

Delaware Green Infrastructure for Coastal Resilience Training – Notes

May 5, 2016

St. Jones Reserve, Dover, DE

Hazard Related Issues

- Tidal wetland loss
- Non-sewered communities and flooding
- Coastal flooding
 - Affects transportation (e.g. emergency response)
 - Quality of life
- Increased impervious cover and adds to impacts from rain/flood
- Changes in floodplain maps and changes in ability to develop
- Dune erosion
- Combined sewer outflows and flooding
- Historic damage
- Housing damage

Ecosystem Services to Address Hazards

- Stormwater retention
- Erosion reduction
- Flood retention
- Wave attenuation
- Beach stabilization
- Stormwater and flood control
- Cultural services

Barriers to Green Infrastructure Implementation

- Perception
 - Our own perception
 - Public perception
- Lack of political will
- Lack of contractors who are educated or trained
- Cross coordination
- Poor landscaping
- Permitting
- New things
- Uncertainty
- Cost of not doing anything (not available)
- Applying for grants
 - No staff

- Money to continue to report project milestones
- Training for maintenance of bioswales
- Property owner opposition
- Preserving the view shed
- Community/local opposition to state projects
- Funding
 - State grants require match (most communities can't match)
 - Prevailing wage requirements – higher cost
 - Concern about long term responsibility and maintenance costs

Solutions to Barriers Identified

- Bend the language where appropriate; talk to audiences about what they value and use visualizations
- Educate on visual appeal
- Get kids/schools involved (and other community members) on installing and maintaining GI
- Communicate with business owners that they have a competitive edge
- Certificate program as an incentive
- More forums like this, but bring in a new audience and go in more depth if needed
- Partner with each other (help with funding)
- University students
- Getting nonprofits to help walk through the process
- DeIDOT Risk Map (multi-faceted) global risk map showing more than just risk
- Tree City USA, cost effective and engage kids
- Early engagement in planning process
- USDA grants cover 75% of cost

Local Green Infrastructure Projects:

- Dover – Silver Lake
 - Increase Dickinson Creek communication and contact nonprofit bioengineers
 - Milford Neck conservation – Highway 301 (91 acres) – mitigation environment
- Dunleith (Rt 9) neighborhood
 - Reduce flooding with rain gardens, basins in stub roads working with Newcastle Conservation District
 - Contact: Jessica.verchick@aecom.com
- Swann Keys – lower Sussex County
 - Educating community on GI, network building
 - Living shorelines with oyster reefing around 4.5 acres of marshes; dredge creek and place spoils into marsh grasses and replant
 - Contact: Barbara Shamp at cherokee928@gmail.com

- Kalmar Nyckel restoration project along Brandywine River/Brownfield site
 - Remedial action involves indigenous plantings for E&S, stormwater management, shoreline stabilization
 - Contact: Brownfields, DNREC (Jim Poling)

- Milford living shoreline on the Mispillion River
 - Contact: Rob Pierce, City of Milford

- Pervious road shoulders, DE Statewide
 - Jim Pappas (DeIDOT)

- Wetland conservation statewide on the watershed scale
 - Contact: Alison Rogerson (DNREC)

- Urban street trees in Wilmington, DE
 - Contact: Ann Mattingly (DE Horticulture)

- Permeable pavers at Fenwick Town Hall
 - Contact: Merritt Burke

- Living shoreline at Blackbird Creek, Townsend
 - Contact: Kari St. Laurent

- Park/stormwater masterplan & future improvements in Maryland/Delaware
 - Contact: Lauren Good

- DeIDOT/KCI – Leatherman’s Run
 - BMPs to address water quality impacts associated with I-95

- Town of Blades rain barrel at town hall

- Outreach and monitoring
 - Check outfalls for pollutants to ID & track “illicit discharge”
 - Stormwater management practice
 - Contact: KCI

- Saltwater inundation through dune breaches in Green Creek, NJ
 - NFWF planning and design grant awarded for study
 - Contact: Katelynn Wintz

- Reduce existing impervious area and making it parkland and filter strips in Bowers
 - Contact: Ron Hunsicker

- Living shoreline in Seaford
 - Contact: Jules Bruck

- Green infrastructure for coastal highway resilience in US coastal areas
 - Grant funding to state and metro transportation agencies
 - Contact: Tina Hodges FHWA

- Living shorelines in Lewes Canal
 - Installed in 2014, coir logs, oyster bags
 - Study: living shoreline (accreting) vs. control site (eroding)
 - Contact: Brittany Haywood, DNREC

- Sand pumping and flood proofing buildings in Indian River Inlet
 - Contact: Jeff Shockley, Sussex County, DE

- Brandywine riverfront northeast
 - Urban neighborhood project (EJ)
 - Brownfield remediation
 - Shoreline stabilization (without hardscaping)

- Remediation and restoration
 - Sediment erosion and control
 - Public access
 - Create a sense of place
 - Create a master plan
 - DNREC Community Environmental Project Award

- Porous pavement for parking garage and green roof (16 acres) in Wilmington, DE
 - Contact: Deirdre Smith

- Herring Run drainage improvements
 - Tax ditch branch needs cleaning
 - State wetlands areas
 - DeIDOT drainage improvements
 - Private stormwater system improvements
 - Downstream from 2 major commercial developments
 - Walmart shopping center
 - Seaford Village Shopping Center

- NFWF project funded for SVSC on site
 - Improvements – large parking area (water quality improvements)
 - Contact: Jen Nelson (Resource Smart, LLC)
 - Contact: Josh Littleton (City of Seaford)
- South Main Street utility upgrades in Smyrna, DE
 - Green streets & permeable pavement
 - Contact: pvigneri@smyrna.delaware.gov
- Delaware St. – Grant & Planning Stage in Newcastle Delaware
 - Stormwater quality
 - Battery park open space project
 - Contact: jeff@newcastlecity.org
- Funding a research project to add charcoal and iron to ditches and swales to improve water quality
 - Contact: carol.cain@state.de.us
- Stormwater retrofits – Dewey Beach
 - CIB, DNREC, DeIDOT
 - Contact: Jim Tyler, Town of Dewey Beach
- Vacant land retrofit, Wilmington Land Bank
 - Contact: Vik Krishnamurthy, DCH
- Blue courtyard
 - Contact: Vik Krishnamurthy, DCH

What do you need to take action?

- Resources
 - Information (see USB)
 - Assessment tools to avoid traps or surprises (e.g. ENVISION)
- Maintenance
 - Funding doesn't cover it post maintenance
 - Use maintenance as in-kind match/leverage
 - Business development community and corporate partners
 - Volunteers/community outreach
- Funding
 - FHWA grants
- Costs vs. Uncertainty

- Will it work?
- Perception is often that green infrastructure is a luxury not a necessity