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Unearthing better results.











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THE COMPLETE WATER MAGAZINE

## RANGE COMMUNITY SOLUTIONS

#### Inspiring property owners to take action about stormwater

Clara Blakelock Manager of Water Programs Green Communities Canada March 26, TRIECA 2015







## **Overview**

- Green Communities Canada
- Stormwater
- Community Based Social Marketing
- RAIN goals
- RAIN messages and activities
- RAIN in K-W
- RAIN Home Visit: results
- Depave Paradise
- Quantifying impacts

it **DOWN** SOAKit **CLEAN** 



#### **Green Communities**

- national association of community organizations
- celebrating 20th anniversary
- focus on positive action
  - home energy incentive
  - Well Aware
  - Canada Walks
  - RAIN Community Solutions









### The problem

urbanization + climate **→** 

- stormwater challenges
- flooding, insurance
- liability
- infrastructure damage
- infrastructure deficit
- water pollution
- erosion
- aquifer depletion





#### The problem. The solution.



It takes 15 minutes for runoff to reach the nearest water body. Everybody lives on the shoreline – connected via the storm sewer. Everybody can be part of the solution.



#### The solution

- Reduce runoff
- Prevent pollution
- Restore natural hydrological processes with infiltration landscapes
- Replenish aquifers
- Focus on existing built environment (not just new development)





### We help

Mobilize community buy-in for innovative stormwater solutions to:

- manage rain where it falls
- reduce runoff, filter waste
- build climate resilience







#### **Community-based social marketing**

- Face to face, person to person communication
- Identifying and addressing motivations and barriers
- Peer to peer influence
- Piloting, surveying and testing





## SLOW it DOWN

- capture, store, slow release of rainwater
- maintain, enhance urban canopy (trees slow the volume of rain by 30%)





### Infiltration landscapes

- Rain gardens
- Permeable paving
- Depaving
- Infiltration galleries/ soakaway pits

## **SOAKit**









#### Burnsville Rain Garden implementation study (Minnesota) reduced volumes by 90%

Green A

## **CLEAN**

- Commercial carwash
- Compost instead of chemical fertilizer
- Pet waste digesters
- Non-toxic alternatives for traction
- Switch to safer household and personal products









#### Activities

- community engagement
  - outreach, speaking
  - workshops, events
  - demonstration projects
  - site specific advice residential/commercial/ institutional
- contractor training/referrals
- tours





### The K-W story.

- Infrastructure deficit
- Stormwater fee
- Proposed credit
- Promoted credits and BMPs
- People like getting credits
- People engaged in reducing volumes
- 600,000 m<sup>3</sup> diverted



Permeable Pavement at the Queen South Business Centre Demonstration Project









#### **Most Successful Overall Initiatives**





## **RANNER Rationale**

"In 2013, the average cost of a water damage claim rose to \$20,537, a 130% increase versus the \$8,944 that the company experienced 10 years earlier." – Aviva Canada



## RANHOME Visit

- Peer to peer, friendly, positive/encouraging
- Solutions-focused
- Technically knowledgeable (ideal homeowner)
- Third party, confidential, voluntary







### RANHOME visit

#### Keep basements dry while soaking up stormwater onsite.

- first understand path of run-off
- eaves, downspouts
- sewer backflow prevention
- driveway
- grading, landscaping, infiltration
- tree canopy, leaves
- foundation
- window wells
- foundation/basements
- pollution prevention
- storm sewer grills











#### **RAIN Home Visit Guide will:**

- Identify stormwater issues and recommend best practices
- Make timely and accurate reports
- Direct homeowners to further relevant resources and services in the community
- Understand the limits of their knowledge/know when to seek advice or assistance
- Provide customer service as needed





#### Results

 476 visits conducted in Calgary, Kitchener, Waterloo, and Hamilton (demo visits in Peterborough and Mississauga)





#### **Participant survey**

- 90% would recommend the service to others
- 85% could recall (without prompting) steps to protect their basements from water infiltration
- 57% had taken one or more actions as a result of the visit (timing of survey a factor)
- 78% had passed on knowledge from the visit to others – an average of 5 people (2,285 people reached)







St Augustine Catholic Elementary School Hamilton, ON Organized by: Green Venture Area depaved: 93 m<sup>2</sup>



Green Venture





#### **Depave Paradise**

- 10 events in 8 Ontario communities from 2012-2014
- Over 1,000 m<sup>2</sup> of pavement removed
- Dozens of media hits including national exposure
- Funding from RBC Blue Water and Intact Insurance





## Quantifying results

- How much water is absorbed by transforming a hard surface to a garden?
- How much pollution is avoided?



Brock Street Mission, Peterborough Organized by: GreenUP Area depaved: 62 m<sup>2</sup>









#### **Measuring pollution**

Typical Urban Stormwater Constituents	Duncan's Dataset (1999)
	mg/L
Total Suspended Solids	150
Total Phosphorus	0.35
Total Nitrogen	2.6
Chemical Oxygen Demand	80
Biochemical Oxygen Demand	14
Oil and Grease	8.7
Total Lead (Pb)	0.14
Total Zinc (Zn)	0.24
Total Copper (Cu)	0.05
Faecal Coliforms ( # per L)	80000



#### **Estimating runoff**

 Annual rainfall (m) x area (m<sup>2</sup>) x runoff coefficient





#### **Example: before**

- 62 m<sup>2</sup> of asphalt
- 100 m<sup>2</sup> roof draining onto asphalt
- Annual rainfall 0.7m
- 90% runoff
- Approx 99,000 litres of runoff annually





#### **Example: after**

- Rain barrels collect roof runoff and release into garden of native plants
- 10% runoff
- Approximately 11,000 litres of runoff





#### The difference

 Transformation resulted in 88,000 litres of runoff avoided annually





#### **Pollution avoided**

- That runoff would have contained:
- Over 13 kg of total suspended solids
- 300 g of Phosphorus
- 230 g of Nitrogen
- 770 g of oil and grease
- Over 7 million fecal coliform forming units





# **UMBRELLA**.ca

- Online community for knowledge sharing
- Biweekly stormwater bulletin
- Webinar series





#### Our values.

- Collaborative
- Engaging
- Community-based
- Results-driven
- Professional
- Sustainable
- Experienced
- Knowledgeable
- Creative
- Fun to work with





#### Want to know more?



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