only the Owner and contractor are advised of web information available at www.callbeforeyoudig.com or at the web search prompt for "Utilities Underground Location Center Washington State".

The Owner and Contractor are encouraged to familiarize themselves with the requirements of all State and Federal laws governing the requirements to notify all utility companies of the Owner's project and plans to excavate or dig. The City of Carnation provides the information about the requirement to notify the Utilities Underground Location Center to the Owners and Contractors operating under any Permit issued by the City as advisory only and assumes no responsibility or liability for the Owner's or Contractor's adherence to said requirements.

Section 2.4 Cultural Resources

The Owner and their Contractor are advised of the possibility of encountering buried artifacts or other cultural resources during the construction of any improvements that require excavation. In the event an artifact or other cultural resource is discovered during construction, the owner is advised to contact City Hall immediately. The City will refer the owner to the appropriate State or Federal agency for additional instructions.

SECTION 3: PERFORMANCE GUARANTEES

- A. **CONSTRUCTION PERFORMANCE GUARANTEES:** Any street construction or improvement project completed by developers shall be guaranteed by a financial guarantee. The amount and form of the financial guarantee shall be determined by the City and will be based upon a formula of 150 percent of the construction cost of the storm, street and pedestrian facilities. The minimum performance guarantee shall be \$2,000.00

The amount of the financial guarantee may be reduced during construction, as determined by the City. At no time will the financial guarantee amount be reduced to less than \$2,000.00

- B. **MAINTENANCE PERFORMANCE GUARANTEES:** The performance of the right-of-way improvements shall be guaranteed for a period of at least one year from the latest date of either the acceptance or Final Construction Approval. The amount and form of the maintenance financial guarantee shall be determined by the City and will be based upon a formula of at least 10 percent of the final construction cost of the storm, street and pedestrian facilities. The minimum maintenance guarantee shall be \$2,000.00. Maintenance guarantees will not be required when the required performance guarantee is \$2,000.00.

- C. **ADDITIONS, BETTERMENTS, EXTENSIONS – REIMBURSEMENT CONTRACTS.** In the absolute discretion of the City Council on a recommendation from the City Manager, a developer who has installed improvements at his own expense, and who is qualified for reimbursement may be given a contract for pro-rata reimbursement, but in no event shall its terms of reimbursement exceed 15 years. In the event the City agrees to enter into such contract, the contract shall provide for a set-aside of the estimated actual costs of the City’s legal and administration expense incurred in administering the contract, to be approved by the City Council. The contract shall specify, by legal description and scaled drawings, attached to the contract, the area benefited by the utility addition, betterment or extension and cost identified with each benefited lot or parcel.

- D. **BILL OF SALE.** All improvements constructed and conveyed to the City shall be done by a Bill of Sale. The Bill of Sale shall be on a form provided by the City and duly executed by the Developer.

SECTION 4: STANDARD SPECIFICATIONS

All work, materials and testing shall conform to the “Standard Specifications for Road, Bridge, and Municipal Construction”, current edition, as prepared jointly by the Washington State Department of Transportation and the Washington State Chapter of the American Public Works

Association, and herein after referred to as the “Standard Specifications,” except as herein modified.

SECTION 5: OTHER SPECIFICATIONS

The following shall be applicable when pertinent, when specifically cited in the Standards, or when required by higher funding authority:

- A. City of Carnation Municipal Code.
- B. Applicable Washington Administrative Code.
- C. Washington State Department of Ecology Manual, current edition.
- D. U.S. Department of Transportation manual on Uniform Traffic Control Devices, as amended and approved by Washington State Department of Transportation (MUTCD).
- E. Local Agency Guidelines, WSDOT, as amended.
- F. Guidelines for Urban Arterial Program, WSDOT, as amended.
- G. Design criteria of federal agencies including the Federal Housing Administration, Department of Housing and Urban Development; and, the Federal Highway Administration, Department of Transportation.
- H. A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials (AASHTO), Current edition.
- I. Standards of the American Society for Testing and Materials (ASTM), current editions
- J. City of Carnation Comprehensive Water System Plan, current edition.
- K. City of Carnation Comprehensive Sewer System Plan, current edition.
- L. Standards of the American National Standards Institute (ANSI), current editions.
- M. Standard Specifications for Highway Bridges, adopted by AASHTO, current edition.
- N. Guide for the Development of Bicycle Facilities, adopted by AASHTO, current edition.

SECTION 6: LEGAL RELATIONS AND RESPONSIBILITIES

A. LAWS TO BE OBSERVED

The Contractor at all times shall comply with all Federal and State laws, local laws and ordinances, and any regulations which in any manner affect the project.

Failure to comply with these Standards may result in denial of plan or development permit approval, revocation of prior approvals, legal action for forfeiture of bond, code enforcement, and/or other penalties as provided by law.

The Contractor shall release, indemnify and promise to defend and save harmless the City, its officer, employees and agents from and against any and all liability, loss, damage, expense, actions and claims, including cost and reasonable Attorneys fees incurred by the City in defense thereof, asserting or arising directly or indirectly on regulations whether such violations are by the contractor, his subcontractors, his employees, or his agents.

B. PROTECTION AND RESTORATION OF PROPERTY

The contractor shall protect and preserve from damage, interference and destruction of all private and public property on or in the Vicinity of the work. If such property is damaged or destroyed or its use interfered with by the contractor or his agents, it shall be restored immediately to its former condition by the contractor at his expense and such interference terminated.

C. UTILITIES AND SIMILAR FACILITIES

The Contractor shall protect from damage private and public utilities, including but not limited to telephone and telegraph lines, power lines, sewer and water lines, railroad tracks and appurtenances, highway lighting and signal systems, and similar facilities.

D. TRAFFIC CONTROL

The developer/contractor shall be responsible for interim traffic control during construction on or along traveled roadways. Traffic control shall follow the guidelines of the WSDOT/APWA standard specifications. All Barricades, signs and flagging shall conform to the requirements of the MUTCD manual. Signs must be legible and visible and should be removed at the end of each week work day if not applicable after construction hours.

E. DETOURS AND ROAD CLOSURES

When road closures cannot be avoided the developer/contractor shall post “to be closed” signs a minimum of five days prior to the closing. The types and location of the signs shall be shown on a detour plan. A detour plan must be prepared and submitted to the City Engineer and approved prior to closing any City street. In addition, the developer/contractor must notify, in Metro transit, and any other affected persons as directed by the City Engineer at least five days prior to closing.

SECTION 7: DEVELOPER EXTENSION AGREEMENT

The City may require a developer extension agreement where the proposed development requires the extension of various services provided by the City, including extension of public utilities

and/or streets. A copy of the developer extension agreement will be provided to the applicant upon request.

SECTION 8: DRAFTING STANDARDS

Construction drawing shall be signed by a professional civil engineer currently registered in the State of Washington.

All drafting shall be completed in AutoCad Current Version or LDD-R-2. Drafting symbols shall be per Joint APWA/WSDOT Drafting Symbols and Legends. File Medium shall be sufficiently layered so that topographic data, lot lines, text and design details may be easily turned on or off.

Upon Completion of Construction, the electronic file shall be edited to reflect actual construction conditions and as-built records. The electronic file shall then be submitted to the City and shall become the property of the City. The electronic file shall contain all data, including topography, lot line, other utilities and text. Title blocks may be removed.

The as built drawing shall be plotted on a 24"x36" mylar and wet stamped by the design engineer in charge of construction.

Scale: Plan view: 1"=20' and profile view: 1" = 5'. Profile view shall be provided where the utility requires special design around conflicts.

The following plans for Public Works improvements and utilities shall be prepared.

- A. Erosion Control and Grading Plan
- B. Street Improvements
- C. Storm Drain or Drainage Plan (Drainage & Street Plans may be combined together)
- D. Sanitary Sewer Plan if applicable
- E. Water System Plan if applicable
- F. Landscaping Plan if applicable
- G. Spill Prevention Control and Countermeasures Plan

SECTION 9: FORMAT AND REQUIRED DATA

- A. All public works plans for street improvements and utility systems shall be prepared in a plan/profile format wither with sheets printed in half plan and half profile or with separate sheets for plan review and profile views.
- B. Plans shall be prepared with all utilities, both new and existing, shown on all sets of plans. For example, on the sanitary sewer sets, the water and storm drains shall be shown with the sanitary sewer portions being heavily highlighted. Other utilities are also to be shown in profile views where crossings occur.
- C. Whenever possible, use notes specifying City standard numbers for common items such as catch basins, restrictors, fire hydrant assemblies, etc.
- D. Provide signature block on all Public Works plans for City Engineer, Public Works Director and City Manager's approval.
- E. Show Complete data for curb radii, utility locations (new and existing), curb elevations, street stationing, street widths, existing adjacent improvements, elevations of existing street improvements and utilities, etc.
- F. All elevations and grades on public works plans shall be to verified datum.

SECTION 10: SURVEY MONUMENTS

- A. All existing survey monuments, which are disturbed, lost, or destroyed during surveying or building shall be replaced by a land surveyor registered in the State of Washington at the expense of the responsible developer.
- B. Survey monuments shall be placed or replaced in accordance with recognized good practice in land surveying with a traffic bearing case provided.

Chapter 2: Street Standards

SECTION 1: STREET CLASSIFICATION

- A. 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.
- 31 feet of pavement, consisting of two 11-foot travel lanes, and one 9-foot parking lane .
- 5.5-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
- 6' gravel shoulder allowed on one side in place of curb, gutter and sidewalk.
- Stormwater options include infiltration in 11 foot swale.

ADT – 1,000 to 5,000

Access – Direct access to adjacent properties allowed

3. 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. Standard profiles have been developed for the “Old Plat” (the original plat of the city of Carnation) and for new development.

- 60 foot right-of way is already established in existing portions of City (“Old Plat”)
- 48 to 50-foot right-of-way for new development
- 2 10’ travel lanes 8-feet on street parking on one or both sides
- Pedestrian access provided by either a 5-foot sidewalk or 5 foot pathway required on a minimum of one side
- Stormwater can be in an infiltration swale or by storm drain.

ADT- Less than 500

Access - Direct access to adjacent properties.

4. 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
- Gravel may be used for residential alleys
- Where asphalt is provided, 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.

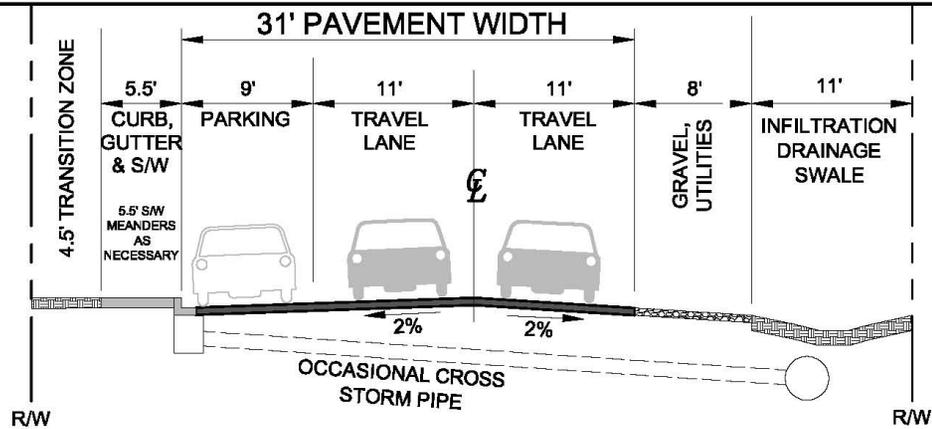
- Install 8-inch wide white extruded MMA or thermoplastic rumble strip demarcations per detail at a distance 15 feet behind sidewalk (or intersecting street if no sidewalk)
- Paint curbs on intersecting street for a distance of 20 feet on both directions from the alley intersection. Use high visibility 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

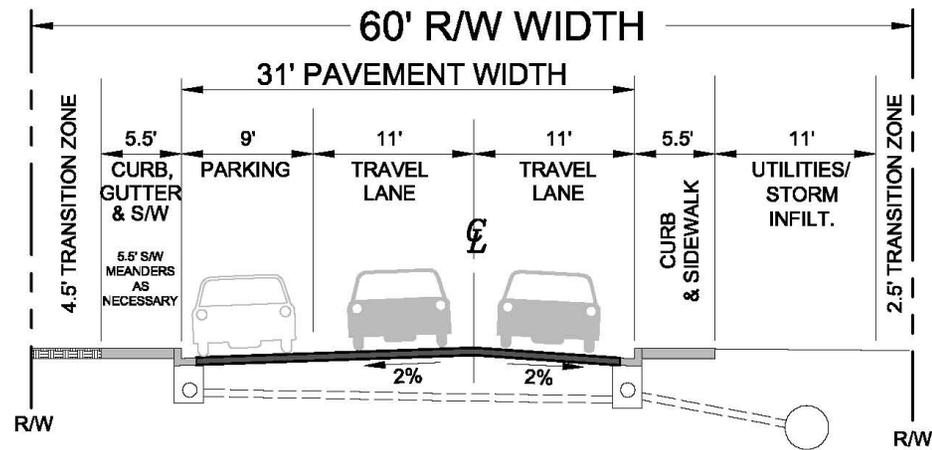
Access- Direct access to adjacent properties, parking permitted

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OPTION A



OPTION B



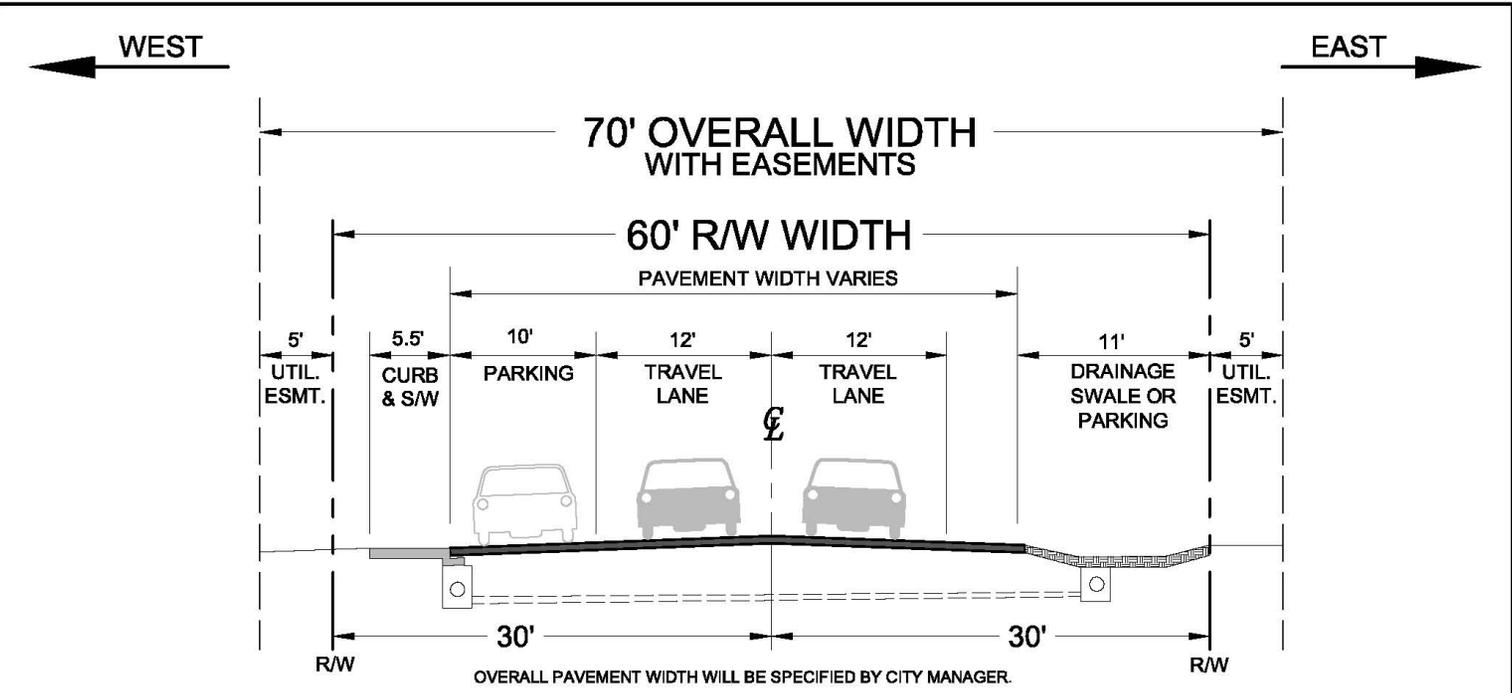
NOTES :

1. CITY MANAGER WILL SPECIFY OPTION FOR PROPOSED IMPROVEMENT.
2. DEVELOPMENT CROSS SECTIONS SUBJECT TO CHANGE DEPENDING UPON SOIL CONDITIONS & SPECIFICS OF DEVELOPMENT
3. BIKE LANE SHALL BE ACCOMMODATED ON NE 40TH ST. & MILWAUKEE AVE & FUTURE ROADS THAT CONNECT PAA TO CITY.
4. STORM DRAINAGE WATER QUALITY & INFILTRATION FACILITIES ARE REQUIRED - ACTUAL REQUIREMENTS WILL BE DETERMINED ON A CASE BY CASE BASIS.

CITY OF CARNATION RIGHT-OF-WAY STANDARDS
COLLECTOR



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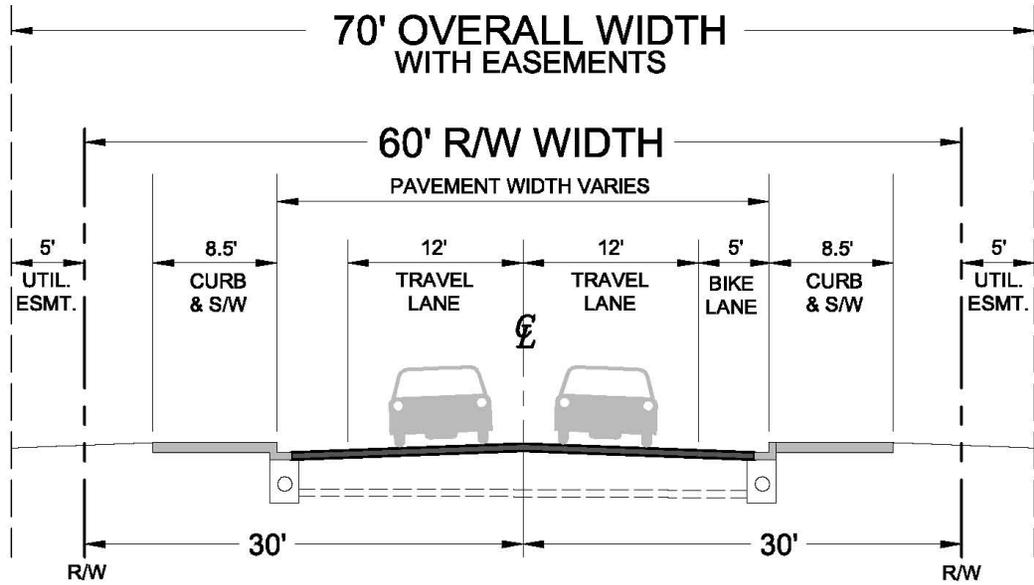


NOTES :

1. CURB, GUTTER & SIDEWALK MAY BE REPLACED WITH MEANDERING ASPHALT PATH DEPENDENT ON LOCATION.
2. STORM DRAINAGE WATER QUALITY & INFILTRATION FACILITIES ARE REQUIRED - ACTUAL REQUIREMENTS WILL BE DETERMINED ON A CASE BY CASE BASIS.
3. OCCASIONAL LANDSCAPE PLANTING WILL BE CONSIDERED WHEN ARTERIAL IS DESIGNED.

CITY OF CARNATION RIGHT-OF-WAY STANDARDS	
LARSON ARTERIAL	

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OVERALL PAVEMENT WIDTH WILL BE SPECIFIED BY CITY MANAGER.

NOTES :

- 1. CURB, GUTTER & SIDEWALK MAY BE REPLACED WITH MEANDERING ASPHALT PATH DEPENDENT ON LOCATION.
- 2. STORM DRAINAGE WATER QUALITY & INFILTRATION FACILITIES ARE REQUIRED - ACTUAL REQUIREMENTS WILL BE DETERMINED ON A CASE BY CASE BASIS.
- 3. CONSIDER LEFT TURN LANE EASTBOUND AT LARSON AVE. INTERSECTION.

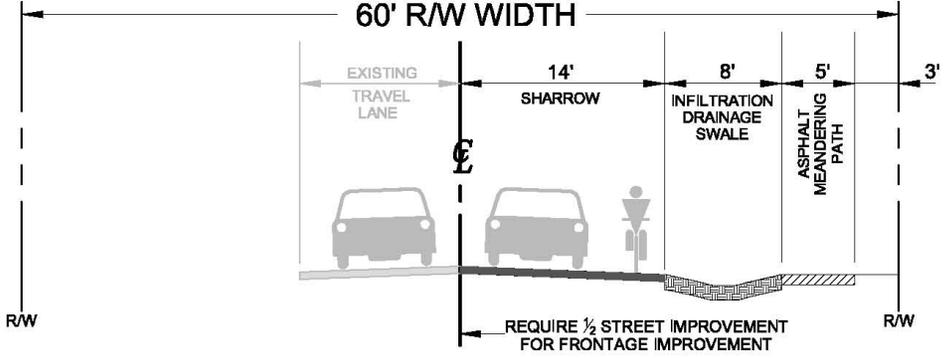
CITY OF CARNATION
RIGHT-OF-WAY STANDARDS
NE 40TH ST
ARTERIAL



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ENTWISTLE (NE 45TH ST)



NOTE :
STORM DRAINAGE WATER QUALITY & INFILTRATION FACILITIES ARE REQUIRED - ACTUAL REQUIREMENTS WILL BE DETERMINED ON A CASE BY CASE BASIS.

CITY OF CARNATION RIGHT-OF-WAY STANDARDS	
ENTWISTLE ARTERIAL	
BETWEEN 329TH AVE NE & 334TH AVE	



STREET STANDARDS BY CLASSIFICATION

	Right-of-way	Pavement width	Travel Lanes	Parking	Curb	Sidewalks	Bike Lane
Arterial: Larson	60'	36' (varies)	2-12' Travel	10' lane 1 side	Vertical	5.5' One side	No
Arterial: NE 40th	60'	34' (varies)	2-12' Travel	None	Vertical	8.5' both sides	Yes 5'
Arterial: NE45th	30' (half street)	14'	1-14' Travel (sharrow)	None	Shoulder	5' path	Sharrow
Collector	60'	31'	2-11' Travel	9' lane 1 side	Vertical or shoulder	2-5' Sidewalk 1 or both sides	No
Local access: New development	48'	30'	2-10' Travel lanes	1 or 2- 8' parking	Vertical or Shoulder	1 or both sides 6' Sidewalk or pathway	No
Local access: Old Plat	60'	20'	2-10' Travel lanes	2-8' gravel shoulders can be used for parking	Shoulder	5' asphalt pathway (can meander)	No
Alley	16'	12' (or can be gravel in residential)	1-8' Travel lanes	None	Thickened edge (if asphalt)	None	No

- Final Street Cross Sections will be determined by the City.

SECTION 2: OTHER STREET TYPES

Section 2.1 Half Streets

- A. A half street may be permitted as an interim facility 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 temporary 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.
- B. 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 .
- C. 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 overlaid one inch, plus a pre-level course, 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

- A. 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.

B. 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 Chief 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.

C. The City of Carnation will not accept private streets for maintenance as public streets.

Section 2.4 Fire Apparatus Access roads

A. 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.

B. 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.

C. 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 Chief or designee is authorized to waive these requirements.
2. Additional Access. The Fire Chief 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.

D. SPECIFICATIONS

1. Dimensions. Fire apparatus access roads shall have an unobstructed width of not less than 18 feet except for approved security gates and an unobstructed vertical clearance of not less than 13 feet 6 inches. The Fire Chief 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 Chief 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 Chief 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.
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 Chief or designee may require additional fire protection for all structures affected or served by said roadway.

E. MARKING

Where required by the Fire Chief 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.

F. 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.

G. REQUIRED GATES AND BARRICADES

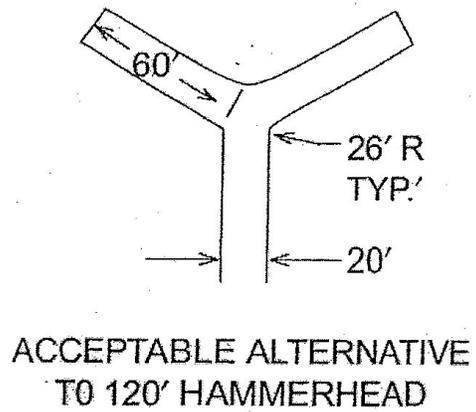
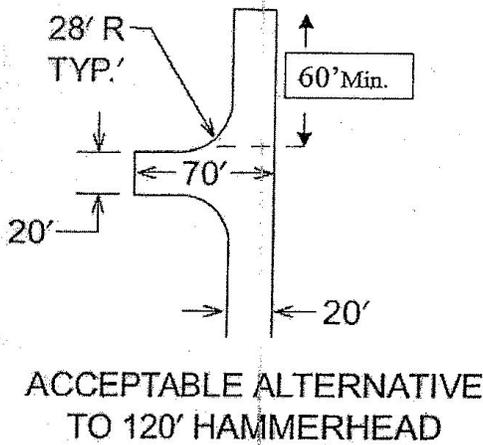
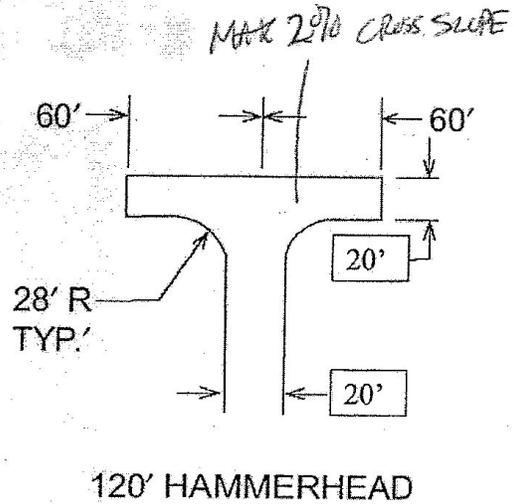
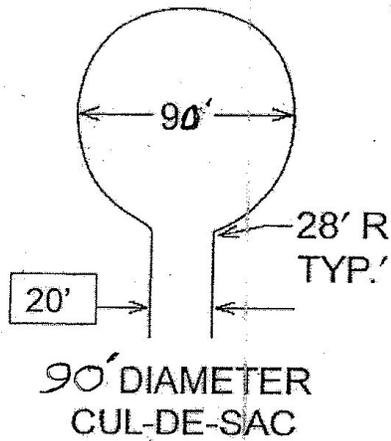
The Fire Chief or designee is authorized to require the installation and maintenance of gates or other approved barricades across fire apparatus access roads, trails, or other access ways, not including public streets, alleys, or highways. When required, gates and barricades shall be secured in an approved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

H. SECURITY GATES

The installation of security gates across a fire apparatus access road shall be approved by the Fire Chief 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**

Turning Radius is 28 feet (INSIDE)



APPROVED
Eastside Fire Marshal's Office
DLC Bob Backer
9-5-2012

SECTION 3: STREET DESIGN

Section 3.1 General

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. The alignment of local access streets should provide for the connection of streets in a logical manner. 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.

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 700 feet unless a secondary Emergency Vehicle Access (EVA) is provided. In situations where a portion of the property can only be served by a single access, the cul-de-sac may exceed 700 feet, as determined by the City.

The bulb radius shall be 40 feet for a residential cul-de-sac and 40-45 feet for commercial 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

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. 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.
3. No portion of driveway width shall be allowed within 5 feet of side property lines unless it is shared by two parcels.
4. Driveways shall be per WSDOT Standard Plans and shall not exceed 16 feet side without approval from the City.
5. 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.
6. 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) and be prepared with a minimum 6-inches of 5/8" minus crushed rock meeting 95% MDD compaction
2. Concrete for curbs, gutters, and sidewalks shall be Class 3000, 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.

F. 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.

G. 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.

H. STRIPING AND SIGNING

1. Pavement markings shall be used on bike lanes and paths according to MUTCD.
2. The design of all signalized intersections shall consider bicycle usage and the need for bicyclists to actuate the signal.

I. 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.

J. 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.

K. 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.

L. 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.

M. 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 as far from the edge of the traveled way or auxiliary lane as practical. Such an object shall not be placed in a sidewalk or with the object edge nearest the roadway less than eight and one-half feet from the face of the curb in business areas or five and one-half feet from the face of curb in residential areas.

SECTION 4: APPURTENANCES

Section 4.1 Mailboxes

1. The street improvement plans showing the location for all mailboxes shall be submitted by the developer to the City of Carnation post office for review and approval. The postmaster must approve the location of all mailboxes. The developer shall include evidence of the post office approval in project submittals. Mailbox placement and installation shall in accordance with the standard details for mailboxes.
2. The street improvement plans shall clearly designate the location for new or relocated mail boxes whether in single or cluster formation.
3. The street improvement plans shall include any information for necessary widening or re-configuration of sidewalk suitable knock outs or curb outs for mail box pedestals. When mailboxes are located in the sidewalk, the sidewalk shall be widened to provide a clear width of not less than 5 feet behind the mailboxes.

4. The Developer shall coordinate with the Post Office for standard details and placement of Neighborhood Delivery and Collection Box Units (NDCBUs).

POSTMASTER
CARNATION POST OFFICE



Mailbox Guidelines

So what makes a good mailbox?

From the wear and tear of daily use to constant assault from the elements, these guidelines will help you set up a mailbox that stands up to it all.

If you're buying a new mailbox, look for the Postmaster General's seal of approval; every new mailbox design should be reviewed and approved before it goes to market.

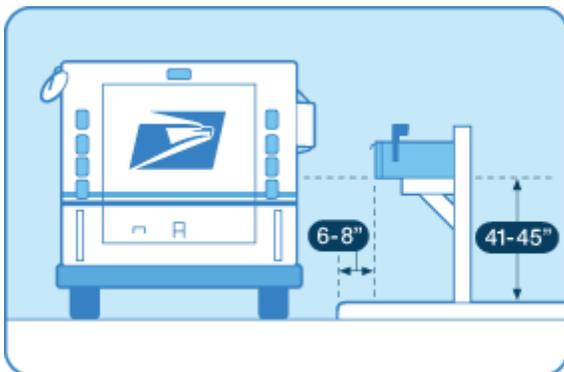
If you opt to construct your own mailbox, you should run your plans by your local postmaster. Overall, the mailbox you build will need to meet the same size, strength, and quality standards as manufactured boxes.

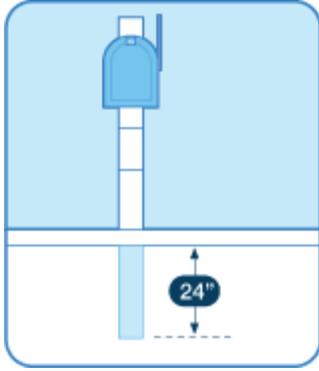
The house or apartment number should be clearly displayed on your mailbox. And, if your mailbox is on a different street than your house, the street name should appear on it, too.

Placement of Box

Your local postmaster must approve the location of your mailbox.

Put a roadside mailbox where a carrier can reach inside without leaving the truck. That means positioning it about 41" to 45" off the ground and back about 6" to 8" from the curb.





Mounting of Box

If you're mounting a curbside mailbox on a post near the street, the support should be secure and safe. The best supports are designed to bend or fall away if a car hits them.

The Federal Highway Administration recommends...

- a wooden mailbox support no bigger than 4" x 4".
- a 2"-diameter standard steel or aluminum pipe.

Bury your post no more than 24" deep, so it can give way in an accident.

Don't use potentially dangerous supports, such as...

- heavy metal pipes.
- concrete posts.
- farm equipment, such as milk cans filled with concrete.

In areas with lots of snow, we suggest a semi-arch or extended arm-type support. That way, snowplows will be able to sweep under without knocking it down.

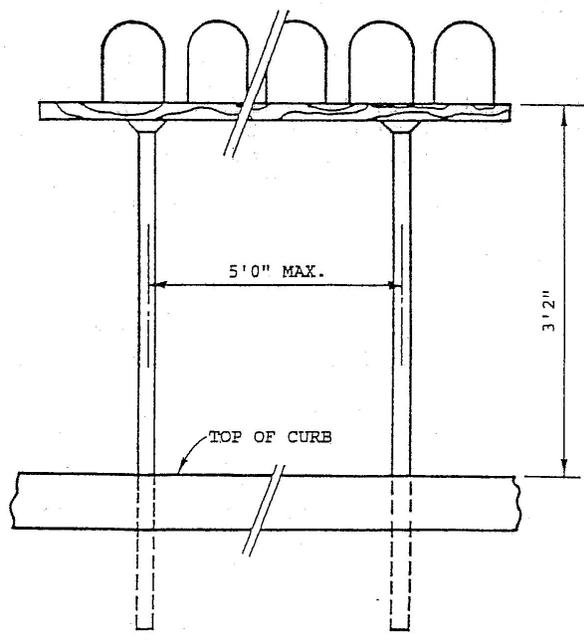
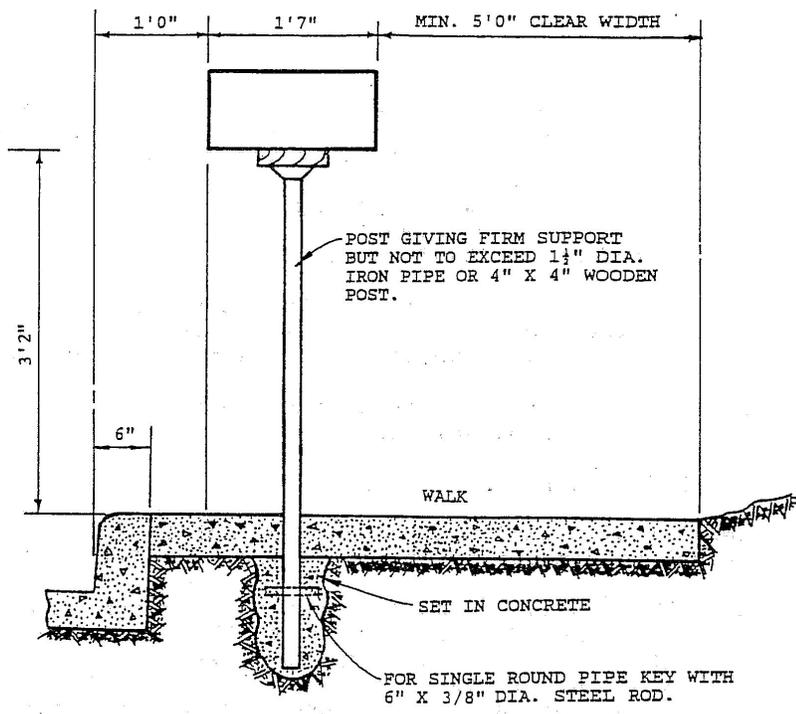
Maintenance of Box

Your mailbox takes a serious beating from the weather, especially in the winter. We suggest a routine mailbox check-up every spring.

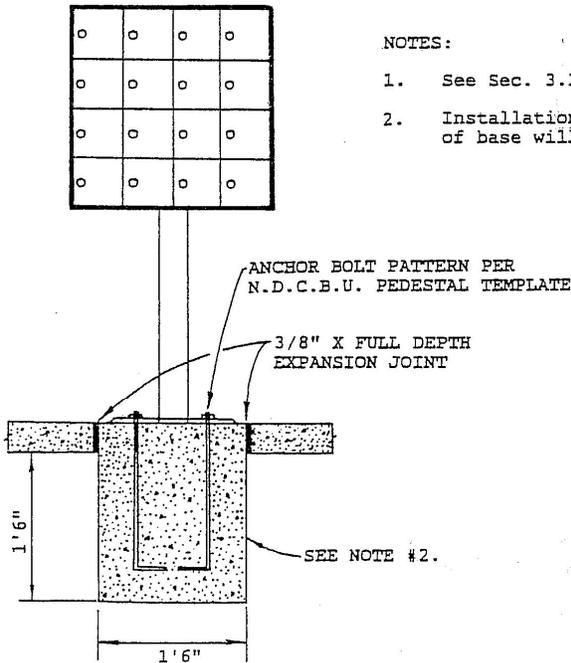
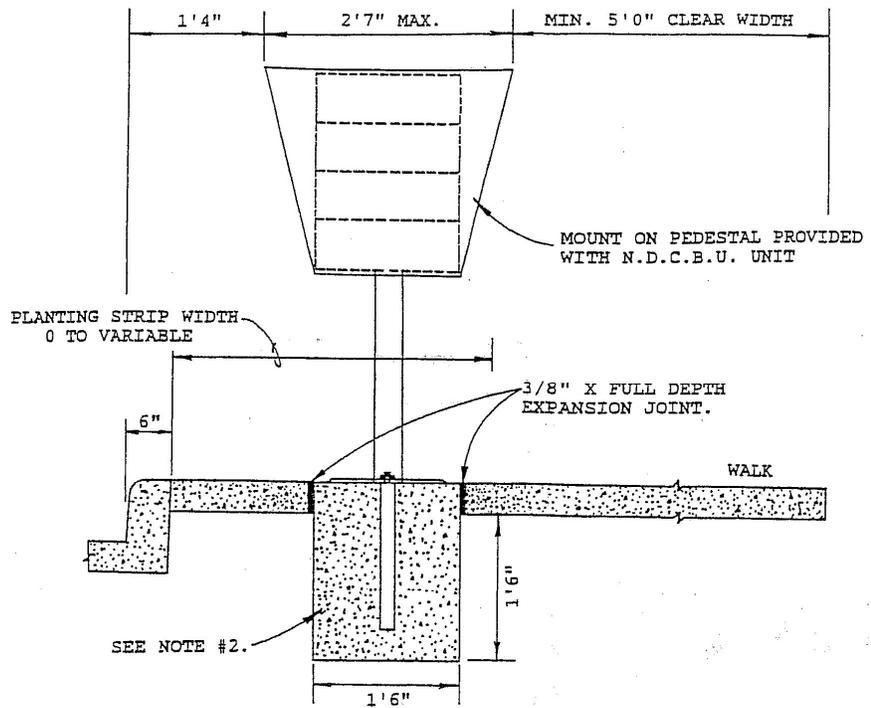
You might just need to...

- Replace loose hinges on the door.
- Repaint rusty or peeling parts.
- Remount the post, if it's loose.
- Replace missing or faded house numbers.

And year-round keep obstructions away from your mailbox. Your carrier may not deliver your mail if there's a car, shrub, snowdrift, or unfriendly dog in front of it.



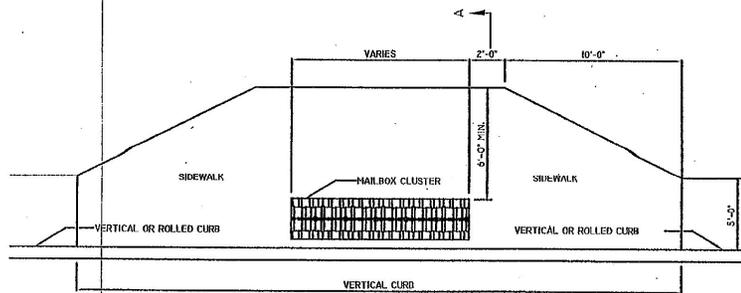
CITY OF CARNATION	
MAILBOX MOUNTING CURB TYPE LOCATION	
JULY 1988	STANDARD PLAN NO. 314



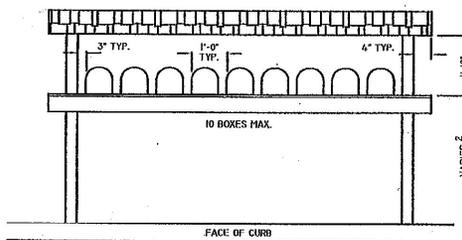
NOTES:

1. See Sec. 3.2.16.
2. Installation of N.D.C.B.U. including construction of base will be done by U.S. Postal Service.

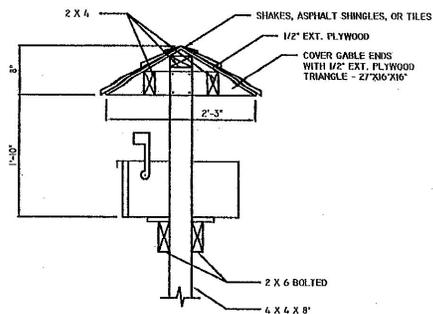
CITY OF CARNATION	
NEIGHBORHOOD DELIVERY & COLLECTION BOX UNIT (N.D.C.B.U.)	
JULY 1988	STANDARD PLAN NO. 316



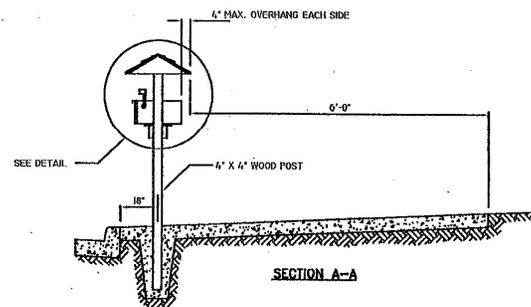
PLAN



ELEVATION



DETAIL



SECTION A-A

NOTES:

1. FOR THREE OR MORE MAILBOXES ON URBAN RESIDENTIAL ACCESS STREETS WHERE THE SPEED LIMIT IS 25 MPH.
2. MAILBOX HEIGHT VARIES ACCORDING TO THE TYPE OF DELIVERY VEHICLE. THESE HEIGHTS SHALL BE DETERMINED BY THE POSTMASTER DURING PLAN REVIEW.
3. MAILBOXES MUST BE POSTMASTER APPROVED WITH A UNIFORM BOX STYLE AND METHOD OF ADDRESS IDENTIFICATION.
4. LOCATION OF MAILBOXES SUBJECT TO APPROVAL OF THE REVIEWING AGENCY.
5. WOOD POSTS SHALL BE PRESSURE TREATED FIR OR HEMLOCK.
6. FOR MAILBOX CLUSTER LOCATION IN SHOULDER SECTION SEE DWG. NO. 3-5-011
7. SEE SEC. 3-5-04.
8. OPTIONAL NEWSPAPER BOX STRUCTURES ARE SUBJECT TO APPROVAL OF REVIEWING AGENCY.
9. SEE DETAIL 3-05-012, N.D.C.B.U TYPE REQUIRED PER DUVALL POSTMASTER.

MAILBOX MOUNTING CURB TYPE LOCATION	REVISED 5/10/07
STANDARD PLAN	3-05-010

Section 4.2 Lighting

A. STREET LIGHTS

1. Street lights shall be required on all new street construction or street improvements required as a condition of development.
2. Street lights at intersections shall be required as a minimum. Other mid block lights may be required by the City.
3. Applicant to coordinate with Puget Sound Energy (PSE) on street lighting..
4. Streetlights shall be provided with the development of all-new subdivisions and short plats, and for other commercial, industrial or institutional property development.
5. All new streetlight wiring, conduit and service connections shall be located underground. The applicant will be responsible for providing or obtaining necessary easements for underground power for street lighting systems designed and constructed as part of an approved development permit.
6. Homeowner's Association (HoAs) shall be established to pay for maintenance and on-going expenses of street lighting including electric power.

B LIGHT STANDARDS

1. Light standards shall be located on one side of the roadway only or shall be staggered when placed along both sides of the roadway. For residential areas, lighting may be required only at potential conflict areas such as intersections, cross walks or sharp curves. Lighting locations shall be approved by the city.
2. In areas where the street width differs from the City standard, or there are other factors influencing the location of the street lights, the City will provide input to the applicant on acceptable options.
3. Roadway lighting should be fully shielded to prevent light pollution. Fixtures shall have minimal across-road and "house side" waste. Minimum lighting levels shall be provided consistent with safety and utility.