GO GREEN ILLINOIS
STORMWATER BEST PRACTICES

March 13, 2018 Chicago Botanic Gardens

Marchella Bondie Keenan – CNT Center for Neighborhood Technology
Rain Ready – Overview

https://www.cnt.org

The Need: When sewer system gets overwhelmed, backup occurs where we see flooding. Economic impacts, health impacts like mold, lost time and money.

Hierarchy of stormwater management
Avoid ➔ Sink It ➔ Hold It ➔ Send it

Rain Ready Home is a one stop shop for homeowners to contact for help when their home has been flooded. The program is grant funded and works to help address urban flooding and improve water quality. Rain Ready also works at the community level in several locations in the region to increase the use of green infrastructure. To create a Rain Ready Community, engage all players – officials, municipal staff-level and grass-roots-level education, tours and planning.

CNT offers Green infrastructure evaluation for churches, schools, community centers. Install rain gardens and monitor effectiveness.

More information on the Rain Ready program is at https://www.cnt.org/rainready. There are also resources for homeowners at this site and the National Stormwater Management Calculator is at: https://swcweb.epa.gov/stormwatercalculator.

Erin Balaski – Northwestern Graduate Student Project - Works with Kimberly Gray, Professor at NWU

Green infrastructure to aid storm water control in Highland Park: The team analyzed a neighborhood consisting of 40 lots to determine the benefits of different levels of green infrastructure in various storm events. The goal was to find out whether adding green infrastructure would improve storm water management in this neighborhood.

How to reduce storm water runoff in HP neighborhoods?

1) The problem is undersized stormwater system
2) Basement flooding, property damage, etc.
3) Could green infrastructure help extend the life of the stormwater system?
4) Increase environmental effectiveness.

5) They looked at the relative benefits of rain gardens, vegetated conveyance swales, planter boxes, and native landscaping.
    a. Rain gardens - Easy to implement – easy landscaping with environmental benefit and inexpensive- ($5-15 per ft2)
    b. Swales – Adaptable to natural topography, low annual maintenance costs.
    c. Planter boxes trap water off a downspout.
    d. Native landscaping – deeper root systems, easy to maintain – don't need extra watering.
    e. Rain barrels – easy for collection and distribution, but higher cost based on material and capacity.

Findings: Per Lot storage scenarios – modeled for the storms now and in future. Storms now are more like flash floods, and duration of storms is shorter. 800 ft3 storage can control a 100-year storm.

Information for homeowners is at:
http://cms6.revize.com/revize/highlandparkil/Green%20Infrastructure%20Fact%20Sheet-Residents-Oct%202017.pdf

Highland Park connected with a Northwestern Professor whose class included the opportunity to do a project. There were students interested in working on the project, and all work was done at no cost. Other Go Green Groups may want to contact local colleges and universities if they have projects that would benefit from the involvement of/research by students.

Judy Beck of Glenview added that the Village has a program to provide grants to homeowners for raingarden installation. There have been 25 put in to date. They recently followed-up with some of the early grant recipients, and found that all are still functioning as rain gardens. People were very happy with them and neighbors who were not in the program copied them.

Ben Shorofsky – Delta Institute

Delta collaborates with communities to solve complex environmental issues. Delta-institute.org

Implementing Green Infrastructure in your communities:

Create community tools, including green infrastructure (GI)

Acknowledge the many barriers to Green Infrastructure. GI takes Awareness, Planning, Design, Funding, Maintenance and Training. Support conversations around GI – set priorities and talk with people in your community. More info at: https://delta-institute.org/delta/wp-content/uploads/Green-Infrastructure-Toolkit-September-17.pdf

Example City of Gary Indiana: 6,000 vacant homes. Want to implement GI. Delta worked with them to create a city plan.
http://dynamo.solutions/in_gary_gi/#12/41.5813/-87.3569

Delta has many resources available to the public on their website, including Green Infrastructure templates that you can download and use for designing projects, and templates to determine costs. Go to: https://delta-institute.org/tools/

Natural based systems need to be maintained like our pipes do and maintenance costs should be included in the budget. Make sure the design gets implemented as designed, especially with a first-time contractor. Know what the regulations and permitting requirements are. Pick the right materials, start simple with plant species that work and are easy to understand. Require warranties on your plants.

Water utilities are facing a funding gap in maintaining their infrastructure. Green infrastructure can help extend the life of some systems at lower cost.

How would a community get involved with Delta Institute? Contact them, apply for grants or hire them as consultants.

Friends of the GB Trail puts away 15% of funds for maintenance (endowment fund)

Jim Patchett - Conservation Design Forum – For- profit
Gray vs Green

www.cdfinc.com

Ecological intelligence is needed. Tremendous opportunities for green training.
Water is so important; it is the reason why things live and die.
We need the next generations to think more holistically and think outside the box.
The way water has been managed in this country is wrong for the way water works.
Education is *key*.

Solutions in land – the soil and living rhizosphere. Our soils were so rich, prairie soil has trillions of living organisms. And holds water – self- irrigating, nutrification, needed no pesticides, fertilizers. Our historical ecosystems did not shed water.

Green Infrastructure offers many opportunities for water to be a resource. No waste. The Botanical Law "plants grow in habitats to which they are adapted." When you change the habitat, you change the inhabitants. (That is, plants die when you change the habitat.) Chicago still has some historic ecological remnants, like Bluff Springs… They are our toolkit and we need them as examples.

Our water is not "treated right" the accumulative affect across the entire region is flooding, water quality and degradation, sending it away and thinking we are ok

with not replenishing it…. The Hydrology of Boom and Bust…The mathematical Problem

GI – Living ecologies functioning cooperatively with technology….
Must harvest the waste streams, can be turned into revenue and need an ounce of prevention…

Examples
Chicago City Hall green roof – Green roof vs conventional roof (85 degrees F vs 165 degrees F)
Johnson Controls in WI. Surrounded by Prairie – no water problems
Parking lot has bio-retention sites. Actually they made it without porous pavement but they put in natural basins that take in the runoff and so it doesn't frost-heave - No potholes, etc. Even without porous pavement. Costs less to maintain.

Villa Park Police Station. The landscape is bio-retention basins. Design bio-basins right into your landscape seamlessly.

West Union, Iowa. The entire footprint is water friendly.
https://www.cdfinc.com/Green-Streets-Pilot-Project-in-Iowa-Wins-Best-Development-Award

Instead of sewers and vault systems that are not going to solve the issues, costing multi-millions, solve the problem instead. Green infrastructure will last decades with less maintenance.

MWRD has a good GI grant – UIC project received over $500,000 grant from them. Social and health benefits. Where do they break even? 15 years - just about when you'd start filling in potholes with conventional maintenance.