



Low Impact Development

Problems with LID Design or Construction?

Barriers to LID Implementation?

What can the Conservation Authority do to help?



Low Impact Development

What do you see as the barriers to the design and/ or implementation of LID projects?...

The Survey says:

Acceptance/ Standards / Approvals

- Lack of design studies to help with the approval process for our engineers, sometimes more costly or require more of a footprint than "conventional" designs
- Agency and municipal acceptance. Often LID is designed and specified but traditional SWM is still required in addition to these measures
- Agencies unbending in approval. Typically want LID plus conventional. An unreasonable approach. Lack of knowledge by approval agencies. Approval agencies duplication of effort and one-upmanship between approval agencies. A brutal municipal approval environment, where a lack of credibility stifles innovation.
- Lack of acceptance as it does not meet existing 'standards';
- City approval/ UTRCA approval



Low Impact Development

Barriers to the design and Implementation of LID projects...

The Survey says:

Acceptance/ Standards / Approvals

- City acceptance / approval
- Municipal approval of anything different than the status quo
- Lack of acceptance and maintenance
- Satisfy review requirements
- Lack of benefit to the developer - e.g. why install a bio-swale if you can pipe it underground to the end of pipe facility that's required anyway. A lot of the time we are still required to design as if the LID infrastructure had become non-operational so there's no cost benefit to install the additional infrastructure.
- Acceptance, ensuring proper maintenance
- Municipal Acceptance; Lack of design standards
- Institutional barriers with regards to current policies in place as well as current development standards that do not currently include LID.



Low Impact Development

Barriers to the design and Implementation of LID projects...

The Survey says:



Financial / Lack of Incentives

- Financial barriers - increased development costs with regards to implementing LID. Lack of incentives to encourage implementation of LID. The City's / Municipalities SWM budgets are limited and LID would only increase these costs exponentially.
- Cost, builders willingness to implement such a program
- Maintenance cost
- No credit on SWM calculations for these features reduces uptake and financial viability as ENG will not trust these features over long-term for risk reasons. Perm. paving clogs up and needs to be vacuumed etc.
- Lack of financial/approval incentives (high cost and additional time)
- Operation & Maintenance costs
- Costs + , Costs for land area +
- Knowledge of owners re maintenance costs

Low Impact Development

Barriers to the design and Implementation of LID projects...

The Survey says:

Education/ Training

- Educating public
- Availability of guidance manuals and design help for engineers new to LID design.
- The potential to prove that reduction in stormwater runoff - What value that provides to the resident or company to encourage them to implement.
- Skepticism from engineers and developers along with residents related to how LID techniques and how they will work and if they will work
- How to design, construct, fund and maintain these LID techniques? How will LID techniques function within our changing climate? How do we implement LID within our developments with little if any issues



Low Impact Development

Barriers to the design and Implementation of LID projects...

The Survey says:

Education/ Training

- Traditional ways of doing drainage wants to carry water away as fast as possible. Old standards do not change overtime. Uncertainty about the performance of LID vs traditional development. Unfamiliarity of required maintenance
- Unknown technology, cost, maintenance concerns
- Lack of familiarity
- Construction, operation and maintenance
- Residents concerns over standing water
- Lack of familiarity/experience by developers, regulators, property owners
- Affected landowners



Low Impact Development

Barriers to the design and Implementation of LID projects...

The Survey says:

Conditions

- Sediment quality
- Suitability for small or infill sites
- Soils, Groundwater, Climate
- Water does not percolate into ground
- Winter, native soil impermeability
- Suitability of sites





Low Impact Development

What could the UTRCA do to facilitate LID design and/or implementation in the watershed?

Education / Demonstration / Promotion

- Enhanced Stewardship, enhanced work with educators, businesses and local subwatershed groups...this is really a grassroots effort that has to be demonstrated case by case as an enhancement to reduce impacts to conventional treatments. Should not be considered "stand alone"...
- Workshops and public demo' sites
- Promote low maintenance designs
- Provide information and training, have demonstration projects and monitor their performance overtime and maintenance requirements.
- Publish info with regard to design, support developments using LID process
- Education +

Low Impact Development

What could the UTRCA do to facilitate LID design and/or implementation in the watershed?

Education / Demonstration / Promotion

- More promotion to municipalities, examples to use as benchmarks, some costing information
- Provide examples
- Promote LID as acceptable and desirable to municipalities and share the benefits of this design with them
- Educate...more workshops, Pilot Projects, Monitoring and reporting
- Have UTRCA building as a demonstration project and promote it
- Education, promotion
- Provide guides for residents on what options they could use in their own back yards and the value it adds. Increase awareness and understanding of the impact of stormwater. Educate



Low Impact Development

What could the UTRCA do to facilitate LID design and/or implementation in the watershed?

Influence / Motivate Development of Standards

- Support changes to City design specifications for urban design, grading standards, site plans, zoning requirements, the Official Plan Policies and Urban Forest Strategy
- Create defined parameters
- Develop design standards. Develop clear SWM control criteria.
- Create a Design Guideline manual - acceptable designs as that will help improve review timelines
- Help develop new standards
- Facilitating guidelines, standards and existing practical examples



Low Impact Development

What could the UTRCA do to facilitate LID design and/or implementation in the watershed?

Facilitate Approvals

- Work to remove the bureaucratic red tape that fights against innovation in defense of older techniques
- Make the approval process easier to try new techniques
- Further work with approval agencies to gain acceptance LID as part of overall SWM design
- Ease up on their harsh reviews of HECRAS models
- Flexibility of design criteria for small sites
- Reduced time for permit approvals
- Improve coordination with Municipalities to outline critical areas for implementation and recommend Owner



Low Impact Development

What could the UTRCA do to facilitate LID design and/or implementation in the watershed?

Incentives

- A rebate or incentive to implement LID designs/projects
- Provide incentives to help with implementation! Repair old septic systems and older sewer systems, ban pesticides, use best management practices
- Provide incentive to adding LID technologies

Low Impact Development



Low Impact Development

Problems with LID design or construction.....

The Survey says:

- Undersizing, siltation discharges during construction, cold weather impacts, lack of enforceability once established, lack of design studies
- Water ponding, lack of sufficient outlets
- Undersizing, lack of interest in maintenance
- Swales between houses in new subdivisions on clay soils redirect the water into the storm sewers and do not fulfill their objectives
- Frozen & typical winter conditions for 4-months (33%) of the year, limiting effectiveness, adding maintenance/repair issues and design complexity
- Soil types, Poor soil conditions, Unsuitable soil types
- Some municipalities do not want to accept LID
- Approvals and maintenance constraints
- Wonder if some LID standards conflict with municipal standards (i.e., pipe sizing, lot grading)

Low Impact Development

Problems with LID design or construction.....

The Survey says:

- OBC & MOE design/approval constraints
- NO financial incentives to owner with limited benefits (Ongoing Maintenance cost/issues)
- Limited approvals incentives to engineers/designers
- Contractor inexperience & lack of care
- Lack of familiarity with the measures (approval and construction)
- Typically they get oversized or too many requirements rather than simplicity
- Lack of clear and adequate design guidance/requirements/standards.
- Undersized, wrong system, wrong location, ice/cold weather issues, lack of maintenance by owner, introduction of invasive species, alteration of habitats
- Undersized and not properly maintained
- Maintenance; keeping clean from sediment and vegetation plugging
- Some options are unknown for their overall life expectancy and dealing with client maintenance issues due to cost
- We wonder if some of the smaller municipalities will have the staffing and resources available to maintain LID.