# Integrating Climate Change Into Land Use Planning:

# A Proposed Approach

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# Overview

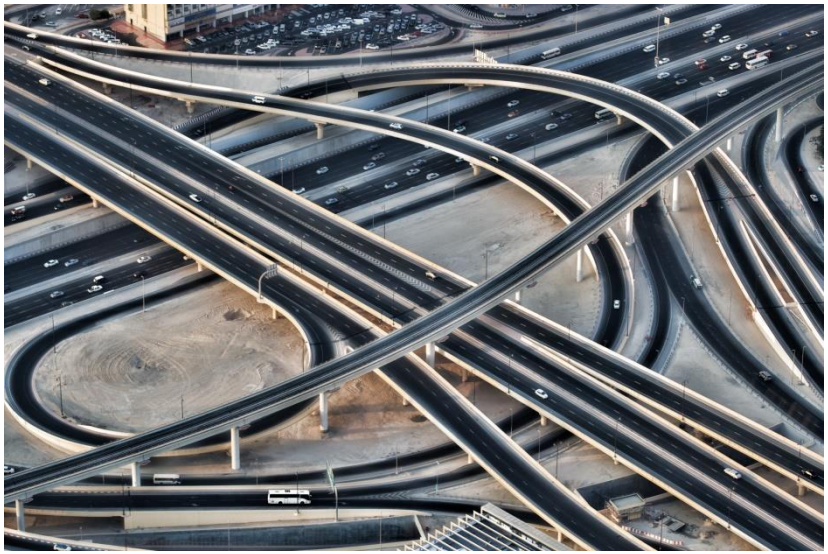
Development patterns, land Use  concepts & GHG emissions

An approach for integrating climate mitigation into the planning process

An approach for integrating climate adaptation into the planning process

# Development Patterns

- **Development patterns have a profound and long term impact on community level GHG emissions.**

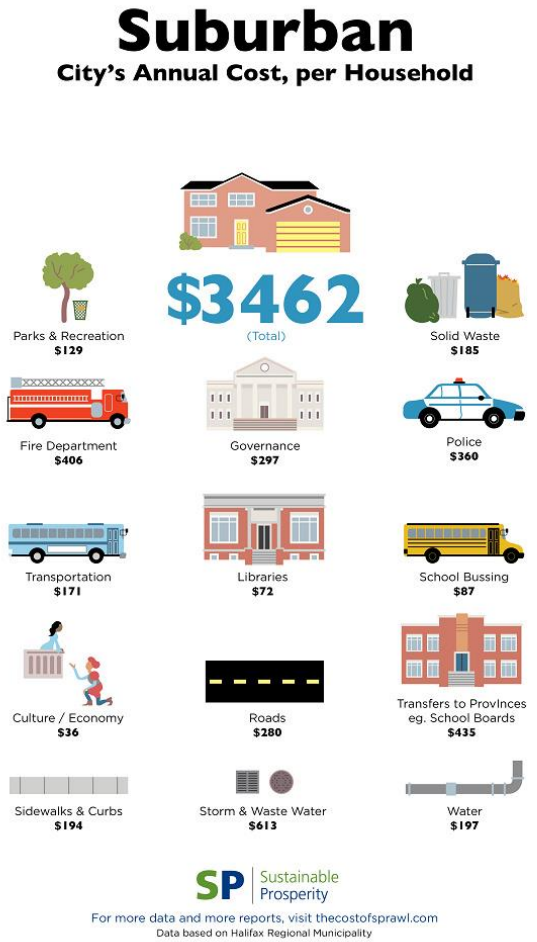


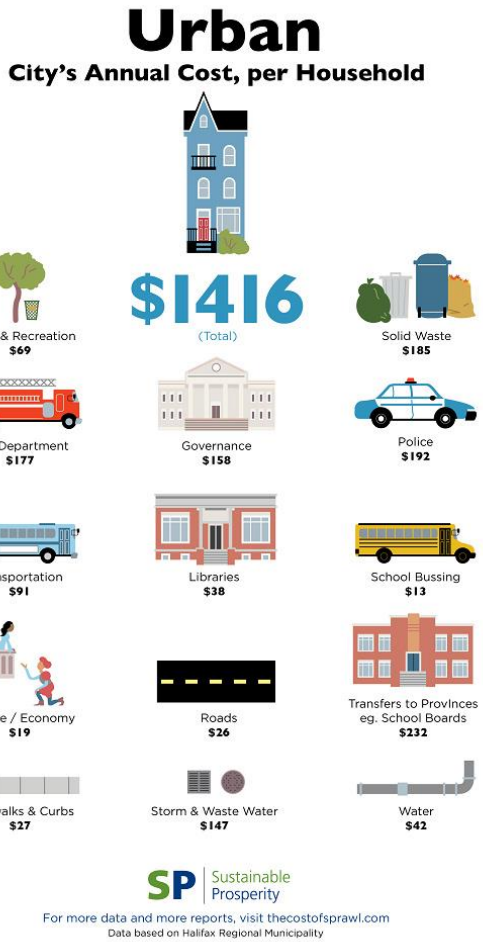
# Development Patterns

- **We also know that certain forms of development are more GHG intensive than others.**

# Land Use Concepts that Impact GHG emissions

- **Density** ich land is efficient
  - **i.e.**



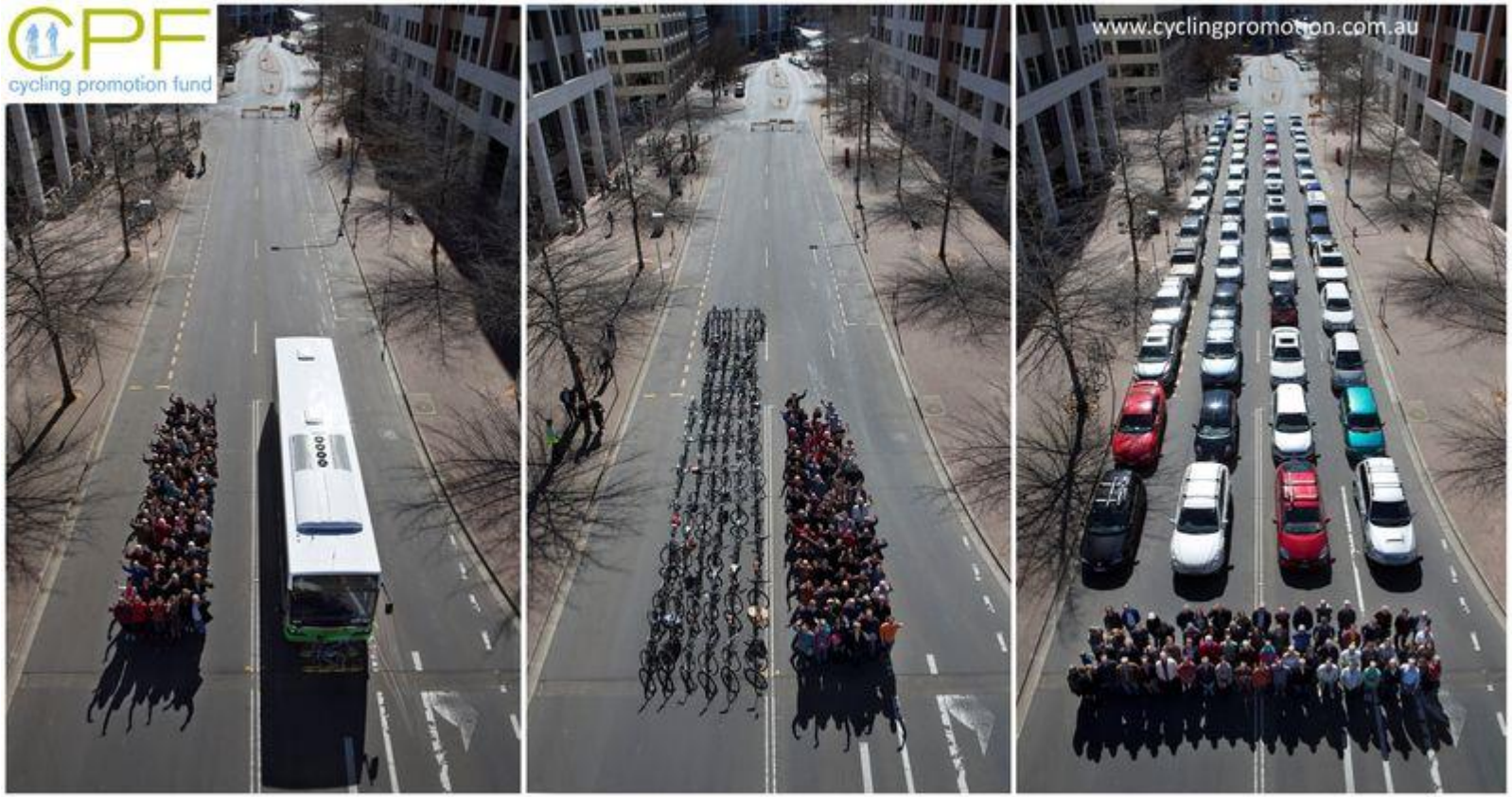




# Land Use Concepts that Impact GHG emissions

- **Mixed Use Development:** Integrate various compatible land use types into developments (residential, commercial, recreational, office space etc.)
  - **i.e.** live, work and play in the same community

# Land Use Concepts that Impact GHG emissions

- **Transit:** Transit reduces vehicle use



# Land Use Concepts that Impact GHG emissions

- **Walkability and Active Transportation:** reduce vehicle use via human-powered transportation
  - Key considerations
    - Infrastructure (paths, signalization, maintenance)
    - Proximity of destinations

# Reducing GHG emissions from Buildings

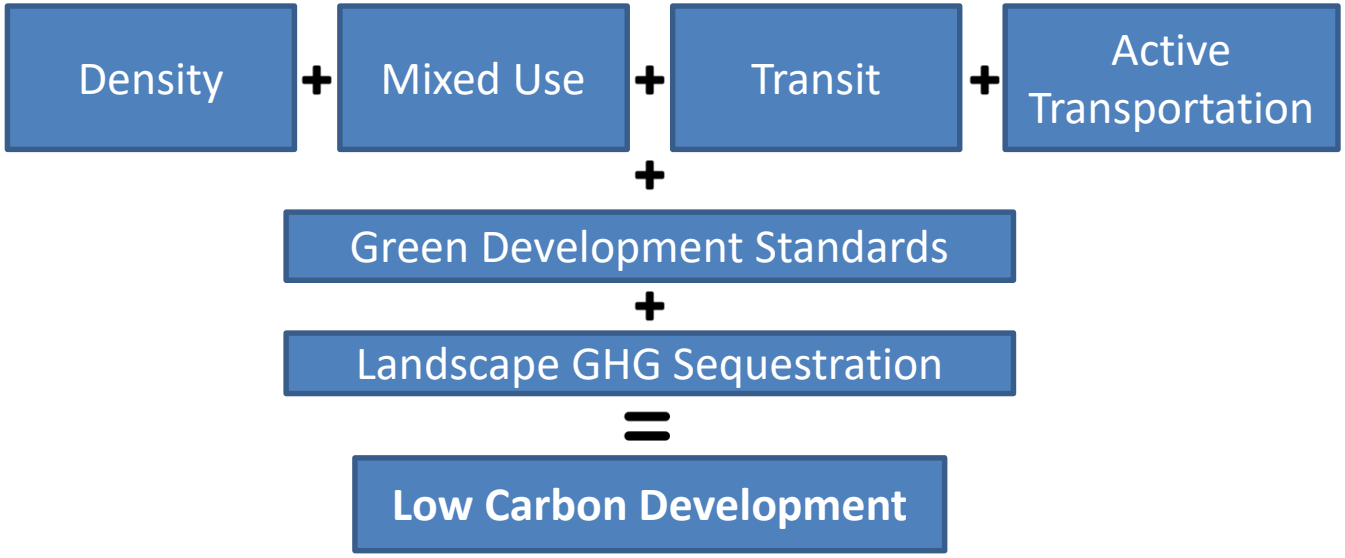
- **Green Development Standards:** Integrate energy efficiency into the design of buildings
  - Enabling Legislation:
    - 2006 Bill 51: ability to review applications for “sustainable design”
    - 2014 Provincial Policy Statement

# Landscape-Level GHG sequestration

- **Retain GHG Sinks:**
  - Trees and wetlands
- **Integrate GHG sinks**
  - Urban tree canopy
  - Landscaping

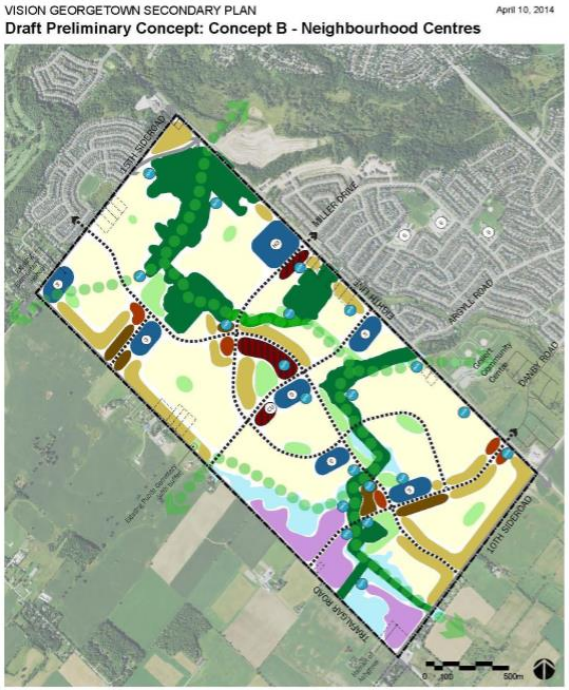

# Land Use Planning & GHG emissions

- **Achieving optimal GHG reductions through land use planning requires a coordinated and cross-disciplinary approach.**



# Development Scenarios + GHG Inventories

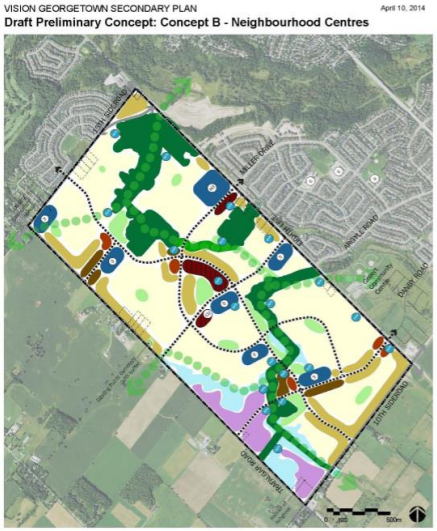
- **Development scenarios are commonly used to evaluate various potential economic environmental, social, and quality of life impacts**


# Development Scenarios + GHG Inventories

- **Evaluate the development scenarios from a GHG emissions perspective**
  - **Quantify:**
    - **GHG impact of building stock and energy systems**
    - **GHG impact of transportation**
    - **GHG impact of natural carbon sinks**





# Development Scenarios + Climate Adaptation

- **Complete localized future climate assessment**
  - Temperature, precipitation, extreme weather events
  - 3 RCPs to account for uncertain GHG trajectory
  - Map out climate impacts on community
- **Identify key resilience and adaptation challenges**
  - i.e. Flooding, heat waves, rain/ice/snow storms etc.
- **Stress test development scenarios**

# Resilient, Low Carbon Development

Integrate findings from mitigation and adaptation exercises into one or more "climate ready" development scenarios and evaluate them against the community's other economic, social and environmental priorities.

# Thank You

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