

What We Heard From You- “Developing Tools to Implement Policy”

Pre-Conference Survey
Summary of Your Responses



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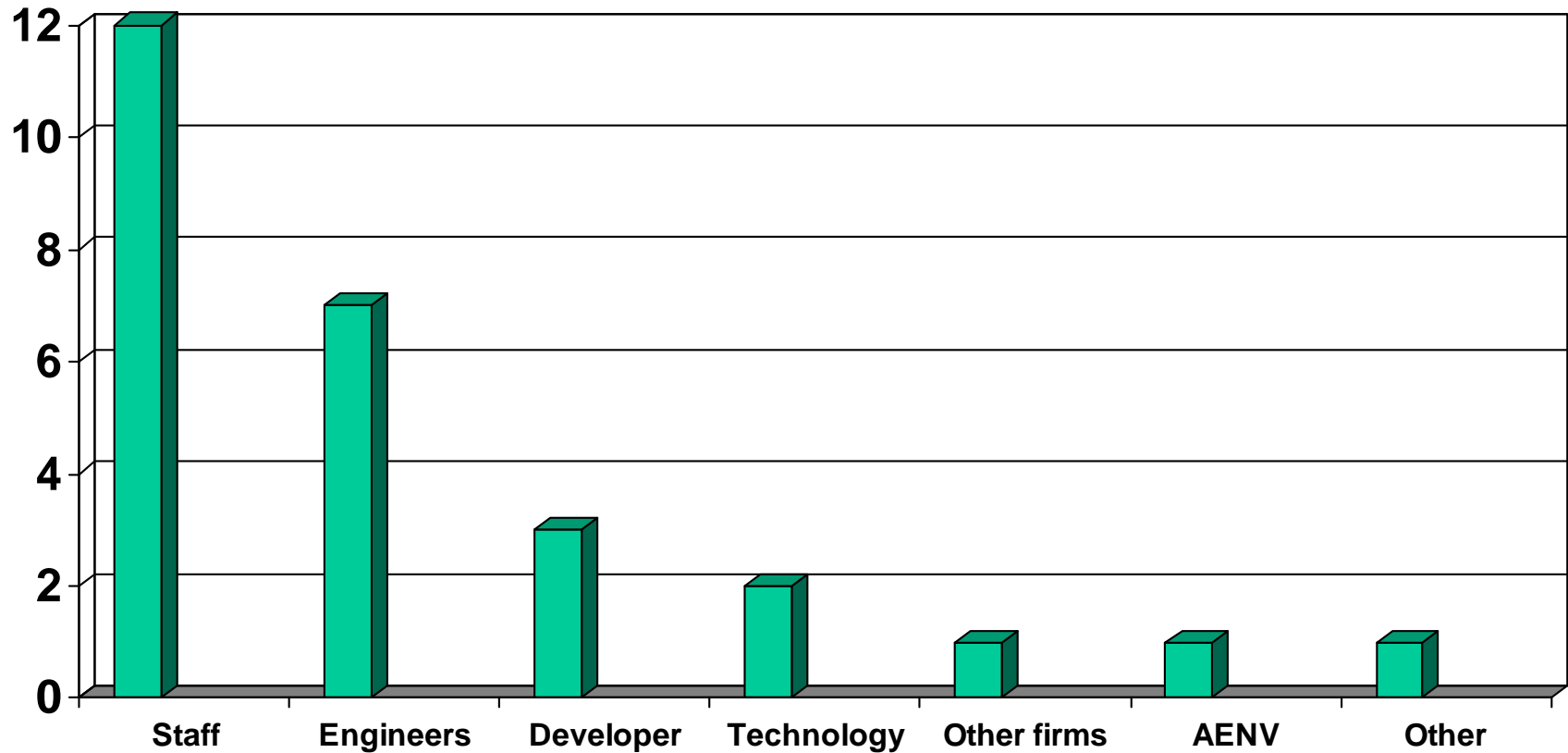


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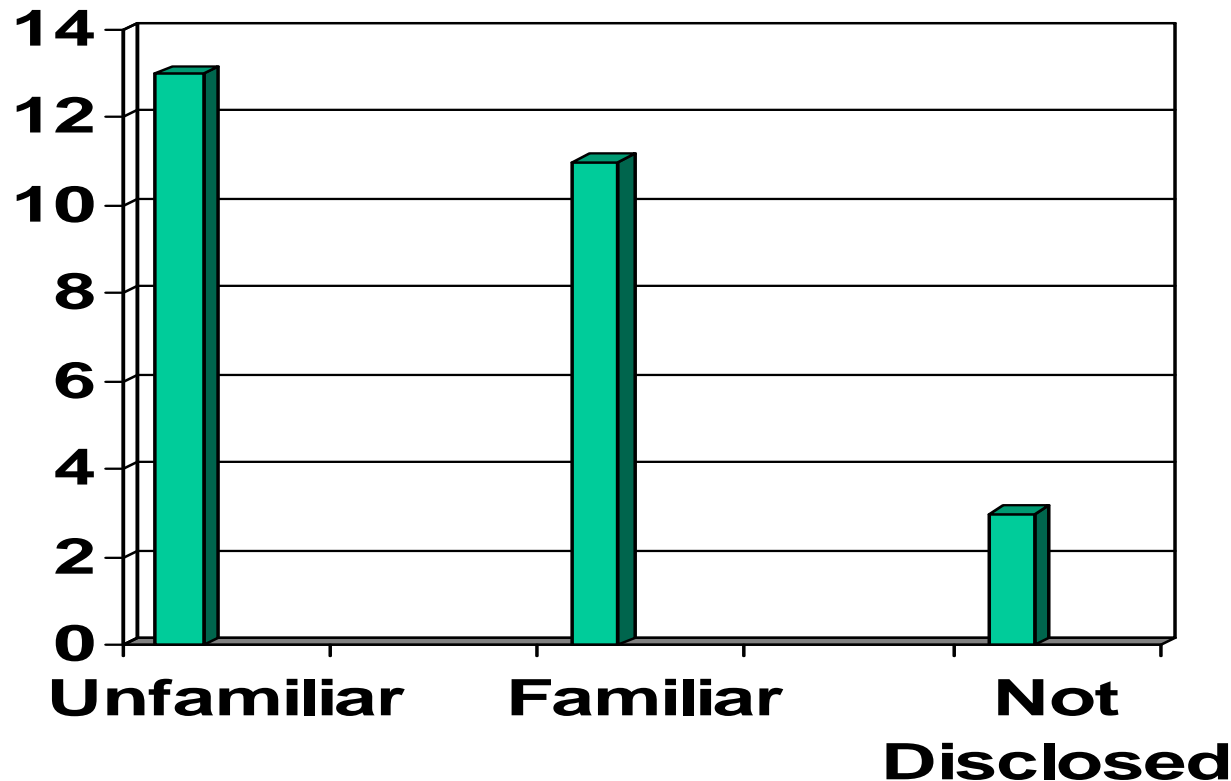
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Who responded to the survey?



Respondents familiar with LID?



What is Low Impact Development?

You said...

LID creates a hydrologically functional landscape that mimics the natural hydrological regime by:

- enhancing surface and ground water quality;
- maintaining aquatic ecosystems and resources; and
- preserving the physical integrity of receiving streams.

You said LID is....

- planned use of intelligent design to achieve environmental objectives as naturally as possible.
- commercial or residential development that reduces stormwater leaving the site and may include solar heating, public transit, etc.
- stormwater management.

You said LID is...

- landscape of structural features engineered or manufactured to closely mimic natural hydrology.
- a design approach-not a definition.
- designing/developing projects that require less water/maintenance while still achieving functional requirements based on existing conditions.

You said LID reduces...

- or eliminates the offsite drainage of a development.
- the overall footprint on the surrounding area with respect to the environmental, biological, social, economic and other parameters.
- the impact of development on stormwater runoff.

You said LID.....

- designs and implements a stormwater source control system above and beyond conventional practice.
- is stormwater source control in urban development that treats stormwater runoff at the source, attenuates peak flows and provides detention zones to encourage infiltration in order to reduce the volume of runoff, and the quality of the runoff leaving the developed site.

You said LID occurs...

- in any development activity that has the least negative impact on natural resources including the environment, water, air, and all associated natural flora and fauna.
- when the runoff from new development in an area is maintained at a level close to pre-development levels. It reduces the impact of increased impervious areas on receiving water bodies.

You said LID includes

- an innovative approach to stormwater management to mimic a site's pre-development hydrology and preserve water quality through source control, runoff reduction and quality treatment.
- more landscaping, less pavement and a smaller building footprint.

You said LID is comprehensive...

LID is a stormwater management and land development strategy applied at the Outline Plan and subdivision scale that focuses on conservation by utilizing on-site natural features, combined with “bio-engineered” hydrologic facilities to mimic and/or improve predevelopment hydrology and water quality.

Finally, **you said** LID goes beyond stormwater

- LID goes beyond stormwater management and includes developments that have lower impacts including:
 - water usage;
 - energy usage;
 - carbon impacts;
 - environmental impacts; and
 - social impacts.

and **you said...**LID considers land-use

LID includes consideration of land-use, urban design, connectivity to the community, stormwater management, water conservation, building design, landscape, energy considerations, infrastructure construction techniques, building materials recycling, etc.

Urban LID vs. Rural LID

Generally, the same considerations/criteria apply. Take stormwater out of the pipe and use as a valuable resource.

■ Differences:

- design approaches
- ability to store and reuse stormwater collected in ponds
- rural residential has higher impact on natural habitat
- density of built environment
- road standards-rural ditches and gravel roads accepted
- ability to store and reuse stormwater collected in ponds
- scale
- existing infrastructure

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What Criteria Determine a Low Impact Development?

- Provides stormwater source controls
- Post-development hydrology mimics pre-development hydrology
- Features and facilities enhance water quality discharged from the area
- Runoff is reduced to a specified level and the runoff quality meets specified standards
- Does not need the backup of a full traditional stormwater system
- C factor is lower than 0.3

Criteria to determine LID...

1. preserves open space-not necessarily low density
2. preserves trees and other natural vegetation
3. treats stormwater at the source
 - stores water on lot for irrigation needs
 - creates more infiltration opportunities
 - conveys more runoff overland via grass swales
4. uses narrower road standards
 - reduces impervious area
 - reduces boulevard width-lot owner has more landscaped area

Criteria to determine LID...

- LID exists when the development uses:
 - BMPs that achieve less disturbance to environment;
 - green technologies and process to achieve desired outcomes; and
 - natural resources in a sustainable way.

LID Perceived Issues: Lack of LID Policy

- No LID policy at municipal level
- No LID regulations/bylaws at municipal/provincial or federal level-department silos
- Few design standards-few consistent measuring tools
- Few performance measures
- Few experts on municipal administration
 - hydrologists, hydrogeologists, biologists, etc
- Lack of test data
- Lack of successful pilot projects/
examples

LID Perceived Issues: Public Perception

- looks messy
- runoff does not affect water quality
- costly maintenance
- risk to the lot owner
- mosquitoes
- too new: unknown consequences

LID Perceived Issues: Approvals

- Approval delays
- Municipalities prefer traditional design
- Lack of policy, regulations, standards, guidelines, criteria
- Increased costs of approvals
- Need for expert advice
- Too much long term maintenance cost
- **Who fixes a failed project? Not worth the risk!**

LID Perceived Issues: Design Confusion

- Design guidelines do not reflect water quality and quantity objectives
- Design is not regulated and is open to interpretation
- Alternatives should be encouraged

LID Perceived Issues: Developer Buy-In

- Too much developable land used for LID infrastructure
- Uncertainty and risk of failure....need for back up system
- Costs....too much investment for no return
- Maintenance....is LID part of PUL, MR or ER?



Summary of Identified LID Perceived Issues

- Lack of policy, regulations, standards, data
- Public perception
- Approvals....government and departmental silos
- Implementation strategies and tools needed
- Developer buy-in not there
- Risks of system failure
- Who is responsible for long term maintenance?
- Costs

LID Solutions

1. Policy development
 - watershed level
 - regional level
 - municipal level



Sample LID policy statement in MDP:

In all new developments, or in redevelopments, the municipality will require low impact development strategies and technologies to be utilized to ensure that post development hydrology, stormwater flows and water quality mimic pre-development hydrology, stormwater flows and water quality .

Municipal policies could

- Preserve natural areas;
- Use recycled grey water for irrigation and non-potable needs;
- Require landscaping onsite for water retention/detention; and
- Require the use of LID technology and strategies

Solutions...

2. Bylaw development

- Land use bylaw provisions (examples)
 - (- requirement for PUL for bio swales
 - building development setbacks from water bodies
 - requirement for naturescaping-12 inch topsoil
 - requirement for soil decompaction)

- Pesticide bylaw

3. Creation of criteria, standards and guidelines, operations manuals, cost/benefit analysis

More solutions....

4. Public education
5. Marketing of LID tools, designs, techniques (community based social marketing)
6. Stewardship of water bodies and riparian lands through stormwater management
7. Pretreatment of runoff at the source
8. Incentives/Enforcement ("carrot and stick")

LID: Some Overlooked Opportunities

- Small communities have less red tape-may be easier to get approvals
- Topsoil content and depth can be regulated in new developments
- Commercial developments offer greater footprint where projects can be tried and used as pilot for success (green roof)
- Open space protection plans can be catalyst for implementation of LID techniques
- Bioswales could be considered habitat
- LID can be attractive and set new trends
 - fancy rain barrels and rain gardens

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Thank you for your valuable responses



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exit survey!*