City of Eugene, Oregon

Total Maximum Daily Load (TMDL) Fifth Annual Report and Review

Submitted to Oregon Department of Environmental Quality

March 23, 2014

TMDL FIFTH ANNUAL REPORT AND REVIEW

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Part I – TMDL FIFTH ANNUAL REPORT

1. INTRODUCTION

The City's Total Maximum Daily Load Implementation Plan (TMDL Plan), as submitted on October 15, 2008, was approved by the State of Oregon Department of Environmental Quality (DEQ) on December 23, 2008. Part I of this document, the **TMDL Fifth Annual Report**, summarizes the progress of TMDL implementation activities conducted by the City of Eugene from July 1, 2012 through June 30, 2013. Part II of this document, the **TMDL Fifth Year Review**, is an assessment of the progress made in implementing the City's TMDL Plan during the first five years. The Fifth Annual Report and Review will serve to inform TMDL Plan revisions for the next five years of implementation. A revised TMDL Plan will be submitted to DEQ by June 30, 2014.

Discharges of surface water pollutants come from both point and nonpoint sources. Point sources, those that enter surface waters via a pipe of other conveyance are regulated through the National Pollution Discharge Elimination System (NPDES) permitting program, administered in Oregon by DEQ. These NPDES permits serve as the TMDL Implementation Plan for the discharges they cover (industrial wastewater, municipal wastewater, industrial stormwater and municipal stormwater). References to these point-source permits and associated plans are included in this TMDL Plan for context. This TMDL Plan emphasizes strategies for the non-point source pollutants within the City of Eugene's jurisdiction and authority.

Section 2 of this TMDL Fifth Annual Report provides additional relevant background information. **Section 3** provides information about which local area waterbodies are addressed by the Willamette TMDL, and references the original TMDL Plan for a description of strategy development. **Section 4** includes an updated status for each City of Eugene TMDL activity, and an update on the other permits and programs that are relevant to the TMDL. **Section 5** references the City's annual municipal stormwater report for water quality monitoring results and analysis.

2. BACKGROUND

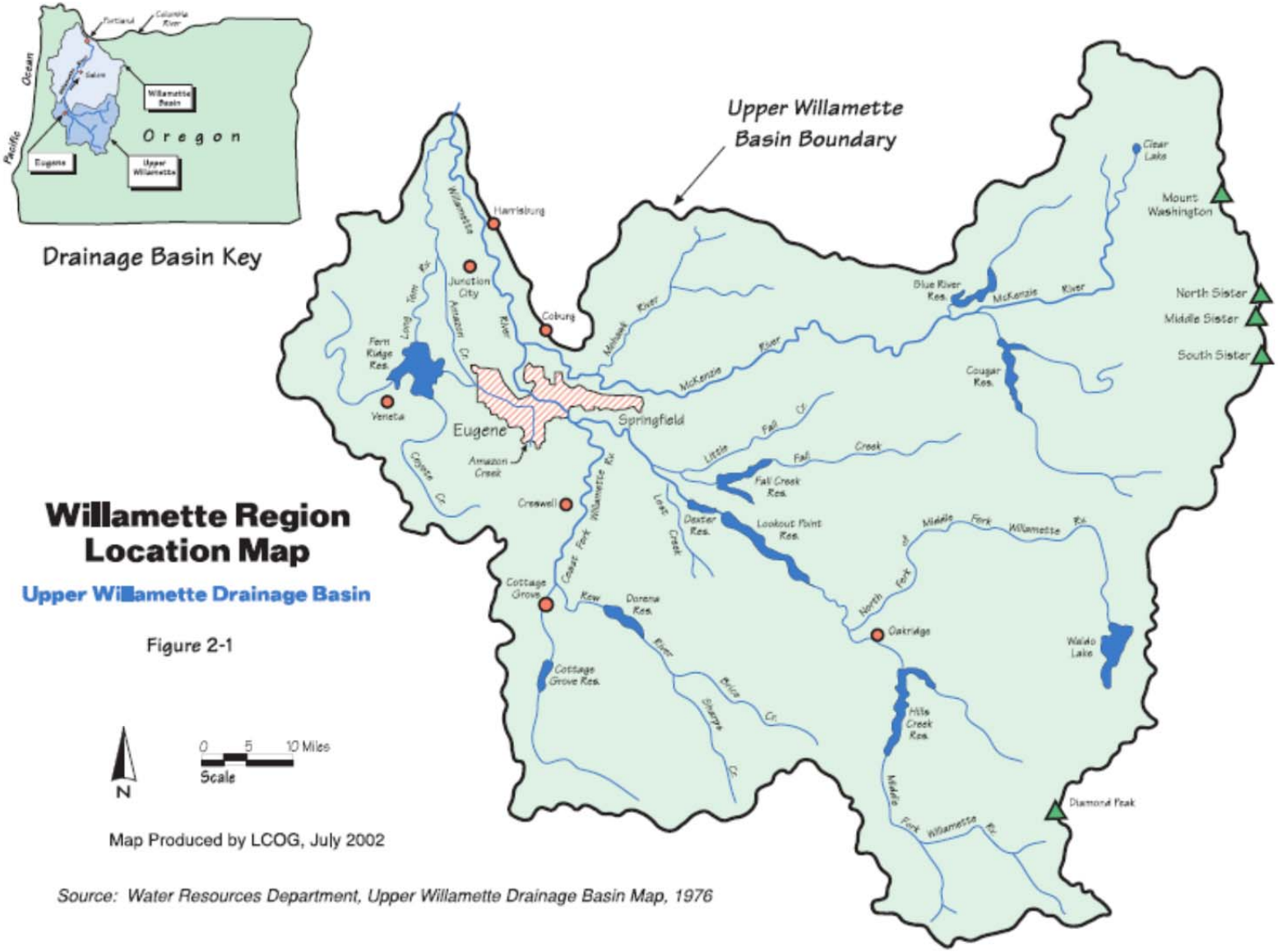
Eugene lies at the upper end of the Willamette watershed, as shown in Figure 2-1. The Willamette River flows for about 6 miles, from River Mile 184 to River Mile 178 through the City, as shown in Figure 2-2[1]. The Willamette River is currently listed by the State of Oregon DEQ as a water quality limited river due to elevated water temperatures, elevated mercury

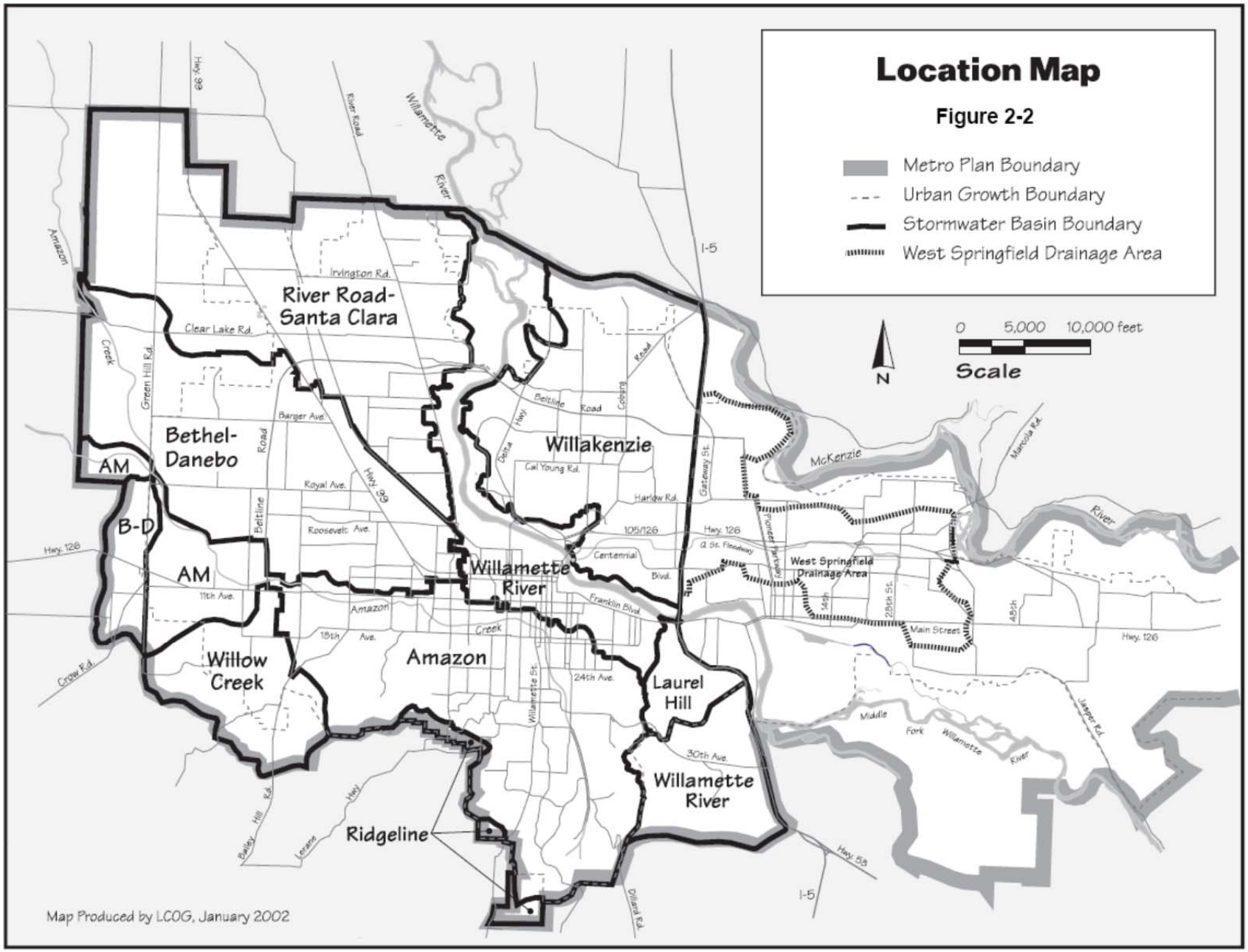
[1] Figure 2-2 illustrates the seven major stormwater drainage basins that have been delineated in Eugene: *1) Amazon Creek, 2) Bethel-Danebo, 3) Laurel Hill, 4) River Road-Santa Clara, 5) Willakenzie, 6) Willamette River, and 7) Willow Creek.* Note that the area depicted on Figure 2-2 is the 2002 stormwater basin planning study area which includes the Eugene city limits and the unincorporated area west of Interstate Highway 5 (I-5), and within the metropolitan plan boundary. The unincorporated portion includes land both within and outside the UGB. The City's responsibilities as a DMA apply only to the limits of its jurisdictional authority.

concentration in fish tissues, and elevated bacteria levels, all of which at various points on the River may exceed State water quality standards. Other water bodies in the Eugene area that are tributary to the Willamette are water quality limited due to elevated bacteria levels, low dissolved oxygen levels, and elevated turbidity. These waterbodies include Amazon Creek, Amazon Diversion Channel and Fern Ridge Reservoir. When water quality standards are not met, the federal Clean Water Act requires that a TMDL to be established. A TMDL determines how much pollution can be added to the river without exceeding water quality standards. On September 21, 2006, the DEQ issued the Willamette Basin TMDL as an Order, and submitted the TMDL to the Environmental Protection Agency (EPA) for approval. EPA approved the Willamette Basin TMDL on September 29, 2006.

Along with other cities and agencies in the Willamette Basin, the City of Eugene was named by DEQ as a "designated management agency" (DMA) in that it has legal authority over sectors or sources contributing pollutants on the approximately 27,800 acres within the City's limits, in that it operates the regional Eugene-Springfield Water Pollution Control Facility, a sewage treatment plant with permits to discharge stormwater and treated effluent into the Willamette River, and other regional facilities including the Eugene Airport. As such, the City of Eugene was required to develop a TMDL Plan, to describe ongoing and planned activities that will be undertaken to achieve the TMDL pollutant reductions.

TMDL Plan rules, described in OAR 340-042-0080(3), include a requirement to "Implement and revise the plan as needed" which according to the DEQ TMDL Implementation Plan Guidance (May 2007), includes an annual report of progress on the implementation of each management strategy. This report summarizes the progress of TMDL implementation related activities for the period of time from July 1, 2012 through June 30, 2013, which coincides with the fifth year of implementation and the City's fiscal year 2013.


Drainage Basin Key
Pacific Ocean
Portland
Columbia River
Salem
Willamette Basin
Oregon
Eugene
Upper Willamette
Upper Willamette Basin Boundary
Harrisburg
Junction City
Coburg
Fern Ridge Res.
Veneta
Eugene
Springfield
Amazon Creek
Creswell
Cottage Grove
Cottage Grove Res.
Dorena Res.
Dexter Res.
Lookout Point Res.
Fall Creek Res.
Blue River Res.
Cougar Res.
Oakridge
Hills Creek Res.
Waldo Lake
Clear Lake
Mount Washington
North Sister
Middle Sister
South Sister
Diamond Peak
Willamette River
McKenzie River
Mohawk River
Long Tom R.
Coast Fork Willamette R.
Little Fall Creek
Lost Creek
Middle Fork Willamette R.
North Fork
Willamette Basin
Eugene
Upper Willamette
Willamette Region Location Map
Upper Willamette Drainage Basin
Figure 2-1
N
0 5 10 Miles
Scale
Map Produced by LCOG, July 2002
Source: Water Resources Department, Upper Willamette Drainage Basin Map, 1976


Location Map
Figure 2-2
Metro Plan Boundary
Urban Growth Boundary
Stormwater Basin Boundary
West Springfield Drainage Area
0 5,000 10,000 feet
Scale
N
River Road-Santa Clara
Bethel-Danebo
AM
B-D
AM
Willakenzie
Willamette River
Willow Creek
Amazon
Laurel Hill
Willamette River
Ridgeline
West Springfield Drainage Area
Amazon
Creek
Willamette
River
McKenzie
River
Middle Fork Willamette River
I-5
Hwy. 99
Hwy. 126
Hwy. 58
Irvington Rd.
Clear Lake Rd.
Green Hill Rd.
Barger Ave.
Royal Ave.
Roosevelt Ave.
Beltline Road
Cal Young Rd.
Harlow Rd.
105/126
Centennial Blvd.
Franklin Blvd.
Gateway St.
Pioneer Parkway
Q St. Floodway
Main Street
Willamette St.
24th Ave.
30th Ave.
11th Ave.
15th Ave.
Crow Rd.
Bailey Hill Rd.
Lorane Hwy.
Dillard Rd.
Jasper Rd.
Marcola Rd.
Map Produced by LCOG, January 2002

3. LOCAL AREA TMDL WATERBODIES & STRATEGY DEVELOPMENT

Table 3-1 identifies waterbodies addressed by the 2006 Willamette TMDL that lie within or near the City of Eugene and may be affected by activities within the City of Eugene's jurisdiction. The table includes the river miles affected, the TMDL parameter, and the season affected by the listing.

Table 3-1. Water Bodies and TMDL Pollutants[2]

Subbasin	Waterbody Name	River Miles	Parameter	Season
Upper Willamette	Willamette River	50.6 to 186.5	Temperature	Year Round
Upper Willamette	Willamette River	0 to 149	Bacteria	Fall/Winter/ Spring
Upper Willamette	Willamette River	174.5 to 186.4	Mercury	Year Round
Upper Willamette	A3 Channel	mouth to headwaters	Bacteria	Year Round
Upper Willamette	A3 Channel	mouth to headwaters	Mercury	Year Round
Upper Willamette	Amazon Creek	0 to 22.6	Bacteria	Year Round
Upper Willamette	Amazon Diversion Channel	0 to 1.8	Bacteria	Year Round
Upper Willamette	Amazon Diversion Channel	0 to 1.8	Dissolved Oxygen	Spring/Summer/ Fall
Upper Willamette	Long Tom River	0 to 24.2	Bacteria	Fall/Winter/ Spring
Upper Willamette	Fern Ridge Reservoir	24.2 to 31.8	Bacteria	Fall/Winter/ Spring
Upper Willamette	Fern Ridge Reservoir /Long Tom River	24.2 to 31.8	Turbidity	Year Round
Upper Willamette	Long Tom River	0 to 24.2	Temperature	Summer

[2] Table 3-1 has been updated (as compared to Table 3-1 in the City's TMDL Plan), to exactly match the listings in Tables 2-6 and Table 10-6 of the Willamette Basin TMDL.

In developing the TMDL reduction strategies outlined in its TMDL Plan, the City considered the list of affected waterbodies in Table 3-1, potential sources of TMDL pollutants, and existing and planned programs and activities which address TMDL pollutants. From that analysis, the City developed reduction strategies for each TMDL pollutant. These reduction strategies are outlined in the City's TMDL Plan. A matrix (TMDL Plan, Appendix A – City of Eugene TMDL Implementation Plan Matrix) was then developed describing the City's activities implemented or planned to carry out the strategies.

4. RELEVANT WATER QUALITY PERMITS AND PROGRAMS

This section includes an updated status for each City of Eugene TMDL activity (Section 4.a), an update on the other water quality permits relevant to the TMDL (Section 4.b), and an update and accomplishments for other programs relevant to the TMDL (Section 4.c).

a. TMDL Implementation Activities

Appendix A of this TMDL Fifth Annual Report includes the detailed list of activities implemented or planned by the City of Eugene for each TMDL pollutant to carry out the pollutant reduction strategies, updated to include status of each activity and progress made over the reporting period. For those activities covered under an existing permit program, Appendix A includes a reference to the permit, and Section 4.b includes references to specific reports within which additional information is available.

With regards to the first two activities in the matrix (Stream buffers/ riparian protection to meet Statewide Planning Goal 5 and Statewide Planning Goal 6 requirements), some additional background information is provided in this section.

Statewide Planning Goal 5
Oregon's Statewide Planning Goal 5 requires all Oregon cities and counties "to conserve open space and protect natural and scenic resources." Land Use Code regulations that apply to the designated Goal 5 sites, in the form of the /WR Water Resources Conservation Overlay Zone, were adopted by the Eugene City Council in 2005 and 2006, and can be found in Chapter 9 of the Eugene City Code (go to City's web site: http://www.eugene-or.gov, select "City Code" and see Sections 9.4900-9.4980).

- During the Year 5 TMDL reporting period, 1 land use application was submitted related to the /WR Water Resources Conservation Overlay Zone, and no adjustment application requests were made.

Statewide Planning Goal 6
Oregon Statewide Planning Goal 6 requires the City to, among other things, "maintain and improve water quality." Land Use Code regulations establishing a /WQ Water Quality Overlay Zone, were adopted by the Eugene City Council in March 2009, and can be found in Chapter 9 of the Eugene City Code (go to City's web site: http://www.eugene-or.gov, select "City Code,"

and see Sections 9.4770-9.4790). An Administrative Order was adopted in June 2009, related to implementation of the /WQ Water Quality Overlay Zone code requirements. These regulations provide protection for waterways with a significant relationship to DEQ's list of water quality limited ("303(d)-listed") streams that do not already fall within the Goal 5 (/WR Overlay Zone) protections.

- During the Year 5 TMDL reporting period, no land use applications were submitted related to the /WQ Water Quality Overlay Zone, and no adjustment application requests were made.

With regards to the fourth activity in the matrix (Enhance streamside shading), during the Year 5 TMDL reporting period, City of Eugene staff developed the Amazon Creek Streamside Shading Assessment. This document was completed in March 2014, and while that is technically outside of the current reporting year, the document is included in this Fifth Year Report (Appendix B), as this assessment will be instrumental in planning for shading activities in the Amazon basin over the next five year period.

b. Water Quality Permits

This Section of the report provides information about the status of water quality permits that cover certain discharges but have their own separate review and reporting processes, and the status of water quality permit programs that the City administers on behalf of DEQ.

Discharges of surface water pollutants come from both "point" and "nonpoint" sources. Generally speaking, point sources enter surface waters via a pipe or other conveyances, whereas nonpoint sources discharge to surface waters directly or through overland flow (not via pipes or other conveyances). Discharge of industrial wastewater, municipal wastewater, and stormwater into waters of the United States are all regulated through the National Pollution Discharge Elimination System (NPDES) permitting program. The NPDES permitting program is authorized by Section 402 of the Clean Water Act and, in Oregon, the program is administered by the DEQ. The City of Eugene has obtained permits from DEQ under the NPDES program for its point source discharges to surface waters, including:

- **National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) Permit #101244** (a permit issued to the City of Eugene for the municipal stormwater system discharges)
- **NPDES Wastewater Discharge Permit #102486** (a permit issued to the Metropolitan Wastewater Commission (MWMC) and the cities of Eugene and Springfield for the regional wastewater treatment plant discharges)
- **NPDES General 1200Z Industrial Stormwater Permit for the Eugene-Springfield Water Pollution Control Facility (WPCF) sites** (a permit issued to the MWMC for the wastewater treatment facility stormwater discharges)
- **NPDES General 1200Z Industrial Stormwater Permit for Eugene Airport** (a permit issued to the City of Eugene for the stormwater discharges from the regional airport facility located outside of the Eugene UGB but operated by the City of Eugene)

These permits serve as the TMDL Implementation Plans for the discharges they cover, and the annual reports associated with each permit serve as the report of progress required for TMDL implementation, for the discharges they cover. Following is a summary of the status of the reporting for each of these permits. For more explanation about the permits themselves, see the City's TMDL Plan.

NPDES MS4 Permit #101244

The MS4 permit covers the discharges from the municipal stormwater system. The City received its first Phase I NPDES MS4 permit in 1994 and is currently in its third permit term, having been issued its most recent permit on December 30, 2010. At the time that the City submitted its proposed TMDL Plan (October 2008), the City was anticipating its third-term MS4 permit. Therefore, the TMDL Plan Implementation Matrix, Appendix A of the Plan, references the proposed SWMP best management practices (BMP) codes, descriptions, measurable goals and tracking measures reflected in the September 2008 MS4 permit renewal submittal. Some refinements to Eugene's SWMP were made during the permit renewal process between October 2008 and April 2011. The April 2011 SWMP was approved by DEQ and the updates were reflected in Appendix A included with the Year 3 TMDL report. In December 2012, the SWMP was updated again, primarily to reflect changes in the organization of Eugene's volunteer programs. The changes are administrative in nature and do not reflect substantive changes to the stormwater permit program, measurable goals, or tracking measures. The proposed changes were submitted to DEQ with the Year 2012 annual MS4 report, and are reflected in the TMDL Plan Implementation Matrix (Appendix A).

The most recent annual MS4 report (Year 2013 Annual Report), covering the reporting period from July 1, 2012 through June 30, 2013, was submitted to DEQ on December 1, 2013. The Year 2013 Annual Report includes the status of MS4 SWMP best management practices, and water quality monitoring data analysis and trends including for Willamette River and Amazon Creek. At DEQ's request previously, this TMDL report simply references the Year 2013 Stormwater Annual Report rather than include it within this document.

NPDES Wastewater Discharge Permit #102486 and NPDES General 1200-Z Industrial Stormwater Permit for WPCF sites

The Metropolitan Wastewater Management Commission (MWMC) and the cities of Eugene and Springfield hold a NPDES permit for the discharge of treated wastewater to the Willamette River from the Eugene-Springfield Water Pollution Control Facility (WPCF). The MWMC also holds a permit for stormwater discharges from the WPCF and related Biosolids Management Facility (BMF) site.

- A Discharge Monitoring Report (DMR) for the WPCF is submitted to DEQ monthly, by the 15th day of each month.
- A Pre-treatment Annual Report is submitted to DEQ each year by March 1, covering the entire previous calendar year.
- The 1200-Z report for the WPCF and BMF is completed by July 31st each year, and covers the previous fiscal year (July 1 through June 30).

NPDES General 1200-Z Industrial Stormwater Permit for Eugene Airport
The City of Eugene also holds a General 1200-Z permit for discharges of stormwater runoff from the Eugene Airport site to Amazon Creek and the A1 Channel, both of which eventually flow into the Long Tom River. The 1200-Z DMR for the Eugene Airport is completed each year, covering the previous fiscal year (July 1 through June 30).

Administration of NPDES 1200-Z and 1700-A General Permits
In addition to the point source permits held by the City of Eugene (and MWMC), the City currently acts as an agent for DEQ in the administration of 1200-Z (Industrial Stormwater) and 1700-A (Vehicle and Equipment Wash Water) General Permits inside the Eugene UGB[3]. Yearly reports are submitted to the DEQ via email as a Microsoft Excel database and industrial stormwater program activities are included in the MS4 Year 2013 Annual Report.

Administration of NPDES 1200-C General Permits
The City also currently acts as an agent for DEQ in the administration of 1200-C (Construction Activities) General Permits inside city limits and outside city limits, inside the Eugene UGB on behalf of Lane County under the City of Eugene/Lane County Stormwater Intergovernmental Agreement described in Section 2(e) of the TMDL Plan. The City's activities related to the erosion program are included in the MS4 Year 2013 Annual Report.

c. Other Relevant Programs

This section provides information about the status and accomplishments of three other program areas or activities relevant to the TMDL, however indirectly: 1) Sustainability, 2) Low Impact Development, and 3) Climate and Energy.

Sustainability
Up-to-date information on the City's Sustainability Program can be found on the City's web site at: http://www.eugene-or.gov, go to Services and select Sustainability. The Sustainability Commission produced its FY14 Workplan, covering the period of time from July 1, 2013 - 30, 2014 with primary topics to be addressed including: 1) continued engagement in the Envision Eugene process; 2) improving policy support for green business practices; 3) participating in the development of the Transportation System Plan and Pedestrian/Bicycle Master Plan, 4) advising City Council on the use of the Triple Bottom Line in staff analysis and council deliberations, 5) provide input and recommendations to the Budget Committee as it develops the FY15 budget, 6) investigate potential for revenue neutral carbon fee on greenhouse gas emissions, and 7) continue work on potential local food policy. The FY14 Sustainability Commission Workplan is available from the Sustainable Eugene web site, and is provided in this report for convenience as Appendix C.

[3] The description of the City's responsibilities has been updated from the TMDL Plan, to indicate that the City administers the 1200-Z and 1700-A permits inside the Eugene UGB.

Low Impact Development
Even though it is technically an element of the City's MS4 Permit program, significant progress was made in the area of low impact development which bears noting in this TMDL report. In 2013, staff continued to explore multiple avenues of opportunity to increase LID following Eugene City Council direction to do so in 2008, including administrative adjustments, additional integration of LID practices with other initiatives, development of proposals for land use code amendments, and development of proposals for other program enhancements. Most significantly, Eugene Code amendments modifying the City's stormwater development standards to prioritize LID practices over non-LID practices for new and re-development were placed before the Eugene Planning Commission for consideration. The Planning Commission recommended adoption to the Eugene City Council in summer 2013. Technically within the 2014 reporting period, but a significant accomplishment that bears noting here, the Eugene City Council adopted the proposed code changes which went into effect on March 1, 2014.

In addition to changes to the City's regulations for new/re-development, the City entered into a three-year cooperative agreement with the Long Tom Watershed Council to work with private property owners to construct voluntary stormwater retrofits on developed commercial and industrial properties within the city of Eugene. Under the agreement, the City will provide modest funding to help match private funds and the LTWC seeks willing property owners and provides technical and logistical assistance.

Climate and Energy
The majority of recommendations contained in the Community Climate and Energy Action Plan, adopted by Eugene's City Council in 2010, continue to move forward. One example is that the City's Sustainability Office completed a research effort to better understand community attitudes about climate change and sustainable consumption. Next steps include using the research findings to develop an effective outreach and education campaign to ultimately reduce greenhouse gas emissions. Another example is bringing climate action and community visioning together in the Envision Eugene land use planning process by incorporating 20-minute neighborhoods and more compact, transportation-oriented development thereby reducing greenhouse gas emissions and fuel consumption. The Community Climate and Energy Action Plan 2013 Progress Report can be found on the City's web site: http://www.eugene-or.gov, go to Services and select Sustainability, then Sustainable City, then Climate Change and Energy Use.

5. WATER QUALITY MONITORING

The City has conducted ambient and stormwater monitoring at several locations for over 15 years. The monitoring data, analysis and trend information are provided to DEQ annually as part of the MS4 permit reporting. For the latest assessment of water quality conditions through monitoring, see the Year 2013 Stormwater Annual Report, dated December 1, 2013 and available on the City's web site. Go to: http://www.eugene-or.gov, and under Services select Stormwater, then Planning, Permit and Regulations, then National Pollutant Discharge Elimination System.

Part I - TMDL FIFTH ANNUAL REPORT

Appendix A
TMDL Implementation Matrix

TMDL Fifth Year Report, Appendix A - City of Eugene TMDL Implementation Plan Matrix (Updated March 2014)

MS4 SWMP BMP ID (if applicable) (1)	BMP or Activity	Description of BMP or Activity	Measurable Goals & Timeline	Tracking Measures What is being tracked to show progress towards meeting measurable goals	Milestone Intermediate goals to know progress is being made	Progress Reporting Period (7-1-12 through 6-30-13)	TMDL Pollutants Addressed(2)					Water-shed(3)		Regulatory Program(s)(4)							
							Bacteria	Temperature	Hg	DO	Turbidity	Amazon	Willamette	NPDES MS4	NPDES 1200Z - WPCF	NPDES 1200Z - Airport	NPDES - Wastewater	Underground Injection Con	Goal 5	Goal 6	Willamette TMDLs
WATERWAY PROTECTION, RESTORATION & SHADING																					
	Stream buffers/riparian protection	Consider adoption of an ordinance to establish setback buffers by means of a Water Quality Overlay Zone on waterways with a significant relationship to 303(d) listed streams, and which are not already protected by some other means (namely, Goal 5 and other protective zoning regulations).	/WQ Overlay Zone ordinance adopted and implemented (or alternative protections implemented) by June 2009.	• Applications involving /WQ Overlay Zone (New tracking measure, now that the adoption process is complete and the ordinance remains in effect).	The /WQ ordinance was adopted June 10, 2009 and remains in effect.	• No /WQ Overlay Zone-related applications were received during the reporting period.	√	√	√	√	√									X	X
	Stream buffers/riparian protection	Track and support the implementation of Goal 5 natural resource waterway protections.	Track implementation of /WR Overlay Zone	• Applications involving /WR Overlay Zone	NA	• One /WR Overlay Zone-related applications was received during the reporting period, and no adjustment applications were received.	√	√	√	√	√								X		x
	Temperature trading feasibility	Explore options and partnership opportunities for ecosystem restoration to off-set temperature impacts, for example the regional wastewater treatment facility.	Identify follow up actions from March 2008 Preliminary Findings prepared by the Long Tom Watershed Council by June 2009.	• Document discussions and intermediate decisions	Discussions with City of Springfield by March 2009.	• This task has evolved into the Eugene-Springfield Metropolitan Wastewater Management Commission's contract, now in place, with The Freshwater Trust for a riparian shade sponsorship project. The project includes shading along two waterways (Cedar Creek and the Springfield Mill Race) to generate water quality trading credits, to help offset the regional wastewater treatment facility's thermal load. For purposes of the City of Eugene's TMDL Implementation Plan, this task is complete.	P	√	P	P	P						X				x
	Enhance streamside shading, with an emphasis on Amazon Creek	Document existing planting plans and programs that relate to tree and shrub planting including: Amazon Creek plant community restoration plan (P3); tree planting code requirements; Neighborwoods; Stream Team (P1); Natural Resource Maintenance planting efforts (P4); Stormwater Management Manual (E4). Include in program adaptive management activities an evaluation of opportunities to enhance streamside shading.	Plant trees (goal=400/yr) along south and west side of Amazon Creek; Plant willow plantings (goal=4,000 lineal ft/year) of willow plantings along Amazon Creek	• Number/type of trees planted along Amazon Creek annually • Number of willow plantings along Amazon Creek annually • Number/type of trees planted along other waterways annually • Number of willow plantings along other waterways annually	NA	• Amazon Streamside Shading Assessment conducted to identify remaining opportunity areas and inform future plantings. • 800 trees planted along the Willamette River and 63 trees along other waterways. • 12,000 LF of willow plantings at Delta Ponds/Heron Slough and 15,200 LF along other waterways. • All tree listed above are native, overstory trees that will provide shade on the water's surface at maturity. There is a mixture of both native broad leaf species (approx 80%) and native conifers (approx 20%).	P	√	P	√	P			X							X
	TMDL web page	Develop TMDL web page, including links to related web sites, the City's TMDL Implementation Plan, and staff contact information.	Develop and populate web page by December 2008.	• Confirm web page information is current once/month	NA	• A link to the City's TMDL Implementation Plan was provided on the City's revamped, more user friendly web site.	√	√	√	√	√										X

TMDL Fifth Year Report, Appendix A - City of Eugene TMDL Implementation Plan Matrix (Updated March 2014)

MS4 SWMP BMP ID (if applicable) (1)	BMP or Activity	Description of BMP or Activity	Measurable Goals & Timeline	Tracking Measures What is being tracked to show progress towards meeting measurable goals	Milestone Intermediate goals to know progress is being made	Progress Reporting Period (7-1-12 through 6-30-13)	TMDL Pollutants Addressed(2)					Water-shed(3)		Regulatory Program(s)(4)							
							Bacteria	Temperature	Hg	DO	Turbidity	Amazon	Willamette	NPDES MS4	NPDES 1200Z - WPCF	NPDES 1200Z - Airport	NPDES - Wastewater	Underground Injection Con	Goal 5	Goal 6	Willamette TMDLs
MERCURY REDUCTION STRATEGIES (NOT ASSOCIATED WITH EXISTING PERMITS)																					
	Dental Waste MOA	Participate in the implementation of activities as outlined in the 2006 Memorandum of Agreement (MOA) between the Oregon Dental Association (ODA), Metropolitan Wastewater Management Commission (MWMC), and the cities of Eugene and Springfield to limit the discharge of mercury and mercury bearing dental wastes into the regional wastewater collection system.	Provide services in the ten areas outlined in the MOA between ODA, MWMC and the cities of Eugene and Springfield.	• Track certifications of compliance with ODA BMPs, for dental offices in Eugene.	Monitor implementation of 2006 MOA ten specific services.	• A total of 27 dentists in 7 dental offices were inspected during the reporting period as to their compliance with the Dental Waste MOA.			√												X
	School Cleanout Campaign	Participate in the School Cleanout campaign, led by Lane County with funding from DEQ, including (but not limited to) the disposal of chemicals and equipment containing mercury (barometers, manometers, thermometers).	Commence with efforts once intergovernmental agreement is signed by DEQ and Lane County. Timing of Clean Out campaign is dependent upon receipt of grant funding.	• Track quantities of chemicals and equipment identified for disposal.	Participate in stakeholder meeting to commence with Campaign by end of December 2008.	• School Cleanout Campaign not held during the report period, as the grant funds received by Lane County have run out.			√												X
MUNICIPAL SEPARATE STORWMATER SEWER SYSTEM (MS4) NPDES PERMIT																					
Public Education																					
A1	Stormwater Education	Plan, develop, implement and revise as necessary a program to provide stormwater information and education to homeowners, school children, City and other agency staff and the general public about the impacts to stormwater quality and natural resource values from both point and non-point sources of pollution. In addition, educate professional, commercial, and industrial businesses about best management practices that can help prevent and reduce stormwater quality impacts to the public stormwater system and local receiving waters.	• Conduct surveys every two years with Eugene residents to determine attitudes and opinions of residents about the stormwater management program. • Provide SPLASH educational curriculum to teachers and administrators in local school districts. • Develop and implement internal stormwater education to city staff through new employee orientation, "green team" presentations, work group presentations and audio/visual presentation. • Increase catch basin markers with "dump no waste" messages and storm drain covers installed on public improvement projects. • Work collaboratively on education campaigns with other local agencies.	• Number of information materials (all media) prepared and distributed to the public. • Number of students and teachers who use SPLASH curriculum annually. • Number of attendees at public outreach events. • Number of employees attending stormwater education sessions. • Track quantity of installed catch basin markers and storm drain covers. • Identify collaborative campaigns, target audience and summary of campaign. • Documentation of stormwater survey responses.	Spring Stormwater Connections newsletter published by May each year; Fall Stormwater Connections newsletter published by November each year.	• See Year 2013 Stormwater Annual Report	√	√	√	√	√			X				X			x
P1	Educational Volunteer Program(5)	Manage and support the City's Eugene Park Stewards volunteer program that promotes stormwater education. Provide opportunities to involve citizens of all ages and socio-economic backgrounds in meaningful, hands-on and educationally oriented stormwater related projects. Such projects are aimed at providing both physical benefits and participant awareness related to protecting stormwater quality, fostering citizen stewardship of the City's water resources, promoting the use of native-vegetation, and enhancing fish and wildlife habitat within the local urban watershed.	• As attrition occurs continue to recruit replacement adoption groups to maintain current levels of participation. • Conduct one volunteer work party annually that will address maintenance needs at publicly owned vegetated stormwater facilities with developed parks or the right of way. • On average, conduct 12 volunteer work parties per year. • Conduct at least one partnership based large-scale water resource clean-up or enhancement volunteer project per year. • Correspond with the city's stormwater education program coordinator on a regular basis to determine if there are opportunities to better inform the public regarding the challenges and benefits of stormwater management.	• Number of adoption groups that are retained and continue to participate in the volunteer program. Track number of new adoption groups brought into the program. • Number of volunteer work parties conducted that involve maintenance of publicly owned vegetated stormwater facilities and number of volunteer participants. • Number of work parties conducted and number of volunteer participants. • Document annual large-scale project(s), participating partners and number of volunteer participants. • Document annually efforts to educate the public about the city's volunteer programs and the protection of water quality as it relates to stormwater.	On-going program	• See Year 2013 Stormwater Annual Report	√	√	P	P	√			X							x

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							Bacteria	Temperature	Hg	DO	Turbidity	Amazon	Willamette	NPDES MS4	NPDES 1200Z - WPCF	NPDES 1200Z - Airport	NPDES - Wastewater	Underground Injection Con	Goal 5	Goal 6	Willamette TMDLs
Planning, Capital Improvements, and Data Management																					
E1	Stormwater Capital Improvement Projects	Implement the Stormwater capital improvement program (CIP), including projects identified in the City's Stormwater Basin Master Plans (Basin Plans) for Amazon, Willow Creek, Bethel-Danebo, Willakenzie, Laurel Hill, and Willamette River and the River Road – Santa Clara basins. The Basin Plans describe a multiple-objective strategy for managing stormwater that addresses water quality protection and improvement, conveyance and flood control, and waterway protection and restoration. The basin strategies reflect the unique characteristics, problems and opportunities in each basin. Volume I contains a prioritized city-wide capital projects list including: water quality facilities in high pollutant source areas, streambank stabilization, stream restoration, and capacity enhancement projects. The Basin Plan capital projects are one of the main sources of capital projects that comprise the City's CIP. In addition to the Basin Plans, CIP projects also originate from a list of maintenance and rehabilitation needs, from focused planning studies such as the Metro Waterways Restoration Study, and other partnership opportunities. The prioritized Basin Plan capital projects are combined with projects from these other sources, re-ranked, and incorporated into the CIP in a timeframe in-line with available budget.	• Incorporate into the CIP projects list the projects identified in the recently completed 2010 River Road-Santa Clara Basin Plan, by September 2010. • Implement Stormwater CIP projects including at least one "water quality facilities in high source areas" project over the five-year permit term, and other retrofits as opportunities arise.	• Document completion of River Road-Santa Clara Basin Plan. • Track the number, type, watershed location and total drainage area of capital improvement projects constructed for water quality.	Public draft RR-SC plan by October 2008.	• See Year 2013 Stormwater Annual Report	√	√	P	√	√			X				X			x
E3	Stormwater System Mapping and Data Management	Keep up-to-date inventories and maps of the public and private, natural and constructed, stormwater system. Include mapping of public and private water quality and flow control facilities such as grassy swales and detention basins. Develop and integrate asset inventory data and geographic information system (GIS) systems which describe the conveyance system, water quality attributes and related natural resource information. Integrate information generated through BMPs such as E1 (Capital Improvement Projects) and E4 (Development Standards) which create or modify system components and/or change the attributes of the stormwater system.	• Enter 95% of all newly constructed stormwater system features into inventory databases and GIS within six months of final construction approval. • Ensure that 90% of GIS and data application users surveyed rate the GIS/data systems as satisfactory or better.	• Report on map and database update activities annually. • Survey map and data system users bi-annually.	NA	• See Year 2013 Stormwater Annual Report	Pollutants are not directly addressed by this BMP, but it is an essential support function for the other program activities							X				X			x

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P2	Bacteria Pilot Study	Amazon Creek is water quality limited for bacteria and load reductions of 84% are necessary as specified in the 2006 Willamette Basin Bacteria TMDL. The Bacteria Pilot Study includes three phases: Phase I focuses on efforts to identify source(s) of bacteria, followed by Phase II which focuses on the application of Bacteria Pilot Study BMPs ("BMPs") aimed at reducing bacteria, and followed by Phase III which focuses on evaluating the effectiveness of BMPs that are implemented. Based on monitoring and site assessment work initiated with the 2005 Stormwater Management Plan the overall strategy for continuation of the Bacteria Pilot Study will be a more targeted approach that will narrow down the number of probable sources for investigation of the root of bacterial pollution within a selected study area. This more targeted approach will lead the City towards implementing Phase II and Phase III of the study.	• Collect and analyze stormwater samples within the study area during at least three (3) significant wet weather storm events per year for the duration of the permit cycle. • Report on all field condition assessments completed during the permit year. Show how collected field data is used to confirm or eliminate bacteria sources. Initiate at least two (2) new BMPs by December 2011 that will either identify or rule out specific sources of bacterial contributions to the MS4 within the study area. • Starting in July 2012, initiate at least one new BMP per year that will address identified specific sources of bacteria with the study area. • Develop an electronic case history file by February 2011 that contains documentation of findings and results that can be utilized by staff to evaluate overall success of study. • Report on results of stormwater sampling and analysis in association with implemented BMPs with emphasis on showing the effectiveness of the BMP selected.	• Track the number of sampling events, samples collected, and resulting bacteria analysis results. • Track results of field condition assessments conducted and the corresponding outcome of the assessment. Attempt to correlate noted conditions with results of sampling analysis. Document additional strategies that will identify or rule out potential sources of bacteria. Report on any conclusions derived as a result of implementing these strategies. • Document the use of alternative investigative approaches such as microbial source tracking and sediment sampling. • Document all follow up sampling and analysis and conclusions derived regarding BMP effectiveness. • Document all follow up sampling and analysis and conclusions derived regarding BMP effectiveness.	Document pre-BMP implementation observations and water quality data from Phase I of the study by October 08.	• See Year 2013 Stormwater Annual Report	√							X							X
Construction and New Development																					
E2	Erosion Prevention and Construction Site Management Program	Administer and monitor an Erosion Prevention and Construction Site Management Program in compliance with Eugene Code 6.625-6.645, preventing and mitigating pollutant and sediment discharges into the city's stormwater system due to construction activities and land disturbance. *NOTE: Projects that disturb one or more acres or are located in a sensitive area must have a permit based on a construction site management plan (CSMP) which shows the measures to be taken to comply with the mandated outcomes. In addition, even smaller construction projects which do not require a permit must meet the objectives of the ordinance. All public improvement projects must include a CSMP.*	• Conduct one inspection prior to the commencement of work for all erosion permitted sites. • Inspect non-erosion-permitted sites at least twice during the life of the building/construction permit or as necessary to assure compliance with the program. • Inspect permitted sites monthly or as necessary to assure compliance with the program. • Conduct one annual erosion prevention training event.	• Number of compliance orders issued. • Number of permits issued. • Number of inspections. • Number of training/outreach events.	NA	• See Year 2013 Stormwater Annual Report	√		√	√	√			X							x
E4	Stormwater Development Standards	Administer and monitor a program that implements the city's Stormwater Development Standards, Eugene Code 9.6790-9.6796, Eugene Code 7.143 (3), and associated Stormwater Management Manual. The Stormwater Development Standards regulate the location, design, construction and maintenance of private and public stormwater facilities for flood control, water quality, and natural resource protection.	• Review stormwater management proposals at the land use and/or development permit stage (i.e. earliest level of review). • Review and approve construction plans for stormwater management facilities for all development sites which create 1000 square feet or more impervious surface. • Update Eugene's Stormwater Management Manual every two years or as needed to provide new information or practices for post-construction stormwater management.	• Number of private water quality facilities permitted with building permits. • Number of land use applications reviewed. • Number and type of public water quality facilities constructed. • Number of training/outreach events held.	NA	• See Year 2013 Stormwater Annual Report	√	P	√	√	√			X				X			x

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P6	Compliance Program for Maintenance of Privately Owned Vegetated Stormwater Facilities	Develop, implement and manage a program to ensure that privately owned and operated vegetated stormwater treatment facilities are maintained so that they function as designed and constructed. The program will employ a combination of rules, protocols and procedures to require: that each private vegetated facility is routinely inspected; that routine and corrective maintenance actions are performed in a timely manner; and that completion of both such activities are regularly reported to City staff. Based on Eugene Municipal Code requirements, penalties and/or other legal remedies will be employed to enforce compliance with these requirements when necessary.	• Inspect all new vegetated private stormwater facilities at the time of construction and log pertinent information into the stormwater facility tracking database system. Adopt and implement an administrative rule to enforce the maintenance of private stormwater facilities by February 2011. • Ensure the inspection of each vegetated private stormwater facility is conducted at least once per year by the owner/operator and an inspection and maintenance log documenting the necessary corrective actions is submitted to City staff annually. • Review annual reports for privately-owned vegetated stormwater facilities.	• Number of private vegetated stormwater facility inspections completed at time of construction. • Number of owner/operator inspection and maintenance logs received and reviewed annually. • Number of notices of non-compliance and subsequent enforcement.	NA	• See Year 2013 Stormwater Annual Report	√	P	√	√	√			X				x			x
M6	Regulation of Inspection, Maintenance and Reporting of Private Underground Stormwater Structures	Develop, implement and manage a program to ensure that privately owned and operated underground stormwater treatment structures are properly maintained. The program will employ the guidance provided by the required individual Operations and Maintenance (O&M) plan for each structure.	• Inspect all new private underground stormwater structures at the time of construction and log pertinent information into a database. • Establish a correspondence file for each structure/operator. • Ensure that each private underground stormwater structure is inspected, maintained and reported on as required by the O&M plan for the specific device. • Review annual reports for privately-owned underground stormwater facilities.	• Track the number of O&M plans obtained. • Track the number of private inspection, maintenance and reporting activities conducted. • Track any enforcement activities related to the individual structures.	NA	• See Year 2012 Stormwater Annual Report	√	P	√	√	√			X				x			x
Operations and Maintenance																					
M3	Street Sweeping Program and Leaf Pick-up	Undertake both mechanical brush and vacuum sweeping of publicly maintained roads, bike paths, and parking lots in accordance with the Stormwater Operations and Maintenance Manual. Monitor and evaluate new technology and methods related to street sweeping, and make appropriate adjustments to the current sweeping program when feasible to maximize water quality benefits.	• Sweep downtown core twice per week. • Sweep university and industrial areas once per week. • Sweep arterial streets every 2 weeks. • Sweep residential streets every 6-8 weeks. • Sweep bike paths and improved alleys twice per year. • Coordinate and manage two seasonal opportunities for the citizen's leaves to be picked up and managed by the SW operations crew.	• Lane miles swept. • Amount of debris collected. • Amount of leaves picked up.	NA	• See Year 2013 Stormwater Annual Report	√		√	√	√			X							x
M4	Prevent Leaks and Spills from Municipal Vehicles and Equipment	Undertake preventive maintenance program for all municipal vehicles and equipment in order to prevent or correct sources of vehicle fluid leaks. Implement employee education practices and field operations procedures to detect and report leaks and to prevent incidences of fluid and material spills from municipal vehicles. Equip municipal trucks and large mechanized equipment with renewable spill response kits.	• Include a spill procedure card in all City vehicles and equipment by December 1, 2011. • Perform preventative maintenance service on all City vehicles and equipment annually, at a minimum. • During the repair/clean-up process, analyze the type and cause of the spills associated with the repairs conducted by Fleet staff, and evaluate whether operator training maybe helpful with spill minimization.	• Track the number of spill procedure cards issued annually. • Track the number of vehicle related leaks repaired annually. • Track the percentage of vehicles which receive preventative maintenance service annually.	NA	• See Year 2013 Stormwater Annual Report			√	√	√			X							x

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M5	Public Stormwater System Cleaning Programs - Piped System	Undertake frequent, systematic cleaning of the components of the public stormwater system such as catch basins, pipes, culverts, inlets, and stormwater quality devices in accordance with the adopted Stormwater Operations and Maintenance (O&M) Manual. Document quantities of material removed from each structure. Using the maintenance management system, refine the regular cleaning schedule for pipes, catch basins and stormwater quality devices. Research and monitor developments in maintenance technology and operations and maintenance methods for the closed systems which will further increase the effectiveness of our cleaning practices and water quality improvement practices.	• Clean 50% of the all of the public catch basins and inlet structures annually unless increased efficiencies are shown through adaptive management. • Clean all of the public underground stormwater quality structures as outlined in the Stormwater O&M Manual.	• Track the number of structures cleaned. • Track the amount of debris recovered. • Track the lineal footage of stormwater lines cleaned.	NA	• See Year 2013 Stormwater Annual Report	√		√	√	√			X				X			x
M8	Winter Road Sanding and De-icing Program	Apply and clean up winter traction sand on publicly maintained roads and parking areas in conjunction with the application of a pre-wetting agent designed to reduce the need for repeat sanding. Conduct research efforts to identify and evaluate new technology and strategies for application of environmentally friendly chemical anti-icing and de-icing agents. Conduct research into new methods, practices, and efficiencies which may further limit the runoff of sanding related pollutants to the storm system. Conduct preseason staff training on the proper application methods of sand and chemical agents.	• Minimize the use of abrasive materials for snow and ice control through adaptive management practices. • Begin clean up of abrasive materials when streets become free of ice and snow, and the forecast does not call for more ice and snow within the next 24 hours.	• Document the quantities of sanding materials applied and collected during each storm event. • Document the volume used for deicing/anti-icing operations.	NA	• See Year 2013 Stormwater Annual Report				√	√			X							x
P3	Tree Planting and Information Programs(5)	Manage and support both governmental and community tree planting programs. Provide information to the public about the multiple benefits that trees provide for protecting an enhancing stormwater quality.	• On average, conduct 12 Eugene Park Stewards volunteer program tree planting projects per year. • Include the planting of street trees with all new private developments and with all new public street improvement projects as opportunities arise. • Plant 600 trees per year through the Eugene Park Stewards program and the City's regulatory tree planting program. • Provide information about the stormwater benefits of trees at major publicly attended events at least 4 times per year.	• Track the number of Eugene Park Stewards volunteer program planting projects and the resulting number of trees planted. • Track the number of trees planted through new development tree planting requirements and through City-engineered street improvements. • Track the number and type of publicly attended events where stormwater related tree information was provided or where a presentation was made.	NA	• See Year 2013 Stormwater Annual Report		√	√	√	√			X							x

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P4	Public Stormwater System Maintenance – Developed Parks and Rights-of-Way	Evaluate and, as necessary, adapt or revise turf, landscape and natural area vegetation management programs for public lands under the City's jurisdiction. Such areas include developed parkland and public right-of-way. The focus of this BMP is to minimize and further limit the discharge of pollutant laden runoff from these areas.	• Review IPM manual at least once during the permit term, and update and refine the IPM policy document and operations manual in accordance with integrated pest management principles. • Conduct periodic inspection of each publicly maintained vegetated stormwater management facility within the right-of-way and developed parks. Populate the stormwater facility tracking system database with current information for each facility that is inspected. • Continue to provide services to existing Pesticide Free Parks. • All newly developed playgrounds, pools, sprayplay features, recreational areas and other park areas will be evaluated during design or within one year of initial public use for addition into the Pesticide Free Zone program.	• Document updates of IPM policy document and operations manual. • Document new techniques and practices that are incorporated into park and landscape design. • Document the number of publicly maintained vegetated stormwater facilities inspected and information entered into the stormwater facility tracking system database annually. • Track the condition of existing parks that are currently maintained using the Pesticide Free Parks protocol. • Calculate the total acreage that has been placed in the Pesticide Free Zone Program per year. Utilize Chem Track program to track how much chemical (pound per acre) were used each year and determine total reduction of chemicals used annually.	NA	• See Year 2013 Stormwater Annual Report	√	√	√	√	√			X							x
P5	Public Stormwater System Maintenance – Open Waterways	Maintain and manage open waterways consistent with adopted Open Waterway Maintenance Plans. These plans are intended to protect and enhance stormwater quality and natural resources values while continuing to maintain sufficient conveyance capacity in the waterways.	• Review IPM manual at least once during the permit term, and update and refine the IPM policy document and operations manual in accordance with integrated pest management principles. • Conduct periodic inspection of each publicly maintained vegetated stormwater management facility within the right-of-way and developed parks. Populate the stormwater facility tracking system database with current information for each facility that is inspected. • Continue to provide services to existing Pesticide Free Parks. • All newly developed playgrounds, pools, sprayplay features, recreational areas and other park areas will be evaluated during design or within one year of initial public use for addition into the Pesticide Free Zone program.	• Document updates of IPM policy document and operations manual. • Document new techniques and practices that are incorporated into park and landscape design. • Document the number of publicly maintained vegetated stormwater facilities inspected and information entered into the stormwater facility	NA	• See Year 2012 Stormwater Annual Report	√	√	P	√	√			X							x
Illicit Discharge Controls																					
M1	Management of Illicit Discharges to the Municipal Stormwater System	Discourage and reduce improper discharges into the stormwater system through operation of a stormwater discharge compliance enforcement program. The primary goals of this program are to protect the quality of the receiving waters of the City's stormwater system and to ensure that discharges to the City's stormwater system are in compliance with local, state, and federal regulations to the maximum extent practicable. The City will conduct periodic review of enforcement program practices and procedures and make revisions as deemed necessary.	• Work to reduce the number of improper discharges into the municipal stormwater system through public outreach and a reasonable enforcement of regulations.	• Track the number of stormwater pollution complaints received by the City. • Track the number of outfalls inspected annually. • Track the number of requests-for-service (RFS) related to illicit discharges to the municipal stormwater system which required enforcement.	NA	• See Year 2013 Stormwater Annual Report	P	P	P	P	P			X				X			x

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M2	Spill Response	Maintain an on-call team trained in spill response procedures involving environmentally hazardous materials and a vehicle equipped for such spill mitigation. Coordinate efforts with other local response teams such as the City of Eugene Fire and Police Departments, Lane County, and state agencies.	• Maintain a list of HAZWOPER trained personnel that are available for 24-hour emergency response. • Maintain and update, as necessary, the City's On-Call Emergency Roster for Environmental Spills.	• Up-to-date list of employees trained for spill response. • Track number of spills and follow-up details.	NA	• See Year 2013 Stormwater Annual Report	P	P	P	P	P			X				X			x
M7	Systematic Stormwater Field Screening and Investigation	The Stormwater Field Screening and Investigation program inspects the public stormwater system for condition assessment and the private stormwater system to assess water quality impacts to the municipal stormwater system. Where illicit discharges are found, attempt to identify the source and eliminate the discharge.	• Improve accuracy of the Stormwater System layer in our Geographic Information Systems (GIS) through map update requests. • Identify and remove illicit discharges to the municipal stormwater system through the dry-weather field screening process. • Utilize interaction with the public as an educational opportunity to increase stormwater user awareness. • Develop "map update" requests based on field inspections and forward this information to the GIS manager for inclusion into the citywide GIS system.	• Track the number of map update requests forwarded to the GIS team. • Track and create work orders for the system repairs discovered through the inspection process. • Track the number of dry-weather field screening inspections and follow-up details.	NA	• See Year 2013 Stormwater Annual Report	√		P	P	√			X							x
P7	Litter and Illegal Dumping Control	Manage and support efforts to reduce impacts to stormwater runoff and local receiving waters by controlling litter and debris in public spaces and by removing illegally dumped refuse and debris as well as garbage and trash from illegal camp sites. There are two primary focal points of this BMP. The first is to provide opportunities for proper disposal of litter and trash at strategic publicly owned sites to prevent it from being washed into the public stormwater system. The second is to clean-up illegal dump sites and illegal camp sites prior to pollutants from the trash and debris being washed into the public storm system or the local receiving waters.	• Ensure all parks, all public space areas managed by the City and all venues for outdoor public events on City lands have adequate trash receptacles. Empty trash receptacles frequently enough to prevent spillage due to being over filled. • Ensure at least 75% of all rentals of parks, park shelters, and other City operated outdoor facilities will result in no loose litter and debris left behind. • Inspect all major waterways and riverbanks weekly for dumped or discarded debris and illegal campsites. When found, remove dumped materials within two working days. When found, dismantle illegal campsites and clean-up as soon as is physically and legally possible. • Monitor all identified historic dumping sites in the public right-of-way and clean-up as necessary at least twice per month.	• Track the collection frequency for trash receptacles in City parks and other public space areas managed by the City. • Document the number or percentage of rentals of parks, park shelters, and other outdoor venues held on City managed land that forfeit all or part of their clean-up deposit due to excessive litter left behind. • Track the number of illegal campsites cleaned-up along riverbanks, waterways, or other public space areas managed by the City. • Track the frequency of collection and the amount of debris collected from waterways and from the public right-of-way.	NA	• See Year 2013 Stormwater Annual Report	√		P	P	√			X							x

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Waste Management																					
B1	Household Hazardous Waste Disposal	Support existing efforts and programs within the Eugene metro area to inform citizens of local opportunities for the proper discard and disposal of their household hazardous waste materials. Support and promote facilities and programs that provide such opportunities. The improper disposal of household hazardous waste poses a serious threat to local stormwater quality. Old paint, solvents and thinners, pesticides, bleach, drain cleaners, antifreeze, gasoline, used motor oil and other motor vehicle fluids can easily be flushed into the stormwater system if disposed of in yards, left uncovered in the rain, or poured down driveways or into the street. Supporting efforts to inform homeowners and tenants about where they can properly dispose of these products as well as supporting local household hazardous waste management facilities and efforts is an effective way to reduce the amount of these products that inadvertently make their way into the stormwater system and local receiving waters.	• Work with Lane County and City of Springfield to annually update "Brown Pages" in the US Dex directory to include new electronics requirements. • Update the City's web site periodically to direct residents to the latest information about recycling and waste prevention news, resources, and local events.	• Document completion of "Brown Pages" update. • Document materials disbursed about household hazardous materials	NA	• See Year 2013 Stormwater Annual Report			√	P				X							x
B2	Solid Waste Management	Evaluate and revise, as necessary, existing solid waste and recycling collection rules to address stormwater quality. Improper and/or unregulated collection and recycling of solid waste has a serious potential for creating negative impacts to stormwater quality. High collection fees, infrequent or spotty collection service may lead to illegal dumping activity. Unregulated waste containers may be prone to leaking or spilling allowing pollutants to wash into the storm system. By continuing to monitor and evaluate local solid waste management collection efforts, the City will be better able to improve local regulations so that stormwater quality is taken into account.	• Review Administrative Rule to ensure regulations are up to date and include requirements to support appropriate waste management and prevention. • Contract with Oregon DEQ for a waste composition study.	• Document total tons of yard debris collected through the curbside program. • Document the number of compost demonstration workshops and participants. • Document number of enforcement cases related to inappropriate garbage handling. • Compare waste composition study with the prior one.	NA	• See Year 2013 Stormwater Annual Report	√		√	√	P			X							x
Industrial Controls																					
W1	Industrial Stormwater Management Program	Provides oversight of stormwater discharges and washing activities from industrial facilities, screening new businesses for those that may require NPDES Permits, conducting inspections and providing technical assistance to industries with NPDES Permits, and responding to spills at facilities with permits.	• Conduct site inspections on 20% of permitted facilities annually.	• Percentage of permitted facilities inspected. • Number of corrective action letters sent and follow up responses. • Number of Action Plans prepared by permit registrants.	NA	• See Year 2013 Stormwater Annual Report	P		P	P	√			X							x

TMDL Fifth Year Report, Appendix A - City of Eugene TMDL Implementation Plan Matrix (Updated March 2014)

MS4 SWMP BMP ID (if applicable) (1)	BMP or Activity	Description of BMP or Activity	Measurable Goals & Timeline	Tracking Measures What is being tracked to show progress towards meeting measurable goals	Milestone Intermediate goals to know progress is being made	Progress Reporting Period (7-1-12 through 6-30-13)	TMDL Pollutants Addressed(2)					Water-shed(3)		Regulatory Program(s)(4)							
							Bacteria	Temperature	Hg	DO	Turbidity	Amazon	Willamette	NPDES MS4	NPDES 1200Z - WPCF	NPDES 1200Z - Airport	NPDES - Wastewater	Underground Injection Con	Goal 5	Goal 6	Willamette TMDLs
Monitoring & Reporting																					
E5	Permit Management & Reporting	Administration of the overall NPDES permit compliance effort, including permit renewals, annual reports, program evaluations and documentation of the City's adaptive management processes, and updates to the City's TMDL benchmark assessment.	• Submit Annual Reports to DEQ, that summarize implementation of the requirements as described in the City's MS4 permit, Schedule B. • Evaluate progress towards meeting TMDL pollution reduction benchmarks for each five year renewal submittal. • Conduct public involvement within an appropriate time to meet legal requirements for the five year renewal submittals, and for on-going adaptive management as appropriate.	• Track public involvement events and number of people reached. • Post Annual Reports on City's web site.	NA	• See Year 2013 Stormwater Annual Report	Pollutants are not directly addressed by this BMP, but it is an essential support function for the other program activities													
	Stormwater & Receiving Water Quality Monitoring	Conduct stormwater and receiving water (ambient) monitoring in accordance with Monitoring Plan. Continue to update TMDL management strategies based upon new stormwater and ambient monitoring data.	Analyze and report results to DEQ	Submit Monitoring Report Annually	NA	• See Year 2013 Stormwater Annual Report	Pollutants are not directly addressed by this BMP, but it is an essential support function for the other program activities							X							X
WATER POLLUTION CONTROL FACILITY (WPCF) NPDES WASTEWATER DISCHARGE PERMIT																					
		Meet WPCF NPDES permit effluent limits as they relate to TMDL pollutants	Meet permit effluent limits, as required under NPDES permit	on-going under existing permit; permit renewal in progress	NA	NA	√	√	√								X				x
		Conduct pretreatment program as required under WPCF NPDES permit	Meet permit requirements to track number of inspections and outcomes	on-going under existing permit; permit renewal in progress	NA	NA	√	√	√								X				x
		Prevent overflows, as required under WPCF NPDES permit	Document and report to DEQ overflow-related information (e.g. number of emergency overflows from pump stations and reason for overflow; number of plant upsets and reason), as required under WPCF NPDES permit.	on-going under existing permit; permit renewal in progress	NA	NA	√	√	√								X				x
		Conduct monitoring as required under WPCF NPDES permit	Number of samples taken and parameters analyzed; report results to DEQ	on-going under existing permit; permit renewal in progress	NA	NA	Pollutants are not directly addressed by this BMP, but it is an essential support function for the other program activities										X				x
STORMWATER PERMIT (1200Z) FOR WASTEWATER TREATMENT PLANT																					
		Implement best management practices for wastewater treatment facility under its 1200Z, as they relate to TMDL pollutants.	As required under WPCF NPDES 1200Z permit	on-going	NA	NA	√				√				X						x
		Conduct annual stormwater pollution control training for wastewater treatment plant staff.	As required under WPCF NPDES 1200Z permit	on-going	NA	NA	√				√				X						x
		Conduct monitoring as required under WPCF's NPDES 1200Z permit as it relates to TMDL pollutants.	As required under WPCF NPDES 1200Z permit	on-going	NA	NA	Pollutants are not directly addressed by this BMP, but it is an essential support function for the other program activities								X						x
STORMWATER PERMIT (1200Z) FOR EUGENE AIRPORT																					
		Implement best management practices for Eugene Airport as required under its NPDES 1200Z permit, as they relate to TMDL pollutants.	As required under Airports' NPDES 1200Z permit	on-going	NA	NA	√				√	por.				X					x
		Conduct annual stormwater pollution control training for airport employees.	As required under Airports' NPDES 1200Z permit	on-going	NA	NA	√				√	por.				X					x

TMDL Fifth Year Report, Appendix A - City of Eugene TMDL Implementation Plan Matrix (Updated March 2014)

MS4 SWMP BMP ID (if applicable) (1)	BMP or Activity	Description of BMP or Activity	Measurable Goals & Timeline	Tracking Measures What is being tracked to show progress towards meeting measurable goals	Milestone Intermediate goals to know progress is being made	Progress Reporting Period (7-1-12 through 6-30-13)	TMDL Pollutants Addressed(2)					Water-shed(3)		Regulatory Program(s)(4)							
							Bacteria	Temperature	Hg	DO	Turbidity	Amazon	Willamette	NPDES MS4	NPDES 1200Z - WPCF	NPDES 1200Z - Airport	NPDES - Wastewater	Underground Injection Con	Goal 5	Goal 6	Willamette TMDLs
		Conduct monitoring as required under Eugene Airports' NPDES 1200Z permit as it relates to TMDL pollutants	As required under Airports' NPDES 1200Z permit	on-going	NA	NA	Pollutants are not directly addressed by this BMP, but it is an essential support function for the other program activities					por.				X					x

(1) "MS4 SWMP BMP ID" refers to the MS4 Stormwater Management Plan best management practice identification number as shown in the City's approve SWMP, dated April 2011, and updated December 201

(2) √ = Clearly addresses pollutant; P = Possibly addresses pollutant

(3) Shading indicates that BMP/Program applies within the watershed; no shading indicates that it does not apply within the watershe

(4) X = the TMDL is the primary driver for the management strategy; x = another permit or program is the primary driver, however the strategy addresses one or more TMDL pollutant

(5) Description for BMP P1 and P3 updated December 2012 to reference consolidated volunteer program "Eugene Park Stewards," which incorporates the program previously called "Neighborwoods." No substantive changes to BMP tasks, measurable goals, or tracking measure

Part I - TMDL FIFTH ANNUAL REPORT

Appendix B
Amazon Creek Shading Assessment

Amazon Creek
Streamside Shading Assessment

City of Eugene
March 2014

Amazon Basin Streamside Shading Assessment

From 2002 through 2014, the City of Eugene planted over 2,500 trees and plugged willows along 46,000 linear feet of Amazon Creek. The purpose of this document is to summarize the riparian plantings that have taken place along the Amazon Creek since 2002, to present data collected during a 2013 riparian planting assessment, and to identify future opportunities for willow and tree planting in the Amazon Basin.

Background

Amazon Creek and several tributaries are listed by the State of Oregon Department of Environmental Quality (DEQ) as water quality limited due to elevated bacteria levels and low dissolved oxygen. In the Upper Willamette Temperature TMDL, Amazon Creek has been assigned a surrogate measure to represent nonpoint source heat loads. The surrogate is referred to as "percent effective shade". Removal or disturbance of riparian vegetated is the primary non-point source activity with respect to increased stream temperatures in the Amazon subbasin. The surrogate measure, "percent effective shade" can be met through riparian planting along stream banks.

In 2008, DEQ approved the City of Eugene's TMDL Implementation Plan, which describes activities and measurable goals that when implemented will lead to meeting pollution reduction goals. The City committed to enhancing stream shading, in particular along Amazon Creek, to meet the percent effective shade targets and the measurable goals identified in the City's TMDL Implementation Plan for enhancing streamside shading. Specific actions identified by the City included planting 400 trees along the south and west banks of Amazon Creek and planting 4,000 linear feet of willow annually.

By summarizing what has been planted along the Amazon to date and evaluating the success of those plantings, the City is now in a better position to look forward and determine what opportunities still exist to enhance streamside shading along Amazon Creek and tributaries to Amazon Creek. This kind of planning and assessment will allow the City to evaluate and potentially adjust elements of the TMDL Implementation Plan to help meet shade targets. This is adaptive management in action. The evaluation of plantings was also completed to coincide with the DEQ 5th year review of the TMDL, which allows the city to revise the plan and submit a TMDL Implementation Plan that that will be followed for the next five years.

Amazon Creek Planting Summary

The City has become increasingly strategic about where, when, and how it plants trees and willows along Amazon Creek and its tributaries. The City's initial strategy in 2002 was to plant south and west banks of Amazon Creek that had not been called out in the U.S. Army Corps of Engineers' Metro Waterways Study as reaches where there were opportunities for major stream enhancement. Those reaches that had been identified by Metro Waterways as being good locations to widen the channel, create meanders, and/or wetland benches were not targeted for planting because it was thought that funding would be available to implement those larger projects. In addition to City-owned reaches, several privately owned reaches were identified as high priority and City staff worked with property owners to gain their approval for tree planting.

Since 2002, the City of Eugene has planted over 2,500 trees along the mainstem of Amazon Creek. Most of the trees were planted by volunteers through the City's Eugene Park Stewards program

(formerly Stream Team), although several capital projects that incorporated tree plantings as part of broader stream enhancement work were also completed. As a secondary strategy to establish shade, the City has planted willows along nearly 42,000 linear feet of the mainstem of Amazon Creek since 2008. Initial willow plantings were done by City staff; however since 2010 all willow planting has been done by contractors. Table 1 (Appendix A) summarizes the reaches that have been planted, year(s) planted, and total number of trees, and the total linear feet of bank planted with willows. In addition, the maps in Appendix A provide a visual representation of those reaches that have been planted.

In addition to establishing shade on the mainstem Amazon Creek, the City has planted along two of Amazon Creek's tributaries: the A-3 channel and the Roosevelt Channel. Along the A-3 channel, 225 trees and about 8,500 linear feet of bank were planted with willows, and 120 trees have been planted along the Roosevelt Channel.

Amazon Creek Riparian Tree Monitoring

Up until 2013, the City did not have a process for evaluating whether or not tree plantings were continuing to thrive and would ultimately provide streamside shade. In 2013, City staff developed monitoring protocols modeled after the Oregon Riparian Assessment Framework outlined by the Oregon Plan for Salmon and Watershed (published in July 2004 and available online). The goals of the riparian planting assessment were to determine how well the plantings are doing, identify any adaptive management needed to improve planting success, and to identify remaining opportunities for enhancing streamside shading.

The monitoring protocols implemented in 2013 included counting and recording the species, height, and vigor of trees for each of the significant tree plantings along Amazon Creek and the A-3 channel. Appendix B includes the blank data sheet and monitoring protocols that were used for this monitoring. Appendix C includes an overall summary of the monitoring efforts (Table 2) and Figures 1-4 provide more detailed graphic analysis of the data.

One of the simplest ways to look at riparian planting success and to project future shading is the look at tree height. Figure 1 summarizes the average tree height by reach for the seven most commonly planted tree species. Since different reaches were planted in different years and some reaches received multiple plantings, it is challenging to draw any conclusions from comparing tree height from one reach to another. A more clear comparison might be of tree height by species. As one would expect, the data show that, in general, the tree growth is highest in red alder, ponderosa pine, and big leaf maple, with the least growth in Oregon ash and white oak. While one would expect black cottonwood to be one of the taller species due to its fast growth, many cottonwoods planted along Amazon Creek have been topped by beavers, effectively reducing the average height of this species. Another anomaly in this data set is that black hawthorn appears to be one of the fastest growing species, however this has more to do with the height they are when first planted than their growth rate. In general, the one gallon black hawthorn sold by nurseries are taller than the one gallon trees of other species, therefore rather than starting at 12-18 inches like most other species, hawthorns are generally already 24 to 30 inches when planted.

Tree density is another good way to measure the success of riparian planting and to project how much shade might be provided in the future. Figure 2 summarizes the average number of trees per 1,000 linear feet along those reaches where monitoring took place. The overall average for all

reaches is 87 trees per 1,000 linear feet, which means that on average trees are 11.5 feet apart. This spacing will ensure that as trees mature they will grow together forming a dense canopy that will begin shading the creek in a period of ten to fifteen years.

To further evaluate the success of plantings, the City assessed whether trees were alive, damaged, or dead, and whether their vigor was high, moderate, or low. Figure 3 summarizes by species the % of trees that were found to be alive, damaged, or dead. The high survival for most species can be attributed to the care that the City has taken to ensure tree establishment, including heavy mulching to suppress weed growth and retain water and three years of watering. Low survival rate for cottonwood is the result of herbivory by beavers and could be prevented with the installation of tree protection at the time of planting. Figure 4 looks at the vigor of those trees that were found to be still alive. It includes damaged trees, but not ones that were found to be dead. As with the survival rates, vigor was found to be quite high, likely due to the City's plant establishment protocols. Several species appear to be particularly vigorous, including red alder, black hawthorn and ponderosa pine. Several other species show lower vigor, but even those species have greater than 60% with high vigor.

Photopoint Monitoring

In 2013, the City established 26 photopoint stations along the reaches of the Amazon Creek where significant plantings had taken place between 2005 and 2012. The purpose of this monitoring was to provide a visual way of recording the change in tree cover along Amazon Creek over time. With appropriate site marking and documentation, this kind of photopoint monitoring can be a powerful way to track changes over time on a landscape scale. In addition to allowing the City to see changes over time, the resulting photos provide an effective communication tool to share with regulatory or funding agencies, organizations, and the public.

Appendix D includes 4 maps showing the photopoint station locations and the baseline photos taken at each of these sites in 2013.

Amazon Creek Planting Opportunities

One of the outcomes of both the riparian tree and photopoint monitoring was that it allowed the City to identify reaches along Amazon Creek that need additional tree and/or willow cover. By walking all reaches of the Amazon, analyzing the data, and reviewing photopoint photos, the City was able to really focus on where those needs are and develop a list of areas to focus on in the coming years.

Additionally, in 2013 the City learned that the U.S. Army Corps of Engineers would not have funds available for the implementation of large scale restoration projects identified in the Metro Waterway Study. While the City may still seek funding to execute some of these projects, others are much less likely to be implemented. This means that some of the stream reaches where the City had refrained from planting trees could now be planted.

The dissolution of funding for the Metro Waterways Program and the planning and evaluation completed in 2013 have provided the City with important information that will help in assessing and potentially adjusting its strategy for shading Amazon Creek in the future. Table 3 (Appendix C) lists each of the reaches of the Amazon and describes what planting needs currently exist. The table includes an estimate of the number of trees and approximate linear feet of willow planting that could

be achieved. Note that some of the areas identified are privately owned, so will require landowner permission to plant. In addition to planting along the mainstem of Amazon Creek, the City feels there are opportunities to enhance shade and riparian habitat along several other waterways in the Amazon Basin. Those include the A-2, the A-3, and Roosevelt Channels. This information has also been included in Table 3.

The maps in Appendix A show what reaches have been planted also show those reaches where there are tree planting opportunities. Those areas are shown in yellow. Note that the City-owned reaches are shown with a dark blue stippling while private and publically owned lands have no demarcation.

Summary

Since 2008, the City has made significant progress towards meeting the goals of providing shade along Amazon Creek. As shown in this report, tree and willow plantings have taken place along the south and west banks of most City-owned reaches that had not previously been identified as potential locations for large-scale projects. The 2013 monitoring efforts show steady growth of all trees planted, an average spacing of 11.5 feet between trees, and outstanding survival rates with most trees showing high vigor. Finally, this report identifies 15 reaches where up to 1,660 trees could be planted along the mainstem Amazon and its tributaries. Furthermore, approximately 18,400 linear feet of bank along the mainstem Amazon and over 30,000 linear feet along Amazon tributaries have been identified as potential willow planting areas.

This report provides a clear picture of the current status of shading efforts along Amazon Creek and clearly identifies opportunities for future plantings, both along Amazon Creek and its tributaries. It is the City's intention that this report will serve as a guide as the City continues to work over the next five years towards shading targets required in the Upper Willamette Temperature TMDL.

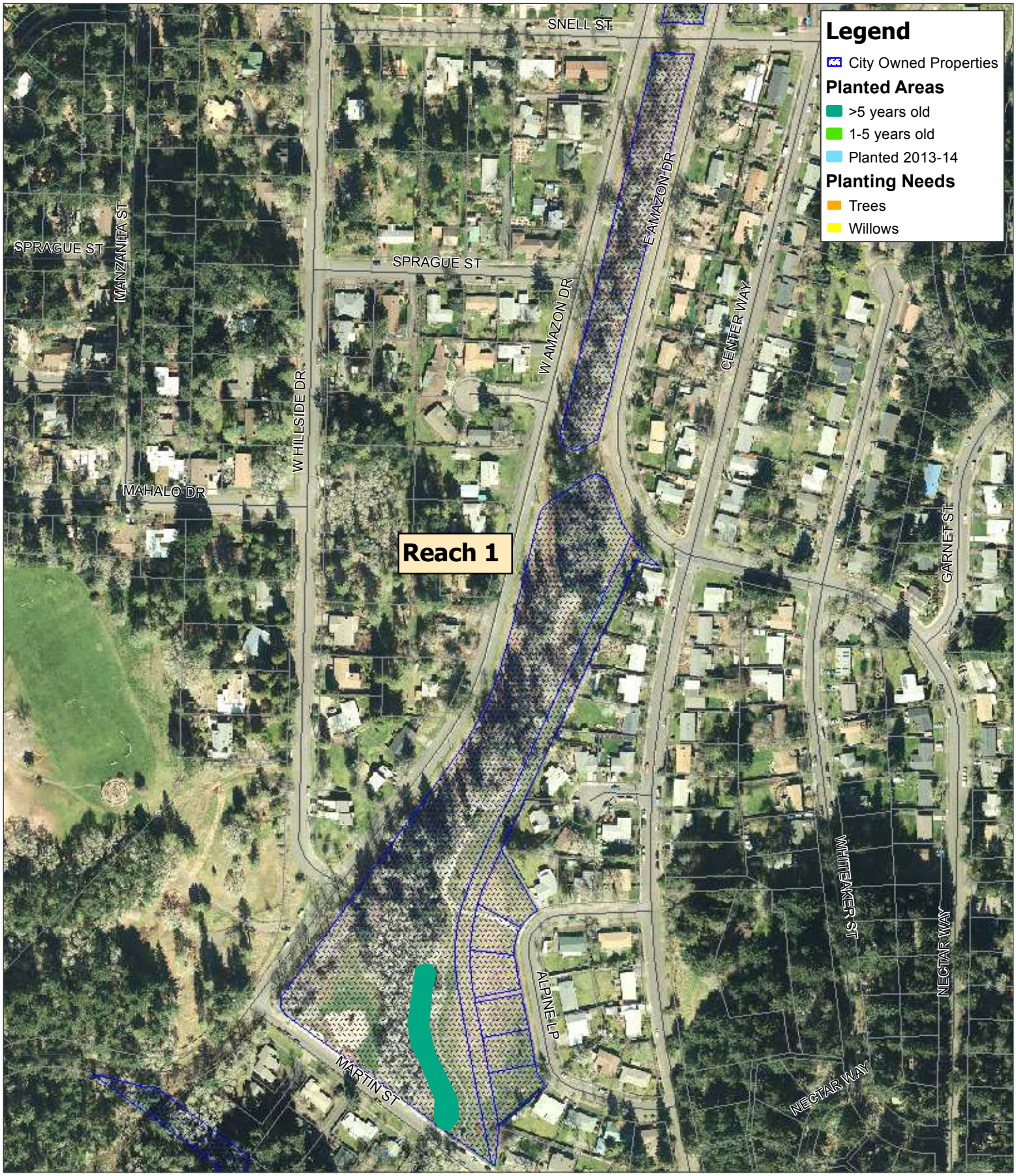
Appendix A.

Amazon Basin Planted Summary and Planting Needs

Table 1: Amazon Creek Planting Summary

Creek/ Reach #	Location	Bank	Year Planted (trees)	Approx. # Trees Planted	Approx. Linear Feet Willow Planting
Amazon Creek					
1	Amazon - Martin to Snell	Both	2008-09	365	Mature willows present
2	Amazon - Snell to Fox Hollow	Both	--	--	Mature willows present
3	Amazon - Fox Hollow to 30th	Both	2005-06, 2006-07, 2008-09, 2010-11	180	Mature willows present
4	Amazon - 30th to 24th (Amazon Park)	Both	--	--	Mature willows present
5	Amazon - 24th to Fairgrounds	Both	--	--	Mature willows present
6	Amazon - Fairgrounds to Chambers	Both	2003-04, 2006-07, 2007-2008, 2009-2010, 2010-2011, 2013-14	470	5410
7	Amazon - Chambers to City View	South	2006-2007	110	3000
7	Amazon -Chambers to City View	North	--	--	3000
8	Amazon - City View to Oak Patch	South	2005-06, 2008-2009, 2013-14	280	2000
8	Amazon - City View to Oak Patch	North	--	--	2000
9	Amazon - Oak Patch to Bailey Hill	South	2002 (Oakpatch to Acorn Park), 2007-08	200	2200
9	Amazon - Oak Patch to Bailey Hill	North	2007-08, 2011-12	100	2200
10	Amazon - Bailey Hill to Beltline Hwy	South	2002-03, 2005-06, 2006-07, 2009-2010, 2010-2011, 2013-14	788	6175
10	Amazon - Bailey Hill to Beltline Hwy	North	2011-2012	90	6175
11	Amazon Beltline to Danebo	Both	*Generally these areas have not been planted with trees due to conflict with Corps levee designation and/or desire to maintain Fender's blue butterfly corridors along creek*		1062
12	Amazon Danebo to Railroad Crossing	Both			8014
13	Amazon Railroad Crossing to Fern Ridge	Both			No (levees/ACOE restriction)
Amazon Basin					
A-3 Channel					
1	A-3 - Seneca to Beltline Hwy	Both	--	--	4480
2	A-3 - Beltline Hwy to Terry	Both	2006-2007, 2007-08, 2008-09	225	4017
A-2 Channel					
1	A-2 - Roosevelt north along Beltline Hwy				No
2	A-2 - Beltline Hwy to Ohio St		--	--	10,215
Roosevelt Channel					
	Roosevelt		2006-2007, 2012-13	120	No

Amazon Creek Planted Areas and Planting Needs



Reach 1: Martin to Snell

Map created March 2014

0 90 180 360 Ft

N

2013 aerial photos

Eugene

Amazon Creek Planted Areas and Planting Needs

Reach 2: Snell to Fox Hollow

Map created March 2014

0 100 200 400 Ft

N

2013 aerial photos

Eugene

Amazon Creek Planted Areas and Planting Needs

Reach 3: Fox Hollow to 30th Ave

Map created March 2014

0 205 410 820 Ft

N

2013 aerial photos

Eugene

Amazon Creek Planted Areas and Planting Needs

Reach 4: 30th Ave to 24th Ave

Map created March 2014

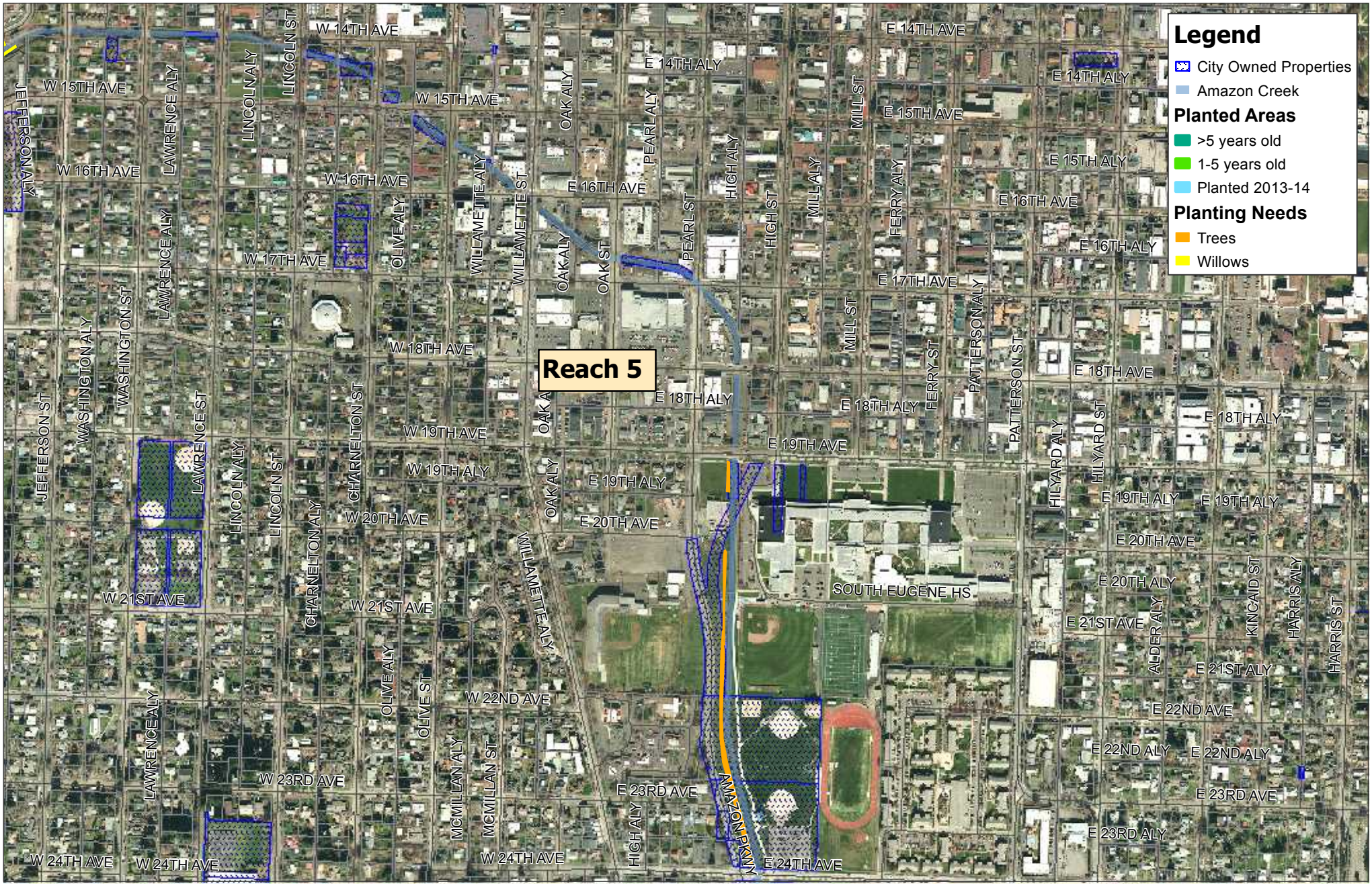
0 137.5 275 550 Ft

N

2013 aerial photos

Eugene

Amazon Creek Planted Areas and Planting Needs



Reach 5: 24th Ave to Lane County Fairgrounds

Map created March 2014

0 225 450 900 Ft

N

2013 aerial photos

Eugene

Amazon Creek Planted Areas and Planting Needs

Reach 6: Lane County Fairgrounds to Chambers

Map created March 2014

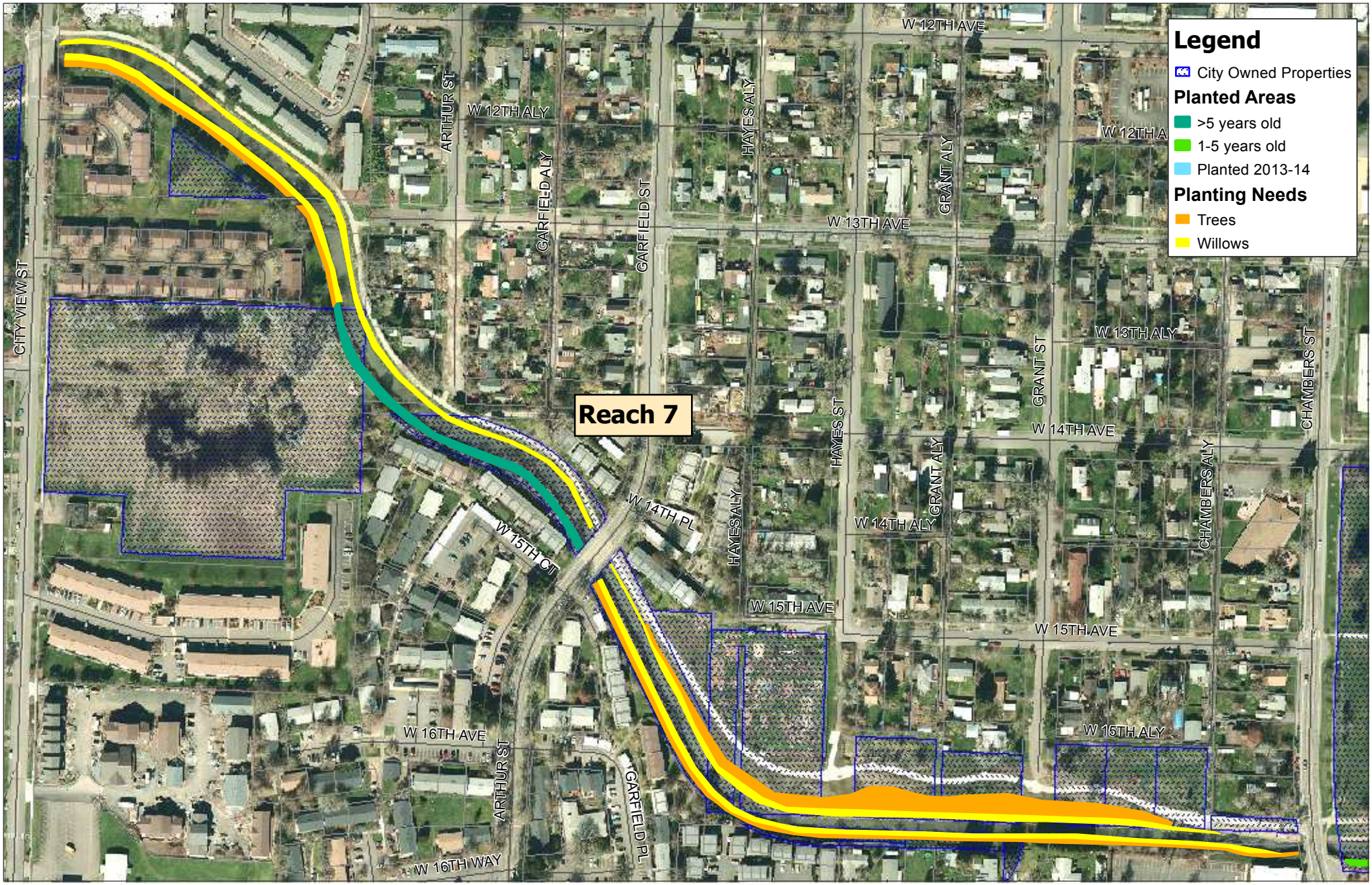
0 150 300 600 Ft

N

2013 aerial photos

Eugene

Amazon Creek Planted Areas and Planting Needs



Reach 7: Chambers to City View

Map created March 2014

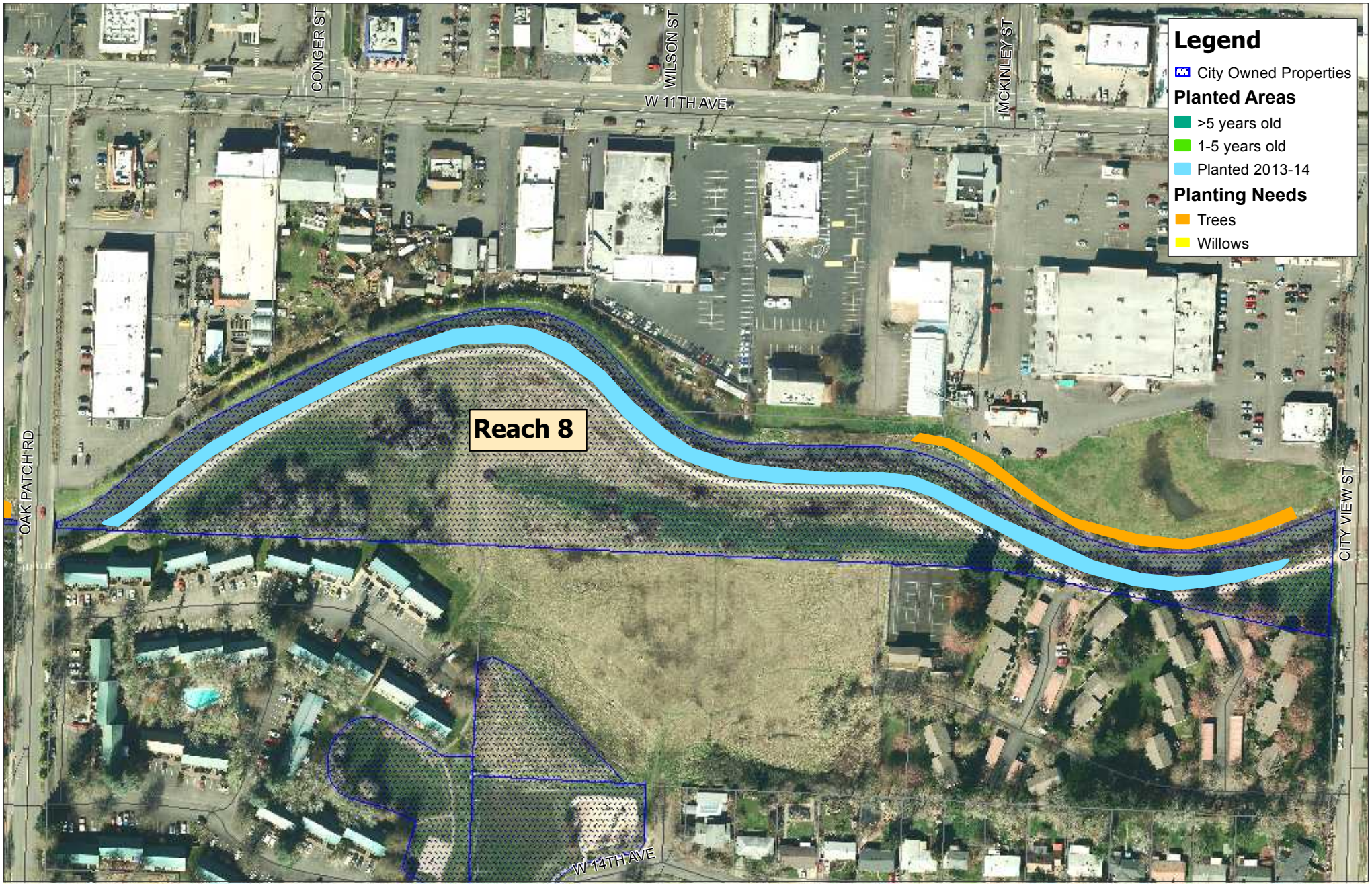
0 95 190 380 Ft

N

2013 aerial photos

Eugene

Amazon Creek Planted Areas and Planting Needs



Reach 8: City View to Oak Patch

Map created March 2014

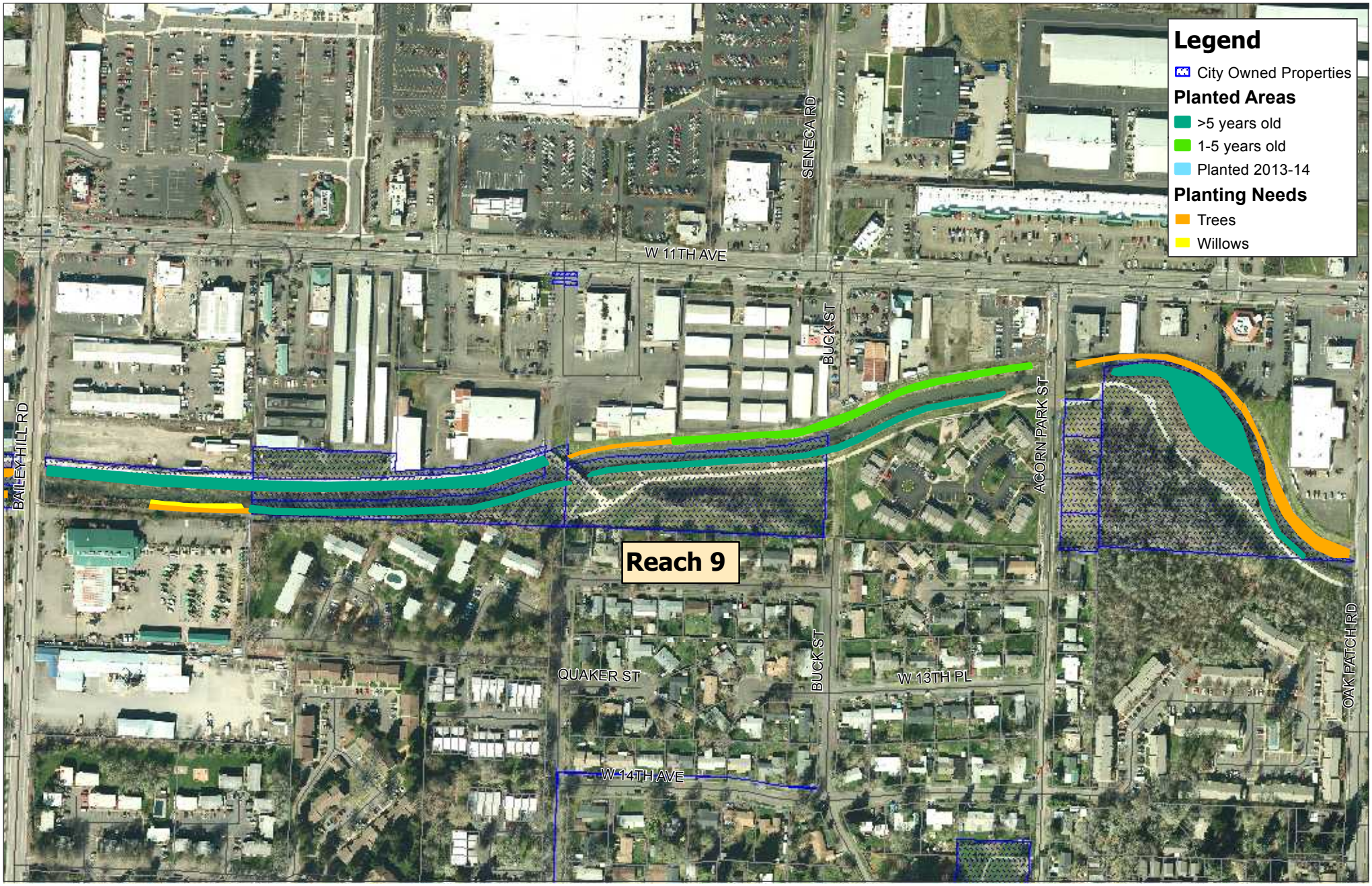
0 70 140 280 Ft

N

2013 aerial photos

Eugene

Amazon Creek Planted Areas and Planting Needs



Reach 9: Oak Patch to Bailey Hill

Map created March 2014

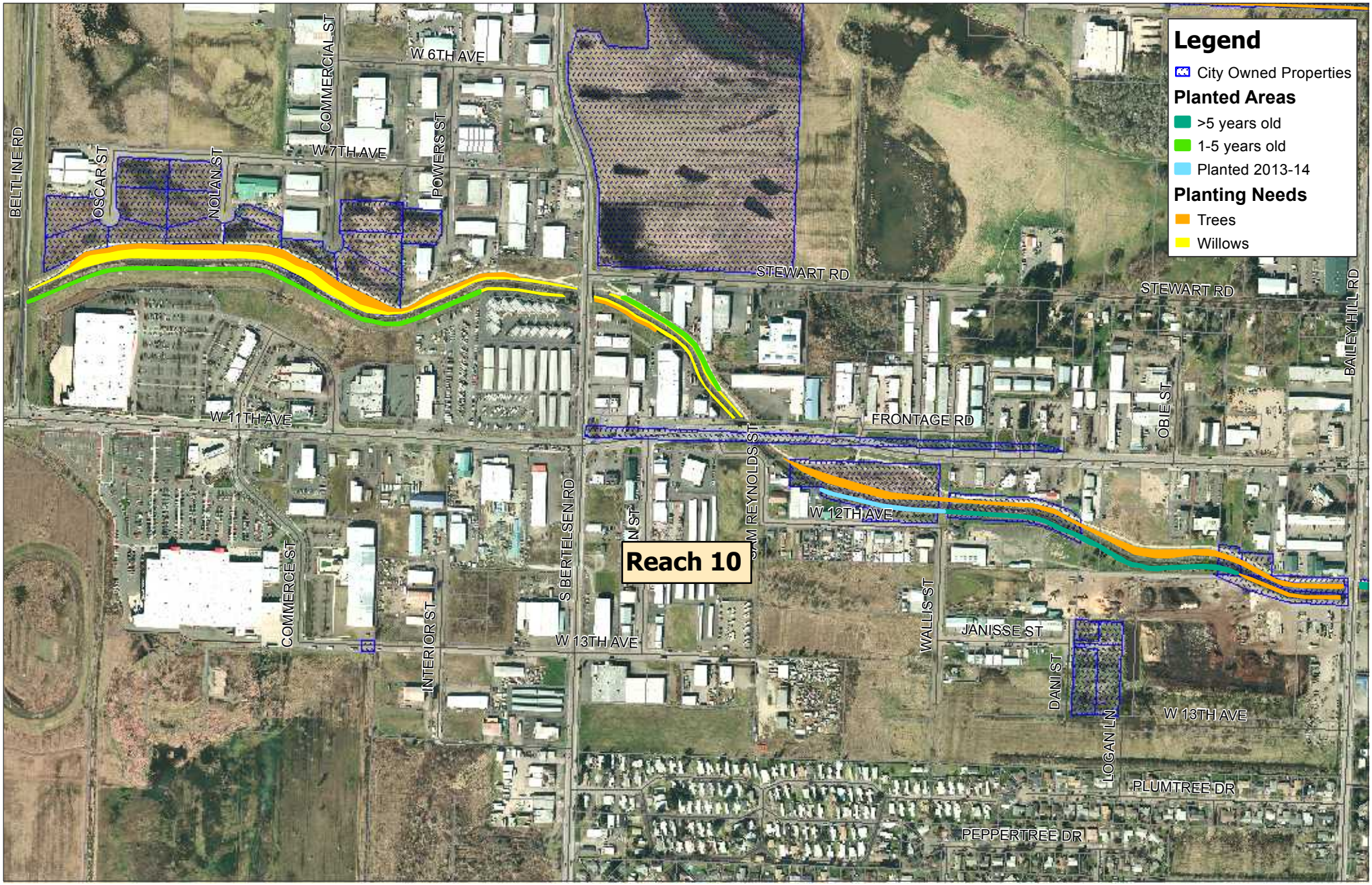
0 115 230 460 Ft

N

2013 aerial photos

Eugene

Amazon Creek Planted Areas and Planting Needs



Reach 10: Bailey Hill to Beltline Hwy

Map created March 2014

2013 aerial photos

Amazon Basin Planted Areas and Planting Needs

A-3 Channel Reach 1: Seneca to Grimes

Map created March 2014

0 165 330 660 Ft

N

2013 aerial photos

Eugene

Amazon Basin Planted Areas and Planting Needs

A-3 Channel Reach 2: Bertelsen to Railroad Tracks

Map created March 2014

0 100 200 400 Ft

N

2013 aerial photos

Eugene

Amazon Basin Planted Areas and Planting Needs

A-3 Channel Reach 3: Danebo to Terry St

Map created March 2014

0 95 190 380 Ft

N

2013 aerial photos

Eugene

Amazon Basin Planted Areas and Planting Needs

A-2 Channel Reach 1: Beltline Hwy toTerry St

Map created March 2014

0 175 350 700 Ft

N

2013 aerial photos

Eugene

Amazon Basin Planted Areas and Planting Needs

A-2 Channel Reach 2: Terry St to Ohio St

Map created March 2014

0 90 180 360 Ft

N

2013 aerial photos

Eugene

Amazon Basin Planted Areas and Planting Needs

Roosevelt Channel: Maple St to EWEB

Map created March 2014

2013 aerial photos

Appendix B.

Riparian Monitoring Data Sheet and Protocols

Riparian Planting Monitoring

Site Name:

Location:

Date:

Date of initial planting:

Describe initial planting (who, how many, what species, planting method):

Management since planting:

Species Code	Height (ft)	Status (live, dead, damaged)	Vigor (H, M, L)	Cause of Death/ Damage	Needs to be cleared around? (Y/N)	Needs to be mulched? (Y/N)	Comments

See reverse for codes/abbreviations

Riparian Planting Monitoring Form Instructions

Site name: Stream name/reach

Date: Date of monitoring effort

Location: Description of location of site, including nearest upstream and downstream cross streets and aspect (south or west bank). Refer to a planting sketch map and/or aerial photo if available.

Date of initial planting: List date or year of planting, if known.

Describe initial planting: Describe who did planting (City staff, contractor, volunteers), how many trees were planted, whether they were potted or bare root, species, and any planting methods to note (scalped, cardboard, mulch)

Management since planting: Note any known management actions, such as weedeating, mulching or mowing and frequency (annual, one time only, etc.)

Species: Use standardized coding system that uses the first two letters of the genus name and the first two letter of the species. In addition, use the following:
UNKD – you can't identify the plant because it is dead;
UNKM – you can't identify the plant because it is missing (maybe mulch ring or protective tubing is still present);

Height: Estimate height in feet/inches of individual trees.

Status: Record whether the tree or shrub is alive, dead or damaged.
L – Live
D – Dead (record D for UNKD as well as identified species)
DMGD – Damaged by one of various causes (identified under next column)
U – Unknown (e.g., tree has not leafed out and you cannot determine status).
M – Missing (if you recorded UNKM for species)

Vigor: Rate the tree's vigor as follows:
- **H**– High: good color, dense foliage; stems well able to support top growth
- **M** – Moderate: moderate foliage and color; stems thin but adequate
- **L** – Low: poor color, sparse foliage; stems thin and weak

Cause of death/damage: Choose from the following codes:
- **BN** – beaver/nutria
- **SM** – voles or other small rodents
- **DB** – deer browse
- **HU** – human caused such as by scalping or weed eaters
- **IN** – insects
- **DI** – disease such as leaf curl
- **UNK** – unknown or other, describe under comments

Needs to be cleared around: Note Y for yes or N for no. This applies to competition by grasses, blackberry, or other undesirable vegetation.

Needs to be mulched: Note Y for yes or N for no. Generally only applies to trees less than 6 ft in height. Determine based on tree size, site conditions, and presence of competing vegetation, such as grass or other weeds.

Comments: Capture any information here that would be helpful for future maintenance or success of similar plantings

Appendix C.

Amazon Basin Monitoring Results

Table 2: Amazon Creek Riparian Tree Monitoring

Location	Year Planted	Original Planting Numbers											2013 Monitoring Results												
		Total Trees Planted	Ash	Oak	Pine	Hawthorn	Madrone	Alder	Cedar	Doug-fir	Maple	Cottonwood	Total # Alive 2013	Average Tree Height (ft)	Ash	Oak	Pine	Hawthorn	Madrone	Alder	Cedar	Doug-fir	Maple	Cottonwood	% Survival*
Amazon Creek																									
Amazon - Fairgrounds to Polk	2006-07, 2007-2008, 2009-2010	172	27	2	4			28			1	10	68	5.9	53	1	2			1		10		1	40%
Amazon - Polk to Chambers	2009-2010, 2010-2011	187	50	50	32	25		30					180	3.9	42	45	38	27		23	5				96%
Amazon - Garfield to City View	2006-2007	110	80		10						10	10	72	4.0	49		9	4					7	3	65%
Amazon - City View to Oak Patch	2005-06, 2008-2009	20	3	12	5								2				2								
Amazon - Acorn Park to Richardson Bridge, south side	2007-2008	126											117	4.4	38		48	2					1	28	93%
Amazon - Richardson Bridge to Rexius (past Bailey Hill)	2007-2008	75											79	4.5	*31*	*15*	*19*				*4*		*10*		105%
Amazon W 11th to Bertelsen, north side	2011-2012	90											57	3.3	*13*	*11*	*11*	*18*		*4*					63%
Amazon Bertelsen to Beltline	2009-2010, 2010-2011	652	347	151	44	49	47	4				10	302	2.8	*157*	*53*		*40*	*15*	*3*		*34*			
Amazon Basin																									
A-3 - Danebo to Terry	2006-2007, 2007-2008, 2008-2009	225	50	45	25		20		5				103	3.2	32	44	23		3		1				

= no information available on tree species and quantities, aside from what is shown

*In some cases, tree were not monitored along the entire reach that was originally planted, so the percent survival may not be accurate

Average Tree Height By Reach

Reach	Big leaf maple	Red alder	Black hawthorn	Oregon ash	Ponderosa pine	Black cottonwood	White oak	Average Height (ft)
1 - Fairgrounds to Polk - 2008-2010				5.76	6.38	7.50	1.00	5.72
2 - Polk to Chambers - South Bank - 2010-2011		7.73	5.87	3.33	3.00		3.19	3.90
3- Polk to Chambers - North Bank - 2010-2011		7.92	5.08	2.32	3.38		1.66	3.96
4 - Garfield to City View - 2007	4.18		6.98	3.53	5.57	3.72		4.01
5 - Acorn Park to Richarson Br - South Bank - 2008	4.42		2.92	4.85	5.19	2.45		4.38
6 - Richardson Br to Bailey Hill - 2008	4.30			4.19	5.89		3.05	4.41
7 - W 11th to Bertelsen - 2012		4.94	5.00	2.51	2.10		2.21	3.33
8 - Bertelsen to Beltline - 2011		6.89	3.87	2.70			1.60	2.70
9 - A-3 Channel - Danebo to Terry - 2007-2009				3.16	4.32		1.84	3.02
Average Height (ft)	**4.26**	**7.36**	**4.66**	**3.58**	**4.45**	**2.94**	**2.04**	**3.68**

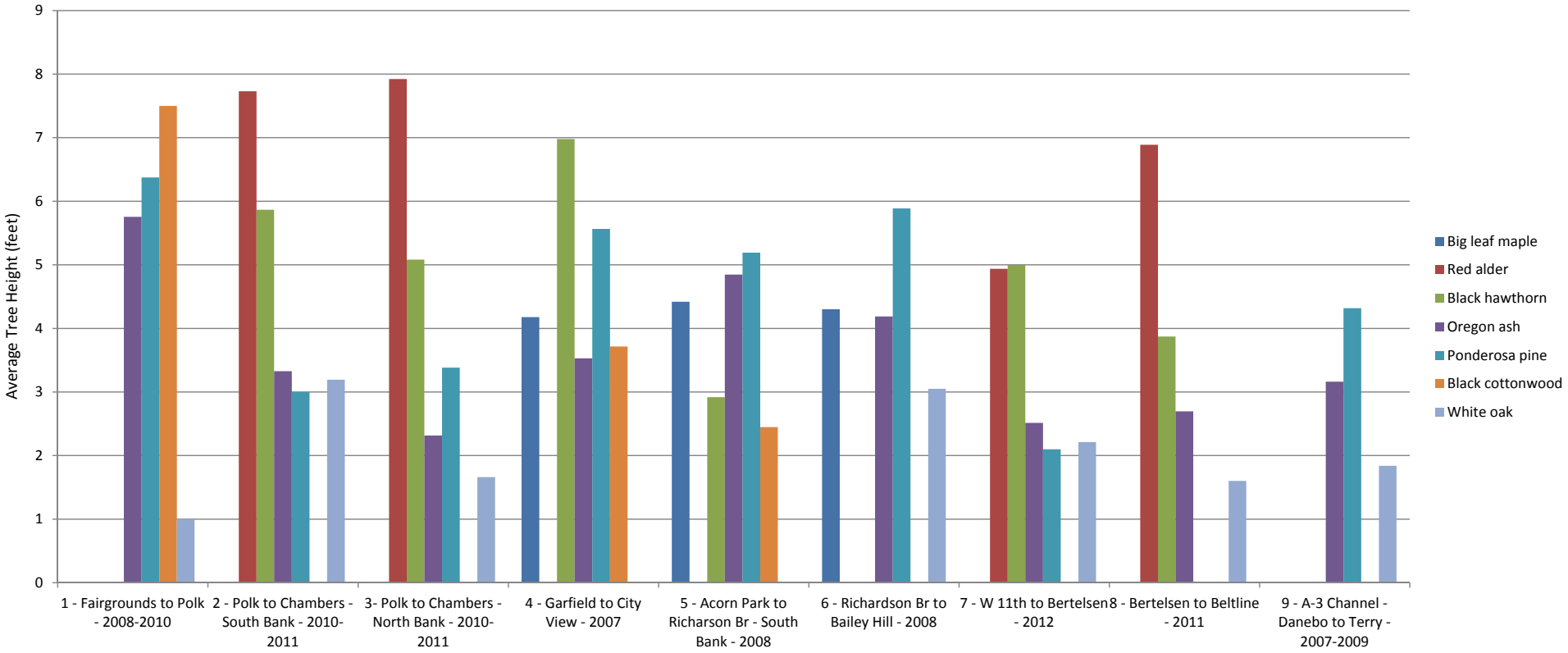


Figure 1: Average Tree Height by Reach for the seven most common species planted.

Average Density By Reach

Reach	Average #/ 1000 Ln Ft
1 - Fairgrounds to Polk - 2008-2010	60
2 - Polk to Chambers - South Bank - 2010-2011	75
3- Polk to Chambers - North Bank - 2010-2011	75
4 - Garfield to City View - 2007	119
5 - Acorn Park to Richarson Br - South Bank - 2008	112
6 - Richardson Br to Bailey Hill - 2008	102
7 - W 11th to Bertelsen - 2012	62
8 - Bertelsen to Beltline - 2011	134
9 - A-3 Channel - Danebo to Terry - 2007-2009	41
Overall average # trees/1000 linear feet	**87**

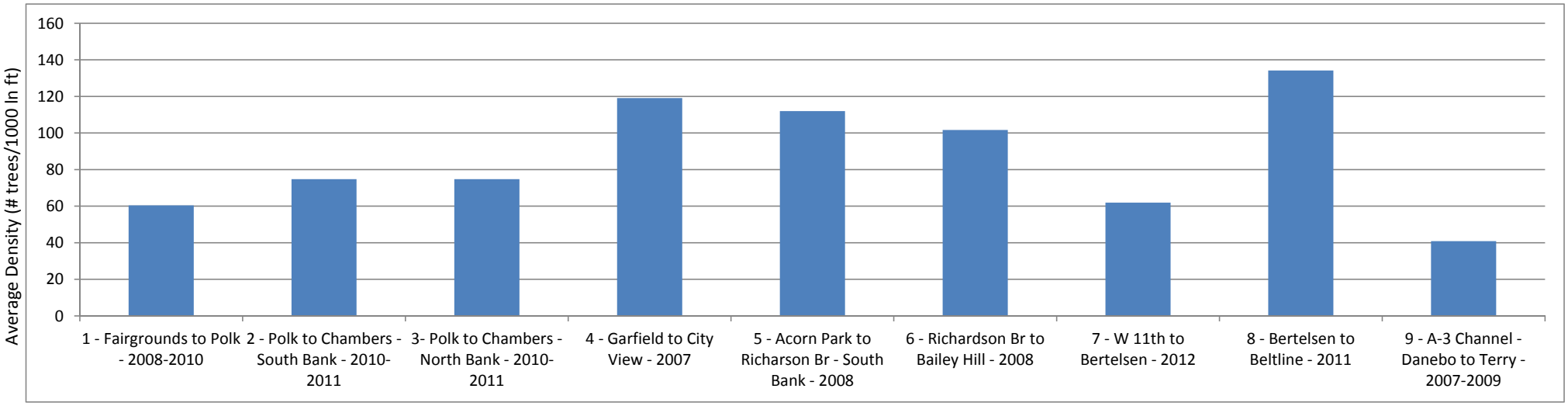


Figure 2: Average Density (# trees/ 1000 linear feet) for all reaches monitored.

Percent of Trees Alive, Dead or Damaged

Species	% Alive	% Damaged	% Dead	Total # Trees
Big leaf maple	100%	0%	0%	17
Red alder	94%	0%	6%	33
Black hawthorn	99%	1%	0%	93
Oregon ash	94%	6%	1%	416
Ponderosa pine	96%	1%	3%	146
Black cottonwood	50%	0%	50%	42
White oak	99%	1%	0%	151
Grand Total	94%	3%	3%	898

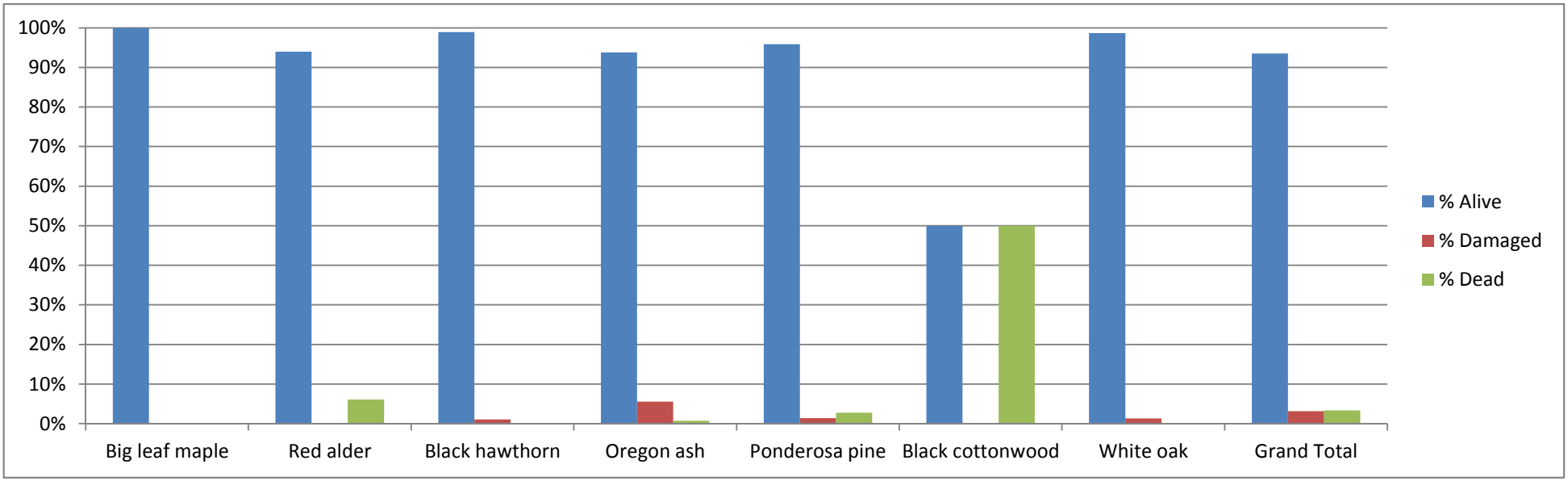


Figure 3: Percent of each species counted found to be alive, damaged or dead.

Percent of Live and Damaged Trees with High, Medium, and Low Vigor

Species	% High Vigor	% Medium Vigor	% Low Vigor	Total # Trees
Big leaf maple	76%	12%	12%	17
Red alder	100%	0%	0%	31
Black hawthorn	99%	0%	1%	93
Oregon ash	91%	8%	1%	414
Ponderosa pine	99%	1%	0%	141
Black cottonwood	62%	14%	24%	21
White oak	90%	7%	3%	152
Grand Total	92%	6%	2%	869

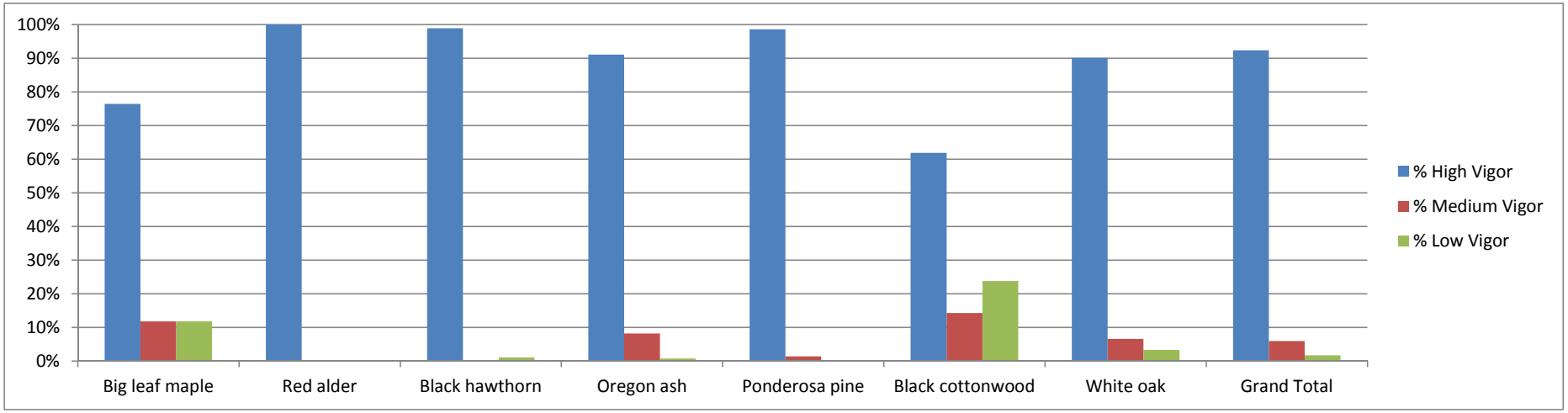


Figure 4: Percent of each species found to be of high, medium, or low vigor. Note this includes live and damaged trees only.

Table 3: Amazon Creek Planting Needs

Creek/ Reach #	Location	Bank	Ownership	Planting Needs	Planting Type	Tree #	Linear Ft	Planting Priority Level
Amazon Creek								
1	Amazon - Martin to Snell	Both	City	None	--	--	--	--
2	Amazon - Snell to Fox Hollow	Both	City	Several short reaches near Larch and btwn 44th & 43rd could use willows	willows	--	800	Low
3	Amazon - Fox Hollow to 30th	Both	City	Generally well vegetated, except just downstream of Fox Hollow, near 39th, and btwn 37th and 33rd. Focus on willow plugs due to narrow corridor and power lines. Channel is small and incised so willows will provide plenty of shade.	willows	--	5,000	Medium
4	Amazon - 30th to 24th (Amazon Park)	Both	City	Many sections could use willow cover. Area to east of large ash grove could use willows on terrace along bank.	willows	--	4,600	Medium
5	Amazon - 24th to Fairgrounds	Both	City/4J/Private	This is a concrete section, so the only opportunity to plant is potentially along the west side between 24th and 19th.	trees	170	--	Medium
6	Amazon - Fairgrounds to Chambers	South	Lane County/City/ Private	Upper most section by the EWEB substation could use more shade, but no room on top of bank; area just upstream of the Blue Heron foot bridge not planted at top of bank	willows/ trees	20	600	High
6	Amazon - Fairgrounds to Chambers	North	Lane County/City/ Private	Area just upsteam of Polk St is narrow and overgrown with blackberry but if controlled could add willows; could infill reach from Polk to Chambers since trees are pretty sparse and very small	willows/ trees	30	700	Low
7	Amazon - Chambers to City View	South	City/Private	Chambers to Garfield reach will be planted as part of capitol project in 2014-15; Gudukut to City View needs blackberry control and willow/tree planting, but privately owned;	willows/ trees	80	800	High
7	Amazon -Chambers to City View	North	City/Private	Chambers to Garfield reach will be planted as part of capitol project in 2014-15; Garfield to City View is narrow, but blackberry under reasonable control, so could plant alder & ash on slope	trees	150	--	Low
8	Amazon - City View to Oak Patch	South	City	This reach originally slated for widening under Metrowaterways; older plantings did not do well	trees	260	--	HIgh
8	Amazon - City View to Oak Patch	North	Private	East end needs trees; West 2/3 is well vegetated.	trees	70	--	Low
9	Amazon - Oak Patch to Bailey Hill	South	City/Private	South bank at east end needs trees but is narrow; small reach upstream of Bailey Hill north of parking lot needs blackberry control and planting;	willows/ trees	35	200	Medium
9	Amazon - Oak Patch to Bailey Hill	North	City/Private	Oak Patch to just downstream of Acorn Park needs trees; also just upstream of Richardson Bridge;	trees	130	--	Low
10	Amazon - Bailey Hill to Beltline Hwy	South	Largely Private/some City	East end by former Rexius facility needs trees; ownership changed, but have scheduled to assess an plant in 2014-15; W 11th to Bertelsen is narrow but needs trees; area just downstream of Bertelsen needs trees	trees	220	--	High
10	Amazon - Bailey Hill to Beltline Hwy	North	Private	Most of reach could use trees and willows on north bank; mostly privately owned; also check with conflict with wetland at northwest portion of reach	willows/ trees	500	5,700	Low

Table 3: Amazon Creek Planting Needs (cont'd)

Creek/ Reach #	Location	Bank	Ownership	Planting Needs	Planting Type	Tree #	Linear Ft	Planting Priority Level
11	Amazon Beltline to Danebo	Both	City/Private	Generally these areas have not been planted due to conflict with Corps levee designation and desire to maintain Fender's blue butterfly corridors along creek	--	--	--	Low
12	Amazon Danebo to Railroad Crossing	Both	City		--	--	--	Low
13	Amazon Railroad Crossing to Fern Ridge	Both	City		--	--	--	Low
Amazon Basin								
A-3 Channel								
1	A-3 - Seneca to Grimes	South	City/Private	400' upstream of Bailey Hill down to the City property known as Salawa Meadow could use trees; this area has been planted with willows	trees	300	--	Medium
2	A-3 - Bertelsen to Railroad tracks	Both	Private	The reach between Bertelsen and Beltine is narrow and a portion of it has powerlines, so willows are the best option there. The north-south reach that runs along Beltline could use willows and trees	willows/ trees	150	7,860	Medium
3	A-3 - Danebo to Terry	Both	City	Could infill area btwn Danebo and Terry Streets; trees are pretty sparse and some are still very small; could use additional willow planting too.	willows/ trees	150	1,500	Medium
A-2 Channel								
1	A-2 - Beltline Hwy to Terry St	South	City/Private	The portion of this reach upstream of Golden Gardens has no trees; while the section from Golden Gardens to Terry St has some mature trees with some opportunities for additional plantings.	willows/ trees	250	4,000	Medium
2	A-2 - Terry St to Ohio St	South	Private	Possible location of future bike path with little room for trees at top of bank; could plug willows	willows	--	4,500	Medium
Roosevelt Channel								
	Maple to EWEB	Both	City	South bank is narrow and has been planted with trees; north bank could use more trees, but low priority; any willow cuttings should have protective tubes due to presence of beaver	willows/ trees	60	13,640	Medium

Appendix D.

Amazon Creek Photopoint Monitoring

Amazon Creek Photopoint Monitoring Stations 1-9

Fairgrounds to Chambers Reach

Photopoint Stations

November 1, 2013

Caution:
This map is based on imprecise source data, subject to change, and for general reference only.

N

0 150 300 600 Ft

Eugene

Amazon Creek Photopoint Monitoring Stations 10-18

Garfield to Buck Reach

Photopoint Stations

November 1, 2013

Caution:
This map is based on imprecise source data, subject to change, and for general reference only.

N

0 150 300 600 Ft

Eugene

Amazon Creek Photopoint Monitoring Stations 19-23

Richardson Bridge to W 11th Reach

Photopoint Stations

November 1, 2013

Caution:
This map is based on imprecise source data, subject to change, and for general reference only.

N

0 150 300 600 Ft

Eugene

Amazon Creek Photopoint Monitoring Stations 23-26

W 11th to Beltline Reach

Photopoint Stations

November 1, 2013

Caution:
This map is based on imprecise source data, subject to change, and for general reference only.

N

0 150 300 600 Ft

Eugene

Amazon Creek Photopoint Monitoring Stations 27-28

A-3 Channel Beltline to N Terry Reach

Photopoint Stations

November 1, 2013

Caution:
This map is based on imprecise source data, subject to change, and for general reference only.

N

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Eugene

City of Eugene Amazon Creek Photopoint Monitoring Photos - 2013

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City of Eugene Amazon Creek Photopoint Monitoring Photos - 2013

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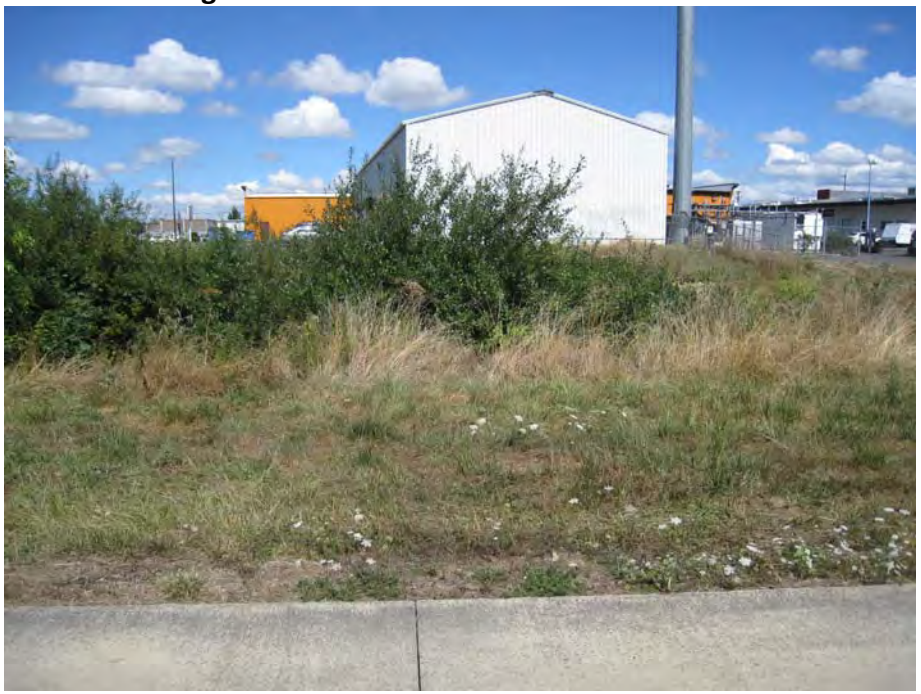

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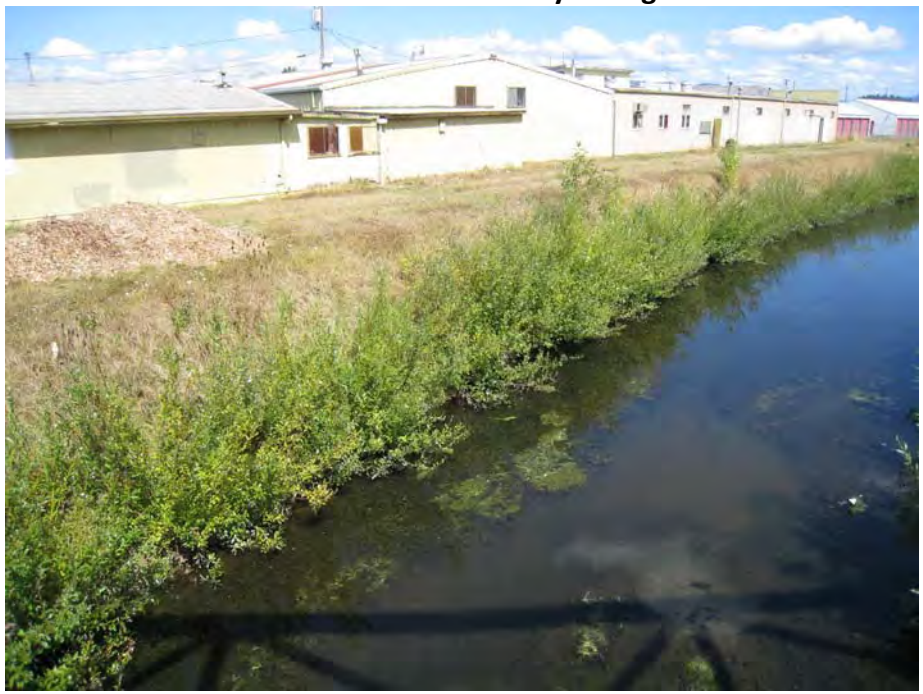

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City of Eugene A-3 Channel Photopoint Monitoring Photos - 2013

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City of Eugene A-3 Channel Photopoint Monitoring Photos - 2013

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Part I - TMDL FIFTH ANNUAL REPORT

Appendix C
Sustainability Commission FY14 Workplan

EUGENE SUSTAINABILITY COMMISSION FY 14 WORK PLAN

October 2013

Introduction

The FY 14 work plan for the commission reflects several continuing priorities from previous years. The commission will focus on the implementation of Envision Eugene, paying particular attention to how the seven Pillars are reflected in any outcomes or actions taken. The city budget challenges are also an important area of focus. The commission will provide input and advocacy during the development of the FY 14 budget to raise the visibility and value of city sustainability efforts and the cost-effectiveness of climate action in particular.

The link between land use and transportation planning remains an important theme this year and a number of priority work plan items are related to the development of the Transportation System Plan. Similarly, the issue of a carbon fee continues to be a priority as the state legislature completes its study of the concept later this year. The commission is also focused on championing the use of the Triple Bottom Line, implementing climate action planning and generally monitoring progress toward the significant sustainability goals City Council has adopted in the last five years.

As the commission advances the work detailed in the attached work plan, it will be important to maintain flexibility to take up new or revised priorities. Some issues, such as food policy, the new City Hall or the carbon fee concept, may take on greater significance as opportunities and needs emerge at the local, state or federal level. Other changes in priorities may be dictated by budget considerations and constraints. The commission will work with Council to adjust its course as necessary to address these emerging priorities.

In formulating this year's priorities and activities, the commission relied on several overarching goals that inform their work and define success, including:

- Promote aspects of sustainability within the three areas of the Triple Bottom Line.
- Provide relevant, timely information to City Council.
- Have more organizations within the community working on sustainability in an intentional way.
- Have a mechanism for climate adaptation/mitigation work at County and regional levels.
- Maintain alignment with commitments the City of Eugene has made around sustainability.

Matrix

The matrix on the next page(s) includes the primary topics the commission plans to address in the coming year along with specific activities for advancing the commission's goals in these areas.

Sustainability Commission FY 14 Work Plan

Topic	Topic description	Outcomes	Planned activities
Envision Eugene	Continued engagement in the implementation of Envision Eugene.	• Implementation actions are consistent with the Pillars of Envision Eugene. • Advance climate action planning in Envision Eugene implementation.	1. Advocate that pillars be strongly reflected and consistently integrated in the implementation process. 3. Regular (quarterly) briefings from city planning staff. Invite CLUTAC to join briefings. 4. Determine commission's role and opportunities to engage in the process. 2. Review projects that are part of the implementation phase (code changes, policy or other outputs).
Sustainable business practices	Investigate and develop a Commission report around how current City policy encourages or discourages sustainable practices within private businesses. Recommend changes in City policy that will encourage sustainable business practices.	Complete and submit to staff and council a report and recommendations about how to improve policy support for green business practices.	1. Vet findings from FY 13 research and interviews with city staff. 2. Craft report and recommendations. 3. Explore opportunities for partnership with GreenLane, Chamber and others for implementing recommendations.
Transportation System Plan (TSP) and Pedestrian/Bicycle Master Plan (PBMP)	Participate in development and adoption of TSP and implementation of PBMP.	• TSP is designed to meet fossil fuel reduction goal. • Projects in the PBMP are implemented and get a mode shift toward active transportation.	1. Regional coordination a. Explore how best to fulfill the need for a regional transportation approach to transportation planning, perhaps a new regional committee or the repurposing of an existing committee. b. Review and participate in Scenario Planning project – bring forward ideas from project manager for commission input. Recommend transportation policies to be analyzed. 2. Eugene TSP a. Stay involved in the formulation of the TSP, through members serving in the TCRG, and through other opportunities to participate and monitor the formulation process and outcome. b. Stay informed through staff overview/timeline. 3. CLUTAC review of TSP transportation project evaluation a. Update CLUTAC members and develop work plan 4. Develop and support a "Complete Streets" policy for the City of Eugene. Such a policy would acknowledge that all road projects should include facilities for pedestrians, bicyclists, transit users, and motorized vehicles. 5. Develop a policy to recommend to City Council that any transportation funds obtained by the City, which are not dedicated to the automobile, be expended preferentially for active modes of transportation. 6. Work with City staff and BPAC to prioritize projects which are most important for changing modal split to favor active modes of transportation. 7. Continue involvement in selection of an alternative for Willamette St. from 24th-29th Ave., and in further modifications to the

Sustainability Commission FY 14 Work Plan

Topic	Topic description	Outcomes	Planned activities
			selected alternative. 8. Review policies for sidewalk infill and lobby to establish a budget for sidewalk infill.
Triple Bottom Line	Advise Council on use of TBL in staff analysis and council deliberations. Review Lane Livability Consortium analysis of TBL and evaluate ways to improve use of the tool.	• Effective, timely and appropriate use of the tool. • Evaluate and improve tool.	1. Communiqué with City Council that addresses 1) importance of TBL for council decisions, 2)need for more intentional and systematic approach, 3) suggestions for types of projects to be analyzed, 4) commission review and feedback on TBL examples that come forward,. 2. Review recommendations from Lane Livability Consortium projects and Equity and Opportunity Assessment and determine any next steps. Incorporate relevant findings into communiqué with Council as well as other promising tools.
City budget process	Provide input and recommendations to the Budget Committee as it develops the FY 15 budget.	• High-light the cost-savings potential from implementing climate action plans. • Promote value of Sustainability Program in budget deliberations.	1. Create context and communicate urgency for ICAP, CEAP - quantify financial benefits. b. Package and supplement existing information and analysis. c. Execute communication plan that includes outreach to partners: GreenLane, Chamber, City Club, Executive Management Team, Register Guard board. d. Message to Council and budget committee: importance of making investments and capturing long term savings. 2. Strategy for engaging in budget process, budget committee a. Determine participation at meetings, providing testimony, etc. b. Include other work plan topic areas where appropriate and develop key messages. c. Encouraging TBL analysis in budget process. d. Liaison with Planning Commission, CLUTAC or other to develop budget recommendations. a. Investigate alternative structures – melding commissions or other approaches. Invite Corvallis representative to review their coalition.
Carbon fee	Investigate revenue neutral fee on greenhouse gas emissions, and bring back a recommendation on what effective action can be taken to advance.	Potential policy recommendation to bring forward to Council.	1. Coalition building – City of Eugene, EWEB and commission. Identify other potential stakeholders and regional sources of support (e.g. Sustainability Coalition in Corvallis). 2. Review initial report from legislature and bring forward findings to Council when report is released (December 2013). a. Examine legislative report. b. Develop materials to present to City Council. 3. Monitor and review other related activities in the region, e.g. City of Portland. 4. Update data and conclusions regarding implementation of carbon fees: a. British Columbia b. Microsoft c. Other 5. Advocate for acceptance and implementation of carbon fee

Sustainability Commission FY 14 Work Plan

Topic	Topic description	Outcomes	Planned activities
			resolution by City Council. 6. Meet with and provide materials on carbon fees for state representatives and senators representing the Eugene area.
Local food policy	Continue work with Council regarding recommendations on food policy submitted May 2012	Council work session discussion and direction for next steps.	1. Debrief with team attending Leadership Academy on Urban Ag and Sustainable Food Systems (September 2013). Determine possible next steps and commission's role. 3. City Council work session (Oct. 23, 2013) – determine commission's role. 2. Cultivate partners for next steps.
Work requests	Provide forum for new work requests from Council or community partners	• Apply vetting process adopted by commission in FY 2013 for identifying new work plan priorities. • Bring forward work requests that align with current work plan and capacity of commission.	1. TBD

Part II – TMDL FIFTH YEAR REVIEW

TMDL Implementation Plan
Guidance – 5th Year Review Report Template for City and County Designated Management Agencies

December 2012

State of Oregon
Department of
Environmental
Quality

Disclaimer

This guidance document should not be construed as a requirement of rule or statute. This guidance document was developed to assist Designated Management Agencies(DMAs) with report preparation, and is designed to meet the following goals:

- **Report Acceptance:** Outline the elements that need to be in the report so DEQ reporting expectations are met.
- **Education & Outreach:** Provide DMAs with a review about what TMDLs are and the strategies that work to improve water quality.
- **Strategy Matrix**-Assist DMAs with generating a strategy matrix for the next 5 year cycle of TMDL implementation.
- **Public Involvement**- Promote the importance of TMDL implementation, which includes stormwater management to protect water quality, within your jurisdiction.

Contributor Recognition

(Placeholder for future additions)

Guidance Template Review and Recommendations
DEQ: Bill Meyers & Heather Tugaw, Medford; Don Yon, Headquarters; Nancy Gramlich, Salem

Appendix A Checklist
DEQ: Doug Drake, Pam Blake, Avis Newell, Karen Williams Pamela Wright,
Cities: Keizer, Newberg, Turner

Feedback and Fillable Functionality
Cities: Keizer, Canby

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Preview

Introduction

As identified in OAR 340-042-0080, Total Maximum Daily Load (TMDL) Implementation Plan acceptance by DEQ was based on the TMDL Implementation Plan containing and acknowledging the following reporting and performance components:

1. Reasonable assurance that plan will be implemented.
2. Developed timeline, with reference to costs and funding, for implementing TMDL management strategies (implementation and completion dates).
3. Proposed performance monitoring plan for confirming implementation of strategies and success of strategies in meeting TMDL reductions for applicable parameters (ex., temperature, mercury, and bacteria).
   a) Submittal of annual reports for describing progress on implementing strategies that were selected for pollutant load allocations/reductions in the TMDL Implementation Plan.
4. Submittal of a 5th year evaluation report for describing implementation progress and the effectiveness of the strategies implemented during the preceding 4 years in meeting the parameter reductions. Plan adaptation and revisions based on the annual and 5th year periodic report reviews if it is determined that the plan is not effective in meeting parameter load allocations/reductions.

Purpose

- ***Background –*** The 5th year review does not require additional monitoring or measurements. Use existing data and information to evaluate plan implementation and effectiveness relative to pollution reduction goals. The report should describe what information was used in the evaluation, the outcome of the evaluation and the basis for this reasoning.
- ***Report Template*** – This document captures the elements that should be included in the report, and provides examples for how to capture the minimum elements. This document is designed for use as the template for report submittal.
- ***TMDL Implementation*** – TMDL implementation is a five year cycle, that starts with the first plan due date. This document is designed to assist you with documenting strategy implementation for the next five year cycle of TMDL implementation.

Assistance, Additional Information, and Questions

Contact your DEQ TMDL Program Basin Coordinator at:

http://www.deq.state.or.us/wq/tmdls/docs/basincoordinators.pdf

Part I: Cover Page

Please provide the general and contact information below.

General Information:

TMDL Implementation Plan First Due Date (MM/DD/YY): 04/01/2008

TMDL Implementation Plan First Approval Date (MM/DD/YY): 12/23/08

This is the ☐ 1st ☐ 2nd ☐ 3rd ☒ Other 5th year report submittal.

Designated Management Agency Name City of Eugene

County Lane

TMDL Basin Willamette

Please check the Subbasin(s) within your Jurisdiction: ☐ Coast Fork ☐ McKenzie ☐ Middle Fork ☐ Middle Willamette ☐ North Santiam ☐ Pudding ☐ South Santiam ☒ Upper Willamette

Receiving Subbasin Waterbody(s) within your Jurisdiction:
Willamette River, Amazon Creek, Amazon Diversion Channel, A3 Channel

Population based on 2010 Census or MS4 Status (Please check appropriate category):

☐ <500
☐ 500 -<1000
☐ 1,000-<5000
☐ 5,000-<10,000
☐ >=10,000 Stormwater Six Control Measures
☐ City MS4 Phase II
☐ County MS4 Phase II
☒ City MS4 Phase I

Population per square mile 3,600/sq. mi.

TMDL Contact Information for City or County:

Name Therese Walch, P.E.

Title Water Resources Manager

Address 99 E. Broadway, Ste 400, Eugene, OR Zip Code 97401

Telephone 541-682-5549

Email address therese.walch@ci.eugene.or.us

Part II: Report Sections and Checklists

1. Please review Table 1 below. Table 1 summarizes, for each TMDL parameter, the general sources that impact water quality and strategies for improving water quality.

Table 1: TMDL General Sources and Management Strategies

TMDL Parameter	General Sources	General Strategies/ Best Management Practices(BMPs)
Bacteria	Bacteria are carried to waterways in stormwater, overland flow, and pipes systems.	Reduce inputs of bacteria by various means including riparian protection, erosion control and stormwater control and treatment, low impact development, septic maintenance and various domestic and agricultural practices.
Dissolved Oxygen	In-stream sediment from runoff and stream bank erosion and high nutrient loads.	Reduce sediment delivered to streams by various means including riparian protection, erosion control and stormwater control and treatment, low impact developmentand reduce nutrient loads.
Iron	Iron is naturally occurring, but high iron concentrations are associated with rain, higher stream flows, and bank erosion.	Reduce sediment delivered to streams by various means including riparian protection, erosion control and stormwater control and treatment, low impact development.
Mercury	In-stream sediment from runoff and stream bank erosion; air deposition.	Same as Iron.
Legacy Pesticides	In-stream sediment from runoff and stream bank erosion.	Same as Iron.
Nitrates	Delivery of excess nutrients to groundwater and surface water.	Manage fertilization and irrigation to reduce excessive addition of nitrate to groundwater and runoff; maintain septic systems.
Temperature	Removal of trees and other shade-producing woody vegetation from stream banks. Wastewater discharges also contribute to stream heating.	Increase effective shade through restoration and protections; Restore natural stream hydrology and cool water refuges; Increase natural stream flow.
Turbidity	In-stream sediment from runoff and stream bank erosion and high nutrient loads.	Same as iron and reduce nutrient loads.

Part II: Report Sections and Checklists Continued

2. Please review Table 2 below. Table 2 summarizes the nonpoint source TMDL load allocations for the Subbasins, or specific streams. Load allocations are the percent reductions or targets needed to meet water quality standards. Acknowledge, by checking,the percent reductions in Table 2 that apply to the Subbasin(s), or specific streams, within your jurisdictional boundaries for improving water quality.

Table 2: Nonpoint Source Urban/Rural TMDL Reductions

Subbasin	Parameter Reductions
Coast Fork	**Bacteria:** ☐ Coast Fork 303(d) listing removal, with continuation of strategy implementation for other TMDLs and the 80% Willamette basinwide average
Coast Fork McKenzie Middle Fork Middle Willamette North Santiam Pudding South Santiam Upper Willamette	**Mercury:** ■ 27% Willamette Basinwide-All Subbasins **Temperature:** ■ Attainment and preservation of effective shade levels on smaller tributaries associated with system potential vegetation will eliminate most anthropogenic nonpoint source heat loads. 91% thermal pollution is from nonpoint sources. Surrogate measure is percent effective shade targets and a heat load equivalent of 0.05 ºC of the Human Use Allowance. Other important measures— preserving and restoring cool water refuges where salmonids rear and migrate to when the river warms up in the summer; restore instream flow quantity.
McKenzie	**Bacteria:** ☐ 80% to 94%
Middle Willamette	**Bacteria:** ☐ 88% summer ☐ 75% fall-winter-spring and Middle Willamette Specific Tributaries ☐ 81% Mill Creek Turner Road ☐ 79% Pringle Creek at Pringle Park/Church Street ☐ 89% Clark Creek at Mouth Bush Park
North Santiam	**Bacteria:** ☐ 80% to 94%
Pudding	**Bacteria:** ☐ 75% to 87% summer ☐ 70% to 92% fall-winter-spring **Iron:** ☐ 19% to 96% based on stream flow **Legacy** **Pesticides:** ☐ Pudding River and Tributaries 30%DDT ☐ Pudding River and Tributaries 90% Dieldrin ☐ Pudding River In stream total suspended solids targets (15 mg/L) **Nitrates:** ☐ Zollner Creek and Tributaries10 mg/l criterion met based on stream flow
South Santiam	**Bacteria:** ☐ 80% to 94%
Upper Willamette	**Bacteria:** ■ 65% Reduction Average Upper Willamette Specific ☐ 77%Upper Long Tom ■ 84%Upper Amazon■ 33% A-3 Drain **Dissolved Oxygen:** ■ Amazon Creek and Diversion Canal 40% reduction in sediment oxygen demand, Biological Oxygen Demand and nutrients ☐ Coyote Creek below Spencer Creek and Spencer Creek 20% reduction in sediment oxygen demand, Biological Oxygen Demand and nutrients

Part II: Report Sections and Checklists Continued

3. Please provide a concise discussion on the most positive or commendable plan elements implemented. Please limit your discussion to ten concise sentences or less. More details pertaining to specific TMDL strategy implementation will be requested in the sections that follow.

- For the first four years of the TMDL plan 1,460 trees and 22,630 willows were planted along Amazon Creek. Elsewhere within the city, 6,199 trees and 35,682 willows were planted. After four years of shading efforts, the availability of public property along the creek for planting has dwindled. In 2013, staff drafted the Amazon Basin Streamside Shading Assessment to inform future planting efforts.

- With adoption in 2008 of the Water Quality Overlay Zone, coupled with existing natural resources (Goal 5) zoning overlays, the City now has in place regulatory protections on headwater streams and the system of connected waterways directly influential to 303(d)-listed and TMDL waterways in and downstream of Eugene's jurisdiction.

- On behalf of the City of Eugene, the Long Tom Watershed Council assessed the potential for ecosystem restoration to produce water quality trading credits. Subsequently, the Eugene-Springfield Metropolitan Wastewater Management Commission (MWMC) contracted with The Freshwater Trust for a riparian shade sponsorship project to help offset the regional wastewater treatment facility's thermal load.

- Not identified as an activity in the City's initial TMDL plan, but completed in the last five years,,four wastewater siphons that run under Amazon Creek were lined, benefiting water quality by preventing future bacterial contamination.

- Also not identified in the City's plan, but completed in 2009, the Alton Baker Duck Pond was retrofit by replacing a portion of the pond's concrete side slopes with vegetation to keep duck and gees from sidewalks and turn areas, and signage was added to discourage feeding of the waterfowl.

Note*: Some examples of positive and commendable elements for discussion: implemented strategies "above and beyond" proposed plan; high percentage of measures completed and implemented; square acres of riparian restoration; gap analysis and code revisions and ordinance adoption; prioritized work plan development; water quality monitoring , evaluation and progress results; interagency collaboration on key projects such as fish passage and riparian restoration.*

4. Please provide a concise discussion on any impediments to plan implementation and proposed solutions for the next four year cycle to overcome these impediments. Please limit your discussion to ten concise sentences or less. More details pertaining to TMDL Implementation timelines, progress, and plan adaptation will be requested in the sections that follow.

- Limited availability of public land adjacent to Amazon Creek for additional tree planting. Solution is to utilize the Amazon Basin Streamside Shading Assessment document to guide future planting efforts.

- Some riparian areas along private property have not been planted due to lack of interest by property owners. Solution is to partner with watershed councils and other non-profits to generate interest in planting these areas.

- Watering planting projects to ensure growth is resource intensive and the availability of seasonal staff to do this work is a limiting factor. This problem can be solved by contracting out watering to a private company, as needed to meet future implementation goals.

- The City's General Fund issues have caused overall belt tightening and pressure on dedicated funds. At the same time, the City's existing infrastructure system is aging, requiring on-going rehabilitation. In addition, the inventory of publicly owned green infrastructure is expanding, requiring greater resources for operations and maintenance. Through excellent partnerships and long-term planning efforts, the City has identified a long list of large environmental restoration projects, however implementing the projects will continue to be hindered by competing demands on limited funding.

Note*: Some examples of impediments to consider for discussion: Lack of resources; Lack of partners; Unclear geographic priorities; Limited public support on ordinances; Inadequate staff training; No clear examples or showcase of strategies implemented.*

Part II: Report Sections and Checklists Continued

5. DEQ identifies key TMDL implementation strategies in the TMDL documents found at http://www.deq.state.or.us/wq/tmdls/willamette.htm. Please refer to Appendix A of this document and check the strategies , under the column category "1st 5 year cycle" that have been ongoing, implemented, or partially implemented over the preceding four years under your TMDL implementation plan.

   If you are an MS4 Permittee, please also check "MS4 City or Countywide" or "MS4 Permit Boundaries Only" for a strategy when it applies.

Note: *Do not use the column category,"next 5 year cycle." This category is reserved for number 8 below.*

6. Please indicate the reporting and performance components that were met for monitoring implementation success and effectiveness of strategies/Best Management Practices (BMPs) in meeting TMDL needed reductions.

Note: *For sections 6.i.b. and 6.ii., utilize the status column in the matrix included with your DEQ accepted TMDL Implementation Plan, and submit it with the report. Please reference the Appendix B example provided with this document.*

i. Basic description of implementation monitoring (Were the specified management strategies implemented and annual reports submitted?)

a. Please check yes or no:
   i. Were annual reports submitted?
      Report 1 Yes ☐ No ☐ Report 2 Yes ☐ No ☐
      Report 3 Yes ☐ No ☐ Report 4 Yes ☐ No ☐
   ii. Did annual reports submitted identify changes, delays, substitutions, etc?
      Yes ☐ No ☐
   iii. Did you address or discuss with DEQ all comments provided in your annual report acceptance letter and/or email? Yes ☐ No ☐

b. For each strategy, please identify in your **matrix status column** the status that applies to the strategy – Please use the terms in **bold** below and every task must have an identified status (refer to Appendix B example)
   Complete: Strategy has been implemented and is done.
   Ongoing: Strategy has been implemented and is ongoing as expected.
   Incomplete: Strategy implemented, but measures not 100% met.
   Not Implemented: Strategy not started.
   Replacement: Replacement for a strategy not implemented.
   Delayed: Strategy started, and strategy or interim steps still underway because of unanticipated delays.
   Added: Added as new or supplemental strategy identified and added for implementation.

Note: *Timelines and measures are not intended to be DEQ enforceable compliance points, they were based on your professional judgment to implement and complete a strategy. It is important to confirm that implementation efforts supportive of TMDLs are underway, not that timelines and measures have been met 100%. Delays in timelines and not meeting 100% of the measures are anticipated.*

Part II: Report Sections and Checklists Continued

c. Please provide the following information based on information from b above:

Number of tasks **Completed** 3
Number of tasks implemented and now **Ongoing** 3
Number of tasks **Incomplete, but started** 1
Number of tasks **Not implemented** 0
Number of tasks **Replacement** 0
Number of tasks **Delayed** 0
Number of tasks **Added** 0

ii. Document effectiveness monitoring (Confirm the strategies were implemented and effective at reducing pollutant loading) in your **matrix status column**(refer to Appendix B example).

a. Based on quantitative(water quality monitoring if utilized) or qualitative data(performance measures and milestones identified in matrix), summarize the metrics in the matrix status column for the four years of implementation that support progress on meeting load allocations and water quality standards.

Note:
Quantitative - *Measurement of the effectiveness of pollution reduction efforts by conducting laboratory analyses of water samples.*
Qualitative - *Measurement of implementation progress. Examples: Photo documentation of training; Before and after photo documentation of improvement in stream bank vegetation/cover; Vegetated stormwater containment/collection swales; Documentation of relative sediment volume/ year collected from catch basins; Roads, detention ponds or filters in stormwater treatment systems; Copies of education and outreach documentation and the number issued; Stormwater and temperature websites created.*

7. Based on the information you documented for numbers 2-6, use the space provided to describe recommendations for continued plan strategy implementation and improvements for the next five year cycle and 5th year review.

An updated TMDL Implementation Plan will be submitted to DEQ by June 30, 2014. Following are some potential strategies for the updated plan:

- Utilize the Amazon Basin Streamside Shading Assessment to direct tree and willow planting activities in the next five years. Areas within Amazon Creek and its tributaries that do not have riparian vegetation that promotes shading will be emphasized.

- Plant, on average, 200 trees and 2,000 linear feet of willow per year along Amazon Creek and tributaries for the next 5-year TMDL cycle. Continue to water, weed and mulch the 1,460 trees planted in the past along Amazon Creek to ensure their survival and vigorous growth. Map all new plantings and continue to monitor existing plantings to improve survival rates.

- Coordinate with partners such as watershed councils and other local non-profits to generate interest and address gaps in riparian plantings on private property along Amazon Creek.

- Continue to track and document implementation of Water Quality Overlay Zone and Natural Resources Overlay Zone.

- Actively seek external sources of funding, including grants and loans, for implementing large environmental restoration projects.

- In coordination with the City's MS4 Permit program, seek and try out new ways of educating and informing citizens about water quality issues including for TMDL parameters, the impacts of individual actions, and the progress we have made so far in our community.

Note: *If the evaluation indicates that the plan and corresponding matrix are not likely to be adequate to meet the pollution reduction goals, describe how the plan and matrix will be modified or what efforts will be undertaken to achieve these goals and the timeline for working towards accomplishing them over the next four year cycle.*

8. Based on information you documented for numbers 2-7, check-off the strategies in the Appendix A column, "next 5 year cycle," that will be utilized for the next four years of TMDL implementation. Please remember to attach the completed Appendix A checklist with the report.

9. Based on information you documented for numbers 2-8, please attach the BMP TMDL Implementation Matrix for the next four years of implementation under the 5 year cycle.

10. All DMAs are expected to revise their plan, if the proposed strategies in the matrix for the next five year cycle also triggers an impact to the overall content of their DEQ approved TMDL plan.

    I am including a revised plan with this 5th Year Review Report Yes ☐ No ☒

11. Your submittal due date for this 5th year report will restart the clock for the next 5 year cycle(progress reporting and 5th year review report). The 5th year report review and acceptance date by DEQ will not change your assigned annual progress report due date. Please confirm your assigned annual report submittal date 03/21 (MM/DD).

Part III: Signature of Legally Authorized Representative

Signature of Legally Authorized Representative for 5th Year Report(Definition: Principal executive officer or ranking elected official)**:**

Type or Print Name: Mark Schoening

Title: City Engineer

I hereby certify that the information contained in this document is true, accurate, and complete to the best of my knowledge and belief.

Signature Date (MM/DD/YY): 3/21/14

Note: *Please remember to complete and attach the Appendix A checklist and the TMDL implementation matrix that will be used for documenting strategies that will be implemented and tracking progress.*

Part II - TMDL FIFTH YEAR REVIEW

Appendix a
Recommended List of Key Strategies for TMDL Implementation

1st 5-Year Cycle	MS4 Permit Boundary	Beyond MS4 Boundary	Appendix A Recommended List of Key Strategies for TMDL Implementation	City of Eugene Program Description (March 23, 2014)	Parameters Supported							
					Bacteria (E.coli)	Dissolved Oxygen	Turbidity	Iron	Mercury	Pesticides	Nutrients	Temperature
			Riparian and Wetland Protection and Restoration Programs									
			Floodway and floodplain overlay district ordinance that protects the floodway and floodplain from development.	Eugene Code allows development within the floodplain as long as the development meets certain flood protection criteria; development in the floodway is highly restricted.	•	•	•	•	•	•	•	•
X	X	X	Riparian Protection ordinance that provides a "no touch" riparian buffer on both sides of a waterbody with the width (in feet) based on the TMDL effectiveness shade and buffer width.	Regulatory setbacks of variable widths ranging from 20 ft. to 100 ft., corresponding to natural resource and water quality functions, exist on certain waterways in Eugene; in general, they are not "no touch" areas in that certain uses are allowed.	•	•	•	•	•	•	•	•
			Tree protection ordinance that retains at least 60% canopy coverage, which will hold water and reduce temperature increases on impervious surfaces.	Eugene Code restricts tree felling but does not include canopy coverage retention criteria.								•
X	X	X	Wetland protection ordinance that includes protection of headwaters and riparian corridors and other groundwater resources that provides cool water inflow from groundwater, hyporheic (near surface), wetland, or other sources into waterbody during the hottest time of year.	In addition to local regulatory setbacks on certain waterways, previously noted, local wetland protections are in-place within the West Eugene Wetlands Area (in addition to state/federal fill/removal protections).	•	•	•	•	•	•	•	•
X	X		Adopt a Low Impact Development (LID) ordinance that requires all new, redevelopment, and retrofit projects to retain natural site conditions for surface water flows.	MS4 BMP E4 – Stormwater Development Standards and related MS4 permit conditions. Updates to Eugene's stormwater development standards are being revised to incorporate a hierarchy to emphasize LID techniques, and reduce the volume, duration, time of concentration and rate of stormwater runoff from developing areas.	•	•	•	•	•	•	•	•
X	X	X	Establish City/County exclusive requirement to protect buffers, riparian, wetland, and native vegetation areas on city/county property (ex., conservation) programs)	Regulatory setbacks and wetland protections, previously noted, apply to private and public lands. Additional protection for certain publicly-owned natural areas are provided by the Natural Resources Overlay Zone.	•	•	•	•	•	•	•	•
X	X		Strategies and timelines to protect and establish system potential vegetation (ex., inventory land features and conditions; prioritize riparian and wetland areas; select sites for planting)	Toward the end of the first 5-year TMDL cycle, Eugene staff completed the Amazon Basin Streamside Shading Assessment to document existing conditions, assess vigor of plantings to-date, and identify opportunities for future tree and willow plantings.	•	•	•	•	•	•	•	•
X	X		Restore in-stream with placement of large woody debris, and bed and bank material (e.g. gravel)	MS4 BMP E1 – Stormwater Capital Improvement Projects. Stream restoration projects incorporate these restoration techniques as appropriate for each situation, and to meet multiple objectives including conveyance and flood control, natural resources enhancement, and water quality improvement.								•
			Protect or restore riparian area to 150-foot buffer on both sides with native shrubs and trees that would grow and restore stream conditions to natural conditions.	Setbacks on protected waterways in Eugene, previously noted, range from 20 ft. to 100 ft. (not 150 feet).	•	•	•	•	•	•	•	•
X	X	X	Restore riparian area with native shrubs and trees that would grow and restore stream conditions to natural conditions.	In general for regulated setback areas, while the specific regulations vary, planting native vegetation is encouraged (but not required) and planting non-native, invasive species is prohibited. Restoration projects on publicly owned land incorporate native shrubs and trees. The Amazon Basin Streamside Shading Assessment, previously noted, identifies opportunities for tree and willow plantings in the broader Amazon Basin, to guide future shading efforts.	•	•	•	•	•	•	•	•
X	X		Zoning and development code audit and update to protect natural drainage and surface water areas and incorporate LID and structural collection & treatment of stormwater	MS4 BMP E4 – Stormwater Development Standards and related MS4 Permit conditions. In 2008 and again in 2013, staff reviewed existing ordinances, code and standards to identify and address barriers to implementing LID.	•	•	•	•	•	•	•	•
X	X		Enforce on riparian violations.	Staff enforce violations of Eugene Code's regulatory setback code provisions, previously noted.	•	•	•	•	•	•	•	•

1st 5-Year Cycle	MS4 Permit Boundary	Beyond MS4 Boundary	Appendix A Recommended List of Key Strategies for TMDL Implementation	City of Eugene Program Description (March 23, 2014)	Parameters Supported							
					Bacteria (E.coli)	Dissolved Oxygen	Turbidity	Iron	Mercury	Pesticides	Nutrients	Temperature
X	X	X	Identification of watershed partners and projects that support implementation efforts and participate/support implementation of riparian restoration and LID on-the-ground projects	The City continues to partner with the Long Tom Watershed Council and other partners to implement LID and riparian restoration projects.	•	•	•	•	•	•	•	•
			Purchase of permanent in-stream transfers through Oregon Water Resources Department, particularly during the summer and late fall flow periods.			•					•	•
X	X		Gap analysis of DMA's programs (ID what's lacking for riparian restoration and preservation and six minimum stormwater control measures)	With respect to riparian tree vigor and shading opportunities, staff recently completed the Amazon Basin Streamside Shading Assessment which will inform future tree and willow plantings in the Amazon watershed. With respect to the stormwater as a whole, a program-wide gap analysis was last conducted in 2008, preceding the most recent MS4 permit renewal.	•	•	•	•	•	•	•	•
			Pollution Prevention in Municipal Operations									
X	X		Adopt an Integrated Pest Management (IPM) Ordinance to develop effective plans, programs, and policies	MS4 BMP P4 – Public Stormwater System Maintenance – Developed Parks and Rights-of-Way. The City of Eugene currently employs IPM policies and procedures in parks and manages several parks pesticide-free, with the goal of expanding the applicability of IPM policies/procedures to all publicly owned spaces.		•			•		•	
X	X	X	Conduct Regular Street Sweeping of streets, parking lots, and other impervious surfaces with sweepers that have good efficiencies for removing the tiniest particles.	MS4 BMP M3 – Street Sweeping Program & Leaf Pick-up & City of Eugene/Lane County Stormwater Intergovernmental Agreement (IGA) for urban growth boundary (UGB area).	•		•	•	•	•	•	
X	X		Adopt and implement policy to prevent over-application of maintenance and construction products (ex., reduce fertilizers , herbicides, pesticides to public lawns and landscaped areas; avoid over application deicing salts)	MS4 BMP P4 - Public Stormwater System Maintenance – Developed Parks and Rights-of-Way and BMP M8 – Winter Road Sanding and De-Icing Program		•	•		•		•	
X	X		Employee training about maintenance and construction practices to protect water quality	MS4 BMP A1 – Stormwater Education and various other BMPs. Employee training is provided in several program areas related to water quality including a "stormwater program 101" training video for all staff developed in 2013, and program area-specific training (illicit discharges-related training, and erosion and construction site management training for project engineers and inspectors).	•	•	•	•	•	•	•	•
X	X	X	Maintenance program for stormwater collection and treatment systems	MS4 BMP M5 – Public Stormwater System Cleaning Program – Piped System, P5 – Public Stormwater System Maintenance – Open Waterways, M6 – Regulation of Inspection, Maintenance and Reporting of Private Underground Stormwater Structures, P6 – Compliance Program for Maintenance of Privately Owned Vegetated Stormwater Facilities, and & City of Eugene/Lane County Maintenance IGA for UGB area.	•		•	•	•	•	•	
X	X		Incorporate electric and low MPG into transportation fleet	City's fleet vehicles include electric and low MPG vehicles, as well as bicycles. The City encourages carpooling and promotes alternative modes of transportation in the community as well as with City staff.						•		
			Pet/Animal waste, Septic Systems, Illicit discharges									
			Adopt a No Wildlife Feeding Ordinance near waterbodies to limit the amount of wildlife waste and sediment from riparian damage entering waters of the state, including lakes, reservoirs, ponds, and other impoundments.	Feeding wildlife is discouraged, with signage and information, posted in some strategic locations (e.g. Alton Baker Park duck pond), but it is not prohibited.	•		•	•	•	•	•	
X	X	X	Adopt a pet waste pick-up ordinance for home and in public area	MS4 BMP A1 – Stormwater Education. Proper pet waste disposal is a topic of the on-going outreach and education. The Canines for Clean Water program encourages pet owners to sign a pledge to pick up and properly dispose of pet waste. In	•						•	

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					Bacteria (E.coli)	Dissolved Oxygen	Turbidity	Iron	Mercury	Pesticides	Nutrients	Temperature
				addition to outreach and education, Park and Open Space Administrative Rules require park users to dispose of pet waste properly.								
X	X		Establish Dog Run Areas in a dog park that is sited away from environmentally sensitive features and provides a safe off-leash fenced area.	The City of Eugene provides four fenced, off-leash dog park areas. Dog run areas are isolated from environmentally sensitive areas.	•						•	
X	X	X	Collaborative Pledge based pet waste program	MS4 BMP A1 – Stormwater Education. Canines for Clean Water program encourages pet owners to sign pledge to pick up and properly dispose of pet waste.	•						•	
X	X		Pet waste stations, signs (install)	Pet-waste stations with signage stating Park Rules related to pet waste disposal are located at City dog parks	•						•	
X	X		Porta potties at parks in summer with no facilities and public events (fairs, markets, holidays, etc)	Porta potties are provided at City-sponsored summertime events in areas with no facilities nearby (e.g. Eugene Sunday Streets, Summer in the City)	•						•	
X	X	X	Minimize inflow and infiltration of stormwater to wastewater system	The City conducts systematic sewer inspection including smoke testing to identify and correct sources of inflow and infiltration such as root intrusion, pipe deterioration, and prohibited cross-connections from the stormwater system.	•						•	
			Septic system reduction through hook-up to public wastewater system	The vast majority of Eugene's properties are connected to the regional wastewater treatment facility. The City's Wastewater Master Plan update, underway, includes confirming the location of any remaining septic systems in Eugene and associated strategies, if necessary.	•						•	
			Develop a Local Community Loan Program to provide low-cost financial assistance to individual homeowners to repair or replace substandard and failing on-site systems (Note: A county or city may contract with DEQ to borrow funds through the Clean Water State Revolving Fund (CWSRF) to establish a "local loan").	See above.	•						•	
			Onsite/septic inspection and maintenance ordinance to require onsite system inspection and maintenance to repair or replace substandard and failing on-site systems; Onsite system fixes and repairs during sale	See above.	•	•		•			•	
X	X	X	Identify and eliminate illicit discharges and cross connections	MS4 BMP M1 – Management of Illicit Discharges to the Municipal Stormwater System and City/County Stormwater IGA.	•	•		•			•	•
			Drinking water protection									
			Drinking water ordinance to protect drinking water obtained from groundwater sources	Drinking water for Eugene residents is provided by Eugene Water & Electric Board. City of Eugene manages its stormwater and wastewater discharges in accordance with applicable federal and state Clean Water Act and Safe Drinking Water Act permits.	•			•			•	
			Drinking water ordinance to protect drinking water obtained from surface water sources	Drinking water for Eugene residents is provided by Eugene Water & Electric Board. City of Eugene manages its stormwater and wastewater discharges in accordance with applicable federal and state Clean Water Act and Safe Drinking Water Act permits.	•		•	•		•	•	
			Erosion and Sediment Control During Construction									
X	X	X	Hillside development (Steep Slopes) protection code/ordinance to minimize or stop soil erosion from steep slopes that are eroding (or subject to erosion from disturbance) causing sediment to enter into a waterbody.	MS4 BMP E2 – Erosion Prevention & Construction Site Management Program.			•	•	•	•	•	
X	X	X	Develop erosion and sediment control ordinance for less than 1 acre of disturbance	MS4 BMP E2 – Erosion Prevention & Construction Site Management Program			•	•	•	•	•	
X	X	X	Require erosion and sediment control plans, when applicable, during building permit application phase	MS4 BMP E2 – Erosion Prevention & Construction Site Management Program			•	•	•	•	•	

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					Bacteria (E.coli)	Dissolved Oxygen	Turbidity	Iron	Mercury	Pesticides	Nutrients	Temperature
X	X	X	Restore exposed soil areas with erosion control BMPs to prevent and control erosion.	MS4 BMP E2 – Erosion Prevention & Construction Site Management Program			●	●	●	●	●	
X	X	X	Strengthen 1200-C permit oversight--Require permit approval for land use approval	MS4 BMP E2 – Erosion Prevention & Construction Site Management Program			●	●	●	●	●	
			Stormwater Planning and Programs, Structural Collection and Treatment of Stormwater									
X	X	X	Stormwater management ordinance that requires all new, redevelopment, and retrofit projects to control and treat soil laden stormwater runoff	MS4 BMP E4 – Stormwater Development Standards (for post-construction runoff), BMP E2 – Erosion Prevention and Construction Site Management Program (for construction-related runoff), and City/County Stormwater IGA.	●		●	●	●	●	●	
X	X		Stormwater management ordinance that requires all new, redevelopment, and retrofit projects to maintain post development peak runoff rate and average volume at levels that are similar to pre- development levels	MS4 BMP E4 – Stormwater Development Standards.	●		●	●	●	●	●	
X	X		Construct site non-UIC dry swale that will settle, infiltrate , and treat stormwater	MS4 BMP E4 – Stormwater Development Standards.	●		●	●	●	●	●	
X	X		Construct site pond/wetland system that will settle, infiltrate and treat stormwater	MS4 BMP E4 – Stormwater Development Standards.	●		●	●	●	●	●	
X	X		Install onsite and/or regional basin facility to control and treat turbid runoff (i.e., rock dams, swales, sediment basins, sediment traps)	MS4 BMP E4 – Stormwater Development Standards and BMP E1 – Stormwater Capital Improvement Projects	●		●	●	●	●	●	
			Convert road ditches to Grassed Swales (a.k.a. grassed channel, dry swale, wet swale, biofilter, or bioswale) to infiltrate and capture sediment	City capital improvement program includes waterway restoration, retrofit, and LID projects, but there is no program to systematically convert road ditches to swales.	●		●	●	●	●	●	
X	X		Investigate and/or promote the use of low impact development techniques such as bioswales, rain gardens, pervious surfaces, etc.	MS4 BMP E4 – Stormwater Development Standards and partnership with Long Tom Watershed Council on the Amazon Initiative to incentivize stormwater retrofits on privately owned, developed properties.	●		●	●	●	●	●	
X	X		Financial analysis and funding source identification - what can they really do with the funding they have	The City conducts an annual budgeting process, annual and permit-renewal-related adaptive management assessment, and periodic policy and program reviews (including gap analyses) as warranted.	●		●	●	●	●	●	●
X	X		Adopt a Low Impact Development (LID) Ordinance that requires all new, redevelopment, and retrofit projects to reduce impervious surfaces and use LID and other BMPs to infiltrate, filter, retain, evaporate, and slow down runoff close to its source and treat nutrients from impervious surfaces.	MS4 BMP E4 – Stormwater Development Standards.	●		●	●	●	●	●	
X	X		Develop stormwater conveyance systems map to track and locate problems more efficiently	MS4 BMP E3 – Stormwater System Mapping & Data Management	●	●	●	●	●	●	●	
X	X		Educate about illegal discharges	MS4 BMP A1 – Stormwater Education and BMP M1 – Management of Illicit Discharges to the Municipal Stormwater System	●	●	●	●	●	●	●	
X	X		Develop and implement an outreach program/strategy for water quality protection	MS4 BMP A1 – Stormwater Education and BMP P1 – Education Volunteer Program	●	●	●	●	●	●	●	
X	X	X	Employee training about maintenance and construction practices to protect water quality	MS4 BMP A1 – Stormwater Education and various other BMPs. Employee training is provided in several program areas related to water quality including a "stormwater program 101" training video for all staff developed in 2013, and program area-specific training (illicit discharges-related training, and erosion and construction site management training for project engineers and inspectors).	●	●	●	●	●	●	●	
X	X	X	Enforcement of ordinances that protect water quality	MS4 SWMP and City/County Stormwater IGA. Eugene staff enforce violations of Eugene Code provisions and related Administrative Rules that protect water quality.	●	●	●	●	●	●	●	●
X	X		Establish system development charges for stormwater	Systems Development Charges for stormwater are in place and updated periodically as needed.	●	●	●	●	●	●	●	
X	X	X	Gap analysis of DMA's programs (ID what's lacking for riparian restoration and	Adaptive management assessments are routinely conducted (annually and at the	●	●	●	●	●	●	●	●

1st 5-Year Cycle	MS4 Permit Boundary	Beyond MS4 Boundary	Appendix A Recommended List of Key Strategies for TMDL Implementation	City of Eugene Program Description (March 23, 2014)	Parameters Supported							
					Bacteria (E.coli)	Dissolved Oxygen	Turbidity	Iron	Mercury	Pesticides	Nutrients	Temperature
			preservation and six minimum stormwater control measures)	time of MS4 permit renewal) to identify any gaps and assess and modify the City's stormwater program to achieve reduction in stormwater pollution to the maximum extent practicable. Results are included in the annual MS4 reports to DEQ. In addition, staff recently completed the Amazon Basin Streamside Shading Assessment which will inform future tree and willow plantings in the Amazon watershed.								
			Hand out water quality fact sheets with land use applications and building permits		●	●	●	●	●	●	●	●
X	X	X	Have appropriate staff attend TMDL meetings	TMDL annual report and 5th Year Review are items on the City's Stormwater Management Team's annual workplan.	●	●	●	●	●	●	●	●
X	X	X	Illegal discharge, detection and complaint response program	MS4 BMP M1 – Management of Illicit Discharges to the Municipal Stormwater System, BMP M2 – Spill Response, and City/County Stormwater IGA.	●	●	●	●	●	●	●	
			Increase enforcement capacity	Eugene's enforcement capacity is commensurate with the City's water quality-related regulations.	●	●	●	●	●	●	●	●
			Increase monitoring capacity	Eugene's monitoring capacity is commensurate with its monitoring needs and obligations.	●	●	●	●	●	●	●	●
			MS4 Phase II Non-Permittees - Implementing strategies and timelines for 6 minimum stormwater control measures	n/a (Eugene is a MS4 Phase I)	●	●	●	●	●	●	●	
X	X		Non-Structural practices (Low Impact Development Code or Ordinance, Comprehensive Plans)	MS4 BMP E4 – Stormwater Development Standards and BMP E1 – Stormwater Capital Improvement Program	●	●	●	●	●	●	●	
X	X		Quantify BMPs and protection needed to meet water quality standards and TMDL load allocations	MS4 permit renewal 2008 established benchmarks for applicable TMDL load allocations. In the next 5-year TMDL cycle, the City of Eugene will submit updated benchmarks (by December 2014).	●	●	●	●	●	●	●	●
X	X		Require construction of onsite or construct regional non-UIC Grassed Swales (a.k.a. grassed channel, dry swale, wet swale, biofilter, or bioswale) that infiltrates stormwater and maintains dry weather flow.	MS4 BMP E4 – Stormwater Development Standards and BMP E1 – Stormwater Capital Improvement Program	●	●	●	●	●	●	●	
X	X		Promote utilization of or require construction of porous concrete and/or asphalt roads when constructing new or re-constructing a road	The City continues to promote porous pavement in select locations on a pilot project basis where conditions are appropriate. It is not required when constructing a new or re-constructing a road.	●	●	●	●	●	●	●	
X	X	X	Stormwater Master/Management Plan with water quality components for riparian areas and stormwater management controls (develop or update)	MS4 BMP E1 – Stormwater Capital Improvement Program, and associated Stormwater Basin Master Plan, developed previously under this BMP.	●	●	●	●	●	●	●	●
			Education and Outreach, Public Involvement									
X	X	X	Stormwater/water quality protection education via website	MS4 BMP A1 – Stormwater Education and BMP P1 – Educational Volunteer Program	●	●	●	●	●	●	●	
X	X	X	Stormwater/water quality protection education via workshops	MS4 BMP A1 – Stormwater Education and BMP P1 – Educational Volunteer Program	●	●	●	●	●	●	●	
X	X	X	Stormwater/water quality education via fact sheets, signage, mailers	MS4 BMP A1 – Stormwater Education and BMP P1 – Educational Volunteer Program	●	●	●	●	●	●	●	
X	X	X	Pursue and implement mutual strategies with other jurisdictions	MS4 BMP A1 – Stormwater Education and BMP P1 – Educational Volunteer Program	●	●	●	●	●	●	●	●
			Outreach - Creek protection and what "you" can do.		●	●	●	●	●	●	●	●
X	X	X	Conduct public education and outreach on riparian and wetland protection and restoration and local zoning/ordinances to protect riparian areas	MS4 BMP A1 – Stormwater Education and BMP P1 – Educational Volunteer Program	●	●	●	●	●	●	●	●
X	X		Tree planting program and tree planting in open areas to provide adequate tree canopy coverage	MS4 BMP P3 – Tree Planting and Information Programs								●
X	X		Promote carpooling, public transportation	City of Eugene actively promotes and practices alternative modes of transportation, including carpooling, public transportation, bicycling, and walking.					●			

1st 5-Year Cycle	MS4 Permit Boundary	Beyond MS4 Boundary	Appendix A Recommended List of Key Strategies for TMDL Implementation	City of Eugene Program Description (March 23, 2014)	Parameters Supported							
					Bacteria (E.coli)	Dissolved Oxygen	Turbidity	Iron	Mercury	Pesticides	Nutrients	Temperature
			Promote/collaborate/incentivize riparian protection		•	•	•	•	•	•	•	•
X	X	X	Conduct public education and outreach on cold water for fish and stormwater quality: riparian protection; promote conservation programs available through agencies	MS4 BMP A1 – Stormwater Education and BMP P1 – Educational Volunteer Program	•	•	•	•	•	•	•	•
X	X	X	Pet waste education - Inform residents about bacteria issues; Partner with other jurisdictions in media campaign	MS4 BMP A1 – Stormwater Education and BMP P1 – Educational Volunteer Program	•							
X	X	X	Post TMDL Implementation Plan on website or make available to public for review and comment	TMDL Implementation Plan is posted on City's MS4 website.	•	•	•	•	•	•	•	•
X	X	X	Conduct public education and outreach on stormwater quality: illegal dumping; septic system maintenance	MS4 BMP A1 – Stormwater Education and BMP P1 – Educational Volunteer Program	•	•	•	•	•	•	•	
			List Strategies Ongoing, Implemented, or Partially Implemented That are not Identified in the Above Categories									
X	X			Participate in the implementation of activities as outlined in the 2006 Memorandum of Agreement between the Oregon Dental Association, Eugene-Springfield Metropolitan Wastewater Management Commission, and the cities of Eugene and Springfield to limit the discharge of mercury and mercury bearing dental wastes into the regional wastewater collection system.					•			
X	X			Rehabilitate (by lining) existing wastewater siphons constructed below the bed of existing ditches, channels or rivers.	•							