CHAPTER 3 – TRANSPORTATION
"URBAN SERVICES STANDARDS AND GUIDELINES"
CITY OF PORT ANGELES - PUBLIC WORKS & UTILITIES DEPARTMENT

3A. GENERAL CONSIDERATIONS

3A.01 GENERAL

The standards and guidelines established by this chapter are intended to represent the minimum standards for the design and construction of transportation facilities. The standards are intended to be applied by the City Engineer for conformance with City development regulations. The City Engineer may augment these construction standards with the latest editions of the following design documents (in order of preference):

- Washington State Department of Transportation Design Manual.

The City Engineer may also augment these construction standards pertaining to traffic control device placement and use with the latest editions of the recommend policies, procedures and standards of the following (in order of precedence):

- The Institute of Transportation Engineers.

Obtaining copies of these publications shall be at the applicant’s own expense.

The overall goal of this chapter is to encourage the uniform development of an integrated, fully accessible public transportation system that will facilitate present and future travel demand through a variety of transportation modes with minimal environmental impact to the community as a whole.

The minimum urban service requirements for development are established in PAMC Chapter 18.08.

Severability
If any part of these Standards shall be found invalid, all other parts shall remain in effect.

3A.02 OUTLINE OF CHAPTER

This Chapter is divided into the following Sections:

3B. Public Streets
3C. Private Streets (see also Section 3B.12)
3D. Sidewalks, Curb Ramps, Curbs and Gutters
3E. Bikeways and Trails
3F. Illumination
3G. Signals
3H. Roadside Features
3I. Street Trees and Landscaping (may become a separate Chapter)
3J. Parking Lots

3A.03 DEFINITIONS

A. Alley: Alleys provide for accessibility and service to individual lots and businesses. They also serve as utility easements or corridors.

B. Applicant: The person, party, firm or corporation who proposes to do the improved work.

C. Average Daily Traffic or (ADT): The total traffic during a given time period (in whole days), greater than one (1) day and less than one (1) year, divided by the number of days in that time period. To determine potential A.D.T. for a local access City street, it will be assumed, for the purposes of the Chapter only, that each
dwelling unit or each existing or proposed segregated lot that accesses onto the street will generate ten (10) traffic trips per day. Traffic generation for other uses will be in accordance with the current edition of the “Trip Generation”, published by the Institute of Traffic Engineers, or other approved sources, and will include the traffic generated by the proposed development unless otherwise noted. Projects submitted to the City for review and approval will be considered to be proposed projects.

D. **City:** The City Engineer or his/her designee.

E. **Collector Arterials:** Collector arterials provide both land access service and traffic circulation within residential neighborhoods and commercial and industrial areas. It differs from the arterial system in that facilities on the collector system may penetrate residential neighborhoods, distributing trips from the arterials through the areas to their ultimate destinations. The collector also collects traffic from local streets in residential neighborhoods and channels it onto minor and principal arterials. The collector arterial street may also carry local bus routes.

F. **Cul-De-Sac:** A circular area symmetrical or offset about the centerline of a street.

G. **Dwelling Unit:** Any building or portion thereof which contains living facilities, including provisions for sleeping, eating, cooking and sanitation for not more than one family.

H. **Emergency Vehicle Access (EV)** means an all weather drivable surface constructed and maintained in accordance with this Chapter, that provides emergency access between a public or private street and one hundred fifty (150) feet of all portions of an exterior wall of the first story of any structure requiring EV Access as measured by an approved route around the exterior of the building.

I. **Engineer:** A professional engineer currently licensed by the State of Washington, retained by the Applicant, and acting on their behalf.

J. **Gravel Surface:** Two inches of crushed surfacing top course per the current WSDOT Standard Specifications

K. **Improved Street or Alley:** A street that has been improved to full urban or suburban standard, including drainage, paving, sidewalk, and in most cases curb and gutter, as set forth in these standards.

L. **Land Surveyor:** A professional land surveyor currently licensed by the State of Washington.

M. **Local Access Street:** Local access streets provide circulation and access for residential neighborhoods away from the arterials.

Traffic generators, such as schools or churches, within residential areas should be considered within the local circulation pattern, not only from within the subdivision, but from adjacent neighborhoods as well. There should be a limited number of access points with the arterial streets that border a subdivision.

Local access streets should be designed for relatively uniform low volume of traffic upon full development. The system should be designed to discourage excessive speeds and should minimize the necessity for traffic control devices. Internal streets with direct lot access should be discontinuous so as to discourage through traffic.

Local Access Streets provide direct access from abutting land to the arterial streets. There usually is no bus routes on local access streets. Through traffic is deliberately discouraged.

N. **Maintenance:** The regular and continual preservation of the private street and appurtenant features within the easement in an “as new” condition.

O. **Minor Arterials:** Minor arterials interconnect with and augment the principal arterial system. Minor arterials connect principal arterials to collector arterials and small generators. They provide medium size trip generators, such as less intensive commercial development, high schools and some junior high/grade schools, warehousing areas, active parks and ballfields, and other land uses with similar trip generation potential. They distribute travel to smaller geographic areas and communities than those identified with the principal arterial system. They provide service for trips of moderate length of a somewhat lower level of travel mobility than principal arterials. The design year ADT is approximately 2,500 to 15,000 vehicles.
CHAPTER 3 – TRANSPORTATION

P. **Planned Residential Development (PRD):** An overlay zone to provide alternative zoning regulations that permit and encourage design flexibility, conservation and protection of natural critical area amenities, and innovation in residential developments to those regulations found in the underlying zone. The PRD overlay zone provides for the opportunity to create self-contained residential neighborhoods with a pre-determined variety of housing choices and without following a standard system of public streets and lot design, with allowances for mixed use, residential and neighborhood commercial development that are not usually permitted in residential zones.

Q. **Principal Arterials:** Principal arterials provide service for principal traffic movements within the City. They serve centers of activity; intra-area travel between Port Angeles and other large communities and between principal trip generators. Principal arterials serve the longest trips and carry the principal portion of trips entering and leaving the overall area. Typically they are the highest traffic volume corridors in the City. The design year Average Daily Traffic (ADT) is approximately 5,000 to 30,000 vehicles per day or more. They frequently carry important intra-urban as well as intercity bus routes.

R. **Private Street:** A street which is owned, controlled, and maintained by one or more property owners.

S. **Private Street Easement:** An easement or parcel which creates a legal source of access from a public street to an existing or proposed lot or lots of record or project, across other parcels of property.

T. **Tract:** Any parcel of land, lot, building site, or contiguous combination thereof devoted to or intended to be devoted to a principal use and any other uses customarily accessory thereto.

U. **Unimproved Street, Roadway, or Alley:** The right-of-way has been opened, the area is or could be traveled upon, but the maximum limit of improvement would consist of a gravel base roadway. This street most likely has not been graded to an established grade but generally follows the lay of the land. This street is not maintained by the City unless opened by the City.

V. **Unopened Street or Alley:** This term applies when right-of-way currently exists but no roadway improvements have been provided and travel within the right-of-way is prohibited by the fact that no clearing or grading has occurred.

W. **WSDOT Standard Specifications:** The current Standard Specifications for Road, Bridge, and Municipal Construction, as published by the Washington State Department of Transportation, and its amendments.

3B. **PUBLIC STREETS**

3B.01 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 in this chapter for uniformity and safety.

3B.02 DESIGN STANDARDS

The design of streets and roads shall depend upon their type and usage. The design elements of City streets shall conform to standards as set forth in this chapter and the design process as set forth in Chapter 1 of the Urban Services Standards. The standard design layout of the various classifications of streets are shown on City Standard Drawings, this chapters appendices, and Table A – Minimum Design Standards. The layout of streets shall provide for the continuation of existing principal streets in adjoining subdivisions or of their proper projection when adjoining property is not subdivided. Access streets, which serve primarily to provide access to abutting property, shall be designed to discourage through traffic.

A. **Alignment.** Alignment of major arterials, minor arterials and collectors shall conform as nearly as possible with that shown in the Comprehensive Traffic Plan and City of Port Angeles Comprehensive Plan, copies of which are available in the Department of Community and Economic Development.

B. **Grade.** Street grade should conform closely to the natural contour of the land. In some cases a different
CHAPTER 3 – TRANSPORTATION

grade may be required by the City Engineer. The minimum allowable grade shall be 0.5 percent and the maximum allowable grade shall be variable, depending upon the street classification, surrounding soils, and with the approval of the Fire Department and City Engineer.

C. Width. The pavement and right-of-way width depend upon the street classification. Table A shows the Minimum Street Design Standards and the minimum widths allowed. Street widths shall be measured from face of curb to face of curb on streets with cement concrete curb and gutter. Streets less than 24 feet wide may be required to be posted with "No Parking" restrictions due to the potential for restricting emergency vehicle access.

D. For Short Plats, the minimum improvement cross-section for the principal frontage street within the City right-of-way furnishing access from the nearest fully improved street to newly created lots shall be improved to a minimum of 20 foot wide street with one 3 foot wide shoulder and one 5 foot wide shoulder for pedestrian traffic. The minimum structural sections compacted depths for asphaltic concrete shall be 2 inch surfacing, 2 inch crushed surfacing top course, 8 inch ballast, and 2 inch crushed surfacing top course shoulders. The minimum depths for permeable pavement shall be specified on a project-by-project basis by the engineer.

3B.03 FUNCTIONAL CLASSIFICATIONS

The City of Port Angeles has developed a Transportation Services and Facilities Plan, indicating existing and proposed streets and their functional classifications. City streets are divided into principal arterials, minor arterials, collector arterials, and access streets in accordance with the regional transportation needs and the functional use that each serves (see the definitions section of this chapter). Function is the controlling element for classification and shall govern right-of-way width, road width, and road geometrics for the design classifications as defined in the definition section of this chapter. The functional classification of arterial streets are shown on a City Standard Drawing. New streets will be classified by the City Engineer.

It shall be the responsibility of the City Engineer to identify specific conditions for street improvements and/or right-of-way reservation required as a condition of development. All street improvements shall be consistent with the adopted Transportation Services and Facilities Plan, City of Port Angeles Subdivision Code (Chapter 16) and applicable ordinances.

3B.04 NAMING AND ADDRESSES

Streets shall be numbered according to specific criteria and PAMC 11.16. Names for new streets shall be submitted for approval during the platting process. Street numbers shall be included on each lot of the plat.

3B.05 SIGNING

The developer is responsible for providing all construction traffic control signs, devices and flagging. The developer is also responsible for permanent traffic control devices, street signs and any other required signs. Traffic control signing and devices shall comply with the provisions as established by the U.S. Department of Transportation Manual on Uniform Traffic Control Devices (MUTCD). Street designation signs shall display street names.

3B.06 RIGHT-OF-WAY

A. Right-of-Way width is usually determined by the functional classification of a street with exceptions as noted in this chapter, or as allowed expressly by the City Engineer. The minimum right-of-way for each classification is shown in Table A - "Minimum Street Design Standards".

B. Right-of-Way requirements may be increased if additional lanes, pockets for turn, transit lanes, bus loading zones, operational speed, bike lanes, utilities, schools, or other factors are required as determined by the City Engineer.
# Chapter 3 – Transportation

## Table A, Minimum Street Design Standards

<table>
<thead>
<tr>
<th>Design Standard</th>
<th>Principal Arterial**</th>
<th>Minor Arterial**</th>
<th>Collector Arterial**</th>
<th>Access Street</th>
<th>Alley</th>
<th>Private</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right-of-Way</td>
<td>70 ft min.</td>
<td>60 ft min.</td>
<td>60 ft min.</td>
<td>60 ft min.</td>
<td>20 ft</td>
<td>NONE</td>
</tr>
<tr>
<td>Pavement Width*</td>
<td>48 ft</td>
<td>44 ft</td>
<td>40 ft</td>
<td>34 ft***</td>
<td>20 ft</td>
<td>20 ft</td>
</tr>
<tr>
<td>Parking Lane</td>
<td>8 ft</td>
<td>8 ft</td>
<td>8 ft</td>
<td>Both sides</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>Maximum Grade</td>
<td>5.0%</td>
<td>7.0%</td>
<td>7.0%</td>
<td>10.0%</td>
<td>10.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Maximum Grade of Permeable Pavement</td>
<td>Varies by material type. Slope shall be specified on a project-by-project basis by the engineer ****</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curb****</td>
<td>Longitudinal slope &gt; 1/2%: Cement concrete curb and gutter</td>
<td>Longitudinal slope &gt; 1/2%: Cement concrete curb and gutter</td>
<td>Longitudinal slope &gt; 1/2%: Cement concrete curb and gutter</td>
<td>Longitudinal slope &gt; 1/2%: Cement concrete curb and gutter</td>
<td>Paved invert for grade &lt;1.0%</td>
<td>None</td>
</tr>
<tr>
<td>Sidewalks</td>
<td>BOTH SIDES 5 ft when not next to curb</td>
<td>BOTH SIDES 6 ft next to curb in areas other than: 10' in comm. areas 8' in multi-family 14' downtown</td>
<td>BOTH SIDES 5 ft when not next to curb 6 ft next to curb in areas other than: 10' in comm. areas 8' in multi-family 14' downtown</td>
<td>On designated routes See also Suburban Street Standards as applicable</td>
<td>None</td>
<td>Based on development conditions</td>
</tr>
<tr>
<td>Cul-de-Sac (Pavement Width)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>80-100 ft dia. (see std drawing)</td>
<td>NA</td>
<td>80-100 ft dia. (see standard drawing)</td>
</tr>
<tr>
<td>Intersection Curb Radius</td>
<td>35 ft</td>
<td>35 ft</td>
<td>30 ft</td>
<td>20 ft</td>
<td>10 ft.</td>
<td>20 ft</td>
</tr>
<tr>
<td>Design Speed (MPH)</td>
<td>45</td>
<td>35</td>
<td>30</td>
<td>25</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>Min. Horiz. Curve Radius</td>
<td>300 ft</td>
<td>200'</td>
<td>200'</td>
<td>100'</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Min. Tangent</td>
<td>200 ft</td>
<td>200 ft</td>
<td>150 ft</td>
<td>100 ft</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

*Additional pavement widths may be required for channelization or bicycle facilities. Offsite tapers may be required. The formula to calculate taper length, L (or Lane Transition), is as follows:

Where the posted speed limit (S) is greater than 45 mph, \( L = S \times W \)

Where the posted speed limit is less than 45 mph, \( L = (W \times S^2) + 60 \)

\( W = \text{Offset, in feet} \)
CHAPTER 3 – TRANSPORTATION

**PAMC 11.02 lists the streets categorized as arterials

***Suburban Street Standards vary from this – see Suburban Street Standard Detail Drawing in Appendices

**** Refer to Chapter 5 of the Urban Services Standards and Guidelines, the Department of Ecology’s SWMMWW (2014), and engineer specifications for maximum slope of permeable pavement.

***** Curb cuts are allowed for the purpose of conveying stormwater runoff to stormwater facilities/BMPs.

C. All Right-of-Way shall be conveyed to the City on a recorded plat or by right-of-way dedication deed.

3B.07 STREET FRONTAGE IMPROVEMENTS

A. All commercial and residential (including multi-family) developments, subdivisions, plats, and short plats shall install street frontage improvements at the time of construction as required by the Department of Public Works and Utilities. Such improvements, meeting the requirements of the City’s Urban Services Standards and Guidelines, or as approved in writing by the City Engineer, may include curb and gutter; sidewalk; storm drainage system and facilities; lighting; traffic control devices and signal; utility relocation and/or undergrounding; street trees; and street widening all per these standards.

B. All frontage improvements shall be made across the full frontage of the property and shall match the adjacent street improvements and install the required minimum street section. Offsite transitions (tapers) may be required to meet the existing pavement width(s).

C. Exception: When the City determines that there are compelling reason(s) why all or some of the required improvements cannot be accomplished at the time of building construction, the City may allow, at its sole discretion, a recorded agreement on forms provided by the Department of Public Works and Utilities which provides for these improvements be installed at a later date by the applicant. This may be accomplished by one of the following methods:

1. The applicant provides a Performance Bond for 150% of the estimated cost to do the work, or

2. An assignment of savings is agreed upon, wherein the applicant deposits into a joint account an amount equal to the cost of the work, or

3. The applicant signs a waiver of protest in a Local Improvement District (LID).

3B.08 CUL-DE-SAC

All dead-end streets in excess of 150 feet in length shall be provided with a turn-around which has a minimum 80-foot diameter (without parking) or a minimum 90-foot diameter (with parking) per City Drawing or approved alternative. The maximum length of a street with a cul-de-sac is 500 feet.

3B.09 TEMPORARY DEAD ENDS

Where a street is temporarily dead ended, an all weather turn around shall be provided per City Standard Drawing where the road serves more than one lot.

3B.10 REQUIRED MINIMUM STREET SECTION

A. A Developer is responsible for improving roadways contiguous to the development boundaries to City Standards on his side of the centerline, plus 10 feet of paving and a shoulder on the opposite side of the centerline, with provisions for drainage. (For example; on an access street, the Developer would install curb and gutter and drainage on his side of the centerline and paving of 27 feet [17 ft. + 10 ft.] and a 3-foot CSTC shoulder with roadway ditch on the opposite side of the centerline.) [Resolution 8-83] Deviations require the approval of the City Engineer.

B. Suburban Standards – In areas where suburban street standards are allowed (zoned RS9 and RS-11), the developer may construct street improvements consistent with the Suburban Streets detail drawing in the Appendix of this Chapter, subject to the approval of the City Engineer.

C. To conform to limited right-of-way along the boundary of a property subject to the development or for phasing the construction of the improvements, a modified street section may be approved by the City Engineer.
CHAPTER 3 – TRANSPORTATION

3B.11 INTERSECTIONS

A. Traffic control will be as specified in the MUTCD or as modified by the City Engineer as a result of appropriate traffic engineering studies.

B. The use of offset intersections should be avoided wherever possible, and when proposed, must conform to the City of Port Angeles Subdivision Code. Street intersections shall be laid out so as to intersect as nearly as possible at right angles. For reasons of traffic safety, a "T" intersection (three-legged) with minimum offset is preferable to a crossroad (four-legged) intersection for local access streets. For safe design, the following types of intersection features should be avoided:

1. Intersections with more than four intersecting streets.
2. New intersections should be designed to avoid intersecting angles (at street centerline) of less than 80, or more than 100 degrees.
3. Intersections adjacent to bridges and other permanent sight obstructions.

C. Spacing between adjacent intersecting streets, whether crossing or "T" should be as shown in Table B. When different class streets intersect, the higher standard shall apply on offsets and curb radii. Deviations require approval of the City Engineer.

| TABLE B |
| SPACING BETWEEN ADJACENT STREETS |

<table>
<thead>
<tr>
<th>Highest Classification Involved</th>
<th>Min. Centerline Offset</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal or Major Arterial</td>
<td>350 feet</td>
</tr>
<tr>
<td>Minor Arterial</td>
<td>300 feet</td>
</tr>
<tr>
<td>Collector Arterial</td>
<td>200 feet</td>
</tr>
<tr>
<td>Access Street</td>
<td>150 feet</td>
</tr>
</tbody>
</table>

D. The use of intersections in or near a horizontal curve should be avoided wherever possible, particularly on streets classified as collector or local streets, and particularly so on the inside of a horizontal curve.

On sloping approaches at an intersection, landings shall be provided with grade not to exceed three percent for a distance of 30 feet approaching any arterial or 20 feet approaching an access street, measured from the projected curbline (existing or future) of the intersecting street.

The City Engineer reserves the right to determine if horizontal curves can be reduced consistent with reasonable engineering judgment and to specify plan changes to enforce such a reduction.

E. Pedestrian/Wheelchair ramps shall be provided on each quadrant of an intersection from which pedestrian movement is permitted. Ramps shall be designed in accordance with the City of Port Angeles standards and the Americans with Disability Act (ADA).

At those intersections where sidewalks are not proposed to be installed in the parkway on either of the two intersecting streets, a concrete pedestrian refuge area may be required behind, and to either side of, the pedestrian/wheelchair ramp. This refuge area shall extend a minimum of four (4) feet clear behind the ramp, and eight (8) feet on both sides of the edges of the ramp.

Crosswalk markings will not usually be installed at any new intersection except under the following conditions: 1) at signalized intersections; 2) at any intersection located along formally established "School Route". All deviations from this shall be approved on a case-by-case basis by the City Engineer.

F. Intersection turn lane vehicular storage shall be designed on the basis of either:

- One (1) foot of protected storage per peak hour vehicle.
- Twenty five (25) feet of storage per queued vehicle per signal cycle (based on signal optimization and
CHAPTER 3 – TRANSPORTATION

analysis program calculations, such as the Federal Highway Administration’s SOAP-84 computerized analysis program

All deviations from this shall be approved on a case-by-case basis by the City Engineer.

G. Intersections should be designed to avoid the sheet flow of water across the intersection of all roadways classified as arterial or collector streets. Where feasible, stormwater runoff at roadway intersections shall be infiltrated using LID facilities/BMPs, such as bioretention or drought-tolerant plants and amended soils in small traffic circles. Where infiltration or LID facilities/BMPs are infeasible, runoff water should be carried under the intersection via catch basins and storm drains.

H. The right-of-way requirements for intersection approaches may be increased for such special intersection elements as raised median channelization, multiple left turn lands, exclusive and/or “free” right turn lands, turn lanes to accommodate large wheel base vehicles, bus turn outs, etc.

At the intersections of two dissimilarly classified streets, the larger of the curb return radii specified in the streets design table herein shall be used for establishing the right-of-way width.

I. Intersection turn islands (right turn islands), shall be constructed with raised curb only when the resulting island encompasses an area of at least one hundred (100) square feet (exclusive of the area removed for pedestrian ramps), or if a least two (2) of the sides of the island are a minimum of fifteen (15) feet long. The curbing shall be offset at least two (2) feet from the right edge of the through travel lanes, and at least four (4) feet from the left edge of the right turn lane. Extruded curb is preferable in new construction, but the use of pre-cast concrete curb sections is acceptable in retrofit situations. A minimum radius of two (2) feet shall be used for the island “nose”. Landscaping/vegetation less than thirty (30) inches in height and amended soils, or LID facilities such as bioretention are preferred in right turn islands, where feasible. Otherwise, surfacing materials shall be four (4) inch thick section of broom-finished concrete.

A type 2 object marker (six (6) inches x twelve (12) inches, white background with three (3) inch diameter yellow reflectors) shall be installed facing the approaching traffic. The marker should be installed horizontally, and mounted at a height of no less than six (6) inches, and no more than twelve (12) inches, about the finished surface of the top of the median island.

J. Where a traffic engineering study is required and the data supports the installation of a traffic circles or round-abouts, they shall be designed in accordance with the City Standard Drawings.

3B.12 STREET STANDARDS FOR LOTS WITHOUT CITY STREET ACCESS

PAMC 14.01.115 states that: Prior to issuance of certificates of occupancy or final inspection approval for building permits for lots or parcels without established City street access, street access improvements shall be accomplished in accordance with PAMC 16.08.

A. No Current Access To Lots (5 or more dwelling units per block). Preferred access improvements shall be permeable pavement road to City Standards, if feasible. Access improvements per PAMC Chapter 16.08.

B. No Current Access To Lots (less than 5 dwelling units per block). Preferred access improvements shall be permeable pavement road to City Standards, if feasible. Otherwise, access improvements shall be gravel road to City Standards. A Local Improvement District non-protest agreement is required for street improvement.

C. Current Gravel Access. Where there is current City maintained gravel access, a Local Improvement District non-protest agreement is required for street improvement.

D. No Current Gravel Access for fewer than five Single Family Residences. Preferred access improvements shall be permeable pavement road to City Standards, if feasible. Otherwise, provide gravel access per City Standards. A Local Improvement District no-protest agreement is required for street improvement.

3B.13 DRIVEWAYS

A. GENERAL – See the applicable Standard Detail Drawing(s) in the attached Appendix to this Chapter for more information on requirements for installation of driveways. In addition, the following shall apply:
CHAPTER 3 – TRANSPORTATION

1. All driveways shall slope upward from the gutter to the back, or property, side of the sidewalk at not less than 1/4 inch to one foot. The curb height at a depressed driveway shall be 1/2” above the gutter.

2. All abandoned driveway areas on the same frontage shall be closed by removal of the driveway depressed curb, curb returns, gutter, and sidewalk (if at curb) or restoration of the shoulder and ditch section (if no curb and gutter), and shall be restored to adjacent improvement conditions.

3. In curbed areas, all driveways shall be constructed of pervious concrete, where feasible. If pervious concrete is determined to be infeasible, driveways shall be constructed of conventional concrete and shall be subject to the same testing and inspection requirements as curb, gutter, and sidewalk construction. Use of exposed aggregate or other non-standard finish (including colors or dyes) within the public right-of-way shall not be permitted.

4. In areas without a curb, permeable pavement (pervious concrete or porous asphalt) shall be used, where feasible. If permeable pavement is determined to be infeasible, either an asphalt or concrete driveway is permitted, subject to the applicable Standard Detail Drawing(s).

5. Joint-use driveways serving two adjacent parcels may be built on their common boundary upon formal written agreement by both property owners and approval of the City. The agreement shall be a recorded easement for both parcels of land specifying joint usage.

6. Grade breaks, including the tie to the roadway, shall be constructed as smooth vertical curves. The maximum change in driveway grade shall be 8 percent within any 10 feet of distance on a crest and 12 percent within any 10 feet of distance in a sag.

7. No commercial driveway shall be approved which requires backing onto the sidewalk or street.

8. No driveway apron shall extend into the street further than the existing or proposed face of the curb.

9. Driveways at intersections shall be located as far as practical from the corner. In no case shall the driveway be located closer than twenty-five feet of a regular crosswalk area at an intersection or other designated crosswalk area or within ten feet of a side lot line in an alley.

10. No driveway may be located so as to conflict with power poles, street lights, fire hydrants, or other above-ground public facilities.

11. Driveways shall be separated by a minimum of 15 feet and shall be no closer than 7½ feet from the property line.

12. Culverts for driveways are required when the street is not improved with curb and gutter. Culverts shall be 12 inch diameter, 30 foot minimum length with 3:1 beveled ends.

B. DRIVEWAYS ON ARTERIAL STREETS – See the applicable Standard Detail Drawing(s) in the attached Appendix to this Chapter for more information on requirements for installation of driveways on arterial streets. In addition, the following shall apply:

1. Driveways on arterial streets shall be no closer than 75 feet (measured along the arterial) of any other such access, including access on the opposite side of the street. Arterial access may be located directly opposite each other.

2. No driveway access shall be allowed to an arterial street within 150 feet of the nearest right-of-way line of an intersecting street, except where one way streets may be involved.

3. Within the limitations set forth above, access to arterials streets within the City shall be limited to one driveway for each tract of property separately owned. Properties contiguous to each other and owned by the same person are considered to be one tract.

4. Driveways giving direct access onto arterials may be denied if alternate non-arterial access is available. Deviations from these arterial driveway standards require approval by the City Engineer.

3B.14 STREET INTERSECTION SIGHT OBSTRUCTION
A. General. Notwithstanding any other provision of this standard, no sign, fence, hedge, shrubbery, natural growth or other obstruction installed, set out or maintained which obstructs the view of motor vehicle operators at an intersection within the sight areas defined in 3B-14(B) and between the height limits defined in 3B-14(C). 3B-14(D) specifies what constitutes an obstruction to the view of motor vehicle operators. For the purpose of this standard, “intersection” shall include: the intersection of two public streets; the intersection of a commercial driveway with a public street; the intersection of a residential driveway with a public street; and the intersection of a private street with a public street. For additional guidance see current edition of AASHTO A Policy on Geometric Design of Highways and Streets, Chapter 9.5.

B. The sight area at an intersection defined. The area bounded by setback lines, or bounded by setback lines and the edge of the traveled lane. Setbacks for intersection types are as specified in the following paragraphs.

1. Major Street/Minor Street. Intersections of this type have no control or flashing yellow on the major street, and a stop sign or flashing red signal on the minor street. Private commercial driveways (which may or may not have a stop sign) used by the public for entering any city street are also included in intersections of this type.

The setback line shall be defined as a line which joins a point in the center of the minor street approach lane located 14 feet back from the edge of the through-street approach lane (Point A) and a point in the center of the through-street approach lane (Point B). The location of Point B in the through-street approach lane is specified in the following table:

<table>
<thead>
<tr>
<th>Posted Speed Limit</th>
<th>Distance from Center of Intersection</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 MPH</td>
<td>410 Feet</td>
</tr>
<tr>
<td>35 MPH</td>
<td>360 Feet</td>
</tr>
<tr>
<td>30 MPH</td>
<td>300 Feet</td>
</tr>
<tr>
<td>25 MPH</td>
<td>250 Feet</td>
</tr>
</tbody>
</table>

Where the major street is a divided highway, only the left setback line applies. Where the major street is a one-way street, only the setback line toward the direction of approach applies.

Modification. Where major obstacles such as pre-existing permanent structures, elevated contour of the ground, embankments, or other elements preclude the reasonable enforcement of the setback lines specified above, these setbacks may be modified at the discretion of the City Engineer. The minor street setback distance to Point A may be reduced from 14 feet to 10 feet, and the major street Point B location may be modified as follows:

<table>
<thead>
<tr>
<th>Posted Speed Limit</th>
<th>Distance from Center of Major Street Intersection to Point B</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 MPH</td>
<td>325 Feet</td>
</tr>
<tr>
<td>35 MPH</td>
<td>250 Feet</td>
</tr>
<tr>
<td>30 MPH</td>
<td>200 Feet</td>
</tr>
<tr>
<td>25 MPH</td>
<td>150 Feet</td>
</tr>
</tbody>
</table>

2. Uncontrolled Intersection. For intersections with no traffic control on any approach, including street-alley intersections, the setback lines join a point on the approach located 50 feet back from the center of the intersection with points located 80 feet back from the center of the intersection on the right and left hand streets. All points are measured along the street, or alley, centerlines.

3. Yield Intersection and T Intersection. Yield intersections have a yield sign on one or both of the minor street approaches, and no control on the major street approaches. The setback lines for yield intersections join a point in the center of the yield approach lane 25 feet back from the edge of the crossing traffic lane with points in the centers of the crossing approach lanes 100 feet back from the center of the intersection. This setback also applies to a T intersection with no restrictive control; in this case the 25-foot setback point is on the stem of the T.

4. Signalized Intersection. For signalized intersection approaches with right-turn-on-red-after-stop permitted,
the left setback line joins a point in the center of the minor street approach lane located 14 feet back from the edge of the through-street approach lane (Point A) and a point in the center of the left through-street approach lane (Point B). The location of Point A may be reduced to 10 feet subject to approval of the traffic engineer. The location of Point B is specified in the following table:

<table>
<thead>
<tr>
<th>Posted Speed Limit Distance from Center of Intersection</th>
<th>For Major Street to Point B (Left Approach Only)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 MPH</td>
<td>325 Feet</td>
</tr>
<tr>
<td>35 MPH</td>
<td>250 Feet</td>
</tr>
<tr>
<td>30 MPH</td>
<td>200 Feet</td>
</tr>
<tr>
<td>25 MPH</td>
<td>150 Feet</td>
</tr>
</tbody>
</table>

5. Residential Driveway Intersection. For the intersection of a residential driveway with a public street, the setback line joins a point in the center of the driveway (Point A) with a point in the center of the through-street approach lane (Point B). The setback distance of Point A from the edge of the traveled lane is 10 feet. The location of Point B is specified in the following table:

<table>
<thead>
<tr>
<th>Posted Speed Limit Distance from Center of Intersection</th>
<th>For Major Street Intersection to Point B</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 MPH</td>
<td>325 Feet</td>
</tr>
<tr>
<td>35 MPH</td>
<td>250 Feet</td>
</tr>
<tr>
<td>30 MPH</td>
<td>200 Feet</td>
</tr>
<tr>
<td>25 MPH</td>
<td>150 Feet</td>
</tr>
</tbody>
</table>

Modification. When the residential driveway is located on a residential street with a sharp curve adjacent to the driveway, the distance to Point B may be reduced from 150 feet to 100 feet. For residential driveways with major obstacles or special view problems, the setback distance on the driveway (Point A) may be reduced from 10 feet to eight feet, subject to approval by the traffic engineer.

6. Sightline Setback – Other. For intersections not clearly included in the above types and for which view problems may exist, the traffic engineer will establish setback lines as required.

C. Sight Obstruction Height Limits

Sight obstruction, as defined in subsection D of this section, shall not be permitted above a line two and one-half feet above the street surface within the sight areas established in subsection B of this section. However, sight obstructions above a line seven and one-half feet above the street surface are permitted. For residential driveways, this upper height requirement is reduced from seven and one-half feet to six feet.

D. Sight Obstruction Defined.

1. For minor street/through street intersections, as defined in subsections (B)(1), (B)(4) and (B)(5) of this section, the following obstructions within the established sight areas shall be permitted:
   a. One obstruction within each sight area which presents a maximum of two and one-half feet width when viewed from the applicable angle, which has at least two feet clear view inside the obstruction (on the side away from the intersection). At distances greater than 40 feet from the view point, the obstruction may present a maximum of four feet width.
   b. Any number of obstructions one and one-half feet or less in maximum width when viewed from any applicable angle; provided there is equal open space on each side of the obstruction for all angles.

2. For intersections with no signalization or stop signs, as defined in subsections (B)(2) and (B)(3) of this section, the following obstructions within the established sight areas shall be permitted:
   a. One obstruction within each sight area which presents a maximum of eight feet width when viewed from any applicable angle, and which has at least four feet clear view inside the obstruction and eight feet clear view between the obstruction and the edge of the traffic lanes; or
   b. Two obstructions within each sight area each of which presents a maximum of five feet width when viewed from any applicable angle, and separated by four feet on more open space when viewed from all applicable angles, and which have at least four feet clear view inside the obstructions and eight feet clear view between the obstructions and the edge of the traffic lanes; or
   c. Any number of obstructions one foot or less in width; provided they obstruct no more than two feet continuous obstruction width when viewed from any applicable angle; and provided there is equal open space on each side of the obstruction for all angles.
CHAPTER 3 – TRANSPORTATION

E. Other Sight Obstruction Standards. Where unusual conditions preclude the application of the foregoing provisions of this section in a reasonable manner, or where a special viewing problem exists, the traffic engineer will determine when an intersection view obstruction exists, based on the intent of this section. Every obstruction of the sort prohibited in this section hereafter installed or permitted to remain shall be deemed a violation of this chapter.

3B.15 SURFACING STRUCTURAL REQUIREMENTS

Table D contains the surfacing structural requirements for each application listed. Alternate sections will be accepted based upon an engineering design of the section and the soils of the area proposed. The designs in the table are based on Washington stabilometer subgrade R-value of 5.0.

<table>
<thead>
<tr>
<th>TYPE OF FACILITY</th>
<th>SURFACING</th>
<th>TOP COURSE</th>
<th>BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRINCIPAL &amp; MINOR ARTERIAL</td>
<td>6” hot mix asphalt (HMA)</td>
<td>2” Crushed Surfacing Top Course (CSTC)</td>
<td>25” Ballast</td>
</tr>
<tr>
<td>COLLECTOR ARTERIAL</td>
<td>4” HMA</td>
<td>2” CSTC</td>
<td>25” Ballast</td>
</tr>
<tr>
<td>ACCESS STREETS</td>
<td>2” HMA</td>
<td>2” CSTC</td>
<td>8” Ballast</td>
</tr>
<tr>
<td>SIDEWALKS</td>
<td>4” Concrete (6” Concrete at driveways)</td>
<td>1” CSTC or sand</td>
<td>N/A</td>
</tr>
<tr>
<td>CONCRETE DRIVEWAYS</td>
<td>6” Concrete</td>
<td>1” CSTC or sand</td>
<td>N/A</td>
</tr>
<tr>
<td>ASPHALT DRIVEWAYS</td>
<td>2” HMA</td>
<td>2” CSTC or sand</td>
<td>8” Ballast</td>
</tr>
<tr>
<td>CLASS I BIKEWAY</td>
<td>2” HMA</td>
<td>N/A</td>
<td>4” Ballast</td>
</tr>
</tbody>
</table>

Note: Permeable material structural requirements vary by surface types, soils, and other site conditions. Pervious concrete shall follow ACI 522.1-13. Porous asphalt shall be specified on a project-by-project basis by the engineer.

3B.16 TEMPORARY STREET PATCHING

A. Temporary restoration of trenches shall be accomplished by using 2” minimum HMA when available, medium-curing (MC-250) Liquid Asphalt (cold mix), Asphalt Treated Base (ATB), or traffic bearing thickness steel plates with asphalt wedges, or approved equal.

B. ATB used for temporary restoration may be dumped directly into the trench or patch area, bladed and rolled. After rolling, the trench must be filled flush with the existing pavement to provide a smooth riding surface.

C. All temporary patches shall be maintained by the contractor until such time as the permanent patch is in place. If the contractor is unable to maintain a patch for whatever reason, the City will patch the area at the expense of the contractor or permit applicant.

D. Traffic shall not be allowed to cross gravel or CDF trench backfill for more than 24 hours without utilization of temporary patching measures stated above.

3B.17 TRENCH RESTORATION

Trench restoration shall be by a patch or patch plus overlay as required by the City Engineer.

A. Before final trench restoration, all trench and pavement cuts shall be made by sawcutting only. The cuts
CHAPTER 3 – TRANSPORTATION

shall be a minimum of 3 feet on each side of the trench width for excavation on arterial or collector streets or 1 feet on access streets and alleys.

B. Tack coat shall be applied to the existing pavement and edge of the cut and at cold joints and gutter prior to paving as specified in current Washington State Department of Transportation Standard Specifications (WSDOT Specifications) Section 5-04.

C. Hot mix asphalt (HMA), equal in depth to the existing pavement, shall be placed in accordance with the applicable requirements of current WSDOT Specifications of Section 5.04, except that longitudinal joints between successive layers of asphalt concrete shall be displaced laterally a minimum of 12 inches. Asphalt concrete over 2 inches thick shall be placed and compacted in equal lifts not to exceed 2 inches each.

D. Pervious concrete shall follow ACI 522.1-13. Porous asphalt shall be specified on a project-by-project basis by the engineer. Permeable materials should be replaced in-kind where feasible. Patching porous asphalt with conventional asphalt is acceptable if it is less than 10 percent of the total facility area and does not impact the overall facility function. Take appropriate precautions during pavement repair and replacement efforts to prevent clogging of adjacent surfaces.

E. Patches on all street surfaces, walks or driveways shall be feathered and shimmed to an extent that provides a smooth-riding connection and expeditious drainage flow for the newly paved surface. Shimming and feathering as required by the City Engineer shall be accomplished by raking out the oversized aggregates from the HMA mix as appropriate.

F. Surface smoothness shall be per current WSDOT Specifications Section 5-04 Unacceptable paving patches shall be corrected by removal and repaving of the trench.

G. When trenching within the roadway shoulder(s), the shoulder shall be restored to its original or better condition.

H. The final patch shall be completed as soon as possible and shall be completed within 30 days after first opening the trench. This time frame may be adjusted if delays are due to inclement paving weather or other adverse conditions that may exist. However, delaying of the final patch or overlay work is allowable only subject to the City Engineer's approval. The City Engineer may deem it necessary to complete the work within the 30 day time frame and not allow any time extension. If this occurs, the contractor shall perform the necessary work as directed by the City Engineer or the work will be done by City forces and billed out at two (2) times the rate of the cost of the city's work.

I. Whenever the contractor is backfilling a trench in paved areas they shall use controlled density backfill per City Standard Drawing, unless another method is otherwise approved by the City Engineer. All other trenching shall be backfilled with crushed surfacing materials conforming to WSDOT Specifications Section 4-04 and shall be compacted to 95 percent maximum density, as described in WSDOT Specifications Section 2-03. If trenching or backfilling will be performed in areas where infiltration facilities (such as permeable pavement) are planned, deviation from the WSDOT Standard Specifications for compaction may be allowed.

J. If the excavated trench material is determined by the City Engineer to be suitable for backfill, the contractor may use the material to the bottom of subgrade. All trench backfill materials shall be compacted to 95% density in a maximum of 8 inch lifts.

3B.18 STAKING

A. All surveying and staking shall be performed by an engineering or surveying firm capable of performing such work. The engineer or surveyor directing such work shall be licensed by the State of Washington.

B. A pre-construction meeting shall be held with the City prior to commencing staking. All construction staking shall be inspected by the City prior to placement of materials.

C. The minimum staking of streets shall be as follows:

1. Stake centerline alignment every 25 feet (50 feet in tangent sections) with cuts and/or fills to subgrade.

2. Stake top of ballast and top of crushed surfacing at centerline and edge of pavement every 25 feet.
3. Stake top back of curb at a consistent interval and offset for vertical and horizontal alignment.

3B.19 MATERIAL TESTING

Testing shall be required at the developers or contractors expense. All testing shall be coordinated by the developer or contractor. The testing lab shall be under the supervision of a Registered Professional Engineer in the State of Washington and approved by the City Engineer. Testing of materials shall be accomplished as specified in WSDOT Specifications.

3B.20 PHYSICAL TRAFFIC CALMING DEVICES

The following physical traffic calming devices, traffic circles, and chicanes, may be considered for installation on non-arterial streets that are also non-emergency routes. The appropriate device depends on the roadway geometry, sight distance, and the traffic characteristics such as speed and volume. The City Engineer, in consultation with the City’s Traffic Committee, will determine whether or not a traffic calming device is appropriate for a specific location.

A. Traffic Circles - Used primarily to reduce collisions at intersections, traffic circles can also reduce speeding along residential street corridors and improve bicycle and pedestrian safety. In addition to these safety benefits, many circles can be landscaped, which can provide aesthetic enhancements to the street and reduce impervious surfaces. Landscaped/vegetated traffic circles must use compost amended soils. Bioretention or other LID facilities shall be incorporated into traffic circles where feasible. Vegetation shall be drought tolerant and shall be approved by the City. See the City standard drawings for more information.

B. Chicanes – A series of 2 or 3 curb bulbs, chicanes slow traffic by creating a narrow, winding section of roadway. Like traffic circles, many chicanes can be attractively landscaped. Landscaped/vegetated chicanes must use compost amended soils. Bioretention or other LID facilities shall be incorporated into chicanes where feasible. Vegetation shall be drought tolerant and shall be approved by the City. Since chicanes result in eliminating some parking, they are generally only installed where there is low demand for on-street parking.

3C. PRIVATE STREETS

3C.01 GENERAL

A. Private streets may be allowed provided that all of the following conditions are met:

1. Be permanently established by plat or easement providing legal access to serve no more than four dwelling units or businesses on separate parcels, or unlimited dwelling units or businesses situated on one parcel sufficient to accommodate required improvements within a Planned Residential Development [PRD], to include provisions for future use by adjacent property owners when applicable, and;

2. Meet City minimum design standards described herein, except for right of way requirements and approved deviations, and;

3. Accessible at all times for emergency and public service vehicle use, and;

4. Have recorded on the plat or other legal document a statement acknowledging that the City will not be responsible for roadway maintenance costs associated with use of the road by emergency vehicles and service vehicles, and;

5. Not result in land-locking of present or future parcels nor obstruct public street circulation, and;

6. Covenants have been approved, recorded, and verified which provide for maintenance of the private street by the owner or homeowners association or other legal entity and allows the use of the street by service vehicles at no cost for maintenance to the City.

B. Acceptance as Public Streets. Acceptance of private streets as public streets will be considered only if the street(s) meet all applicable public street standards, including right-of-way.

C. Purpose

The purpose of the Street Standards is to standardize private street design elements and to assure, so far as practical, that the minimum requirements of the public are met. These requirements include safety, welfare,
CHAPTER 3 – TRANSPORTATION

convenience, aesthetics, and economical maintenance.

These Standards cannot provide for all situations. These Standards are intended to assist, but not to substitute for, competent work by professional engineers. It is expected that the professional engineer will bring to each project the best skills and abilities to ensure that the project is designed correctly and accurately.

D. Applicability
These Standards shall apply to the review of all proposed divisions of land.

All private street and easements which serve as accesses to and within all divisions of land, including short subdivisions, shall meet these Standards.

E. Environmental Considerations
An environmental check-list shall be submitted to the Department of Community and Economic Development (DCED) for the proposed work shown on the street and/or storm drainage construction plans submitted to the city for review and approval, unless the proposed work is part of a project for which an environmental checklist has already been submitted, or the work is categorically exempt per City Environmental Regulations or Chapter 197-11 WAC. A Determination of Non-Significance or a final environmental impact statement must be issued for the work and any comment period and appeal periods must have expired before the project plans are given final approval by the City.

3C.02 STREET TYPES, GEOMETRICS AND DESIGN PARAMETERS

A. Geometric and Design Criteria.
All private streets shall meet the same design and construction standards as set forth in this Chapter.

Individual streets within the development shall be constructed in their entirety to the highest applicable design criteria.

Side street approaches shall constitute new streets for design purposes.

B. Vertical Clearance Requirements. All private streets shall have an unobstructed minimum vertical clearance of 13 feet 6 inches.

C. Bridges and Structures. All existing and proposed bridges and structures, including drainage structures, on private streets shall be capable of carrying a minimum design load of HS-20 per AASHTO "Standard Specifications for Highway Bridges." The Design and As-built Drawings for all bridges shall be certified by a licensed structural engineer.

D. Utilities Location. Appropriate utility easements shall be provided on the proposed project or recorded with the Clallam County Auditor. Utility installation shall be the responsibility of the Applicant and shall not be installed above ground in a manner or location that will interfere with the traveled surface and shoulder area.

E. Grades. Street grades in excess of twelve percent (12%) must be constructed with a Portland cement concrete paved surface.

F. Owners to Maintain Streets -- Organization required to Guarantee Maintenance and Assessment of Costs.

All private streets subject to the terms of this Chapter shall be maintained by the owners of the property served by them and kept in good repair at all times. In order to insure the continued good repair, a declaration of covenant requiring maintenance of the private street shall be recorded with the Clallam County Auditor's office concurrent with the recording of the subdivision or plat.

The declaration of covenants shall include the following terms:

1. The agreement for maintenance shall be enforceable by any property owner served by the street.
2. A means shall be established for assessing maintenance costs equitably to property owners served by the private street.

3. The declaration of covenants shall run with the land.

4. "Maintenance" shall include, but not be limited to, street surfacing, sidewalks, shoulders, gates, signs, storm drainage facilities, and vegetation control.

**G. Storm Drainage Facilities.** All storm drainage systems shall be designed by the Engineer in accordance with the City’s “Site Development Regulations”.

**H. Cul-De-Sacs - Permanent.**

1. See Standard Details for cul-de-sac detail.

2. The minimum outside diameter of a cul-de-sac with an island is 120 feet.

3. A twenty-four (24) foot wide (measured from outside easement line) one-way traveled surface must be provided around the cul-de-sac island.

4. New plants in any cul-de-sac island shall be fire resistant.

**I. Hammerheads.**

1. See Standard Details for hammerhead detail.

2. Hammerheads are acceptable in lieu of cul-de-sacs on streets less than three hundred (300) feet in length which serve less than four (4) lots. Hammerheads provide for turn-around and not lot access.

3. Cul-de-sacs must be constructed if the street is accessed by lots on both sides of the street.

**J. Gates.** A building permit issued by the City is required when gates are installed across private streets. In order for the City to issue the building permit, the following requirements must be met:

1. Gates which serve ten (10) or more dwelling units shall have an Opticom activated opening system, or an equivalent and compatible system, that is approved by the Fire Chief.

2. Gates shall have rapid-entry key capabilities for the Fire Department access, and access code shall be provided to the Fire Department.

3. All electrically-activated gates shall have default capabilities to the unlocked position.

4. The minimum clear width of a gate shall be compatible with the street required width.

5. Gates that might be obstructed by the accumulation of snow shall not be installed.

6. A vehicular turn-around must be provided in front of the gate.

7. The City shall provide notice to the Fire Department of plans for a new gate.

**K. Medians.** A street separated by a median shall have a minimum traveled surface width of twenty (20) feet on each side of the median.

1. New plants in medians shall be fire resistant.

2. Fire hydrants must be located on both sides of the median or accessible from both sides, but not within the median.

**L. Obstructions In/Adjacent to Easements.**

1. Obstructions, including but not limited to fences, retaining walls, or landscaping materials, shall not be permitted within the easement.

2. Sight-obscuring objects must be located to provide entering sight distances.

3. Obstructions, including but not limited to, fences, retaining walls, power poles, utility boxes, telephone boxes, and/or landscaping material shall not be allowed in a manner or location that will interfere with the traveled surface and shoulder area.

**M. Turn Arounds.** Cul-de-sacs or intersections must be provided at a minimum of one thousand five hundred
CHAPTER 3 – TRANSPORTATION

(1,500) feet measured from centerline to centerline.

3C.03 SIGNS

A. Speed Limit Signs.

1. If speed limit signs are desired by the Applicant or the property owners, they shall as required and approved by the City Engineer and be installed by the Applicant and maintained by the property owners.

2. Speed limit signs shall be installed in accordance with the Engineer's recommendations.

B. Street Signs and Street Names. All private streets shall have signs installed in accordance with the City Streets Standards at the time of the Engineer's final inspection in accordance with PAMC11.16. All private streets shall be named and/or numbered in accordance with the City Street Naming Ordinance.

Street name signs shall be maintained by the property owners. If a sign is damaged or stolen the property owners shall replace the sign within seven calendar days of notification by the City or the City will replace and bill the property owners.

C. Fire lanes shall be installed by the applicant and maintained by the property owner. Signs and stripping locations shall be approved by the Fire Chief.

3C.04 DRIVEWAYS TO CITY STREETS

Driveways shall be constructed in accordance with the most recent version of the City’s "Urban Services Standards and Guidelines (USSG)". Grading and restoration of the private street beyond the end of the driveway shall be performed by the Applicant to provide a smooth, passable, and safe transition.

3C.05 COMPLIANCE

A. Certification. All private streets shall be constructed by the Applicant and inspected by the Applicant's engineer who shall issue a letter of compliance to the Applicant with a copy to the City certifying:

1. The private street has been constructed in accordance with the Engineer's design and standards established by this Chapter.
2. The street signs are in place.
3. The storm drainage, if applicable, has been constructed in accordance with the Engineer's design.
4. The gate (if applicable) has been installed in conformance with Section J of Street Types, Geometrics and Design Parameters.
5. Existing and new bridge structures, if any, comply with Section C of Street Types, Geometrics and Design Parameters.

The compliance letter shall be stamped, signed, and dated by the Applicant's engineer and shall be worded as follows:

"I have inspected the project and find that the private street and storm drainage as constructed for this project conform to the terms and conditions of the submitted design and requirements of City's Private Street and Emergency Vehicle Access Standards and the City’s Urban Services Standards and Guidelines", and that the appropriate street signs are in place."

A set of As-built plans must be submitted with the letter of compliance.

B. Completion. All private streets must be completed and the letter of compliance submitted to the City or a financial guarantee must be submitted to the City in the amount of one hundred fifty (150) percent of the Engineer’s cost estimate to complete the work, prior to plat approval.
CHAPTER 3 – TRANSPORTATION

The street(s) within a short plat, large lot, or long subdivision must be constructed prior to the final inspection and approval of occupancy of any structures constructed within the plat, except for model home permits as authorized by the City Engineer.

A note shall be placed on the face of the plat which states:

"No building permits will be issued on any lots in this plat (except for model home permits as authorized by the City Engineer) until the private street(s) have been constructed and a letter certifying their compliance to the Private Street and Emergency Vehicle Access Standards is on file with the City.

3C.06 MAINTENANCE

All private streets and sidewalks subject to the terms of this Section shall have a Street Maintenance Covenant recorded with the Clallam County Auditor's Office prior to or concurrent with the recording of the subdivision or plat. Private streets or easements existing prior to the effective date of this Chapter will be exempted from the Street Maintenance Covenant. Any new private street shall conform to these Standards.

Maintenance of the street shall include, but not be limited to, street surfacing, shoulders, gates, signs, storm drainage facilities, and vegetation control.

3C.07 CONDITIONS OF RECORDING

Prior to recording a plat, the Applicant shall dedicate private street easements to the City in the event of formation of a Local Improvement District (L.I.D.).

If private street easement widths are insufficient to allow dedication to the City, then a note will be placed on the face of the plat stating that "Future dedication of the private streetway to the City may require the dedication of additional right-of-way."

The recorded plat shall contain or incorporate a street maintenance covenant.

3C.08 PRIVATE TO PUBLIC STREET DEDICATION

A. The City has no obligation to accept any private street into the City street system for dedication or maintenance. It shall be the Applicant's responsibility to submit a preliminary site plan showing the street(s) proposed for dedication to the City and the Applicant must receive the City's written approval before proceeding with street construction plans.

B. Street construction plans prepared in accordance with the most recent version of the City Street Standards shall be submitted for review and must be approved by the City before street construction activity commences.

C. All construction work must be completed to City standards before the City will accept the street for dedication and maintenance.

D. The Applicant must submit all necessary deeds, easements, etc., to the City for acceptance and recording by the Clallam County Auditor's Office.

E. Once the street has been dedicated to the City and accepted for maintenance, the street shall remain open for public use and may not be closed except by the City, as provided by RCW 47.48.010, 47.48.020 and 47.48.031.

F. Right-of-way widths must conform to the requirements of the most recent version of the City USSG's.

3C.09 GENERAL PLAN FORMATTING

A. Formatting.

1. Preliminary Plan profile sheets and plan sheets shall use a sheet size of 24" x 36". Original sheets shall be
CHAPTER 3 – TRANSPORTATION

mylar, paper, or equal.
2. All submitted design work shall be stamped, signed, and dated by a licensed professional engineer before review by the City.
3. Construction plans for streets accessing State highways shall be submitted by the Applicant's engineer directly to the Washington State Department of Transportation. The Applicant's engineer shall comply with all requirements agreed upon between Applicant and the Washington State Department of Transportation. A signed agreement or approval for the intersection or street approach must be obtained from the State by the Applicant before final plan acceptance will be granted by the City. A copy of the approved plan from the Washington State Department of Transportation shall be submitted to the City for their records.

B. Cover Sheet. Street Construction plans submitted to the City for review for streets in a proposed formal plat, short plat, or large lot division which have a total street length in excess of 1,200 feet shall have a plan cover sheet.

The plan cover sheet shall be the first sheet of the street construction plans. The cover sheet shall contain the following information:

1. An overall site plan drawn to an appropriate scale; such as , 1" = 100', 1" = 200' or 1" = 400' showing the entire development and street system network including its connection to an existing City street or State highway.
2. The project's storm sewer system along with easements, tracts, drainage facilities, all buffer and screening areas, off-site and on-site natural drainage courses or areas shall be shown on the overall site plan.
3. Soil logs and soil log locations when an on-site storm drainage percolation system is proposed.
4. A simple vicinity map drawn to a scale of 4" = 1 mile or other similar scale, with the north arrow pointed in the same direction as the cover sheet north arrow, showing project site, existing public street system, and other pertinent information.
5. Standard notes which are applicable to the project.
6. The Applicant's and his/her engineer's names, addresses and telephone numbers.
7. Field topographic information including contour lines of the property in its natural undeveloped condition. City or U.S.G.S. topographic mapping must be field verified and supplemented with additional field topographic information when necessary to provide an accurate depiction of the property. Field topographic information submitted for the project's storm drainage plan does not have to be duplicated on the street construction plans. A 5-foot contour interval shall be used except when the property is extremely flat or undulating and the cross slope varies or when pothole areas, wetlands, swales, or drainage courses exist on the property, then a topographic map with contour intervals of 2 feet will be required.
8. When more than three sheets are used, a table of contents shall be shown on the cover sheet.
9. When the street and/or storm drainage construction plans for a project are outside the boundary of a formal plat, the legal description of the street shall be included on the plans along with the name and address of the actual property owner(s).

C. Horizontal Plan. Horizontal plan elements shall include the following in addition to those items required on the cover sheet when a cover sheet is not required.

1. Street alignments with 100-foot stationing, preferably increasing to the north or east and reading from left to right, and stationing at points of curve, tangent, and intersection, with ties to Section or quarter corners or other established and monumented survey control points at the intersection of the proposed street or streets and the existing City street or State highway. All lettering shall be right reading.
2. Section, township, and range on each page; plat or project name.
3. Bearings on street centerline.
4. Curve data including radius, delta, and arc length on all horizontal lines.
CHAPTER 3 – TRANSPORTATION

5. Easement lines and width for proposed street and intersecting streets. The plans shall show properly dimensioned lot lines and lot numbers to properly locate and dimension all tract and easement areas. Lot lines and lot numbers are requested to expedite plan review but are not required.

6. All topographic features shall be within easement limits and sufficient area beyond to resolve questions of setback, slope, drainage, access onto abutting property, and street continuations. This shall include, but is not limited to, ditch flow lines, all drainage structures with invert elevations, utility locations, fences, existing curbing and approaches, pertinent trees and shrubbery, and other appurtenances which would affect the construction of the project.

7. Typical streetway cross-section(s) of proposed street.

8. Existing and proposed drainage features, indicating direction of flow, size, and kind of each drainage channel, pipe, and structure. The status of existing drainage structures must be clarified as either "existing-retain," "existing-abandon," or "existing-remove."

9. Scale: 1" = 50' through 1" = 10'. Details for clarification may be shown on a convenient scale, normally 1" = 10' or 1" = 20'. Projects which have sewer utilities must use 1" = 50'.

10. North arrow shall point to the top, left or to the right side of the sheet.

11. All miscellaneous details such as drainage basins, pipe details, construction details, etc.

D. Profile Elements. Profile elements shall include the following:

1. Original ground line at 100-foot stations and at significant ground breaks and topographic features, with accuracy to within 0.2 feet on unpaved surface and 0.10 feet on paved surface.

2. Final street and storm drain profile with stationing the same as the horizontal plan, preferably reading from left to right, to show stationing of points of curve, tangent, and intersection of vertical curves, with elevations to 0.10 feet for each street in the project.

3. Street grade and vertical curve data; street to be measured at centerline.

4. Datum and all bench mark information must use established United States Coast and Geodetic Survey control or City bench marks when there is an existing bench mark within one-half (1/2) mile of the project.

5. Vertical scale 1" = 5'. Clarifying details may be done to a convenient scale. Use 1" = 10' for vertical scale when horizontal plans are at 1" = 100'.

3C.10 ADMINISTRATION

A. Plan Submittal Procedure. Plans for proposed street construction shall be submitted to the City with a transmittal letter.

1. For proposed street and drainage construction by a developer, complete street plans and profile, together with drainage calculations supporting topography mapping, contributing areas, etc., shall be signed, stamped and submitted by the Applicant's engineer to the City for review.

2. Plans shall be reviewed by the City in order of the date they were submitted. Previously-accepted plans submitted to the City for a revision shall be considered as new submittals. Accepted plans requiring modifications which are under construction shall be considered as resubmittals, and shall be reviewed prior to new submittals.

3. First submittal: Two sets of prints of street plans, profiles, and detail sheets, including two sets of prints of drainage area plans and drainage calculations. When required, the erosion and sedimentation control plans shall be submitted at this time.

4. Final submittal: The original mylars, one set of revised prints, corrected street plans, profiles, detail sheets,
CHAPTER 3 – TRANSPORTATION

drainage plans and calculations, and erosion and sedimentation control plans, together with the most recent review set previously marked up by the City reviewers.

5. Plans and revisions to previously accepted plans must be submitted, reviewed, and accepted by the City prior to construction.

B. Fees. Review fees shall be as indicated in the City’s Fee Resolutions.

C. Inspections. The City reserves the right to enter onto the property during construction to inspect the clearing and grading operation as authorized by the latest version of the City "USSG's".

The City reserves the right to periodically inspect all private streets for fire and emergency vehicle access.

D. No Protest L.I.D. Covenant. The Applicant must form a homeowners' association and execute a "No Protest L.I.D. Covenant" (Declaration of Covenant and Irrevocable Power of Attorney). If the association fails to maintain the street, the City reserves the right to execute the "No Protest L.I.D. Covenant" which will allow the City to assess the members of the homeowners' association the monies necessary to construct the street to City standards.

Upon completion of the street construction to City standards and dedication of rights-of-way, the City will accept the street into the City street system for maintenance.

E. Enforcement.

1. The City shall have authority to enforce this Chapter. The DCED is authorized to issue notices of civil infraction pursuant to the provisions of the City’s enforcement ordinance, and/or institute legal actions in any court of competent jurisdiction. Recourse to any single remedy shall not preclude recourse to any of the other remedies.

Each violation of this Chapter, approval or order issued pursuant to this Chapter, shall be a separate offense, and, in the case of a continuing violation, each day's continuance shall be deemed to be a separate and distinct offense. All costs, fees, and expenses in connection with enforcement actions may be recovered as damages against the violator.

2. Enforcement actions shall include civil infractions and actions for damages and restoration.
   a. The Department may bring appropriate actions at law or equity, including actions for injunctive relief.

   b. Any person, firm or corporation who violates any provision of this Chapter shall be subject to a Class 1 civil infraction citation. A person found to have committed a Class 1 civil infraction shall be assessed a monetary penalty at a maximum of two hundred fifty dollars per day per offense.

   c. Notice of Civil Infraction: Civil infractions shall be initiated by issuance, service, and filing of a notice of civil infraction pursuant to the provisions of the City’s Enforcement Ordinance.

3. Any person, firm, or corporation found to have violated any provision of this Chapter shall be guilty of a misdemeanor. Any person, firm, or corporation who knowingly makes a false statement, representation or certification in any application, record or other document filed or required to be maintained under this ordinance or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device, record or methodology required to be maintained pursuant to this Chapter shall be guilty of a misdemeanor.

F. Financial Guarantees. Financial guarantees will be held by the City until the letter of compliance has been received by the City.

Financial guarantees less than $5,000.00 must be by assignment of funds.

All financial guarantees must remain valid until released by the City and shall not be subject to an expiration or cancellation date.

G. Reimbursement by Other Property Owners. The City hereby adopts RCW 35.72, "Contracts for Street Projects." When the City requires the Applicant to make off-site street improvements and an adjacent property
CHAPTER 3 – TRANSPORTATION

owner benefits from the improvement, reimbursement to the applicant making the improvement or participating in the cost thereof shall be in accordance with RCW 35.72.

The City is authorized to retain administrative and overhead costs from the reimbursement cost, not to exceed ten (10) percent of the total funds. The Applicant must notify the City that the project is to be administered in accordance with this provision and RCW 35.72, and shall furnish the City with all information necessary to establish a reimbursement assessment area.

The prorating of cost shall be based on the traffic volume generated by the original project compared to the traffic volume generated by each subsequent project within the reimbursement assessment area. Property which has already been subdivided or developed will not be included in the assessment reimbursement area. Each subsequent Applicant shall pay to the previous Applicant a proportionate share of the costs of the original improvement work, minus administrative and overhead costs incurred by the City.

3C.11 VESTING

This Chapter shall be prospectively applied from the date it becomes effective. Only fully completed applications, as provided for in RCW 19.27.095 and RCW 58.17.033, shall be considered under the building permit, subdivision, short subdivision, zoning, or other land use control ordinance in effect on the date of filing a completed application.

3C.12 EMERGENCY VEHICLE (EV) ACCESS

Emergency vehicle access shall be provided from a public or private street to a parcel(s) of land that has a structure(s) on it. This access is exempt from any normal setbacks established for public or private streets. Emergency vehicle access shall be provided and maintained in accordance with the provisions of these Standards.

A. Abbreviated Designation. Emergency vehicle access will be cited routinely in the text as the “EV Access.”

B. Applicability. EV Access shall be required for every building hereafter constructed or installed when any portion of an exterior wall of the first story is located more than one hundred fifty (150) feet from the edge of the driving surface of the private or public street providing access to the parcel(s) of land on which that building is located as measured by an approved route around the exterior of the building.

C. Exemptions.

1. When buildings are protected with an approved automatic fire sprinkler system, the provisions of this section may be modified by the City after conferring with the local fire marshal.

2. When an EV Access cannot be installed in conformance with these Standards due to topography, waterways, nonnegotiable grades, or other similar conditions, the City, after conferring with the fire marshal, may allow an exemption to these Standards by requiring additional fire protection as specified in the most current edition of the Uniform Fire Code as adopted by the City.

3. All common residential accessory buildings similar to Group M-1 occupancies (private garages, carports, sheds, some agricultural buildings, tanks, towers and fences over six feet tall) as defined by the most current edition of the Uniform Building Code (UBC) as adopted by the City.

4. A one-time expansion, remodel, or alteration of existing uses or structures if the proposed change does not exceed twenty-five percent (25%) of the floor area of the existing use or structure.

D. Environmental Considerations. When an environmental checklist is required, it shall be submitted to the City Environmental Official for the work shown on the EV Access construction plans. Before the project plans are given final approval by the City, a declaration of non-significance or a final environmental impact statement must be issued, and all appeal periods must have expired.

E. Fees. Fees for EV Access review are set by separate Resolution adopted by the City Council.

F. Inspections. The City reserves the right to enter onto the property during construction and after completion of the EV Access to inspect it for compliance with the conditions of the permit. The City reserves the right to periodically inspect all EV Accesses.
G. Enforcement. The Applicant must have the EV Access constructed in compliance with the conditions of the permit before the project will receive final inspection approval.

Prior to issuance of the occupancy permit on commercial structures, a letter of compliance shall be submitted to the City verifying that the EV Access has been completed to the standards in this document.

Failure to construct and/or maintain the EV Access as approved, will result in on-site inspections and potential citation under the current edition of the Uniform Fire Code.

H. Submittal Procedure. A site plan shall be submitted to the City and Fire Chief in accordance with the site plan submittal standards of the proposed building permit. Site plan details shall include, but not be limited to, location and size of the EV Access, location of structures, and parcel or lot configuration.

I. Length. If an EV Access is required, it shall extend from the public or private street to within one hundred fifty (150) feet of all portions of an exterior wall of the first story of any structure requiring said EV Access as measured by an approved route around the exterior of the building.

J. Width. EV Access serving not more than two dwelling units shall not be less than fifteen (15) feet. EV Access for all other projects shall not be less than 20 feet with no parking allowed. Twenty-six (26) feet with parking on one side and thirty-two (32) feet with parking on both sides.

K. Vertical Clearance. EV Access shall have an unobstructed vertical clearance of not less than 13 feet 6 inches. The City, after conferring with the local fire chief, may allow a reduction in the vertical clearance, provided such reduction does not impair access by emergency vehicles, and approved signs are installed and maintained indicating the established vertical clearance.

L. Construction Guidelines. EV Access shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with a surface so as to provide all-weather driving capabilities. Individual single family EV Access surface treatment may be permeable pavement or gravel. Multi-family and higher uses must be permeable pavement or paved.

M. Turning Radii. A minimum outside turning radius of forty-five (45) feet shall be provided for all EV Access.

N. Turnarounds. A dead end EV Access in excess of one hundred fifty (150) feet in length shall be provided with a turnaround conforming as found in Appendix 5 and 6 of these Standards. A turnaround shall be provided within one hundred fifty (150) feet of the end of the EV Access.

O. Bridges and Structures. All bridges and structures, including drainage structures, on an EV Access shall be capable of carrying a minimum design load of HS-20 per AASHTO "Standards Specified for Highway Bridges". The design and as-builds for all bridges shall be certified by a licensed structural engineer.

P. Gates (If Applicable). A building permit issued by the City is required when gates are installed over private streets. In order for the City to issue the building permit, the following requirements must be met:

1. Locked gates shall have rapid entry capabilities compatible with the local fire district requirements.

2. Gates which serve ten (10) or more dwelling units will have an Opticom activate opening system or an equivalent and compatible system that is approved by the Fire Marshal.

3. All electrically-activated gates will have default capabilities to the unlocked position.

4. The minimum clear width of a gate shall be compatible with the required width of the EV Access.

5. Gates that might be obstructed by the accumulation of snow shall not be installed.

The City shall provide notice to the appropriate Fire Department for a new gate.

Q. Number of Access. More than one EV Access may be required for commercial developments when it is
CHAPTER 3 – TRANSPORTATION

determined by the City that access by a single street may be impaired by vehicle congestion, condition of terrain, climatic conditions, or other factors that could limit access, unless mitigation acceptable to the City is provided.

R. Grade. The maximum street grade (vertical profile grade) of an EV Access shall be fifteen (15) percent. All sections of EV Access with grades of over twelve (12) percent shall be paved with 0.17 feet, compacted depth, of asphalt concrete.

S. Obstruction. The required width of an EV Access shall not be obstructed in any manner, including parked vehicles. Minimum required widths and clearances established under these standards shall be maintained at all times.

T. Signs. When required by the City, approved signs or other approved notices shall be provided and maintained for EV Access to identify such streets and prohibit the obstruction thereof, or both. “No parking - Fire Lane” signs shall be installed using Fire Districts Requirements.

U. Approval of EV Access Location. Plans for all EV Access shall be approved by the Fire Chief and the City before a building permit is issued. All construction for the EV Access must be completed prior to City approval of the final building inspection.

3D. SIDEWALKS, CURB RAMPS, CURBS AND GUTTERS

3D.01 GENERAL

All development on all arterials and any other streets identified in the transportation plan as school walking routes shall construct sidewalks along abutting streets. Curbs and gutters and curb ramps must also be constructed along the abutting streets when the City Engineer determines that the conditions of drainage requires curbs and/or gutters or permitting conditions requiring such. Curb cuts are allowed to allow flow to be directed into a stormwater drainage facility.

3D.02 DESIGN STANDARDS

Plans for the construction of sidewalks, curbs, gutters, and curb ramps are to be submitted as part of the street plans when applicable. The minimum width for sidewalks are contained in Table A - "Minimum Street Design Standards". Because these are minimum standards, the City Engineer may modify the improvement to be installed based upon the conditions specific to the site.

3D.03 SIDEWALKS

An important element of the City’s Transportation Services and Facilities Plan is the provision of facilities for pedestrian use. To this end, sidewalks shall be provided on all new and improved City streets. Sidewalks shall be constructed of Portland Cement Concrete, pervious concrete, or other permeable pavement as approved by the City Engineer. Permeable pavement options are preferred where feasible. Exceptions will be considered on a case-by-case basis at the discretion of the City Engineer. In order to accommodate access, the minimum width for sidewalks shall be five (5) feet. This width shall be exclusive of the width of any adjacent curbs, and shall be free of such obstructions such as sign posts, utility and/or street light poles, mailboxes, or landscaping.

Sidewalks shall be constructed of cement concrete, pervious concrete, or other permeable pavement as approved by the City Engineer. Permeable pavement options are preferred where feasible. When the sidewalk, curb, and gutter are adjacent, the width of the sidewalk shall be measured from the back of the curb to back of the sidewalk. See the applicable Standard Detail Drawing(s) in the Appendix attached to this Chapter for more requirements.

A. Arterial Streets. Sidewalks, curbs, and gutters shall be required on both sides of all arterial streets interior to development(s). Sidewalks, curbs, and gutters shall also be required on the development side of exterior streets abutting the development(s) along the arterial frontage. Arterial street for the purposes of this subsection shall be per PAMC 11.02.

B. Access Streets. Sidewalks shall be required when the access street is a school walking route as defined on the school walking route map or as otherwise required by special permits.
CHAPTER 3 – TRANSPORTATION

C. Form and subgrade inspection by the City is required before the sidewalk is poured.

D. Monolithic pour of curb, gutter, and sidewalk will not be allowed.

E. All streets constructed with curb, gutters, and sidewalks, shall have pedestrian/handicap ramps provide at street intersections and other pedestrian facility crossings. These ramps shall be constructed in accordance with the City’s Standard Details as approved by the City Engineer. Any variation due to site constraints shall comply with ADA requirements.

Sidewalk construction is required in conjunction with any new development or redevelopment of the existing structures, or plat or short plat approval, or other land use permit when the need for such a sidewalk is indicated in the Port Angeles Sidewalk Plan.

Whether sidewalks are required as part of a development or not, it is unlawful, per Section 11.12. PAMC, to cause the obstruction of the right-of-way used for pedestrian travel.

3D.04 CURB AND GUTTER

A. Cement concrete curb and gutter shall be used for all street edges, unless otherwise approved by the City Engineer. Curb cuts are allowed to allow flow to be directed into a stormwater drainage facility, see Curb Cut Detail Chapter 5 Appendix B. All curbs and gutters shall be constructed per WSDOT Standard Plan F-1 or F-2b. When matching existing pavement grade, pavement shall be sawcut 2’ – 6” from face of curb. Exceptions to this may be approved by the City Engineer. Herbicide is to be placed under paving, curb and adjacent sidewalk prior to placing of the materials. Joints shall be placed at all alley and driveway returns, structures, curb ramps and as shown on the plans.

B. Form and subgrade inspection by the City are required prior to pouring the curb and gutter.

3D.05 CURB RAMPS

All sidewalks shall be constructed to provide for curb ramps in accordance with State and Federal law and WSDOT Standard Plans. Detectable warning patterns shall be yellow armor tile panel or equal as approved by the City Engineer. Form and subgrade inspection by the City are required before the ramp is poured.

3D.06 STAKING AND TESTING

See Sections 3B.185 and 3B.190 for staking and testing requirements. Form and subgrade inspection by the City is required before pouring concrete for curb and gutter, sidewalks, driveways, and curb ramps. Twenty-four (24) hours notice is required for all inspections.

3E. BIKEWAYS AND TRAILS

3E.01 GENERAL

Bikeway and Trail construction maybe required in conjunction with any new development or redevelopment of the existing structures, or plat or short plat approval, or other land use permit when the need for such a bikeway or trail is indicated in the Port Angeles Trail Plan.

3E.02 DESIGN STANDARDS

The design of bicycle paths and trails shall depend upon their type and usage. Surfacing is defined in Section 3B.160 of these standards. Normally, bikeways are shared with other non-vehicle transportation modes, although they may be provided exclusively for bicycle use. Bikeways are categorized as follows:

A. Class I, Bike Path. A separate trail for the use principally by bicyclists, but may be shared with pedestrians. These facilities are separated from motor vehicle roadways.

B. Class II, Bike Lane. A portion of a road that is designated by signs and/or pavement markings for bicycle use. These facilities are usually adjacent to the motor vehicle roadway.

C. Class III, Bike Route. A road that is designated with signs as a bicycle route, where bicycle usage is shared with motor vehicles on the street or, less desirably, with pedestrians on a sidewalk or walkway.
D. Class IV, Shared Roadway. A facility within commercial and high-density urban centers where sidewalk bicycling is not permitted. No special designations or design criteria are directed toward bicycle use. A 14 foot outside travel lane is required when a roadway is designated a shared bikeway.

Bikeways or trails shall be provided wherever called for in the Trail Plan or where traffic analysis or traffic planning indicates that substantial bicycle usage which would benefit from a designated bicycle facility.

3E.03 STAKING AND TESTING

See Sections 3B.18 and 3B.19 for staking and testing requirements.

3F. ILLUMINATION

3F.01 GENERAL

A. All new commercial or residential subdivisions, short plats or property development requiring review by the Development Review Committee shall provide street lights in accordance with the standards for such improvements of the Light Utility and they shall be owned and operated by the City.

B. Street lighting including fixtures poles, hardware conduit, and installation shall be paid for by the developer but will be installed by the Light Utility. Advance written request must be submitted to the Light Utility for this work.

3G. SIGNALS

3G.01 GENERAL

Signals shall be installed per the requirements set forth herein. This work shall be the furnishing and installing of a complete and functional traffic control system consisting of controllers, signals, and appurtenances as required by the City Engineer.

A. Temporary traffic control to ensure public safety during construction activities must be provided. A plan meeting the approval City Engineer, must be developed prior to starting construction activities that requires traffic control.

B. The developer is responsible for supplying and installing all necessary permanent traffic control devices such as street name signs, stop signs, speed limit signs, and channelization.

C. Neighborhood traffic control devices such as speed humps, traffic circles, curb extensions, etc., are devices used to control vehicle speeds and cut-through traffic. Installation of these devices will be permitted only when the installation has met criteria established by the City Engineer.

3G.02 DESIGN STANDARDS

A. Signal systems shall be designed in accordance with the specifications as set forth in the WSDOT Design Manual and the WSDOT Specifications, unless otherwise authorized by the City Engineer.

B. All public signal design shall be prepared by an engineering firm capable of performing such work. The engineer shall be licensed by the State of Washington.

3G.03 VEHICLE DETECTION

Video detection is the preferred equipment of new signal installations at traffic actuated signals. When allowed by the City Engineer, induction loops shall be constructed per WSDOT Specifications. Whenever possible, loops shall be pre-formed in crushed surfacing top course before paving.

3G.04 STAKING

See Section 3B.18 staking requirements. In addition, the minimum staking of signals shall be as follows:

1. Location, with cut or fill to center of all pole bases.
CHAPTER 3 – TRANSPORTATION

2. Location and elevation of each service disconnect.
3. Location of junction box.
4. Location of all corners of controller base.

3G.05 TESTING

A. All signals shall be subject to any necessary electrical inspections as well as requirements as set forth in the WSDOT Design Manual and the WSDOT Specifications.

B. A signal system shall not be approved or accepted by the City until the signal has performed correctly to the City's satisfaction for a 30 day "check-out" period as outlined below.

C. Controller and cabinet testing may be required by WSDOT Olympic Region laboratory and/or the City of Port Angeles. All specifications and material samples shall be submitted to the City for review and approval prior to installation.

3G.06 CHECK-OUT PROCEDURE

A. The contractor shall call for an intersection check-out after completing the controller cabinet installation along with all other signal equipment complete with wiring connections. All parts and workmanship shall be warranted for one year from date of acceptance. A maintenance bond shall be obtained by the applicant for this purpose.

B. New signals shall operate without any type of failure for a period of 30 days. The contractor shall have personnel available to respond to system failure within 24 hours during this 30 day period.

C. Failure of any control equipment or hardware within the "check-out" period shall restart the 30 day period again.

3H. ROADSIDE FEATURES

3H.01 GENERAL

Miscellaneous features included herein shall be developed and constructed to encourage the uniform development and use of roadside features wherever possible and feasible.

3H.02 DESIGN STANDARDS

The design and placement of roadside features included herein shall adhere to the specific requirements as listed for each feature and the other standards contained in this manual.

3H.03 STAKING AND TESTING

See Sections 3B.18 and 3B.19 for staking and testing requirements.

3H.04 SURVEY MONUMENTS

A. All existing survey control monuments which are disturbed, lost, or destroyed during surveying or building shall be replaced with the proper monument as outlined below by a land surveyor registered in the State of Washington. All such work shall be at the expense of the responsible builder or developer and in accordance with State Law.

B. Street Type: Arterials.

A pre-cast concrete monument per WSDOT Standard Plan No. H-7a with cast iron monument case and cover installed per WSDOT Standard Plan No. H-7, except that the cover shall read "MON". If the monument case and cover are placed in cement concrete pavement, the pre-cast base will not be necessary.

C. Street Type: Access
CHAPTER 3 – TRANSPORTATION

A cast-in-place 2” diameter brass surface monument with sufficient ferrous metal embedded to allow for detection by a magnetic detection device.

D. Monument Locations. Appropriate monuments shall be placed at the following locations, unless otherwise directed by the City Engineer:

1. At all street centerline intersections.
2. At the PC and PT’s of all horizontal curves.
3. At PI of all horizontal curves of street where the PI lies within the limits of the traveled roadway.
4. At all right of way corners, control points and angle points around the perimeter of subdivisions. Internal monuments shall be those as required in platting.
5. At all section corners, quarter corners, and sixteenth corners that fall within the right-of-way.

E. The monument and case shall be installed after the final course of surfacing has been placed.

3H.05 BUS STOPS - SHELTERS

A. Different population densities dictate the number and the placement of Clallam Transit System (CTS) bus stops. The City and CTS will determine the spacing of stops. In general, new service will not be initiated prior to the establishment of designated bus stops for an area.

B. The City and the Port Angeles School District will determine the location of school bus stops in new developments using the general criteria that follows:

1. A school bus stop shall be required for each new residential subdivision or apartment complex where school children are to be boarding or deboarding, unless it is determined that a new stop is not required due to adjacent facilities already existing that can serve the site.
2. School bus stops shall be designed to compliment the residential environment and provide convenient location and access for neighborhood children, including sidewalk access.

C. The physical location of any bus stop shall be primarily determined by the following considerations: maximizing safety, operational efficiency, and minimizing impacts to adjacent property. Bus pullouts may be required on all arterial and commercial collector roads for safe bus berthing and to minimize impacts to traffic flow by buses stopping. Additionally, bus pull-outs may be required on local access roads if road geometrics require, such as determined by the City, CTS, and the Port Angeles School District.

D. All CTS bus stops shall be identified in some fashion. This may include pavement marking and bus stop signs.

E. Passenger shelters may be required for some bus stops. Such shelters shall be designed to CTS standards and the location shall be approved by the City Engineer prior to installation. A right-of-way use permit shall be obtained by CTS for each shelter.

3H.06 MAILBOXES

During construction, existing mailboxes shall be accessible for the delivery of mail or, if necessary, moved to a temporary location. Temporary relocation shall be coordinated with the U.S. Postal Service. The mailboxes shall be reinstalled at the original location or, if construction has made it impossible, to a location as approved by the U.S. Postal Service. Sidewalk widening may be required to provide adequate passage.

So-called “gang boxes” built to accommodate mail for more than 5 street addresses are not allowed in public right-of-way without the express written approval of the City Engineer. Requests to place these types of structures in the ROW must include site specific reason(s) why a standard US Postal Service-approved mailbox or mailbox cluster cannot be used.

3H.07 GUARDRAILS

For the purposes of design and location, all guardrails along roadways shall conform to the criteria of the WSDOT Design Manual as may be amended or revised. Guardrails shall be installed by an approved guard...
CHAPTER 3 – TRANSPORTATION

3H.08 RETAINING WALLS

Unless it is part of a building permit, rock walls and concrete retaining walls over 4 feet high shall be designed by a licensed structural engineer and submitted to the City Engineer for approval. If part of a building permit, retaining walls over 4 feet high shall be designed by a licensed structural engineer and plans submitted to the Building Division of the DCED for approval. Under certain conditions, and at the discretion of the City Engineer or his representative, geotechnical or structural inspections may be required to be performed during and/or after construction at the cost of the applicant.

3I. STREET TREES AND LANDSCAPING

3I.01 GENERAL

It is the goal of the City to plant street trees on arterial streets in the City and in other specified areas by parks. The street trees and landscaping in Table D shall be employed when required along public right-of-way.

3I.02 TREE STANDARDS

Trees planted in the public right-of-way shall meet ANSI Z60 standards for nursery stock, selected from the list of approved trees in Table D of this section, and be a minimum 3-inch caliper, measured 6 inches above the base. See Standard Detail for proper planning techniques.

3I.03 LOCATION

If a planting strip is available between the curb and sidewalk, trees shall be located midway between the curb and sidewalk. Trees shall be spaced approximately 35 feet on center, as appropriate based on mature canopy diameter/spread specified in Table D, starting 15 feet from the property line, and may be in the vision triangle. If the tree is in the vision triangle the limbs shall be pruned to a height of 6 feet up measured from the ground. Tree spacing may be adjusted slightly to allow a 10 foot clear zone on either side of a driveway.

Additional standards or requirements may be included in the applicable standard detail(s) in the appendices of this chapter.

3I.04 MAINTENANCE

All developments required to plant street trees will also be required to maintain the trees for the life of the development, regardless of ownership.

TABLE D

APPROVED STREET TREES

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Botanical Name</th>
<th>Height/Spread*</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>LARGE TREES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Beech</td>
<td>Fagus grandifolia</td>
<td>50/40</td>
<td>More difficult to find than the European, but worth the effort</td>
</tr>
<tr>
<td>European Beech</td>
<td>Fagus sylvatica</td>
<td>100/60</td>
<td></td>
</tr>
<tr>
<td>Thornless Honey Locust</td>
<td>Gleditsia triacanthos finermis</td>
<td>80/40</td>
<td></td>
</tr>
<tr>
<td>Sweet Gum</td>
<td>Liquidambar styraciflua</td>
<td>80/40</td>
<td>Careful with this around hardscape: powerful roots; also burr-like fruit not pedestrian-friendly</td>
</tr>
<tr>
<td>Tulip Tree</td>
<td>Liriodendron tulipifera</td>
<td>90/40</td>
<td></td>
</tr>
</tbody>
</table>
### Chapter 3 – Transportation

<table>
<thead>
<tr>
<th>Tree Name</th>
<th>Scientific Name</th>
<th>Size</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>London Plane</td>
<td>Platanus x acerifolia</td>
<td>100/65</td>
<td>Use only in areas with large planting strips.</td>
</tr>
<tr>
<td>Burr Oak</td>
<td>Quercus macrocarpa</td>
<td>80/40</td>
<td></td>
</tr>
<tr>
<td>Pin Oak</td>
<td>Quercus palustris</td>
<td>70/40</td>
<td>Very good urban tree. Strong branch structure.</td>
</tr>
<tr>
<td>Willow Oak</td>
<td>Quercus phellos</td>
<td>70/50</td>
<td></td>
</tr>
<tr>
<td>Red Oak</td>
<td>Quercus rubra</td>
<td>75/70</td>
<td></td>
</tr>
<tr>
<td>Shumardii Oak</td>
<td>Quercus shumardii</td>
<td>70/50</td>
<td></td>
</tr>
<tr>
<td>Accolade Elm</td>
<td>Ulmus japonica x wilsoniana ’Morton’</td>
<td>70/60</td>
<td>Resistant to DED &amp; Elm Yellows</td>
</tr>
<tr>
<td>Emerald Sunshine Elm</td>
<td>Ulmus propinqu ‘JFS-Bieberich’</td>
<td>50/35</td>
<td>Resistant to DED &amp; Elm Yellows; needs a firm hand when young to develop good structure</td>
</tr>
</tbody>
</table>

#### MEDIUM SIZE TREES

Medium trees are typically the best choice for most urban streets.

<table>
<thead>
<tr>
<th>Tree Name</th>
<th>Scientific Name</th>
<th>Size</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Miyabei Maple</td>
<td>Acer miyabei</td>
<td>50/40</td>
<td>Very hardy</td>
</tr>
<tr>
<td>Hedge Maple</td>
<td>Acer campestre</td>
<td>30/30</td>
<td>’Queen Elizabeth’ has better form than the straight species</td>
</tr>
<tr>
<td>Sugar Maple</td>
<td>Acer saccharum</td>
<td>60/35</td>
<td></td>
</tr>
<tr>
<td>Red Horse Chestnut</td>
<td>Aesculus carnea</td>
<td>40/30</td>
<td>May produce seeds that interfere with walking.</td>
</tr>
<tr>
<td>Horse Chestnut</td>
<td>Aesculus hippocastanum</td>
<td>60/40</td>
<td>May produce seeds that interfere with walking.</td>
</tr>
<tr>
<td>European Hornbeam</td>
<td>Carpinus betulus</td>
<td>50/25</td>
<td></td>
</tr>
<tr>
<td>American Hornbeam</td>
<td>Carpinus caroliniana</td>
<td>35/30</td>
<td></td>
</tr>
<tr>
<td>Western Catalpa</td>
<td>Catalpa speciosa</td>
<td>60/35</td>
<td>Look for seedless varieties to avoid the messy pods</td>
</tr>
<tr>
<td>Katsuratree</td>
<td>Cercidiphyllum japonicum</td>
<td>40/40</td>
<td>Needs irrigation to establish well</td>
</tr>
<tr>
<td>Turkish Hazelnut</td>
<td>Corylus columna</td>
<td>45/30</td>
<td>Very tough &amp; attractive</td>
</tr>
<tr>
<td>Swedish Columnar Aspen</td>
<td>Pop. tremula ‘Erecta’</td>
<td>40/10</td>
<td>Narrow columnar form</td>
</tr>
<tr>
<td>Ginkgo (male only)</td>
<td>Ginkgo biloba</td>
<td>40/25</td>
<td>Avoid female trees. They produce fruit with an objectionable odor.</td>
</tr>
<tr>
<td>Kentucky Coffee Tree</td>
<td>Gymnocaldus dioica</td>
<td>50/35</td>
<td>Seedpods may be objectionable (big &amp; messy); ’Espresso’ is a seedless variety</td>
</tr>
<tr>
<td>Mountain Silverbell</td>
<td>Halesia monticola</td>
<td>40-60</td>
<td></td>
</tr>
<tr>
<td>Osage Orange</td>
<td>Maclura pomifera</td>
<td>35/35</td>
<td>Drought-tolerant &amp; tough; ‘White Shield’ is fruitless and thornless</td>
</tr>
<tr>
<td>Tupelo</td>
<td>Nyssa sylvatica</td>
<td>60/40</td>
<td></td>
</tr>
<tr>
<td>Hop Hornbeam</td>
<td>Ostrya virginiana</td>
<td>40/30</td>
<td>Very handsome in a quiet way</td>
</tr>
<tr>
<td>Cork Tree</td>
<td>Phellodendron amurense</td>
<td>40/35</td>
<td>‘Eye Stopper’ and ‘His Majesty’ are seedless</td>
</tr>
<tr>
<td>Swamp Oak</td>
<td>Quercus bicolor</td>
<td>60/45</td>
<td></td>
</tr>
<tr>
<td>Scarlet Oak</td>
<td>Quercus coccinea</td>
<td>60/45</td>
<td></td>
</tr>
<tr>
<td>English Oak</td>
<td>Quercus robur</td>
<td>60/40</td>
<td></td>
</tr>
<tr>
<td>Oregon White or Garry Oak</td>
<td>Quercus garryana</td>
<td>65/45</td>
<td>Native to Olympic Peninsula</td>
</tr>
<tr>
<td>Silver Linden</td>
<td>Tilia tomentosa</td>
<td>60/40</td>
<td></td>
</tr>
<tr>
<td>Frontier Elm</td>
<td>Ulmus ‘Frontier’</td>
<td>40/30</td>
<td>Good burgundy fall color; resistant to DED &amp; Elm Yellows; needs a firm hand when young to develop good structure</td>
</tr>
<tr>
<td>Japanese Zelkova</td>
<td>Zelkova serrata</td>
<td>60/40</td>
<td></td>
</tr>
<tr>
<td>Japanese Pagoda Tree</td>
<td>Sophora japonica</td>
<td>45/35</td>
<td></td>
</tr>
</tbody>
</table>

The following Small Size Trees may be allowed when limiting site conditions warrant their use and the choice is approved by the City Engineer:

<table>
<thead>
<tr>
<th>SMALL SIZE TREES Not generally recommended</th>
<th>Small trees should only be planted in locations of limited space, either narrow planting area or overhead obstruction. Small trees require specific approval for planting as street trees.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rocky Mountain Maple</td>
<td>Acer glabrum</td>
</tr>
<tr>
<td>Wasatch Maple</td>
<td>Acer grandidentatum</td>
</tr>
<tr>
<td>Trident Maple</td>
<td>Acer buergeranum</td>
</tr>
<tr>
<td>David Maple</td>
<td>Acer davidii</td>
</tr>
<tr>
<td>Amur Maple</td>
<td>Acer ginalla</td>
</tr>
<tr>
<td>Paperbark Maple</td>
<td>Acer griseum</td>
</tr>
<tr>
<td>Serviceberry</td>
<td>Amelanchier sp.</td>
</tr>
<tr>
<td>Japanese Hornbeam</td>
<td>Carpinus japonica</td>
</tr>
<tr>
<td>Eastern Redbud</td>
<td>Cercis canadensis</td>
</tr>
<tr>
<td>Yellow Wood</td>
<td>Cladrastis lutea</td>
</tr>
<tr>
<td>Flowering Dogwood</td>
<td>Cornus florida</td>
</tr>
<tr>
<td>Chinese Kousa Dogwood</td>
<td>Cornus kousa 'Chinensis'</td>
</tr>
<tr>
<td>Cornelian Cherry Dogwood</td>
<td>Cornus mas</td>
</tr>
<tr>
<td>Venus Dogwood</td>
<td>C. (kousa x nuttalli) x kousa</td>
</tr>
</tbody>
</table>
### Washington Hawthorn
- *Crataegus phaenopyrum*
- 25/20
- May produce fruit that becomes objectionable to walk on. Produces significant thorns.

### Carriere Hawthorns
- *Crataegus lavallei*
- 25/20

### Witch Hazel
- *Hamamelis spp.*
- 20/20

### Golden Rain
- *Koelreuteria paniculata*
- 30/30

### Golden Chain Tree
- *Laburnum x watereri ‘Vossii’*
- 30/20
- Seed/fruit is toxic to children; should not be used in parks or near schools

### Amur Maackia
- *Maackia amurensis*
- 30/30

### Wada’s Memory Magnolia
- *Magnolia x kewensis ‘Wada’s Memory’*
- 30/20
- Deciduous, great bloom

### Galaxy Magnolia
- *Magnolia ‘Galaxy’*
- 30/15
- One of the best forms for deciduous magnolias

### Star Magnolia
- *Magnolia stellata*
- 20/10

### Sourwood
- *Oxydendrum arboreum*
- 25/20

### Persian Parrotia
- *Parrotia persica*
- 30/20

### Canada Red Chokecherry
- *Prunus virginiana*
- 25/25

### Stewartia
- *Stewartia sp.*
- 30/20
- Beautiful elegant tree; many species

### Snowbell
- *Styrax sp.*
- 25/20
- Two species; a couple good cultivars with better form

### Ivory Silk Japanese Tree Lilac
- *Syringe reticulata ‘Ivory Silk’*
- 20/15
- A true tree-form lilac

*All height and spread dimensions are for trees at approximately 30 to 50 years of age and are listed for growth expected in urban areas. The same tree in a forested or more natural setting is likely to be larger.*

### 3I.05 PROHIBITED TREES

The following trees are too large for most planting areas. They may have aggressive and invasive root systems. Some may have weak-wood that tend to break apart at relatively young age. Others are notorious for damage to curbs and sidewalks. (Some of these trees may be used appropriately in landscapes without problems)

<table>
<thead>
<tr>
<th>Large evergreens</th>
<th>Firs, cedars, hemlocks, spruce, pine.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cottonwood or Poplars</td>
<td><em>Populus sp.</em></td>
</tr>
<tr>
<td>Willows</td>
<td><em>Salix sp.</em></td>
</tr>
<tr>
<td>Silver Maple</td>
<td><em>Acer saccharinum</em></td>
</tr>
<tr>
<td>Norway Maple</td>
<td><em>Acer platanoides</em></td>
</tr>
<tr>
<td>Tree-of-Heaven</td>
<td><em>Ailanthus altissima</em></td>
</tr>
<tr>
<td>American Sycamore</td>
<td><em>Plantanlus occidentalis</em></td>
</tr>
<tr>
<td>Palm trees</td>
<td>All species</td>
</tr>
</tbody>
</table>

These trees are severely attacked by insects or diseases that weaken or defoliate branches, decrease tree vigor and shorten lifespan.

| Box Elder | *Acer negundo* |
| Black Locust | *Robinia pseudoacacia* |
| Crabapples | *Malus sp.* |
| American Sycamore | *Plantanlus occidentalis* |
These trees either produce and drop large or messy fruit that may cause hazardous conditions for pedestrians and extra clean-up work for the homeowner/resident or are not structurally sound and may break apart.

<table>
<thead>
<tr>
<th>Tree Type</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>American, Green, or White Ash</td>
<td>Fraxinus sp.</td>
</tr>
<tr>
<td>Flowering Cherry</td>
<td>Prunus sp.</td>
</tr>
<tr>
<td>Lindens (little &amp; large leaf varieties)</td>
<td>Tillia cordata &amp; platyphylos</td>
</tr>
<tr>
<td>European White Birch</td>
<td>Betula pendula</td>
</tr>
</tbody>
</table>

The following trees have been overplanted and comprise a larger percentage of the City’s street trees than is recommended for long term urban forest sustainability:

- Purple Leaf Plum
- Flowering Cherries
- Red Maples

3I.06 EXCEPTIONS

Exceptions to this section may be made by City Engineer on a site-specific basis. Exceptions include but are not limited to: vegetation within stormwater BMPs/ facilities, screening an industrial area; planting around historical sites; maintaining natural vegetation that better serves as street landscaping or beautification.

3J. PARKING LOTS

Parking lot space requirements shall be as specified herein, and as required by Chapter 14.40 of the Port Angeles Municipal Code (PAMC). This includes parking lots designed and constructed as a part of the requirements for the occupancy of a building or business.

A. Improvement requirements are:

1. Lots shall be contoured and drained so as to collect the drainage on the site, and discharge the drainage by an approved method to an approved drainage collection system.

2. Lots shall be graded and paved with a permeable pavement with a structurally adequate base, hard-surface pavement of portland cement concrete or asphaltic concrete with a structurally adequate base, or other hard-surface pavement acceptable to the City Engineer. Permeable pavement options are preferred where feasible. The Director of Public Works and Utilities may allow for an exception to hard-surface pavement for developments in the Industrial Heavy Zone, provided that adverse impacts to stormwater drainage, surrounding properties, and public infrastructure are mitigated to the extent the Director deems reasonably necessary and appropriate.

3. Wheel stops shall be installed where necessary to prevent encroachment upon public right-of-way or adjacent to private property.

4. The City may grant permission for temporary occupancy of a building or structure without the parking spaces improved, provided that an improvement bond in amount of 150% the estimated value of the improvements is provided for the approval of the City Engineer. The bonds may be accepted if weather conditions make for unsound construction practice, materials are not available, or there are difficult site conditions. Such bonding shall not exceed 12 months.

5. Building uses requiring 6 or fewer spaces may delay without a bond or the improvement of the parking stalls, for up to 12 months, provided that the area is graded and maintained in good condition and runoff is controlled per item number 1 above.
CHAPTER 3 – TRANSPORTATION

B. Stall Standards

1. The number of stalls that shall be provide is governed by the requirements of PAMC Chapter 14.40.

2. A standard stalls, aisle widths, and layouts shall be designed in accordance with the City Standard Drawing for Parking Lot.

3. No portion of the public right-of-way shall be used in the turning movement to directly enter or exit a stall. Parking stall layout will not be approved where the vehicle must back onto public right-of-way to exit a stall.

4. Stalls shall be delineated by 4" wide white striping or raised pavement markers.

C. Handicapped Parking Stalls - Size of stall and striping width per applicable City Standard Detail Drawing. Number of stalls required will be as specified by the DCED.

- End of Chapter 3
APPENDICES

A. City Standard Drawings

1. Standard Streets and Alleys  stdstreet&alley.dwg
2. Minimum Streets and Alleys  minstreet&alley.dwg
3. Suburban Streets  suburban streets.dwg
4. Controlled Density Backfill (CDF)  (See Chapter 5)
5. Driveway Locations  driveloc.dwg
6. Driveway Installation  driveway.dwg
7. Sidewalk Through Driveway  drop driveway.dwg
8. Non-Curbed Street Driveway and Culvert  drivewayculv.dwg
9. Residential Turnarounds  culdesacs.dwg
10. Sidewalk Installation  sidewalk.dwg
11. Through Curb Inlet Installation  (See Chapter 5)
12. Parking Lot Catch Basin  (See Chapter 5)
13. Parking Lot Design  Parkinglot.dwg
14. Traffic Circle Dimensions  Circle Dimensions.dwg
15. Traffic Circle - Retrofit  Circle Detail.dwg
16. Traffic Circle – New Construction  Circle Detail.dwg
17. Intersection Sight Lines - Yield  Yield Intersection.dwg
18. Tree Planting


1. Traffic Barriers  Section C
2. Curbs, Sidewalks, and Driveways  Section F
3. Signs and Sign Supports  Section G
4. Illumination, Signals and ITS  Section J
5. Work Zone Traffic Control  Section K
6. Roadway Delineation  Section M
STANDARD DETAIL

STANDARD PAVED ALLEY SECTION

2" MIN. COMPACTED DEPTH ASPHALT CONCRETE (SEE NOTE 4)
2" MIN. COMPACTED DEPTH CRUSHED SURFACING TOP COURSE (SEE NOTE 4)
8" MIN. COMPACTED DEPTH BALLAST (SEE NOTE 4)

NOTES:
1. CENTERLINE PROFILE GRADE SHALL BE DRAWN BY CITY ENGINEER PRIOR TO CONSTRUCTION.
2. ALLEY CENTERLINE SHALL BE COINCIDENT WITH CENTER OF ALLEY RIGHT OF WAY.
3. 1' O" EACH SIDE OF CENTERLINE SHALL BE CEMENT CONCRETE CLASS 3000 FOR ALLEYS WITH LESS THAN 2% CENTERLINE PROFILE GRADE.
4. ROAD SECTION FOR COMMERCIAL USE ALLEYS SHALL BE 6" CEMENT CONCRETE CLASS 3000 WITH 6" BALLAST.
5. ANY DEVIATION FROM THESE STANDARDS REQUIRES WRITTEN APPROVAL BY CITY ENGINEER PRIOR TO CONSTRUCTION.
6. SOIL RESIDUAL HERBICIDE SHALL BE PLACED PRIOR TO ASPHALT OR CONCRETE PAWING.
7. PERMEABLE PAVEMENT IS PREFERRED WHERE FEASIBLE.

STANDARD PAVED ROAD SECTION

SEE CITY STANDARD DETAIL FOR CURB, GUTTER, AND SIDEWALK CONSTRUCTION

NOTES:
1. CENTERLINE PROFILE GRADE TO BE APPROVED BY CITY ENGINEER PRIOR TO CONSTRUCTION.
2. ROAD CENTERLINE SHALL BE COINCIDENT WITH RIGHT OF WAY CENTERLINE.
3. MINIMUM CLEAR ZONE IS 18" BEHIND CURB. ALL OBSTRUCTIONS TO BE REMOVED/RELOCATED.
4. SITE CONDITIONS MAY REQUIRE STORM DRAINAGE IMPROVEMENTS.
5. ANY DEVIATION FROM THESE STANDARDS REQUIRES PRIOR WRITTEN APPROVAL BY THE CITY ENGINEER.
6. SOIL RESIDUAL HERBICIDE SHALL BE PLACED PRIOR TO PAVING AND SIDEWALK, CURB, AND GUTTER CONSTRUCTION.
7. PROVIDE 24 HOURS NOTICE FOR INSPECTION BY THE CITY OF THE FOLLOWING: ROUGH GRADING, PLACEMENT OF STRUCTURAL SECTION, PAVING, CONCRETE FORMS.
8. SIDEWALK SLOPE DIRECTION MAY BE MODIFIED TO ALLOW SIDEWALKS TO DRAIN TO LID BMP'S OR NATIVE VEGETATION AREAS IF APPROVED BY THE CITY ENGINEER.
9. PERMEABLE PAVEMENT IS PREFERRED, WHERE FEASIBLE.

ALL WORK AND MATERIAL TO BE IN ACCORDANCE WITH THE CURRENT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION"

APPROVED BY
CITY ENGINEER:

DATE:
REVISED: 1/1/17

STANDARD
STREETS AND ALLEYS

FILE NAME: STDSTREETALLEY.DWG
STANDARD DETAIL

8'-0" 5'-0" 10'-0" 10'-0"
PROFILE GRADE
SEE NOTES #2 AND #3
2% SLOPE
2% SLOPE

2" MIN. COMPACTED DEPTH CRUSHED SURFACING TOP COURSE
8" MIN. COMPACTED DEPTH BALLAST

GRAVEL ALLEY SECTION (NOT TO SCALE)

8'-0" 5'-0" 10'-0" 10'-0" 3'-0" 8'-0"
PROFILE GRADE
SEE NOTES #2 AND #3
2% SLOPE
2% SLOPE

2" MIN. COMPACTED DEPTH HOT MIX ASPHALT
2" MIN. COMPACTED DEPTH CRUSHED SURFACING TOP COURSE
8" MIN. COMPACTED DEPTH BALLAST
2" MIN. COMPACTED DEPTH CRUSHED ROCK SHOULDERS

ASPHALT TWO LANE ROAD (NOT TO SCALE)

8'-0" 5'-0" 10'-0" 10'-0" 3'-0" 8'-0"
PROFILE GRADE
SEE NOTES #2 AND #3
2% SLOPE
2% SLOPE

8" MIN. COMPACTED DEPTH BALLAST

GRAVELLED STREET (NOT TO SCALE)

NOTES:

1. THESE ARE THE MINIMUM REQUIREMENTS FOR ALL-WEATHER STREETS AND ALLEYS.
2. PROFILE GRADE TO BE APPROVED BY THE CITY ENGINEER.
3. ROAD CENTERLINE TO BE COINCIDENT WITH RIGHT-OF-WAY CENTERLINE.
4. MINIMUM CLEAR ZONE IS 10' BEYOND TRAVELED WAY. ALL OBSTRUCTIONS TO BE REMOVED.
5. CROSS CULVERTS FOR DRAINAGE MAY BE REQUIRED BASED UPON SITE CONDITIONS.
6. SEE APPROPRIATE CITY STANDARD DETAIL FOR CULVERT PLACEMENT AND APPROACH CONSTRUCTION
7. ANY DEVIATION FROM THESE MINIMUM STANDARDS REQUIRES WRITTEN APPROVAL BY CITY ENGINEER PRIOR TO CONSTRUCTION.
8. PERMEABLE PAVEMENT IS PREFERRED, WHERE FEASIBLE.

INSPECTION REQUIRED UPON COMPLETION OF ROUGH GRADING AND DURING PLACEMENT OF STRUCTURAL SECTION. ALL WORK AND MATERIAL TO BE IN ACCORDANCE WITH THE CURRENT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION"

APPROVED BY:
CITY ENGINEER:
DATE: 1/1/17
FILE NAME: MINSTREETALLEY.DWG
MINIMUM STREETS AND ALLEYS
SUBURBAN PAVED ROAD WITH SIDEWALK (RS 9 & RS-11 ZONES)

NOTES:
1. 60' RIGHT OF WAY (SLOPE AND SIDEWALK EASEMENTS MAY BE REQUIRED)
2. VEGETATED SWALES OR BIOPRETENTION SWALES/CORES
3. CITY STANDARD SIDEWALK, ONE SIDE ONLY
   - 4' WIDE PEDESTRIAN ONLY (REQUIRES PASSING AREAS AT 200 FOOT MAXIMUM INTERVALS)
   - 8' WIDE PEDESTRIAN/BIKE LINES ON ADOPTED BIKE ROUTES
4. PROFILE GRADE TO BE APPROVED BY CITY ENGINEER
5. ROADWAY CENTERLINE MAY BE SHIFTED AN ADDITIONAL 5' (I.E. 20', 40') WHEN 8' BIKE LANE IS REQUIRED
6. MINIMUM CLEAR ZONE IS 10' BEHIND EDGE OF PAVEMENT. ALL OBSTRUCTIONS TO BE REMOVED.
7. SITE CONDITIONS MAY REQUIRE STORM DRAINAGE IMPROVEMENTS
8. HERBICIDE TO BE PLACED ON TOP COURSE PRIOR TO ASPHALT PAVING.
9. SEE APPROPRIATE CITY STANDARD DETAIL FOR CULVERT PLACEMENT AND APPROACH CONSTRUCTION.
10. ANY DEVIATION FROM THESE MINIMUM STANDARDS REQUIRES WRITTEN APPROVAL BY THE CITY ENGINEER PRIOR TO CONSTRUCTION.
11. PERMEABLE PAVEMENT IS PREFERRED, WHERE FEASIBLE.

CALL FOR FORM INSPECTION BY CITY 24 HOURS PRIOR TO POURING CONCRETE.

ALL WORK AND MATERIAL TO BE IN ACCORDANCE WITH THE CURRENT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION"
NOTES:
1. ALLEY OR NON-ARTERIAL ACCESS IS ENCOURAGED WHERE POSSIBLE.
2. DRIVEWAYS SHALL BE LOCATED TO AVOID CONFLICT WITH POWER POLES, STREET LIGHTS, FIRE HYDRANTS OR SITUATIONS WHICH MAY RESULT IN UNSAFE CONDITIONS.
3. THE MAXIMUM CURBED STREET DRIVEWAY WIDTH SHALL BE 24 FEET EXCEPT THAT IT SHALL BE REDUCED TO 20 FEET WHEN THE LOT FRONTAGE IS 70 FEET OR LESS.
4. THE MINIMUM CURBED STREET DRIVEWAY WIDTH SHALL BE 12 FEET. DRIVEWAY SHALL BE PERPENDICULAR TO THE STREET.
5. WHERE TWO OR MORE ADJOINING DRIVEWAYS ARE APPROVED FOR THE SAME PROPERTY, A FULL CURB HEIGHT SEPARATION BETWEEN EACH DRIVEWAY OF NOT LESS THAN 15 FEET AT THE CURB, MUST BE PROVIDED.
6. DRIVEWAY APRONS SHALL NOT EXTEND INTO THE STREET FURTHER THAN THE FACE OF THE CURB.
7. DRIVEWAY SHALL BE LOCATED AWAY FROM STREET INTERSECTION WHERE POSSIBLE. IN NO CASE SHALL DRIVEWAY BE LOCATED WITHIN 7'-6" OF A PROPERTY LINE, 25 FEET OF A MARKED OR UNMARKED PEDESTRIAN CROSSING, OR 25 FEET OF INTERSECTING RIGHT OF WAY LINES.
8. COMMERCIAL AND INDUSTRIAL DRIVEWAY LOCATIONS REQUIRE CITY ENGINEER APPROVAL AND SHALL BE SHOWN ON SITE PLAN WITH REQUIRED PARKING LAYOUT.
9. DRIVEWAYS THAT ARE ABANDONED OR RELOCATED SHALL BE REMOVED, BACKFILLED, AND CURBING REPLACED TO FULL HEIGHT. EXISTING CURB AND GUTTER SHALL BE REMOVED AND REPLACED TO THE NEAREST JOINT EACH SIDE OF ANY APPROVED NEW DRIVEWAY LOCATION.
10. NEW DRIVEWAYS TO BE CONSTRUCTED TO THE MOST CURRENT CITY STANDARD.

ALL WORK AND MATERIAL TO BE IN ACCORDANCE WITH THE CURRENT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION"
STANDARD DETAIL

NOTES:

1. DRIVEWAY LOCATION TO BE APPROVED BY CITY ENGINEER.
2. WHEN SIDEWALK IS NOT PRESENT, DRIVEWAY APPROACH SHALL BE CONSTRUCTED TO MEET FUTURE SIDEWALK GRADE.
3. SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% IN DRIVEWAY AND BYPASS AREAS.
4. DRIVEWAY APRON AND SIDEWALK SHALL BE CONCRETE AND SEPARATED FROM OTHER CONCRETE WORK USING EXPANSION JOINTS.
5. HERBICIDE TO BE PLACED UNDER PAVING, CURB AND SIDEWALK PRIOR TO PLACING OF MATERIALS.
6. SIDEWALKS, CURB AND GUTTER PER CITY STANDARD PLANS.
7. EXPOSED AGGREGATE WORK OR SPECIAL SURFACE TREATMENT NOT ALLOWED IN RIGHT OF WAY.
8. TRANSVERSE EXPANSION JOINT(S), FULL DEPTH, SHALL BE AT INTERVALS NOT TO EXCEED 15 FEET AND BE EQUALLY SPACED IN DRIVEWAY APRONS.
9. PERMEABLE PAVEMENT IS PREFERRED. WHERE NOT FEASIBLE, CONCRETE SHALL BE CLASS 3000.
10. DRIVEWAY PAVING MATERIALS, OTHER THAN CONCRETE, MAY BE USED BETWEEN THE SIDEWALK AND THE R/W WITH CITY ENGINEER APPROVAL.
11. EXPANSION JOINTS SHALL BE 1/4" THICK, FULL DEPTH, ASPHALT IMPREGNATED JOINT MATERIAL.
12. SIDEWALK WIDTHS SHOWN ARE FOR RESIDENTIAL AREAS. COMMERCIAL AND DOWNTOWN AREA WIDTHS SHALL BE 10' AND 14" RESPECTIVELY.
13. ANY DEVIATION FROM THESE MINIMUM STANDARDS REQUIRES PRIOR APPROVAL BY CITY ENGINEER.

ALL WORK AND MATERIAL TO BE IN ACCORDANCE WITH THE CURRENT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION"

CALL FOR FORM INSPECTION BY CITY 24 HOURS PRIOR TO POURING CONCRETE.

APPROVED BY:
CITY ENGINEER:
FILE NAME: DRIVEWAY.DWG
DATE: REVISED: 1/1/17

DRIVEWAY INSTALLATION
STANDARD DETAIL

SECTION A–A

NOTES:

1. THE PEDESTRIAN TRAVELWAY SHALL HAVE A MAXIMUM CROSS SLOPE OF 48:1 (2%).

2. INSTALL RAMPS ON BOTH SIDES OF THE DRIVEWAY AS SHOWN ON THE PLANS. RAMPS SHALL BE AS LONG AS NECESSARY TO PROVIDE A MAXIMUM SLOPE OF 12:1 PARALLEL AND PERPENDICULAR TO THE EXISTING PLANE ON WHICH THE RAMP IS TO BE CONSTRUCTED.

3. PERMEABLE PAVEMENT IS PREFERRED, WHERE NOT FEASIBLE CEMENT CONCRETE SHALL BE CLASS 3000, MIN. 6" THICK INCLUDING RAMPS

4. ASPHALT IMPREGNATED EXPANSION JOINT, FULL DEPTH AT BACK OF CURB AND EVERY 20 FEET AT TRANSVERSE JOINTS. JOINT MATERIAL NOT REQUIRED AT BACK OF CURB IF RAMP AND/OR DRIVEWAY IS Poured SEPARATELY CREATING A COLD JOINT.

5. CRACK JOINTS EVERY 5 FEET IN WALK.

6. HERBICIDE (RESIDUAL) TO BE APPLIED BEFORE POURING CONCRETE.

7. EXPOSED AGGREGATE OR SPECIAL SURFACE TREATMENT NOT ALLOWED IN RIGHT OF WAY

CALL FOR FINAL INSPECTION BY CITY 24 HOURS PRIOR TO POURING CONCRETE.

ALL WORK AND MATERIAL TO BE IN ACCORDANCE WITH THE CURRENT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION"

DRIVEWAY INSTALLATION
SIDEWALK THROUGH DRIVEWAY

APPROVED BY
CITY ENGINEER:

DATE: 1/1/17

FILE NAME: DROP DRIVEWAY.DWG

REVISED: 1/1/17
PORT STANDART DETAIL

DRIVE

JOIN EXSSNNCE

EDGE OF PAWN6

JOIN

TO

BE

TACKED

AREA

OF NEW PAWNG SH1ULDER

TRANSINON

TO ROADSIDE DITCH

TRANSINON

TO ROADSIDE DITCH

R.O.W.

YAI

10'-12'+/

2% Min.

VARIES

12" COP, PVC, OR SMOOTH WALL CPEP. SEE DETAIL FOR END TREATMENT.

20" MINIMUM LENGTH

6" MINIMUM COVER

NOTES

1. DRIVEWAY PERMIT REQUIRED
2. CULVERT INSTALLATION INSPECTION REQUIRED PRIOR TO PAVING
3. EXPOSED AGGREGATE OR SPECIAL SURFACE TREATMENT NOT ALLOWED WITHIN RIGHT OF WAY
4. 6" CONCRETE WITH 1" CRUSHED SURFACING TOP COURSE MAY BE SUBSTITUTED. BROOM FINISH ONLY.
5. EXISTING SIDEWALK ABUTTING NEW OR ALTERED APPROACH SHALL BE REMOVED AND REPLACED WITH 6" MINIMUM DEPTH CEMENT CONCRETE SIDEWALK.
6. PERMEABLE PAVEMENT IS PREFERRED WHERE FEASIBLE.
7. ANY DEVIATION FROM THESE MINIMUM STANDARDS REQUIRES PRIOR APPROVAL BY CITY ENGINEER.

ALL WORK AND MATERIAL TO BE IN ACCORDANCE WITH THE CURRENT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION"

APPROVED BY
CITY ENGINEER:

DATE: 3/15/06
REVISED: 1/1/17

NON-CURBED STREET
DRIVEWAY AND CULVERT

FILE NAME: DRIVEWAYCULV.DWG
NOTES:

1. ROAD APPROACH WIDTHS SHOWN ARE MINIMUM STANDARDS AND NOT TO EXCEED 500' IN LENGTH. ADDITIONAL WIDTH MAY BE REQUIRED PER CITY STANDARDS.

2. DIMENSIONS SHOWN ARE TO CURB FACE OR EDGE OF PAVEMENT. RIGHT OF WAY SHALL BE A MINIMUM OF 6'-6" BEHIND CURB FACE OR EDGE OF PAVEMENT.

3. ROADWAY CONSTRUCTION SHALL BE TO CITY STANDARDS.

4. ANY DEVIATION FROM THESE STANDARDS REQUIRES PRIOR WRITTEN APPROVAL BY THE CITY ENGINEER.

5. CUL-DE-SAC SHALL BE CONSTRUCTED OF PERMEABLE PAVEMENT, WHERE FEASIBLE. FLEXIBILITY IN CUL-DE-SAC DIAMETER MAY BE ALLOWED WITH CITY ENGINEER APPROVAL IF A BIORETENTION PLANTER OR SWALE IS PROVIDED IN THE CENTER OF THE CUL-DE-SAC.

ALL WORK AND MATERIAL TO BE IN ACCORDANCE WITH THE CURRENT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION"
STANDARD DETAIL

SIDEWALK WITH PLANTING STRIP  SEE NOTE #1

SIDEWALK AT CURB  SEE NOTE #1

NOTES:

SECTION A-A

1. SIDEWALK LOCATION TO BE APPROVED BY CITY ENGINEER.
2. EXPANSION JOINTS SHALL BE ASPHALT IMPREGNATED JOINT MATERIAL.
3. EXPANSION JOINTS SHALL BE 1/4" THICK, FULL DEPTH AND AT 15'-0" INTERVALS.
4. DUMMY JOINTS SHALL BE 1/8" THICK, 1" DEEP AND AT 5'-0" INTERVALS.
5. ALL UTILITY POLES, METER BOXES, ETC. IN SIDEWALK AREA SHALL HAVE EXPANSION JOINT MATERIAL (FULL DEPTH) PLACED AROUND THEM.
6. ALL JOINTS SHALL BE CLEAN AND EDGED.
7. EXPOSED AGGREGATE OR SPECIAL SURFACE TREATMENT WORK NOT ALLOWED IN RIGHT-OF-WAY.
8. DRIVEWAY AND SIDEWALK SHALL BE SEPARATED BY EXPANSION JOINTS.
9. PERMEABLE PAVEMENT IS PREFERRED, WHERE NOT FEASIBLE CONCRETE SHALL BE CLASS 3000.
10. HERBICIDE TO BE PLACED UNDER PAVER, CURB AND SIDEWALK PRIOR TO PLACING OF MATERIALS.
11. SIDEWALK ELEVATION SHALL BE BASED ON 2% SLOPE PROJECTION FROM TOP OF CURB.
12. SIDEWALK WIDTHS SHOWN ARE FOR RESIDENTIAL AREAS. COMMERCIAL AND DOWNTOWN AREAS WIDTHS SHALL BE 10' AND 14' RESPECTIVELY.
13. ANY DEVIATION FROM THESE MINIMUM STANDARDS REQUIRES PRIOR APPROVAL BY CITY ENGINEER.

SECTION B-B

CALL FOR FORM INSPECTION BY CITY 24 HOURS PRIOR TO POURING CONCRETE.

ALL WORK AND MATERIAL TO BE IN ACCORDANCE WITH THE CURRENT WASHINGTON STATE DEPARTMENT OF TRANSPORTATION \"STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION\"
# STANDARD DETAIL

## DESIGN FORMULAS

<table>
<thead>
<tr>
<th>PARKING ANGLE</th>
<th>STANDARD PARKING LOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min. Stall Width</td>
</tr>
<tr>
<td>PARALLEL</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>12'-0&quot;</td>
</tr>
<tr>
<td>50</td>
<td>11'-1&quot;</td>
</tr>
<tr>
<td>55</td>
<td>10'-5&quot;</td>
</tr>
<tr>
<td>60</td>
<td>9'-10&quot;</td>
</tr>
<tr>
<td>65</td>
<td>9'-5&quot;</td>
</tr>
<tr>
<td>70</td>
<td>9'-1&quot;</td>
</tr>
<tr>
<td>75</td>
<td>8'-10&quot;</td>
</tr>
<tr>
<td>90</td>
<td>8'-6&quot;</td>
</tr>
</tbody>
</table>

**HANDICAP STALL WIDTHS:**

Consult with Building Official for Current Standards

**FORMULAS:**

\[
\begin{align*}
X &= W \sin(A) \\
B &= W/\sin(A) \\
R &= (W/2) \sin(A) \\
Z &= L \cos(A) \\
S &= 2.5 \sin(A)
\end{align*}
\]

**NOTES:**

1. Number of spaces shall be in accordance with City’s off-street parking requirements.
2. Handicap parking spaces shall meet City’s requirements.
3. Parking area and aisles shall be paved with asphalt or concrete.
4. Spaces shall be delineated by 4” white striping or buttons.
5. Construction shall be in accordance with City’s Clearing, Grading, Filling and Drainage requirements. Catch basins with oil separation “T” are required.
6. Overhangs of 2’-6” maximum may be permitted if walkways (3’-0” minimum) are not obstructed and curb or fastened curb stops are provided.
7. Fire Department may require 20’-0” minimum fire lane when necessary.
8. A site plan (1”=50’ or 1”=20’) showing all spaces, property lines and dimensions is required for review and approval prior to construction.
9. Refer to Chapter 14.40 PAMC for parking lot standards for different land uses.

---

**APPROVED BY**

CITY ENGINEER:

**DATE:** 3/13/09

**REVISED:** 1/1/17

**FILE NAME:** PARKINGLOT.DWG

**PARKING LOT MINIMUM DESIGN REQUIREMENTS**
### Geometry

#### Notes:
1. USE DIMENSION SCHEDULE AS A DESIGN GUIDE. FINAL DIMENSIONS TO BE DETERMINED BY THE ENGINEER.
2. FOR PLANTER ISLAND SPECIFICATIONS SEE TRAFFIC CIRCLE DETAIL.

#### Optimum Criteria

<table>
<thead>
<tr>
<th>Offset Distance (C)</th>
<th>Opening Width (E)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5’ MAX.</td>
<td>16’ MIN.</td>
</tr>
<tr>
<td>5.0’</td>
<td>17’ ±</td>
</tr>
<tr>
<td>4.5’</td>
<td>18’ ±</td>
</tr>
<tr>
<td>4.0’</td>
<td>19’ ±</td>
</tr>
<tr>
<td>3.5’ OR LESS</td>
<td>20’ ±</td>
</tr>
</tbody>
</table>

## Dimensions

### Table

<table>
<thead>
<tr>
<th>A Street Width</th>
<th>B Curb Return Radius</th>
<th>C Offset Distance</th>
<th>D Circle Diameter</th>
<th>E Opening Width</th>
</tr>
</thead>
<tbody>
<tr>
<td>20’</td>
<td>&lt;15’</td>
<td>RECONSTRUCT CURBS</td>
<td>16’</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15’</td>
<td>5.5’</td>
<td>9’</td>
<td>17’+</td>
</tr>
<tr>
<td></td>
<td>18’</td>
<td>5.0’</td>
<td>10’</td>
<td>17’+</td>
</tr>
<tr>
<td></td>
<td>20’</td>
<td>4.5’</td>
<td>11’</td>
<td>18’-</td>
</tr>
<tr>
<td></td>
<td>25’</td>
<td>4.0’</td>
<td>12’</td>
<td>19’+</td>
</tr>
<tr>
<td>24’</td>
<td>&lt;12’</td>
<td>RECONSTRUCT CURBS</td>
<td>13’</td>
<td>16’-</td>
</tr>
<tr>
<td></td>
<td>12’</td>
<td>5.5’</td>
<td>14’</td>
<td>17’-</td>
</tr>
<tr>
<td></td>
<td>15’</td>
<td>5.0’</td>
<td>15’</td>
<td>18’+</td>
</tr>
<tr>
<td></td>
<td>20’</td>
<td>4.5’</td>
<td>16’</td>
<td>18’-</td>
</tr>
<tr>
<td></td>
<td>25’</td>
<td>3.5’</td>
<td>17’</td>
<td>20’+</td>
</tr>
<tr>
<td>25’</td>
<td>&lt;12’</td>
<td>RECONSTRUCT CURBS</td>
<td>13’</td>
<td>16’-</td>
</tr>
<tr>
<td></td>
<td>12’</td>
<td>5.5’</td>
<td>14’</td>
<td>17’-</td>
</tr>
<tr>
<td></td>
<td>15’</td>
<td>5.0’</td>
<td>15’</td>
<td>18’+</td>
</tr>
<tr>
<td></td>
<td>18’</td>
<td>4.5’</td>
<td>16’</td>
<td>18’-</td>
</tr>
<tr>
<td></td>
<td>20’</td>
<td>4.0’</td>
<td>17’</td>
<td>20’+</td>
</tr>
<tr>
<td></td>
<td>25’</td>
<td>3.5’</td>
<td>18’</td>
<td>20’+</td>
</tr>
<tr>
<td>30’</td>
<td>&lt;12’</td>
<td>RECONSTRUCT CURBS</td>
<td>14’</td>
<td>16’-</td>
</tr>
<tr>
<td></td>
<td>12’</td>
<td>5.5’</td>
<td>15’</td>
<td>17’-</td>
</tr>
<tr>
<td></td>
<td>15’</td>
<td>5.0’</td>
<td>16’</td>
<td>18’-</td>
</tr>
<tr>
<td></td>
<td>18’</td>
<td>4.5’</td>
<td>17’</td>
<td>19’+</td>
</tr>
<tr>
<td></td>
<td>20’</td>
<td>4.0’</td>
<td>18’</td>
<td>19’-</td>
</tr>
<tr>
<td></td>
<td>25’</td>
<td>3.5’</td>
<td>19’</td>
<td>20’+</td>
</tr>
<tr>
<td>32’</td>
<td>&lt;12’</td>
<td>RECONSTRUCT CURBS</td>
<td>15’</td>
<td>16’-</td>
</tr>
<tr>
<td></td>
<td>12’</td>
<td>5.5’</td>
<td>16’</td>
<td>17’-</td>
</tr>
<tr>
<td></td>
<td>15’</td>
<td>5.0’</td>
<td>17’</td>
<td>18’-</td>
</tr>
<tr>
<td></td>
<td>18’</td>
<td>4.5’</td>
<td>18’</td>
<td>19’+</td>
</tr>
<tr>
<td></td>
<td>20’</td>
<td>4.0’</td>
<td>19’</td>
<td>19’-</td>
</tr>
<tr>
<td></td>
<td>25’</td>
<td>3.5’</td>
<td>20’</td>
<td>20’+</td>
</tr>
<tr>
<td>36’</td>
<td>&lt;12’</td>
<td>RECONSTRUCT CURBS</td>
<td>16’</td>
<td>16’-</td>
</tr>
<tr>
<td></td>
<td>12’</td>
<td>5.5’</td>
<td>17’</td>
<td>17’-</td>
</tr>
<tr>
<td></td>
<td>15’</td>
<td>5.0’</td>
<td>18’</td>
<td>18’-</td>
</tr>
<tr>
<td></td>
<td>18’</td>
<td>4.5’</td>
<td>19’</td>
<td>19’+</td>
</tr>
<tr>
<td></td>
<td>20’</td>
<td>4.0’</td>
<td>20’</td>
<td>19’-</td>
</tr>
<tr>
<td></td>
<td>25’</td>
<td>3.5’</td>
<td>21’</td>
<td>20’+</td>
</tr>
<tr>
<td>40’</td>
<td>&lt;12’</td>
<td>RECONSTRUCT CURBS</td>
<td>17’</td>
<td>17’-</td>
</tr>
<tr>
<td></td>
<td>12’</td>
<td>5.5’</td>
<td>18’</td>
<td>18’-</td>
</tr>
<tr>
<td></td>
<td>15’</td>
<td>5.0’</td>
<td>19’</td>
<td>19’+</td>
</tr>
<tr>
<td></td>
<td>18’</td>
<td>4.5’</td>
<td>20’</td>
<td>19’-</td>
</tr>
<tr>
<td></td>
<td>20’</td>
<td>4.0’</td>
<td>21’</td>
<td>20’+</td>
</tr>
<tr>
<td></td>
<td>25’</td>
<td>3.5’</td>
<td>22’</td>
<td>20’+</td>
</tr>
</tbody>
</table>
BACKFILL WITH COMPOST AMENDED SOIL AND MULCH

CAST-IN-PLACE CONCRETE MOUNTABLE CURB

TYPICAL TRAFFIC CIRCLE

NOTES:
1. BIORATION OR OTHER U. D. APPROACHES SHALL BE INCORPORATED INTO TRAFFIC CIRCLES WHERE FEASIBLE AND MULCH SHALL BE Drought Tolerant AND SHALL BE APPROVED BY THE CITY.

MONUMENT PROTECTION/PRESERVATION: NOTIFY CITY ENGINEER PRIOR TO MONUMENT ADJUSTMENT.

FILE NAME: TRAFFIC CIRCLES.DWG

APPROVED BY CITY ENGINEER:

DATE: 3/4/99

TRAFFIC CIRCLE DETAILS (RETO-FIT)

REVISED: 1/1/17
BACKFILL WITH BIORETRENTION SOIL MIX AND MULCH

18" x 18" YELLOW HIGH INTENSITY TYPE 1 OBJECT MARKER PLACED IN TRAFFIC CIRCLE FOR EACH APPROACH. ALL SIGNS TO BE MOUNTED ON SIGN HEIGHT: 5' FROM BOTTOM OF MULCH.

30" x 30" BLACK ON YELLOW FROM TRAFFIC CIRCLE ON EACH APPROACH.

NOTES:
1. BIORETRENTION OR OTHER ID APPROACHES SHALL BE INCORPORATED INTO TRAFFIC CIRCLES WHERE FEASIBLE AND BE DETERMINED BY ENGINEER. MONUMENT PROTECTION/PRESERVATION: NOTIFY CITY ENGINEER PRIOR TO ADJUSTMENT. LOCATION AND SIZE VARY.
2. OVERFLOW PIPE REQUIRED. LOCATION AND SIZE VARY.
3. MONUMENT PROTECTION/PRESERVATION: NOTIFY CITY ENGINEER PRIOR TO ADJUSTMENT. LOCATION AND SIZE VARY.

CAST-IN-PLACE CONCRETE CURB WITH SCUPPERS

SUCHCUT AND REMOVE ASPHALT TO TRAFFIC CIRCLE

ADJUST MANHOLE, VALVE BOXES, AND MONUMENT CASES TO NEW GRADE.

CEMENT CONCRETE MOUNTABLE CURB WITH SCUPPERS

SUCHCUT AND REMOVE ASPHALT TO TRAFFIC CIRCLE

CAST-IN-PLACE CONCRETE CURB WITH SCUPPERS

SUCHCUT AND REMOVE ASPHALT TO TRAFFIC CIRCLE

ADJUST MANHOLE, VALVE BOXES, AND MONUMENT CASES TO NEW GRADE.

MATERIALS:
- HMA
- CMU
- BIORETRENTION MULCH
- SOIL MIX
- CONCRETECURB
- SCUPPERS
- ASPHALT
- MANHOLE
- VALVE BOX
- MONUMENT CASE

TYPICAL TRAFFIC CIRCLE

TYPICAL SECTION

TRAFFIC CIRCLE DETAILS (NEW CONSTRUCTION)
**UNCONTROLLED 4-WAY INTERSECTION**

**YIELD OR UNCONTROLLED "T" INTERSECTIONS**

**NOTES:**

1. SEE DESIGN MANUAL STANDARD 21 (SIGHT DISTANCE - VEHICLES).
2. FOR UNCONTROLLED 4-WAY INTERSECTION SETBACK POINTS MEASURED FROM ROAD CENTERLINES.
3. FOR YIELD OR UNCONTROLLED "T" INTERSECTION SETBACK POINTS MEASURED FROM CENTER OF APPROACH LANE.
4. FOR USE ON 25 MPH STREETS. FOR STREETS WITH SPEED LIMITS GREATER THAN 25 MPH, SEE THE ENGINEER.
STANDARD DETAIL

NOTES:
1. PLANTING INCLUDES REMOVAL OF STAKES ONE YEAR AFTER INSTALLATION.
2. SHAPE SOIL SURFACE TO PROVIDE 4' DIAMETER WATERING RING.
3. ADJUST TREE TIES DURING ESTABLISHMENT TO ALLOW ROOM FOR GROWTH (1" SLACK).
4. ROOT BARRIER REQUIRED ALONG EDGE OF ROADWAY, CURB, DRIVEWAY, TRAIL, SIDEWALK, OR OTHER STRUCTURES WHERE ROOT BALL IS LESS THAN TWO AND ONE HALF FEET; PLACE VERTICAL ROOT BARRIER AS SHOWN. INSTALL ROOT BARRIERS FOR NEWLY PLANTED TREES ONLY.

STAKE TREE WITH (2) TREATED 2" Ø LODGEPOLE PINE DOWELED TREE STAKES (8'-0" LENGTH) LOOP EACH TIE AROUND HALF TREE LOOSELY TO PROVIDE 1" SLACK FOR TRUNK GROWTH.

"CHAINLOCK" OR EQUAL TREE TIE MATERIAL (1" SIZE) NAIL OR STAPLE TREE TIE MATERIAL TO STAKE TO HOLD VERTICALLY. LOOP EACH TIE AROUND HALF TREE LOOSELY TO PROVIDE 1" SLACK FOR TRUNK GROWTH.

2"-3" MULCH DEPTH (TAPERED AT TRUNK)

MULCH TREE PIT MIN 5"-0" LENGTH X FULL PLANTING STRIP WIDTH BETWEEN CURB AND SIDEWALK (FOR PLANTING STRIPS LESS THAN 6'-0" WIDE) OR PROVIDE 5"-0" DIAMETER MULCH RING FOR PLANTING STRIPS WIDER THAN 6'-0".

SIDEWALK

18" ROOT BARRIER AT SIDEWALK.

ROUGHEN SIDES OF PLANTING HOLE MAXIMIZE EXCAVATED AREA WITHOUT UNDERMINING ADJACENT PAVING/CURB.

ROOT BARRIER; PLACE AT EDGE OF PAVEMENT/SIDEWALK/ETC.; PLACE PRIOR TO PLACEMENT OF NEW SIDEWALK OR CURB TO PREVENT UNDERMINING.

COMPOST AMENDED SOIL.

REMOVE ALL WIRE, STRINGS, AND OTHER NON-BURLAP MATERIAL; AND REMOVE BURLAP FROM TOP ¼ OF ROOTBALL MINIMUM. REMOVE ENTIRELY WHEN DIRECTED BY THE ENGINEER.

MIN WIDTH OF TREE PIT = 2 TIMES ROOT BALL DIAMETER OR 8'-0", WHICHER IS GREATER

MULCH AREA TO BE CLEAR OF GRASS, WEEDS, ETC. TO REDUCE COMPETITION WITH TREE ROOTS

SET TOP OF ROOT CROWN 2" ABOVE ADJACENT CURB & SIDEWALK GRADE.

3" TO 4" HIGH WATERING RING (SEE NOTE 2)

24" ROOT BARRIER AT CURB WHEN SHOWN ON THE DRAWINGS.

TREE PIT DEPTH = ROOT BALL DEPTH (MEASURE BEFORE DIGGING TO AVOID OVEREXCAVATION).

DRIVE STAKES 6" TO 11'-0" INTO UNDISTURBED SOIL BELOW ROOT BALL.

UNDISTURBED SUBGRADE (PROVIDES FIRM BASE SO THAT ROOT BALL WILL NOT SINK).

APPROVED BY
CITY ENGINEER:

DATE: 1/1/17

FILE NAME: TREE IN PLANT STR

REVISED:

TREE PLANTING WITHIN PLANTING STRIP