

1. Chapter 1 – General Considerations

1.1. Applicability

These Standards shall govern all newly constructed or reconstructed road and right-of way facilities, both public and private, within the City.

The Standards apply to modifications of roadway features or existing facilities which are within the scope of reconstruction, widening, required off-site road improvements for land developments, or capital improvement projects when so required by the City or specified by the project plans and specifications.

These Standards shall apply to new placement and planned, non-emergency replacement of existing utility poles and other utility structures within the City right of way. Every effort should be made to meet the Standards during emergency replacement of existing utility poles and other structures.

1.2. Severability

If any part of these Standards as adopted by ordinance shall be found invalid, all other parts shall remain in effect.

1.3. Definitions

AASHTO	American Association of State Highway Transportation Officials
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic
Alley	A privately maintained thoroughfare, tract, or easement, usually narrower than a street, which provides access to the rear boundary of one or more lots and is not intended for general traffic circulation.
Applicant	Any person, firm, partnership, association, joint venture, corporation or any other entity responsible for a given project seeking approval from the City for any land use or other related permit or approval referenced in City of SeaTac Municipal Code and which requires utilization of these Standards.
Appurtenance	Equipment and/or accessories that are part of an operating system or sub-system.
APWA	American Public Works Association
ASTM	American Society for Testing and Materials
Auxiliary Lane	The portion of the roadway adjoining the traveled way for parking, turning or other purposes supplementary to through-traffic movement.

Bikeway	A generic term for any road, street, path, or way which in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for exclusive use of bicycles or are to be shared with other transportation modes.
Breakaway Structure	A structure that has been crash tested in accordance with National Cooperative Highway Research Program procedures – NCHRP 230.
Boring	Grade and alignment controlled mechanical method of installing a pipe or casing under a road or stream without disturbing the surrounding medium.
Bulb	A round area for vehicle turnaround typically located at the end of a cul-de-sac street.
Bus Zone	A designated space for loading and unloading transit passengers.
Channelization	The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands or other suitable means to facilitate the safe and orderly movement of both vehicles and pedestrians.
City	City of SeaTac
Clear Zone	The total roadside border area, starting at the edge of traveled way, available for safe use by errant vehicles. This area may consist of a shoulder, a recoverable slope, a non-recoverable slope, and/or a clear run-out area. The desired width is dependent upon traffic volumes, speeds, and the roadside geometry.
Critical Areas	Those areas which are subject to natural hazards or those land features which support unique, fragile, or valuable natural resources including fish, wildlife and other organisms and their habitat and such resources which carry, hold or purify water in their natural state. Critical areas include but are not limited to erosion hazard areas, flood hazard areas, landslide hazard areas, seismic hazard areas, steep slope hazard areas, streams, wetlands and sensitive area buffers.
CSBC	Crushed surfacing base course
CSTC	Crushed surfacing top course
Cul-de-sac	A short street having one end open to traffic and the other temporarily or permanently terminated by a vehicle turnaround at or near the terminus.
Dead End	A street without an exit.

Design Speed	A speed determined for design and correlation of the physical features of a highway that influence vehicle operation. The maximum safe speed maintainable over a specified section of road when conditions permit design features to govern.
Driveway	Access to residential, commercial or industrial properties.
Engineer	Shortened designation for City Engineer or authorized representative.
Engineering Plans	The official drawings, plans, profiles, typical cross-sections and supplemental drawings, and specifications, technical reports, or reproductions thereof, approved by the Engineer, which show the location, character, dimensions and details of the work to be performed.
Geometrics	The arrangement of the visible elements of a road such as alignment, grade, sight distance, widths, and slopes.
Grade	Rate or percent of change in slope, either ascending or descending for or along the roadway. It is measured along the centerline of the roadway or access point
Half-Street	A road constructed along the property line of development utilizing half the regular width of the right-of-way and permitted as an interim facility pending construction of the other half of the road by the adjacent owner.
Hammerhead	An alternative turnaround at the terminus of a road running lateral to the road at the end. Serves not more than four dwelling units.
HMA	Hot mix asphalt
Intersection	The area from the intersection of a roadway to the radius tangent point or stop bar on each approach, whichever is greater.
LID	Low Impact Development. An ecosystem based approach to land development and storm water management that results in fewer environmental impacts.
MUTCD	The Manual on Uniform Traffic Control Devices, published by the U.S. Department of Transportation.
Posted Speed	The speed limit actually signed along the roadway.
Professional Engineer	A professional civil engineer registered and licensed to practice in the State of Washington.

Record Drawings	The plan set which is certified to contain a true and accurate representation of the actual field conditions for the project during construction, or upon completion of construction.
RCW	Revised Code of Washington
Recoverable Slope	A slope on which the driver of an errant vehicle can regain control of the vehicle. Slopes of 4H:1V or flatter are considered recoverable.
Right-of-Way	All property in which the City has any form of ownership or title and which is held for public road purposes, regardless of whether or not any road exists thereon or whether or not it is used, improved, or maintained for public travel.
Road	A facility serving three or more lots and providing public or private access including the roadway and all other improvements inside the right-of-way.
Roadway	Pavement width plus any paved or non-paved shoulders.
Shared Roadway	A roadway that is open to both bicycle and motor vehicle travel.
Shoulder	The paved or unpaved portion of the roadway outside the traveled way that is available for emergency parking or non-motorized use.
Standards	City of SeaTac Road Design and Construction Standards
Traveled Way	The portion of a road intended for vehicle travel, including turn lanes and excluding bike lanes, parking lanes and shoulders.
Turn Out	The paved or concrete area outside the roadway or traveled way for a transit vehicle.
Unopened Right-of-Way	A City right-of-way that exists by dedication or deed, but for which no vehicular roadway has been constructed by the City or other parties.
Utility	A privately, publicly, or cooperatively owned line, facility, or system for producing, transmitting, or distributing communications, cable television, power, electricity, light, heat, gas, oil, crude products, water, steam, waste or any other similar commodity which directly or indirectly serves the public.
WSDOT	Washington State Department of Transportation

1.4. Authority and Duties of Inspectors

The Engineer may appoint assistants and Inspectors to assist in determining that the Work and materials meet the Contract requirements. Assistants and Inspectors have the authority to reject defective material and suspend Work that is being done improperly, subject to the final decisions of the Engineer.

Assistants and Inspectors are not authorized to accept Work, to accept materials, to issue instructions, or to give advice that is contrary to the Contract. Work done or material furnished which does not meet the Contract requirements shall be at the Contractor's risk and shall not be a basis for a claim even if the Inspectors or assistants purport to change the Contract. Assistants and Inspectors may advise the Contractor of any faulty Work or materials or infringements of the terms of the Contract; however, failure of the Engineer or the assistants or Inspectors to advise the Contractor does not constitute acceptance or approval.

1.5. Responsibility to Provide Roadway Improvements

- A. Any land development, which will impact the service level, safety, or operational efficiency of roads serving such land development or is required by other City code or ordinance to improve such roads, shall improve those roads in accordance with these Standards. Off-site roadway improvements shall be based on an assessment of the impacts of the proposed land development by the City.
- B. Any land development abutting or impacting existing roads shall improve the frontage of those roads in accordance with these Standards. The extent of improvements shall be based on an assessment of the impacts of the proposed land development by the City.
- C. Any land development that contains internal roads shall construct or improve those roadways in accordance with these Standards.
- D. For commercial developments, these Standards shall apply unless otherwise determined by the City or as specified by SeaTac Municipal Code.
- E. For a commercial establishment on a shoulder and ditch type road, where development of adjoining lands and highway traffic assume urban characteristics, as determined by the City, the frontage shall be finished with curb, gutter, and sidewalk, with storm drainage, all in accordance with these Standards.
- F. Subdivisions, short plats, binding site plans or any other developments that are subject to recording shall not be recorded until there is a recorded continuous public maintained access, or an access that is covered by a maintenance financial guarantee to the development site. Additionally the City will not accept a road or the drainage improvements within the road rights-of-way for maintenance until the road is directly connected to a City maintained or an acceptable publicly maintained road. This requirement also applies to public roadways located within a commercial development and those public roadways created through the binding site plan process and any other permit process.
- G. All new and reconstructed road and development projects shall provide applicable pedestrian and bicycle improvements that meet the requirements of the Standards, unless otherwise approved by the City Engineer.

1.6. General References

The Standards are intended to be consistent with:

- A. City of SeaTac Municipal Code (SMC)
- B. City of SeaTac Comprehensive Plan
- C. City of SeaTac Safe and Complete Streets Plan
- D. Americans with Disabilities Act (ADA)

1.7. Design and Construction References

Except where these Standards provide otherwise, or by contract with the City, all design and construction, including materials, shall be in accordance with the relevant section of the following publications:

- A. WSDOT “Standard Specifications for Road, Bridge, and Municipal Construction”, current edition, hereinafter referred to as “Standard Specifications.”
- B. WSDOT “Standard Plans for Road and Bridge Construction”, current edition, hereinafter referred to as “Standard Plans.”
- C. U.S. Department of Transportation “Manual on Uniform Traffic Control Devices, as amended and approved by the Washington State Highway Commission, current edition, hereinafter referred to as “MUTCD.”
- D. WSDOT “Design Manual”, current edition.
- E. WSDOT “Construction Manual”, current edition.
- F. WSDOT “Hydraulics Manual”, current edition.
- G. WSDOT “Roadside Manual”, current edition
- H. WSDOT “Bridge Design Manual (LRFD)”, current edition

1.8. Other Specifications and Guidelines

- A. WSDOT “Local Agency Guidelines”, current edition.
- B. “A Policy on Geometric Design of Highways and Streets”, American Association of State Highway and Transportation Officials (AASHTO), current edition, as amended and approved by WSDOT.
- C. “Guide for the Development of Bicycle Facilities”, adopted by AASHTO, current edition.
- D. American Society for Testing and Materials (ASTM).
- E. King County “Surface Water Design Manual”, current edition.
- F. “Uniform Building Code”, current edition, hereinafter referred to as “UBC.”

1.9. Environmental Considerations

Unless exempt, land development projects, including clearing and grading activities, must have an environmental checklist completed by the applicant and submitted along with plans and other information when approval or permits are being required for a project.

1.10. Engineering Plans and Final Plat Plans

Engineering plans are required for all public and private projects submitted to the City as part of a civil construction permit application or other applicable permit. At a minimum, the Engineering Plans shall meet the following requirements:

- A. General Plan Requirements

1. A Professional Engineer licensed and in good standing with the State of Washington shall prepare the Engineering Plans. The Engineering Plans must be signed and stamped by the responsible Professional Engineer, or clearly marked "PRELIMINARY" per RCW 18.43 prior to submittal to the City.
2. The Engineering Plans shall have a title block located in the lower right corner or along the right margin of the drawing and include the project name, project/permit number, Developer's name, and the name, address, seal, date and signature of the responsible Professional Engineer. The cover sheet and all engineering plan sheets shall include the same general title block including consecutive sheet numbers. The vicinity map and legend of symbols shall also be included on the cover sheet.
3. The engineering plan sheets shall be a minimum of 18"x24" in size on good quality white paper and in reproducible black ink. Engineer scale and scale bar shall be required.
4. The Engineering Plans must include existing and proposed survey monuments. The street centerline, easements, and other pertinent data shall be referenced to existing monuments.
5. A land survey stamped and signed by a Professional Land Surveyor registered and in good standing with the State of Washington is required for all preliminary subdivisions, short plats and commercial/industrial developments.
6. The Engineer may require other plan elements in addition to those described above.

B. Requirements for all Plans

1. Horizontal Plan
 - a. Street or proposed utility system alignments, reading from left to right, showing stationing of points of curvature, tangency, intersection angle points, and with ties to section or quarter corners, also including all necessary curvature data.
 - b. Identification of all existing and proposed improvements, such as the right-of-way and/or easement lines, streets, sidewalks, shoulders, utilities, drainage facilities, rock facings, retaining walls, guard rail, bridges, fences and driveways. Existing and proposed driveway cross-sections are required.
 - c. All topographic features within and adjacent to proposed improvement, and impacts to slopes, drainage, access, future extensions, and future extensions shall be incorporated into the Engineering Plans.
 - d. All existing and proposed public and private utilities, including water, sewer, telephone, power, gas, cable, and any other utilities within the project area shall be shown on the Engineering Plans.

- e. Existing and proposed drainage facilities, including culverts, catch basins, ditches, etc., indicating direction of flow, size, type of pipe, invert and rim elevations.
- f. Identification of adjacent streets, subdivisions, building addresses, parcel numbers, or any other available information to identify locations and future reference.
- g. At a minimum, curb return elevations shall be shown at quarter points at all intersections to verify drainage and facilitate a smooth transition.
- h. The vertical and horizontal survey controls for all infrastructure improvements shall be based on the State Plane Coordinate System, an assumed coordinate system is not permitted. The State Plane coordinates shall be on NAD 83/91 datum and must relate to a least (2) City control points within one half mile of the proposed Development. In addition, the project shall be tied into at least two (2) City NAVD 88 vertical benchmarks and two (2) additional permanent benchmarks shall be established within the project. The locations, descriptions and elevations of these benchmarks will be reported at the time Record Drawings are submitted.

2. Profile Plan

- a. Profile drawings shall be prepared with all sanitary sewer, storm drain, domestic water, and street design plans, whether public or private, and with any other plans where vertical control is deemed to be important.
- b. The existing centerline profile shall be plotted, denoting grade breaks, topographic features and any other information important to the design.
- c. The street and/or utility system profile shall be shown with the same stationing as the horizontal plan.
- d. Street profiles shall include existing and proposed centerline elevations at 50-foot stations or less for all centerline grades and vertical curves, including stations and elevations at point of vertical curvature (PVC's), point of vertical intersection (PVI's), and point of vertical tangency (PVT's). When existing or proposed street includes sections where stopping sight distance or intersection/driveway sight triangle may be deficient, a sight distance diagram shall be included.
- e. Sanitary sewer, domestic water, and storm drain profiles shall include pipe slopes, pipe type, diameters, lengths, rim and invert elevations, manhole and/or catch basin locations, type and numbers, and any other information relevant to the design.

3. Detail Plans

- a. Detail drawings shall contain adequate dimensions, sections, non-standard details, views, notes, and call outs to construct the structure, or allow preparation of detailed shop drawings by

the fabricator when necessary. Use of very light gray shading and very light hatching is acceptable, provided they do not obscure data and other pertinent information at full and reduced scale.

- b. Where special construction procedures or structures are required, special detail drawings are required. Standard plans can be referenced to the WSDOT Standard Plans or the standard plans contained in these Standards.
- c. Detail drawings shall be prepared under the supervision of a Professional Engineer licensed and in good standing with the State of Washington, and stamped.

C. Exemptions from Engineering Plans Requirements

One or more of the preceding engineering plan requirements may be omitted or modified by the Engineer based upon the following criteria. The determination of the Engineer shall be final.

- 1. No more than 2,000 square feet will be cleared and graded within the right-of-way or easement; and
- 2. The existing grade in the street right-of-way or easement does not exceed 8 percent; and
- 3. The work will not impact a critical drainage area or sensitive area buffer; and
- 4. Work does not require a full drainage review; and
- 5. The work is a condition of a short plat or street use permit, and involves less than 100 lineal feet of existing public street improvement; and
- 6. Standard drawings, submitted with required permits, are sufficient to describe the improvement to be constructed

1.11. Record Drawings

Record Drawings superimpose the approved design drawings with what was actually constructed; any divergence between the two must be documented in the Record Drawings.

A. Submittal Requirements

- 1. Paper Copy
 - a) One reproducible (high quality images, text and paper) copy of the record drawings shall be submitted.
- 2. Electronic Copy
 - a) Electronic Computer-Aided Design (CAD) of the record drawing files shall be submitted. At a minimum, the electronic CAD drawings must delineate control points, light poles, sewer and storm system and curb lines. The CAD files must be provided in the State Plane coordinates and the CAD file type must be compatible with the City's software.

B. Revisions

All Record Drawing data will be verified for accuracy. Revisions to the approved design drawings, reflecting what was actually constructed, must be mapped accordingly.

1. Strikethrough Requirement

- a) Cross out original language or design (with a single line so it is still legible) and write in new language. Do not erase the old/changed information.

2. Record Requirements

- a) Record and date all revisions on appropriate sheet(s). List revisions and change orders in the title block, beginning at the bottom line and continue with subsequent entries progressing toward the top line. Letter the revision number in a triangle.
- b) If right-of-way and/or public easement dimensions/locations changed, then verify that the dedication document was revised/replaced accordingly (i.e., new deed, legal description, property owner signature, and recording at King County).

C. Title Block Additions

1. Date stamp "Inspected by" followed by the project Inspector's name.
2. Date stamp "As Constructed" followed by the name of the person preparing the Record Drawings.

1.12. Deviation from Standards

Deviations from these Standards may be granted by the Engineer upon the following minimum criteria which must be shown to be based on sound engineering principles:

- A. An application for deviation that indicates those sections of the Standards which are relevant to the proposed alternative and explanation of how the deviation meets the essential elements of these Standards.
- B. An application for deviation that includes a specific description of the proposed alternative to the Standards along with supporting documentation.
- C. Verification that such deviations are not contrary to the public interest.
- D. Verification that compliance with the standards from which the deviations are sought is, under the circumstances, not feasible.
- E. Verification that the activity as permitted under the deviation will require no compromise from these Standards with respect to safety, function, fire protection, transit needs, appearance and maintainability.
- F. Verification that all requirements of the International Fire Code and any other applicable codes are met.

1.13. Errors and Omissions

At the discretion of the City, any significant errors or omissions in the approved plans or information used as a basis for such approvals may constitute grounds for withdrawal of the approvals and/or stoppage of any or all permitted work. It shall be the responsibility of the applicant, developer, or contractor to show cause why such work should continue, and make such changes in the plans required by the City before the plans are re-approved.

1.14. Penalties and Financial Guarantees

Failure to comply with these Standards will be cause for denial of plan or development approval, revocation of prior approvals, withholding and reductions of financial guarantees, withholding final inspection approval, withholding occupancy certificates, legal action for forfeiture of financial guarantee, code enforcement, and/or other penalties as provided by law.

1.15. Changes to this Manual

The City Engineer may incorporate minor changes to these Standards as they become necessary. General updates shall include an opportunity for public review and comments.