

Watershed-Based Planning Project

City of Duvall
Open House
March 18, 2015





What we will cover today

- Intro to the Duvall Watershed Planning Project
- Steps completed so far
- Why this is important for Duvall
- Q&A, followed by Public Comment

Project Background

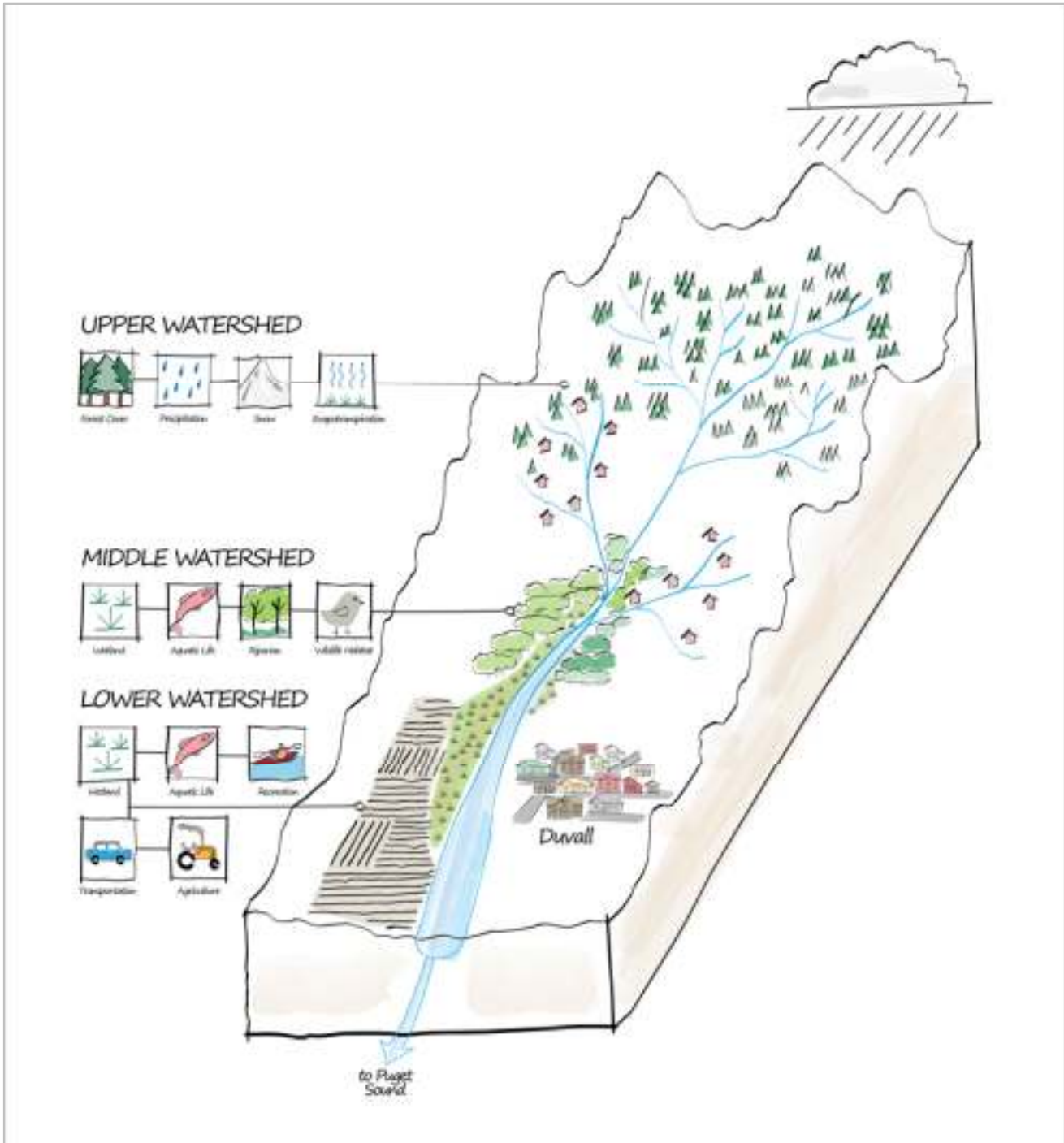
- Urban flooding
- Grow in the right places
- Sensitive areas protection

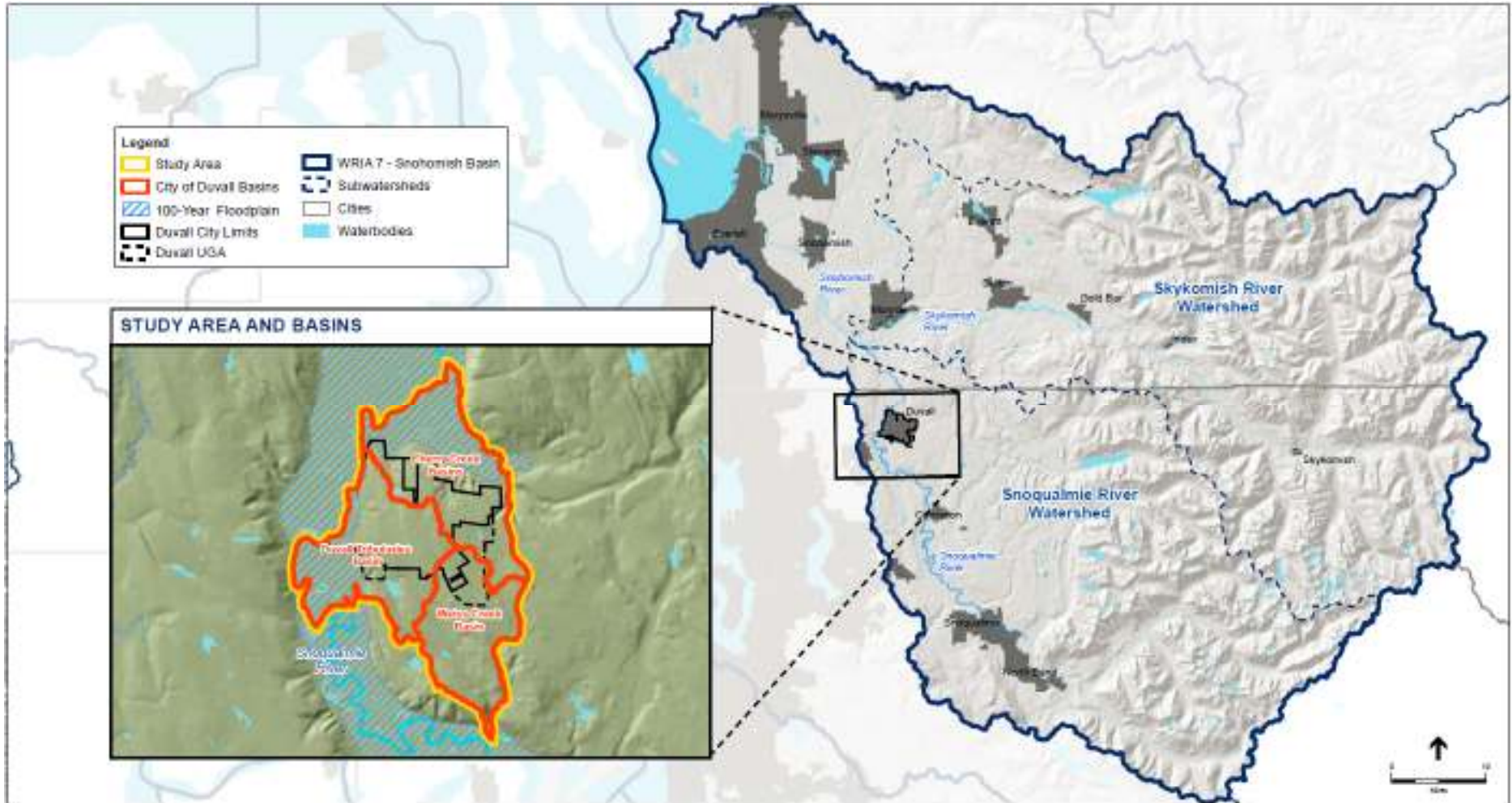
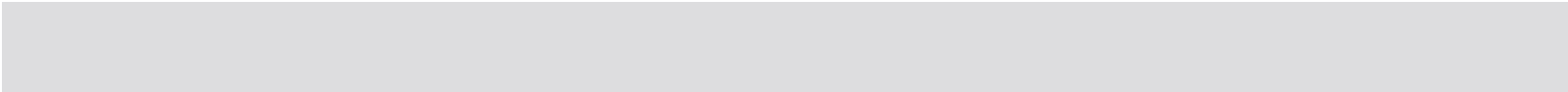


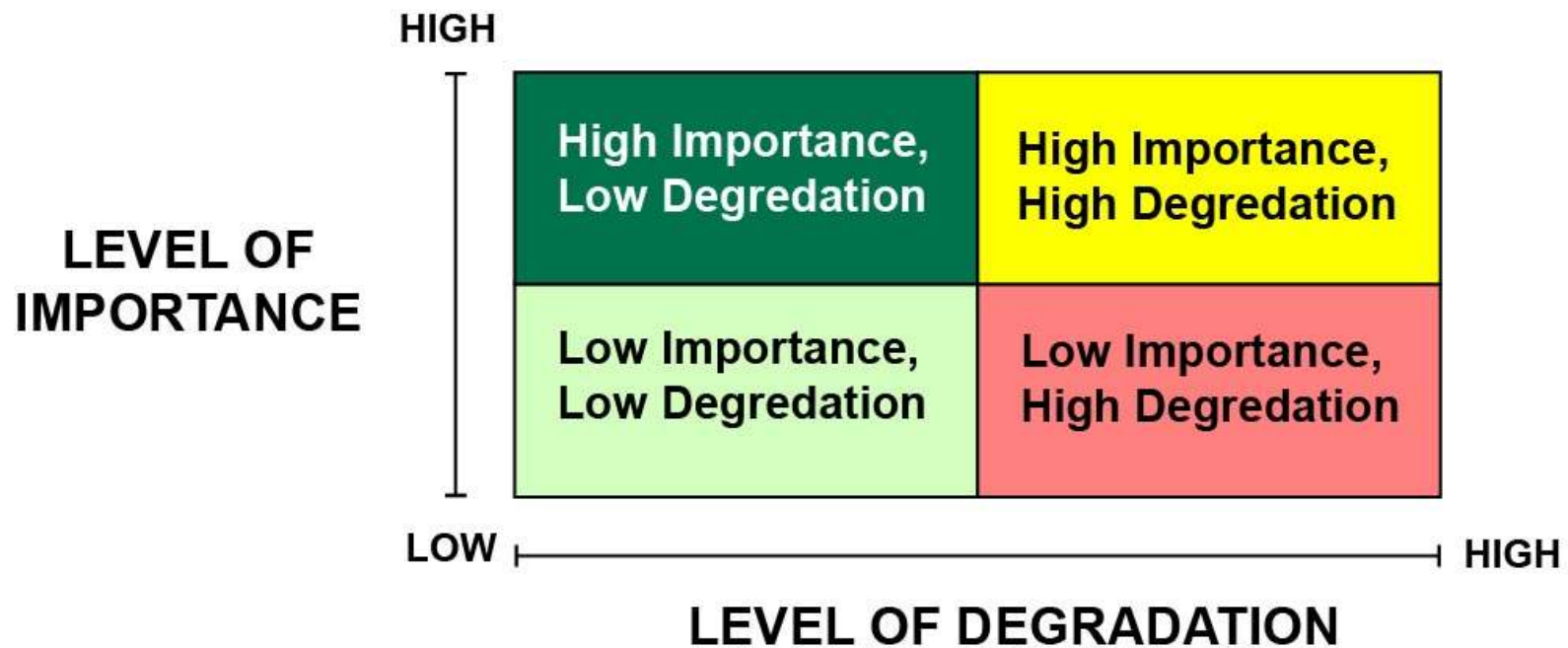
Puget Sound Watershed Characterization

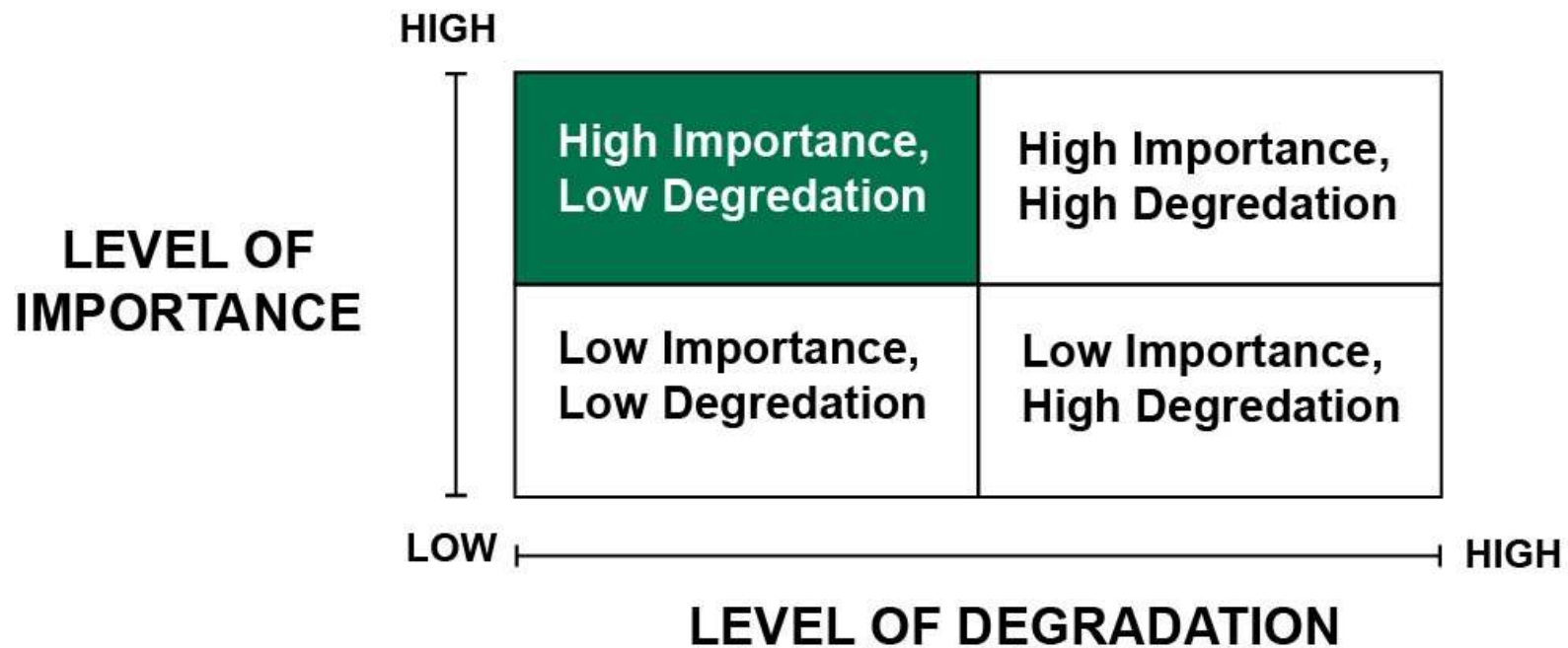
- Watersheds drain to Puget Sound
- Coarse-scale
- Key watershed processes
 - Water flow
 - Water quality
 - Habitat

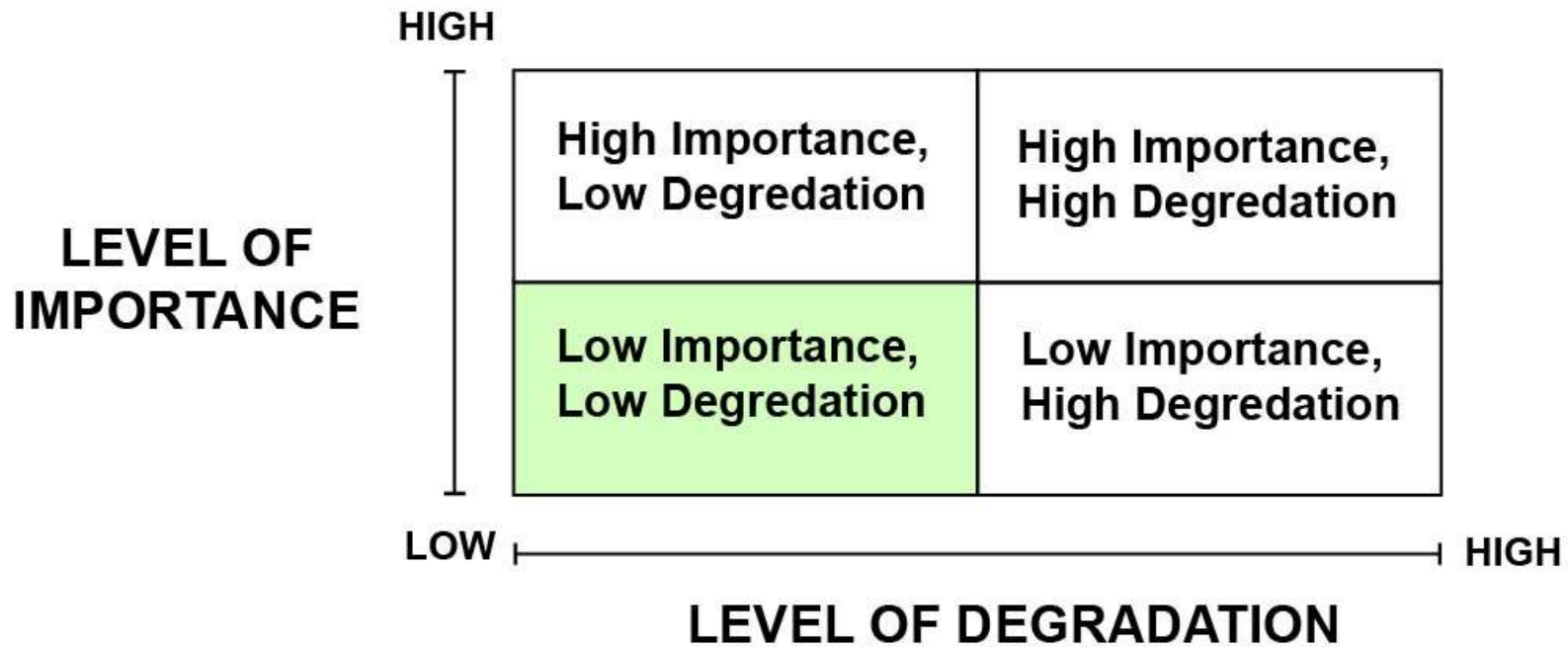






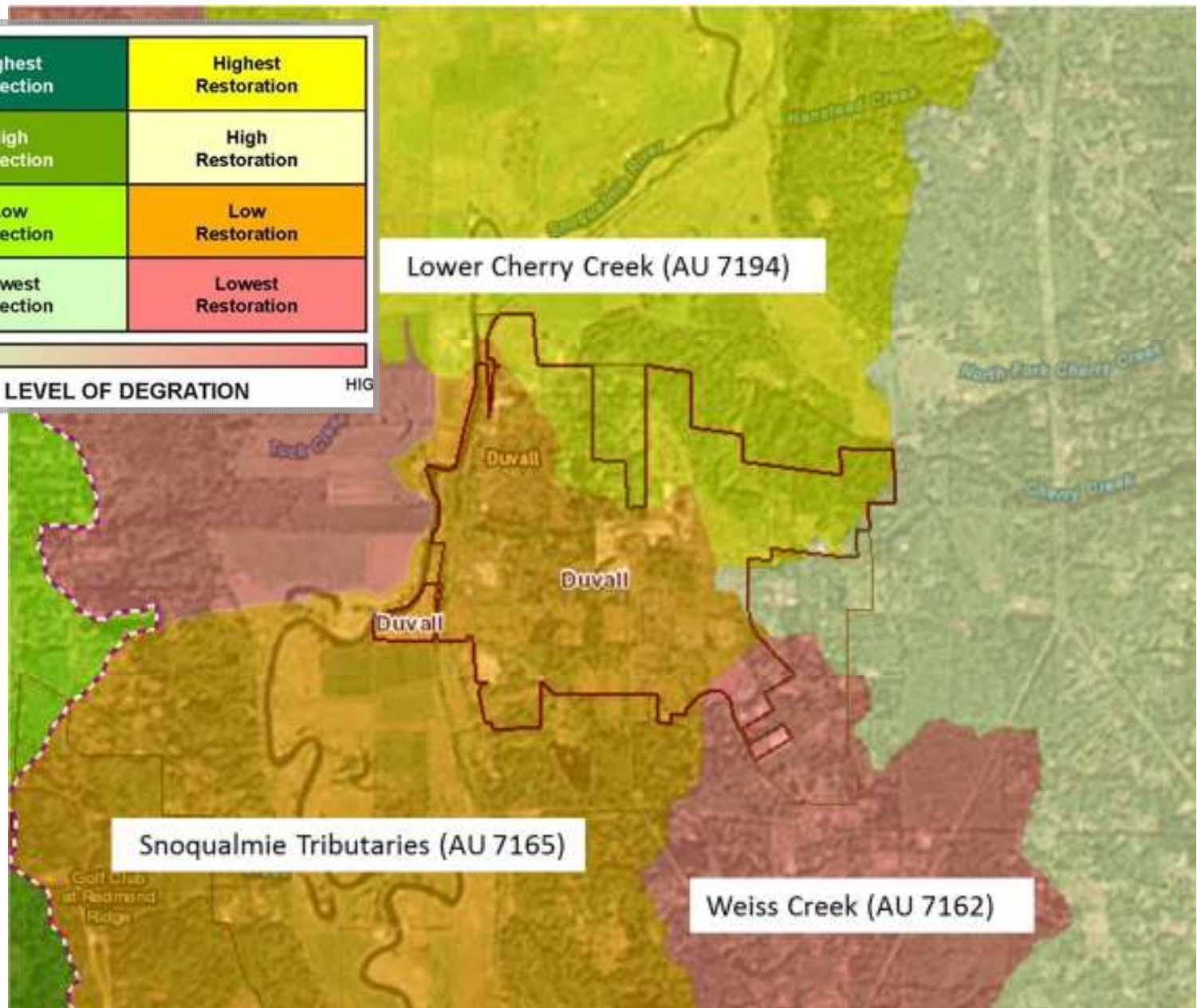






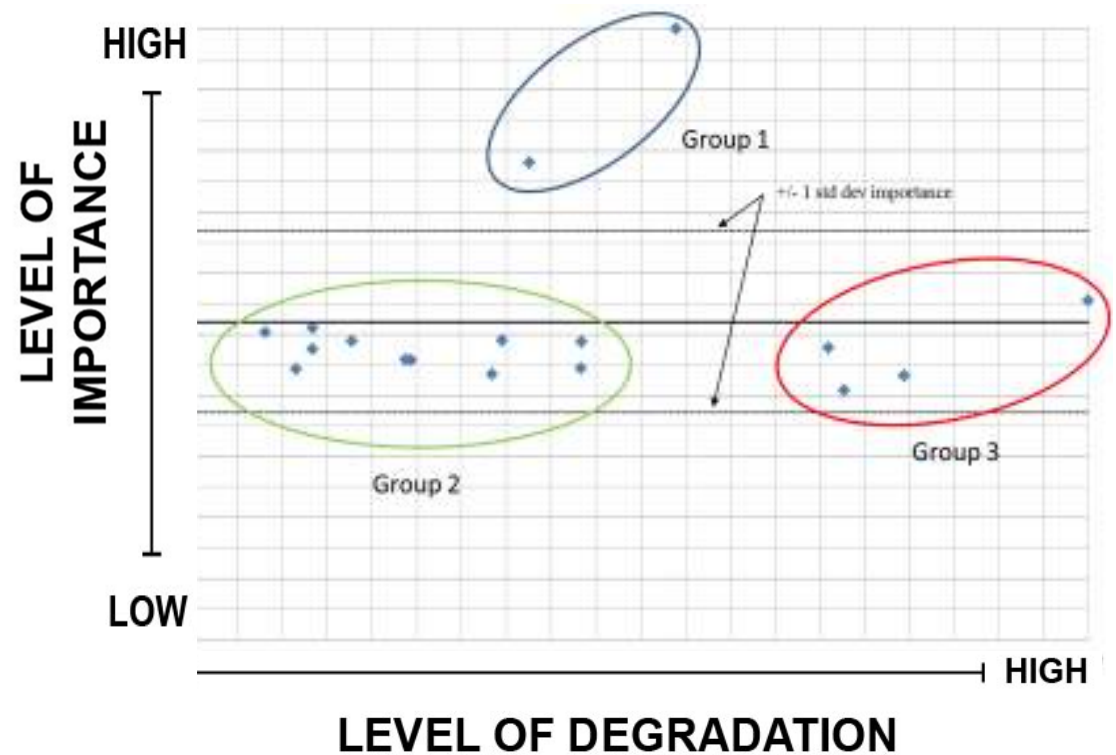


LEVEL OF IMPORTANCE	HIGH	Highest Protection	Highest Restoration
		High Protection	High Restoration
		Low Protection	Low Restoration
	LOW	Lowest Protection	Lowest Restoration
		LEVEL OF DEGRATION	



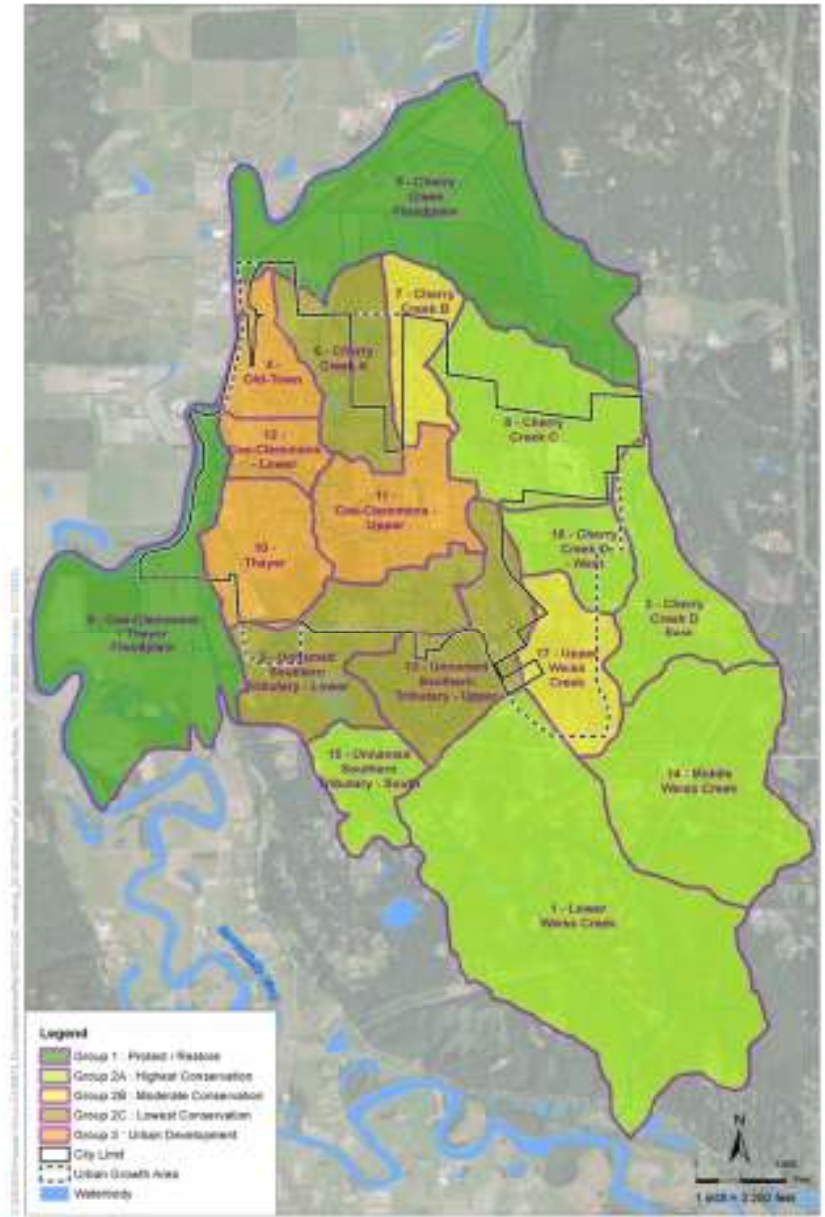
Duvall Watershed Characterization

- Basins into subbasins
- Refined indicators
 - Storage features
 - Forest cover
 - Impervious surface cover
 - Water quality measures
 - Aquatic habitat



Management Groups

1. Protect/Restore
2. Highest Conservation
3. Moderate Conservation
4. Lowest Conservation
5. Urban Development



Source: EPA Region 4, 2010. EPA Region 4, 2010. EPA Region 4, 2010. City of Southwestern Perry, 10034
 Figure 2-4

SUBBASIN

Name of Subbasin
PAU #

SEEM: Does the subbasin belong to:

**Management Recommendation:
Recommended management group**

What Does this Management Recommendation Mean?

Description of what development is appropriate for the given management recommendation.

Why is this the Management Recommendation?

Reason for including the PAU in the management group.

Map identifying the
location of the PAU in
Duval?

The table below describes the current relative health of each watershed process (based on the score of relative importance of the process and the relative degree of degradation. Importance refers to the underlying, pre-development physical conditions (geology, landscape position, etc.) Degradation reflects the amount of change to land cover.

<p>Soil-Water Storage</p>	Storage refers to the amount of runoff (water above the watershed) as surface water. In natural systems, both wetlands and floodplains can provide surface water storage, which attenuates peak flows.
<p>Groundwater and Base Flow Recharge</p>	Groundwater and Base Flow are evaluated by delivery and recharge processes. Delivery is the amount of flow generated in the watershed by precipitation. Impervious surfaces generally increase the magnitude and frequency of peak flow events by reducing the amount of precipitation recharged to the atmosphere through evapotranspiration and reducing infiltration to deep groundwater. Recharge affects the volume of precipitation reaching the stream as constant flow through infiltration to shallow and deep groundwater. Infiltrating runoff attenuates peak flows that can cause excessive erosion and/or flooding.
<p>Pool and Habitat Habitat</p>	Poolwater habitat was evaluated by streaming the quantity and quality of habitats for all organisms present or potentially present in the target assessment units.
<p>Water Quality</p>	Water quality processes of interest include sediment deposition, buffer conditions, erosion potential, and pollution.

SUBBASIN TEXT

Statistical data within on PAU risk, existing land use, existing land cover, presence of streams and rivers, and other key data.



SUBBASIN

Name of Subbasin and PAU #

Existing Land Use



Land Use Opportunities and Constraints

Describe possibilities for future improvement to watershed processes and conditions that could prevent improvement or result in future degradation of watershed processes.

Preliminary Management Priorities and Objectives

Management priorities and objectives that identify actions the City could take to improve watershed processes or prevent further degradation to watershed processes.

Existing Land Cover



Commonly Used Acronyms:

- ESAP – State management practices
- DMC – Duval maintenance code
- LD – low impact development
- PAU – project assessment unit
- TEC – temporary erosion and sediment control
- UGA – urban growth area
- UGP – urban growth plan
- NSRW – Washington Department of Fish and Wildlife

Map showing the location of wetlands, streams, and other key features on an orthophoto



Legend: Subbasin Boundary, Wetlands, Subbasin, Stream, Pipe Conveyance, City Limit, City USA, PAU ID

Urban Development (Old Town)

City of Duwall - Watershed Plan - March 13, 2015
Chapter 4 Subbasin Falls

Old -Town (PAU D2)

Basin: Duwall Tributaries - Direct to Goochsenne River

Management Recommendation: Group 3 Urban Development

What Does this Management Recommendation Mean?

This subbasin is an area of lowest importance to estuarine processes and can be targeted for intense urban development.

Why is this the Management Recommendation?

Compared to other areas of the city, this subbasin scored lowest for importance and highest for level of degradation. High impervious surface cover and altered conveyance of surface flows. As new development / redevelopment in the subbasin occurs, it should be paired with targeted restoration focused on improving Goochsenne River conditions. Analysis results are detailed below.



Subbasin Function	Subbasin Characteristics	Broad management priorities
Surface Storage	<ul style="list-style-type: none"> Minimal surface storage or other surface storage features, outside of Leanne Goochsenne River floodplain at western edge. Previous development has resulted in paved / urban conveyance directly to flow. Limited opportunity for storage enhancement due to steep and existing development / infrastructure patterns. 	<ul style="list-style-type: none"> Limit new residential development. Pursue effective impervious surface. Eliminate flow control standards to encourage high density development (urban consistent with DAC 18.08).
Groundwater and Base Flow	<ul style="list-style-type: none"> Subbasin features some moderate important for groundwater recharge and base flow maintenance processes, however these processes have been highly degraded. 10% permeable soils (sandy/silt/clay). Very low infiltration. Previous degradation due to high impervious surface cover and altered flow patterns. 	<ul style="list-style-type: none"> Protect floodplain development. Increase infiltration by substituting effective impervious surface. Identify stream opportunities that promote infiltration.
Fish and Wildlife Habitat	<ul style="list-style-type: none"> The subbasin is moderately important for fish and wildlife habitat. Importance lost to a moderate but pressure within the Goochsenne River, along western subbasin edge. Increasing subbasin high flow class with its open channel or flood habitat (scour bars, development, and bank armoring) along the Goochsenne River riparian corridor have diminished degraded habitat quality. 	<ul style="list-style-type: none"> Protect further development into Goochsenne River riparian corridor. Reduce riparian and tree bank conditions. Identify benefits to improve water quality functions.
Water Quality	<ul style="list-style-type: none"> The subbasin has moderate sediment export potential and direct discharge to Goochsenne River tributaries. Sediment sources primarily surface erosion due to soil instability and subbasin stream. Impervious surface cover and other urban conveyance pipes and other infrastructure has likely reduced export potential, however water quality issues related to runoff from developed areas has increased. 	<ul style="list-style-type: none"> Identify storm water management in water quality. Reduce storm water imperviousness (SUDS) BMPs during clearing and grading activities.

SUMMARY STATS

Area: 144 Acres City: 98% WMA: 6% UGA: 1%

Predominant uses within Duwall: Single-family residential and public right-of-way

Stream: East bank Goochsenne River stormwater flows directly to Goochsenne River through pipe/ditch conveyance

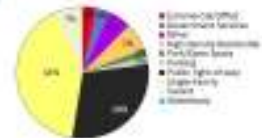


4-12

City of Duwall - Watershed Plan - March 13, 2015
Chapter 4 Subbasin Falls

Old -Town (PAU D2)

Existing Land Use



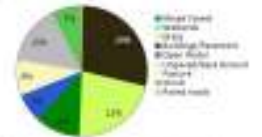
Land Use Opportunities and Constraints

- Opportunities for streamside benefits to improve water quality.
- Placement of all bank locations along the Goochsenne River are degraded, with stream banks and riparian spaces with continuous riparian opportunity for restoration.
- is suitable for additional residential density but redevelopment opportunity constrained by existing physical constraints and zoning.

Preliminary Management Priorities and Objectives

- Encourage high density development by substituting low imperviousness (with sediment water quality treatment) when consistent with DAC 18.08.
- Pursue effective impervious surface by disconnecting non-pavement generating impervious areas (for example roofs, sidewalks).
- Protect further development into Goochsenne River riparian corridor / floodplain and restore riparian conditions.
- Improve water quality functions throughout subbasin through redevelopment incentives and stream actions.

Existing Land Cover



Distributing land cover by entire subbasin including areas within County jurisdiction




ALL RECOMMENDATIONS APPLICABLE TO DUWALL CITY LIMITS AND UGA ONLY. CONTENT HAS NO BEARING ON LAND USE DECISIONS IN UNINCORPORATED KING COUNTY.

4-13

Lowest Conservation (North UGA)

City of Duluth - Watershed Plan - March 13, 2016
Chapter 4 Subbasin Facts

SUBBASIN:
Cherry Creek A (PAU C3)
BASIN: Cherry Creek Tributaries




Management Recommendation:
Group 2C Lowest Conservation

What Does this Management Recommendation Mean?
This subbasin is appropriate for more intense development but as development occurs the resources and areas most important for watershed processes should be conserved.

Why is this the Management Recommendation?
The subbasin scored relatively low for importance and high for degradation. New development, including in the North UGA, would have less impact on processes compared to other subbasins and may create opportunities to improve important areas (Cherry Creek Tributary A riparian corridor, Lake Thomason). Analysis results are detailed below.

<p>Surface Storage</p> <p>Lake Thomason and other depositional wetlands in upper basin provide moderate levels of surface storage during storm events, reducing downstream erosion.</p> <ul style="list-style-type: none"> • Off-basin A and other surface storage features • Lake Thomason (S3) should still be the upper portion of subbasin • Storage provision: severely degraded (highly varying intensity of development due to retention of existing wetlands and Lake Thomason) 	<p>Best management priorities:</p> <ul style="list-style-type: none"> • Limit sediment discharge to Lake Thomason • Conserve riparian area and • Restore wetlands to increase storage capacity
<p>Groundwater and Base Flow Recharge</p> <p>Subbasin features are moderately important for groundwater recharge (groundwater recharge) and less important for maintaining stream base flows.</p> <ul style="list-style-type: none"> • 1% potential for base flow recharge • Flow: none available • Subbasin to groundwater dependent due to high impervious surface cover (due to within North UGA area). Base flow maintenance processes are most needed, especially around Cherry Creek Tributaries, S-1, S2, S3, S4, S5. 	<p>Best management priorities:</p> <ul style="list-style-type: none"> • Subbasin riparian area and riparian area • Maintain wetland and riparian areas around subbasin stream
<p>Fish and Wildlife Habitat</p> <p>The subbasin is moderately to highly important for fish and wildlife habitat.</p> <ul style="list-style-type: none"> • Documented catfish presence in Cherry Creek Tributaries A extending above Hill (Cherry Valley Rd. reach extending beyond Lake Thomason also has potential to support brook trout) • Flooded areas are generally contiguous with subbasin (and to larger forested tracts to the west) • Stream habitat affected by riparian encroachment and stream channelization (flowing) where riparian habitat and floodplain habitat is built. 	<p>Best management priorities:</p> <ul style="list-style-type: none"> • Improve Tributary A stream conditions • Conserve riparian area and riparian area around subbasin stream • Limit base flow within subbasin (avoided area)
<p>Water Quality</p> <p>This subbasin has moderate to high sediment input potential.</p> <ul style="list-style-type: none"> • Lake Thomason and other depositional wetlands within subbasin provide moderate sediment retention for runoff • Group 2C area in northern subbasin have high sediment potential for subbasin and wetland • As well from developed areas that likely increased pollutant inputs to subbasin with development areas, as well as channel erosion. 	<p>Best management priorities:</p> <ul style="list-style-type: none"> • Limit sediment runoff within subbasin • Subbasin Lake Thomason potential input • Maintain depositional wetlands • Encourage stormwater run offward to North UGA (impervious for storm input)

SUBBASIN STATS
Basin: 1881 - Within City: 2016 - Within UGA: 2016
Predominant uses within Duluth: Single-family residential, retail, residential in North UGA, and vacant lands
Basins: Cherry Creek Tributary A (PAU C3), Lake Thomason, Tributaries A-1 and A-2



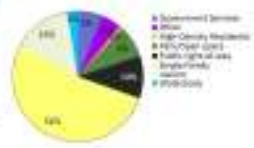
LANDSCAPE POSITION
BANKS/SLOPE

4-14

City of Duluth - Watershed Plan - March 13, 2016
Chapter 4 Subbasin Facts

SUBBASIN:
Cherry Creek A (PAU C3)

Existing Land Uses



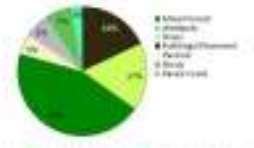
Land Use Opportunities and Constraints

- Opportunities for stormwater retention in existing developed areas
- Riparian corridors along Cherry Creek, Tributary A vary; however, corridor is present approximately 1/3, but is not throughout, except for base flow management. Channel and riparian restoration opportunities exist
- Potential development in the North UGA upon preservation presents an opportunity for stormwater stormwater BMPs


Preliminary Management Priorities and Objectives

- Protect existing riparian corridor and wetlands, especially those along tributary streams and Lake Thomason
- Require use of LID approaches for water quality and water flow as new development occurs in North UGA
- Limit discharge of pollutants into Lake Thomason from contributing developed areas

Existing Land Cover



Map



SUBBASIN AREA
OUTSIDE OF DULUTH

Legend: Subbasin Boundary, Wetlands, Waterbody, Street, Pipe Conveyance, City Limit, City UGA, PAU C3

4-15

ALL RECOMMENDATIONS APPLICABLE TO DULUTH CITY LIMITS AND UGA ONLY.
CONTENT HAS NO BEARING ON LAND USE DECISIONS IN UNINCORPORATED KING COUNTY.

Moderate Conservation (South UGA-R)

City of Duvall - Watershed Plan - March 12, 2013
Chapter 4 Subbasin Plan

Subbasin: Upper Weiss Creek (PAU W3)

Basin: Southern Tributaries - Weiss Creek

Management Recommendation: Group 2B Moderate Conservation

What Does this Management Recommendation Mean?
While this subbasin may be appropriate for some additional development, care should be taken to protect areas important for retaining watershed processes, especially delivery, discharge and habitat processes.

Why is this the Management Recommendation?
The subbasin scored low to moderate for importance and moderate for degradability. Some important areas for retaining watershed processes remain intact, including extensive forested areas that include several large depositional wetlands. These areas should be conserved; however, overall results suggest there are other areas that may be appropriate for additional development. Analysis results are detailed below:

<p>Surface Storage</p> <p>Subbasin features provide moderate levels of surface storage within a headwater landscape position.</p> <ul style="list-style-type: none"> 17% wetlands and other surface storage features Large forested depositional wetland complex within UGA, to the NE of Big Rock Hill Camp Road <p>Wetland processes are generally intact due to their remote location.</p>	<p>Wetland management priorities:</p> <ul style="list-style-type: none"> Protect depositional wetlands Maintain depositional flow pathways
<p>Streamflow and Base Flow</p> <p>Subbasin is moderately important for base flow maintenance processes; however, less important for recharge.</p> <ul style="list-style-type: none"> No areas of riparian permeable soils Large headwater wetlands for Weiss Creek <p>These processes have been minimally degraded, as there are generally low levels of existing development. Low riparian surface cover and high forest cover (especially within wetland) support processes.</p>	<p>Wetland management priorities:</p> <ul style="list-style-type: none"> Limit future development Protect depositional wetlands Maintain depositional flow pathways
<p>Fish and Aquatic Habitat</p> <p>The subbasin is of moderate importance for fish and aquatic habitat.</p> <ul style="list-style-type: none"> No developed areas within 50' proximity, although there is extensive development presence of roads within Weiss Creek (PAUs 14 and 1) Forested wetland areas provide significant habitat for muskrat, otter, amphibians, and invertebrate species Forested wetlands in larger riparian areas in the north (PAU 10), west (PAU 11), south and east <p>Road development has resulted in some forest loss, primarily along Big Rock Road corridor.</p>	<p>Wetland management priorities:</p> <ul style="list-style-type: none"> Limit future development to areas along Big Rock Road and Rabbit Road Protect large forested wetland complex Maintain habitat corridors
<p>Water Quality</p> <p>The headwater landscape of the subbasin supports sediment deposition and water filtration processes.</p> <ul style="list-style-type: none"> Extensive areas of depositional wetlands suggest that the overall subbasin is a sediment and phosphorus sink Wetlands provide water quality filtration before discharging to Weiss Creek Water quality processes are relatively intact due to limited development throughout subbasin, especially areas surrounding the large forested wetland complex. 	<p>Wetland management priorities:</p> <ul style="list-style-type: none"> Limit future development, with require use of LEI approaches for water flow and water quality wherever development occurs Protect forested wetland complex

Subbasin Stats:
Area: 217 Miles City: 0% Weiss UGA: 13%
Predevelopment: Rural residential and recent forested lands
Stream: Tributaries of Weiss Creek

LANDSCAPE POSITION: TERRACE-HEADWATER

0+000 017+8 044 0+000 017+8 044 0+000 017+8 044

City of Duvall - Watershed Plan - March 12, 2013
Chapter 4 Subbasin Plan

Subbasin: Upper Weiss Creek (PAU W3)

Existing Land Use

Land Use Opportunities and Constraints

- Carriage path corridors and forested riparian corridors throughout western portion of subbasin, and are located in headwater landscape position for Weiss Creek
- Subbasin is within existing UGA, any future development should consider development potential, especially along the Big Rock Road and Rabbit Road corridors

Preliminary Management Priorities and Objectives

- Limit future development to areas along Big Rock Road and Rabbit Road, and away from forested depositional wetland complex
- Require use of LEI approaches for water flow and water quality wherever development occurs
- Maintain forested riparian corridors in all riparian areas, including depositional flow pathways from wetland complex to Weiss Creek

Land Cover

Wetland management priorities for this subbasin, including areas within County jurisdiction.

4-33

ALL RECOMMENDATIONS APPLICABLE TO DUVALL CITY LIMITS AND UGA ONLY. CONTENT HAS NO BEARING ON LAND USE DECISIONS BY UNINCORPORATED KING COUNTY.

Highest Conservation (North UGA-R)

SUBBASIN

Cherry Creek D - West (PAU C6)

GAISN: Cherry Creek Tributaries

Management Recommendation: Group 2A Highest Conservation

What Does this Management Recommendation Mean?

This subbasin is highly important to multiple watershed processes and should be a high priority for protection and restoration.

Why is this the Management Recommendation?

The subbasin is rated high for importance and low for degradation. Important areas for maintaining watershed processes include, including forested depositional wetlands in a headwater landscape to the south of NE 100th Street (the western portion of the UGA/R). These areas should be conserved; urban development may not be appropriate in this subbasin. Analysis results are detailed below.



 <p>Air Toxic Storage</p>	<p>Subbasin possesses high levels of surface storage within a headwater landscape position.</p> <ul style="list-style-type: none"> • EPA wetlands and other surface storage features • Large forested depositional wetland complex to the south of NE 100th Street <p>Water storage processes have been minimally degraded, as there are low levels of existing development.</p>	<p>Wetland management priorities:</p> <ul style="list-style-type: none"> • Limit future development, especially within the UGA/R • Protect depositional wetlands • Maintain downstream flow pathways
 <p>Wetland and Base Flow Maintenance</p>	<p>Subbasin is moderately important for base flow maintenance, less important for recharge.</p> <ul style="list-style-type: none"> • No areas of trapped saturation table • Wetlands drain to Cherry Creek Tributary D channels <p>Saturation and base flow processes have been minimally degraded because there is little existing development. Low aquifer recharge surface cover throughout the subbasin supports processes.</p>	<p>Wetland management priorities:</p> <ul style="list-style-type: none"> • Limit future development, especially within the UGA/R • Protect depositional wetlands • Maintain downstream flow pathways
 <p>Fish and Wildlife Habitat</p>	<p>The subbasin is moderately important for fish and wildlife habitat.</p> <ul style="list-style-type: none"> • No observed watercourse fish presence, although there is abundant presence of culms and shellfish within Cherry Creek Tributary D • Forested wetland areas provide habitat for the raccoon, duck, amphibian, and mammal species <p>To protect wetlands for larger watercourse biota to flow well, flood development has resulted in some level loss.</p>	<p>Wetland management priorities:</p> <ul style="list-style-type: none"> • Limit future development • Protect large forested wetland complex • Maintain habitat corridor to the west
 <p>Water Quality</p>	<p>The headwater landscape of the subbasin supports sediment deposition and water filtration processes.</p> <ul style="list-style-type: none"> • Common lines of depositional wetlands suggest that the subbasin is a sediment and phosphorus sink • Wetlands provide water quality benefits before discharge to Cherry Creek Tributary D <p>Water quality processes are relatively intact due to low levels of development throughout subbasin, especially areas containing large forested wetland complex.</p>	<p>Wetland management priorities:</p> <ul style="list-style-type: none"> • Limit future development • Protect large forested wetland complex

SUBBASIN DATA
 Acres: 180 Within City: 0% Within UGA: 77%
 Predominant Uses (within David): Rural residential and forest lands
 Streams: headwaters of Cherry Creek Tributary D



SUBBASIN

Cherry Creek D - West (PAU C6)

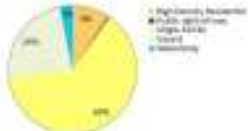
Land Use Opportunities and Constraints

- Area is entirely within the UGA/R, forest zoning development generally under County zoning (existing future development is consistent with watershed management recommendations)
- Large forested depositional wetland complex in headwater landscape setting provides multiple important functions which should be a priority for protection

Preliminary Management Priorities and Objectives

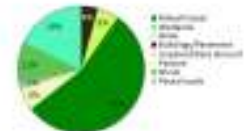
- Limit future development throughout the subbasin by removing from the UGA/R or placing non-land areas with substantial buffering to conservation easement
- Maintain forested habitat corridors to the west, including streambank flow pathways that non-land corridor to Cherry Creek Tributary D streams

Existing Land Use



Depicts existing land use for entire subbasin. Shaded areas of the subbasin landscape include agricultural and other County activities.

Land Cover



Depicts existing land cover for entire subbasin. Shaded areas include County activities.



Subbasin Boundary Wetland Waterbody Stream Pipe Conduits City Limit City UGA PAU C6

ALL RECOMMENDATIONS APPLICABLE TO DAVALL CITY LIMITS AND UGA ONLY. CONTENT HAS NO BEARING ON LAND USE DECISIONS IN UNINCORPORATED KING COUNTY.

Protect/Restore (Snoqualmie River)

City of Duwamish - Integrated Plan - March 13, 2018
Chapter 3 Subbasin Plan


SUBBASIN
Coe Clemmons/Thayer Floodplain (PAU D3)





Basin: Duwamish Tributaries - Coe Clemmons/Thayer Creeks

Management Recommendation:
Group 1 Protect/Restore

What Does this Management Recommendation Mean?
This subbasin is highly important to multiple watershed processes and should be a high priority for protection and restoration.


Why is this the Management Recommendation?
The subbasin, which occurs within the Snoqualmie River floodplain, includes many features that support important water flow, water quality, and habitat processes. Degradation to these features is also relatively high, indicating that restoration should be a priority. Analysis results are detailed below.



<p>Surface Storage</p>  <p>Subbasin provides high levels of surface storage during floods, reducing impacts and providing refuge for salmon.</p> <ul style="list-style-type: none"> 2% wetland area other surface storage features 100% floodplain flooding from Snoqualmie River and tributaries These processes are very degraded due to past agricultural uses including extensive city fields that resulted in stream bank erosion and floodable wetlands reduced within the city limits. 	<p>Stream management priorities:</p> <ul style="list-style-type: none"> Wetland creation Wetland restoration focused on increasing storage capacity Improve stream channel stability of wetlands
<p>Groundwater and Base Flow</p>  <p>Subbasin is important for maintaining agricultural and domestic water supplies as well as Snoqualmie River water temperature.</p> <ul style="list-style-type: none"> 85% permeable soils within the floodplain decrease recharge Low levels of riparian wetlands Wetlands to groundwater highly related due to low riparian surface cover However, conversion of permeable forested floodplain to parks and agriculture can have negative processes 	<p>Stream management priorities:</p> <ul style="list-style-type: none"> Increase forest cover Create new riparian wetlands
<p>Fish and Wildlife Habitat</p>  <p>The subbasin is highly important for fish and wildlife habitat.</p> <ul style="list-style-type: none"> Extensive riparian area within Snoqualmie River and tributaries stream corridor (wildland) Large open space land, wetlands, and surrounding parks riparian habitat systems habitat is impaired by stream channelization and crossings, and lack of riparian cover. Wildlife habitat is impaired by wetlands, utility corridors, surrounding development, and habitat fragmentation. 	<p>Stream management priorities:</p> <ul style="list-style-type: none"> Improve riparian stream habitat connectivity Increase Snoqualmie River riparian cover Potential new development Increase forest cover throughout
<p>Water Quality</p>  <p>Floodplain and wetland landscape supports sediment deposition, water filtration, and shade processes.</p> <ul style="list-style-type: none"> High riparian cover loss / floodplain wetlands Permeable soils with low riparian surface cover Changes in land use have degraded levels and increased input of pollutants to subbasin including mobile phosphorus runoff from upstream subbasins. Elevated water temperatures lead to depletion from base and habitat impairment 	<p>Stream management priorities:</p> <ul style="list-style-type: none"> Increase forest cover Manage stream bank bank vegetation wetlands Create new riparian wetlands

SUBBASIN STATS
Area: 163 Miles City: 13% Miles UGA: 0%

Predevelopment uses within Duwamish Floodplain park and open space
Stream: East Fork Snoqualmie River, Lower Coe Clemmons & Thayer Creeks, Southern Wastway River




LANDSCAPE POSITION FLOODPLAIN

4-20

City of Duwamish - Integrated Plan - March 13, 2018
Chapter 3 Subbasin Plan

SUBBASIN
Coe Clemmons/Thayer Floodplain (PAU D3)

Existing Land Use



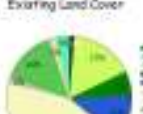

Land Use Opportunities and Constraints

- Restoration within an actively managed park and open space lands could improve conditions throughout the portion of floodplain.
- Tributary streams are impaired by Snoqualmie Valley that, potentially contributing to increased water temperature and degraded habitat.
- Landfill area within City jurisdiction necessitates coordination with County to maximize preservation and restoration opportunities.

Preliminary Management Priorities and Objectives

- Limit new impervious surfaces and increase forested cover in floodplain.
- Potential adding wetlands and create or restore wetlands degraded by agricultural practices.
- Prevent new development and manage disturbance from upstream sources.

Existing Land Cover

4-21

ALL RECOMMENDATIONS APPLICABLE TO DUWAMISH CITY LIMITS AND UGA ONLY. CONTENT HAS NO BEARING ON LAND USE DECISIONS IN UNINCORPORATED KING COUNTY.

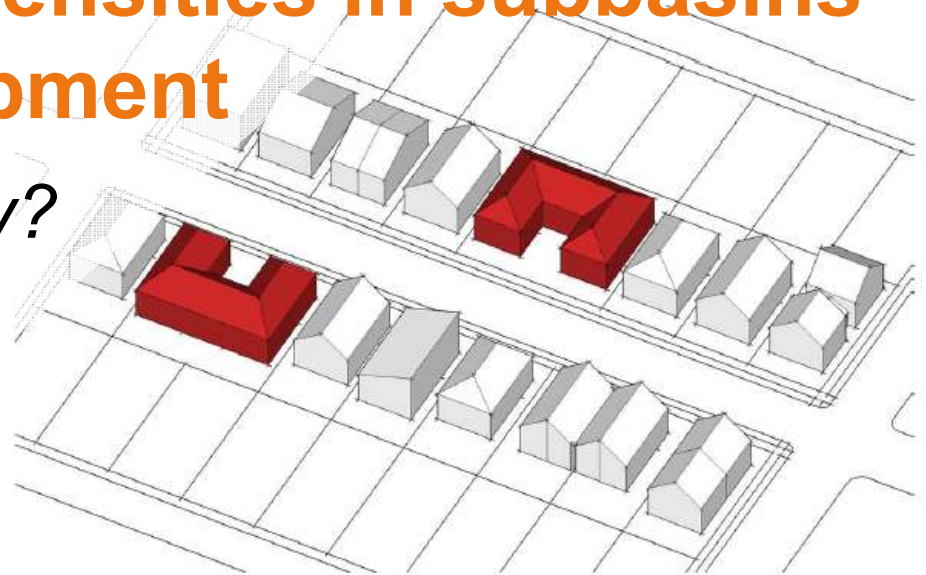


Goals, Policies, and Implementation

- Goals and policies – to be included in revised Comprehensive Plan
- Implementation – actions to achieve watershed goals
 - Development Standards
 - Stormwater
 - Sensitive Areas

Implementation for Development Standards – Increase residential densities in subbasins prioritized for development

- *Where would this apply?*
Subbasin management group 3



Courtyard housing. The divided massing of courtyard housing, especially when street-fronting units have house-like forms, provide opportunities to integrate higher-density housing into neighborhood patterns where detached houses predominate.



1920s courtyard apartments. Form of end units reflects neighborhood context of detached houses.



Recent courtyard housing examples with house-like forms at street frontages

Implementation for SW – Define and Require LID BMPs

- *Where would this apply?*

City-wide, with specific LID BMPs required for appropriate subbasins based on infiltration capacity and other considerations



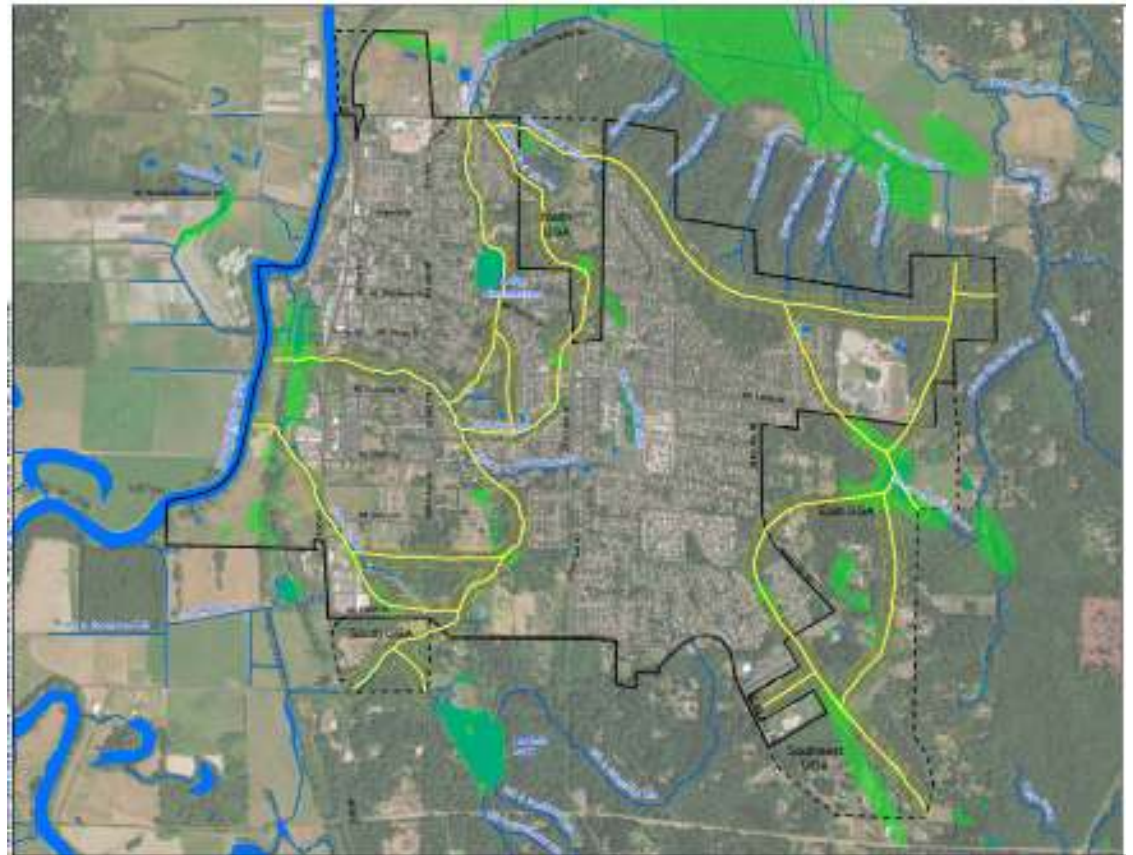
Courtesy of Rain Garden Handbook for
Western Washington
(WSU / Ecology, 2013)

Implementation for Sensitive Areas – **Define and protect habitat corridors**

- *Where would this apply?*

City-wide

(along
mapped
habitat
corridors)





Outreach Efforts



Continues with this Open House

CRITICAL AREAS			
#	Management Tool	Appropriate for:	Prioritization:
28	Further integrate tree protection standards into stream and wetland buffer standards	<ul style="list-style-type: none"> Citywide • Precincts 1, 2, 3, and 4 	1 100% 100%
29	Increase steep slope and erosion hazard area buffers	<ul style="list-style-type: none"> Local response • Districts 1, 4, 5, and 6 • Citywide 	1 100% 100%
30	Decrease allowances to re-tilt or reduce critical areas buffers	<ul style="list-style-type: none"> Local response • Citywide • District 1 	4 100% 100%
37	Increase buffers for depositional wetlands	<ul style="list-style-type: none"> Local response • District 1 • Citywide • No response by precinct 	1 100% 100%
Other tool?			
ZONING REGULATIONS			
#	Management Tool	Appropriate for:	Prioritization:
50	Reduce maximum impervious surface limits	<ul style="list-style-type: none"> Local response • District 1 and 4 • District 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 	4 100% 100%
51	Increase maximum impervious surface limits	<ul style="list-style-type: none"> Local response • District 1 • District 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 	1 100% 100%
52	Increase residential/commercial (M48B)	<ul style="list-style-type: none"> Local response • District 1 • District 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 	4 100% 100%
53	Allowed shared parking for commercial uses	<ul style="list-style-type: none"> Local response • District 1 • District 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 	1 100% 100%
54	Allow small decentralized parking lots rather than individual garages for townhomes, cottage housing, multi-family	<ul style="list-style-type: none"> Local response • District 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 • District 1 	4 100% 100%
58	Establish landscaping standards for single-family residential (trees, shrubs, moisture laws, etc.)	<ul style="list-style-type: none"> Local response • Districts 1, 2, 4, and 10 • District 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 	1 100% 100%
59	Establish soil standards for landscaping	<ul style="list-style-type: none"> Local response • Citywide • Districts 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 	1 100% 100%
Other tool?			



Next Steps

- Final draft of Watershed Plan
Available for review before end of March
- Planning Commission and City Council Review
- Updates based on review and public comment
- Draft regulations (March – June)
- Finalize by June 2015