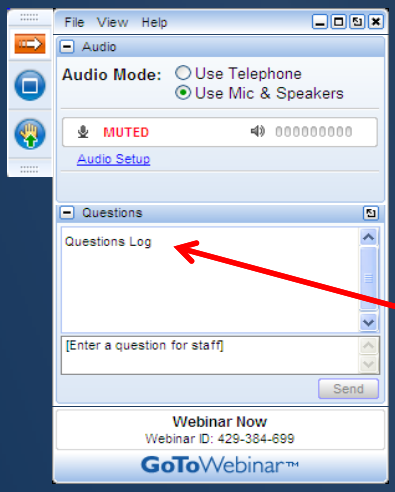
Working with the Market for Green Stormwater Infrastructure

Thursday, June 8, 2017
1:00 – 2:30pm Eastern

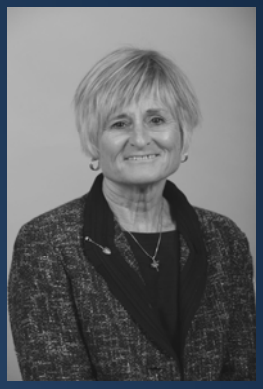
How to Participate Today



- **Audio Modes**
  - Listen using Mic & Speakers
  - Or, select "Use Telephone" and dial the conference (please remember long distance phone charges apply).
- **Submit your questions using the Questions pane.**
- **A recording will be available for replay shortly after this webcast.**

Today's Moderator

- Sandra K. Ralston
  - Principal, Consensus LLC
  - Chair of the Stormwater Institute's Advisory Committee



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- A center of excellence and innovation housed within WEF
- Responds to stormwater professionals for a central hub on stormwater issues, and provides a platform to develop best practices and share better approaches to stormwater management
- Provides new options for collaboration and funding for key initiatives
- **http://wefstormwaterinstitute.org/**

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Objectives for stormwater success

Work at the watershed scale

Manage assets and resources

Transform stormwater governance

Close the funding gap

Engage the community

Support innovation and best practices

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SWI Members

- 16 Municipal/Utility members
- 16 Technology/Service Provider members
- 2 Non-Governmental/Academic

SWI Advisory Committee

- 12 Diverse Sector Representatives
  - Multiple size stormwater permitees
  - Consultants
  - Academic and NGO
  - WEF Stormwater Committee
  - National Municipal Stormwater Alliance
  - State Regulatory Agency
  - Technology Provider
- identify priorities for the Institute's focus
- advise on organization model and programs that will attract and serve stormwater managers

SWI Programs

- National Green Infrastructure Certification Program (NGICP)
- 2017 National Municipal Stormwater and Green Infrastructure Awards
- SWI Policy Forum (2017 Water Week)
- Stormwater Testing and Evaluation of Products and Practices (STEPP) Initiative
- Stormwater Financing Initiative
  - Engaging Private Capital for Great Lakes Green Infrastructure Financing (Partnership w/ American Rivers)
  - Working With the Market for Green Stormwater Infrastructure (partnership with National Network for Water Quality Trading)

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Today's Speakers

- **Carrie Sanneman**, Clean Water Program Manager, Willamette Partnership
- **Seth Brown**, P.E., Principal/Founder, Storm and Stream Solutions, LLC
- **Ken Susilo**, P.E., CPSWQ, Senior Principal Water Resources Engineer, Geosyntec Consultants
- **Janet Clements**, Senior Water Resource Economist, Corona Environmental Consulting, LLC

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A report from Storm & Stream Solutions LLC and Willamette Partnership

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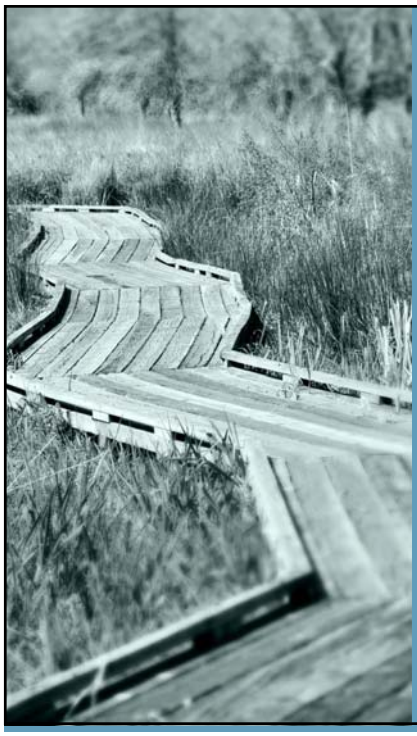

Willamette Partnership

LAYING THE GROUNDWORK FOR MORE EFFECTIVE CONSERVATION.

Agenda

- What is it?
- Why? Why now?
- What happened?
- What's inside?
- Take-aways
- Practitioner perspectives
  - Ken Susilo (Geosyntec)
  - Janet Clements (Corona Environmental)

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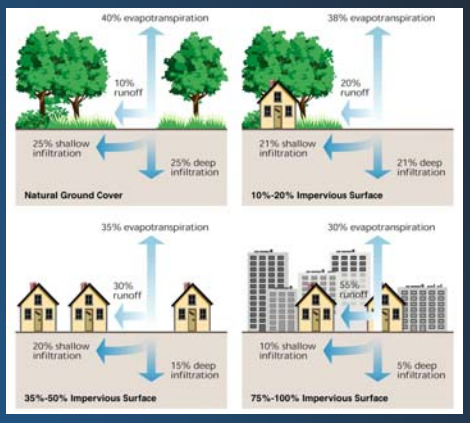
Stormwater

Impervious surfaces create increased amounts of stormwater runoff during rainfall events, modifying drainage patterns and flows and disrupting the natural hydrologic cycle

- City of Portland Stormwater Manual



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Stormwater

Photo courtesy of Ashland Ohio

"Economic Instruments"

Economic instruments recognize and deliberately work within the economic system to create action or drive investment that meets environmental goals. They are one way to work with market forces to meet stormwater program goals.

"Economic Instruments"

Useful tool for:

- Coverage
- Flexibility
- Private Investment
- Efficiency

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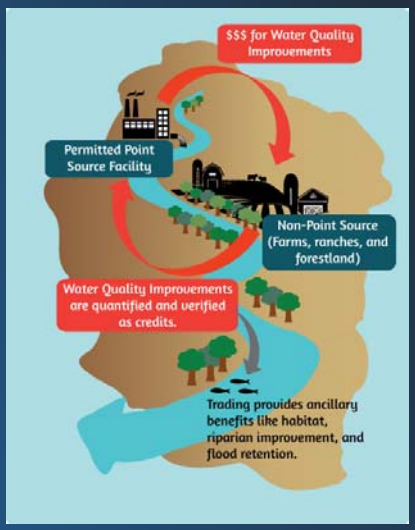
Motivations

- Opportunity to advance the goals of the NNWQT
- Stop reinventing the wheel
- Promote approaches that get cleaner water faster, at lower cost, in keeping with watershed goals



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Motivations

Why consider "the market"

- Drive down costs (find cost efficiencies)
- Provides flexibility for compliance
- Political support
- Enables vehicles to drive investments on to private parcels
- Can relieve pressure on municipality
- Because it has worked in other sectors…
- Opens up financing options
- Enables innovation

Report Development Process

Report development process

- Expert conveners
- Network feedback
- Draft white paper
- Workshop input

Questions to think about

- How can we **facilitate the bridging** of WQT and stormwater sectors?
- How can we make the use of **economic instruments** more ubiquitous, especially for **smaller/mid-sized communities**?
- Can we formulate a **roadmap** to implementation?
- How do we address challenges to **private property adoption** of stormwater infrastructure? (responsibility of maintenance, etc.)

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Report Overview

- Drivers
- Economic Instruments
- Policy Challenges/Barriers
- Conclusion

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Drivers

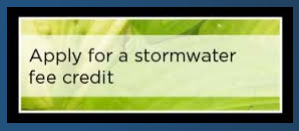
- Regulatory
  - NPDES / MS4
  - NPDES / CSO
  - TMDL
  - Stormwater Manuals/Permits

Drivers

- Non-Regulatory
  - Economic Development
  - Public Health
  - Climate Change/ Resilience
  - Development Process Enhancements

Economic Instruments

- Incentive-Based
- Mitigation - / Credit-Based



Economic Instruments

- Incentive-Based Applications
  - Fee Reduction
    - Over half of communities w stormwater fee include a fee reduction option
  - Subsidies
    - Philadelphia Water Department GARP program
  - Insurance Premium Discounts
    - New Orleans NDRC program
  - Land Development Support
    - Common to provide incentives to employ on-site green infrastructure in development projects

Economic Instruments

- Mitigation/Credit-Based Applications
  - Offsets / Mitigation
    - City of San Diego Alternative Compliance
  - Credit Trading
    - WQT
      - Virginia, Maryland MS4 trading programs
    - Stormwater Trading
      - DOEE SRC program, Chattanooga

Mitigation

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Economic Instruments

Mitigation

- Mitigation - / Credit-Based - Applications
  - In-Lieu Fees
    - Common option for stormwater programs to give land developers flexibility to comply with regulations
  - Banking
    - Grand Rapids, MI stormwater banking
  - Layered Options
    - Use of "stacked" programs with multiple options

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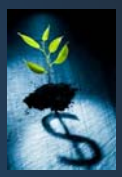
Policy Challenges/Barriers

- Incentive-Based
  - Designing the right rebate/subsidy
  - Tax codes
  - Upfront capital
  - Maintenance responsibility

Policy Challenges/Barriers

- Mitigation - / Credit-Based
  - Programmatic costs/complexity
  - Trading area, units of trade
  - Quantification of credible units of trade
  - Credit life
  - Local benefits vs. cost effectiveness
  - Holistic stormwater management



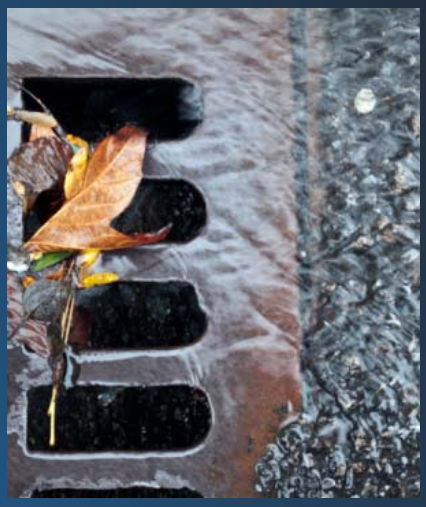
Take Aways

- Terminology is important
- Stormwater and WQT worlds differ
  - Non-regulatory drivers are stronger in stormwater
  - Regulatory environment is complex in different ways
- Barriers are significant – not impossible
- Need to develop pathways for program development

Future Research/ Discussion

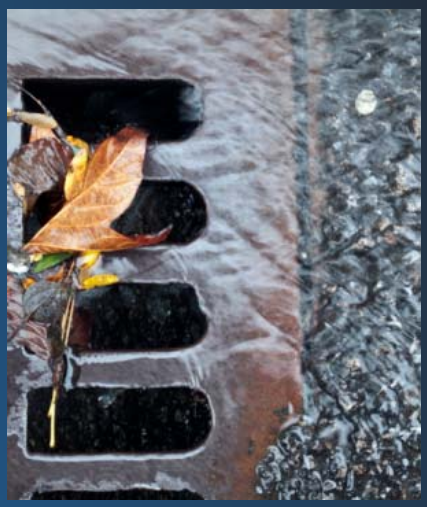
Can we formulate a roadmap to implementation?

What does that look like?



Next Steps

- Outreach
  - StormCon 2017 Bellevue, WA
  - WEF TEC 2017 Chicago, Il
- Gather feedback
- Identify scope and resources for a road map



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Questions?

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Geosyntec consultants

Economic Instruments to Support Investment in Green Stormwater Infrastructure:

Discussion of NNWQT Fall 2016 Workshop

Ken Susilo, PE, D.WRE, CPSWQ
Senior Principal, Geosyntec Consultants, Los Angeles, CA
WEF Webcast
June 8, 2017 1:00-2:30 PM (Eastern)

Perspective on Benefits of Report & Event

- **Personal Perspective (typically urban watersheds)**
  - Water quality compliance: Work with to public agencies with MS4 Permits that incorporate TMDLs, and watershed-based compliance plans for implementation.
  - Water resources and co-benefits through watershed-level Triple Bottom Line strategies
  - Support for funding initiatives
- **Challenges and risks:**
  - Requirements that are both outcome based and prescriptive (with limited data on model approaches)
  - Multi-billion implementation estimates based on limited datasets and, in some cases, unstated uncertainties
  - Lack of dedicated funding, specifically for stormwater
  - 3rd party lawsuits

www.waterboards.ca.gov

Fall 2016 Workshop

- **Discussion topics of particular interest:**
  - National examples and applications
  - Technical strategies, tools and resources
  - Markets (opportunities, limitations, considerations, instruments)
  - Metrics/currencies & basis for exchange
  - Challenges and lessons learned from national precedent

TRANSFERRABLE STRATEGIES

Fall 2016 Workshop (cont'd)

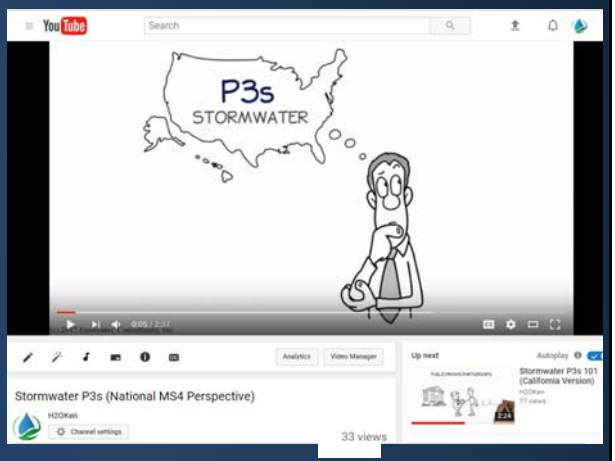
- **Lessons and national precedent (takeaways):**
  - Funding stresses are universal (limited dedicated funding, general funds)
  - Drivers and constraints vary across the nation (urban retrofits vs. rural & agricultural watersheds)
  - Differences in TMDL implementation requirements spur different innovations and approaches
  - Areas with multiple stressors/needs can provide multiple benefits
  - TBL value analyses are used differently (monetized value vs. willing & able to pay)
  - Economic instruments (incentive vs. mitigation/credit)
    - Difficult to translation to compliance & methods to quantify
    - Minor levels of disruption, but what is the impact?

=? Meaningful Compliance Effectiveness?

Fall 2016 Workshop (cont'd)

Thoughts looking forward (P3s & PBI)

Public Private Partnerships (or Performance Based Infrastructure) to link trading and fees to outcomes



Southern California Examples

- "Mitigation Offsets" (San Diego Example)
- Public ROW Strategies (City of Los Angeles)
- Industrial General Permits (Statewide)

Mitigation Offsets/Alternative Compliance Programs

- "Mitigation offsets" include projects undertaken by a permittee, developer, agent, or contractor, to provide compensatory mitigation. Programs allow owner to find an alternative site or pay into a fund that develops a regional BMP that provides a net benefit.
- Developed during MS4 Permit negotiations (at request of Building Industry Association).
- Some similarities to wetland mitigation programs, but many differences, including stricter MS4 liability.
- Water Quality Equivalence can be developed through public process with multiple permittees (need/search for common metrics).
- Seller, Permittee or HOA would retain responsibility for maintenance and performance of the offsite treatment.

Example Initial Implementation (San Diego)

- The City of San Diego stormwater quality improvement credit program or "Offsite Stormwater Alternative Compliance Program"
- Includes regular meeting of public committee including regulators, NGOs, developers, engineers, biologists, public and private interests.
- Consideration given to both credit systems and in-lieu fees.
- Envisioned to enhance flexibility to develop property while incentivizing net improvements to water quality
- Seller responsible for O&M
- Could result in shift from on-site (LID) to more regional BMPs.

commons.wikimedia.org/wiki/File:San_Diego_Skyline_at_Dawn.jpg

Programmatic Challenges (the details!)

- Flexibility afforded with respect to hydrologic connectivity in Permit, but not yet legally challenged (WoUS as conveyance of partially treated stormwater).
- Liabilities and risks transferred (MS4 entity is regulated entity)
- Valuation (pricing) of credits:
  Cost vs. Water Quality Equivalency vs. Value to "Buyer" (land costs)*
- Payment terms for any fees*
- Operations and maintenance obligations & liabilities
- Credit stacking
- Timing concerns (temporal gaps or project vulnerabilities)

*not planned to be developed by San Diego Permittee

Many Details to Still Resolve

Project Example

Mill Creek Wetlands

- Public Private Partnership involving developer, cities, counties, State of California, USACE
- Drains 80 sq. mi., in 5 cities, 2 counties
- Treatment benefit 2 to 3.4x of flow and 10x area (vs. equivalent 3000 acre project)
- 50 Acres of Wetlands
- 20+ Acres Riparian & Wetland Habitat
- 3 Miles Recreational Trails
- Underserved Communities
- Flow-through treatment prior to discharge to creek

Credit: City of Ontario & NMC Builders

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Questions & Contact Information

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Geosyntec consultants

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Economic Instruments to Support Investment in Green Stormwater Infrastructure:

Discussion of NNWQT Fall Workshop and Real-world Example

June 8, 2017

Fall 2016 Workshop

- **Personal Perspective**
  - Economist/consultant to utilities, public agencies, and research foundations
  - Triple Bottom Line (TBL) goals
  - Economic incentives and drivers for private sector
- **Overarching questions:**
  - Private participation – if you build it will they come?
  - Does implementation on private property create regulatory uncertainty?
  - Will programs drive GI where it is most needed?

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Fall 2016 Workshop: Benefits and Key Takeaways

- Common language and state of knowledge
- Need for additional capital has driven innovation and successful programs
- Need for TBL benefits information to:
  - Drive private sector participation
  - Leverage additional funding sources (private and public)
- Devil is in the details:
  - What are the necessary conditions for successful program implementation?
  - How do different drivers affect program design/options?
  - What is needed to jump start the market?
  - Other questions: Necessary market size? Available contractor knowledge? Limiting permit language?? ?

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Project Example: Engaging Private Capital for Great Lakes Green Infrastructure Financing

Objectives:

- Pilot innovative financing approaches that facilitate GSI implementation on private and public property in **two Great Lakes municipalities - Greater Cleveland, OH and Grand Rapids, MI**
- Engage other Great Lakes communities to ensure lessons learned and program models can be replicated

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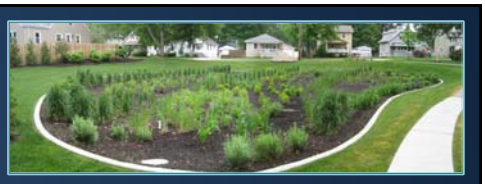
Water Environment Federation
the water quality people®

Grand Rapids: Context



- Mid-sized community experiencing substantial development/ redevelopment (aka Beer City USA)
- ESD responsible for stormwater management (no stormwater utility or fee)
- MS4 permit submitted to MDEQ
  - *Address increase in stormwater volume, due to development, as a contributor to streambank erosion*
  - *Water quality (Ecoli TMDL)*
  - *Flooding also a concern among permittees*
- Stormwater planning in partnership with 30 other communities in Lower Grand River Watershed

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Grand Rapids: Permit Requirements and Proposed Alternative Compliance

- New standards for re/development: Treat runoff from 90% percent annual non-exceedance storm (approximately 1")
- Proposed alternative compliance options incentivize distributed controls that aren't feasible in poorly drained soils
- Off-site mitigation and Payment-in-Lieu options:
  - Manage >= 0.4 inches onsite, provide a 1:1.5 offset ratio
  - If infeasible to manage minimum onsite, provide 1:2 offset ratio
  - Projects must be completed within 24 months

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Credit Trading?

Can we expand mitigation and in-lieu fee program to include credit trading among private entities?

Credit Trading in Grand Rapids: Key Considerations/Questions

Does permit (as written) or draft stormwater manual limit potential market?

- Do conditions for going offsite restrict potential market?
- In-lieu fee set on a project-by-project basis (may compete with market for credits if cost is lower)
- In-lieu fee currently one-time payment, not a direct comparison for private credit market
- 24-month requirement could also conflict with payment in-lieu model
- Currently restricted to sewershed

Credit Trading in Grand Rapids: Key Considerations/Questions

What role will ESD need to play (Administrative Burden)?

- Purchase price guarantee?
- Contractor certification?
- Prioritization/hotspots?
- Provide other incentives to jumpstart market? No stormwater fee makes it difficult for project aggregators. . .

Credit Trading in Grand Rapids: Key Considerations/Questions

- How can program drive implementation where it is needed most?
- Are their environmental justice concerns?
- Can credit price be subsidized if credits meet other community goals/provide additional benefits?
- How does developer/property owner relationship affect market?

Last Word on Benefits

- Important for municipality but also to incentivize property owners
- Key recommendations from developer workshops:
  - Develop and widely disseminate **case studies and peer testimonials**, based on actual projects and data, showing GSI benefits for property owners
  - Develop tools to calculate benefits and assess "total" value

Questions?