

- a) Post-construction stormwater requirements that incorporate flow-reduction.
- b) Retrofit strategy development (note please see separate section below describing **Benton County Water Quality Retrofit Project**)
- c) Information and tracking tools.
- d) Documentation of enforcement response and other procedures.
- e) Education and outreach programs that target specific local issues of concerns.
- f) Pollution prevention strategies for municipal operations.
- g) Illicit discharge detection and elimination program refinements.

The following are proposed modifications and additions to the current Benton County SWMP that incorporate ODEQ requirements and program focus areas:



BENTON COUNTY
Stormwater Management Program

for the Corvallis Urbanized Area



Updated and Submitted to:
Oregon Department of Environmental Quality
for Phase II of the National Pollutant Discharge Elimination System
, 2011 (DRAFT)

Benton County
Stormwater Management Program
for the Corvallis Urbanized Area
October , 2011 Submission to ODEQ

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Introduction

Beginning in 1990, the US Environmental Protection Agency (EPA) required large municipalities to obtain National Pollutant Discharge Elimination System (NPDES) permits for their municipal separate storm sewer systems (MS4). An MS4 is a system of conveyances, including roads, ditches, gutters, catch basins, and storm drains that are owned or operated by a public body. In December of 1999, the EPA adopted rules to implement “Phase II” of the stormwater program. Phase II expanded the stormwater permitting program to include smaller communities located in US census defined urban areas. The Corvallis Urbanized Area includes the urban fringe surrounding the cities of Corvallis, Philomath, and Adair Village (please see area map). Phase II rules require communities to develop, implement, and enforce stormwater management programs that address six minimum control measures:

- 1) Public Education and Outreach
- 2) Public Participation/Involvement
- 3) Unlawful Discharge Detection and Elimination (Illicit Discharge)
- 4) Construction Site Runoff Control
- 5) Post-Construction Runoff Control
- 6) Pollution Prevention/Good Housekeeping.

This document outlines the different components of Benton County’s Stormwater Management Program (SWMP). The program is intended meet the requirements of the National Pollutant Discharge Elimination System (NPDES) Program as developed under the federal Clean Water Act.

This document was developed through the collaborative efforts of staff in the Community Development, Public Works, Environmental Health, and Natural Areas and Parks Departments of Benton County. The SWMP was reviewed and approved by the Benton County Board of Commissioners on March 20, 2007.

Control Measure 1 - Stormwater Public Education and Outreach

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Goal: To implement a public education program to distribute effective educational materials to the community and conduct outreach activities about the impacts of stormwater discharges on water bodies and the steps that the public can take to reduce pollutants in stormwater runoff. Education could reduce the amount of contaminants entering the surface water.

BMP	Responsible Staff	Implementation Schedule
1. Develop a Stormwater Education and Outreach Strategy.		
1.1. Identify then shape the message and educational materials.		
A. Draft flyer for the general public and a mock up of the website.	CD Director	January 2009 <u>November 2011</u>
B. Various groups' feedback on ways to improve the flyers and website.	CD Director	January 20 <u>11</u> 09
C. Flyers and website that have been evaluated by the target audiences and subsequently modified if necessary.	CD Director	January 20 <u>11</u> 09
1.2. Periodic evaluation of the effectiveness of the educational materials and outreach.		
D. Review and update of materials and outreach every five years.	CD Director	annually
E. Possibly -- changes to the flyers, website, or other materials.	CD Director	annually
2. Distribute stormwater information and have it readily available to the public		
2.1. Benton County Public Works/Community Development/Environmental Health "Point of Contact" program.		
A. Flyers/handouts will be available in the buildings' areas of interaction.	CD Director, PW Director, EH Director	January 20 <u>11</u> 09
B. County staff will distribute flyers/handouts with permits	CD Director, PW Director, EH Director	January 20 <u>11</u> 09
C. Establish procedures for receiving public information requests, complaints, etc.	CD Director, PW Director, EH Director	January 20 <u>11</u> 09
2.2. Establish aUpdate stormwater section on the County's website.		
D. A stormwater website with links from related websites.	CD Director	January 20 <u>11</u> 09
2.4. Publish and distributeUpdate stormwater brochure for general public.		
E. Creation of a new brochure or selection of an existing brochure.	CD Director	January 2009 <u>20</u> c
F. Presence of the brochure in highly visible places at the County.	CD Director, PW Director, EH Director	January 20 <u>12</u> 09
G. Presence of the brochure and/or availability upon the public's request from MRWC, City of Corvallis, and Benton Soil Water and Conservation District.	CD Director	January 20 <u>12</u> 09
2.5. Publish and distribute stormwater brochure targeted for building permit related activity.		

H. Creation of a new <u>Update current</u> brochure or selection of an existing brochure.	CD Director; PW Director	March 2011 <u>2012</u>
I. Presence of the brochure in highly visible places at the County.	CD Director, PW Director, EH Director	March 2011 <u>2012</u>
J. Distribution of the brochure at the time of building permit or septic drainfield permit application.	CD Director	March 2011 <u>2012</u>
2.6. Coordinate public education with that of other entities.		
K. Collaborate with the City of Corvallis, Marys River Watershed Council, and Benton County Soil and Water Conservation District on education at one or more annual community event (such as Fall Festival, DaVinci Days <u>Kids Day for Conservation</u> , County Fair).	CD, EH, PW	ongoing
L. Flyers present at various events attended by the <u>City of Corvallis, City of Philomath</u> MRWC, and <u>BCSWDBSWCD</u> .	CD, EH, PW	ongoing

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BMP 1: DEVELOP A STORMWATER EDUCATION AND OUTREACH STRATEGY.

Actions/Elements

1. Identify then shape the message and educational materials.

Benton County will ~~identify the pollutants to be targeted,~~ describe the major activities related to ~~this~~ stormwater pollution, and identify the target audiences. The County will use this information to appropriately shape the content on draft flyers and ~~a mock-up of the~~ update the website. (See Sections 2.2, 2.4, and 2.5 regarding flyers and website.)

The County will ~~then~~ ask groups such as the Marys River Watershed Council, the Benton County Soil and Water Conservation District, the stakeholder committee, contractors/developers, and the general public to review the flyers and website and offer feedback on their ease of use and effectiveness. The County may also gather input through the Environmental Issues Advisory Committee. The County will specifically ask the contractors/developers and general public if the flyers are convincing and would actually cause them to modify their behavior. A follow up question is how the flyers can be improved to increase their effectiveness in ensuring compliance with stormwater management best practices. The County will evaluate the feedback and use it to refine the flyers and website.

Rationale:

- ~~Before shaping a “solution” it is wise to first determine the parameters of the problem and the target audience. Current fliers and brochures will need to be updated to deal with the~~
- Presenting draft copies of the educational information to the public and experts with stormwater experience to review and offer constructive feedback ~~can prevent expensive mistakes will help~~ improve information and understanding of the need to protect and improve stormwater quality.
- The goal is not merely information distribution, but also behavior modification. The educational materials need to be effective in improving how individuals affect stormwater quality.

Measurable Goals:

- A. ~~Draft~~ Update flyer for the general public and a mock up of the stormwater website.
- B. Various groups’ feedback on ways to improve the flyers and website.

C. Flyers and website that have been evaluated by the target audiences and subsequently modified if necessary.

Goal Rationale: Because members of the target audience will be reviewing the draft educational materials, the final products are more likely to be effective.

2. Periodic evaluation of the effectiveness of the educational materials and outreach.

Benton County will evaluate the SWMP every five years. Part of the evaluation will be the evaluation of the effectiveness of the educational materials and outreach. County staff dealing with stormwater issues will share and compare what they have seen to be effective and not so effective components. Topics of discussion will include an analysis of whether the public's awareness and understanding of stormwater issues has increased, as well as whether compliance with best practices has increased. Staff will adapt the educational materials as needed.

Rationale:

- Because public awareness can change with time, educational materials should also change to reflect the current reality.
- Many different members of the County staff will be dealing with stormwater issues (building inspectors, staff answering the stormwater ~~“one contact”~~ phone number described in Section 2.3, Environmental Health ~~sanitarians~~ Specialists, Planning staff helping the public at the counter, etc.). Pooling the knowledge would be helpful in determining the effectiveness of the public education and outreach efforts and analyzing ways to improve the program.

Measurable Goals:

- D. Review and update of materials and outreach every five years.
- E. Possibly -- changes to the flyers, website, or other materials.

Goal Rationale: Meetings provide a mechanism to share information and “in the field” experiences. Changes may not be needed if it appears none would be beneficial.

BMP 2: DISTRIBUTE STORMWATER INFORMATION AND HAVE IT READILY AVAILABLE TO THE PUBLIC.

Actions/Elements

1. Benton County Public Works/Community Development/Environmental Health “Point of Contact” program.

Stormwater-related Points of Contact are at these County offices: Community Development, Public Works, Environmental Health, and Natural Areas and Parks. At each Point of Contact (a reception counter in a County office), Benton County will provide appropriate information relating to stormwater quality, most typically in the form of a fact sheet or flyer. These handouts will be available to any visitor, but will be specifically provided to anyone conducting business with the County that could impact stormwater quality including building permits, road approach permits, and land use applications. (See sections on flyers, 2.4 and 2.5.)

Rationale:

- The Point of Contact program reaches citizens who visit the County to conduct business that may affect stormwater quality, including builders, developers, and homeowners. The type of information distributed can be tailored to the person’s activity, allowing precise outreach.

Measurable Goals:

- A. Flyers/handouts will be available in the buildings’ areas of public interaction.
- B. County staff will distribute flyers/handouts with permits.
- C. Establish procedures for receiving public information requests, complaints, etc.

Goal Rationale: Those people visiting the County for building permits, road approach permits, and land use applications likely recently engaged in or will engage in activities that impact stormwater quality, and thus are the target audience.

2. ~~Establish a~~Update stormwater section on the County’s website.

Benton County ~~will has~~ established a stormwater section on the County’s website that can be accessed independently, as well as through links on the Environmental Health Department, Public Works Department, and Community Development Department websites. The website ~~will provide~~ provides information on the county’s SWMP, stormwater quality/quantity issues, actions that citizens can take to improve stormwater quality, and links to relevant stormwater information. The site ~~will also provide~~ s the “one-contact” information for questions and comments. (See Section 2.3.) The site ~~will also feature~~ s information on how the SWMP is being developed and how citizens can get involved. (See Public Involvement Section X). The site ~~is expected to include~~ s downloadable fact sheets, illustrations and diagrams, photographs, and links to other websites (e.g., MRWC, BCSWCD, City of Corvallis, City of Philomath, DEQ, EPA).

Rationale:

- Benton County already has a large number of visitors to its website. Websites are an efficient information distribution method for the public researching information via the internet. The website will be accessible 24 hours a day, 7 days a week. Other than the initial setup cost, websites are cheap to maintain and update. Providing information to the public about actions they can take and how they can get involved with the County’s SWMP can improve stormwater quality.

Measurable Goals:

- C. A stormwater website with links from related websites.

Goal Rationale: The presence of a website is necessary so that people can have access to detailed information and pictures/diagrams/photographs that are not able to be put on the flyers.

4. ~~Publish and~~Distribute stormwater brochure for the general public.

Benton County will create, collaborate with others to create, or use an existing (City of Corvallis, EPA, DEQ, or other) stormwater brochure/flyer and distribute this to the general public. Distribution avenues include Marys River Watershed Council, City of Corvallis, Benton Soil and

Water Conservation District, and Benton County Environmental Health Division and Public Works/Community Development Department. The information may also be mailed directly to property owners in the MS4. The purpose of the brochure will be to educate the general public about the negative impacts associated with pollution in stormwater runoff and strategies to prevent pollution.

The brochure will include:

- A description of the issue and its implications
- Activities the reader can follow to improve stormwater quality
- Relevant local information, such as ordinances, programs, opportunities to get involved
- Benton County stormwater website for more information
- Benton County Staff Contact for more information

Rationale:

- Many people, especially those who are involved in development activities, visit the “Planning/Building counter” and “Environmental Health counter,” so the presence of flyers there will increase awareness of stormwater issues.
- The flyers will provide an overview of actions the public can take to benefit stormwater quality and inform them where they may learn more (website and “one contact”).

Measurable Goals:

E. ~~Creation of a new~~Update existing brochures or selection of an ~~existing-new~~ brochure.

F. Presence of the brochure in the aforementioned highly visible places at the County.

G. Presence of the brochure and/or availability upon the public’s request from Marys River Watershed Council, City of Corvallis, and Benton Soil and Water Conservation District.

Goal Rationale: Having the brochure available through many sources increases the likelihood the public will see it, which increases the number of people who will read it.

5. Publish and distribute stormwater brochure targeted for building permit related activity.

Benton County ~~might create or might use an~~will update existing (City of Corvallis, EPA, DEQ, or other) stormwater brochure that is targeted for those embarking on building permit activities. This brochure would be located at Benton County Environmental Health Department and Public Works/Community Development Departments. The purpose of the brochure will be to educate developers and property owners of the negative impacts associated with pollution in stormwater runoff and strategies to prevent pollution.

The brochure will include:

- A description of the issue and its implications
- Activities the reader can follow to improve stormwater quality
- Relevant local information, such as ordinances, penalties, programs, opportunities to get involved
- Benton County stormwater website for more information
- Benton County Staff Contact for more information

Rationale:

- Many people, especially those who are involved in construction activities, visit the “Planning/Building counter” and “Environmental Health counter,” so the presence of flyers

there will increase awareness of stormwater issues among the population sector most likely to benefit from the information.

- Construction activities have the potential to add pollutants to stormwater runoff; therefore, targeted flyers that provide construction operators with preventative methods to reduce stormwater pollution will be beneficial.

Measurable Goals:

H. Creation of a new brochure or selection of an existing brochure targeted towards building permit related activities.

I. Presence of the brochure in the aforementioned highly visible places at the County.

J. Distribution of the brochure through such means as building permit or septic drainfield permit application.

Goal Rationale: People involved in construction activities would most benefit from the brochure, and giving it to them as early as possible increases the likelihood that appropriate precautions can still be taken in developing the land.

6. Coordinate public education with that of other entities.

Benton County will seek to coordinate public education (such as stormwater flyers, meetings/trainings on erosion control and site maintenance) with Marys River Watershed Council, City of Corvallis, and Benton County Soil and Water Conservation District. The City of Corvallis has programs for erosion control and stormwater management, and public education and outreach are established elements of those programs.

Additionally, when these entities have a presence at local events, the County will encourage them to put stormwater flyers in their booths.

Rationale:

- Coordinating public education and outreach with others reduces duplication of effort and capitalizes on information distribution mechanisms.

Measurable Goals:

K. Collaborate with the City of Corvallis, Marys River Watershed Council, and Benton County Soil and Water Conservation District on education at one or more annual community event (such as Fall Festival, DaVinci Days, County Fair).

L. Flyers present at various events attended by the City, MRWC, and BCSWD.

Goal Rationale: The number of events indicates the amount of outreach the County has achieved.

Control Measure 2 - Public Participation & Involvement

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Goal: To improve the quality and sustainability of the SWMP by incorporating a wide range of ideas and perspectives into the preparation, implementation and adaptive management of the SWMP. Also, to improve the acceptability of the SWMP to the affected parties by involving them in the process.

BMP	Responsible Staff	Implementation Schedule
1. Involve public in SWMP development.		
1.1. Stakeholder committee		
A. Form a <u>Continue coordination of</u> stakeholder committee of at least 8 members from different perspectives relative to stormwater.	CD Director; PW Director	June 2008 <u>ongoing</u>
B. Stakeholder committee endorsement of proposed draft elements of the <u>review of</u> stormwater program work , or a detailed explanation of the committee's position where it differs from the proposed <u>work</u> draft .	CD Director	ongoing
1.2. News releases		
C. At least one news release per year discussing the stormwater program, its status and opportunities for public involvement.	CD Director; Public Information Officer	annually; ongoing
1.3. Public meetings		
D. An initial public <u>Annual public</u> meeting with adequate notification to interested parties and the general public.	PW Director; CD Director	April 2008 <u>2013</u>
E. People will receive answers to their questions and will be able to provide input; contact information for staff will be provided in case people have follow-up questions.	PW Director; CD Director	April 2008 <u>2013</u>
F. A mailing list will be established <u>updated</u> whereby interested people can receive notification of future meetings.	PW Director; CD Director	April 20 <u>13</u> 08
G. Interested people will be solicited for membership participation on the stakeholder committee.	PW Director; CD Director	April 20 <u>13</u> 08
1.4. Public hearings		
H. Public hearings will comply with Benton County Code and Charter, and with state statute.	CD Director	ongoing
2. Involve public in SWMP implementation.		
2.1. Establish<u>Update</u> procedure for receiving volunteer monitoring data and/or complaints.		
A. Update <u>A</u> written procedure for receiving, logging, investigating and responding to complaints.	EH Division Head; PW Director; CD Director	June 2009 <u>2014</u>

B. An annual report of complaints received and action taken.	EH Division Head; PW Director; CD Director	annual; ongoing
2.2. Establish Continue program for stormdrain stenciling in urbanized areas.		
C. Benton County, either directly or through a partnership, will provide the materials and instructions for groups or individuals who desire to stencil (or otherwise suitably mark) stormdrains.	PW Director	June 2009 2014
2.3. Develop partnerships with watershed councils.		
D. Staff attendance at least twice a year at meetings of the Marys River Watershed Council.	CD Director	annual; ongoing
3. Involve public with adaptive management of SWMP.		
3.1. Annual public forum on SWMP.		
A. Hold an annual public forum, advertised in the newspaper and with invitations sent out through watershed councils and similar organizations.	PW Director; CD Director	annual; ongoing beginning April 2009 2014
3.2 Reconstitute stakeholder committee prior to re-submittal (in 4.5 years) to review and consider changes.		
B. Submit to Board of Commissioners proposed modifications to SWMP, including the recommendation of the stakeholder committee.	CD Director	Starting January 2012 2016
3.3 Public meeting prior to final draft of re-submittal.		
C. Hold a public meeting, advertised in the local newspaper, to present proposed modifications to the SWMP.	PW Director; CD Director	April 2012 2016

BMP 1: INVOLVE THE PUBLIC IN GENERAL AND STAKEHOLDERS IN PARTICULAR IN THE ~~DEVELOPMENT-UPDATE~~ OF THE SWMP.

Actions/Elements

1. ~~Establish a~~ Coordinate a committee of stakeholders to review and give input to the development of the program.

Benton County will identify stakeholders, including property owners, construction companies, land developers, environmental groups, agriculture, economic development, education, local government, and specific landowners or businesses whose discharges into the stormwater system could potentially ~~be termed "illicit"~~ impact stormwater quality.

A ~~balanced-voluntary~~ committee of these stakeholders will be established to review and provide input to the development of the various elements of the SWMP. The role of the committee will be advisory. The final plan ~~elements-updates~~ that are proposed to the Board of Commissioners

will note the staff and committee recommendation, and where those differ, an explanation of the rationale of each.

Benton County sponsors an Environmental Issues Advisory Committee – a citizen group that discusses and provides input to the County on various environmental issues. This committee would form the core of general public involvement in the stormwater program development.

Rationale:

- Involving the public improves the quality of the final product and increases its acceptability to the public and stakeholders.
- Providing stakeholders with a structured means to have clear input into the final product improves the quality of that product and its acceptability to those most affected by it.

Measurable Goals:

- A. A stakeholder committee of at least 8 members from different perspectives relative to stormwater.
- B. Stakeholder committee endorsement of proposed draft elements of the stormwater program, or a detailed explanation of the committee’s position where it differs from the proposed draft.

Goal Rationale: ~~Establishing a~~Coordinating a committee with diverse makeup will ensure a variety of ideas are presented, and will improve acceptability of the plan by a diversity of interests. Per DEQ requirements, the plan must have certain elements. The program also must be implementable. For these reasons, the draft plan presented to the Board of Commissioners should be staff’s recommendation. Detailed explanation of any areas the stakeholder committee differs with the staff recommendation will ensure the stakeholders’ input gets to the decision-making body.

2. News releases.

Benton County will generate news releases regarding the SWMP, its status in development, the science and regulations behind it, and ways in which people can learn more or become more involved. The Corvallis Gazette-Times is widely read in Benton County, especially within the SWMP area, and is responsive to news releases regarding matters of community concern.

Rationale:

- The local newspaper (the Corvallis Gazette-Times) is widely read in Benton County, and is a useful medium for getting information to the general public.
- Providing information to local media will increase public awareness about the issues of water quality in general and the SWMP in particular.

Measurable Goals:

- C. At least one news release per year discussing the stormwater program, its status and opportunities for public involvement.

Goal Rationale: This minimum frequency of news release will ensure that at least an annual update of SWMP status and activities is presented to the general public.

3. Hold public meetings to present the SWMP at various stages, and to obtain input.

Benton County will notify stakeholders and advertise the meeting in the newspaper. Notification will also be posted at the point-of-service counters and on the County's stormwater website. ~~An initial public meeting will be held as Benton County begins to implement the program.~~ The County will provide both targeted and general notification. ~~The initial meeting~~ Meetings (and to a lesser extent the notification itself) will explain the program the County is ~~embarking on implementing~~, answer questions, elicit input on a few key issues, and inform people of other opportunities to be involved throughout the process.

As elements of the SWMP are embarked upon and/or finalized, similar public meetings will be held. Public meetings specific to the other elements are discussed in those sections (e.g., construction site erosion control).

Rationale:

- Public meetings are a useful way to get interested people the information they need. They also provide an opportunity to obtain targeted input from a potentially broader audience than the stakeholder committee.

Measurable Goals:

D. An initial public meeting with adequate notification to interested parties and the general public.

E. People will receive answers to their questions and will be able to provide input; contact information for staff will be provided in case people have follow-up questions.

F. A mailing list will be established whereby interested people can receive notification of future meetings.

G. Interested people will be solicited for membership on the stakeholder committee.

Goal Rationale: One general public meeting will be sufficient to get the word out about the overall SWMP process, get general input and establish an understanding of the process among the public. Enabling people to contact staff subsequent to the meeting will ensure their questions get answered and their input is received. People interested in further involvement can sign up for the mailing list or apply to be on the stakeholder committee.

4. Hold public hearings when ordinances are proposed.

The illicit discharge program, construction site erosion control program, and the post-construction program will all ~~likely entail the adoption of enabling~~ include implementation of adopted ordinances by the Board of County Commissioners. Benton County will hold public hearings, with notification to affected parties and the general public, before adopting ordinances. In the cases of amendments to the Benton County Development Code (~~which e.g.~~ the erosion control and post-construction elements will likely entail), public hearings will also be held by the Benton County Planning Commission.

Rationale: Public hearings are required before adoption ~~or updates~~ of ordinances. In addition to being a legal requirement, public hearings enable careful deliberation by the decision makers and an opportunity for formal comment by members of the public.

Measurable Goals:

F. Public hearings will comply with Benton County Code and Charter, and with state statute.

Goal Rationale: Achieving this goal will ensure the public hearings fulfill their purpose of enabling thoughtful consideration of the matter and incorporating public input.

BMP 2: INVOLVE THE PUBLIC IN IMPLEMENTATION OF THE SWMP.

Actions/Elements

1. ~~Establish~~ Follow adopted procedure for receiving volunteer monitoring data and/or complaints.

Benton County will ~~establish a~~continue with adopted procedure for receiving, logging, investigating and responding to complaints or inquiries from the public concerning stormwater quality. This ~~would~~ includes potential illicit discharges, unauthorized runoff from construction sites, and impacts from municipal operations.

Depending on the monitoring program decided upon in the illicit discharge element, there may also be opportunities to involve citizens in monitoring stormwater quality. If so, a procedure will be established.

Information about monitoring activities and how to lodge complaints will be contained in the informational handouts and website.

Rationale:

- Information from the public is a highly valuable extension of any monitoring program. Continuous monitoring of all stormwater facilities is cost-prohibitive. Members of the public will often notice and report conditions that are not observed by County staff or monitoring.
- An explicit procedure for handling complaints increases the effectiveness of the program, and increases the public’s confidence in the program.

Measurable Goals:

- A. ~~A~~Following written procedure for receiving, logging, investigating and responding to complaints.
- B. An annual report of complaints received and action taken.

Goal Rationale: A written procedure will ensure that all complaints are recorded and dealt with in a standardized way. An annual report encourages completion of action on complaints, and enables consideration of trends. Together these goals will establish an accountable and actionable procedure for responding to complaints.

2. ~~Establish~~ Continue program for stormdrain stenciling in urbanized areas.

In cooperation with the watershed councils and the City of Corvallis, and other organizations, Benton County will establish a program to facilitate volunteer stenciling (or other suitable marking) of stormdrains in areas of the county jurisdiction that have catchbasins. The marking will discourage dumping of waste and will inform the public that the stormdrain drains to a stream.

Rationale:

- Informing the public about the negative consequences of actions is effective in changing behavior.
- Involving the public in activities such as stormdrain stenciling fosters a sense of ownership for community resources (such as water quality).

Measurable Goals:

C. Benton County, either directly or through a partnership, will provide the materials and instructions for groups or individuals who desire to stencil (or otherwise suitably mark) stormdrains.

Goal Rationale: It is most efficient to partner with existing programs or with other agencies who have the same goal. This also provides a unified program across jurisdictional boundaries, which makes the program work more seamlessly for the general public.

3. Develop partnerships with watershed councils.

The Marys River Watershed Council is a very active council whose watershed includes the southern portion of the Corvallis Urbanized Area. There is no active watershed council for the remainder of the Urbanized Area. Benton County will augment current interactions with the Marys River Watershed Council, and with other councils should they form. County staff will attend watershed council meetings at least bi-annually, or more often if stormwater issues are on the agenda.

Benton County will also partner with the watershed council(s) on activities such as stream cleanups and volunteer stormwater monitoring, as those activities coincide with the priorities and action plan of the watershed council.

Rationale:

- The watershed councils are a diverse group of people working for common goals concerning water. They are a useful forum for disseminating information regarding the SWMP. It is more efficient for the County to tap into their ability to mobilize volunteers for projects than for the County to attempt to duplicate that organization for SWMP-related volunteer opportunities.
- Frequent attendance at watershed council meetings develops rapport and keeps County staff apprised of conditions and sentiment across the watershed.

Measurable Goals:

D. Staff attendance at least twice a year at meetings of the Marys River Watershed Council.

Goal Rationale: This establishes a minimum commitment. Staff will likely attend more often when the stormwater program would benefit from increased interaction with the watershed council.

BMP 3: INVOLVE THE PUBLIC IN GENERAL AND STAKEHOLDERS IN PARTICULAR IN THE ADAPTIVE MANAGEMENT OF THE SWMP.

Actions/Elements

1. ~~Annual~~ Public forums on SWMP.

Benton County will ~~conduct an~~participate in annual public ~~meeting forums~~ to discuss progress on implementation, to receive focused input, and to answer questions from the public. Benton County Public Works currently holds an annual public forum under the auspices of its Environmental Issues Advisory Committee. The forum proposed here could either be an expansion of the current one, or a separate meeting modeled on the existing one.

Rationale: An annual event facilitates regular evaluation of how the program is working, both on the part staff and the public. It provides a structured way in which to solicit input and disseminate information. Participating in annual public forums (e.g. County Fair) will occur in addition to or in place of a single public forum that is only dedicated to stormwater, because of low turnout at these events

Measurable Goals:

A. Hold an ~~and participate annual-in~~ public forums, advertised in the newspaper and with invitations sent out through watershed councils and similar organizations.

Goal Rationale: Encouraging public participation in ~~the annual~~public forums will increase transparency, instill a sense of ownership in the program, and garner valuable input from the public toward improving the program.

2. Reconvene stakeholder committee prior to re-submittal (in 4.5 years) to review and consider changes.

As the date nears for permit resubmittal, Benton County will ~~reconvene~~ the stakeholder committee described under BMP 1.1. Input from annual public forum, complaints and concerns raised by the public, and insights from 4.5 years of implementation will be formulated into a list of potential modifications to the SWMP. The stakeholder committee will give input to these potential modifications, and add any of their own. A recommendation will be forwarded to the Board of County Commissioners.

Rationale:

Measurable Goals:

B. Submit to Board of Commissioners proposed modifications to SWMP, including the recommendation of the stakeholder committee.

Goal Rationale: Encouraging public participation in the ~~annual~~-forums will increase transparency, instill a sense of ownership in the program, and garner valuable input from the public toward improving the program.

3. Public meeting prior to final draft of re-submittal.

The draft permit re-submittal, including proposed modifications to the SWMP, will be presented at a public meeting. Staff will answer questions from the public and receive input on the proposal. Stakeholders will be invited, and notification will be placed in the newspaper. This public meeting may take the form of a public hearing before the Board of Commissioners, or a staff-facilitated meeting earlier in the drafting of the recommendation to the Board of Commissioners.

Rationale:

Measurable Goals: Hold a public meeting, advertised in the local newspaper, via the website and at the County’s point-of-service counters, to present proposed modifications to the SWMP.

Goal Rationale: Encouraging public participation in the annual forum will increase transparency, instill a sense of ownership in the program, and garner valuable input from the public toward improving the program.

Control Measure 3 - Illicit Discharge Detection and Elimination

Goal: To improve the quality of stormwater reaching waters of the state by identifying non-stormwater discharges into the stormwater system and halting such discharges.

BMP	Responsible Staff	Implementation Schedule
1. Identify affected elements of the stormwater system.		
1.1. Develop Update Storm Sewer System Map with outfalls, roads, receiving streams.		
A. A complete, printed map.	PW Director	June 20 13 ⁰⁸
2. Establish Implement illicit discharge ordinance and enforcement program.		
2.1. Illicit discharge ordinance and enforcement program		
A. Adopted Effectively implement Benton County Code standards and procedures for eliminating illicit discharges into the stormwater system.	EH Division Mgr; PW Director	ongoing June 2011
3. Detection and enforcement.		
3.1. Develop procedures and plans for detecting illicit discharges and conducting inspections.		
A. A written Update set of procedures for monitoring and investigating potential stormwater discharge issues. This will include procedures for staff monitoring and a written procedure for receiving, logging, investigating and responding to complaints.	PW Director; EH Division Mgr	June 2011 2014
B. Timely investigation of complaints and other identified potential illicit discharges.	PW Director; EH Division Mgr	June 2011 ongoing
C. An annual report of complaints received and action taken. All complaints and identified issues will be logged, along with the results of investigation and the action taken.	PW Director; EH Division Mgr	June 2011 ongoing
3.2. Train appropriate staff in the identification and remediation, investigation, and enforcement of illicit discharges made to the stormwater system.		

D. Staff who will be monitoring for illicit discharges or investigating suspected illicit discharges will have received adequate training within 6 months of the adoption of the illicit discharge program by the Board of County Commissioners.	PW Director; EH Division Mgr	June 2011 <u>ongoing</u>
4. Inform affected parties and the general public about illicit discharges.		
A. Prepare an <u>Update</u> informational handout.	PW Director; EH Division Mgr	December 2011 <u>2014</u>
B. Distribute the handout to identified businesses most likely to involve discharges and waste disposal.	PW Director; EH Division Mgr	December 2011 <u>ongoing</u>
C. Distribute the handout to County employees.	PW Director; EH Division Mgr	December 2011 <u>ongoing</u>
D. Put the information on the County's stormwater website.	PW Director; EH Division Mgr	December 2011 <u>ongoing</u>

BMP 1: IDENTIFY AFFECTED ELEMENTS OF THE STORMWATER SYSTEM.

Actions/Elements

1. ~~Develop~~ Update Storm Sewer System Map with outfalls, roads, receiving streams

Benton County GIS Department and Benton County Public Works have identified and mapped all streams, storm water culverts and drainage systems in the Corvallis Urbanized Area. The ~~current se~~ will be incorporated into a Storm Sewer System Map ~~that will~~ be updated to identify the location of all storm water outfalls and receiving waters of the State of Oregon.

The map will complement information contained in the City of Corvallis Storm Sewer System Map and the City of Philomath Storm Sewer Map as most all streams and storm sewers for these Cities will receive from or discharge into Benton County streams and storm sewers within the urbanized area.

Rationale:

- A ~~continuously map~~ updated map of the storm sewer system will assist the County in tracking stormwater in general and illicit discharges in particular.
- A system map will also help County staff to conceptualize the stormwater system and its inter-connections with other jurisdictions (especially Corvallis and Philomath).

Measurable Goals:

- A. A complete, printable map, updated over time ~~ted map~~.

Goal Rationale: ~~The map~~ Map updates will exist in both printed and digital (GIS) format. The GIS version will likely be the form most often used by staff, but a printed copy is useful for obtaining an overall picture of the system. A printed copy is also typically easier to submit as a deliverable with an annual report.

BMP 2: ~~ESTABLISH~~ IMPLEMENT ILLICIT DISCHARGE ORDINANCE AND ENFORCEMENT PROGRAM.

Actions/Elements

1. Illicit discharge ordinance and enforcement program

Benton County will ~~develop and adopt into the~~ implement Benton County Code standards and procedures defining illicit discharges into the County stormwater system and prescribing the means to stop such discharges and take enforcement action against those responsible (see adopted Benton County Illicit (non-stormwater) Discharges.)

Primary concerns as sources of illicit discharges are improperly functioning septic systems, intentionally discharging household graywater or sewage, and illegal dumping. Nearly all of the area subject to the SWMP is served by individual on-site sewage disposal systems. These are of varying ages and conditions, and occasionally a system will fail, allowing sewage to surface and, often, drain to the stormwater system. There is one County service district providing municipal sanitary sewer to approximately 30 residences. There is also at least one private sewer system (serving a manufactured dwelling park).

The stormwater system in the County's jurisdiction is almost entirely open ditches and drainageways. This eases monitoring and makes it less likely that an illicit connection or discharge would go unnoticed.

The illicit discharge program ~~will be~~ is an interdepartmental effort, led by the Environmental Health Division. Environmental Health will investigate reports or complaints outside of the road right of way. Public Works road managers will informally monitor the stormwater system for signs of illicit discharge and investigate reports or complaints within the right of way. Community Development staff will assist with involving the public in ~~the development~~ updating of the program and informing the public about the program requirements once they are in place.

Presently, there is ~~not~~ an enforcement program ~~or and~~ ordinance in Benton County that addresses illicit discharges. An ordinance for the stormwater management program to address illicit discharges ~~will be~~ was adopted in the Benton County Code. The enforcement procedures, remedies and sanctions ~~will be~~ have been developed and will be updated as required.

Rationale:

- Non-stormwater discharges into the stormwater system can result in serious negative impacts to water quality in the receiving streams. ~~Establishing a~~ Implementing and updating a program for identifying such discharges will make their detection much more likely. County Code standards and enforcement procedures will enable the County to take necessary action to stop and mitigate illicit discharges.

Measurable Goals:

A. ~~Implement a~~ Adopted Benton County Code standards and procedures for eliminating illicit discharges into the stormwater system.

Goal Rationale: ~~Implementation of t~~ The adopted code provisions ~~will~~ establishes a formal method for resolving illicit discharge issues, and will ~~establish~~ improve the means of enforcement.

BMP 3: DETECTION AND ENFORCEMENT

Actions/Elements

1. ~~Develop~~ Implement procedures and plans for detecting illicit discharges and conducting inspections.

Storm drains and streams at bridges are presently inspected once every two years by the Benton County Department of Public Works. This is completed as part of bridge inspection that is performed every two years, a large culvert (>4 ft diameter) inspection every two years, or as a routine drainage maintenance or inspection activity.

Benton County Building Inspectors and Benton County Public Works Engineering Staff also monitor construction activities for erosion control.

The inspection of the received stream or storm water discharge is informally noted as part of these routine activities that are presently in place. Inspection procedures will be ~~formalized~~ updated and documented to verify the absence or presence of an illicit discharge.

At this time, if an illicit discharge is noted, the operations personnel contact the Director of Public Works, and the Director of Community Development. The Oregon DEQ is also contacted. The appropriate source of the illicit discharge is also contacted so this discharge will be stopped.

As discussed in the public involvement element, the County ~~will establish~~ has implemented a procedure for receiving and acting on volunteer monitoring information and complaints regarding stormwater quality. Information that implies a possible illicit discharge will be investigated, with appropriate action pursuant to the County Code provisions adopted under Action 1 above.

Benton County ~~will have~~ established similar ~~joint~~ policies with the Cities of Corvallis and Philomath for the sharing of information and the coordination of investigation/remediation of stormwater issues that cross jurisdictional boundaries.

A formalized program ~~will be~~ was developed and submitted to the Board of Commissioners for approval (September 2011).

Rationale:

- The County has neither the staff nor financial resources to establish a water quality monitoring program; therefore, illicit discharge detection ~~will rely~~ relies on existing road drainage maintenance staff, current Building and Environmental Health inspections, and on information received from members of the public to alert staff to possible problem areas. Given the exposed nature of the County's stormwater system, these methods of detection should be adequate for detecting most illicit discharges, especially the most egregious ones.

Measurable Goals:

A. Implementation of the A written set of procedures for monitoring and investigating potential stormwater discharge issues. This ~~will include~~ s procedures for staff monitoring and a written procedure for receiving, logging, investigating and responding to complaints.

B. Timely investigation of complaints and other identified potential illicit discharges.

C. An annual report of complaints received and action taken. All complaints and identified issues will be logged, along with the results of investigation and the action taken.

Goal Rationale: A written procedure will ensure that all complaints are recorded and dealt with in a standardized way. An annual report encourages completion of action on complaints, and enables consideration of trends. Together these goals ~~will~~ establish an accountable and actionable procedure for responding to complaints.

2. Train appropriate staff in the identification and remediation of illicit discharges made to the stormwater system.

The Benton County Public Works road and drainage maintenance crew will be trained to identify and report suspected illicit discharges. Other staff will receive training on receiving complaints from the public regarding possible illicit discharges, logging those complaints, and routing them to the appropriate staff for investigation and follow-up. Staff from the Environmental Health Division will receive training in investigating suspected illicit discharges and working with the responsible party to achieve compliance.

Rationale:

- Appropriate levels of training will enable all staff to respond to this new program in the appropriate manner.

Measurable Goals:

D. Staff who will be monitoring for illicit discharges or investigating suspected illicit discharges will have received adequate ~~training~~ training as required to effectively implement the required within 6 months of the adoption of the illicit discharge program by the Board of County Commissioners.

Goal Rationale: ~~It will be necessary to know the~~ As exact standards that are adopted into the Development Code ~~before arranging for change, or additional permit requirements occur,~~ training will need to be provided. Appropriate training opportunities might not be available immediately, ~~therefore a six-month window is necessary.~~ The effective date of ~~adopted~~ updated regulations may be set out several months to allow time for staff to obtain necessary training.

BMP 4: INFORM AFFECTED PARTIES AND THE GENERAL PUBLIC ABOUT ILLICIT DISCHARGES

Actions/Elements

1. Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

Benton County ~~will prepare~~ will continue to update and ~~and~~ distribute a succinct informational handout describing the negative impacts of inappropriate discharges and disposal. The information ~~will also discuss~~ Benton County's illicit discharge enforcement program, and ~~will list~~ lists ways to contact Benton County to learn more or to make a complaint.

Rationale: Information can change behavior, and also creates awareness that can lead to more reporting of illegal actions.

Measurable Goals:

- A. ~~Prepare an~~Updated informational handout as needed.
- B. Distribute the handout to identified businesses most likely to involve discharges and waste disposal.
- C. Distribute the handout to County employees.
- D. Put the information on the County's stormwater website.

Goal Rationale: These methods will provide both targeted and broad exposure to the information related to illicit discharges.

Control Measure 4 - Construction Site Runoff Control

Goal: To reduce pollutants from construction activities within the Corvallis Urbanized Area by ~~developing~~ implementing a regulatory program enacted by ordinance. Procedures will include site plan review, site inspection, enforcement, and public input.

BMP	Responsible Staff	Implementation Schedule
1.0 Ordinance		
1.1 Standards, Policies & Enforcement Procedures		
A. Adoption <u>Implement</u> erosion control ordinance.	Public Works & Building Department Staff	March 2011 <u>ongoing</u>
1.2 Review Procedures		
A. Update <u>Institute</u> permit fees.	Public Works & Building Department Staff	March 2011 <u>annually</u>
B. <u>Update</u> Interdepartmental policy regarding review of permits.	Public Works & Building Department Staff	January 2009 <u>2014</u>
1.3 Inspector Training		
A. Training Prior To Ordinance	Public Works & Building Department Staff	March 2011 <u>ongoing</u>
2.0 Inspection, Complaint Response And Violation Enforcement		
2.1 Process For Ensuring Compliance		
A. <u>Update</u> Procedures	Public Works & Building Department Staff	March 2011 <u>2014</u>
2.2 Complaint Response		
A. <u>Implement</u> Written Procedure And Record Keeping	Public Works & Building Department Staff	March 2011 <u>ongoing</u>
B. Annual Reports	Public Works & Building Department Staff	March 2011 <u>annually</u>
3.0 Inform The Affected Public Of Permit Requirements		
3.1 Distribute Information		
A. Brochure	Public Works & Community Development Staff	October 2011 <u>ongoing</u>

3.2 Inform Contractors And The Affected Public Of Training Opportunities		
A. Training Resources And Outreach	Public Works & Community Development Staff	October 2011 ongoing

BMP 1: ~~DEVELOP A~~IMPLEMENT BENTON COUNTY EROSION AND SEDIMENT CONTROL CODE REQUIREMENTS CONSTRUCTION SITE STORM WATER RUN-OFF ORDINANCE OR ALTERNATIVE REGULATORY PROGRAM

Actions/Elements

1. ~~Develop and adopt~~Implement erosion control standards, policies and enforcement procedures.

Benton County ~~will develop~~ed, through a process involving stakeholders and the general public, a program for both immediate and long-term runoff control from development sites. The program ~~will be~~was built around provisions to be added to the Benton County Development Code, but ~~will~~ also included non-code policies and procedures. The program ~~will require~~s that erosion and ~~waste sediment~~ control plans be reviewed and approved for any development action or series of actions that will disturb an acre or more of land ~~or cumulative disturbed area greater than acre~~, within the permit area. The code provisions ~~will further~~ require implementation of the site plan and verification through inspections, ~~where updates to the erosion and sediment control BMPs may be required~~.

The standards for the Benton County erosion control regulations ~~will be~~were developed~~drawn~~ from ~~one or more of~~ the following Erosion and Sediment Control Manuals (ESCM):

- Department of Environmental Quality (DEQ) – Erosion and Sediment Control Manual
- City of Corvallis – Erosion Prevention & Sediment Control Manual
- ~~City of Portland – Erosion Control Manual~~
- ~~Erosion and Sediment Control Planning and Design Manual developed in partnership with: Clean Water Services of Washington County, Water Environment Services of Clackamas County & the City of West Linn~~
- ~~Volume II of the Stormwater Management Manual for Western Washington~~
- Oregon Department of Transportation Erosion Control Manual

To facilitate ~~development of~~updates for a workable and acceptable program, Benton County will involve stakeholders. ~~An initial step will be to identify stakeholders, who will include at least the following groups: large landowners; developers; contractors; citizen groups. Those landowners, developers, contractors that are required to implement the Benton County~~

~~We will hold an initial meeting to introduce the project and receive general concerns, important components, etc.~~ Staff will ~~then draft an initial outline of the program, and then~~ work with stakeholders to help ensure ~~that the adopted~~ program is workable and addresses local water quality issues. We will attempt to attain consistency between our program and the program of the

City of Corvallis, including sole permitting authority so that developers and contractors do not have to learn two distinct regulatory systems.

~~The program will involve changes to the Benton County Development Code; therefore, the proposed program will be presented at a public hearing before the Benton County Planning Commission and all affected property owners will be notified in advance of the hearing. The Planning Commission's recommendation will then be forwarded to the Board of County Commissioners, who will hold a public hearing to consider adoption of the program.~~

During the program ~~development implementation~~ phase, Benton County will consider expanding its construction site stormwater permit program to include all of Benton County, not just that within the urbanized area. If that arrangement appears beneficial to both Benton County and DEQ, we will apply our program to the whole of Benton County.

Implementation of ~~the any updated~~ regulatory components will begin immediately upon the Development Code changes taking effect. Training and procedures will have been instituted prior to adoption (see Section 3, below), and educational materials will be prepared in draft form for distribution following adoption of the final program (See Public Education and Outreach element, below).

Rationale:

- Benton County ~~does not currently have regulations~~ has regulations relating to for erosion and sediment control for ground-disturbing activities resulting in disturbances that are greater than an acre. To reduce 'dual permitting' issues Benton county will work to gain sole permitting authority from DEQ and work to provide consistency between Benton County and City of Corvallis requirements. -ground disturbance, grading, or erosion control.
- The Benton County Development Code is the primary document regulating land use activities, including site development and road construction. Adopting any updates to the erosion control requirements by ordinance into the Development Code will enable Benton County to enforce the standards.

Measurable Goals:

- A. ~~Adopt an~~ Implement and -erosion update Erosion and Sediment Control ordinance as required to improve consistency with cities.
- B. Continue work to ensure that Benton County is the sole permitting authority for ground-disturbing activities where Benton Erosion and Sediment Control requirements apply.

Goal Rationale: To reduce redundancy, permitting issues, and costs, Benton County should have similar requirements with city jurisdictions where possible and allow permittees to pay review and inspection fees to Benton County. Requiring DEQ and Benton County permits and associated fees is not practical within the Corvallis Urbanized area where county Erosion and Sediment Control ordinance applies.

2. ~~Develop Update~~ procedures for construction site plan review ~~A new type of~~ Updates to the permit will be added into Benton County's existing system of permitting as needed, which will be a procedurally simple matter. Building permits and land use applications will be screened for activities that will disturb one acre or more of land. (This currently occurs, so the only change will be the agency from which we require applicants to obtain a permit.)

Review of erosion and sediment control plans will be done by either Benton County engineering staff or building inspection staff depending on the scope and context of the project. For example, the erosion control plan associated with a building permit application disturbing 1+ acre of land ~~would likely be~~will be reviewed by the building inspection staff, while the erosion control plan associated with a subdivision (road construction and infrastructure development) ~~would likely will~~ be reviewed by the engineering staff.

Not all activities with ground disturbance of one acre or more will be necessarily connected to a building permit or land use application; therefore, it will be important to continue to inform the affected public of the requirement to obtain an erosion control permit for qualifying activities. See BMP 3 (below).

Rationale:

- Current duties of Benton County building inspectors and Public Works engineers ~~can be expanded to~~have been expanded to include review of erosion control. It makes sense for the staff already reviewing an activity to review the erosion control for that activity. This avoids duplication of effort and will allow for recommendations to update permit requirements as needed.

Measurable Goals:

- A. ~~A new permit~~Updates to permit and fee will be instituted in Benton County as required under State law and as needed to implement the program~~computerized permitting system by the effective date of the erosion control ordinance.~~
- B. ~~An~~The interdepartmental policy will be updated-issued, discussing which types of development activities will be reviewed by which department and how the fees for erosion control permits will be allocated.

Goal Rationale: The permit and fee need to be ~~incorporated into the existing~~updated permitting system in order for the fee intake and permit tracking to occur in an orderly way and respond to changing State requirements. Interdepartmental cooperation is necessary because the activities that trigger an erosion control permit cross departmental jurisdictions.

3. Conduct training of employees involved in inspections

Benton County will ensure that building inspectors and engineering staff have adequate training in the area of erosion and sediment control. Additionally, Benton County land use planners will avail themselves of educational opportunities regarding area planning techniques that can reduce the water quality and quantity impacts of new development.

Training for plan review, site inspection and construction oversight will be available through the Oregon DEQ the Oregon Department of Transportation and other resources. Benton County plans ~~to send train~~ Engineering, Planning and Building Inspection personnel ~~to these at these and in-house~~ training sessions. ~~If this training is not available prior to the implementation date, other educational sources will be utilized.~~

Rationale:

- Benton County ~~does not have~~has adopted erosion control regulations; however, current staff members ~~are fully trained~~will need training updates in erosion control techniques and

inspection. Additional training will ensure staff is knowledgeable and competent in implementing ~~current Benton County the~~ erosion control requirements.

Measurable Goals:

A. Staff will obtain training adequate for implementation of the erosion control regulations ~~prior to the effective date of the erosion control ordinance~~as updates to the erosion and sediment control program requirements occur.

Goal Rationale: Staff should have the knowledge ~~prior to being called upon to~~consistent with current regulations and implement the regulations. ~~This may require the ordinance to have an effective date later than otherwise would occur.~~

BMP 2: INSPECT, RESPOND TO COMPLAINTS, AND ENFORCE VIOLATIONS.

Actions/Elements

1. ~~Develop~~Implement process for ensuring compliance with ordinance, including inspection protocols and enforcement mechanisms

Procedures for inspection of construction sites will be ~~finalized prior to the code requirement becoming effective~~implemented and updated to match current code requirements. Similar to the plan review step, road- or subdivision-related erosion control will ~~likely be~~ inspected by engineering staff while building-permit-related erosion control will ~~likely~~ be incorporated into building inspections.

Enforcement procedures will be ~~developed~~updated as needed, including the means to enjoin illegal activity, rectify damage done, and respond to complaints. These procedures may require amendment to the Benton County Code, and may be part of the erosion control ordinance discussed in BMP 1.

Benton County will review the erosion control program on an annual basis. If a pattern of deficiencies becomes apparent, Benton County will modify the program as appropriate. Proposed modifications will be submitted to DEQ to ensure compliance with the program requirements.

Rationale:

- Inspection and enforcement are necessary to ensure the erosion control standards are adhered to.

Measurable Goals:

A. Benton County will have inspection and enforcement procedures in place by the effective date of the erosion control ordinance.

Goal Rationale: These critical elements of the program need to be in place by the time the rules go into effect. This may require the ordinance to have an effective date later than otherwise would occur.

2. Respond to complaints

As discussed in the Public Involvement element, Benton County ~~will~~has established procedures for receiving complaints, investigating, taking action and reporting and will update these as needed.

Rationale:

- Information from the public is a highly valuable extension of any monitoring program. Continuous monitoring of all stormwater facilities is cost-prohibitive. Members of the public will often notice and report conditions that are not observed by County staff or monitoring.
- An explicit procedure for handling complaints increases the effectiveness of the program, and increases the public's confidence in the program.

Measurable Goals:

- A. ~~A written~~Continued implementation of procedure for receiving, logging, investigating and responding to complaints.
- B. An annual report of complaints received and action taken.

Goal Rationale: ~~A-Implementation of the~~ written procedure will ensure that all complaints are recorded and dealt with in a standardized way. An annual report encourages completion of action on complaints, and enables consideration of trends. Together these goals will establish an accountable and actionable procedure for responding to complaints.

BMP 3: INFORM AFFECTED PUBLIC OF PERMIT REQUIREMENT.

Actions/Elements

1. Distribute information about activities requiring erosion control permit.

As discussed in the Public Education and Outreach element, information about the erosion control permit program will be provided to construction operators and others. This will include the types of activities requiring permits, how to obtain the permits, and possibly a summary of the erosion control standards.

Rationale:

- The erosion control permit requirement will be new ~~for~~in Benton County. Contractors and property owners will need to be informed that a permit from Benton County may be necessary. Informing the general public will enable them to identify and report potential violations.

Measurable Goals:

- A. Benton County will distribute informational flyers to construction operators, and will make the flyers available to the general public through the County website and at the office of Public Works/Community Development. The flyers will be distributed before the effective date of the erosion control ordinance and as required to ensure public awareness.

Goal Rationale: Affected parties should be made aware of the new regulation before it goes into effect prior to completing activities that may be in violation of code requirements.

2. Inform contractors of training opportunities.

Benton County will pass along to contractors a set of resources for obtaining additional information and training regarding erosion control. This will include information on how to obtain reference manuals, as well as opportunities for training workshops.

Rationale:

- **This is an easily achieved public service, providing contractors with resources to enable them to meet the rules. In addition, it will improve compliance with the rules and make the job of the building inspector and Public Works engineer easier, not having to explain erosion control.**

Measurable Goals:

A. Training resources will be included with the flyers distributed to construction operators, and will be available on the County website and at County offices.

Goal Rationale: This will be a simple but effective means of distributing the helpful information.

Control Measure 5 - Post-Construction Runoff Control

Goal: To reduce water quality impacts from the built environment, and maintain pre-development runoff regimes, over the long term.

BMP	Responsible Staff	Implementation Schedule
1. Develop <u>Implement</u> structural methods to limit pollution and maintain pre-development flow regimes.		
1.1. Develop and adopt into <u>Implement</u> Development Code requirements for storage, detention, filtration and infiltration.		
A. Adoption of <u>Implement</u> Development Code standards <u>adopted</u> by the Board of County Commissioners.	CD Director	March 2011 <u>ongoing</u>
1.2. Develop and adopt <u>Implement a</u> long-term stormwater plan for maintenance of installed facilities.		
B. Implementation of a set of policies and procedures, endorsed by the Board of County Commissioners, for long-term maintenance of stormwater facilities.	PW Director	March 2011 <u>ongoing</u>
1.3. Training for Plans Reviewers and Field Inspectors.		
C. Staff who will be reviewing or inspecting stormwater facilities will have received adequate <u>annual</u> training within 6 months of the adoption of Development Code standards.	PW Director	October 2011 <u>annually</u>
2. Develop <u>Implement</u> non-structural methods to limit pollution and maintain pre-development flow regimes.		
2.1. Develop and adopt into the <u>Implement</u> Development Code standards for site design to protect sensitive areas and direct intensive activities to areas that can absorb their impacts.		
A. Adopt <u>Implement</u> site design standards from into the Development Code.	CD Director	March 2011 <u>ongoing</u>
2.2. Develop and adopt into Development Code standards for protection of wetlands and riparian areas to maintain the natural filtration and retention capacity of the ecosystem.		
B. Adopt into the Development Code <u>Implement</u> riparian and wetland protection for areas outside the Corvallis Urban Growth Boundary.	CD Director	March 2011 <u>ongoing</u>
2.3. Develop and adopt <u>Implement</u> policies and area plans that reduce the amount of impervious surface needed to develop an area and prioritize less-sensitive portions of the watershed for siting those impervious surfaces.		
C. Adopt <u>Implement</u> Comprehensive Plan policies directing long-range planning efforts to minimize impervious surface and to site impervious surfaces in the less-sensitive portions of the watershed.	CD Director	March 2011 <u>ongoing</u>

2.4. Include long-term, non-construction considerations in the education and outreach element.

D. Implement public education and outreach program.	<i>See Public Education and Outreach Program</i>	<u>ongoing</u>
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BMP 1: ~~DEVELOP-IMPLEMENT~~ STRUCTURAL METHODS TO LIMIT POLLUTION AND MAINTAIN PRE-DEVELOPMENT FLOW REGIMES.

Actions/Elements

1. ~~Develop and adopt into~~Implement Development Code requirements for storage, detention, filtration and infiltration.

Benton County will implement adopted ~~codify~~ standards for development activities to incorporate long-term methods for storing/detaining stormwater, filtering out pollutants, and encouraging stormwater to infiltrate into the groundwater instead of being quickly directed downstream.

~~This will involve amending the Development Code. The s~~Standards ~~will be~~ developed by staff ~~and/or consultants~~ with review and input by the stakeholder committee as described in the Public Involvement element will be implemented for new development and redevelopment project. ~~The p~~Proposed code amendments will ~~then go to public~~ be developed over time as required; hearings before the Benton County Planning Commission and then the Benton County Board of Commissioners will occur.

Rationale:

- Runoff from completed subdivisions and large commercial, industrial or civic developments can carry substantial pollutant loads and can dramatically increase peak flows.
- Properly designed facilities can reduce pollutant loads discharged to water bodies, and can cause discharge flows to mimic those of pre-development site conditions.

Measurable Goals:

A. ~~Adoption of~~Implementation of Development Code standards adopted by the Board of County Commissioners.

Goal Rationale: ~~Adoption into the code will make these~~Implementation of Post-Construction code standards as mandatory and enforceable requirements in Benton County.

2. ~~Develop and adopt a~~Implement long-term stormwater plan for maintenance of installed facilities.

Once installed, storage, detention, filtration and infiltration facilities will require long-term maintenance. Benton County will develop-implement policies and procedures, including binding agreements, specifying who bears what responsibility for maintenance and adaptive management of such facilities. ~~Some facilities may be the County’s responsibility,~~ and Benton County will be maintaining required stormwater detention and retention facilities others will fall to a homeowners’ association or the property owner.

Rationale:

- Clear responsibility for long-term maintenance of facilities will ensure facilities continue to function and do not create hazards.

- Adaptive management of such facilities may be necessary in order to meet water quality and quantity targets.

Measurable Goals:

B. Implementation of a set of policies and procedures, endorsed by the Board of County Commissioners, for long-term maintenance of stormwater facilities.

Goal Rationale: ~~Establishing Consistently implementing~~ formal policies for these facilities will improve consistency in dealing with the facilities.

3. Training for Plans Reviewers and Field Inspectors.

To implement the Development Code requirements called for under Action 1 (above), Benton County will ~~obtain-ensure~~ training for the individuals who will be reviewing site development plans and inspecting building sites. ~~The details of what training is~~ Training necessary will be determined ~~once the Development Code~~ ~~once~~ standards have been ~~adopted~~ ~~implemented for a specific location~~. This training may be a joint effort with the City of Corvallis and the City of Philomath.

Rationale: Proper training will ensure staff has the expertise to evaluate the site conditions and stormwater management techniques employed on a given site.

Measurable Goals:

C. Staff who will be reviewing or inspecting stormwater facilities will have received adequate training ~~within 6 months~~ of the adoption of Development Code standards.

Goal Rationale: It will be necessary ~~to know the~~ ~~for staff to understand~~ exact standards ~~that are adopted into the~~ ~~in the~~ Development Code before arranging for training. Appropriate training opportunities ~~will match current code requirements and will be updated to include training for specific areas for improvement determined by staff.~~ ~~might not be available immediately, therefore a six month window is necessary.~~ ~~The effective date of adopted regulations may be set out several months to allow time for staff to obtain necessary training.~~

BMP 2: ~~DEVELOP-IMPLEMENT~~ NON-STRUCTURAL METHODS TO LIMIT POLLUTION AND MAINTAIN PRE-DEVELOPMENT FLOW REGIMES.

Actions/Elements

1. ~~Develop and adopt into the~~ ~~Implement~~ Development Code standards for site design to protect sensitive areas and direct intensive activities to areas that can absorb their impacts.

Benton County staff and/or consultants will ~~develop-implement~~ site design standards that encourage or require development activities to avoid or minimize modification of sensitive areas. ~~The stakeholder committee would review and provide input into these standards. Public hearings will be held by the Benton County Planning Commission and the Benton County Board of Commissioners.~~

Rationale:

- Development that avoids or minimizes impacts to steep slopes, wetlands, erosive soils, drainageways and other sensitive areas will have less likelihood of degrading water quality.

Measurable Goals:

A. ~~Adopt-Implement~~ site design standards ~~into the adopted in the~~ Development Code.

Goal Rationale: ~~Adopting-Implementing~~ site design standards ~~into-in~~ the Development Code will make them mandatory and enforceable, and will integrate ~~them-site design standards~~ with other existing standards applicable to site development.

2. ~~Develop and adopt into~~Implement Development Code standards for protection of wetlands and riparian areas to maintain the natural filtration and retention capacity of the ecosystem.

Inside the Corvallis Urban Growth Boundary, Benton County and the City of Corvallis have collaboratively adopted regulatory protections for wetlands and riparian areas. The County will ~~develop-implement~~ complementary development limitations for riparian and wetland areas outside the UGB. The proposed regulations will be considered by the Benton County Planning Commission and Board of Commissioners at public hearings. Staff will implement adopted riparian and associated wetland protections and/or program to support and improve natural functions to improve stormwater management and water quality.

Rationale:

- Natural wetlands and riparian areas have a tremendous capacity to filter pollutants from runoff and to detain and retain water during high-flow periods. Preserving these resources in their natural condition is highly beneficial to stormwater quality and quantity.

Measurable Goals:

B. ~~Adopt into the~~Implement Development Code and/or associated program for riparian and wetland protection for areas outside the Corvallis Urban Growth Boundary.

Goal Rationale: These protections and/or program would complement existing protections applicable inside the UGB. Adopting these provisions into the Development Code will make them mandatory and enforceable along with a non-regulatory, education and outreach program to support riparian and wetlands functions to improve stormwater management and water quality.

3. ~~Develop and adopt~~Implement policies and ~~area-site~~ plans that reduce the amount of impervious surface needed to develop an area and prioritize less-sensitive portions of the watershed for siting those impervious surfaces.

The policies of the Benton County Comprehensive Plan guide adoption and revision of Development Code provisions, zoning, area plans and infrastructure plans. Benton County will ~~develop and adopt policies that~~ identify sensitive portions of watersheds and prioritize less-sensitive areas for the siting of development (impervious surfaces, in particular). Additionally, policies and plans will be directed toward reducing the total impervious surface needed to achieve development of an area. Numerous case studies exist demonstrating ways in which impervious surface can be minimized while achieving the same density of development.

Amendment of the Comprehensive Plan will require public hearings before the Benton County Planning Commission and Board of County Commissioners.

Rationale:

- Impervious surfaces decrease infiltration and increase the speed of runoff delivery to streams, increasing peak flows, which contribute to flooding and erosion. Impervious surfaces also collect pollutants, which are then carried by stormwater into the stormwater system. Reducing impervious surfaces in a watershed reduces these impacts.
- Water quality impacts can also be reduced by concentrating impervious surfaces in portions of the watershed where land is stable and where slowing and filtering of runoff can occur before stormwater enters streams.

Measurable Goals:

C. ~~Adopt~~Update Comprehensive Plan policies directing long-range planning efforts to minimize impervious surface and site impervious surfaces in the less-sensitive portions of the watershed.

Goal Rationale: The Comprehensive Plan is the policy document that will guide future planning. ~~Establishing~~Updating policies now will ensure these considerations are made a high priority when future area planning and/or Development Code amendments are considered.

4. ~~Include~~Provide long-term, non-construction considerations in the education and outreach element.

Education and outreach are key to long-term stormwater management. The education and outreach element of the SWMP will include a focus on reducing pollutant loads and stormwater discharges from individual properties as well as on a watershed scale.

Rationale:

- Regulations can go only so far. The actions of individuals over time have substantial impact on stormwater quality and quantity. Providing information on these impacts and encouraging people to make certain choices can influence actions in a positive direction.

Measurable Goals:

D. Implement education and outreach program (see ~~section~~Public Education of this report).

Goal Rationale: The education and outreach program is designed to encourage changes in behavior on the part of the general public. Implementation of the program will provide people with information about the consequences of individual decisions upon pollutants and stormwater discharges.

Control Measure 6 - Pollution Prevention and Good Housekeeping

Goal: Benton County will create and implement a Pollution Prevention Program (PPP) to reduce or prevent pollutant runoff from county activities within the MS4 areas.

BMP	Responsible Staff	Implementation Schedule
1. Inventory Municipal Operations		
A. Identify all County infrastructures that are within the MS4 area.	PW Director and Parks Director or designee(s)	December 2007 ongoing
B. Identify all County maintenance activities which have the potential to impact water quality within the MS4 area.	PW Director and Parks Director or designee(s)	December 2007 ongoing
C. List outside vendors that contract with Benton County to conduct maintenance activities under the Pollution Prevention Program.	PW Director and Parks Director or designee(s)	December 2007 ongoing
2. Develop and Implement Pollution Prevention Program		
A. BMP's developed <u>implemented</u> for salmon recovery will be incorporated into the Program	PW Director and Parks Director or designee(s)	June 2008 ongoing
B. Additional BMP's, not specific to salmon protection will be developed to meet program requirements	PW Director and Parks Director or designee(s)	December 2008 ongoing
3. Conduct Employee Training Program		
A. Training will be provided to County Public Works, Parks, Fleet and Facilities maintenance personnel on the O&M Plan.	PW Director and Parks Director or designee(s)	July 2009 annually
B. Field personnel will be empowered to use good judgment in conjunction with the BMP's outlined in the PPP to minimize runoff.	PW Director and Parks Director or designee(s)	July 2009 annually

BMP 1: INVENTORY MUNICIPAL OPERATIONS

Actions/Elements

1. Identify all County infrastructures that are within the MS4 area.

Rationale: This ongoing BMP will ensure that all locations are identified, documented and mapped through the GIS department. Most of Benton County is outside the MS4 area and this will help define the scope of the program.

Measurable Goal: Printed maps of all County roads, bridges, culverts, buildings, fleet maintenance shops, storage areas and parks. Overlay locations with mapping of stormwater drainage and waterways that would be impacted.

Goal Rationale: Due to limited funding and resources, the primary focus will be on the areas of the MS4 with the ability to expand the program in the future.

2. Identify all County maintenance activities which have the potential to impact water quality within the SS4 area.

Rationale: Many of the BMP's developed ~~for the recovery of the salmon species~~ will be adopted into the Pollution Prevention Program however there are other activities that have yet to be determined, such as parking lots at County buildings, fleet maintenance, etc. By reviewing all maintenance activities a thorough review can be made and additional BMP's adopted into the Pollution Prevention Plan.

Measurable Goal: Each department (Road Maintenance, Facilities Maintenance, Fleet Maintenance, and Parks) will list all maintenance activities and include a short description. This list will be reviewed by the ~~Staff Task Force~~ for determination on impacts to water quality. Upon determination, department designee will develop BMP.

Goal Rationale: To ensure that all areas have been evaluated and BMP's implemented.

3. List outside vendors that contract with Benton County to conduct maintenance activities under the Pollution Prevention Program.

Rationale: The BMP's implemented extend outside County maintenance personnel. Contracts and/or intergovernmental agreements will need to adopt language consistent with County BMP's.

Measurable Goal: Review annually outside contracts and agreements annually. Implement contract language specific to BMPs.

Goal Rationale: To ensure that other agencies/vendors comply with the Pollution Prevention Program (PPP).

BMP 2: ~~DEVELOP AND~~ IMPLEMENT A POLLUTION PREVENTION PROGRAM

Actions/Elements

1. BMP's developed for salmon recovery species will be incorporated into the PPP.

Rationale: The BMP's for salmon recovery have shown to be effective in reducing some of the pollutants in stormwater runoff typical of maintenance operations. This allows Departments with limited County staff to focus on BMP's that have yet to be developed to improve water quality.

Measurable Goal: BMP's will be reviewed periodically as new and improved methods are adopted throughout the State.

Goal Rationale: To ensure that updated information is being considered and evaluated

2. Additional BMP's, not specific to salmon protection will be developed to meet program requirements

Rationale: BMP's need to be ~~developed~~updated for additional County activities other than road maintenance. This would include Fleet, Parks and Facility Maintenance.

Measurable Goal: Departments will be required to develop BMP's identified for consideration by the County ~~Staff Task Force~~Stormwater Stakeholder Team and then implemented into the PPP within the scheduled timeline.

Goal Rationale: Departments required to develop their own BMP's will have ownership of their own program.

BMP 3: CONDUCT EMPLOYEE TRAINING PROGRAM

Actions/Elements

1. Training will be provided to County Public Works, Parks, Fleet and Facilities maintenance personnel on the Pollution Prevention Plan.

Rationale: Training and educating staff on the PPP and the BMP's will establish consistency with the program and promote awareness.

Measurable Goal: Training will be implemented for all current employees once the PPP ~~is adopted~~. Annually refresher courses will be conducted to review new information, improved practices and capture new employees required to follow BMP's.

Goal Rationale: Ensures that all employees receive the training.

2. Field personnel will be empowered to use good judgment in conjunction with the BMP's outlined in the Pollution Prevention Plan to minimize runoff.

Rationale: Training of personnel and encouraging suggestions to the recommended BMP's will allow field personnel to use good judgment in the field when applying techniques as outlined in this program.

Measurable Goal: Provide employees with the proper tools, equipment and flexibility to meet the demands of their job while complying with the requirements of the PPP.

Goal Rationale: Personnel are better equipped to provide input on the BMP's effectiveness within the program.

Section 5. Total Maximum Daily Load Evaluation and Benchmark Development

DEQ requires (as stated in the permit renewal application cover letter) “progress towards achieving assigned TMDL Wasteload Allocation must be documented in the permit renewal package. Successful implementation of current SWMP BMPs (and achievement of measurable goals), and estimates of future TMDL pollutant reductions (i.e., benchmarks) based on proposed additional or modified BMPs will guide DEQ’s determination of whether adequate progress has or will be achieved”. “For example, if bacteria is an applicable TMDL pollutant, please provide a qualitative narrative describing of how existing and proposed BMPs, such as a ‘Doggie Waste’ education program, IDDE cross-connection program or Capital Improvement Project program aimed at reducing or disconnecting impervious surfaces, specifically address and effectively reduce bacteria to the MEP.” “It is important to note that factors limiting your ability to estimate pollutant load reductions associated with current and proposed BMPs, such as limited data availability and quality, or conducting a quantitative analysis must be described.”

Table 2. Applicable Benton County Total Maximum Daily Load Parameters

Waterbody Name	Bacteria (fecal coliform or E.coli)	Mercury	Temperature*
Long Tom River	X		X
Marys River	X		X
Muddy Creek			X
Soap Creek			X
Mainstem Willamette River	X	X	X

*Temperature does not require a benchmark as it not currently considered a stormwater pollutant.

Table 3. Documentation of Progress towards TMDL Waste Load Allocation

2007 BMP Implementation Status and SWMP Updates	Description of TMDL Impact	Proposed or Additional BMPs	Current and Future Progress
Coordination of stakeholder committee of at least 8 members from different perspectives relative to stormwater.	Continue to combine efforts to reduce bacteria and erosion	Continue coordination of stakeholder committee	Monthly stakeholder meetings and combination of efforts to improve stormwater quality.
2007 BMP Implementation Status and SWMP Updates	Description of TMDL Impact	Proposed or Additional BMPs	Current and Future TMDL Reductions

Press releases, mailing lists and other opportunities for public involvement.	Raise awareness of TMDLs	Develop mailing lists, and continue public meetings.	Creating awareness of the linkage between stormwater and surface water quality and how individual actions can impact water quality.
Written procedure for receiving, logging, investigating and responding to complaints.	Staff will capture all water quality related complaints	Implement updated procedures to resolve complaints	Staff will respond to all water quality complaints and work to resolve the water quality issues with appropriate State agencies as necessary.
Effectively implement Benton County Code standards and procedures for eliminating illicit discharges into the stormwater system.	Local regulation to control applicable non-stormwater discharges	Implementation of adopted regulations including enforcement.	Applicable bacteria and erosion impacts (not covered under the Erosion and Sediment Control requirements) will be regulated.
Implement Erosion and Sediment Control ordinance.	Erosion reduction that could occur from 1-acre or more ground disturbance on non-farm and forestry related activities	Update of requirements as needed to improve erosion and sediment control, while providing cost efficient service.	Where applicable, a minor amount of land base where erosion will be reduced, thus reducing possible mercury impacts to the main-stem Willamette River
Benton County staff will work in partnership with other NPDES Phase II communities to gain sole-permitting authority for 1-acre or more regulated ground disturbing activities.	Increase local control and management of program to ensure requirements are implemented and effectively administered	Benton County has a priority to locally administer erosion and sediment control along with other jurisdictions	Benton County sole permitting authority for projects that are 1-acre or more in disturbed area, will provide greater assurance that requirements are implemented and enforced to reduce erosion.
2007 BMP Implementation Status and SWMP Updates	Description of TMDL Impact	Proposed or Additional BMPs	Current and Future Pr TMD 118

Implement post-construction and site design standards from the Development Code standards adopted by the Board of County Commissioners.	Filtration of surface runoff to reduce sediment and bacteria loading to receiving streams	Benton County Public Works and Community Development will work with new development and redevelopment to plan for long term stormwater management.	Locally appropriate site-design standards will provide for long term storage, filtration, infiltration and controlled release of stormwater flows to streams; resulting reductions in pollutants will occur for a range of developments.
Develop riparian and wetland protection for areas outside the Corvallis Urban Growth Boundary.	Long term assurance for protection of natural features that decrease TMDL loading.	Implementation of an integrated voluntary program and regulations based program to support and improve natural riparian and associated wetland functions.	Benton County Riparian and Wetlands Inventory has been completed for priority riparian and wetland resources, and proposed development code and voluntary approaches will be finalized resulting in decreases in TMDL parameter loading to receiving streams.
Develop Comprehensive Plan policies directing long-range planning efforts to minimize impervious surface and to site impervious surfaces in the less-sensitive portions of the watershed.	Site specific increases in infiltration and reduction of surface water runoff.	Develop current map of estimated impervious surface; prioritize how reductions in impervious surface can occur in various watersheds.	Decrease in impervious surfaces where site conditions allow for this type of management, will result in decreased overland flow and transport of TMDL pollutants.
Identify all County maintenance activities which have the potential to impact water quality within the MS4 area in the Stormwater Pollution Prevention Plan (PPP)	Identification of applicable operations that can affect stormwater quality	Finalizing the PPP with various departments.	Implementation of the PPP will reduce possible water quality impacts resulting from County operations that can affect stormwater
Training will be provided to County Public Works, Parks, Fleet and Facilities maintenance personnel on the PPP	Staff awareness of water quality impacts from county operations.	Implementation of the PPP will occur with annual trainings for applicable staff.	Awareness by staff of PPP requirements leading to reduction in TMDL parameters from operations that affect stormwater quality

There are several important factors currently limiting Benton County's ability to estimate pollutant load reductions associated with current and proposed BMPs through a quantitative approach. These include:

- There is currently no integrated approach by the City of Corvallis and City of Philomath and Oregon DEQ to provide water quality trends to determine the effect of SWMP implementation measures. ODEQ coordination of water quality monitoring in Benton County should occur to determine effectiveness ;
- There is currently a low level of development activity, and as a result there have been no requests or needs for implementation of Illicit Discharge (non-stormwater) Ordinance, Erosion and Sediment Control Ordinance, or Post-Construction Long Term Stormwater Ordinance so determination of code effectiveness is not possible at this point;
- The dominant land uses of farming and forestry within the county are suspected of having a significant influence on the stormwater quality, and would be extremely difficult to separate this impact from the stormwater quality within the Corvallis Federal Urbanized Area.
- Currently there is no stormwater utility fee, tax, or similar fee based system or grant program in place in Benton County; monitoring would require consistent funding to develop a Quality Assurance/Quality Control Plan, purchase/borrow monitoring equipment, and provide staff training and monitoring time.

Section 6. Water Quality Retrofit Projects and Strategy

Reservoir Avenue Water Quality Facilities Weir and Bioswale



Description of Water Quality Retrofit

Therefore, the minimum detention pond volume for Basin 1 is 7,405 cubic feet and Basin 2 is 12,632 cubic feet. The orifice/weir structure will be designed to limit the peak discharge to the pre-developed condition for the 2-year, 5-year, and 10-year events. There will also be an emergency overflow weir designed for 100-year event flows. Final weir and overflow design information will be submitted to the City with the final street construction plans.

Reservoir Avenue Hydraulics Report
County Project #25321-01-05

PROPOSED WATER QUALITY FACILITIES

Benton County will work towards sampling and reporting (via annual reports to ODEQ) on the outflow from the completed and vegetated water quality facilities to determine current levels of dissolved solids, and applicable TMDL/303 D parameters.

Proposed Evaluation of Rainwater Catchment for County Buildings

decomposed. In particular, bacteria within healthy soils can help break down carbon-based pollutants like motor oil.

The stormwater quality systems for the Reservoir Avenue Realignment Project were designed in accordance with the *King County Surface Water Design Manual*. The stormwater quality facilities were designed for a water quality storm event of 0.9 inches in 24-hours.

Pretreatment will be provided by the Contech®CDS manhole in each of the two basins (hydraulic design criteria, particulate removal efficiency, and maintenance requirements are included in Appendix C). Following pretreatment, stormwater will be directed into a detention facility for water quantity control. Then the stormwater will be directed to a vegetated bio-swale to meet the stormwater quality requirements. The final configuration of water quality and quantity facilities will be included in the final street construction plans submitted to the City.

SUMMARY

As part of the realignment of Reservoir Avenue and the associated wetland mitigation, the County is proposing to realign Dunawi Creek to its historical alignment. As shown in this report, the realignment of the creek will not detrimentally affect the on-site or off-site hydrology. In fact, with the combination of water quantity and water quality facilities, as well as retarding the runoff to keep the wetland mitigation area wet, the proposed project will improve the existing site runoff in many ways as it enters Dunawi Creek proper. The project will slow down the existing site runoff to pre-developed conditions and directly improve the water quality in Dunawi Creek upstream of SW 53rd Street.

Stormceptor TM manhole installed in the Reservoir Road realignment project



Bioswale to reduce and eliminate sediment and pollutant loads to stream



In addition to the current stormwater quality retrofit projects being completed on the Reservoir Rd. Realignment Project, Benton County has developed a draft long term plan for designing and building rainwater catchment systems on new and current county facilities.

This plan will be implemented where feasible structures, soils, and other important structural and site characteristics are present.

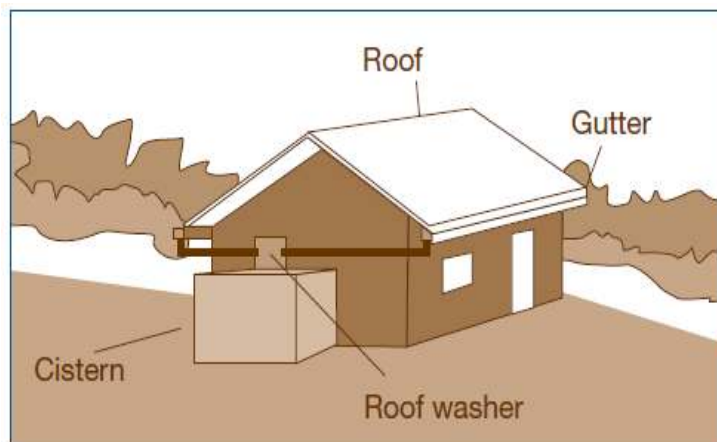
Rain gutter downspout disconnection and rainwater 'harvesting':

Existing and future county buildings have several roofs and other impervious surface that discharge to storm drains or to the ground surface. In several locations on county

property, 1 to several downspouts can be disconnected and diverted to a 'rain barrel' (large storage tank, see **Table 1**). Several benefits can result from rainwater disconnection including:

- Diverting and storing water for non-potable water use during the dry season such as dust control, offsite irrigation (parks, other public spaces),
- Improved drainage. By storing a portion of water during high rain events, much of the overland flow of water that result in erosion, ponding, and other undesired impacts can be avoided,
- Public education on proper installation and use of rainwater. Many residents, especially those with limitations on water supply are interested in augmenting their water supply with rainwater for non-potable uses during the dry season (garden and landscaping irrigation). The county rainwater storage project(s) would provide residents with an example of

how to develop, implement, and maintain a rainwater catchment system.



A basic rainwater collection system includes a roof, gutters or roof drains, and a piping system to convey the water to and from a storage tank or cistern. Storage tanks can be inside or outside,

Figure 1. A simple rainwater harvesting design with an external storage tank.

above or below ground, or partially above and partially below ground (see **Figure 1** from Oregon Building Codes Division on rainwater harvesting design and storage:

<http://www.bcd.oregon.gov/pdf/3660.pdf>

According to the *Rainwater Harvesting Smart Guide*, western Oregon is ideal for rainwater harvesting with dense populations and high rainfall. Every rainwater collection system is unique, and determining the right size will affect installation cost, operation and maintenance