Clark County

Phase 1 Municipal Stormwater Permit

National Pollutant Discharge Elimination System & State Waste Discharge General Permit

2013-2018

Permit Overview for Stakeholder Advisory Committee

Round Lake
Photo: Gary Piazza

Updated 8.28.13

Presentation Overview:

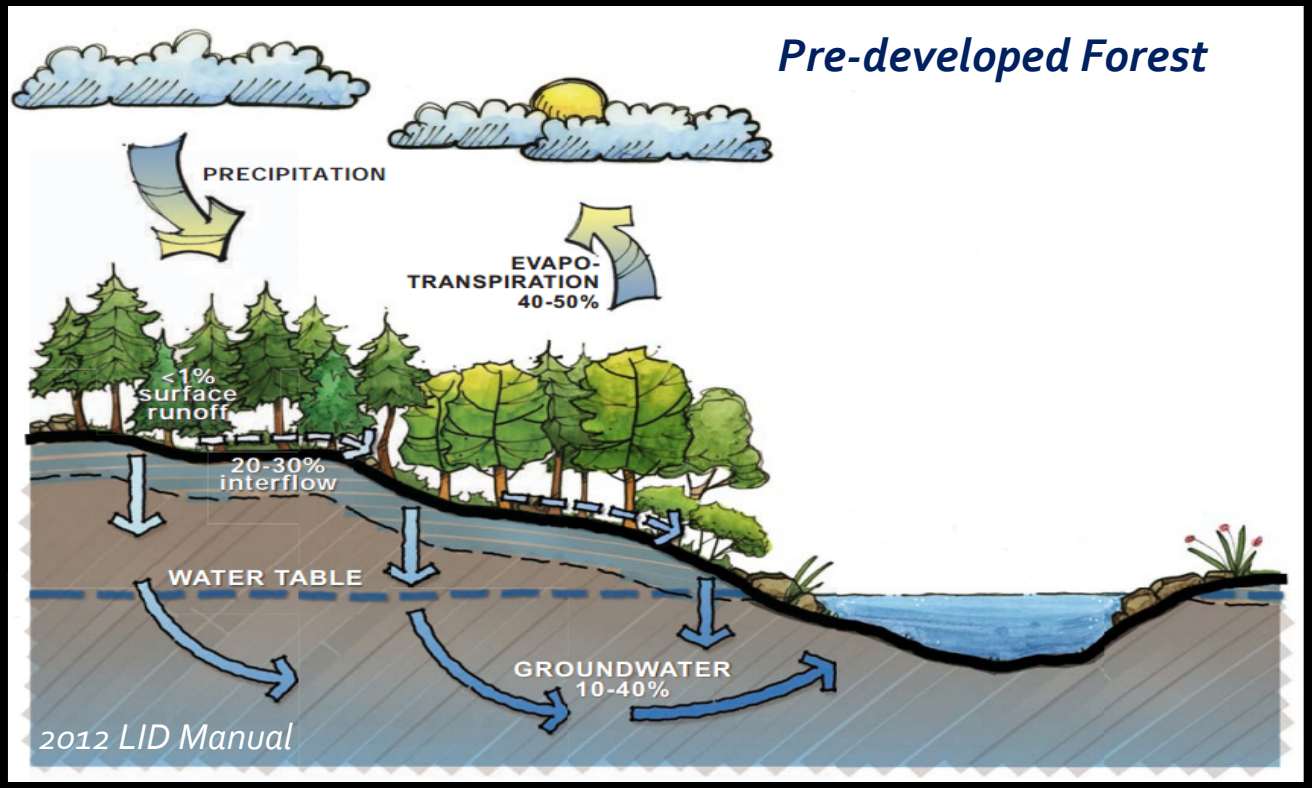
- What is stormwater and how do we manage it in Clark County?
- Municipal stormwater permit
  - *Who are the agencies and partners involved in permit compliance*
  - *Components of the permit*
  - *Changes as a result of the new permit*
- Outreach effort
- Schedule
- Next steps……

Protecting our natural resources for generations to come

North Fork Lewis River, from Yale Bridge
Photo: Gary Piazza

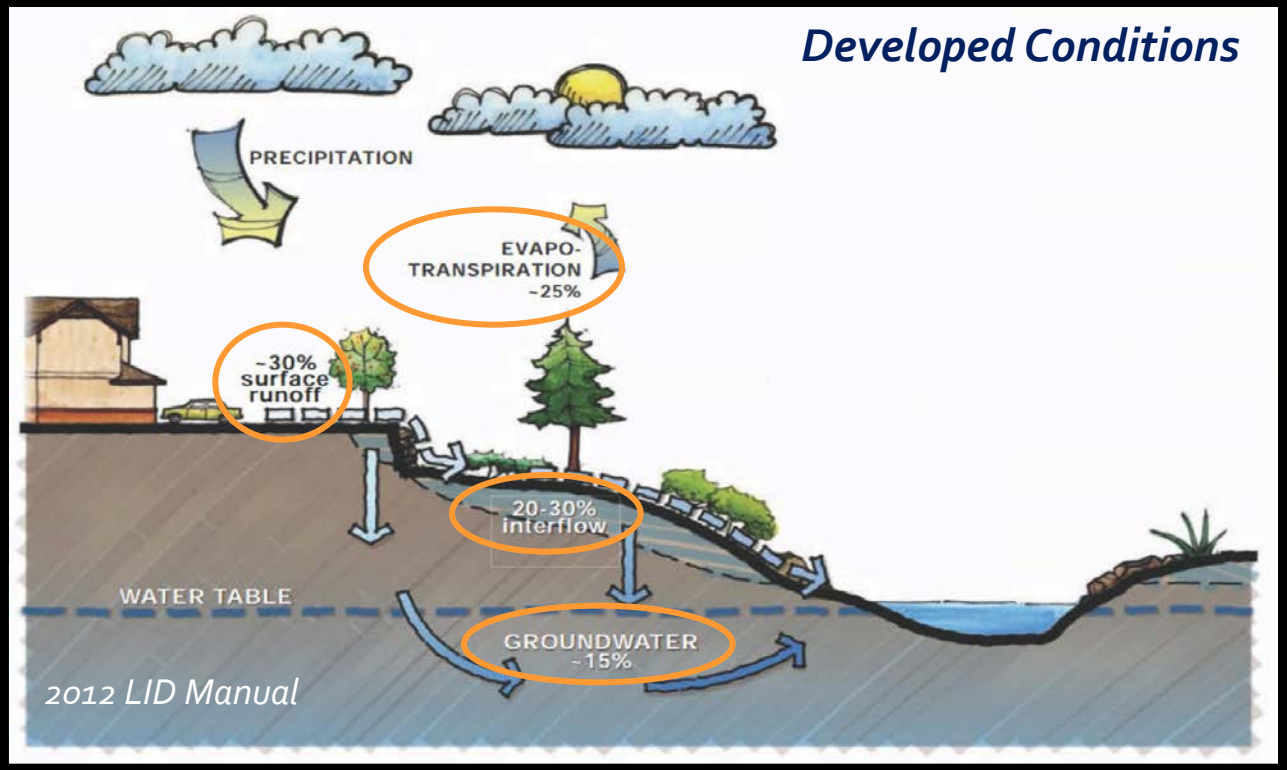
Stormwater management 101

- **Stormwater runoff is the leading cause of water pollution in our creeks, streams and rivers**
- **Clean Water Act – provides framework for water protection**
- **Manages for: 1. water flow control; and, 2. water quality**



Stormwater management 101

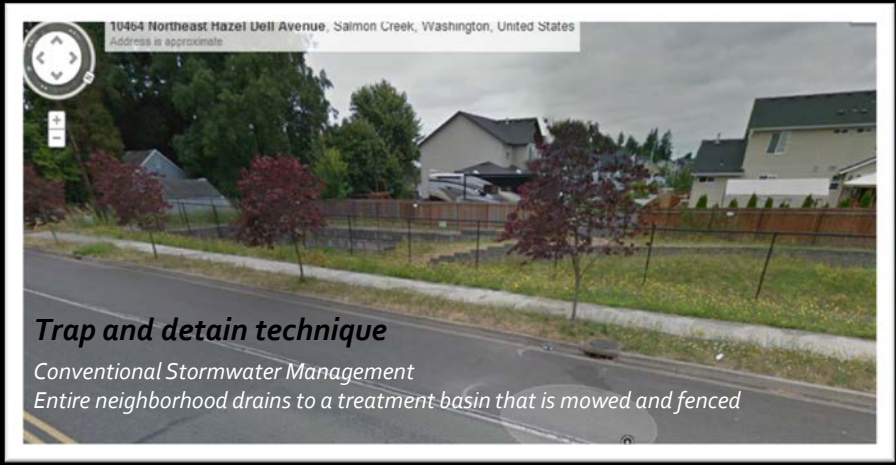
- In developed areas, stormwater drains to our "municipal separated storm sewer system" (MS_4) and is <u>not</u> treated before reaching rivers and streams *(separate from sanitary sewers)*
- Per the municipal stormwater permit issued by the State of Washington, the county <u>is required to prevent pollution in the runoff and limit the amount of runoff</u> from developed sites that will discharge to our MS_4.



How our stormwater system looks…..

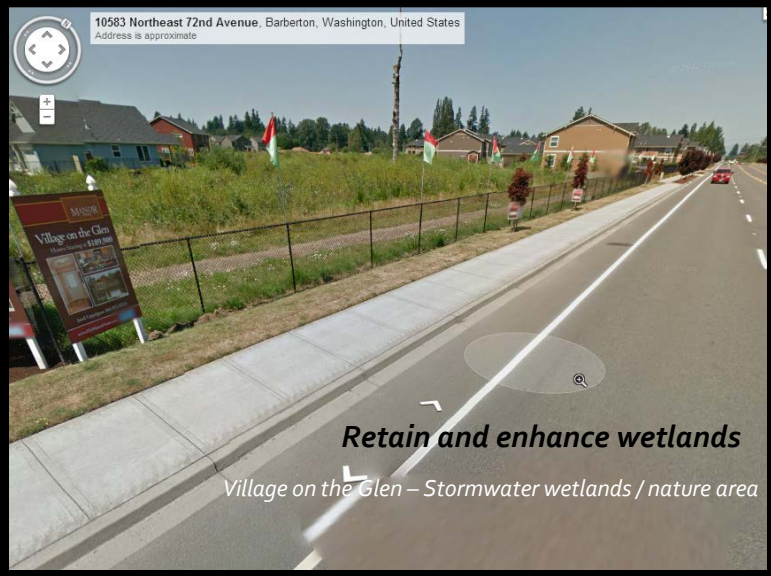
Catch and pipe technique

Conventional Stormwater Management
Drain to catch basin and pipe to river



Trap and detain technique

Conventional Stormwater Management
Entire neighborhood drains to a treatment basin that is mowed and fenced



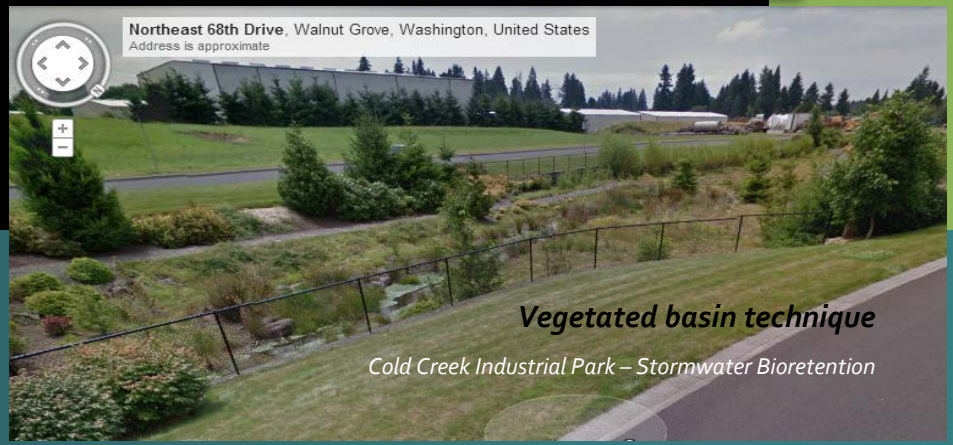
Retain and enhance wetlands

Village on the Glen – Stormwater wetlands / nature area

All photos: Google Maps

TRADITIONAL TECHNIQUES:

- Centralized in a few areas within the development
- Designed to collect and remove runoff quickly
- Clear and grade the entire site prior to construction



Vegetated basin technique

Cold Creek Industrial Park – Stormwater Bioretention

LID TECHNIQUES:

- Decentralized throughout site
- Smaller features than tradition designs
- Integrated with the existing landscape

Stormwater management 101

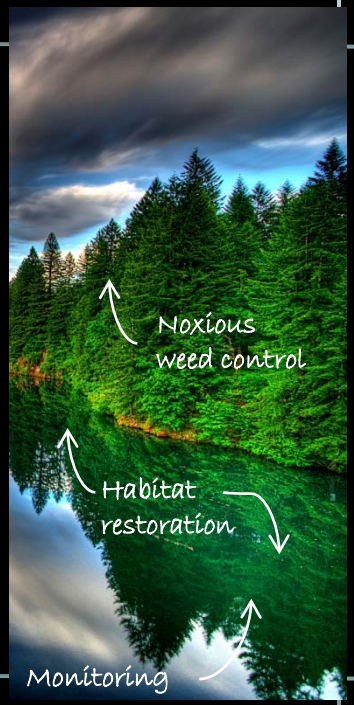
Challenges with conventional / traditional stormwater facilities

- Large facilities take up a lot of room
- Aging infrastructure
- Increase runoff volumes
- Increase pollutant discharges
- Create "flashy" storm events
- Reduce groundwater recharge & results in lower baseline stream flows in critical late summer months

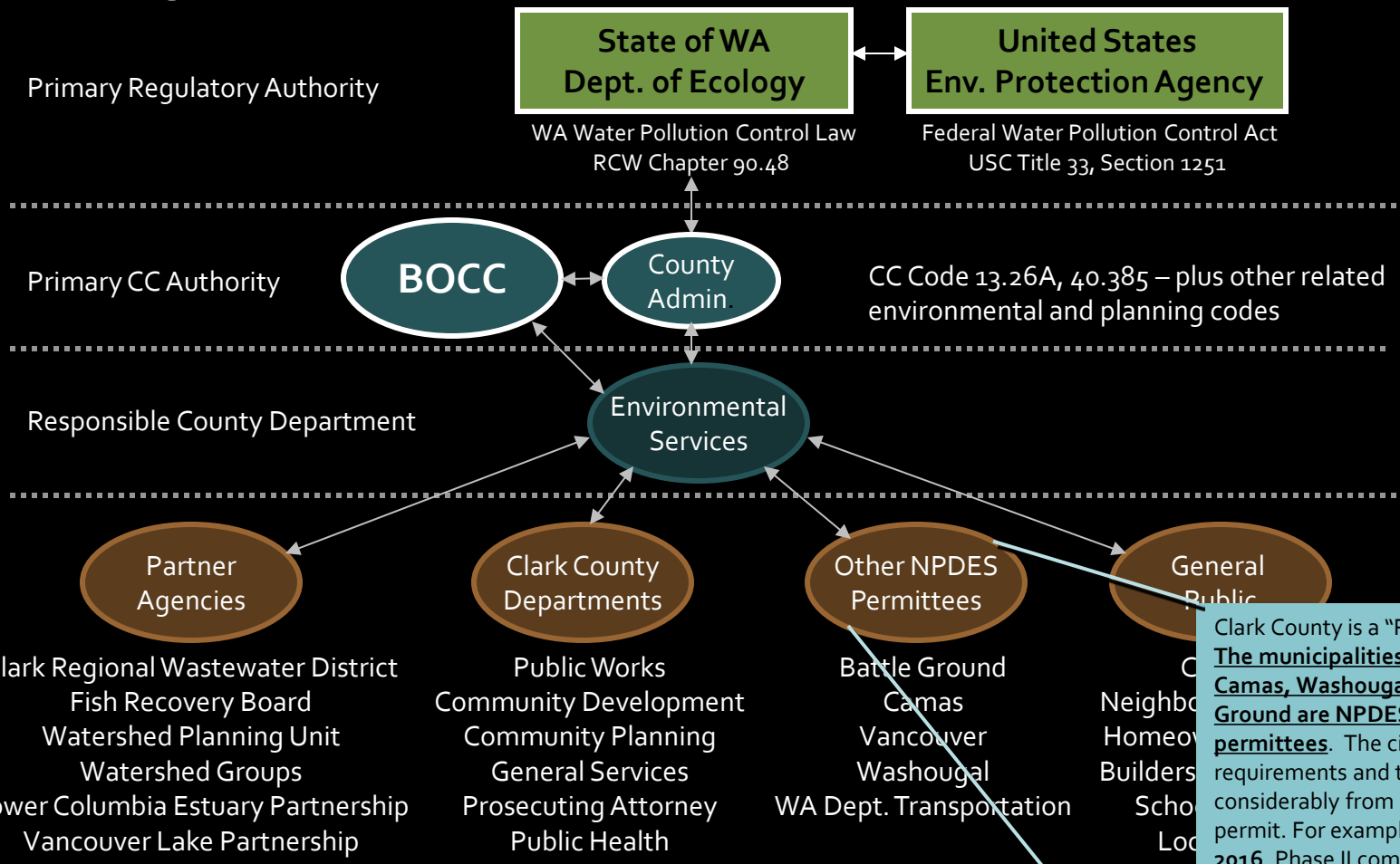
FACTs –

- *Clark County owns 870 stormwater facilities with over 170,000 individual assets (e.g. catch basins, manholes, inlets, ponds, etc.)*
- *The MS4 contains over 400 miles of pipes*
- *Staff inspects all county owned facilities, plus 1,020 private stormwater facilities annually*

Ways Clark County currently addresses storm water:

	PRESERVE CONSERVE PROTECT	RETAIN MAINTAIN	REDUCE RETROFIT	RETROFIT UPDATE
why				
what				
how	• CONSERVATION FUTURES • VEGETATION MANAGEMENT • SUSTAINABLE FORESTRY • PARKS • GREENWAYS	• GROWING GREEN • NEW LOW IMPACT DEVELOPMENT	• NEW LOW IMPACT RE/DEVELOPMENT • PUBLIC EDUCATION TO REDUCE POLLUTION	• CAPTIAL PROGRAM • PARTNER AGENCIES • OPERATIONS & MAINTENANCE

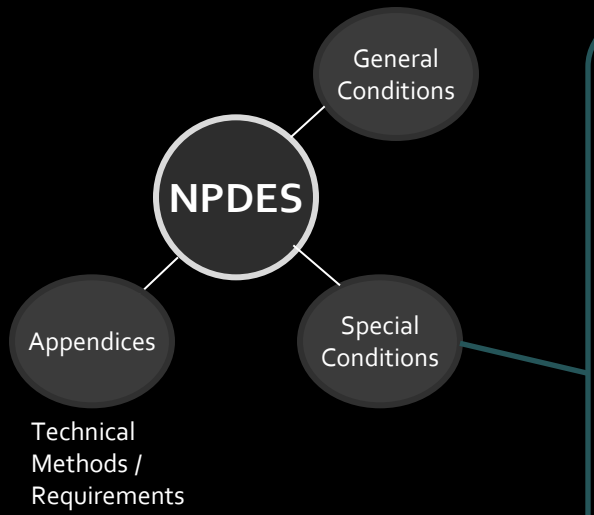
Who is involved in coordination of the Clark County NPDES permit?



Clark County is a "Phase 1" permittee. **The municipalities of Vancouver, Camas, Washougal, and Battle Ground are NPDES "Phase 2" permittees**. The cities have requirements and timelines that differ considerably from Clark County's permit. For example, prior to **Dec. 31, 2016**, Phase II communities must incorporate into code Low Impact Development (LID) as a preferred approach and must update their maintenance standards for both public and private development and redevelopment.

- New permit effective August 1, 2013
- New code and design manual go into effect July 1, 20

What are the components of the permit?



- S1 Permit Coverage and Permittees
- S2 Authorized Discharges
- S3 Responsibilities of Permittees
- S4 Compliance with Standards
- S5 Stormwater Management Program
- S6 Stormwater for Secondary Permittees
- S7 Compliance with Total Maximum Daily Loads
- S8 Monitoring
- S9 Reporting

Major areas of focus:

Legal Authority
MS4 Mapping/Documentation
Coordination
Public Involvement/Participation
Runoff from New Development – LID*
Watershed Scale Planning*
Structural Stormwater Controls*
Source Control from Existing Dev.
Operation & Maintenance Program*
Inspection Program
Education & Outreach Program

Stormwater Characterization*
Program Effectiveness*

Annual Report
Attachments – Summaries, Maps, Descriptions, Etc.

** Major cost elements*

What are the changes as a result of the new permit? We will continue to (with moderate level work)…..

NPDES Compliance

Administration
- *Coordination with other permittees*
- *Reporting*

Capital
- *Source control for pollution reduction*

Planning
- *Watershed-scale stormwater plan (Whipple Creek)*
- *Stormwater code updates, LID barrier removal (Title 40, Code 13.26A)*
- *Design manual updates (small project and engineering design)*

Monitoring
- *Assess river, creek conditions*

Regulatory
- *Illicit discharge / connections*
- *Enforce code requirements*

Inventory
- *Mapping of SW assets in GIS*

Operations & Monitoring
- *Inspect*
- *Operate*
- *Maintain facilities*

Public Education & Outreach
- *Public outreach on pollution control*
- *TAC / SAC / public forums*

Cold Creek Industrial Park – Stormwater Basin
Clark County MapsOnLine – Stormwater Layer

What are the changes as a result of the new permit? *Major work load items…..*

NPDES Compliance

Administration
- *Coordination with other permittees*
- *Reporting*

Capital
- *Source control for pollution reduction*

Planning
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New Seasons
164th Avenue, Vancouver
Rain Gardens and Rooftop plantings

Updating Our Stormwater Rules

VISION

Clark County's stormwater runoff is managed to protect the vitality of our community's waterways including our groundwater, rivers, and lakes while supporting an economically vibrant and livable community.

MISSION

To create stormwater management regulations that comply with state and federal regulations while being flexible and tailored to multiple project types, including making *Low Impact Development* (LID)* the approach for stormwater management in site development.

*** LID** is an approach to land development (or re-development) that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product. – EPA, webpage

Updating Our Stormwater Rules

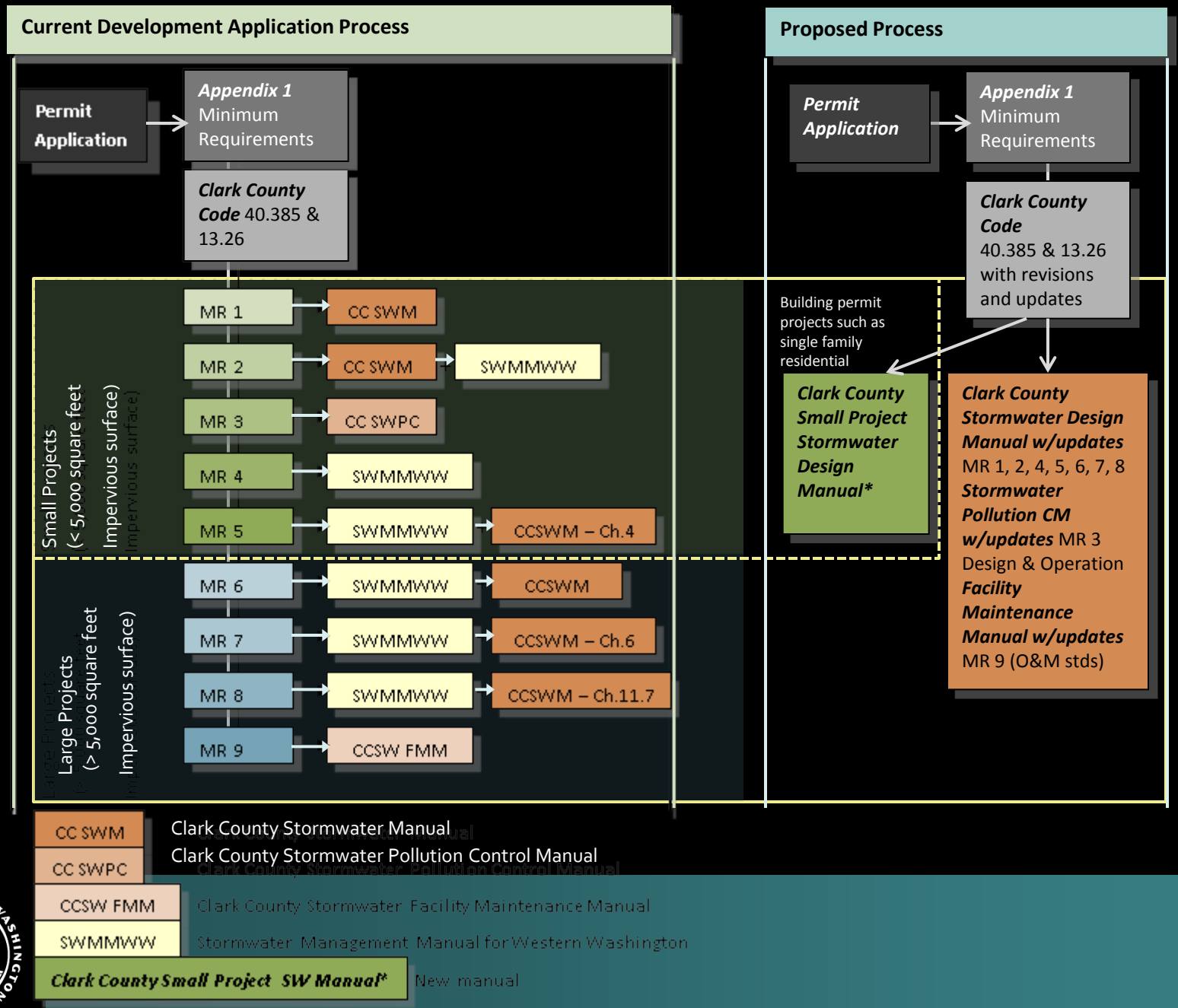
GOALS

- ***Adopt regulations* that comply with state and federal water pollution laws** in reducing polluted storm runoff
- ***Meet NPDES permit deadlines*** to minimize exposure for the county to regulatory and legal challenges
- ***Develop an integrated set of development codes*** that protect surface and groundwater from stormwater runoff, including the broad use of techniques that utilize low impact development (LID) practices
- ***Tailor LID feasibility requirements*** to local conditions ensuring projects are effective and safe, as well as identifying flexible alternatives for implementation

Updating Our Stormwater Rules

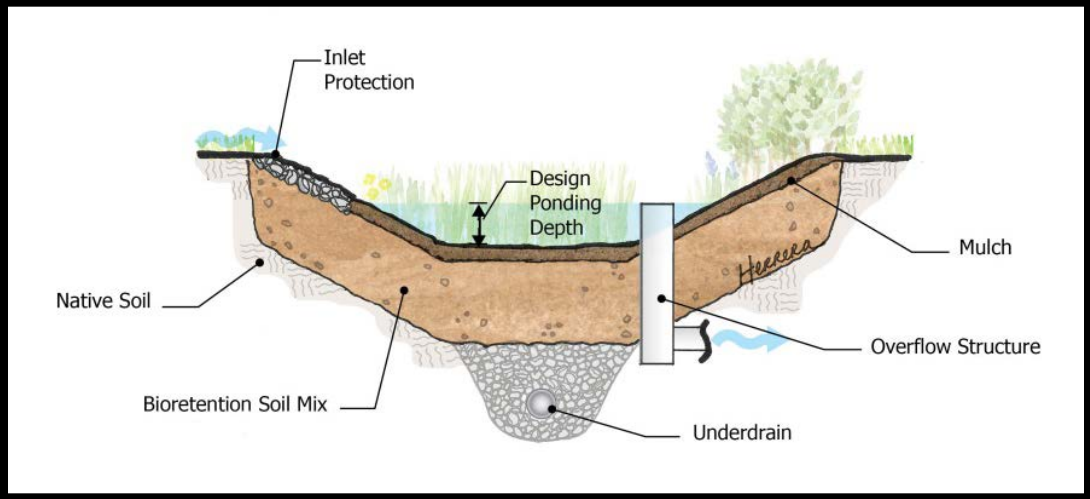
GOALS - continued

- ***Create a single Stormwater Design Manual*** for development projects that require engineering , including county roads
- ***Create a clear and concise 'Small Project' manual for residential building projects*** using a minimal amount of text and well-designed illustrations
- ***Revise application and review processes to be streamlined***, articulate, effective and supported by county staff.
- ***Engage internal and external stakeholders in the update process*** so that the resulting code is understandable and applicable to development projects
- ***Provide sufficient training and education for staff and the public*** to understand how to implement new code requirements


Current Development Application Process
Permit Application
Appendix 1 Minimum Requirements
Clark County Code 40.385 & 13.26
Small Projects (< 5,000 square feet Impervious surface)
MR 1
CC SWM
MR 2
CC SWM
SWMMWW
MR 3
CC SWPC
MR 4
SWMMWW
MR 5
SWMMWW
CCSWM – Ch.4
Large Projects (> 5,000 square feet Impervious surface)
MR 6
SWMMWW
CCSWM
MR 7
SWMMWW
CCSWM – Ch.6
MR 8
SWMMWW
CCSWM – Ch.11.7
MR 9
CCSW FMM
Proposed Process
Permit Application
Appendix 1 Minimum Requirements
Clark County Code 40.385 & 13.26 with revisions and updates
Building permit projects such as single family residential
Clark County Small Project Stormwater Design Manual*
Clark County Stormwater Design Manual w/updates MR 1, 2, 4, 5, 6, 7, 8
Stormwater Pollution CM w/updates MR 3 Design & Operation
Facility Maintenance Manual w/updates MR 9 (O&M stds)
CC SWM
Clark County Stormwater Manual
CC SWPC
Clark County Stormwater Pollution Control Manual
CCSW FMM
Clark County Stormwater Facility Maintenance Manual
SWMMWW
Stormwater Management Manual for Western Washington
Clark County Small Project SW Manual*
New manual

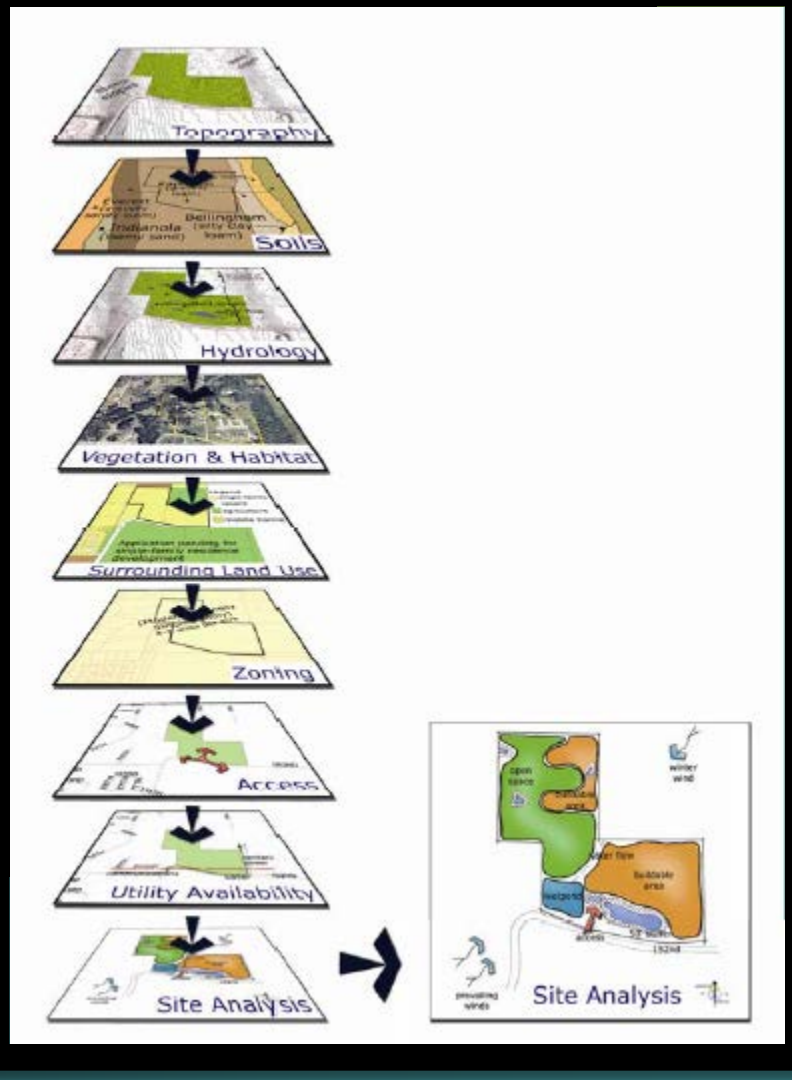
LID is a stormwater management strategy that integrates:

- Site design & planning techniques emphasizing conservation; and,
- Use of small-scale engineered controls to closely mimic pre-development hydrologic processes.



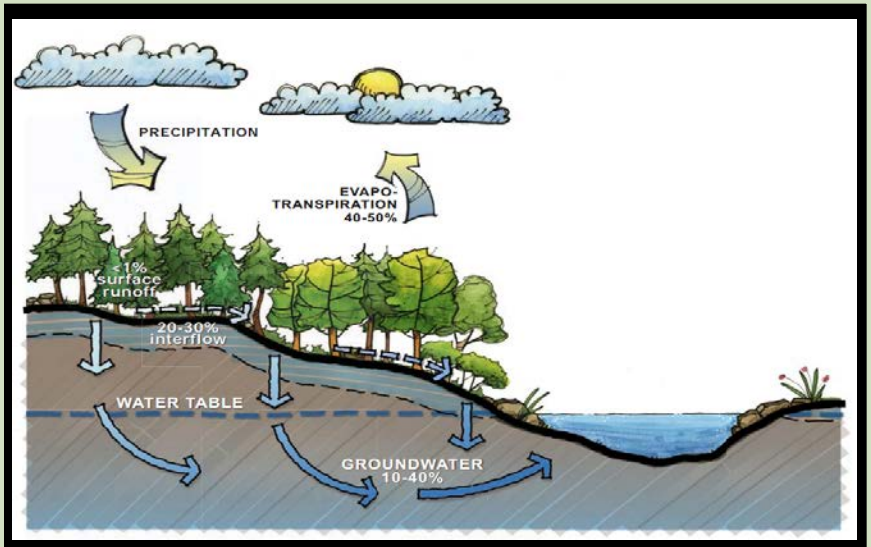
LID Key Principles

- Permit requires non structural practices integrated into early stages of project design
- LID principles include:
  - Conserve vegetation
  - Reduce & Disconnect impervious surfaces
  - Distribute small-scale techniques
  - Infiltrate on site



Small-scale engineering controls
(LID BMPs)

- Infiltration
- Filtration
- Storage
- Evaporation
- Transpiration



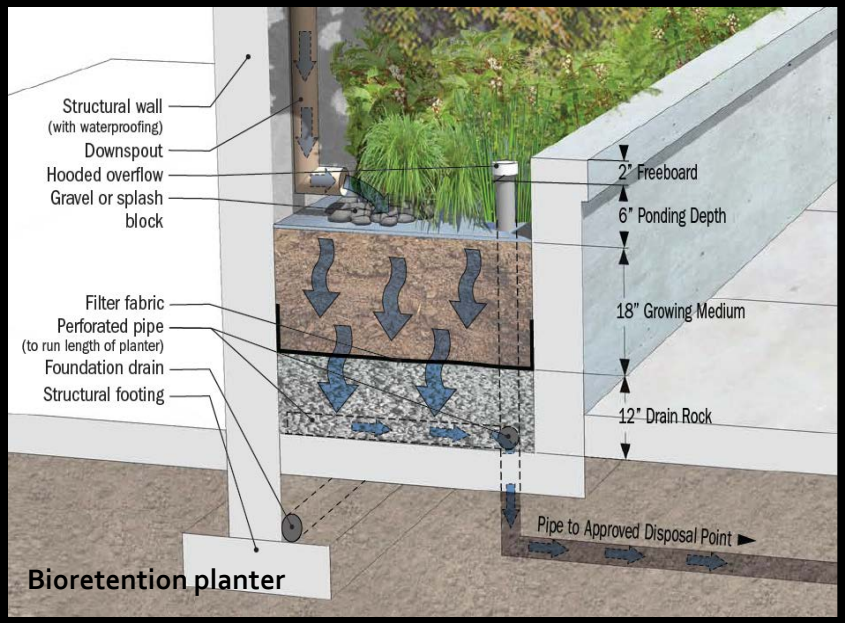
Replace Pre-developed Hydrologic Functions

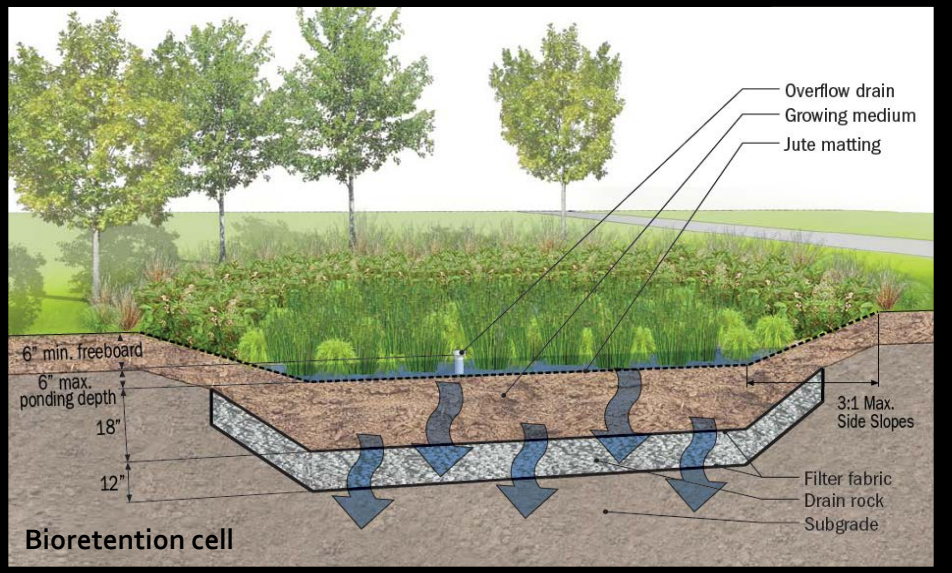
LID BMPs = Green Stormwater Infrastructure (GSI)
= Integrated Management Practices (IMPs)
= On-site Stormwater Management BMPs

Bioretention & Rain Gardens

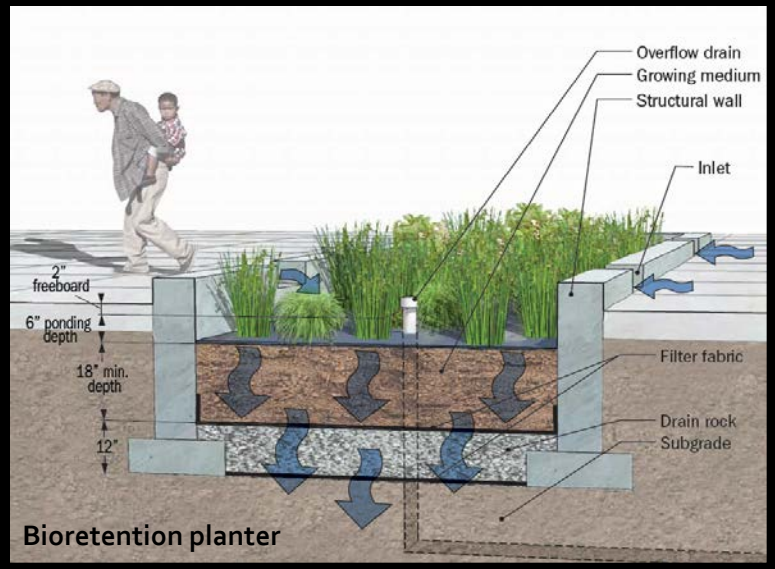
- Infiltration
- Filtration
- Storage
- Evaporation
- Transpiration

Bioretention & Rain Gardens



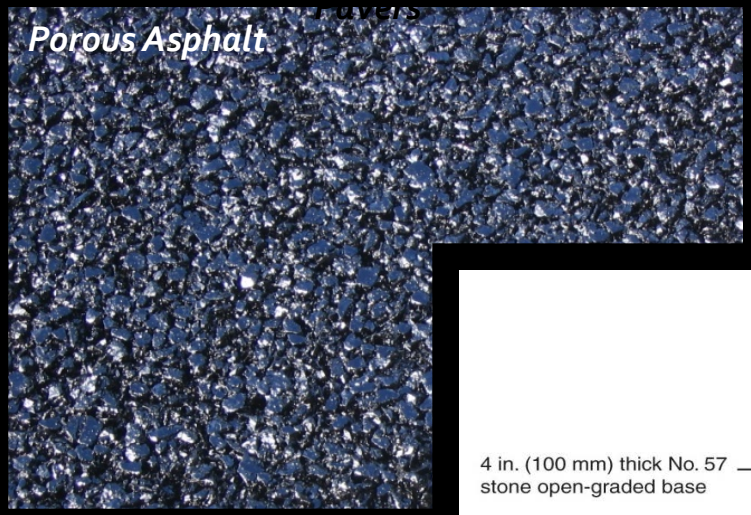


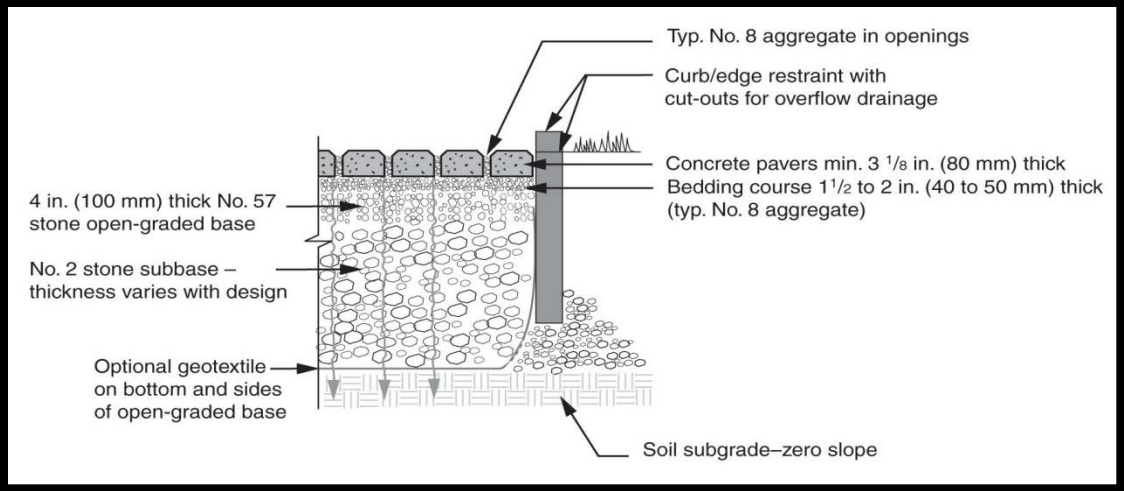
Images from LIDA Manual



Permeable Pavements

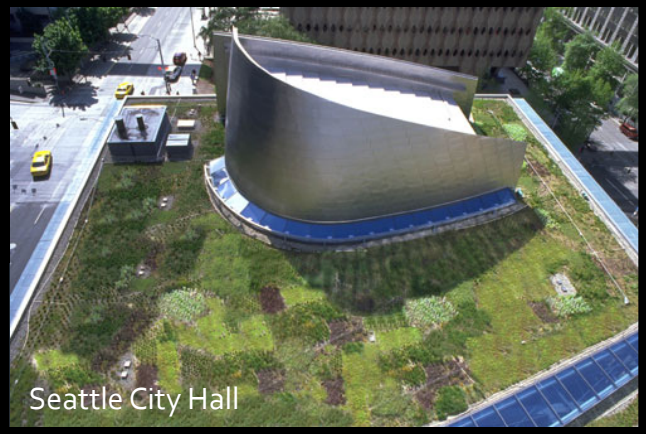
- Infiltration
- Storage





Green Roofs

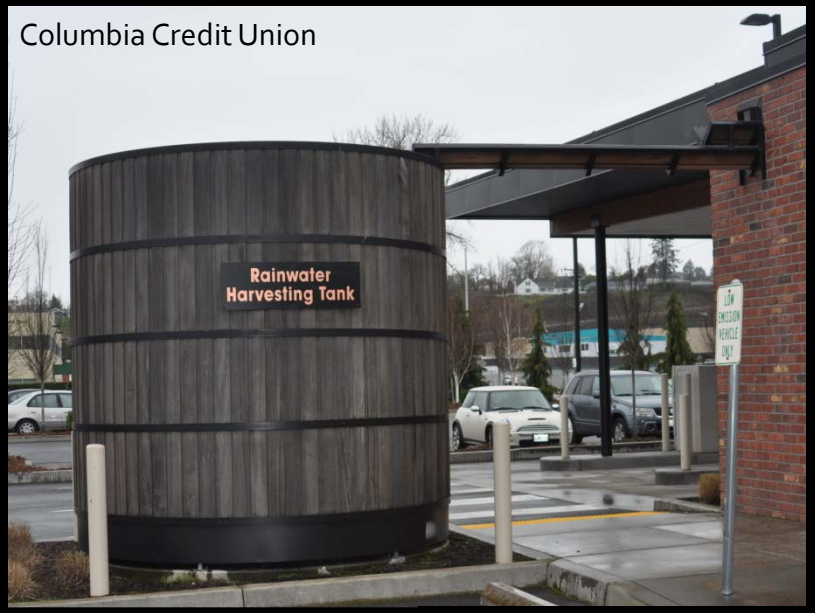
- Filtration
- Storage
- Evaporation
- Transpiration


Seattle City Hall


Park Place

Rainwater Harvesting

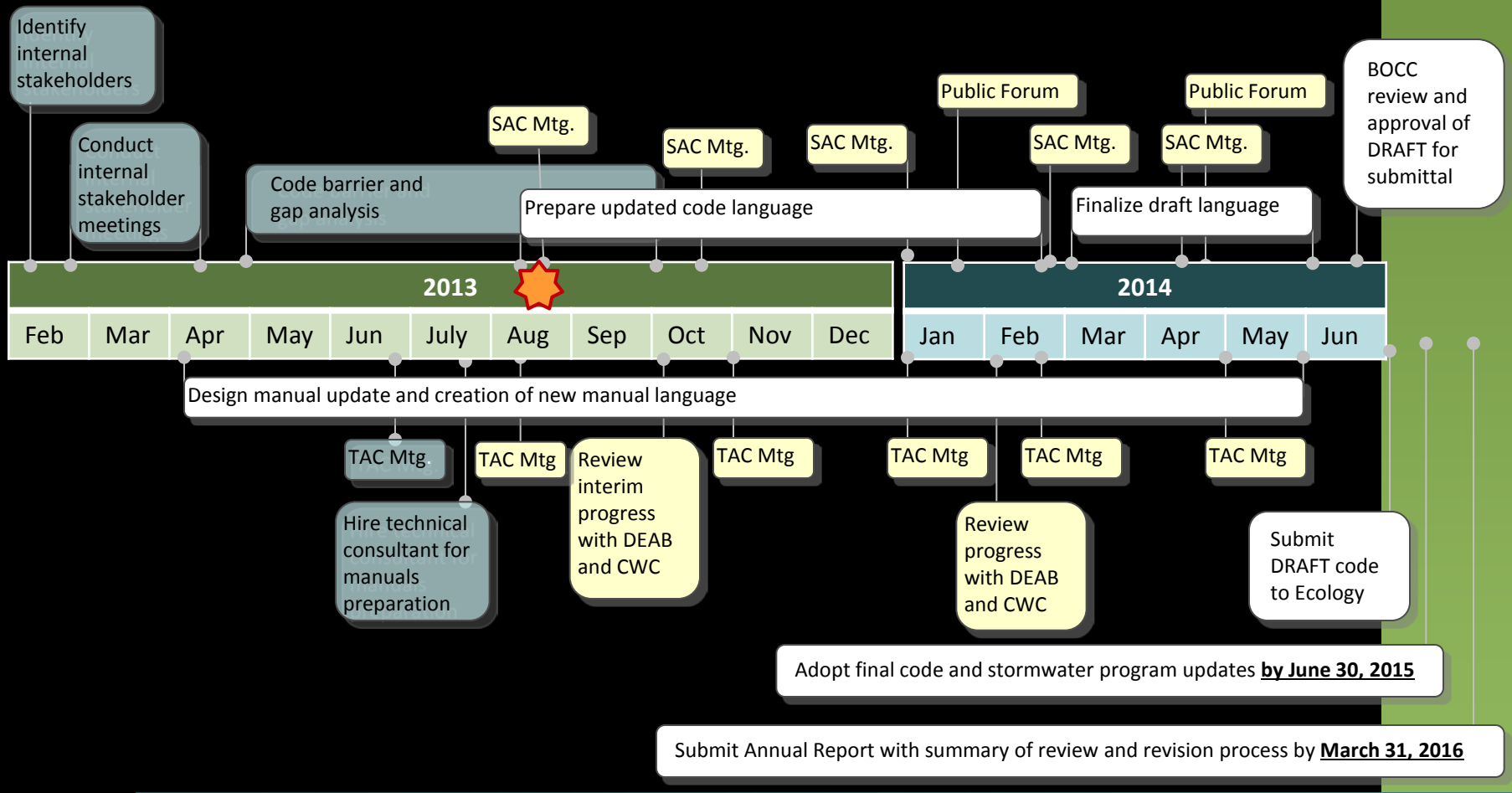
- **Storage**



Columbia Credit Union


McCord's Toyota

What is the anticipated schedule
(tentative)



We have two years to educate & inform the public about the regulations before they go into effect in July 2015

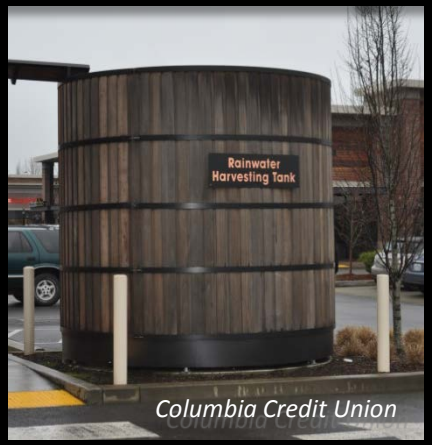
Next steps…


Washougal


Fort Clatsop


Portland


Portland



Columbia Credit Union


Washougal

Port of Vancouver


Legacy Emanuel Hospital

There are many great examples in Clark County, the region and nationally to learn from….

Need more information…

Department of Environmental Services (DES)
www.clark.wa.gov/stormwater

What you can do…

- **Participate in the process and let us know your thoughts**
- **Participate in our Green Neighbors and Green Business programs (lots of ideas and options)**
  clarkgreenneighbors.org & *clarkgreenbiz.com*

Comments & questions?