

**PUBLIC WORKS
DESIGN STANDARDS AND PROCEDURES
EXECUTIVE SUMMARY**

The City's Engineering Design Manual contains design standards and procedures that are meant to establish, clarify and assist both City staff and private engineers in creating safe, efficient, and cost-effective street, drainage and sanitary sewer projects for the City of Springfield. The following summary is meant to highlight sections of the document and to identify the importance of each.

DESIGN STANDARDS

Section 1.00

◆**Design Speed** - Specifies minimum design speed for different roadway types. Design speed affects many aspects of geometric design of roadways.

◆**Pavement Design** – Provides criteria for the design and selection of pavements. The formula for design of structural pavement strength is conservative in nature. The conservative nature of the required design is based on our experience that, for many reasons (higher than anticipated traffic growth, different kinds of traffic, i.e. trucks and buses, problems with asphalt oils, insufficient safety factors in design calculations), collector and arterial streets are often failing to give the desired length of service. This results in higher maintenance costs to the City and puts a greater strain on the Street Fund resources available to the City. This section also provides for the City's optional participation on collector and arterial streets when life cycle cost analysis supports one type of pavement over the other.

◆**ADA Standards** - Identifies the criteria as set forth for the purposes of designing pedestrian facilities to meet standards of the Americans with Disabilities Act (ADA).

◆**Curb Return Radii** - Identifies design vehicles and minimum curb return radii on truck route and on different classifications of streets.

Section 2.00

◆**Sanitary Sewer Design Standards** - Implements design standards for sanitary sewers and establishes new guidelines related to the *Springfield Sanitary Sewer Master Plan*, the *Springfield Development Code* and the *Standard Construction Specifications*. Requires sewer studies to be submitted, and supports regulations and criteria in accordance with Department of Environmental Quality, Oregon Health Division, and Oregon Administrative Rules.

◆**Pump Stations** - Sets forth design standards and considerations for sanitary sewer pump stations, including layout, system hydraulics, wetwells, grease and clogging protection, surge analysis, odor and noise control, emergency power, alarms and telemetry. Also includes special design details for submersible pump stations and force mains.

Section 3.00

◆**Stormwater Quality** - Establishes stormwater management in accordance with provisions of Article 32 in the Springfield Development Code to promote water quality, and to preserve groundwater and the vegetation and rivers it supports.

◆**Interim Standards** - Applies design guidance documents for stormwater quality standards while the City of Springfield continues to develop its overall Stormwater Management Program. Interim standards which are acceptable are the latest standards adopted by the City of Portland Bureau of Environmental Services or by Clean Water Services (formerly Unified Sewerage Agency.) Both use practices which are similar to those already being required of development in Springfield.

Section 4.00

◆**Stormwater Capacity Standards** - Implements design standards for storm drainage capacity in accordance with the *Springfield Drainage Master Plans*, the on-going update of those Plans, the *Springfield Development Code* and *Standard Construction Specifications*. Requires a complete drainage study for all public and private storm systems, including the submittal of hydrologic and hydraulic calculations. Addresses catch inlet designs, constructed channels, outfalls, downstream protection and detention ponds.

Section 5.00

◆**Traffic Standards** - Outlines and defines current traffic design standards as applied to illumination, signals, bicycle facilities, medians, signing and striping. Emphasizes street light standards, including light spacing, conduit size, wattage, poles, and luminaire arms. Requires engineers to submit a manufacturer's specification 'cut sheet' for HPS or LPS lighting. Reserves a section for eventual design guidelines for roundabout design. Until those standards are completed, all roundabouts on City streets shall be designed by the City of Springfield Transportation Division staff. Private developers shall arrange for those services from City staff as part of their planning for developments which include a proposed roundabout.

Section 6.00

◆**Street Trees** - Provides a guideline for the location, types, species, and establishment of new street trees, while saving and protecting existing trees during the planning and construction phases. Reinforces Best Management Practices (BPA's) to save existing trees in initial planning phases of street design.

◆**New List of Trees** - Expands the list of acceptable street trees as applied to various widths of planter strips, with or without overhead power lines.

Section 7.00

◆**Hillside Development** - Provides consistent design policies and standards for street, storm and sanitary sewers on existing land with slopes greater than 5 percent. Addresses special design considerations for steep hillside development.

Section 8.00

◆**Erosion Control** - Sets forth minimum expectations to contain or minimize erosion on-site during construction and to avoid affecting adjacent properties or waterways. Includes best management practices (BPA's) commonly used.

Requires, at a minimum, the engineer of the infrastructure project shall ensure that the erosion control plan and the activities on the construction site meet or exceed the performance standards within the most current National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit (1200-CA permit) issued to the City of Springfield. This permit has been granted to the City of Springfield by the Department of Environmental Quality to allow the City to manage erosion control within our own and our permitted construction projects within City rights-of-way and easements. The requirements for the planning and implementation of management practices for erosion control is already a City responsibility and this section of the Manual documents what we expect of ourselves and our permittees during infrastructure construction. Implementation of these guidelines will require some additional work by both the engineers and contractors of public infrastructure development.

DRAFTING STANDARDS

Section 9.00

◆**Plan Format** - Designates uniform plan format so that all public improvement plans contain the necessary information for a thorough evaluation of the engineered drawings, while allowing the designer to employ his or her own drafting style.

Section 10.00

◆**Electronic Acceptance** - Current practice is to require that digital files of as-built information be submitted to the City for our records and use. This design section significantly dictates how we want those digital files structured, such as layering conventions and valid objects/entities, so they are more useable to the City to maintain our infrastructure records electronically and to be integrated with our Geographic Information System and Maintenance Management System data. This will require some upfront work on the part of engineering consultants to conform to the standards

PROCEDURES

Section 11.00

◆**Pre-Design** - Outlines the planning, research and development of a City construction project to reduce the number of conflicts and problems that may arise during the design process.

◆**Survey Control** - Requires and describes the methodology to tie project to existing survey control monumentation. City and County control may be utilized with published coordinates in both NAD 27 and NAD 83, so that projects can be inserted into the City GIS mapping system.

Section 12.00

◆**Public Improvement Permit Process** - Provides guidance to private developers and engineers on the process of initiating, coordinating, designing and constructing Permit Projects. Explains current agreements, obligations, deposits, submittal requirements, reviews and approvals. Requires that performance bonds, general liability insurance and other agency permits be properly processed before project approval.

This chapter gives much more detail on the process than has previously been available in written form. The permit application, which is signed by the developer and developer's engineer as part of the permit process, has been greatly expanded to detail the responsibilities of these parties to finance, design and construct the facilities in a manner which protects the City's interests. This includes updated insurance requirements for both the developer's engineer (general liability and errors and omissions insurance) and a hold harmless statement and insurance requirements for the developer's contractor (same as required for City construction contractors.)

One new requirement of the proposed permit agreement is a requirement for the developer to provide bonding or other financial security to guarantee:

- A. Timely completion of the work indicated in the plans and specifications, including timely completion of all punch list items, as-built plans, and other items necessary for acceptance of the project after substantial completion of the project.
- B. A warranty on workmanship and materials for one year following project acceptance by the City.
- C. Payment of charges for all project costs, such as billings from materials testing laboratories or City engineering services, associated with the project.
- D. The payment of costs of Developer's Engineer necessary to complete all inspections, project management, as-built preparation, and other documentation needed for acceptance of the project.

Section 13.00

◆**City Contract Projects** - Defines the City's internal procedure for coordinating, processing and constructing City contract projects. Outlines the process of preliminary design, engineer's report, neighborhood meeting, public hearing, bid solicitation and award of contract.