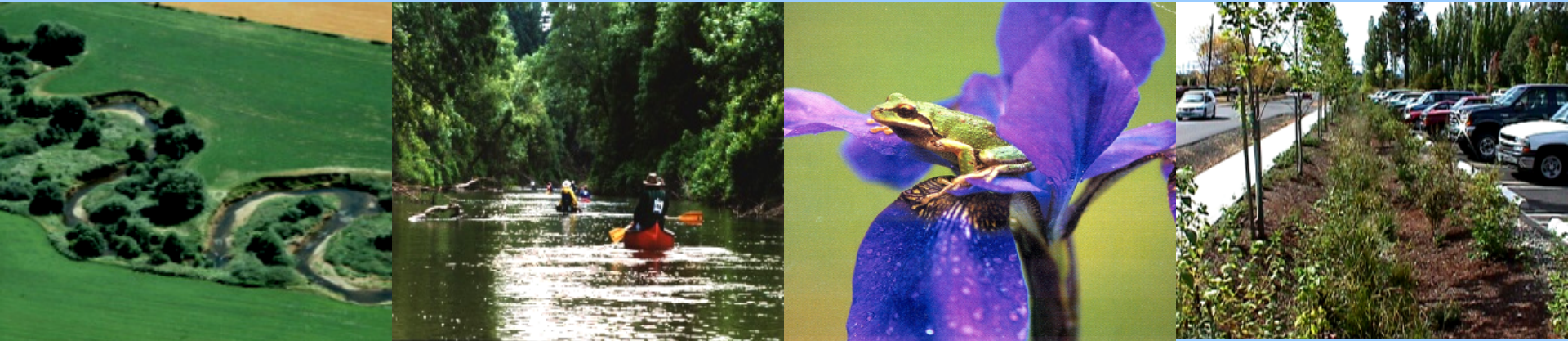


Sustainability at Clean Water Services



PNCWA Annual Conference 2009

Sunday, September 13th, 2009

Bruce Roll, Ph.D., M.P.H.

Director of Watershed Management

Wherever there's water, there's Clean Water.

Clean Water  Services

Bruce's Epiphany



Wherever there's water, there's Clean Water.

Clean Water Services

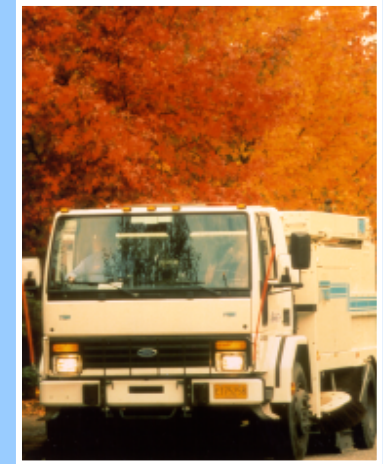
- **Public utility committed to protecting water resources**
 - **Established 1970**
 - **Serves 500,000 customers in Washington County**
 - **Service area within Tualatin Basin**
 - **12 member cities**



Wherever there's water, there's Clean Water.

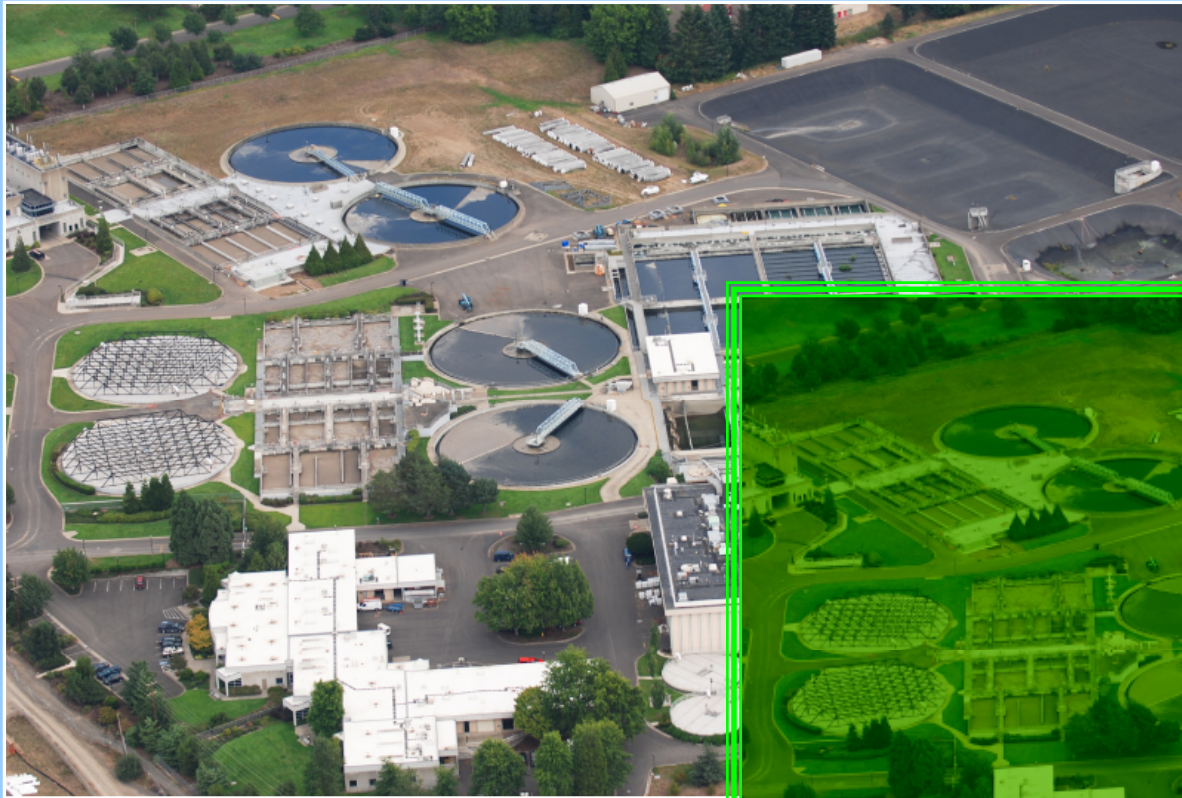
Core Business Functions

- Wastewater Collection and Treatment
- Surface Water Management
- River Flow Management
- Regional Water Supply Planning



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Anyone Need a Little Green Washing?



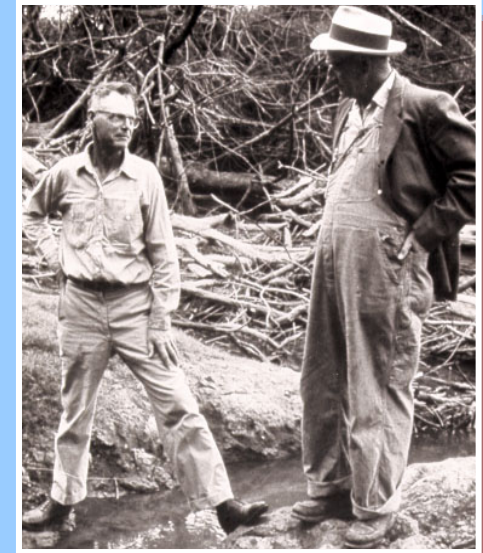
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Clean Water Services Sustainability Efforts

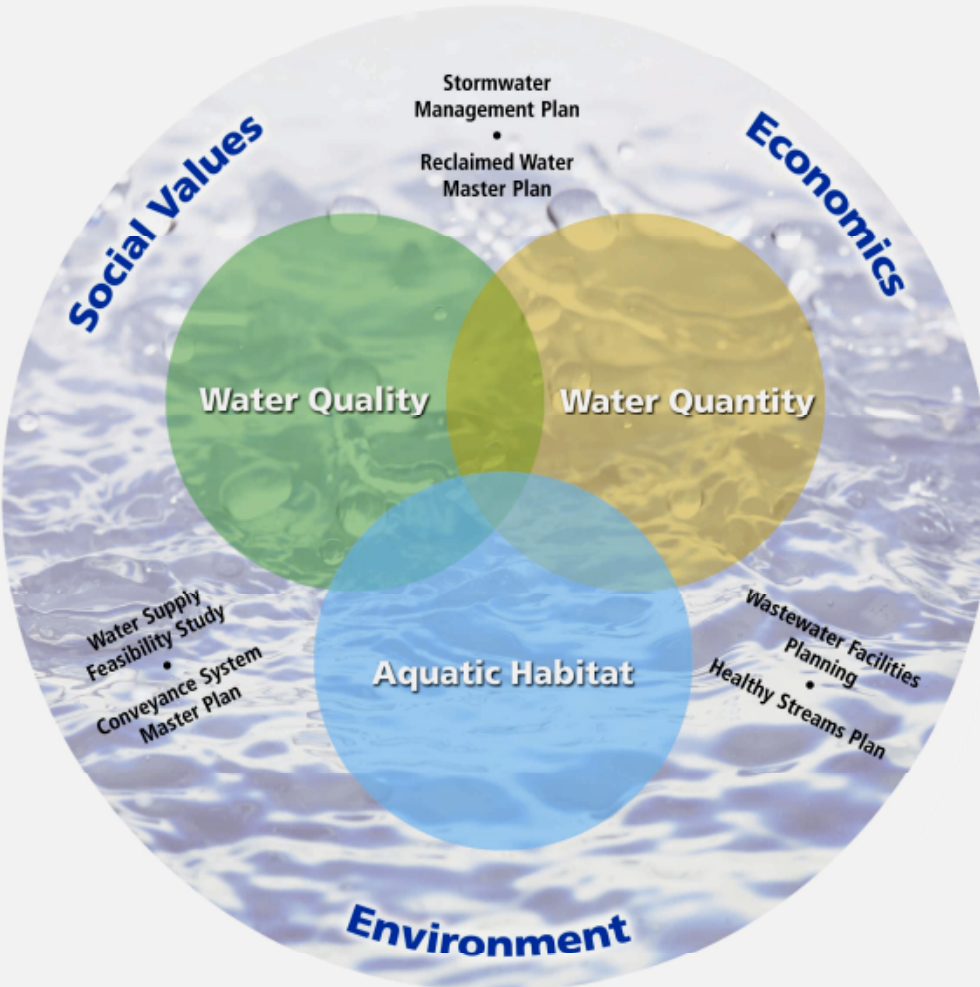
- **Pre 2000 reengineering**
- **Watershed-based permit**
- **Dancing with the 900 lb gorilla**
- **Future endeavors**

Tualatin River Watershed-Based Permit

- **NPDES permits for four treatment facilities**
- **MS4 stormwater permit**
- **TMDL for temperature**
- **Water quality trading**
 - **30 cfs/d stored water in July and August**
 - **Shade 35 miles of riparian area**



CLEAN WATER ACT



ENDANGERED SPECIES ACT

Watershed Management Strategic Drivers

- Regulatory
- Watershed Health
- Business Needs
- Sustainability
- Integrated Water Resource Management

Wherever there's water, there's Clean Water.

Development of the Riparian Planting Program



Forested Wetland



Oak Woodland/ Savanna

Wherever there's water, there's Clean Water.

Riparian Planting Approach

- Acquire nursery stock
- 39 species of native plants
- Centralized holding facility
- Collection of field data



Riparian Planting Programs



Community Tree-For All

- Community-based challenge to plant 1 million trees in 20 years

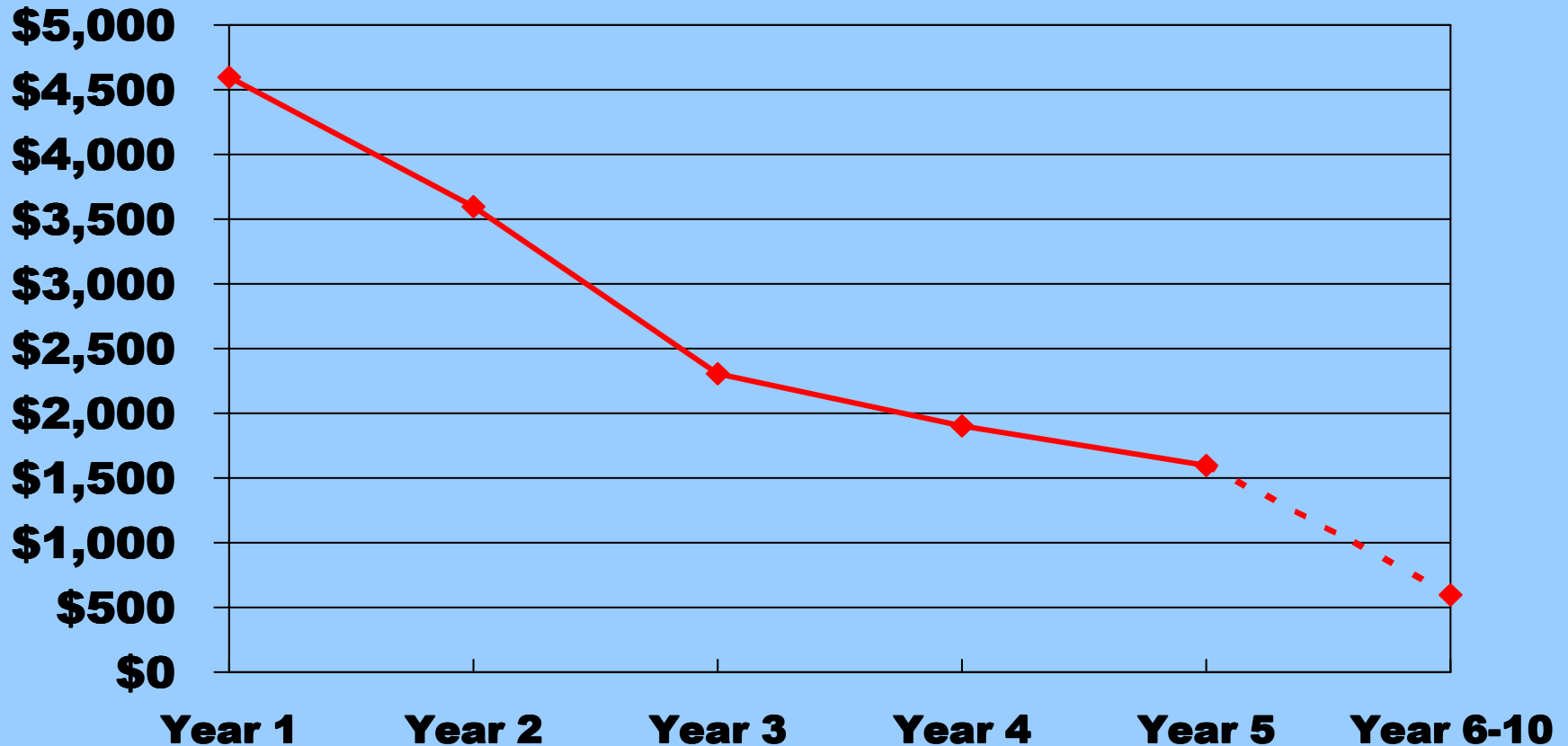
Enhanced CREP/VEGBACC

- Rural landowner agreements with annual payments (1.1 acre to 36 acres)

Capital Projects

- Urban area (<1 acre to >40 acres)

Riparian Planting Costs (Cost per acre)



Wherever there's water, there's Clean Water.

Accomplishments

- Since 2004 over 4,617,000 native trees and scrubs planted
- Cost for the program to date is 4.3 million dollars (Compared to 150 million for capital improvement costs)
- 100 % of needed shade credit generated
- Ten year average annual rate increase for CWS is 2.6 %

Ecological Benefits

- **Filtration and purification of water**
- **Attenuation of floods**
- **Reduction of stream temperature**
- **Groundwater recharge**
- **Habitat for fish and wildlife**
- **Erosion control**

J. Kauffman et al. 1997, and US EPA 1996

Dancing with the 900 lb Gorilla: Electricity

- **Number 2 power consumer in Washington County**
- **District goals**
 - **50% of energy needs supplied by renewable sources within 5 years**
 - **Develop sustainable energy policy**
 - **Development of carbon footprint protocols**
 - **Target renewable energy**
 - **Increase resource recovery efforts**

Accomplishments

- Energy Policy adopted
- Carbon footprint protocols adopted
- Installation of fine-bubble air diffusers
- Installation of high efficiency motors
- Resource recovery via fertilizer production

Future Activities

- Production of high value carbon credits
- Multi-credit trading platform
- Expanding temperature trading program
- Expansion of stream flow augmentation program

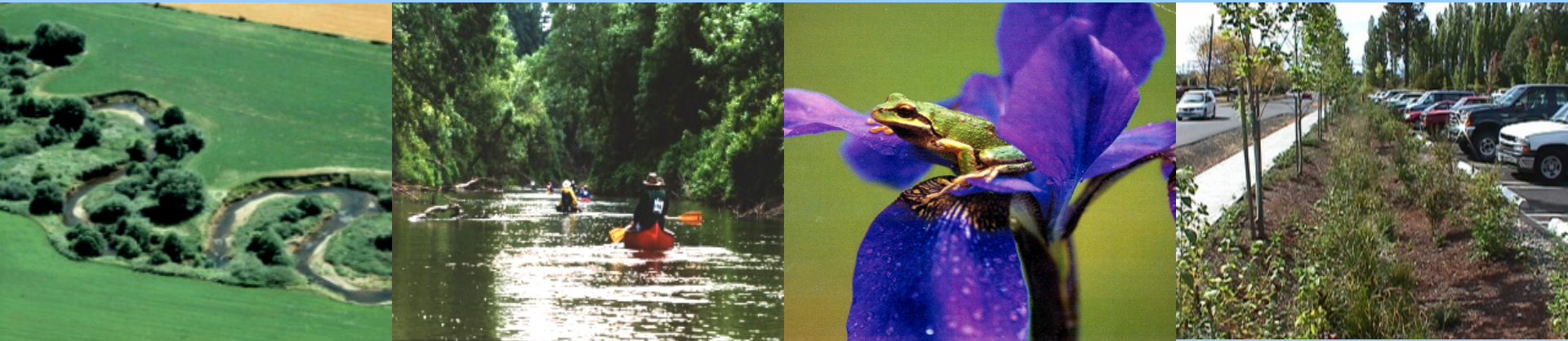
Future Activities

- Increase cogeneration capacity
- Implementing chemically enhanced primary treatment
- Development of treatment wetlands
- Develop of wind energy assets

Regulatory Opportunities

- **Complex and cumbersome regulatory framework**
- **Expansion of watershed approach to permitting**
- **Removal of regulatory silos**
- **Development of expanded ecosystem market place**

Questions?



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