



Recycled Water in Eugene/Springfield?

10 years of considerations,
2004-2014



Todd Miller
AWWA Conference
Eugene, Oregon
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Metropolitan Wastewater Management Commission



partners in wastewater management



Todd Miller
Environmental Management Analyst

Springfield Development & Public Works
Environmental Services Division

MWMC Regulatory Planning & Policy Support

Metropolitan Wastewater Management Commission



partners in wastewater management

Overview

Goal of Presentation



BACKGROUND

The MWMC

Why recycle?

Current MWMC use

Regulatory compliance

STUDIES

LEARNING FROM OTHERS

lessons shared

SCOPING

Know your capabilities and goals

CONCEPTUAL ALTERNATIVES SCREENING

STRATEGIES

Plan for flexibility and adaptability

Solicit stakeholder guidance

Evaluate the big picture

KEEP OPTIONS OPEN

MWMMC

Protecting water quality



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“...achieve, sustain, and promote balance between community, environmental, and economic needs while meeting customer service expectations...”

Why Recycled Water?

Local and regional benefits



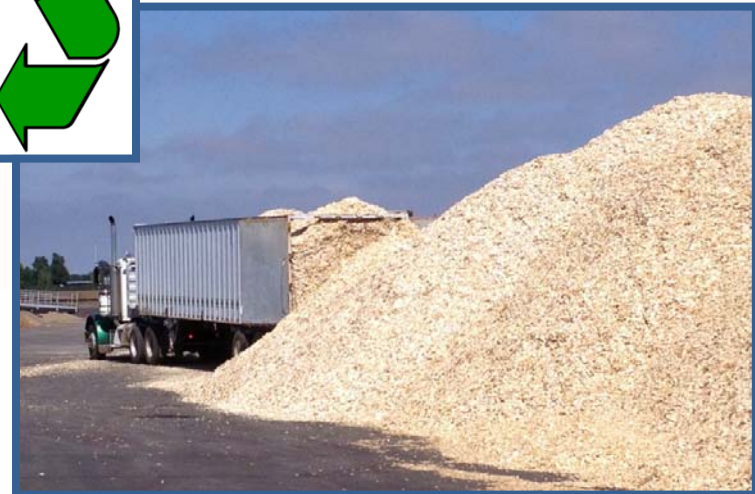
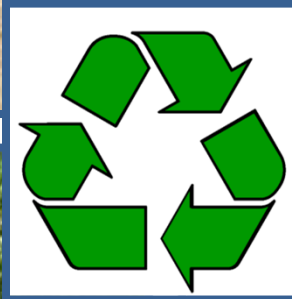
30,000,000 gallons
of wastewater cleaned.
Every Day.

- Regulatory strategy (timing)
- Recover resources (cost)
- Water supply (demand)



Resource Recovery

21st Century Wastewater Treatment



Current Use

Facility landscape irrigation



Current Use Poplar Plantation



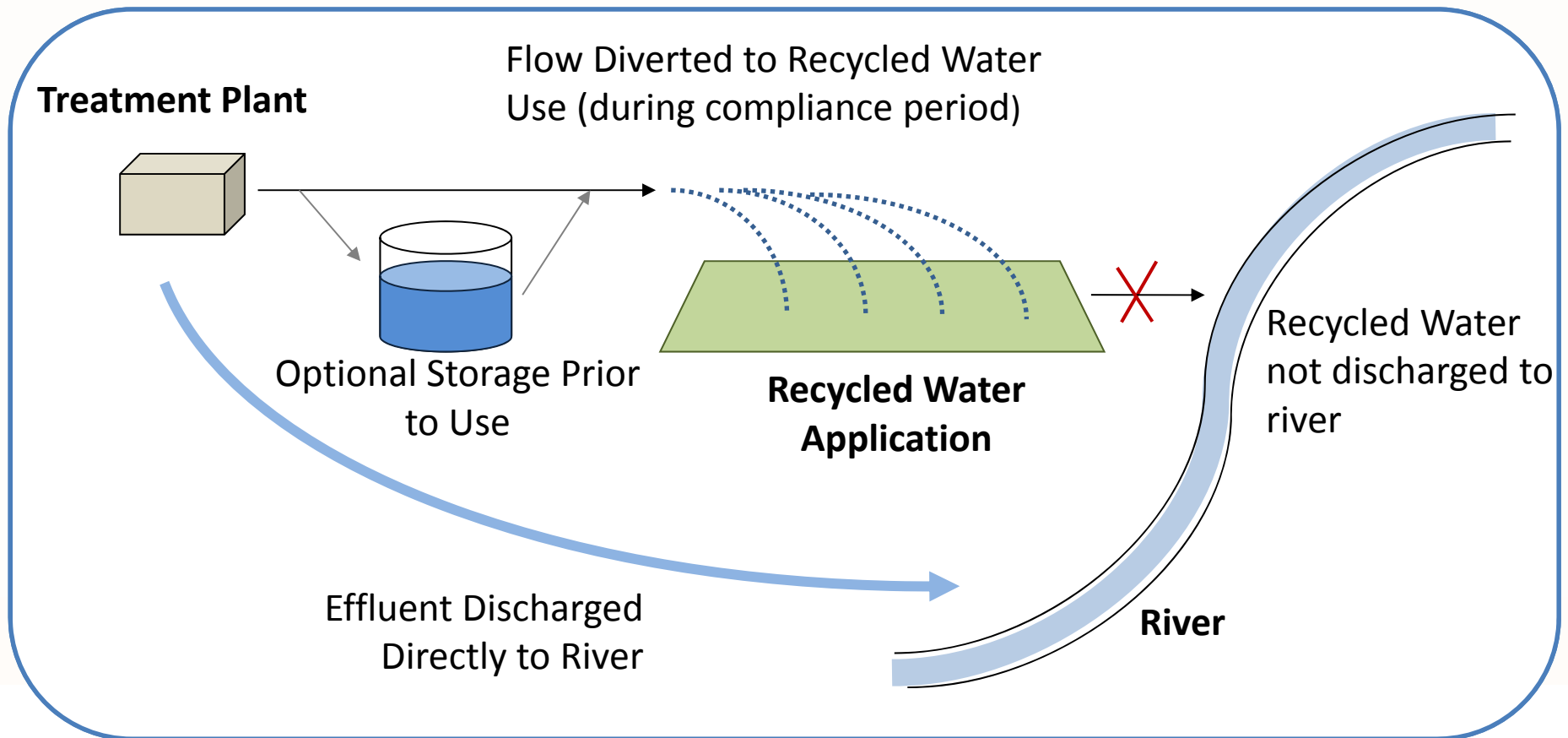
 **Biocycle Farm**



50-80 million gallons per year
(~ 2 days worth)

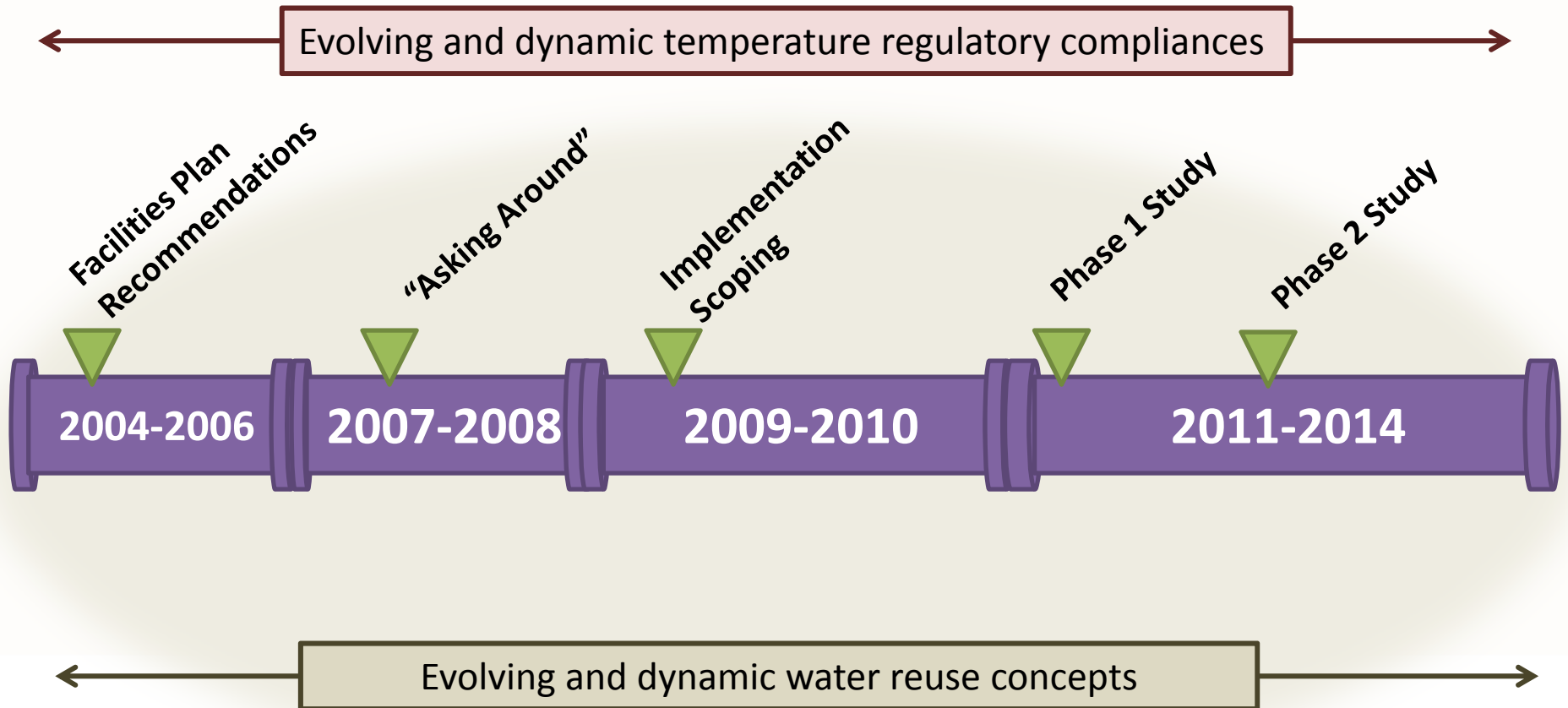
Regulatory Compliance

Reducing the Load through Diversion



Planning Studies

Timeline: 2004 - 2014



Regional Networking

Case Studies and Best Practices



workshops – conferences
webinars – field trips
textbooks – studies – web sites
guidance documents

LESSONS SHARED

- Involve stakeholders
- Share information
- Think long-term
- Fulfill a water *need*
- Be flexible
- Don't guess
- Strategize!

Study Phases

Adapting to New Information



Study Phase	Compliance	Organizational	Community Input	Feasibility
SCOPING Program Overview 2009-2010	<ul style="list-style-type: none"> • Discharge compliance needs 	<ul style="list-style-type: none"> • Strategic goals • SWOT analyses • STEEP analyses 	<ul style="list-style-type: none"> • Interpretive, • Marketing • Partnership • Outreach plans 	<ul style="list-style-type: none"> • Project prioritization • Recycling, water use, storage, indirect discharges
PHASE 1 Conceptual Alternatives Assessment 2011-2012	<ul style="list-style-type: none"> • Temporal and trend analysis • Regulatory "findings" report 	<ul style="list-style-type: none"> • Background book • Briefing book 	<ul style="list-style-type: none"> • Communication Plan • Potential agency interviews • Questionnaire/assessment 	<ul style="list-style-type: none"> • Conceptual alternatives screening • 5% design and cost estimation
PHASE 2 Alternatives Evaluation 2012-2014	<ul style="list-style-type: none"> • Alternatives environmental review • Water discharge model 	<ul style="list-style-type: none"> • Triple Bottom Line assessment 	<ul style="list-style-type: none"> • Interest group discussions • Group presentations • Questionnaires/assessment 	<ul style="list-style-type: none"> • Alternative refinement • 10% design and cost estimation

LOOK LONG TERM

BUILD KNOWLEDGE

EXPAND OUTREACH

REFINE CHOICES

Opportunity Knocks

West Bank Trail Pipeline (2011)



- New bike path
- Right of way alignment
- Cost-efficiency
- Three pipes: 10+ MGD
- Flexibility for future adaptability

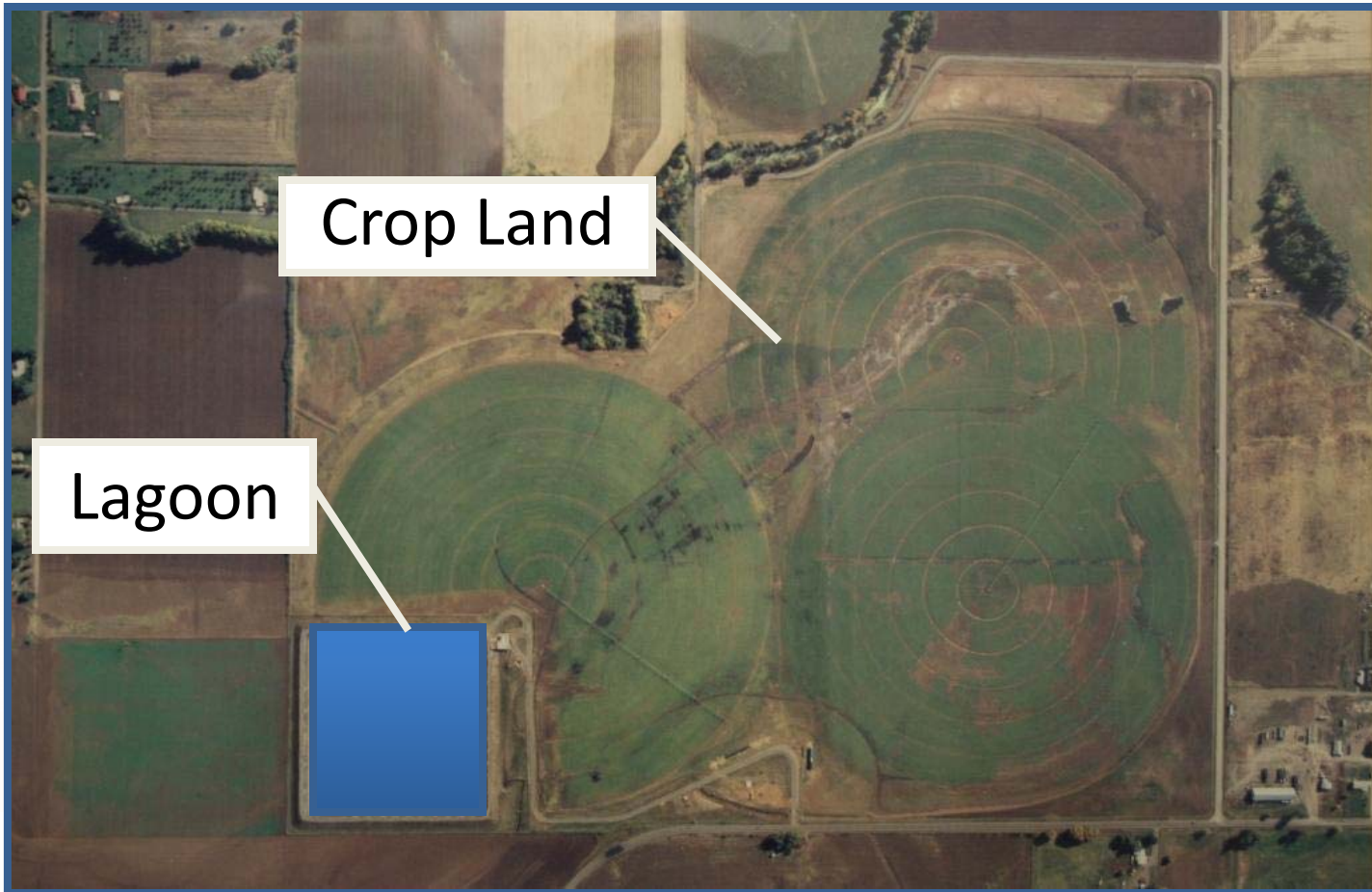


Implementation Study

Phase 1: Conceptual Project Screening



Conceptual Alternative MWMC Beneficial Reuse Site



Beneficial Reuse Site Storage Lagoon



40 to 57 million gallons



Beneficial Reuse Site

Field Irrigation



Pivot irrigated hay fields

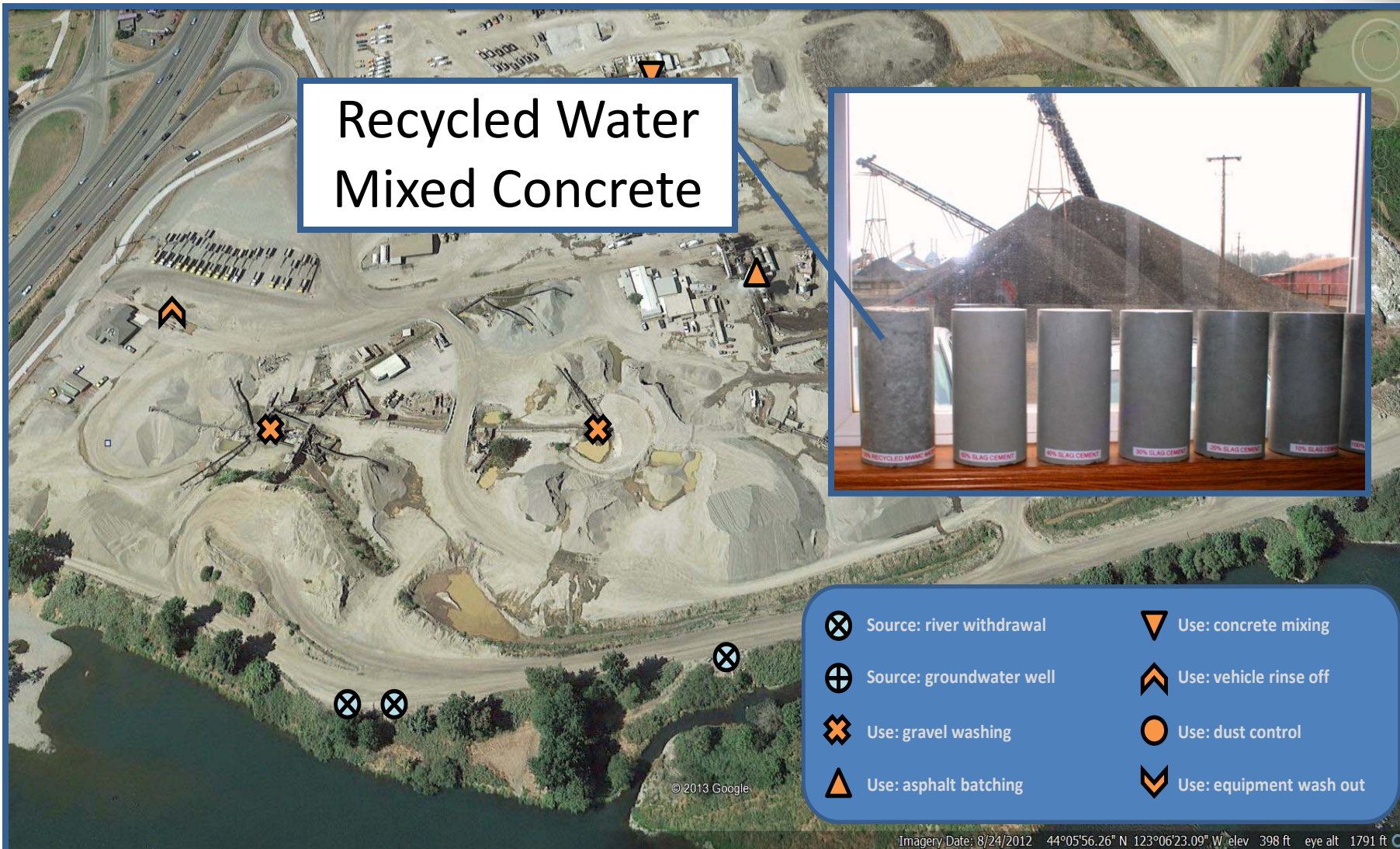


Conceptual Alternative Biocycle Farm



Better yield = higher revenue

Conceptual Alternative Industrial Aggregate Site



Industrial Aggregate Site Feasibility Study Findings



- **Containment – land discharge becomes river discharge**
- **Class C per regs – Class A per reality**
- **Water Rights retained – instream flow lease impractical**
- **Idea supported – lack of business case benefits**



Stakeholder Engagement

Interest Group Discussions - Survey



- Recycled water – *yes!*
- Infrastructure co-planning opportunities
- Complement local goals
- Watershed approach supported
- Demonstrate recycled water quality and use

Water Resources Protection, Infrastructure, and Sustainability

- Local Water Utilities
- State Water Resource Agencies
- Local Public Works Departments
- Municipal/Institutional Sustainability Managers

Public and Environmental Health

- Groundwater Protection Agencies
- Environmental Health Advocates
- Worker Safety Organizations

Watershed Stewardship and Ecosystem Services

- Local Watershed Councils
- River and Habitat Conservation Organizations
- Wetland and Ecosystem Professionals

Recycled Water in Eugene/Springfield?



Competing Objectives

- Instream flow / Diversion
- Conservation / Aging
- Volume / Benefit

Regulatory Permitting

- Recycled / Non-potable
- Protective / Concerning

Answer: plan for adaptability and flexibility

Wastewater Compliance

- Temperature Target?
- Other Water Quality Issues?
- Cost-Effectiveness?

Supply Perceptions

- Abundant
- Inexpensive
- Climate change?
- Second source?

Thank You!



Metropolitan Wastewater Management Commission



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Kennedy/Jenks Consultants
Engineers & Scientists



CONSULTANTS



PARTICIPANTS



State of Oregon
Department of
Environmental
Quality



FINANCIAL SUPPORTERS



Metropolitan Wastewater Management Commission

c/o City of Springfield
Development & Public Works Department
Environmental Services Division

tmiller@springfield-or.gov

www.mwmcpartners.org

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Recycled Water in Eugene/Springfield?



Wastewater driver is regulatory compliance

- No clear regulatory direction
- More cost-effective temperature mitigation options

Recycled water regs are both protective and burdensome

Water resource/supply issues = competing objectives:

- instream flow vs. effluent diversion
- potable conservation vs. stored water aging
- high volume uses vs. best application uses
- preparing for water scarcity vs. abundant water supply

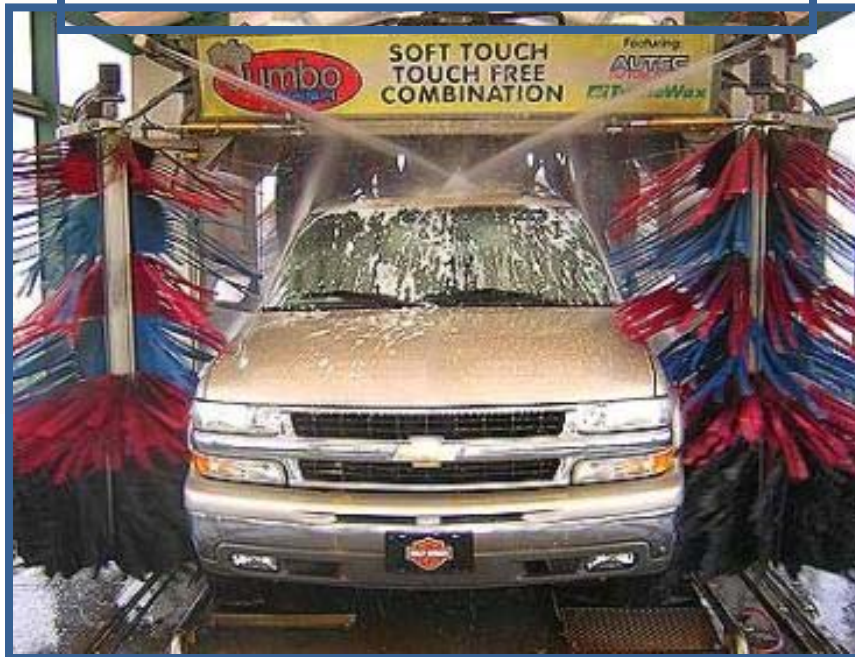
Answer: plan for long-term adaptability and flexibility

Ideal Uses?



- High year-round demand (next to existing pipeline!)
- Balances EWEB supply issues
- Takes heated water out of effluent stream
- Low user exposure (contained facilities)
- Willingness to pay

Industrial Car Wash



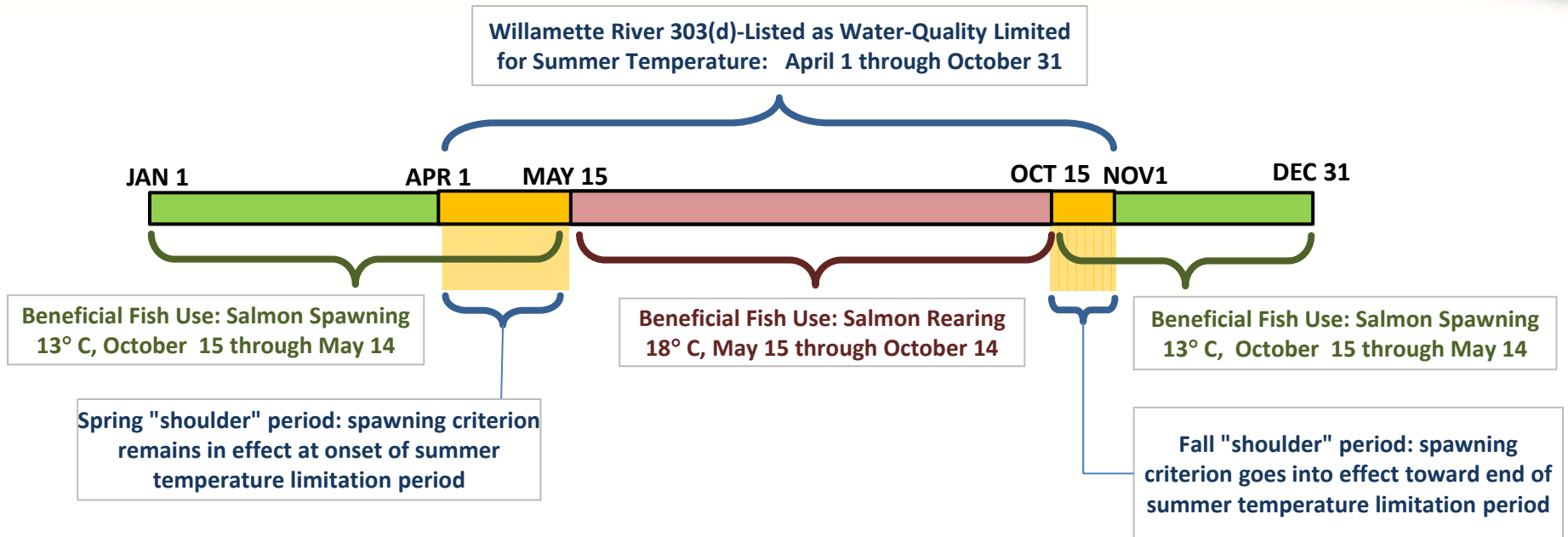
Commercial Laundry



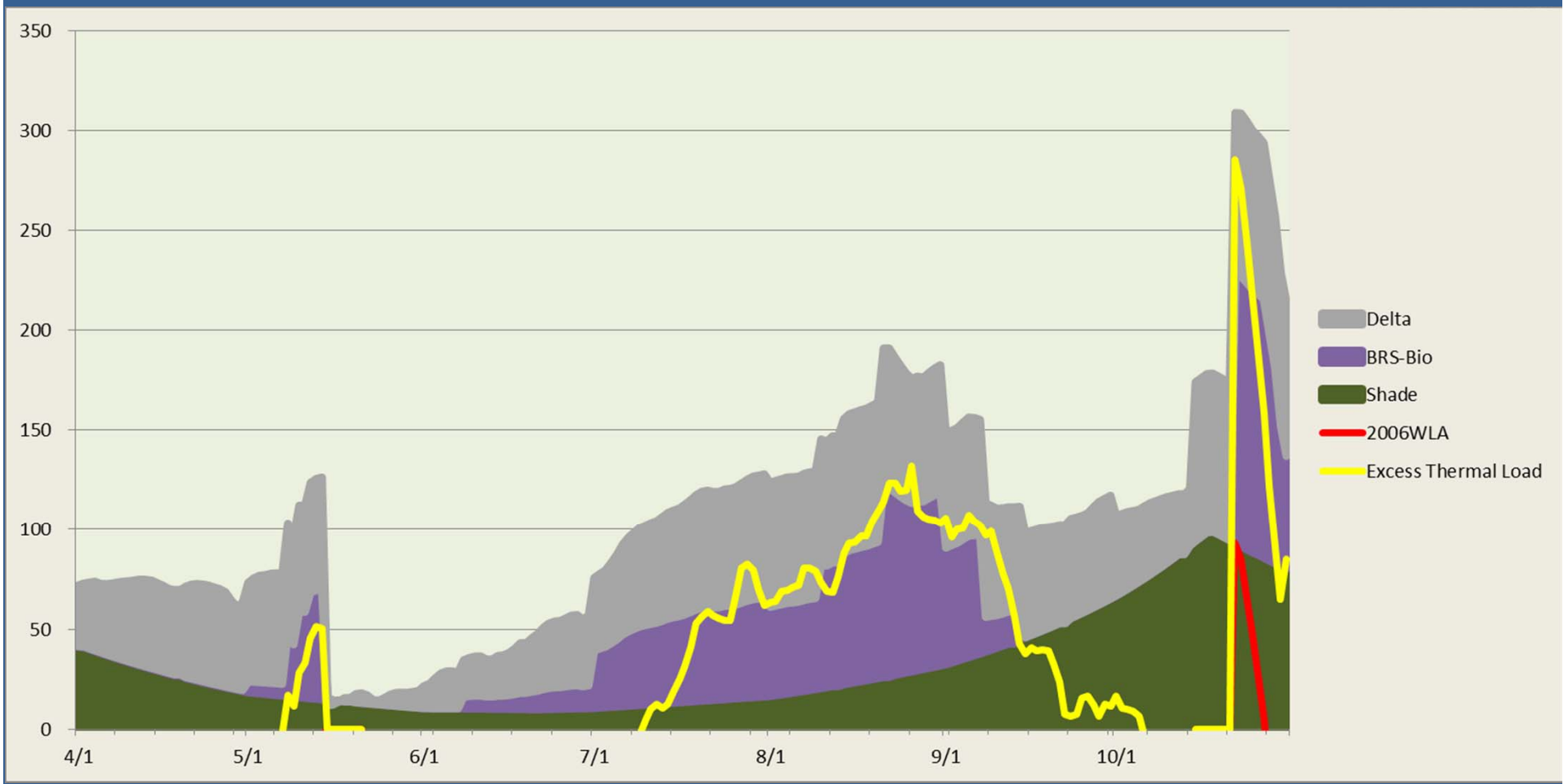
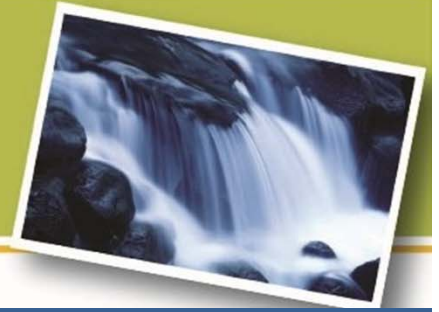
Willamette TMDL



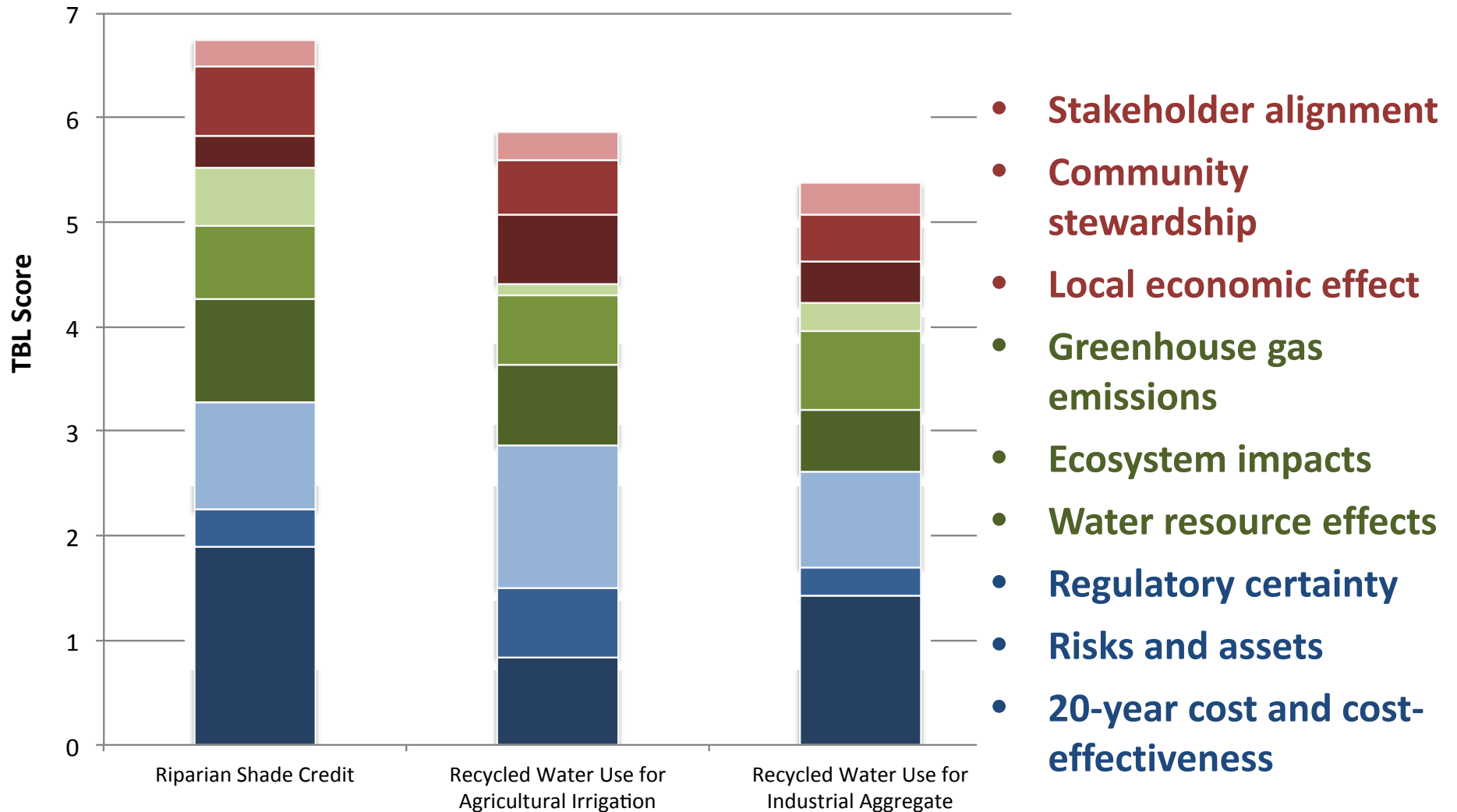
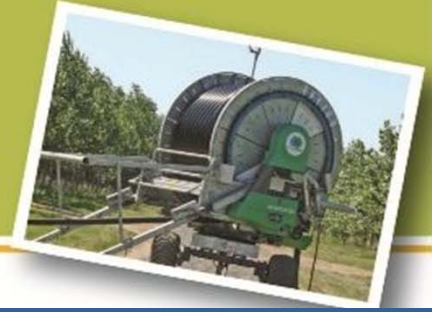
Willamette River 303(d)-Listed as Water-Quality Limited for Summer Temperature: April 1 through October 31



Water Balance Model



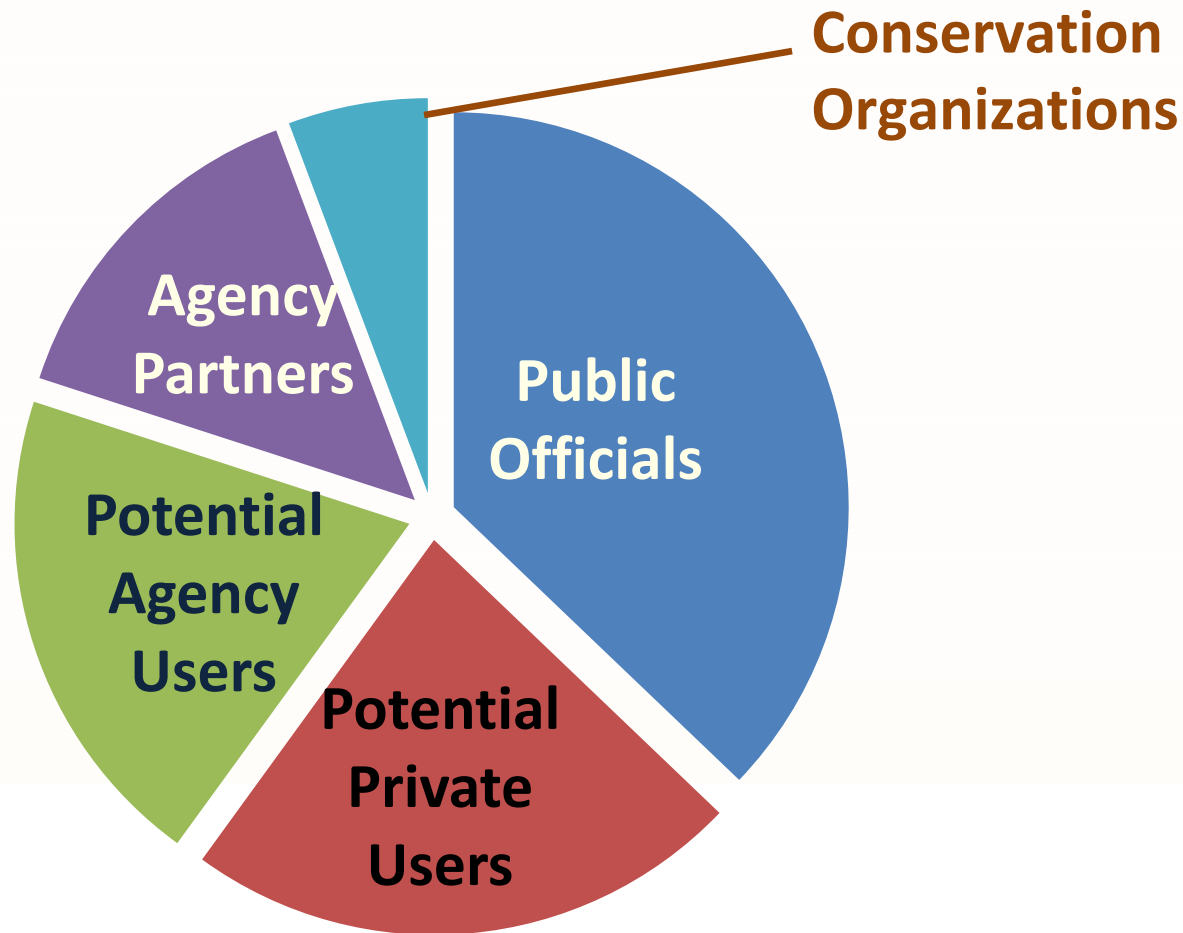
Triple Bottom Line Scoring for Temperature Mitigation



Phase 1 Planning Study Community Assessment

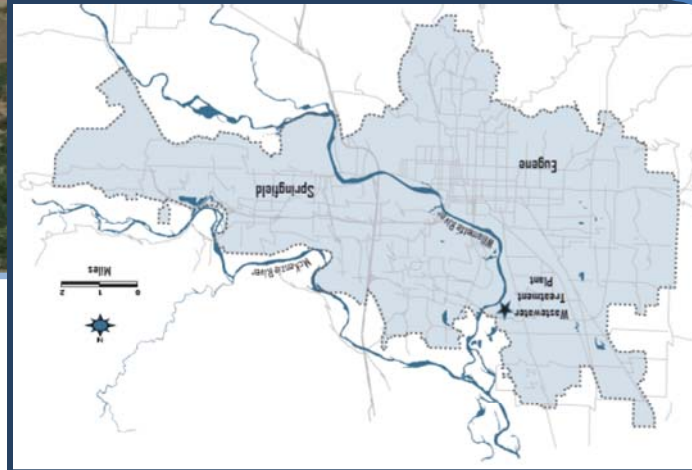
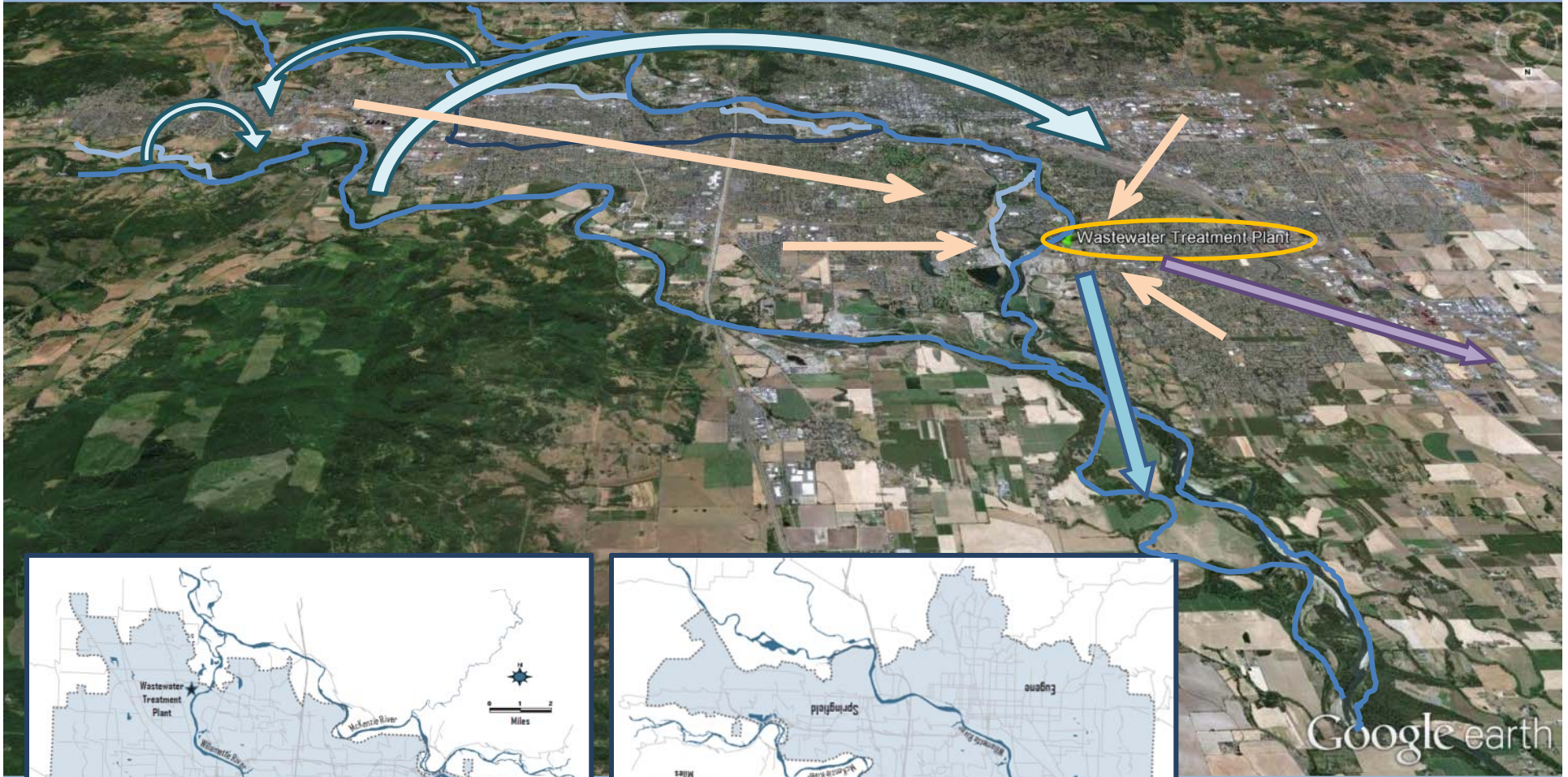
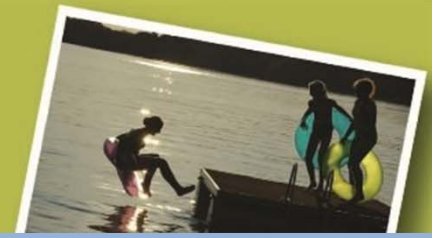


35 Stakeholders Interviewed





Our Urban Watershed



Designer Water...



Level of Water Quality	Basic	Enhanced	Extra	High Quality
CATEGORY / CLASS	D	C	B	A
AGRICULTURAL IRRIGATION				
Fodder, Fiber, and non-food Seed Crops; Commercial Timber	✓	✓	✓	✓
Pasture, Sod, Christmas Trees, Ornamental Nurseries, and Firewood	✓	✓	✓	✓
Processed Food Crops; Orchards/Vineyards		✓	✓	✓
Food Crops				✓
LANDSCAPE IRRIGATION				
Cemeteries, Highway Medians.		✓	✓	✓
Golf Courses (without Contiguous Residences)		✓	✓	✓
Golf Courses (with Contiguous Residences)		✓	✓	✓
Industrial or Business Campuses		✓	✓	✓
Parks, Playgrounds, Schoolyards,				✓
Residential and Public Landscapes				✓



ADDITIONAL DISINFECTION →

FILTRATION

Phase 2 Study Cost-Benefit Assessment



Triple Bottom Line Full Cost Accounting



Operational
Benefits and
Capital Costs



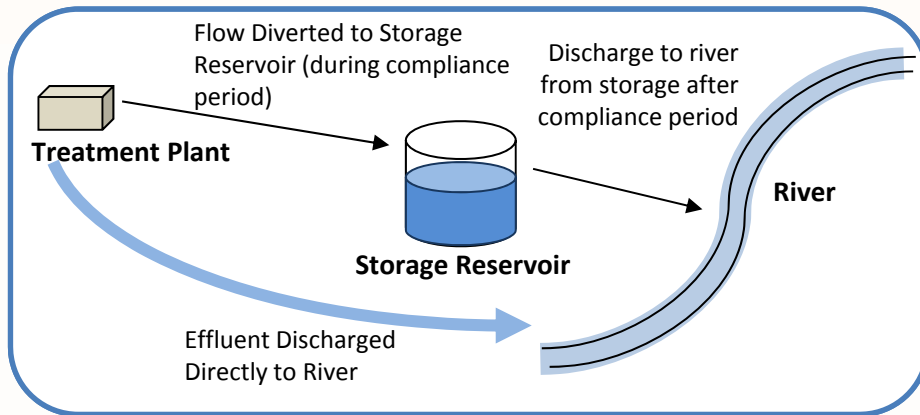
Water Resource
Benefits and
Environmental
Impacts



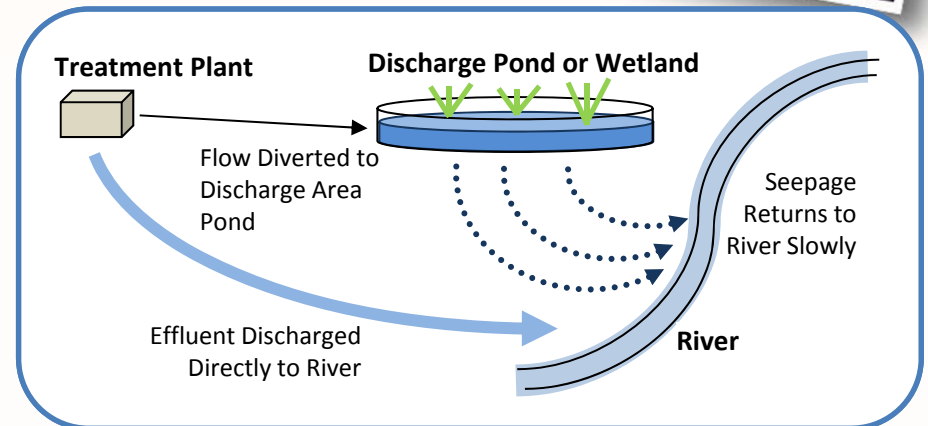
Community
Benefits and
Human Impacts



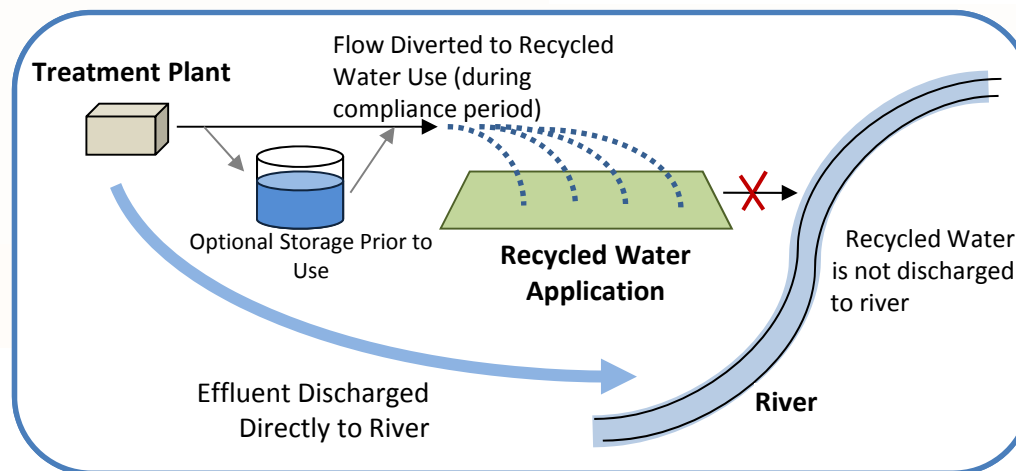
Effluent Diversion



Option 1: Temporarily divert water to storage to reduce flows during thermal risk period



Option 2: Divert water to a seepage pit or wetland where effluent indirectly returns to the river via the ground



Option 3: Divert water to a beneficial recycled water use; water is consumed and does not discharge to river.

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LOOK LONG TERM

KNOWLEDGE

EXPECTATION

RESEARCH NEEDS