

CITY OF SPRINGFIELD

DATE: July 7, 2009
TO: Planning Commissioners
FROM: George Walker, ESD Supervisor
Jim Donovan, UPD Supervisor
SUBJECT: Pervious Paving / Stormwater Program

**PLANNING COMMISSION
TRANSMITTAL
MEMORANDUM**

ISSUE

Planning Commission has requested a Work Session on the role of pervious paving in the City of Springfield's storm water management program.

DISCUSSION

The Stormwater Management Plan directs City activities for compliance with State and Federal Clean Water Act and Endangered Species Act requirements, as well as the Council's "7 Key Outcomes for Stormwater." Implementation of the full range of activities included in the Plan is a requirement of the City's Stormwater discharge permit issued by DEQ. Springfield continues to pursue stormwater management in a manner that adapts to the resources that are available and prioritizes the activities to address the overall needs of the community. The Plan has a five year schedule to meet objectives in each of the required stormwater management areas. While not all activities described within the Plan (which was re-adopted by the City in April this year) have been accomplished, significant accomplishments have occurred.

Looking back at the last year's regulatory compliance accomplishments; the annual report for DEQ was completed and submitted, the Stormwater Facility Master Plan was completed and adopted by Council, and the TMDL plan has been prepared and submitted to DEQ. These activities included the necessary public outreach and oversight by selected stakeholders. Day to day staff implementation activities have focused on high priority objectives of the Plan. Many on-the-ground, in-the-class-room, and in-the-hands of the 'citizens' tasks occurred. Examples of these include the Peace Health stormwater and riparian development, elementary through high school on-and off-site educational projects, and a new auto shop certification program. As well, staff have continued efforts to respond to pollutant incidents, and provide basic monitoring.

Looking ahead, there are additional needs to accomplish the revised schedule of activities outlined in the Plan for years two through five of the adopted Plan. In addition, staff will participate in the Glenwood and Downtown Refinement plans and contribute to Springfield Development Code revisions to address water quality improvement needs. We will continue to work with Lane County via the proposed Intergovernmental Agreement for shared responsibilities within the areas between the city limits and the urban growth boundary.

The slide presentation will highlight the range of efforts that have been undertaken across the City's various Departments, and how the Council's leadership and guidance have translated into results on the ground. It will briefly touch on forthcoming program requirements, strategies for regulatory compliance, and identified program gaps. This presentation is intended to be both informative and thought-provoking, and to serve as recognition and appreciation of organizations, citizens, businesses, and industries who have stepped up to reduce and minimize stormwater pollution in Springfield.

Pervious pavement is one of many best management practices (BMP) that may be employed in the design and construction of driving and parking surfaces. Pervious pavement is designed to allow percolation or infiltration of stormwater through the surface into the soil below where the water is naturally filtered and pollutants are removed. In contrast normal pavement is an impervious surface that sheds rainfall and associated surface pollutants forcing the water to run off paved surfaces directly into nearby storm drains and then into the rivers.

Scientific studies have linked high levels of impervious surfaces to water quality degradation. Two thirds of the impervious surfaces in developed communities are in the form of pavement related to automobile usage. Any design that uses alternatives to reduce impervious pavement is a positive step towards improving the quality of a community's water resource.

Pervious pavements are a recognized runoff reducing substitute for normal pavements in development or redevelopment of:

1. Driveways, including residential driveways, low-traffic roads, fire lanes and emergency access roads;
2. Parking areas; especially over-flow parking and those associated with office buildings, shopping centers and recreational facilities ;
3. Sidewalks;
4. Road shoulders and vehicle cross-overs on divided highways;
5. Boat launching ramps;
6. Others, including pool decks and patios.

The use of pervious pavement has been found to:

1. Reduce storm water runoff. (Even when pervious pavement structure is saturated, its rough surface texture continues to slow surface flow of stormwater);
2. Replenish groundwater;
3. Reduce flooding;
4. Require less land set aside and cost for development of retention basins;
5. Reduce pollutants in run-off;
6. Reduce irrigation of area plantings based on the seepage of rain into the sub soil surfaces;
7. Reduce thermal pollution;

Regional cities, Portland, Gresham, Salem, Sandy, Seattle and others have included pervious pavements in their development standards. Portland's web site includes a step by step design, construction and outcome page for projects that have been constructed. <http://www.portlandonline.com/BES/index.cfm?a=77074&c=45435>

Additional web sites with pervious pavement and other "Green Street" BMP's:

- <http://www.portlandonline.com/bes/index.cfm?a=127477&c=31870>
- <ftp://ftp-fc.sc.egov.usda.gov/IA/news/PerviousPaving.pdf>
- <http://greshamoregon.gov/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=6604>
- http://www.scag.ca.gov/wptf/pdfs/wptf022207_Travelways.pdf
- http://www.seattle.gov/Transportation/rowmanual/manual/6_2.asp
- <http://www.portlandonline.com/shared/cfm/image.cfm?id=154231>

The Stormwater Facility Master Plan adopted by Council October 2008 includes recommended changes to the Springfield Development Code, the Engineering Design Standards and Procedures Manual and the Pollution Control Manual for Routine Maintenance Activities. Appendix F of that plan is attached as additional information related to water quality efforts that are under consideration by staff for presentation to the Planning Commission and City Council in the future.

STAFF RECOMMENDATION

Consider the attached materials and work session during Planning Commission participation in future updates to the comprehensive storm water management program implemented by Public Works and Development Services staff.

REQUESTED ACTION

None at this time. The materials are presented for Work Session.

ATTACHMENTS

- 1: Stormwater Facility Master Plan, Appendix F

APPENDIX F

**DETAILED SUMMARY OF RECOMMENDED CHANGES TO STANDARDS AND
CODES**

***-DRAFT-* TECHNICAL MEMORANDUM**

DATE: August 20, 2008

TO: Krista Reininga, P.E., Project Manager
URS Corporation

FROM: Lori Faha, P.E., Water Resources Engineer

PROJECT: City of Springfield Stormwater Facilities Master Plan,
Code, Standards & Policies Review

1.0 INTRODUCTION

This memorandum offers recommendations for code and standards changes related to stormwater management, water quality and related natural resources protections for the City of Springfield. The goal is to assist the City in aligning its stormwater related practices with the Goals, Policies and Implementation Actions identified in the City of Springfield Stormwater Management Plan (January 2004, Chapter 4).

Review and recommendations for changes were prepared for the following documents as part of this task:

- City of Springfield Development Code (September 18, 2007 version)
- City of Springfield Engineering Design Standards and Procedures (April 2006 version)
- City of Springfield Pollution Control Manual for Routine Maintenance Activities (2007)

Specific content change recommendations are offered in this memorandum for the first two documents. The latter document is new, with no apparent history or track record for implementation; therefore the recommendations focus on implementation issues and policies related to maintenance practices.

2.0 SUMMARY OF FINDINGS AND RECOMMENDATIONS

Following is a discussion of the key types of findings after review of the Springfield code and standards documents listed above. Specific and detailed recommendations for the Development Code and Engineering Design Standards and Procedures are listed in Chapter 3.

2.1 Up-to-date Standards, With Regional Consistency

One goal of the Springfield Stormwater Management Plan is to provide regulatory certainty for the development community. While regulations do and will change over time, one way to provide some level of certainty for the development community is to have consistency wherever possible in development standards in the region.

The City should work with Eugene to adopt consistent, up-to-date stormwater standards for new development. This could include standards for stormwater quality facilities, stormwater quantity management, erosion control, hillside, trees and riparian area protection.

Both Cities currently require use of the City of Portland's 2004 Stormwater Management Manual (Springfield also allows use of Clean Water Services' standards). The Cities should consider concurrent adoption of the most up-to-date City of Portland manual (July 2008). Both cities currently allow or require use of the Portland 2004 manual, and Portland's standards include a preference for infiltration stormwater quality facilities, matching Springfield's goals for reduction as well as treatment of runoff.

Springfield should also amend its code and standards to clearly stipulate a threshold amount of new impervious area (or replaced impervious area in the case of redevelopment) that triggers onsite stormwater quality facilities. The City should consider adopting Eugene's standard of 1000 square feet per site, or otherwise work with Eugene to develop a consistent threshold standard.

2.2 Reduce Impacts of Streets and Parking Lots

Updated stormwater quality standards must include streets and parking lots, which produce substantial runoff and pollutants. Green streets should be included in standards, especially features such as swales, stormwater planters and rain gardens (the City of Gresham's new Green Streets Standards should be considered as a model). Pervious pavements should be considered, especially in parking lots. Maximum caps on parking spaces should be clearly identified. Skinnier pavement widths should be considered for some streets as well, especially lower volume residential streets.

2.3 Specifically Allow & Encourage Vegetated Stormwater Facilities in Development Site Landscaping

The City of Springfield Development Code has been recently updated (2007) and includes many references to and some incentives for required or recommended stormwater quality management measures. A next round of updates should include explicit statements for all land uses that vegetated stormwater facilities are allowed and encouraged in required landscaping for buildings, parking lots, parking strips and open spaces. Similar amendments should be made in the Engineering Design Standards and Procedures.

2.4 Improve Water Quality Protection Requirements in Drinking Water Protection District

Both the Development Code and the Engineering Design Standards and Procedures should include greater protections for the City's groundwater drinking water source. This should include stronger best management practices such as spill containment facilities for higher risk land uses and streets, and prohibitions of underground injection systems such as dry wells. The City should consider the City of Portland and/or City of Gresham codes and standards for the Columbia Shore well field area as a model.

2.5 Improve Tree & Vegetation Protection Standards

Enhanced protections for existing trees, understory and groundcover vegetation will reduce runoff and associated pollutants, reduce erosion potential, better protect habitat, and provide air and water temperature management. The City currently allows removal of up to 5 significant trees per parcel per year. The City should have a permit process for all significant tree removal (including street trees), including criteria to ensure tree removal is minimized and mitigated.

Clearing of existing vegetation should be discouraged as much as possible for all land uses, and a threshold amount of clearing should be established (such as 500 or 1000 sq. ft., similar to a threshold trigger for stormwater quality requirements). Clearing beyond the threshold would require a permit, including standards for time and area limitations, erosion control, and groundcover establishment. This could be combined with an expanded Land and Drainage Alteration Permit (LDAP) procedure.

Protective measures should be strengthened for City-defined riparian areas that include stream corridors to increase water quality protection. Riparian area width averaging (increased width in some areas, making up for allowed reductions in other areas on the site) should be used when needed rather than outright reductions in riparian areas when some development encroachment cannot be avoided. Riparian area restrictions should be applied to all land uses, and existing development should not be allowed to increase an existing encroachment further into a riparian area. Riparian area width should be increased as possible when pathways are allowed in the riparian area.

2.6 Improve Erosion Prevention

The Springfield Engineering Design Standards and Procedures include a full copy of an old version of DEQ's 1200-C erosion control permit. The City standards should be updated to reflect current requirements. Development of an updated erosion control handbook for the region, or adoption of another jurisdiction's handbook should be coordinated with Eugene.

2.7 Expand and Fully Implement the LDAP

Springfield's Land and Drainage Alteration Permit (LDAP) provides an opportunity to better protect water quality through erosion controls, construction-period and permanent stormwater quality management measures, and regulation of land disturbing activities including excavation, fill, grading and clearing. However, the LDAP is only mentioned in a couple locations in the Development Code and the Engineering Design Standards, and the current LDAP regulatory threshold is very high, at 50 cubic yards of excavation. The City should consider full adoption of the LDAP program, and trigger this permit at a significantly reduced amount of excavation, as well as for clearing and grading. The LDAP could be an important tool to help the City reduce environmental impacts of development practices and meet multiple water quality requirements for stormwater and instream water quality.

2.8 Maintenance Practices Recommendations

The City of Springfield has a new maintenance manual for City crews (City of Springfield Pollution Control Manual for Routine Maintenance Activities, 2007). It is not appropriate at this time to evaluate the details of the maintenance practices in the manual. The City should first fully train its field maintenance crews in the content and use of the manual, and ensure that the maintenance practices are implemented. As noted in the City's Stormwater Management Plan (BMP OM-1), staff should evaluate the implementation success for the manual on a bi-annual basis, making adjustments to maintenance activities as needed.

Maintenance responsibility and ownership for stormwater quality and quantity facilities should be clearly established in the City's code and standards. Any facilities that the City takes on for maintenance should be located in a right of way, tract or easement, providing for City access and management. The City needs to define which privately constructed facilities are the responsibility of the property owner for maintenance. Many jurisdictions require private owner maintenance of all onsite stormwater facilities. Some, such as Clean Water Services, take on the maintenance responsibility for stormwater facilities serving single-family residential properties and which are located in separate tracts or easements (homeowner associations often do not provide adequate long-term care of stormwater facilities).

When private property owners are responsible for stormwater facility maintenance, the City should require an operation and maintenance plan and agreement, tied to the property deed. The City should define a standard format and minimum maintenance practices. Examples for such plans and agreements can be found in City of Portland, City of Gresham and Clean Water Services standards.

The City will also need to establish an inspection system to regularly check and ensure that both public and private stormwater management facilities are being adequately maintained. An enforcement mechanism will be necessary for private facilities that are not meeting maintenance standards. The enforcement process should include notification and education procedures as a first step, as well as the ability to fine and/or charge the owner for City-provided maintenance.

3.0 SPECIFIC RECOMMENDEDATIONS FOR CODE AND DESIGN STANDARDS

Table 1 presents specific recommendations for changes to City of Springfield Development Code and Engineering Design Standards and Procedures, listed by section number. These are the details for the summarized recommendations in Chapter 2.

TABLE 1: SPRINGFIELD CODE & STANDARDS REVIEW – SPECIFIC RECOMMENDATIONS

CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
Springfield Development Code (Sept 2007) – Chapter 3: LAND USE DISTRICTS				
	3.2-230.H Open Space in Cluster Subdivisions	At least 20% of site shall be common open space, can be wetlands, slopes, woods, playgrounds, etc.	Add allowing vegetated stormwater management/water quality facilities to be located in the required open space.	
	3.2-235J.8 Manufactured Dwelling Parks	Requires 2 paved parking spaces per unit.	Allow pervious pavers/pavement	
	3.2-240.D.1.b Multi-unit Design Standards	Open courtyard exception to frontage requirements – defined as hard surface space	Amend to allow pervious space, vegetation, including stormwater quality features such as rain gardens	
	3.2-240.D.3.b Multi-unit Design Standards	25-foot buffer shall be provided between development & property lines, lists standards	Add allowing vegetated stormwater management/water quality facilities in the buffer	
	3.2-240.D.5.b.vi Multi-unit Design Standards	Common Open Space shall be provided, landscaping and/or natural vegetation shall cover a minimum of 50%	Add allowing stormwater quality features such as rain gardens in the Open Space landscaping	
	3.2-240.D.6 Multi-unit Design Standards	Landscaping, Fences and Walls, lists standards	Add allowing vegetated stormwater quality facilities as part of landscaping	See 3.2-240.D.8.c as example
	3.2-240.D.8.d Multi-unit Design Standards	Parking design standards, min 6-foot wide planter for screening	Add allowing vegetated stormwater quality facilities as part of planter design	See 3.2-240.D.8.c as example
	3.2-240.D.8.f Multi-unit Design Standards	Parking stalls, curb required to protect sidewalks & planters	Allow no curb and/or curb-cuts to allow stormwater drainage into landscaping	
	3.2-240.D.8.h Multi-unit Design Standards	Planting strips required for parking/loading areas along property line	Add allowing vegetated stormwater quality facilities as part of planter design	Refer to 3.2-240.D.8.j
	3.2-245.G Multi-unit Alternative Design criteria	Landscaping	Add allowing vegetated stormwater quality features in the landscaping	
	3.2-445.B Campus Industrial Design Standards	Landscaping	Add allowing vegetated stormwater quality features in the landscaping	

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CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	3.2-625.D.1 Mixed-Use District Development Standards	Landscaping and Screening	Add allowing vegetated stormwater quality features in the landscaping	
	3.3-235 Drinking Water Protection District - Standards for Hazardous Materials within Time of Travel Zones (TOTZ)		In this section, or in 3.3-240, establish containment facility design requirements and requirements for stormwater quality facilities for high risk land uses and roadways.	Reference City of Portland BES SWMM Manual sections 1.3.4 & 1.3.5. Also City of Portland and City of Gresham Columbia South Shore Wellfield Wellhead Protection Program Reference Manuals
	3.3-235.A.5.c Standards for Hazardous Materials within 0-1 year TOTZ	Exception to prohibition of dry wells – allowing for dry wells for roof drainage	Limit use of dry wells for roof drainage to low hazard roof materials and land uses (e.g. residential)	
	3.3-235.B.5.b Standards for Hazardous Materials within 1-5 year TOTZ	Exception to prohibition of dry wells – allowing for dry wells for roof drainage	Limit use of dry wells for roof drainage to low hazard roof materials and land uses (e.g. residential)	
	3.3-240 Drinking Water Protection District - Conditions	Director may attach conditions of approval, including special stormwater facilities	In this section, or in 3.3-235, establish containment facility design requirements and requirements for stormwater quality facilities for high risk land uses and roadways.	
	3.3-415.A Floodplain Overlay District - Review	Requires Type I review, and requires Land & Drainage Alteration Permit	Land & Drainage Alteration Permit (LDAP) appears to only be mentioned here and in Definitions. LDAP requirements should be citywide, and requirements listed clearly in the Development Code.	Note: See further recommendations for LDAP at end of this table.
	3.3-420 Floodplain Overlay District Development Standards		Add a balanced cut and fill requirement (any fills allowed in floodplain/floodway areas must be balanced by a nearby equivalent cut)	Reference: Clean Water Services Design & Construction Standards section 5.10
	3.3-525.B Hillside Development Overlay District – Reports Required	Grading Plan Report requirements	Include location of existing trees	To encourage maintaining & protecting trees in slope areas for erosion control, water quality

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CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	3.3-525.B.7 Hillside Development Overlay District – Reports Required	Grading Plan Report requirements, schedule required	Add a reference to City erosion control plan requirements, LDAP requirements (see recommendations on LDAP at end of table)	
	3.3-525.C Hillside Development Overlay District – Reports Required	Vegetation and Re-vegetation report requirement	Change to require a report for areas proposed to be cleared of vegetation in addition to tree felling. Include requirement for plan with clearing limits (area limits and time/seasonal limits). Or require city LDAP permit.	Protecting existing vegetation in slope areas is critical for erosion control
	3.4-250.D.2 Glenwood District, General Development Standards	Landscaping guidelines	Add allowing vegetated stormwater quality facilities as part of landscaping	
	3.4-255.B.1 Glenwood District, Residential Standards	Open Space requirements	Add allowing vegetated stormwater quality facilities in open space areas	
	3.4-265 Glenwood District, Street, Sidewalk and Alley Standards		Allow green streets and alleys (with reference to street standards in section 4.2-105)	Reference: City of Gresham Green Development Practices for Stormwater Management
	3.4-270 Glenwood District, Drainage System Standards	References use of Glenwood District Storm Drainage Master Plan	Update when City adopts new Stormwater Master Plan and standards	
Springfield Development Code (Sept 2007) – Chapter 4: DEVELOPMENT STANDARDS				
	4.2-100.A Infrastructure Standards - Transportation	General Provisions for streets	Add provision encouraging green streets designs (use of swales, planters, rain gardens and other features to reduce runoff and pollutants)	Reference: City of Gresham Green Development Practices for Stormwater Management, Pleasant Valley and Springwater District development code standards

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CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	4.2-105.C, Table 4.2-1, Street Right-of-Way and Curb-to-Curb Width		Review minimum widths, consider width reductions. Allow reduced widths with parking bays per Note (2) for additional street types.	Reduced pavement width maybe feasible for lower traffic streets especially, reducing impervious area, runoff, and pollution. Reduced pavement widths may also more easily allow for green street elements such as swales, rain gardens, planters.
	4.2-120.C, Table 4.2-2, Driveway Design Specifications	Table of minimum and maximum driveway widths for various land uses	Review Single Family residential widths, consider reduction of minimum and max widths, encourage reduced widths	Reduce required impervious area to reduce runoff and pollutants
	4.2-135.C Sidewalks	Planter strips requirement	Amend, allowing stormwater quality facilities (planters, swales).	Allows for implementation of green streets
	4.3-110.E Infrastructure Standards – Stormwater Management	Drainage management practices that may be required for development	Add specific minimum threshold(s) for development size at which stormwater management practices (for quantity and water quality) are required. (e.g. current standard from Engr. Design Standards manual of 500 sq.ft. or more new non-building imperviousness, OR City of Eugene standard of 1000 sq.ft. of impervious area)	
	4.3-110.E Stormwater Management	Drainage management practices that may be required of development.	Change “drainage” to “stormwater”.	
	4.3-110.E.6 Stormwater Management	Stabilizing natural drainageways as necessary	Add “and as permitted/allowed by the City, state and federal regulations”	Work in stream corridors and wetlands may require 404 permits, etc.
	4.3-110.F.2.a Identification of Water Quality Limited Watercourses	Tributary to WQLW definition, including exception for piped connections greater than 200’	Delete exception, at least in cases where watercourse is open upstream of piped section	Will provide for better head waters protection

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CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	4.3-115 Water Quality Protection		Amend title to reflect content, which is protection of instream water quality and related habitat functions, to not confuse with stormwater management for water quality, in section 4.3-110. Clarify introductory language as to purpose of this section, again reflecting content.	
	4.3-115 Water Quality Protection	Introductory paragraph on applicability, exceptions for Low Density Residential District and existing buildings in riparian areas	Remove exception to riparian area protections for Low Density Residential District. Require properties with existing buildings in riparian areas to encroach no further into the riparian area.	Allows for more complete riparian protections for water quality
	4.3-115.A.2.a Water Quality Protection	Exceptions to 50 foot riparian area for WQLW with less than 1000 cfs average annual flow	Add riparian area width-averaging allowance (with a minimum allowable width such as 35') as a preferred approach vs. outright reduced riparian area widths, require enhancement if width reduction allowed	Reference: Clean Water Services Design & Construction Standards for vegetated corridors
	4.3-115.A.3 Water Quality Protection	Allowing for relocation of degraded watercourse	Add definition for degraded condition. Add standards for first avoiding impacts, then, if relocated watercourse is allowed, including native vegetation, erosion control, sizing for low and high flows, creation of riparian area	
	4.3-115.B.6 & 7 Permitted Uses in Riparian Areas	Standards for pedestrian trails and bikeways in Riparian Areas	Require Riparian Area width to be increased by area equivalent to trail width, require restoration/enhancement and encourage pervious trails	Reference: Clean Water Services Design & Construction Standards for vegetated corridors
	4.4-105.A Landscaping	Purpose of landscaping regulations	Add that the purpose is also to protect and improve water quality and moderate temperature	
	4.4-105-B Landscaping	Three types of landscaping that may be required	Add a 4 th type: Vegetated stormwater management facilities	
	4.4-105-D Landscaping	Lists the areas of a parcel that shall be landscaped	Add vegetated stormwater management facilities	

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CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	4.4-105-E Landscaping	65% plant coverage requirement in 5 years	Add exception that vegetated stormwater management facilities and riparian areas may be required to have greater vegetation coverage in less time	To provide necessary biofiltration and/or shading, and erosion control, more dense vegetation coverage is required
	4.4-105.F.2 Landscaping	Parking lot landscaping standards – 5% landscaping coverage required	Increase the required landscaping in parking lots and specifically allow incorporation of stormwater quality facilities	To encourage incorporation of swales, stormwater planters, rain gardens, etc. in parking areas. Reference: City of Portland parking lot standards
	4.4-105.I Landscaping	Planting Installation Standards	Landscaping for stormwater management facilities and riparian areas should have a 2-year maintenance warranty period	Need to ensure the long-term viability of vegetation integral to biofiltration, temperature moderation and other water quality benefits/requirements
	4.6-115 Vehicle Parking – Parking Lot Design	Figure 4.6-A, Parking Lot Design	Revise or add additional sketch depicting parking lot that incorporates stormwater quality facilities	Reference: Portland BES Stormwater Solutions Handbook - Introduction
	4.6-120.A Vehicle Parking – Parking Lot Improvements	Parking lot surface material	Amend to allow permeable materials properly designed to reduce runoff and/or for stormwater storage	
	4.6-120.B Vehicle Parking – Parking Lot Improvements	Parking lot drainage requirements	Amend to allow/encourage onsite management/minimizing of runoff via vegetated stormwater management facilities and infiltration as possible	
	4.6-120.C Vehicle Parking – Parking Lot Improvements	Wheel bumpers, curbs required	Amend to allow curb cuts or no curb w/ wheel bumpers to allow runoff into stormwater quality facilities incorporated in parking lot landscaping	
	4.6-125 Vehicle Parking – Parking Space Requirements	Table 4.6-2, minimum parking requirements	Compare minimum parking requirements to other jurisdictions, consider reductions in requirements as possible	Reduce required impervious area and associated runoff and pollutants as possible
	4.6-125 Vehicle Parking – Parking Space Requirements	Table 4.6-2, minimum parking requirements	Add a column for maximum allowed parking spaces	Places a cap on impervious area

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CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	4.6-125 Vehicle Parking – Parking Space Requirements	Table 4.6-2, minimum parking requirements	For single-family dwellings, allow combination of street and driveway to be used for parking requirement, allow for shared driveways/parking	
	4.6-125.D.2 Vehicle Parking – Parking Space Requirements	CI District special provisions allowing 5% extra impervious surface with berms	Delete or discourage use of this provision	This provision adds imperviousness, runoff & pollutants, and reduces landscape area that could be used for stormwater quality facilities
Springfield Development Code (Sept 2007) – Chapter 5: DEVELOPMENT REVIEW PROCESS				
	5.1-110.G&H Development Exemptions	Exemptions for certain single family homes	Amend to ensure stormwater quality requirements are not exempted	Single family homes that will add more than the threshold new impervious area (1000 sq ft is recommended above), should not be exempted from stormwater quality requirements
	5.5-125 Accessory Dwelling Units – Development Standards		Add stormwater quality facility requirements when threshold impervious area is exceeded (see comment for 4.3-110.E)	
	5.8-125 Non-Conforming Uses, Expansion or Modification	Criteria for approval of expansion/modifications	Add requirements for parking lot retrofits to add stormwater quality facilities as appropriate	Reference: City of Portland BES SWMM Manual Chapter 1.5 and Title 33 of Portland Planning & Zoning Code
	5.8-150 Ballot Measure 37 Demands		Update for Measure 49	

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CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	5.12-130.G Land Divisions - Tentative Plan Conditions	Submittal of a Land and Drainage Alteration Permit	Provide more detail or reference to the LDAP requirements (when required, what is required)	
	5.15-120 Minimum Development Standards	Applicable standards for compliance	Add minimum stormwater standards that must be met (see comment for 4.3-110.E)	Stormwater conveyance and stormwater quality facility requirements should be required if minimum thresholds are met such as 500 or 1000 Sq ft of new/replaced impervious
	5.17-105.B.1.a Site Plan Review	Exceptions to site plan review requirements, single family & duplex	Amend to require review for stormwater management requirements	
	5.17-105.B.2.b Site Plan Review	When site plan review is required for multi-family, commercial, public, industrial	Amend to ensure review required for addition/replacement of threshold amount of impervious area (e.g. 1000 sq. ft.)	
	5.17-105.B.2.c.v.a Site Plan Review	Exceptions to review requirements	Ensure review required for addition/replacement of threshold amount of impervious area (e.g. 500 or 1000 sq. ft. – see comment for 4.3-110.E)	
	5.17-155 Maintaining the Use	Long term maintenance requirements	Add subsection requiring maintenance of stormwater facilities including associated vegetation. Maintenance requirements should be specified in Design Standards and maintenance agreements. An extended maintenance warranty period (2 years) should be established for vegetated stormwater facilities to ensure that vegetation is fully established.	References: City of Portland BES SWMM Manual (2008), City of Gresham Green Development Practices guide (2007), and Clean Water Services Design and Construction Standards (2007)

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CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	5.19-110.A Tree Felling Permit – Applicability	Permit required for felling more than 5 trees, 5” dbh, per year	Change to require permit for removal of any regulated tree (5” dbh or larger)	5 significant trees removed per year per parcel, unregulated and without mitigation can have a substantial impact on water quality, erosion, temperature, habitat
	5.19-120.B Tree Felling Permit – Submittal Requirements	Requires a description of any plan to replace, landscape, etc.	Amend to specifically require a mitigation plan for most situations, with exceptions for hazard trees, public improvements, etc.	
	5.19-125.C Tree Felling Permit - Criteria	Criteria for approval – whether it is necessary to remove trees for proposed improvements	Add criteria to determine if the tree felling could be avoided by adjusting locations of site improvements	
Springfield Engr. Design Stds. & Procedures (April 2006) -	ALL SECTIONS AND CHAPTERS		Update all references to Springfield Development Code sections to match with current (2007) numbering system	
Springfield Engr. Design Stds. & Procedures (April 2006) -	SECTION 1 – Design Standards, CHAPTER 1 – Streets and Sidewalks			
	1.02.3 Right of Way and Paving Width	Refers to other documents such as Development Standards for widths	See comments for Development Code sections 4.2-100 and 4.2-105 above regarding possible width reductions and green streets alternatives.	
	1.02.7 Pavement Design		Amend to include process to allow alternative pavement designs, including pervious and pavers as appropriate, and green streets	Reference for green streets standards: City of Gresham Green Street Standards
	1.02.11.E Sidewalks	Local residential streets may have either integral or setback sidewalk	Amend to require setback sidewalks with planter strips.	Planter strips can be used to manage sidewalk, driveway and street runoff, and provide for street trees (for shade, runoff reduction)
	1.02.11.I Sidewalks	Concrete sidewalk specifications	Amend to allow pervious-paver options	

TABLE 1: SPRINGFIELD CODE & STANDARDS REVIEW – SPECIFIC RECOMMENDATIONS

CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
Springfield Engr. Design Stds. & Procedures (April 2006) -	SECTION 1 – Design Standards, CHAPTER 3 – Stormwater Quality			
	3.00 Design Standards		General comment: Review this section and related sections of Development Code for consistency in terminology. For example, the terms “stormwater quality facility” and “Best Management Practice” are used somewhat interchangeably in this document.	Should have defined, consistent terms throughout all documents.
	3.01 Stormwater Quality Design Standards	City’s intent for future design standards and maintenance	Replace with a Purpose statement regarding stormwater quality standards. Create a separate section for maintenance requirements with specific designations of who maintains (City vs. private owner), and maintenance agreement/O&M plan requirements.	Reference for maintenance agreements/O&M plans: Portland BES SWMM manual, Gresham Green Development Practices manual
	3.02 Interim Design Standards	Interim standard allowing use of Portland BES SWMM manual and Clean Water Services Design & Construction Standards	Replace section with permanent standards. Recommend adopting City of Eugene standards (which are the City of Portland BES standards). Recommend to Eugene that they update their code to include the latest BES SWMM Manual (July 2008).	
	3.03 Stormwater Quality Design Criteria	Findings, basis for requirements	Update to reflect adopting permanent standards. Consider moving the findings paragraph to section 3.01 as part of a purpose statement.	

TABLE 1: SPRINGFIELD CODE & STANDARDS REVIEW – SPECIFIC RECOMMENDATIONS

CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	3.03 Stormwater Quality Design Criteria		Add section defining threshold(s) for requiring water quality facilities, including a clear impervious area threshold for all new development and re-development at which water quality facilities are required (e.g. 500 sq ft impervious such as listed in 3.03.5 for parking lots, or 1000 sq ft total site impervious similar to City of Eugene)	Need to clarify stormwater quality requirements for all projects.
	3.03.2 Retention/Protection/Preference for Open Watercourses and Water Bodies		Add references to Development Code section 4.3-115 (riparian area protections), ensure terminology and requirements are consistent	
	3.03.3 Water Quality Pollutants of Concern		Move discussion of pollutants of concern and basic goals to a Purpose section at beginning of chapter. Keep specific design criteria in section 3.03.3	
	3.03.03A Temperature Standard	Design features to moderate temperature.	Delete item C (Underground Injection)	Underground injection should not be encouraged, especially given Springfield’s groundwater drinking water source
	3.03.03A Temperature Standard		Items A, B & C should have more specific design criteria. Adoption of City of Portland SWMM manual will provide criteria and methodology.	
	3.03.03B Total Suspended Solids Standard	Requires site design with BMP’s designed to achieve 70% TSS reduction	Amend to state that designs based on the adopted standard (e.g. Eugene/Portland BES SWMM) are assumed to meet the 70% reduction and other City pollution reduction standards	Reference: Portland BES SWMM manual (2008) section 1.3.3
	3.03.3.C DEQ Stormwater Discharge Benchmarks	All development projects shall use BMPs designed to achieve DEQ discharge benchmarks	Delete this section or amend and move to Purpose section, stating that the City standards are designed to achieve relevant DEQ requirements. Reference to DEQ Industrial permits for relevant businesses is fine.	Developers should be able to assume that they can be in compliance by meeting City defined design standards, except for sites that require their own permits from DEQ

TABLE 1: SPRINGFIELD CODE & STANDARDS REVIEW – SPECIFIC RECOMMENDATIONS

CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	3.03.4.A BES Stormwater Manual Chapter 4	Lists higher risk activities from older version of BES SWMM manual that require additional BMPs	Update to reflect latest BES manual (July 2008). Maybe rename this section “Source Controls Required”, and then combine at least with section 3.03.4.C Roof-mounted Equipment.	
	3.03.4.B Underground Injection Control (UIC)	References DEQ UIC rules, establishes Springfield UIC standards	Update item B to reflect updated standards (Eugene/Portland BES SWMM)	
	3.03.4.D Drinking Water Protection Overlay District	References Development Code requirements	See comments above for Development Code section 3.3-235 – consider Portland or Gresham Columbia South Shore Wellfield protection standards	
	3.03.5 Parking Lots/Paved Areas	Background information, requirements for parking lot runoff treatment	This section should be part of basic site design requirements rather than a subsection of “Special Considerations for Higher-Risk Activities”. Combine with a definition of a threshold amount of new/replaced imperviousness at which the stormwater quality requirements kick in (e.g. 500 sq ft as listed here, or 1000 sq ft for entire site – per City of Eugene)	
	3.03.6 Vegetative Treatment Requirements	Requirement for 50% of non-roof impervious area to be treated via vegetated methods, most facilities not allowed in Public Utility Easements.	This section should be part of basic site design requirements rather than a subsection of “Special Considerations for Higher-Risk Activities”. Ensure that requirements allow vegetated facilities in ROW, planter strips (amend prohibition of facilities in Public Utility Easements to allow more vegetated facilities)	

TABLE 1: SPRINGFIELD CODE & STANDARDS REVIEW – SPECIFIC RECOMMENDATIONS

CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	3.03.7 Parking Lot Maintenance	Recommendations for parking lot cleaning	Create a separate Maintenance section for all stormwater management facilities. Define ownership, who maintains, require maintenance plans and agreements for privately maintained facilities. Include parking lot maintenance procedures in this section, and add procedures for pervious pavements.	References: City of Portland BES SWMM manual, Chapter 3
	3.04 Best Management Practices for Public Street Designs	Reserved for future use	Here, or in Chapter 1.00, add Green Street Design criteria.	Reference: City of Gresham Green Street Standards and Green Development Practices Manual
	3.05 Wetlands Banking	Reserved for future use	Delete or move to new chapter	Wetlands banking is for mitigation of wetland destruction – this is not a stormwater quality management measure
Springfield Engr. Design Stds. & Procedures (April 2006) -	SECTION 1 – Design Standards, CHAPTER 4 – Stormwater Capacity			
	4.00 Design Standards		General Comment: Review this chapter for additional update needs after the City adopts the Stormwater Facilities Master Plan. Specifically consider updates to ensure development projects provide appropriate drainage systems given downstream conditions. Review especially Drainage Study requirements, on-site detention/infiltration requirements. Consider aligning more closely with Eugene standards as well.	
	4.07.1 Roadside Ditches		Require vegetation/grass-lined ditches in addition to rock protection as necessary to provide erosion control	

TABLE 1: SPRINGFIELD CODE & STANDARDS REVIEW – SPECIFIC RECOMMENDATIONS

CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	4.09 Downstream Protection Requirement	Requires mitigation of downstream quantity and quality impacts via detention or downstream system improvement	Add water quality mitigation methods (e.g. onsite water quality facilities)	
	4.10 Criteria for Requiring On-site Detention	Lists conditions requiring on-site detention	Review, and add more specificity to when and where detention is required after adoption of Stormwater Facilities Master Plan to ensure detention is required where needed due to downstream deficiencies.	
	4.10.C Criteria for Requiring On-site Detention	Requires onsite detention for water quality	Delete subsection C	Detention is a water quantity method, not water quality. Water quality requirements should be addressed in previous Chapter
	4.10.D Criteria for Requiring On-site Detention	Requires detention if there is a need to mitigate flow impacts on receiving streams	Add specificity – how to determine which streams need such mitigation. For example, it could be the waters designated as Water Quality Limited Watercourses in the Springfield Development Code	Other reference: City of Eugene requirement for no increase in peak flows from development areas above 500'
	4.12.B Detention Pond Design – Water Quality Considerations		Delete Heading B, and add these criteria to the previous subsection (A. Facility Geometrics)	These are basic detention pond design criteria – not water quality criteria
	4.12.E Detention Pond Design –	Access roads criteria	Add allowance/encouragement for access roads to be pervious	
	4.15 Underground Detention Facilities		Allow underground detention under pervious paved parking lots	
	4.16.1 Infiltration Facilities – Overview		Need a clear distinction between infiltration for quantity vs. water quality. The former requiring greater infiltration capacity than the latter. Amend to clarify purpose of geotechnical evaluation (e.g. infiltration testing, groundwater depth evaluation, hillside stability as needed)	

TABLE 1: SPRINGFIELD CODE & STANDARDS REVIEW – SPECIFIC RECOMMENDATIONS

CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	4.16.2 Underground Injection Control	Refers to DEQ regulations. States that drywells may be considered/required by City.	Remove encouragement/possible requirement for drywells. Encourage non-drywell infiltration methods using surface rather than sub-surface disposal to provide for water quality and reduce future regulatory issues with DEQ.	
	4.16.3.A Surface Infiltration Facility Requirements	Water Quality heading	Change heading to “Pretreatment” to better reflect contents	
	4.16.3.D Design Infiltration Rate		Amend to clarify infiltration rates for quantity vs. water quality, including minimum infiltration rates allowed.	Reference: Portland BES SWMM manual 2008
	4.17 Low Impact Development	Currently blank	Move and incorporate into Chapter 3. Can be a reference to another jurisdiction’s standards.	References: Portland BES SWMM manual 2008, City of Gresham Green Development Practices manual
Springfield Engr. Design Stds. & Procedures (April 2006) -	SECTION 1 – Design Standards, CHAPTER 5 – Traffic Standards			
	5.05.3 Medians – Design Standards		Amend to allow water quality facilities (swales, rain gardens, stormwater planters) as appropriate in medians (Green Streets)	
	5.08.1 City Owned Parking Lot Design	General design basis statement	Add that these parking lots shall incorporate stormwater quality requirements including vegetation water quality facilities, and pervious pavements (as allowed)	
	5.08.3 City Owned Parking Lot Design	End Islands and Landscaped Areas	Amend to specifically allow/encourage use of islands and landscape areas for vegetation water quality facilities.	
Springfield Engr. Design Stds. & Procedures (April 2006) -	SECTION 1 – Design Standards, CHAPTER 6 – Street Trees			

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CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	6.02 General Design Considerations	3 rd paragraph – tree felling permit requirements	See recommendations for tree permits above (Springfield Development Code section 5.19-110). Require permit/approval for any street tree removal, and require replacement/mitigation.	Street trees provide runoff reduction/control, and shading on roadways and other impervious surfaces, decreasing runoff temperature
Springfield Engr. Design Stds. & Procedures (April 2006) -	SECTION 1 – Design Standards, CHAPTER 7 – Hillside Development			
	7.03 Sanitary Sewer		Remove references to storm drainage/storm sewer systems in this section (should be in 7.04 – Storm Drainage)	
	7.04.2 Storm Drainage – Storm Sewer Laterals	Requires storm sewer lateral to every lot	Amend to allow for alternative system if certain low impact development practices are allowed/approved onsite (will need to assess soil/stability in steep areas)	
	7.07.1 Tree or Understory Removal	Restrictions to tree/understory removal on some hillside areas	Also restrict groundcover removal. Add cross-reference to Riparian Area protections in Springfield Development Code. Add requirements to preserve as much existing vegetation as possible on development sites, and restrict allowed removal seasonally and with erosion control and mitigation/re-planting requirements.	
Springfield Engr. Design Stds. & Procedures (April 2006) -	SECTION 1 – Design Standards, CHAPTER 8 – Erosion and Sediment Control Plan Design			

TABLE 1: SPRINGFIELD CODE & STANDARDS REVIEW – SPECIFIC RECOMMENDATIONS

CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
	8.00 Design Standards		Insert a section establishing a standard for erosion and sediment control, even when a permit is not required, such as “No visible or measurable erosion off site” – A clear standard for enforcement action, whether or not the site has an EPSC plan/permit (can be applied then to existing development as well as sites under construction)	Reference: Clean Water Services Design & Construction Standards – Chapter 6
	8.01 Purpose	Requires Erosion and Sediment Control Plan for public projects	Seems to imply that EPSC plans are only required for public projects. Amend to clearly required EPSC plans for all public and private development projects. AND set a minimum threshold for plan requirement (e.g. Eugene requirement for permit for 1 acre+ and sensitive areas disturbance)	Reference: Eugene municipal code section 6.635
	8.02 Designer Responsibilities	Gives specific reference to older DEQ 1200-CA permit	Update reference to current 1200-C permit, or make language more general, remove DEQ permit copy from this manual, and have available at permit counter/website	
	8.03 Plan Preparation		Consider replacing part or all of sections 8.03 through 8.07 with reference to an Erosion Prevention and Sediment Control Manual. Consider joint regional manual with Eugene, County for consistency, AND/OR adopt by reference other up-to-date manual	Reference: City of Portland BES Erosion and Sediment Control Manual (2008) or Clean Water Services Design & Construction Standards (2007) Chapter 6 and Appendix B
Springfield Engr. Design Stds. & Procedures (April 2006) -	SECTION III - Procedures CHAPTER 11 – Pre-design			
	11.03 Ordering Tests	Types of possible site condition field tests that may be needed	Add infiltration/depth to groundwater testing.	
	11.06 Research	Includes list of City reports available for review as needed	Add Springfield Stormwater Facilities Master Plan	

TABLE 1: SPRINGFIELD CODE & STANDARDS REVIEW – SPECIFIC RECOMMENDATIONS

CODE/PLAN	SECTION	EXISTING LANGUAGE/CONTENT	RECOMMENDED CHANGE	NOTES
Springfield Engr. Design Stds. & Procedures (April 2006) -	SECTION III - Procedures CHAPTER 12 – Permit Application Process			
	12.05.2 Permits from other agencies	List of other possible permits from outside agencies – includes Springfield Land & Drainage Alteration Program (LDAP) permit	Move listing of city LDAP permit to 12.02 Permit Application Process and 12.05.1 Submittal Requirement	NOTE: LDAP permit is not referenced elsewhere. LDAP requirements should be listed in the Design Standards.
Land & Drainage Alteration Program	Permit requirements	LDAP appears to be mentioned only in Floodplain Overlay District Code and once in Permit Application process for public projects in City Design Standards. LDAP requirements are unclear.	Amend code and standards to require LDAP for all land uses and clarify requirements and where to get further information (refer to fact sheets/forms on Springfield Public Works LDAP web page). Reduce threshold for requiring LDAP permit from 50 cubic yards disturbance to smaller quantity (at a minimum for any grading, clearing and/or excavation that would trigger erosion control requirements).	