Cities and Resilience

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Who Are We?

What is Resilience?

Climate resilience is the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate.

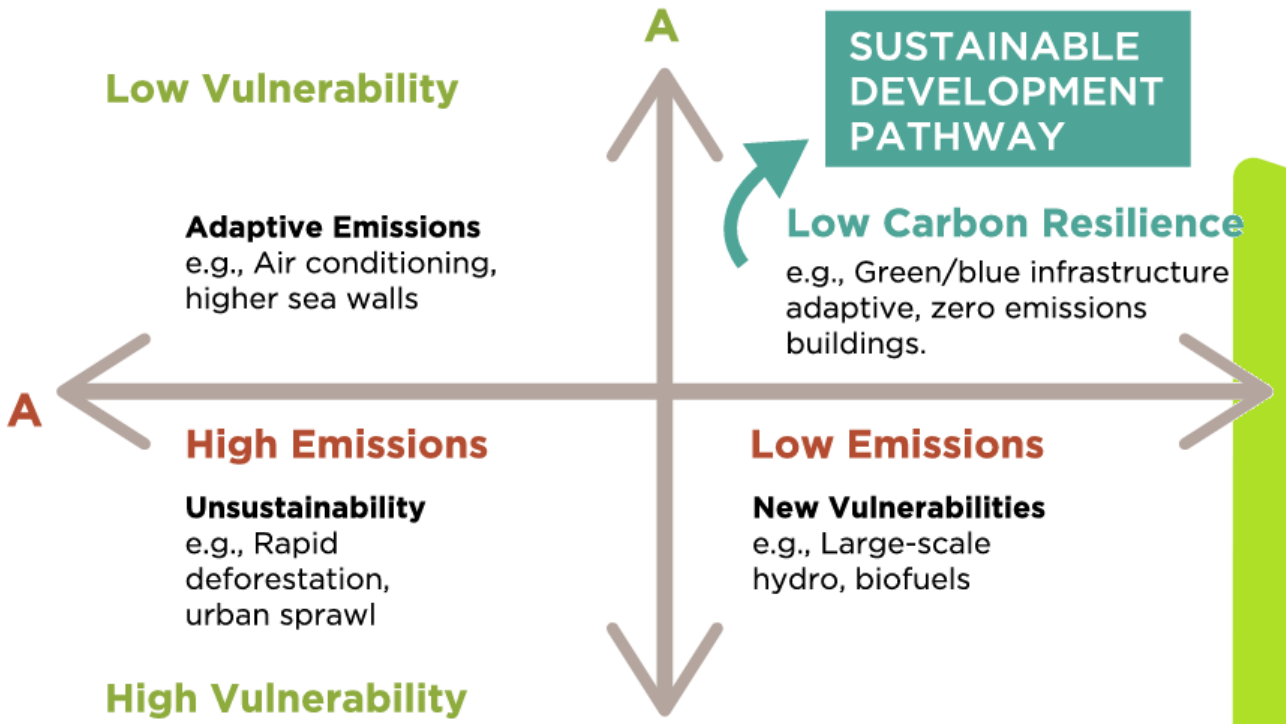
- Centre for Climate and Energy Solutions

Urban resilience is the capacity of individuals, communities, institutions, and systems within a city to survive, adapt, and thrive in the face of the chronic stresses and acute shocks they experience.

- Toronto Resilience Strategy

Low-Carbon Resilience

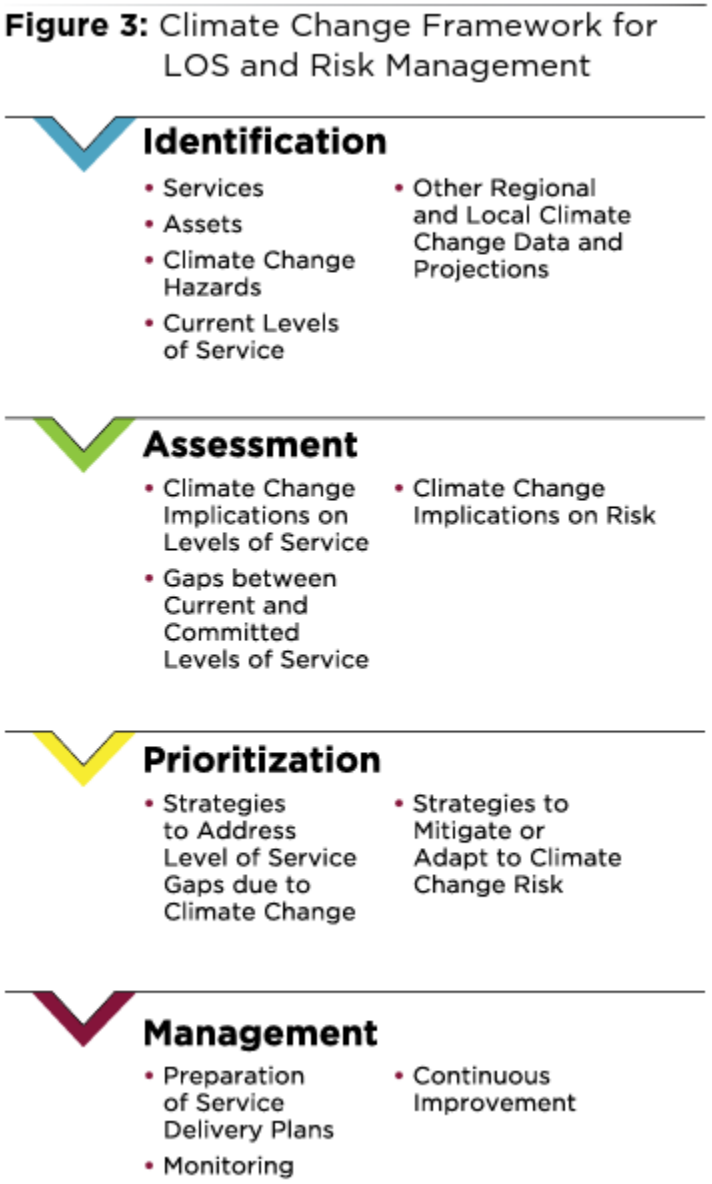
"Low carbon resilience is an integrated climate action planning and decision-making approach that layers on top of existing sustainability visions, plans, and decision frameworks to help organizations embed climate preparedness and sustainability throughout policy, planning, and decision making."



Asset Management

Why asset management?

- Municipalities already do it
- Emissions can be inferred from energy use
- Risk is a key tenet of planning and decision-making
- Tied to budgeting process
- Involves multi-departmental teams



In Practice – Selkirk, MB WWTP

- Emissions-free
- Waste heat capture
- Methane capture
- Lagoon of old plant used for overflow storage – prevents discharge

Natural Assets

- Natural assets (or nature-based climate solutions) offer a key means to sequester carbon, avoid embodied carbon and increase adaptive capacity.

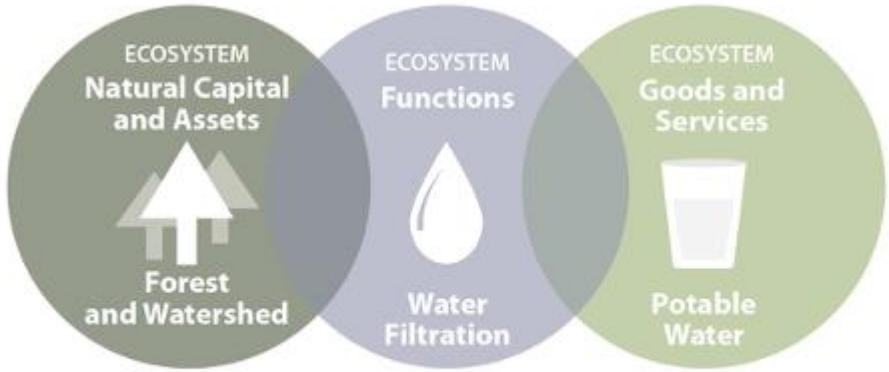
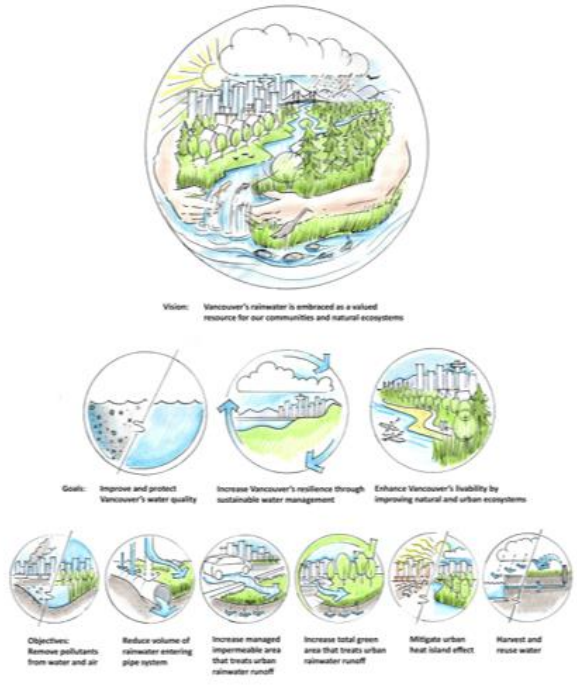


Figure 1: Natural Capital creates Ecosystem Goods and Services[6]



Planning for Resilience

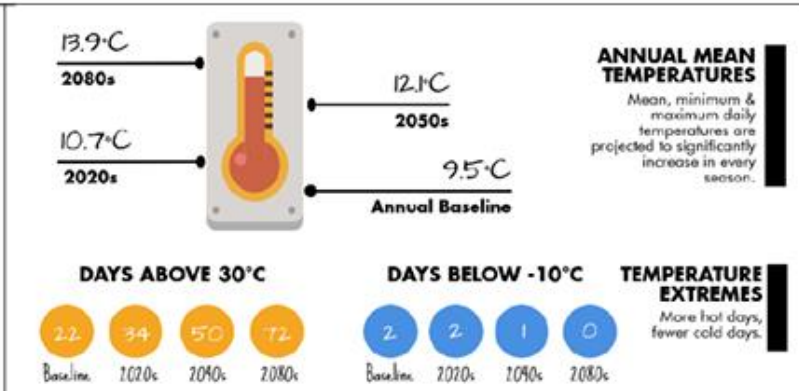
Best Practices

- Understand there is no “No cost” scenario
  - Failing to act on mitigation and/or adaptation has a cost, which may be far greater than the up-front capital expenditures
- Embrace a diversity of views and expertise
  - Differences in background and lived experience can help identify blind spots and craft solutions that are acceptable to the recipients.
- Know when to make difficult decisions
  - Some risks are too great to manage under status quo conditions
- Use the tools at your disposal
  - Local governments have a variety of options to direct change
- Plan for the city you want
  - Many of these solutions increase livability

Climate Lens

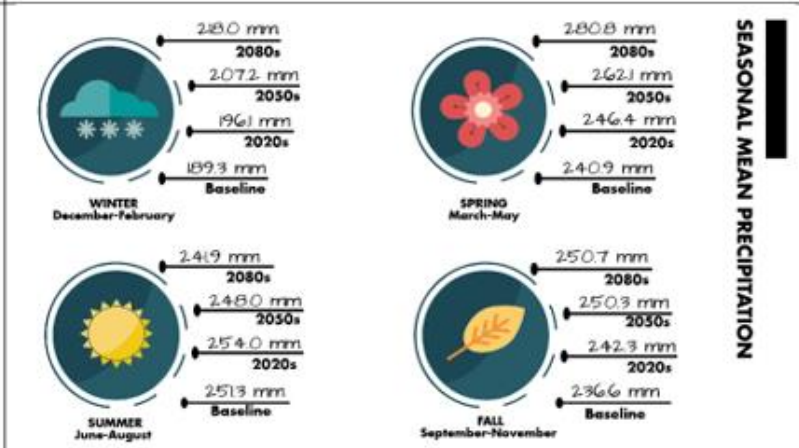
Table 2: Windsor's Climate Projections Summary

Temperature



- Average annual temperature increasing by up to 4.4°C by the 2080s;
- Average number of days above 30°C will more than double by the 2050s and more than triple by the 2080s.
- *Map A (Appendix A) illustrates the Urban Heat Island for the City of Windsor*

Precipitation



- Average precipitation expected to increase, particularly in winter and spring;

3. After reviewing Windsor's climate change projections, can the project/policy be negatively affected by today's climate or Windsor future climate?
   - ☐ Yes (continue to question 4)
   - ☐ No (jump to question 7)

Note: when considering this question, the project scope should not be limited to a specific asset but include considerations for the Community (example, thermal comfort of users).

4. If yes, which climate parameter is of concern?
   - ☐ Temperature
     - Annual Temperatures
     - Days below -10°C
     - Days above 30°C
   - ☐ Precipitation
     - Annual precipitation
     - Seasonal precipitation
     - Extreme precipitation
   - ☐ Surface Water Levels
   - ☐ Water temperatures

Networks

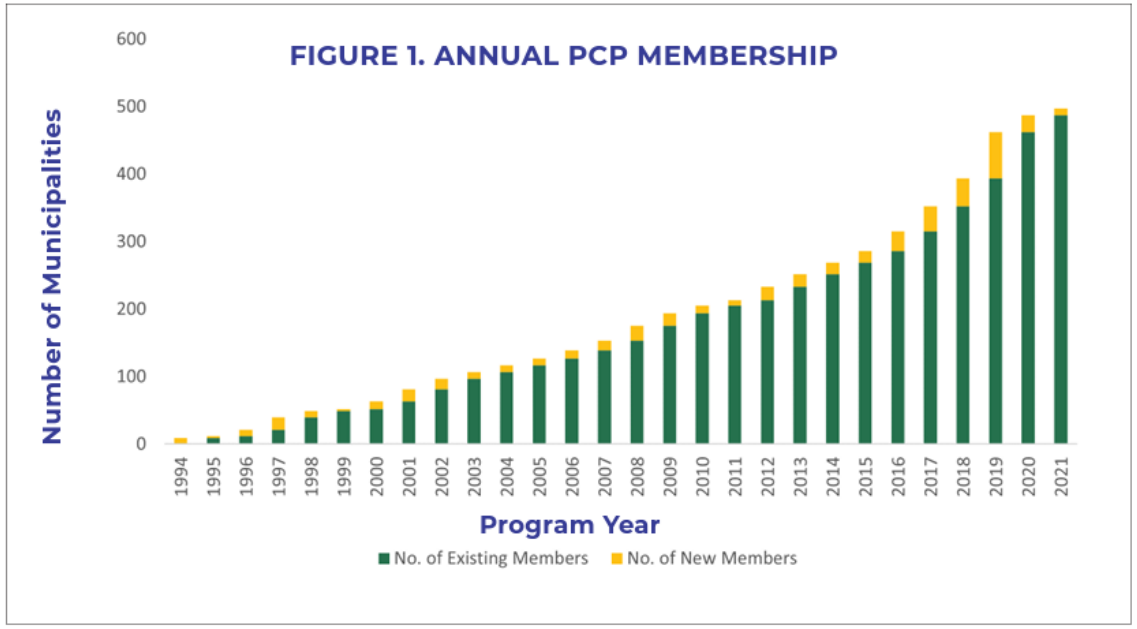


FIGURE 1. ANNUAL PCP MEMBERSHIP
Number of Municipalities
600
500
400
300
200
100
0
1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021
Program Year
No. of Existing Members
No. of New Members

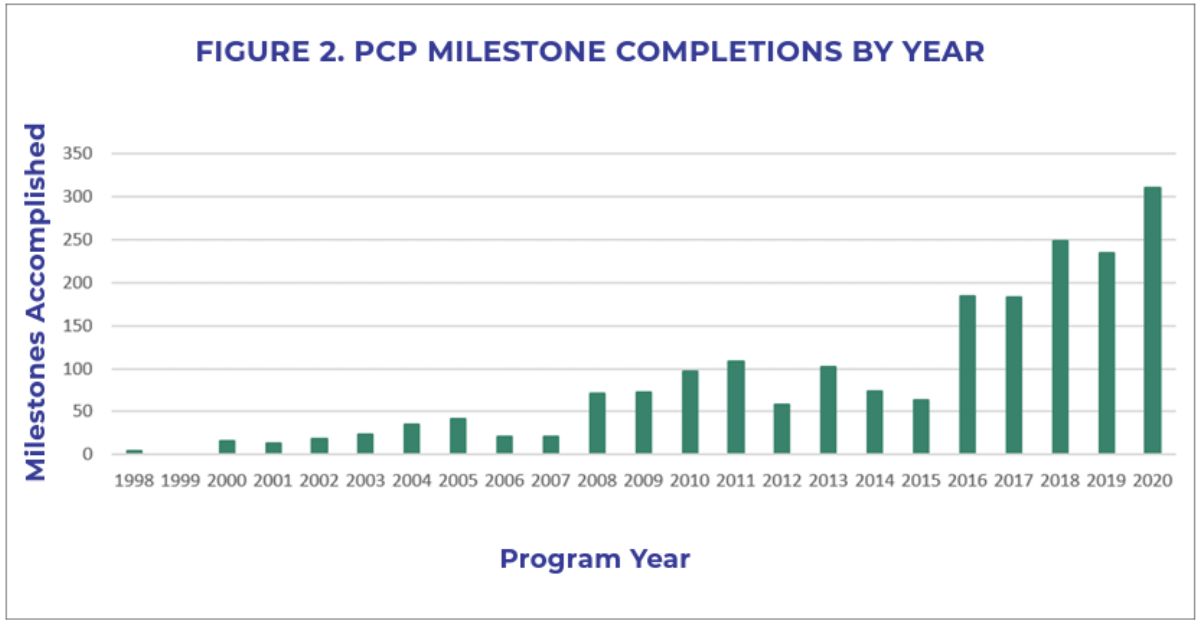


FIGURE 2. PCP MILESTONE COMPLETIONS BY YEAR
Milestones Accomplished
350
300
250
200
150
100
50
0
1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020
Program Year

How FCM Plans to Help

1,738

sustainability projects approved

$1.1 B

worth of approved sustainability projects

2.75 mil.

tonnes of greenhouse gases avoided

12,908

person-years of national employment

Updated Land Use Offer: Compact, Complete and Resilient Cities Supported by Natural Assets

- Loans up to $10 million for natural asset restoration or improvement projects
- Pilot project grants up to $500,000 for natural assets, tactical urbanism and other novel interventions
- Grants up to $175,000 for studies, plans and policies that advance climate planning in land-use planning, including development standards, growth and climate analyses, incentive structures, etc.

Questions?