

What is Source Water Protection  
Planning?  
&  
Why Go Beyond the State Guidelines  
& Rules?

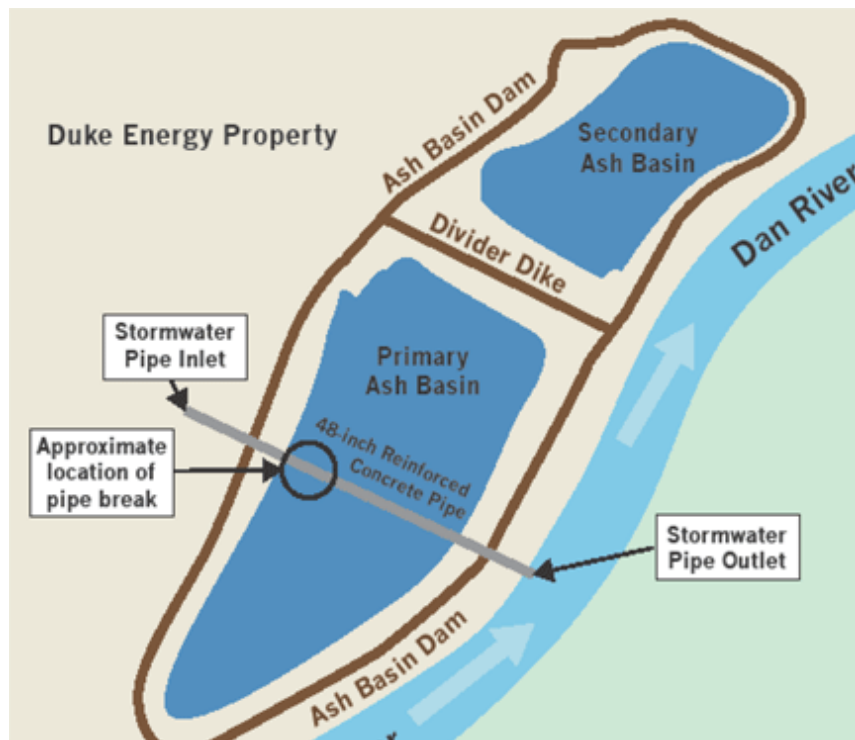
# The “Whys”

- **Chemical levels in West Virginia water drop, but still no end in sight to ban (Jan 2014)**
- **Coal-ash spill: How certain that Dan River is safe for drinking, wildlife? (Feb 2014)**
- **Toxic Algae Bloom Leaves 500,000 Without Drinking Water in Ohio (Aug 2014)**
- **Second crude pipeline spill in Montana wreaks havoc on Yellowstone River (Jan 2015)**
- **Water Treatment Plants Scramble After Train Carrying Crude Oil Explodes (Feb 2015)**

# West Virginia Chemical Spill (Jan 2014)



# North Carolina's Dan River Coal-ash spill (Feb 2014)



# Toledo, Ohio Toxic algal bloom (Aug 2014)



# Crude pipeline spill on Yellowstone River (Jan 2015)



# Water Treatment Plants Scramble After Train Carrying Crude Oil Explodes (Feb 2015)



# The “Whys”

- Understanding your watershed and potential drinking water risk
- Prevent or protect from potential shuts downs
- Maintain high quality source water to keep future water treatment cost low



# The “Whats”

- Understanding land use within your watershed – what is upstream
- Using GIS to map risks
- Using Pollutant Load Modeling to better understand risk
- Public Education
- Collaboration and Partnership

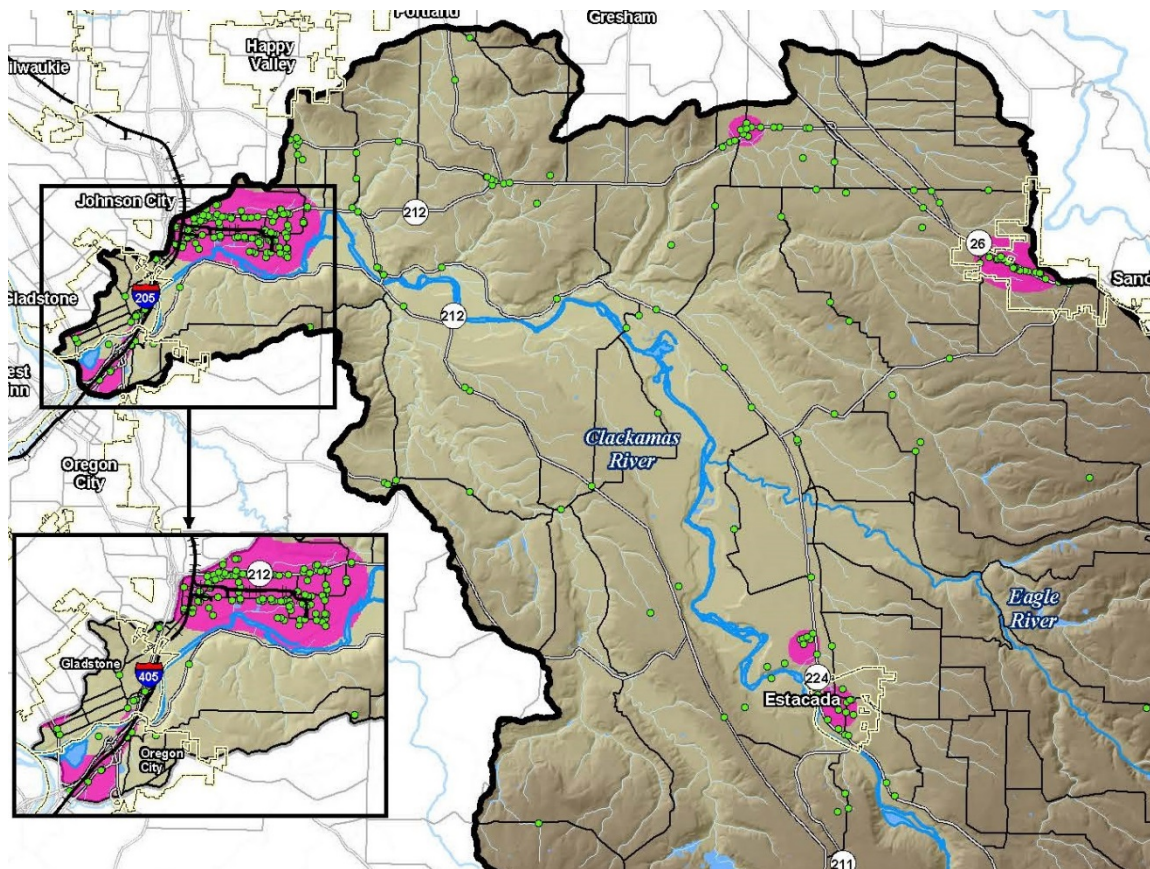
# Public Education

- What is a watershed
- Why protect it
- What we are doing to protect it



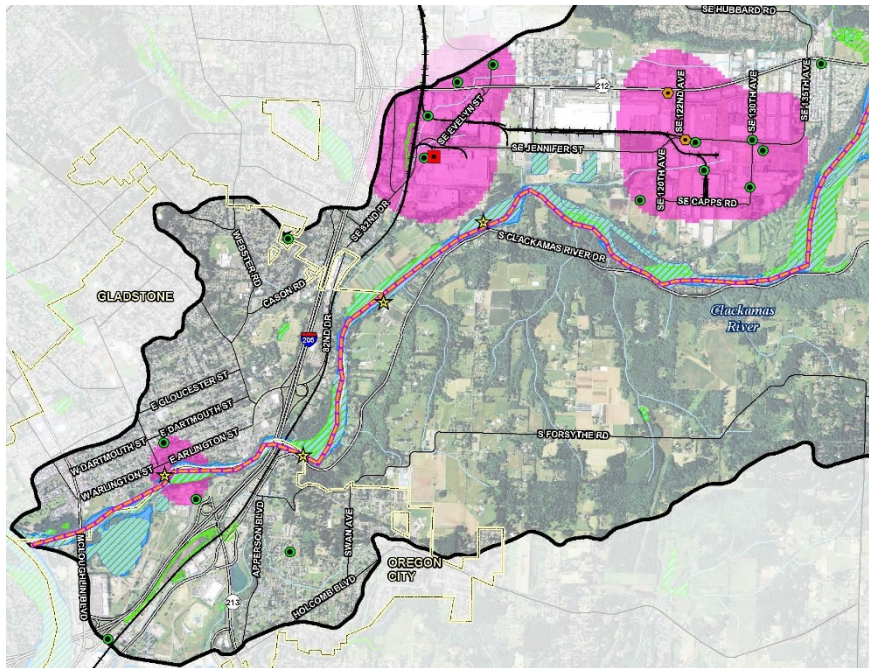
# Mapping drinking water risk with GIS

- Hazardous Substance Storage Facilities

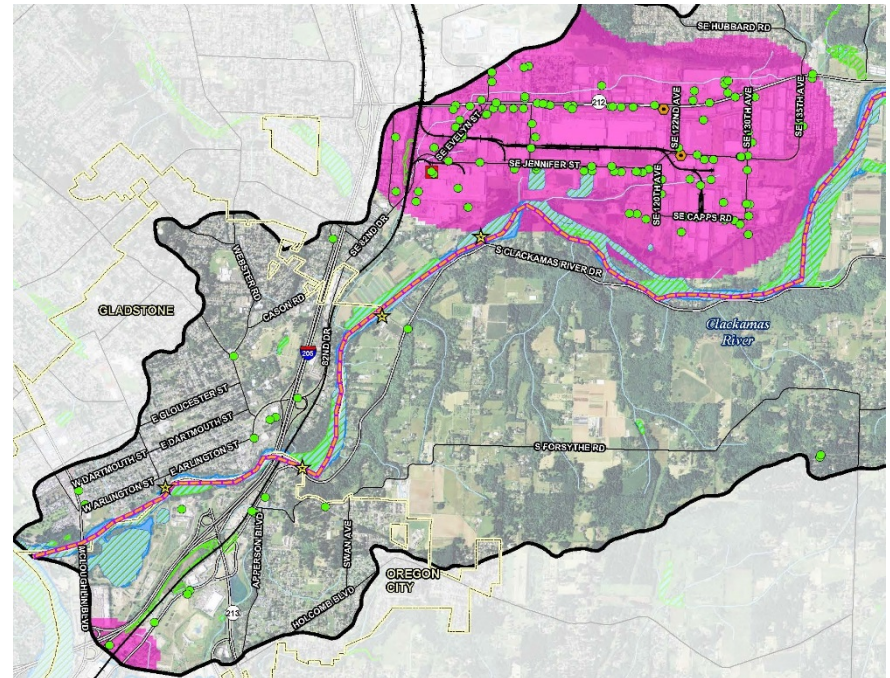


# Sensitive Resources

## Historic Spills from Fixed Sources and Sensitive Resources Overlay



## Hazardous Substance Storage Facilities and Sensitive Resources Overlay




# Pollutant Modeling

- Existing Conditions – Baseline
- 13 Representative Pollutants
- Establish current loads
- Locate sources of loads
- Account for in-stream attenuation

# Pollutant Load Modeling Tool

Clackamas River Water Providers Load Modeling Tool v.0.1



1) Project Description

Title:

Description:

2) Subwatershed Selection

Subwatershed	Select	Subwatershed	Select	Subwatershed	Select	Subwatershed	Select	Subwatershed	Select	Subwatershed	Select
101	1	201	0	301	0	401	0	501	1	601	0
102	0	202	0	302	0	402	0	502	1	602	0
103	0	203	0	303	0	403	0	503	1	603	0
104	0	204	0	304	0	404	0			604	0
105	0	205	0	305	0	405	0			605	0
106	0			306	0	406	0			606	0
107	0									607	0

To select a subwatershed, set 'Select' value to 1.

3) BMP Selection

	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	
	%	%	%	%	%	%	%	%	%	%	%	%	%	
	Nutrient Mgmt Plan - Ag	Nutrient Mgmt Plan - Urban	Integrated Pest Mgmt	Incentive Program	Conservation Buffer	Streamside Mgmt Area	Water Quality Basin	Bioretention/Biofilter	Media Filter	Impervious Area Reduction	Organic Farming	Drinking Water Protection Zone	Emergency Response Plan	
LANDUSE														
AGR	20	0	0	0	0	50	0	0	15	0	0	0	0	85
COM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FOR	0	0	0	0	0	35	0	0	0	0	0	10	0	45
OPS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PUB	0	0	10	0	0	0	0	0	0	0	0	0	0	10
RES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRA1	0	0	0	0	0	0	0	0	25	0	0	0	0	25
TRA2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRA3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRA4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRA5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

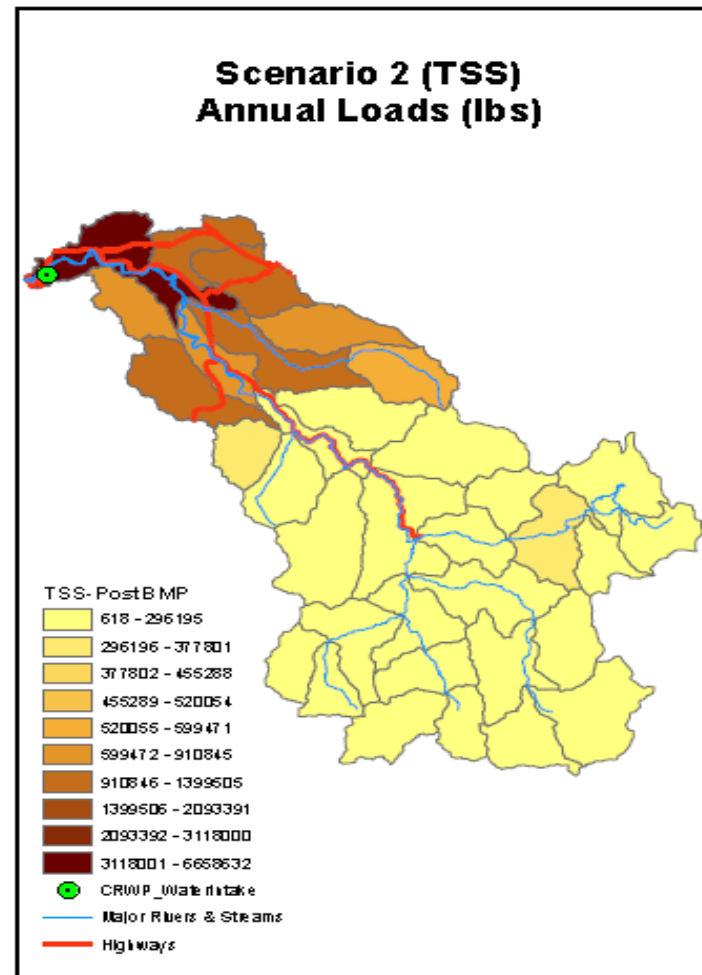
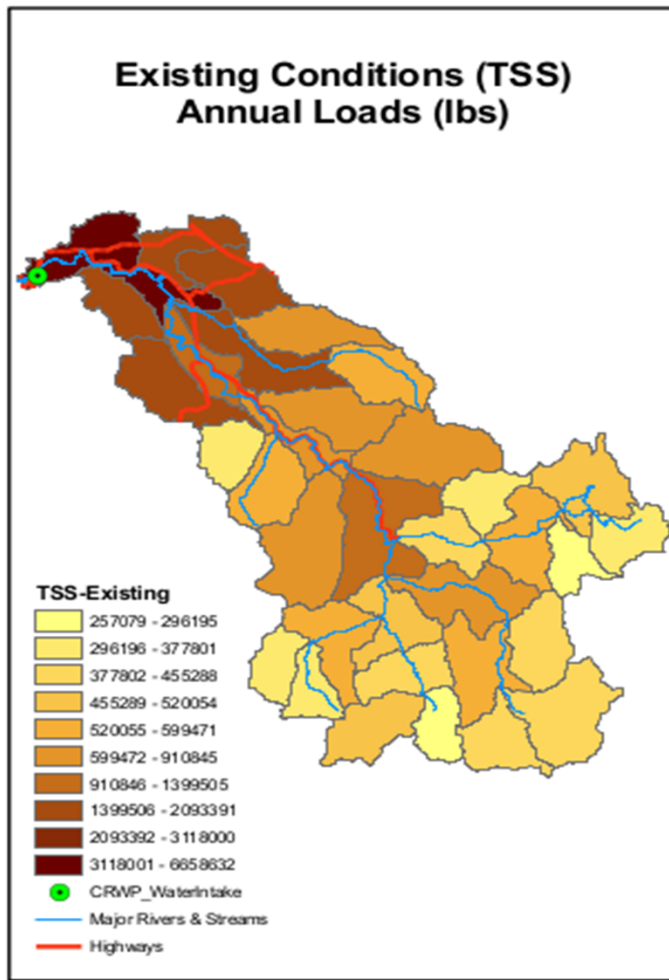
4) Save Results

Macro button

## Steps

- Provide project information
- Select an individual or a combination of subwatersheds for BMP implementation
- Implement up to nine BMPs per land use in selected subwatersheds
- Attenuation of loads due to in-stream travel
- Output table of annual loads – linked to GIS shapefile

# Scenario 2 – Impervious Area Reduction results for Total Suspended Solids (TSS)





# Collaboration & Partnerships

- Who else is working on water resource issues?
- How can you maximize limited resources

# Types of Programs

- Spill Prevention Efforts
- Pesticide Reduction Program
- Septic System Programs
- Drug Take Back Boxes
- Water Quality Monitoring
- Riparian Area Mitigation and Protection

**Kimberly Swan**

**Water Resource Manager**

Clackamas River Water Providers

14275 S. Clackamas River Rd.

Oregon City, OR 97045

(503) 723-3510

[kims@clackamasproviders.org](mailto:kims@clackamasproviders.org)

[www.clackamasproviders.org](http://www.clackamasproviders.org)