Indicators

water

The following indicators were derived from the Research Roundtable Workshop discussions and previous indicator research undertaken by the Design Centre for Sustainability and its partner research groups.*

The proposed Water Indicators are:

Natural Hydrology Intensity

Tree Canopy Intensity

Stream Connectivity

Per Capita Water Use

draft

Ron Kellett, Sara Fryer & Isabel Budke. 2009 Specification of Indicators and Selection Methodology for a Potential Community Demonstration Project. Report for CMHC/NRCan.

Natural Hydrology Intensity

water

INDICATOR

Natural Hydrology Intensity reveals the extent to which an area protects, restores, and enhances natural surface and subsurface hydrology. A functioning natural hydrology system is necessary to support proper ecosystem functions, such as water filtration, infiltration, and flood mitigation.

DESIGN METRICS

- Percent impervious surface
- Change in runoff volume pre- and projected post-development
- Percent of existing/historical watershed that is protected
- Percent of streams with buffer zones greater than X m
- Percent of area for infiltration, natural flooding and hydrological functions
- Percentage of streets with green infrastructure

SUPPORTING STRATEGIES & ACTIONS

- Develop policies and guidelines that limit the amount of impervious surfaces
- Encourage the use of green roofs, rain gardens, and xeriscaping
- Characterize, asses and monitor every stream
- Monitor rainfall, groundwater, and sub-surface water flow
- Design some areas to accommodate flooding to protect other areas
- Create policies addressing stream management and monitoring
- Create policies addressing topsoil removal, replacement and soil building
- Create policies addressing buffer zones widths to be in proportion with the aquatic environment
- Make private and public sectors accountable for changes to existing hydrology

draft

Tree Canopy Intensity

water

INDICATOR

Tree Canopy Intensity reveals the extent of land covered by tree canopies. Tree canopies intercept and absorb rainfall, thus slowing and limiting the amount of water entering the rainwater system. This indicator addresses water interception and evapo-transpiration.

DESIGN METRICS

- Percent tree canopy coverage per ha
- Percentage of evergreen trees vs. deciduous trees

SUPPORTING STRATEGIES & ACTIONS

- Encourage urban tree planting programs led by both government and community initiatives
- Plant trees using techniques that ensure long life spans
- Utilize tree species that maintain habitat and sequester carbon

draft

Stream Connectivity

water

INDICATOR

Stream Connectivity reveals the amount of streams that intersect other streams or are uninterrupted by development. Stream connectivity promotes healthy ecosystems (for example, streams that are culverted can inhibit spawning of salmon). This indicator addresses the health of the watershed and related habitat.

DESIGN METRICS

- Percent length of a stream that is intact and not culverted
- Number of intersections of waterways

SUPPORTING STRATEGIES & ACTIONS

- Develop and promote buffer zone policies
- Develop and promote stream monitoring and maintenance programs
- Develop and promote community stewardship initiatives

draft

Per Capita Water Use

water

INDICATOR

Per Capita Water Use reveals the extent of potable water use per person. The amount of potable water use effects the need for water infrastructure and directly impacts downstream water bodies via runoff. The utilization of green infrastructure, within a building parcel or community, can decrease the need for potable water usage.

DESIGN METRICS

- Percentage of area with xeriscaping
- Percentage of area with soil depths of 1' or more
- Percentage of structures with water reuse
- Percentage of buildings with rainwater catchment
- Number of storm drains per block
- Number of sewer hook-ups per block

SUPPORTING STRATEGIES & ACTIONS

- Promote on-site water catchment, retention, and infiltration
- Promote on-site systems
- Create resource recovery capabilities
- Create heat exchange capabilities
- Regulate the use of low flush toilets, low water use faucets and appliances
- Label appliances with water usage data
- Revise potable water use policies and bylaws
- Create integrated zoning

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