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Green infrastructure and stormwater management:

A STRATEGY FOR MAKING IT HAPPEN

Clifford Maynes, Green Infrastructure Ontario
TRIECA, 25 March 2015

1. Green Infrastructure Ontario
2. urban water cycle – GI/LID
3. provincial action
4. community action
5. capacity-building
6. the way forward







- Green Infrastructure Ontario Coalition, 2009
- accelerate GI
- multi-sectoral: Conservation Authorities, municipalities, industry/professional associations, environment, community organizations ...
- urban forest, stormwater
- see: www.greeninfrastructureontario.ca

- urban development interrupts water cycle
- GI/LID restores, maintains, mimics
 - infiltration landscaping
 - rainwater harvesting
- restores ecosystem functions
 - filtration
 - reduces run-off peak, volumes
 - recharges groundwater
 - maintains baseflows



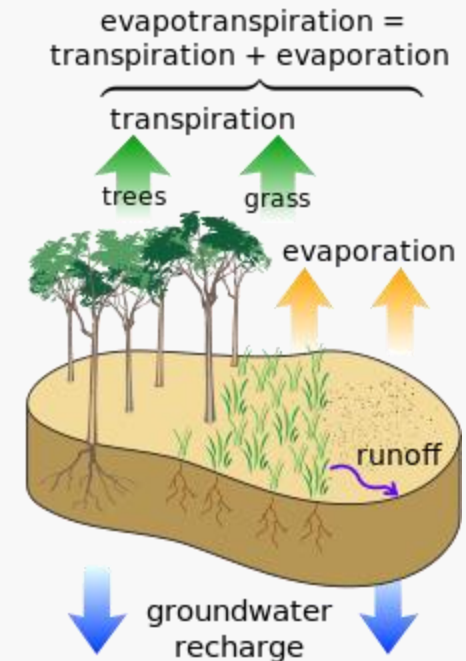
- a shift in the way rainfall is managed:
 1. from drainage
 2. stormwater management
 3. managing rain where it falls
- a hybrid approach, treatment train



Drivers

– multiple drivers

- flood reduction (damage, politics, liability); erosion; water quality; maintain water features (ecology, supply, assimilative capacity); groundwater recharge; water conservation; saving money; beautification; property values; urban cooling, green streets; conserve lands; slips and falls



– multiple supporters

- engineers
- scientists
- environmentalists
- landscape architects
- gardeners
- property owners
- developers
- finance
- lawyers ...



- phase one: not on the radar
- phase two: words w/o action
 - Great Lakes Strategy, Municipal Stormwater in Light of Climate Change, PPS
 - ECO: ‘ministries stepped back, not up’
 - early adopters on the ground, champions
- phase three: implementation
 - provincial action
 - community action
 - capacity building

- ‘pipe and pond not achieving ecosystem goals’
- MOECC expectations: (ECA)
 - mimic natural hydrology ... LID/GI
 - control precipitation at/close to where it falls
 - performance criteria based on watershed plans
 - climate adaptation
 - LID done right → no end of pipe controls



- clarify LID expectations for
 - runoff volume
 - water quality
 - water balance
- consultant selected?
- expected late 2016



– COA (implement strategy?)

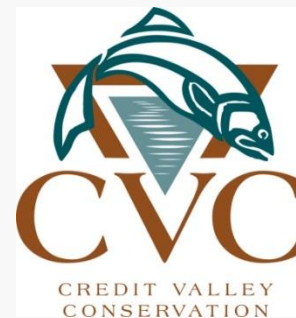
- Ontario will “facilitate the uptake of innovative source control measures that reduce stormwater volumes and enhance resilience to climate change ...”
- GI/LID early in planning decisions
- monitor, communicate
- support pilots, demonstrations

– Great Lakes Protection Act

- Geographically-Focussed Initiatives
- science based targets



- WOA (2010) establishes framework for
 - water sustainability plans by service providers
 - integrated water management approach
 - asset management plans, financial plan,
 - water conservation, risk assessment (climate)
- CVC developing guidance, case studies
- watershed scale



- adaptation, stormwater a “Critical Priority”
- “adaptation lens” for infrastructure
- weak on specifics, emissions focus
 - implement 2010 Policy Review:
 - public education
 - demonstration projects
 - incentives
- insurance industry may help



COMMUNITY ACTION

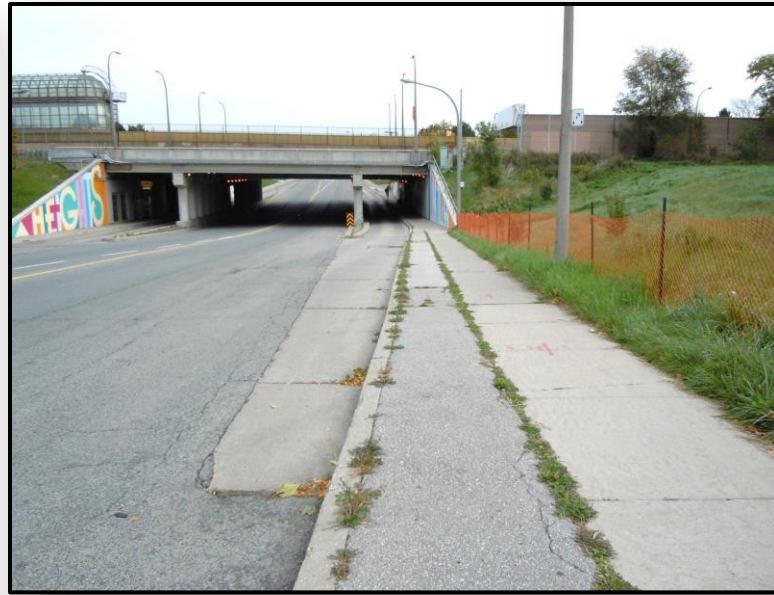


- TPA green makeovers → 130
 - permeable pavement, bioretention, bioswales
 - plus, plus, plus
- Toronto Design Guidelines



- Toronto technical guidelines for R-O-W
- integrates complete streets, rainwater





- Mississauga (2014)
 - “report on the technical and cost feasibility of low impact development opportunities associated with the road capital programs”



- 2009 Toronto by-law – a North American first
- new-build > 2,000m²



- dedicated stormwater charge
- predictable revenue stream
- user-pay principle
- incent lot-level action
- K-W, Mississauga, Toronto, Guelph ...

– issues include:

- “water tax”
- revenues, not source reduction incentive
- maintenance on private property
- include smaller lots
- incentive design
- making it happen (e.g., Philadelphia)

– SNAP, RAIN, GI design charette





CAPACITY BUILDING

– everybody's talking

- TRIECA, Evergreen, FCM Sustainable Communities, Grey to Green, Liveable Cities Conference (ICLEI), Clean Air Partnership, Latornell, trade/professional associations



- www.sustainabletechnologies.ca (TRCA)
 - green infrastructure, permeable pavement, run-off
- www.bealeader.ca (CVCA)
 - Grey to Green series: roads, multi res, res, public lands
 - municipal master planning doc to come
 - case studies, workshops, training
- www.SlowRAIN.ca
 - www.DepaveParadise.ca, www.RainGardenTour.ca

And more ...

– newsletters/social media:

- The Umbrella Bulletin, STEP news, Ontario Centre for Climate Impacts and Adaptation Resources, Slow RAIN

– webinars:

- The Umbrella
- Great Lakes St Lawrence Cities



– networking

- stormwater managers, CAs, Green Communities ...

THE WAY FORWARD



- collaborate on advocacy:
 - climate adaptation
 - asset management, sustainable water management
 - water quality/Great Lakes water quality
 - capacity building, demonstration projects, public education, and research
 - support stakeholder networking, collaboration
 - join GIO

- collaborate on capacity-building
 - ensure practitioners, decision-makers have knowledge, skills needed to implement green infrastructure
 - measures
 - implementation tools, policies , strategies
 - culture change
 - need coordinated, collaborative “hub”
 - GIO considering

– keep going!



Benefits

Improve water quality | Improve groundwater recharge | Reduce number of costly flooding events | Reduce runoff and combined sewer overflows | Private and public cost savings