LIVEABLE PEEL CONFERENCE

Getting to Green: Future Trends and Fresh Ideas

Credit River Water Management Strategy

CVC
CREDIT VALLEY CONSERVATION

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What is “Sustainable Development”?

Brundtland Report - World Commission on <u>Environment & Development</u>

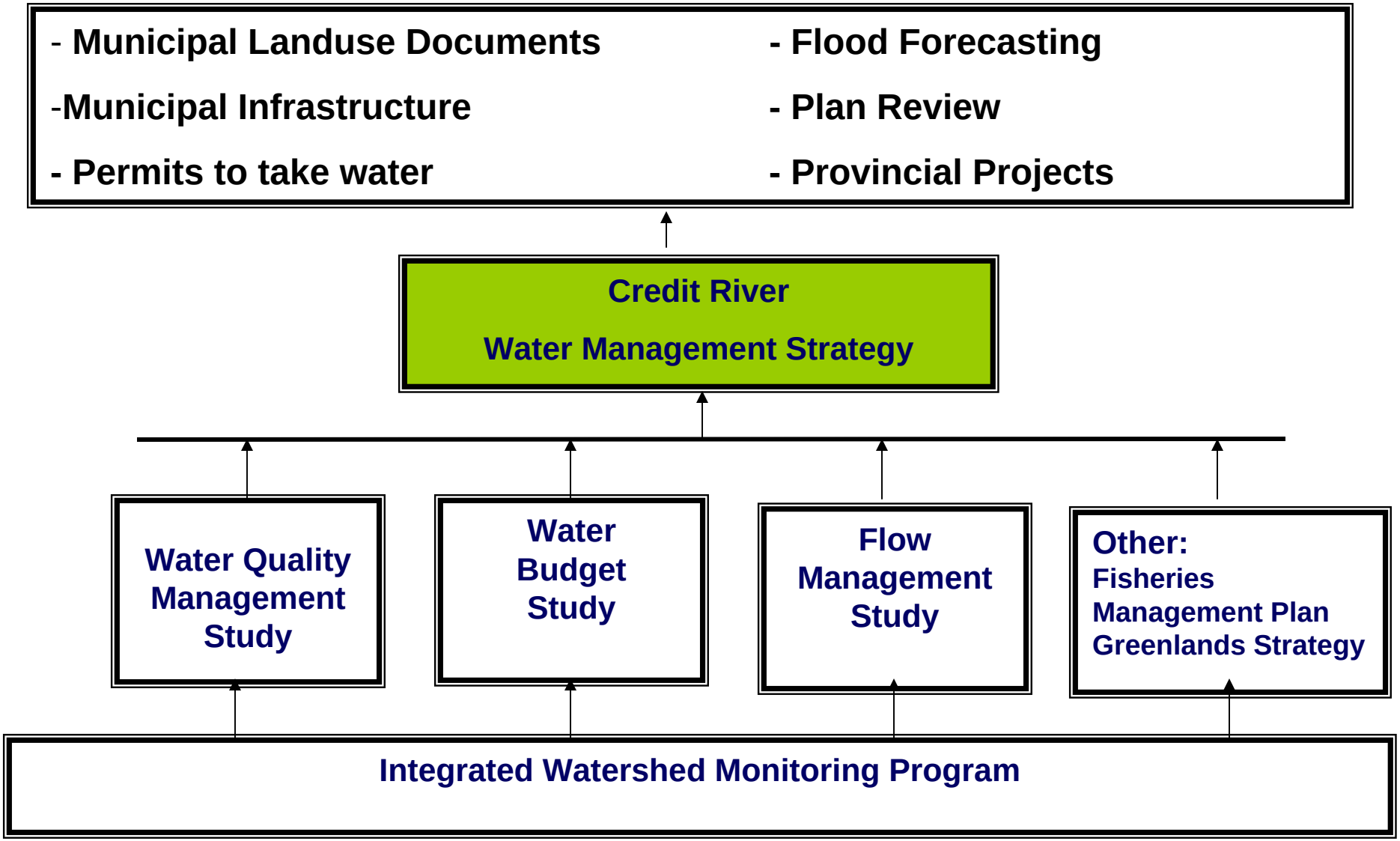
World Commission on Environment and Development (WCED) 1987 report entitled Our Common Future

Sustainable development is development that meets the needs of the present without compromising the ability of ***future generations*** to meet their own needs.

CVC APPROACH

- Planning long term- beyond 20 years
- Ecosystem approach
- Scientifically Sound Studies
- AEM (Adaptive Environmental Management) –iterative approach using monitoring to verify planning/implementation decisions

Our Watershed Studies



WATER GOAL

To ensure abundant, safe, clean water for environmentally, socially and economically healthy communities within the Credit River watershed.

STUDY FOCUS

- Evaluate Watershed response to various land use scenarios and storm water management alternatives with the goal of selecting a preferred management alternative to protect watershed health

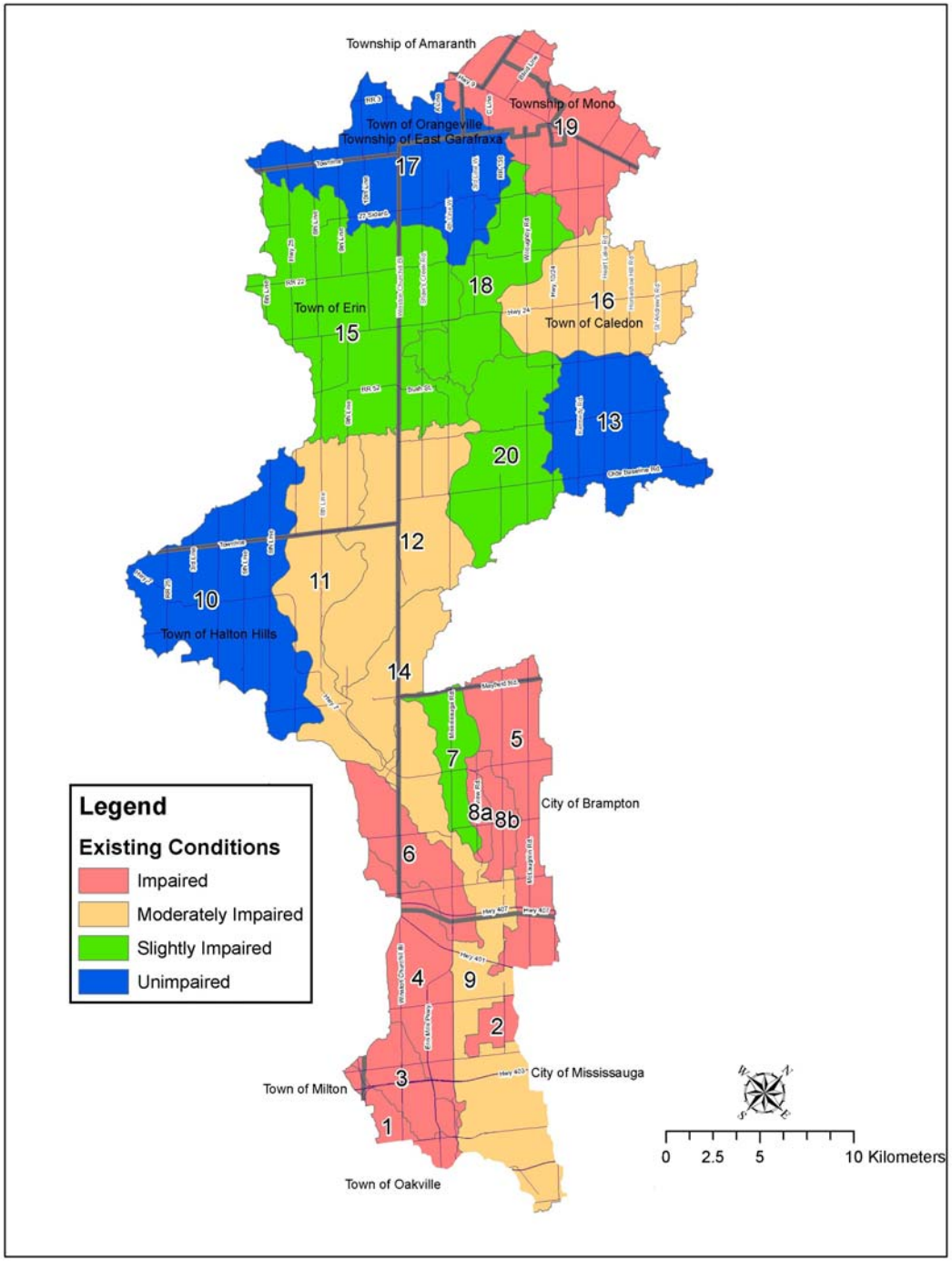
- Study looked at existing conditions (15% urbanization) and 25% urbanization

20 Objectives were established

- Promote awareness of linkages between healthy water, healthy lifestyle and economic viability
- Minimize risk to human life and property due to flooding
- Protect groundwater quality to support watershed functions

- Improve water quality in rivers and Lake Ontario for body contact recreation

- Protect, restore or enhance the integrity of the watershed ecosystem through an integrated network of natural areas, habitat and connecting links



EXISTING CONDITIONS

Urbanizing/Urban watersheds did not meet PWQO for body contact for recreation

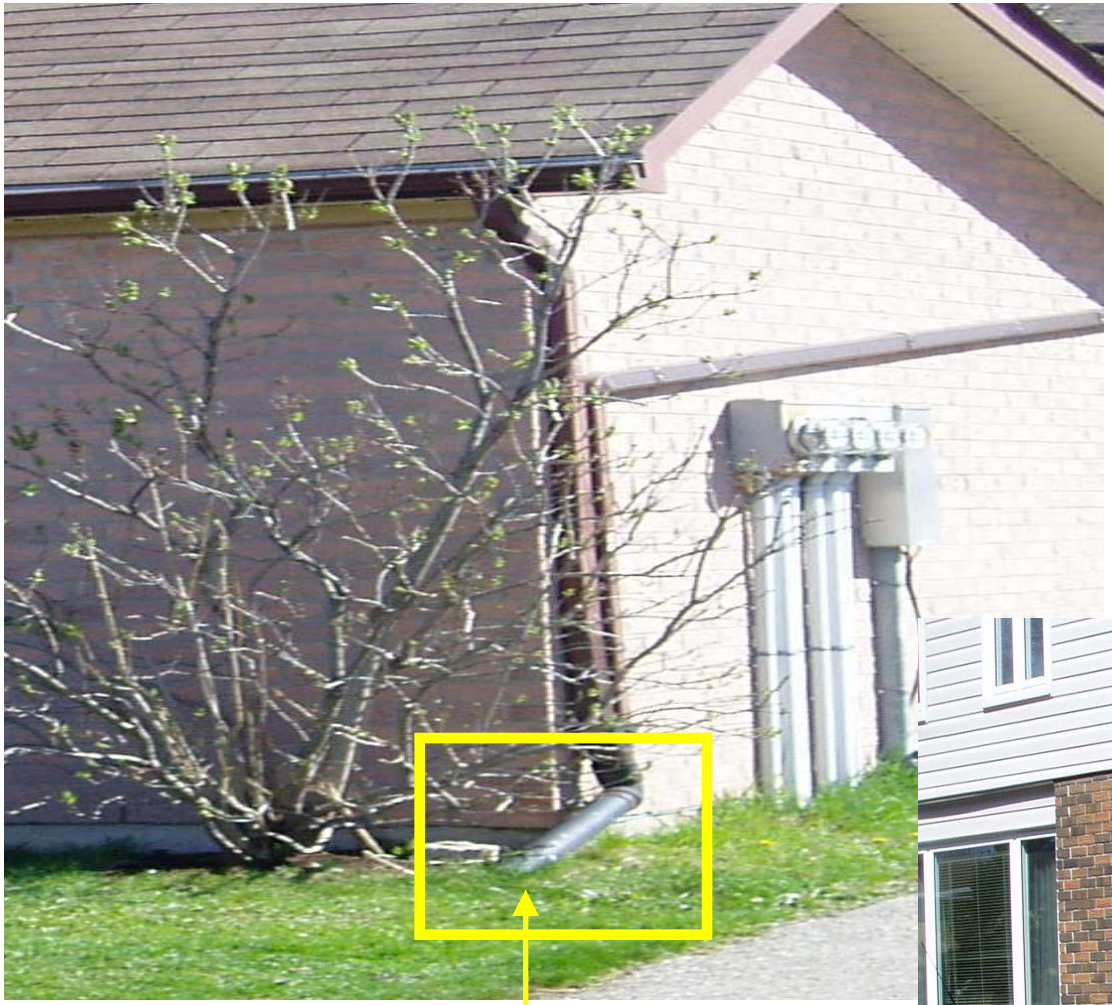
Rural watersheds better than PWQO

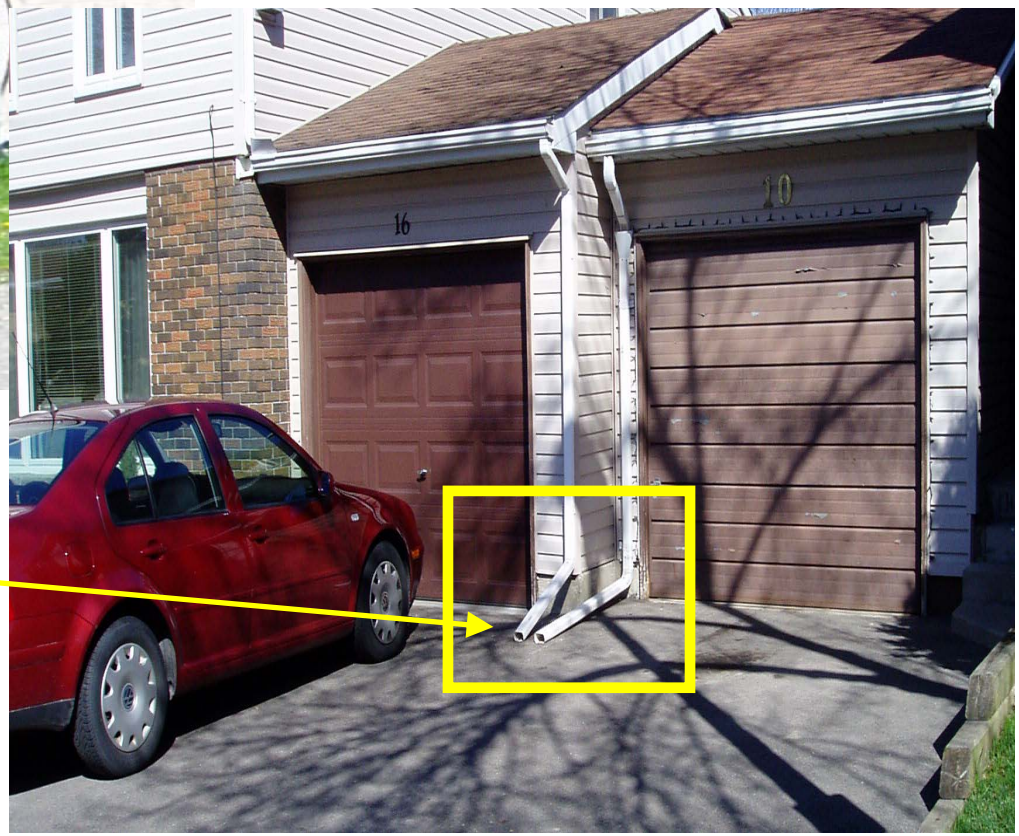
Forest/wetland coverage well below targets

Baseflows moderately to significantly below targets

Existing Conditions

Existing Conditions





Directly Connected

Existing Conditions

Existing Conditions

EVALUATION OF WATERSHED RESPONSE TO LANDUSE

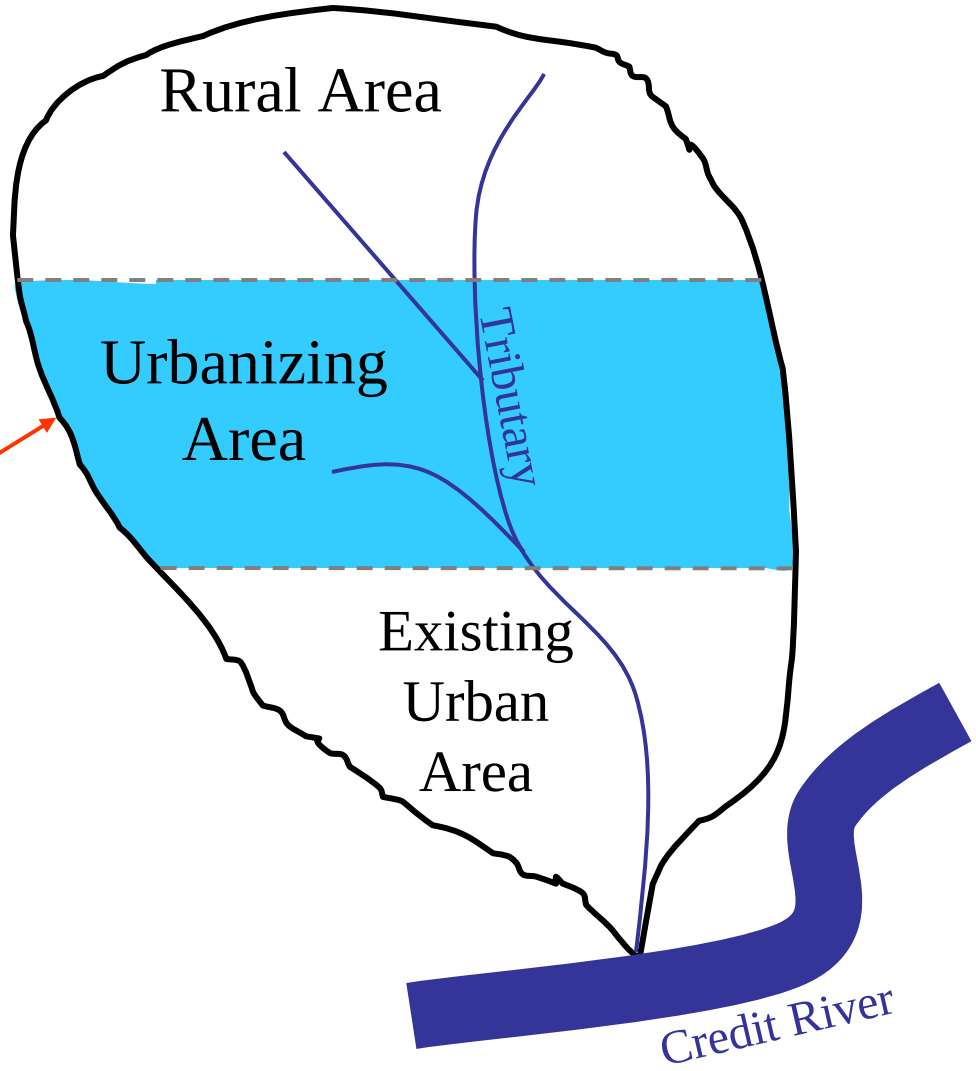
MODELLED THE WATERSHED AT 25% URBANIZATION AND APPLIED DIFFERENT MANAGEMENT ALTERNATIVES

Management Alternative Definition:

A management Alternative is a set measures which, when implemented, will protect, enhance or restore environmental conditions

STEP 1: EVALUATION OF MANAGEMENT ALTERNATIVES – URBANIZING AREAS

Develop and Evaluate Management Alternatives for the Urbanizing Area



THE FOUR MANAGEMENT ALTERNATIVES – NEW DEVELOPMENT

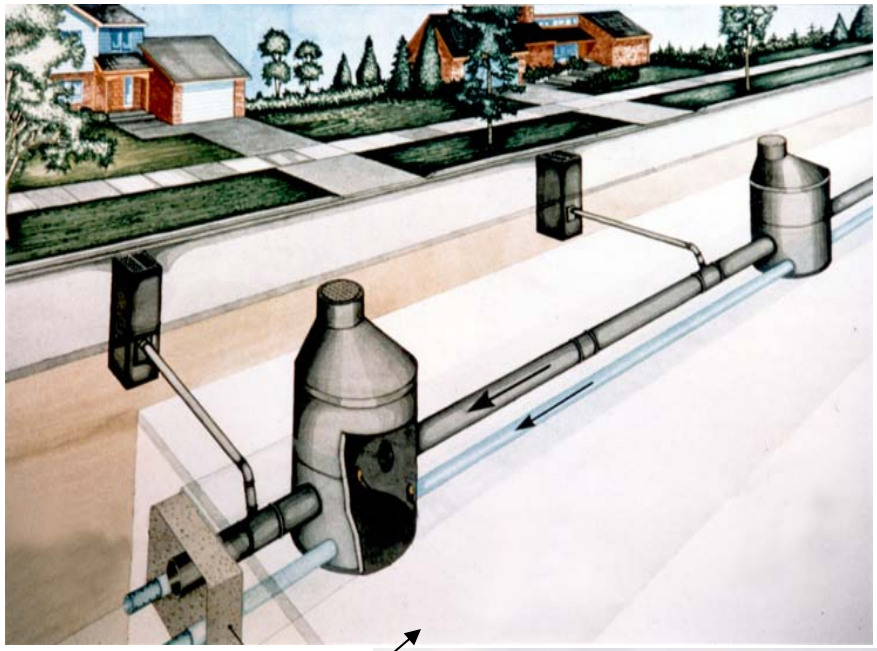
Do Nothing: Absence of any stormwater BMPs in urbanizing areas

Business as Usual: Continuing with current Best Management Practices

Technology and Economic Driven: Overcome current technical and economic barriers which limit implementation of Best Management Practices

Ecotopia: Greater consideration of the environment in land use planning

EXAMPLES OF MANAGEMENT ALTERNATIVES FOR NEW DEVELOPMENT



TECHNOLOGY DRIVEN

ECOTOPIA

BUSINESS AS USUAL

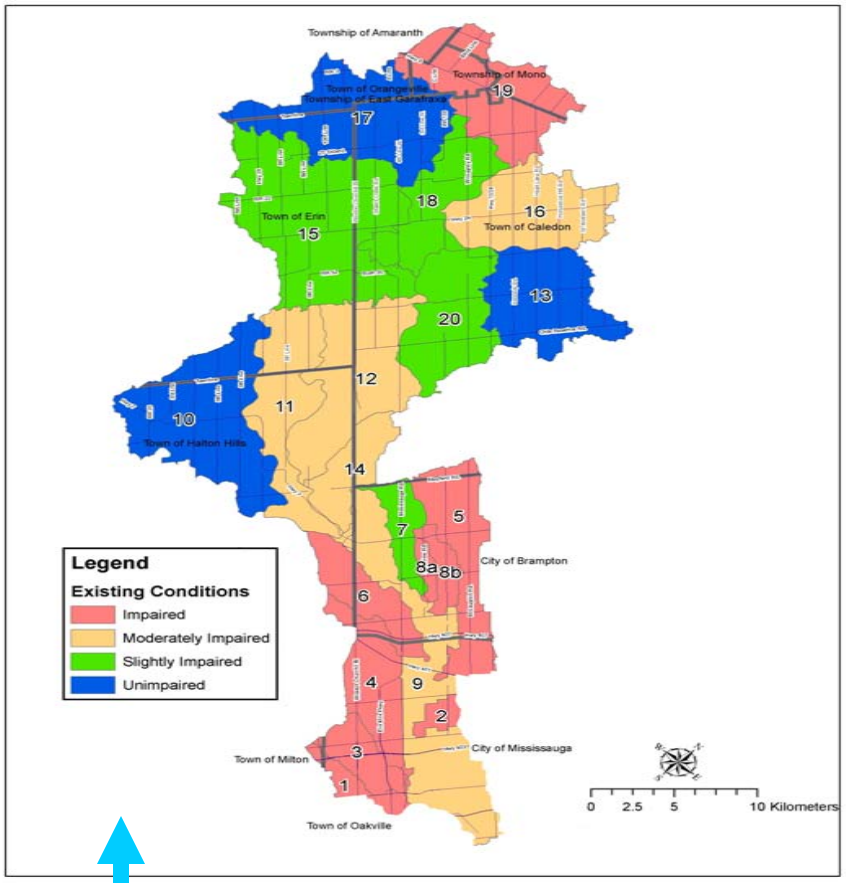
WHAT DID WE FIND?

- Regardless of the Management alternative applied to new development, existing conditions could not be maintained

- Retrofitting existing land uses (rural and urban) is required

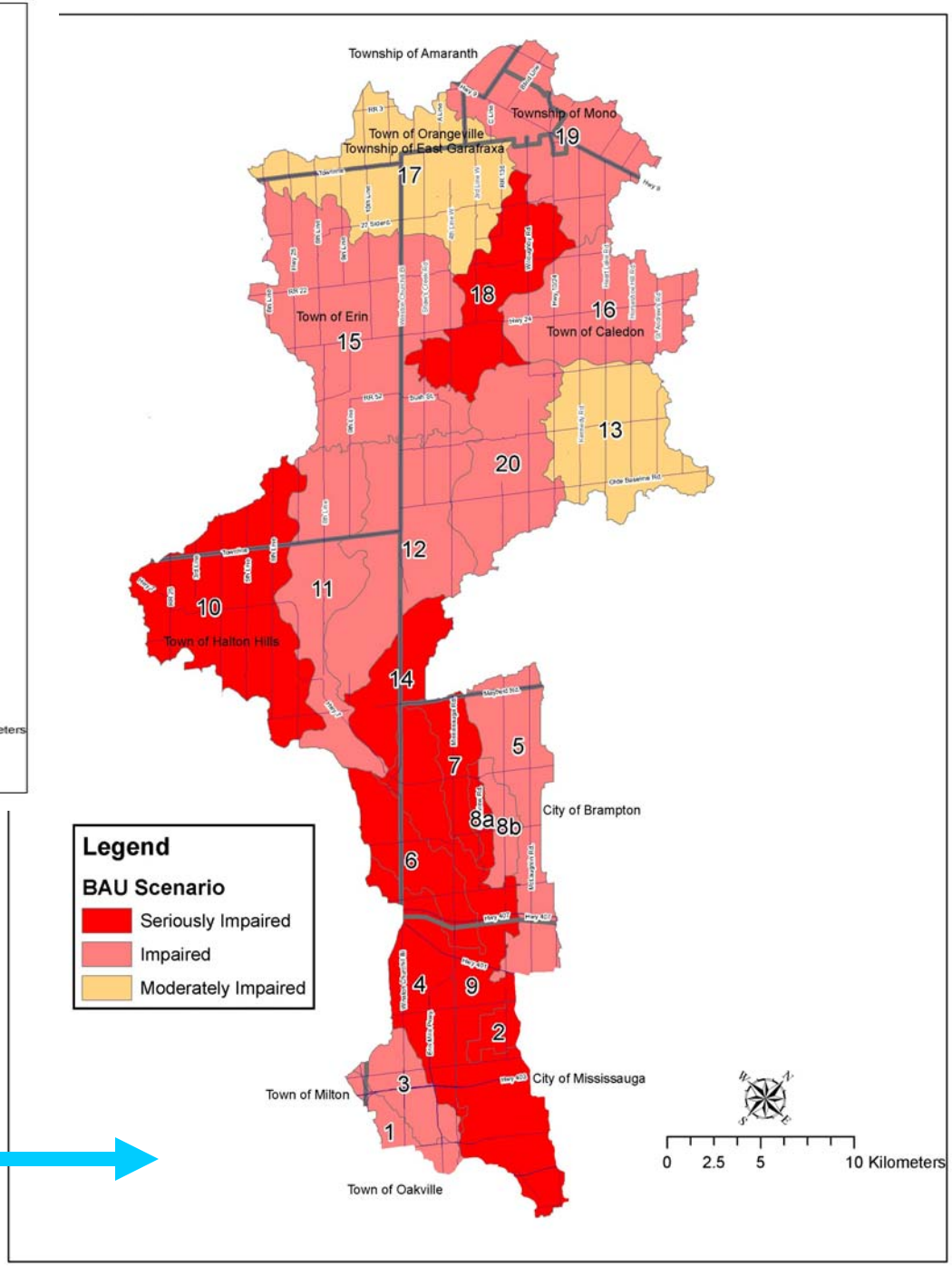
EXAMPLES OF RETROFITTING/RESTORATION

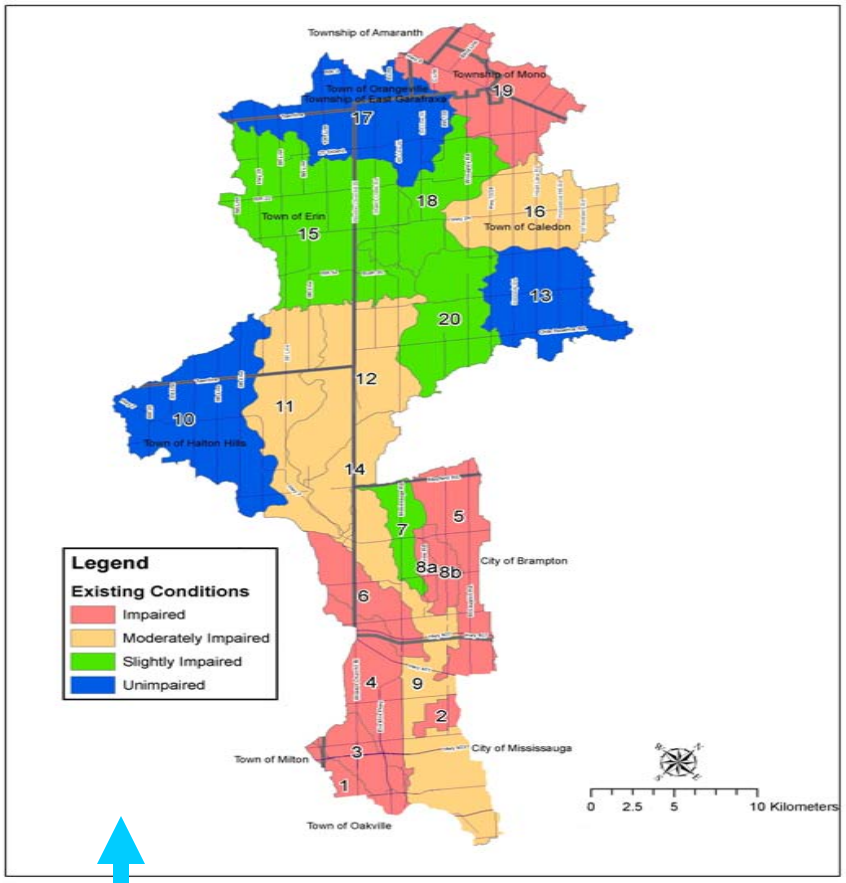
1. Disconnecting roof leaders in Existing Urban Areas
2. Stream Restoration Programs
3. Aquatic Habitat / Fish Community Enhancement
4. Groundwater Protection
5. Upgrade Existing Water Pollution Control Plant



EXISTING CONDITIONS
(15% URBANIZATION)

BUSINESS AS USUAL
MANAGEMENT ALTERNATIVES
(STEP 1 AND STEP 2) FOR 25%
URBANIZATION

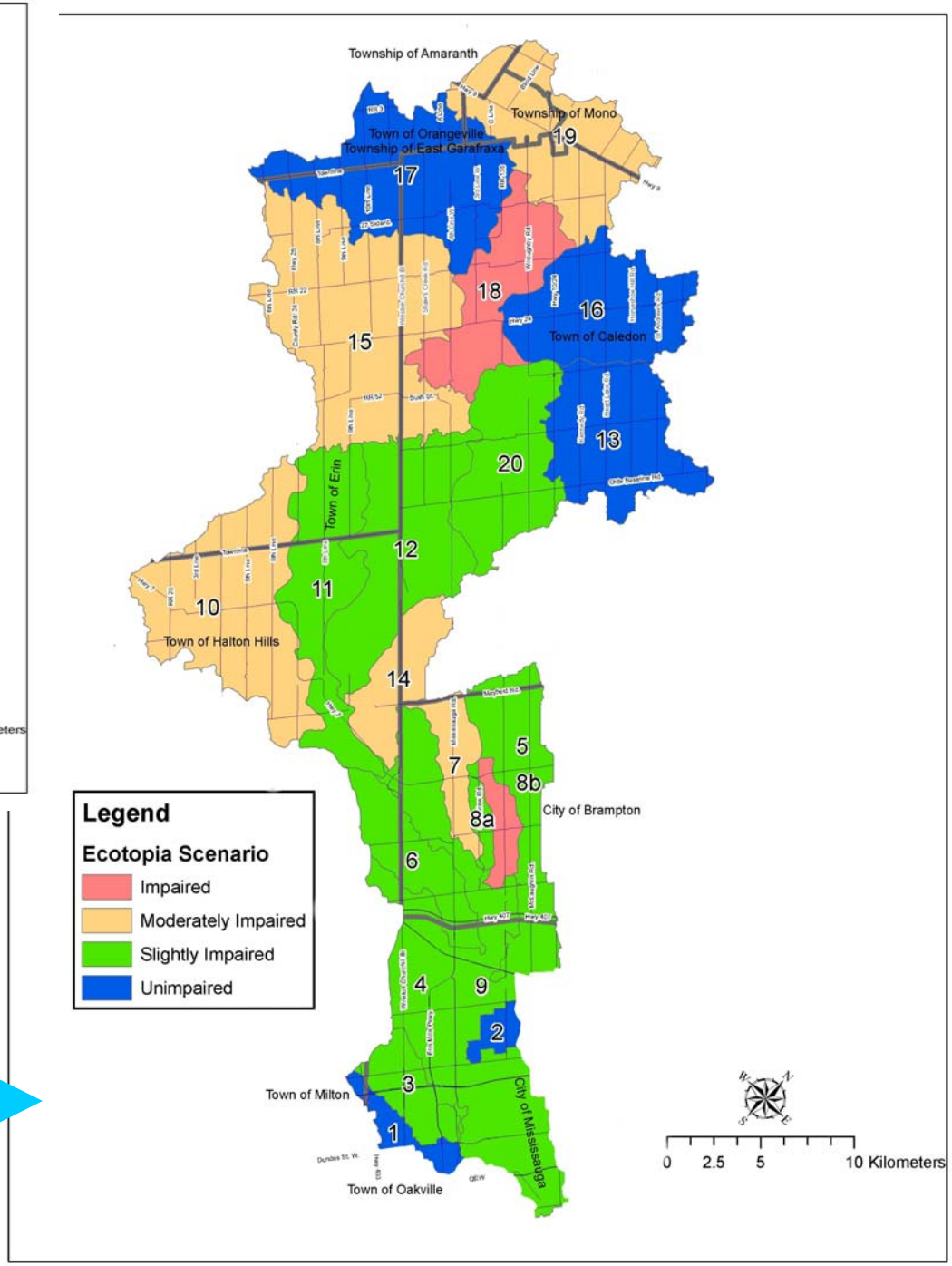




EXISTING CONDITIONS (15% URBANIZATION)

ECOTOPIA MANAGEMENT ALTERNATIVES STEP 1 & STEP 2

–FOR 25% URBANIZATION



Further evaluated management alternatives based on:

- **Cost (capital/operating)**
- **Implementation**
- **Natural Environment**
- **Social Benefits**

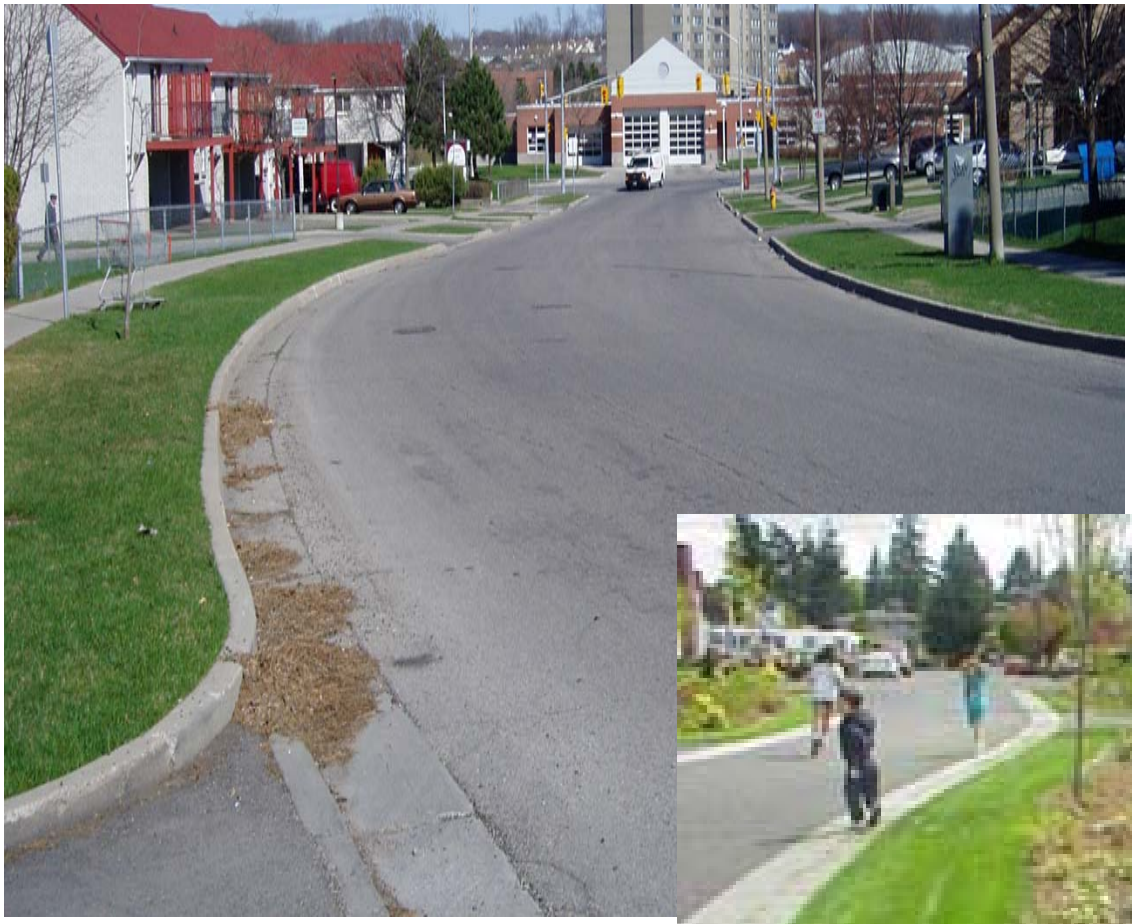
ECOTOPIA-PREFERRED MANAGEMENT ALTERNATIVE

In Comparison to Existing Conditions

- Improved water quality conditions
- Reduced flood risks
- Improved conditions for fishery, wildlife
- Enhanced groundwater supply

What is…
ECOTOPIA??

- Involves stormwater management at the site level to enhancing evapotranspiration, infiltration and storage to reduce stormwater quantity and quality.
- Development is excluded from natural buffer areas (wetlands, mature forests, stream corridors, steep slopes).



← High Impact

Curbs, wide road widths, sidewalks on both sides, no stormwater treatment

Low Impact →

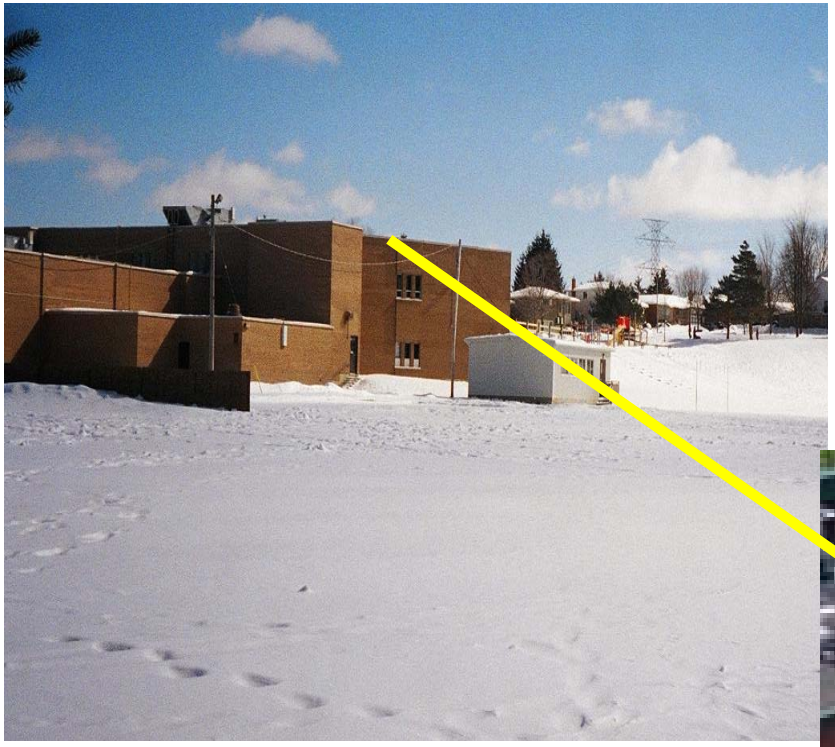
No curbs, narrow road widths, one sidewalk per road, on-site stormwater treatment through street swales

Source: ESCPCRW (2004)

Rain Barrel and Rain garden

Source: CCDE (2003)

Green Roofs



Source: CCDE (2003)

High Impact Parking Lot

Parking Lot Bio-Retention

Source: ESCPCRW (2004)

High Impact Channel

Low Impact Naturalized Channel

High Impact Development

Low Impact Development

Source: ESCPCRW (2004)

NEXT STEPS

1. Get “Buy-In”
2. Set up Working Groups
3. Implement
4. Monitor
5. Apply AEM

KEY ISSUES/CHALLENGES

- **Changing the mindset**
- **Finding alternative funding sources for works proposed in existing areas**
- **Revisiting/modifying existing programs policies and standards**
- **Developing a progressive approach for integrating SWM measures into subdivision/site plan planning and design**
- **Consideration of incentive (credits) for progressive submissions**

Conclusions

There are Linkages between public health and ecosystem health

Current watershed conditions show some degradation in the environment

Growth can occur if we change current planning and engineering practices, and restore and retrofit existing land uses

Regardless of urban form and management alternatives there is a limit to growth