



*Water Quality Trading Toolkit
for Permit Writers and more*

Water Quality



TRADING

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TOPICS

- 💧 **WQT Toolkit Summary**
- 💧 **Wet Weather Trading**
- 💧 **Examples Outside the Box**
 - 💧 **Portland Oregon**
 - 💧 **VT Stormwater requirements**
 - 💧 **Lake Tahoe**
- 💧 **How to stimulate demand in the Chesapeake Bay?**



Purpose of Toolkit

- 💧 **Inform the permit writer on how to incorporate trading into permits**
 - 💧 **Important issues**
 - 💧 **Real & hypothetical examples of permit language**
- 💧 **First “how-to” manual on trading**
 - 💧 **Relevant to all stakeholders**



Scope and Organization of Toolkit

💧 Fundamentals of Water Quality Trading

- 💧 Introduction to organization of document
- 💧 Overview of Water Quality Trading
- 💧 Essential Trading Information for Permit Writers
 - 💧 Who
 - 💧 Why
 - 💧 What
 - 💧 Where
 - 💧 How





Scope and Organization of Toolkit

Five Water Quality Trading Scenarios

1. **Single Point Source - Point Source**
2. **Multiple Facility Point Source**
3. **Point Source Credit Exchange**
4. **Point Source-Nonpoint Source**
5. **Nonpoint Source Credit Exchange**

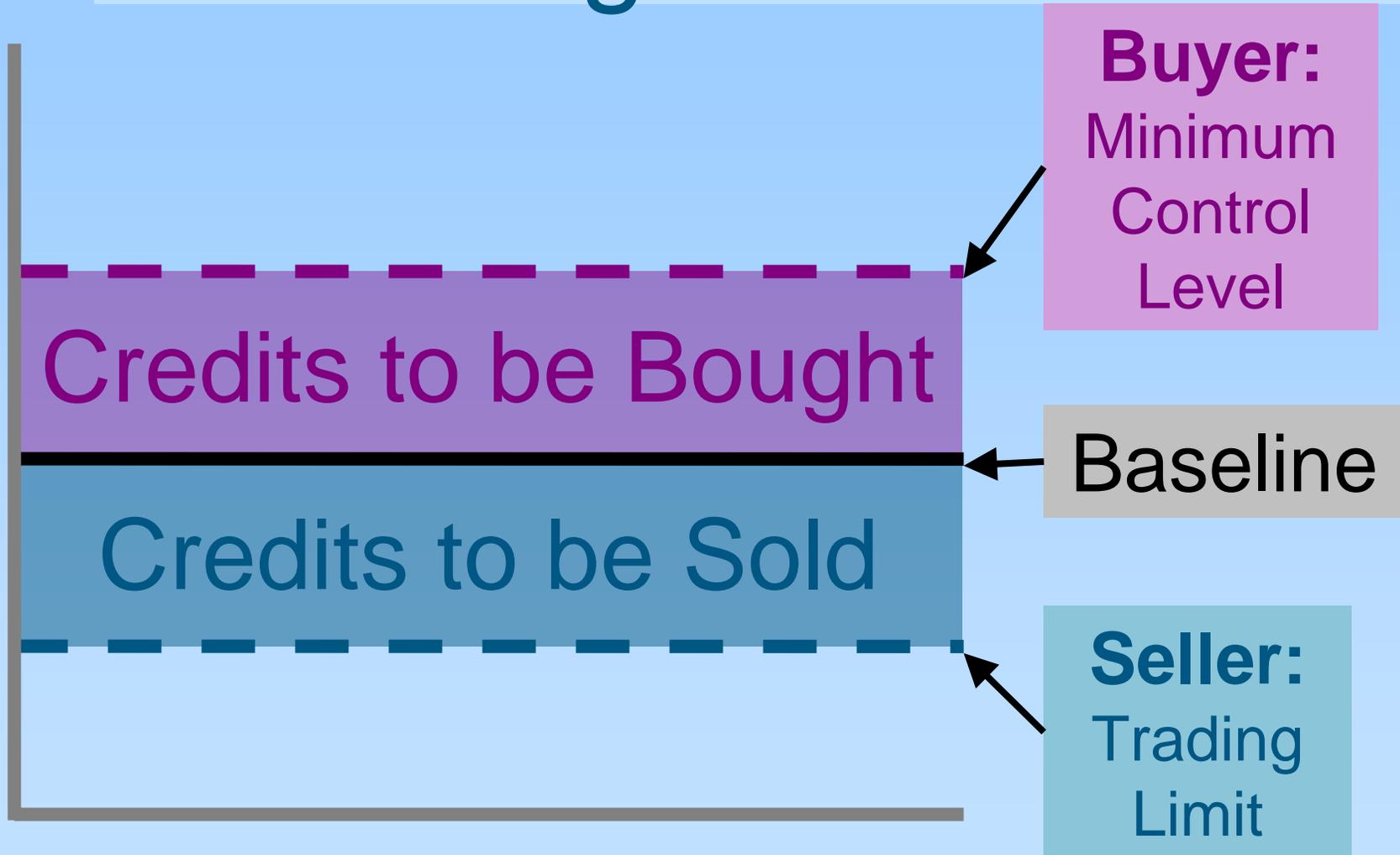
Major Topics In Toolkit



- 🔹 How to set **baseline**
- 🔹 Scientifically-based **trade ratios**
- 🔹 Creation and duration of **credits**
- 🔹 Program **Evaluation**
- 🔹 Sample trading programs
- 🔹 **Example permit language**

Discharge Limits

Amount of Discharge



Wet Weather Trading

☘ Stormwater as a **point source**

☘ **Construction sites ≥ 1 acre**

☘ **Industrial sites - if they discharge to MS4 or water of the U.S.**

☘ **Large MS4s – Population $\geq 250,000$**

☘ **Medium MS4s – Population between 100,000-249,999**

☘ **Small MS4s – if located within the boundaries of an 'urbanized area' as defined by Census**

☘ **Also can be designated by permit authority**

Considerations for Wet Weather Trading

- 💧 **General point source trading framework applicable to wet weather point sources**
- 💧 **Need numeric permit limits**
 - 💧 **Baseline:** Discharge level that applies in the absence of trading
 - 💧 **Minimum control level:** Discharge level that a buyer must meet through treatment before buying credits
 - 💧 **Trading limit:** Discharge level a seller would be held to by generating credits



Considerations for Wet Weather Trading

💧 **For Baseline (WQBEL):**

- 💧 Should meet water quality standards
- 💧 TMDL may include % load reduction as a WLA for the wet weather source

💧 **Buyer: Minimum Control Level (TBEL):**

- 💧 No ELGs for wet weather sources
- 💧 Permit writers use BPJ to set numeric TBEL

💧 **Seller: Trading limit**

- 💧 Should go beyond baseline
- 💧 Defend using monitoring

Considerations for Wet Weather Trading

💧 Wet Weather Point Source (Seller)

- 💧 **Seller meets its most stringent effluent limitation (baseline), either TBEL or WQBEL**
 - 💧 **Reductions in excess of the most stringent limitation are eligible to be sold as credits.**
- 💧 **Seller's permit includes numeric effluent limitations or allowable loads**
- 💧 **Monitoring required for verification that all discharges involved in trade are performing consistent with expectations**
- 💧 **No credit can be generated without an actual reduction in pollutants**

Considerations for Wet Weather Trading

💧 Wet Weather Source (Buyer)

💧 Buyer's permit identifies:

- 💧 Numeric effluent limitations or allowable loads to be achieved to meet the minimum control level (TBEL),

- 💧 Numeric WQBEL – goal of the trade.

- 💧 Credits are purchased to meet the buyer's baseline (WQBEL)

- 💧 Monitoring data required before trade to verify control measures and after the trade to ensure the goals of the trade are being met

Potential Wet Weather Trading Programs

- 💧 **Portland, OR (evaluating potential)**
- 💧 **Vermont**
 - 💧 **2004 Stormwater rules include offset provision**
- 💧 **Lake Tahoe, CA/NV (under development)**



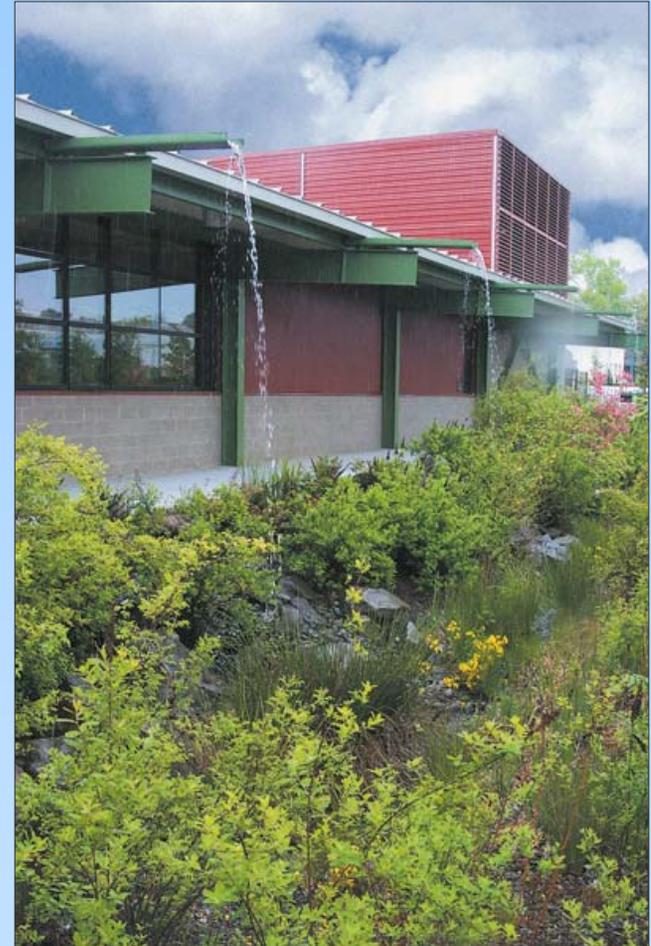
Engaging Market Forces to promote Private Stormwater Management



Observations from the Stormwater Marketplace Portland, Oregon

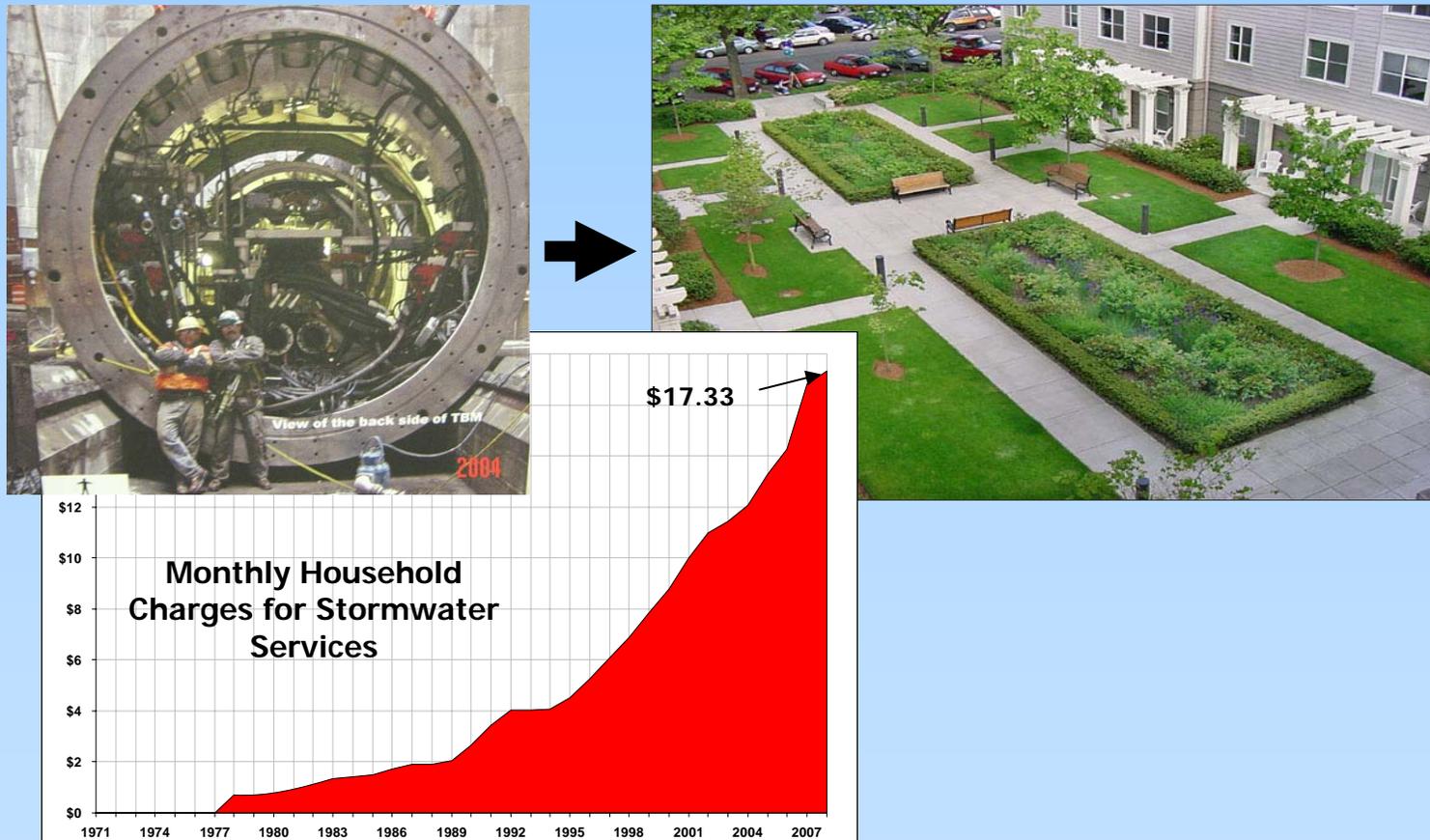


**A paradigm shift is underway...
from large public infrastructure to manage development impacts,
to the full integration of built and natural environments.**



The paradigm shift is driven by three realizations:

- intervening with public infrastructure is not cost effective
- reliance on utility revenue to finance solutions is not sustainable
- private stormwater management can enhance property values

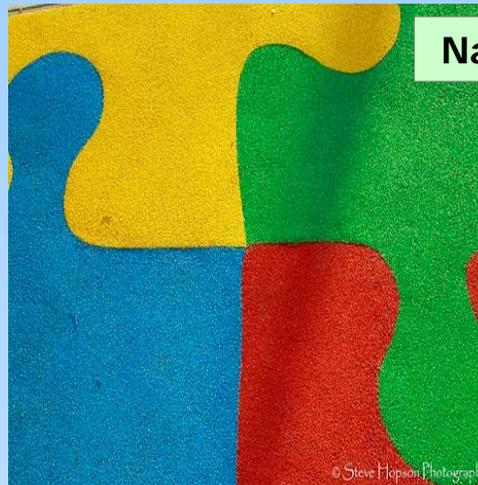


Green development employs multidisciplinary strategies to achieve integrated, sustainable stormwater management.

Engineering

Natural Sciences

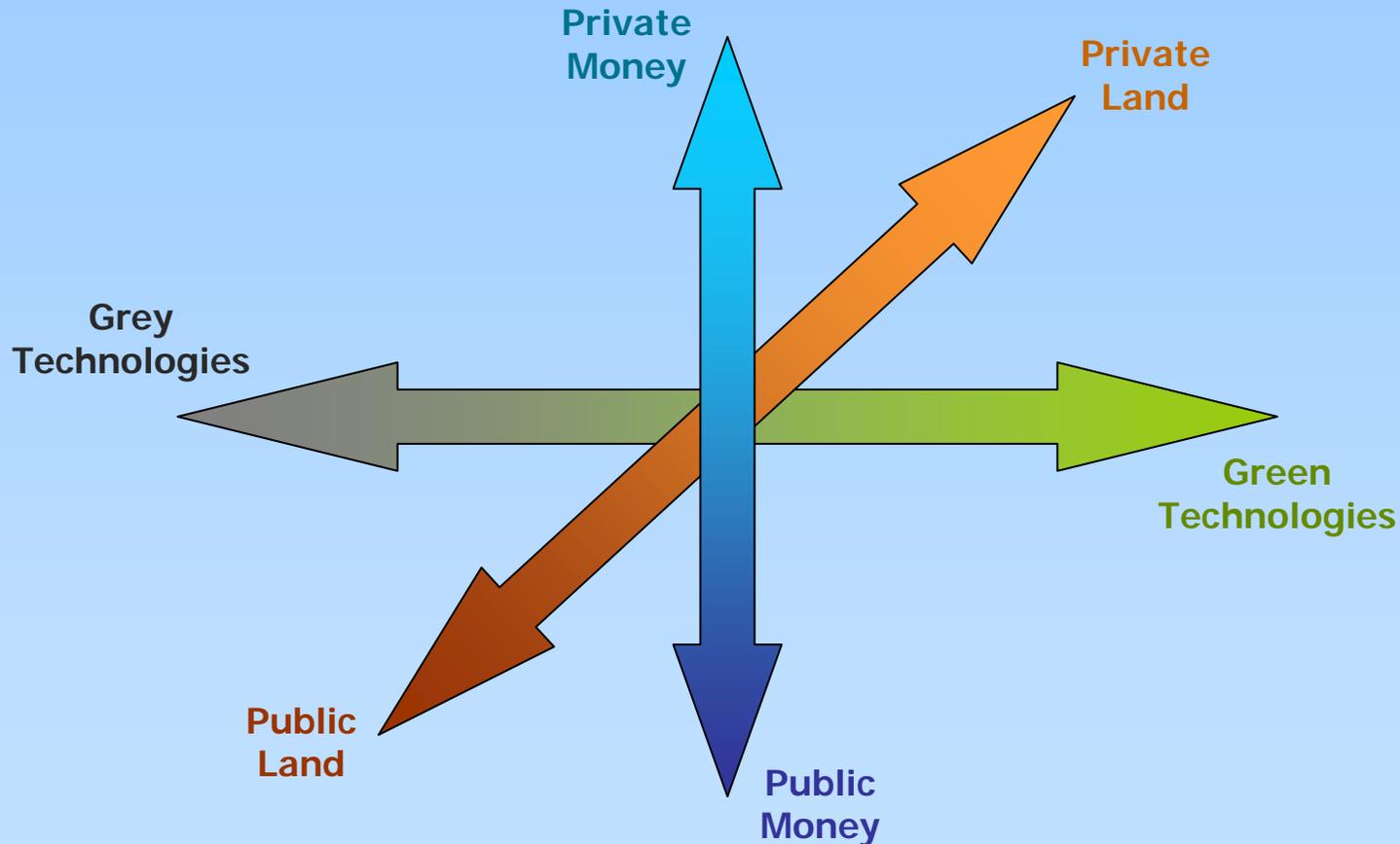
Economics



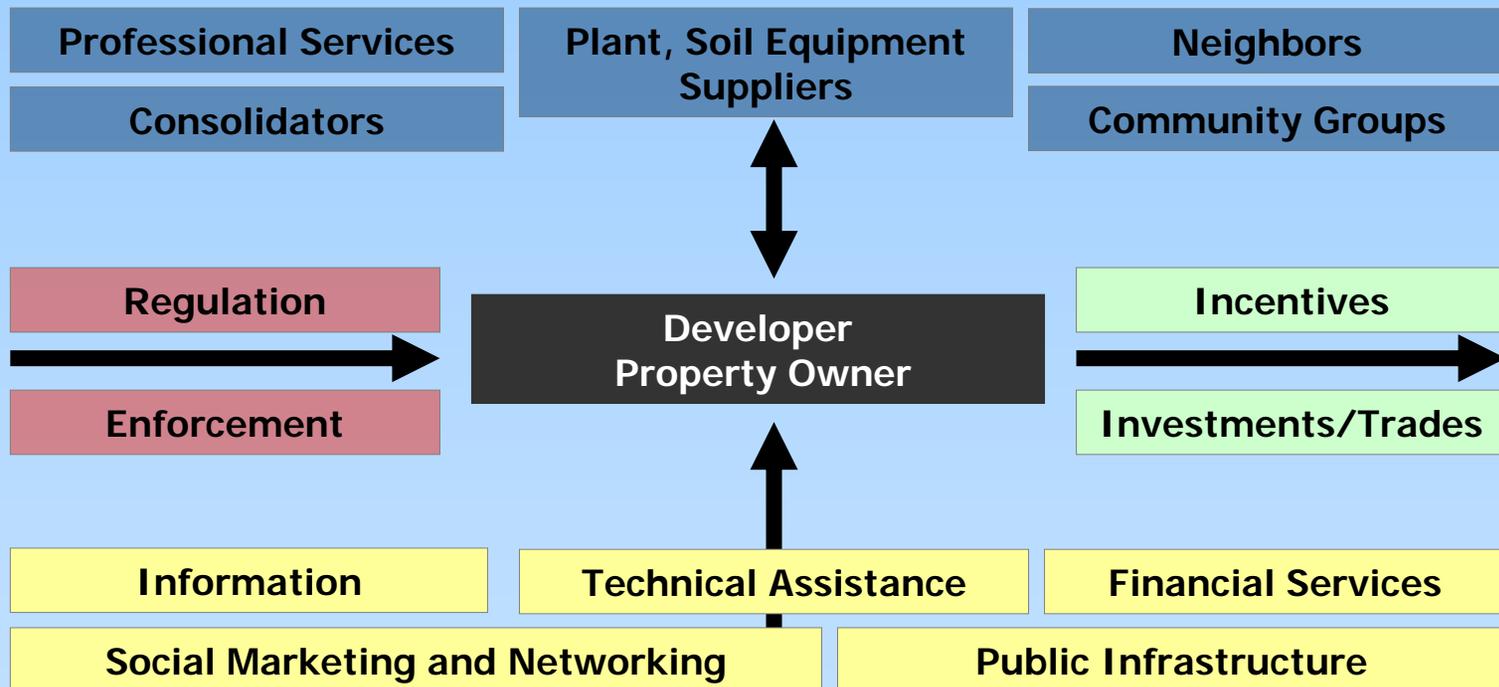
Regulation



The new paradigm shifts actions from toward private property, shifts finances toward private investments, and shifts technologies toward multi-purpose green facilities.



Green development requires a mix of regulation and incentives, information and market-based services that increase private capacity and balance the push of regulation with the pull of incentives and markets.



Investments in a stormwater marketplace and increases in the capacity for private action are more cost-effective in the near-term than implementing credit trading.

Portland's strategies for growing a stormwater marketplace...

- ◆ **Develop reliable measures of BMP effectiveness and ecosystem services**
- ◆ **Increase public education, technical assistance and incentives**
- ◆ **Train and certify planners, designers and installers**
- ◆ **Develop efficient supply chains**
- ◆ **Leverage the use of public investments**
- ◆ **Seek our strategies to stimulate competition and drive down costs**
- ◆ **Engage community, non-profit and volunteer resources**
- ◆ **Streamline regulatory and development review processes**
- ◆ **Expand development options by authorizing shared facility agreements**
- ◆ **Encourage private investment in public facilities**

and once a mature marketplace is functioning...

- ◆ **Implement a credit trading system to accelerate stormwater retrofits**



Portland finds that not all credit trading is created equal, and successful retail trading systems require significant investments in readiness

◆ Wholesale Markets

- ◆ Large geographic areas... watersheds and river basins
- ◆ Multiple governmental jurisdictions – local, regional, state, federal
- ◆ Identifiable players – mostly large point-sources
- ◆ Well defined environmental or regulatory goals
- ◆ Relatively small number of trades between stable mix of players
- ◆ Readiness focused on public institutions, private enterprises and stakeholder groups
- ◆ Political and economic considerations focused at regional, state and interstate levels

◆ Retail Markets

- ◆ Small geographic areas
- ◆ Stand-alone municipalities... predominately urban and suburban residential
- ◆ Thousands of small commercial and residential players... and non-point sources
- ◆ Complicated mix of environmental or regulatory goals
- ◆ Thousands of trades between volatile and ever-changing mix of players
- ◆ Readiness focused locally on municipalities, communities and property owners
- ◆ Political and economic considerations focused on municipalities and regions



Readiness begins with a robust program of public information, education, social marketing and civic engagement.

Public education, involvement and engagement at BES

Environmental Education

- Classroom Activities
- Field Trips
- Curriculum Resources
- Teacher Workshops
- Community Projects
- Stewardship Grants

Community Outreach

- Watershed Councils
- Construction Project Support
- Community Benefit Opportunity Projects
- Neighborhood/Business Liaisons

Communications

- Media relations
- Press releases and public notices
- Public and in-house newsletters
- Internet site development/maintenance
- Graphic design and publications

Advisory Bodies

- Citizen Budget Advisory Committee
 - Portland Utilities Review Board
 - Stormwater Advisory Council
 - Science Advisory Committee
 - Development Review Advisory Council
 - Small Business Advisory Council
 - Community Benefit Opportunity Advisory Committee
- ... to name a few!



Portland's Stormwater Marketplace

Current Examples of Market-Oriented Initiatives

- **Development Density Bonuses**
- **Discounted Utility Charges**
- **Downspout Disconnection Program**
- **Leveraged Local Improvement Projects**
- **Watershed Stewardship Grants**



Development Density Bonuses

- Targets new developments in the Central City
- Developers receive a square foot of floor area bonus for each square foot of roof garden
- The ecoroof bonus ranges from 1:1 to 3:1 depending on the extent of the roof coverage
- Developers must record covenants to retain and maintain the green roofs... permanently
- The bonus has produced an estimated \$225 million in additional private development at 11 participating sites
- The program has spurred ecoroof developments outside of the target area... Portland has more than 120 ecoroofs in place and more are on the way



Discounted Utility Charges

- Itemizes the stormwater bill into on-site and off-site stormwater management services
- Offers up to 100% discount of the on-site portion ... 35% of the total stormwater bill
- First discount comes with a retroactive credit worth as much as 12 months of the stormwater discount
- Discounts are calculated based on the extent and effectiveness of private facilities to control flow rate, pollution and disposal
- Since October 2006, the City has processed more than 33,000 registrations
- Full participation may reach 110,000 of the 176,000 stormwater ratepayers



Leveraged Local Improvement Projects

- Couple watershed enhancement and stormwater management improvements with local street improvements.
- Partner with local property owners to design green facilities and a wetland into the streetscape.
- Use stormwater utility investments to leverage property owner support for an equal amount of special assessments to pay for local street improvement.
- Increase safety on a local residential street, improve access to individual properties, create a neighborhood amenity (wetlands), and eliminate a major source of particulates and pollutants at the headwaters of a local stream.



Watershed Stewardship Grants

- Grants up to \$5,000 to community groups
- Focused on community-initiated projects to improve watershed health
- Fosters community partnerships and provides technical assistance, financial support and training to volunteers
- Projects have included ecoroofs, parking lot swales, habitat restoration and downspout disconnections
- Between 1995 and 2005, the program awarded 108 grants, engaging more than 27,000 citizens who donated nearly 140,000 volunteer hours
- Nearly \$450,000 in City grants have attracted more than \$1.9M in matching funds



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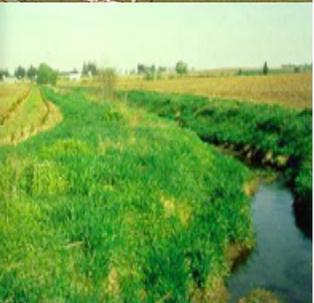


VT TMDL Stormwater Offsets

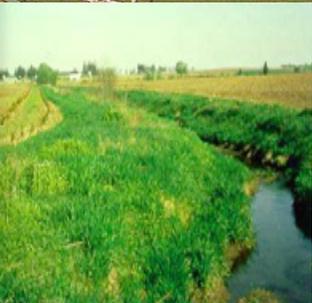
- **Prior to development of general permits under a TMDL**
- **For new development and redevelopment only**
 - **Result will be net-zero discharge from statutory baseline**
 - **Offsets will be constructed by the discharger or the discharger pays a fee of \$30,000 per impervious acre**

Lake Tahoe Project

- ☹ **CA requires WLA allocations for MS4s**
- ☹ **Lake Tahoe project leaning toward NPDES option**
 - ☹ **Have a WLA**
 - ☹ **Have baseline monitoring data**



How to stimulate demand in the Ches. Bay



- 💧 **Trib strategy built in growth**
 - 💧 demand currently weak until growth occurs
- 💧 **Can markets be developed outside NPDES?**
- 💧 **Can states/localities stimulate demand for water quality improvement?**