

La capitale résiliente du Canada: Ottawa durant le prochain demi-siècle

# CANADA'S RESILIENT CAPITAL:


OTTAWA IN THE NEXT HALF CENTURY



School of Urban and Regional Planning  
December 13<sup>st</sup>, 2017



# INTRODUCTIONS

The background image is a faded, wide-angle shot of a city street. On the left, there is a long, multi-story building with a red brick facade and numerous windows. In the center, a red and white bus is driving away from the viewer. To the right, a large, ornate Gothic-style church with a prominent green-roofed tower is visible. The overall scene is slightly hazy, suggesting an overcast day.





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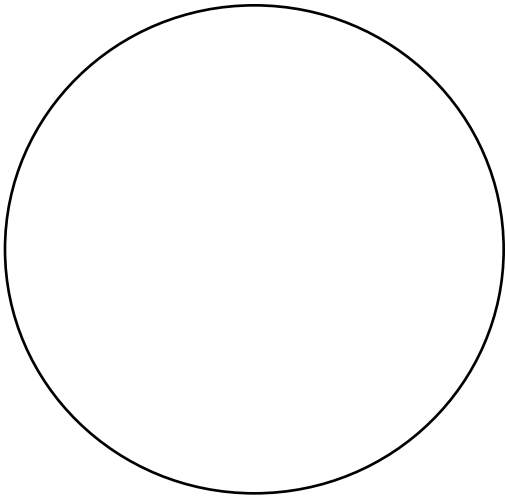
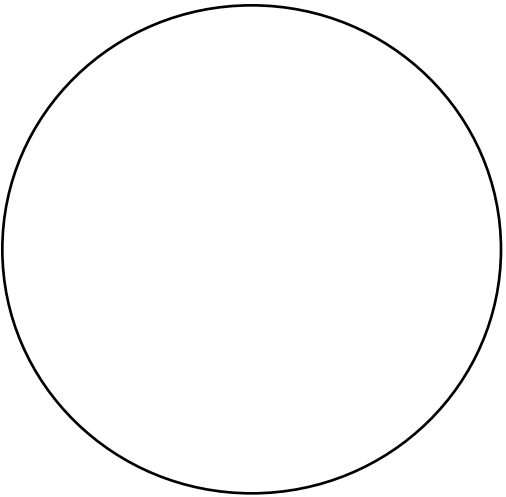
**Alain Miguez**  
Program Manager - Community Planning  
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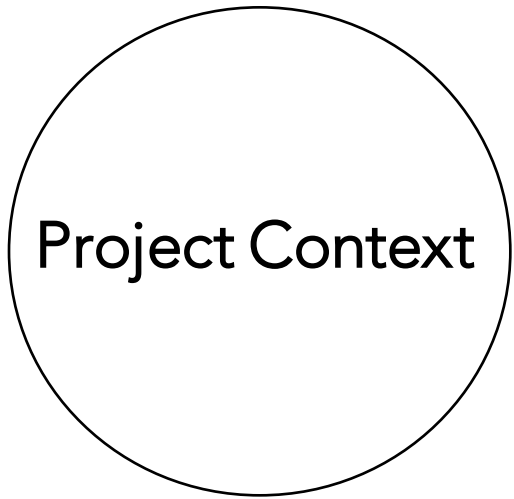
An aerial photograph of a city at sunset. The sky is a warm orange and yellow. The city features numerous buildings with spires and towers, including a prominent clock tower in the center. A large, multi-story building with a dark roof and many windows is in the foreground on the right. A road with traffic is visible in the middle ground. The word "OUTLINE" is written in large, black, sans-serif capital letters across the center of the image.

# OUTLINE

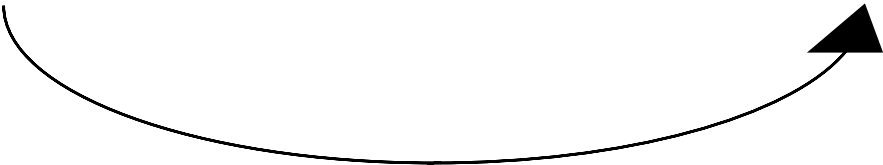
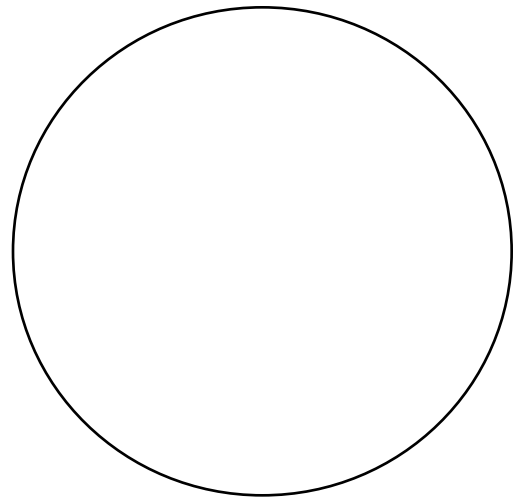
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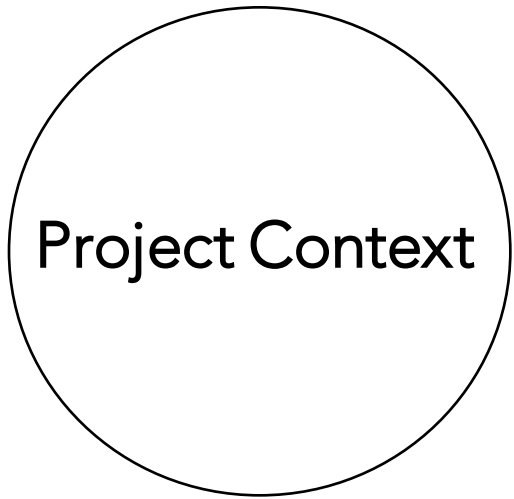
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2



1



2

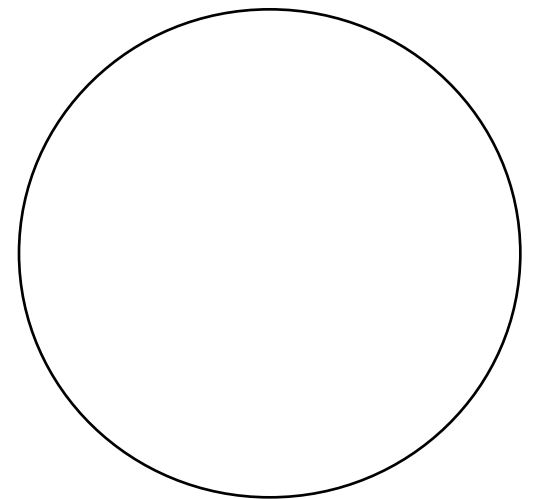
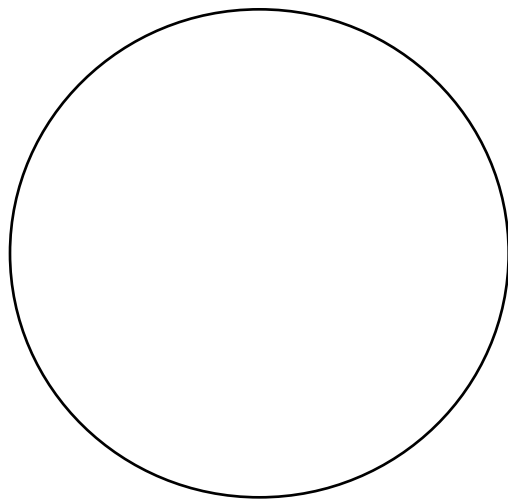


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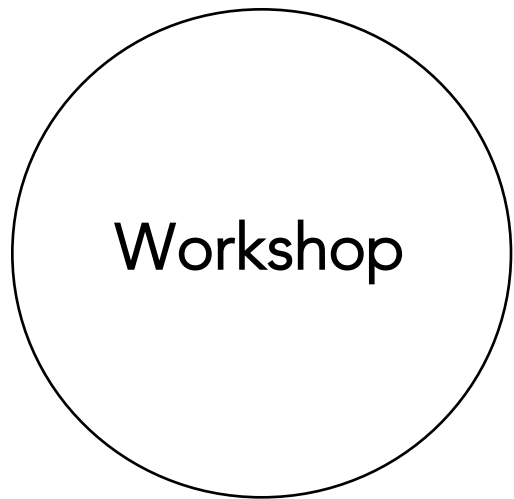




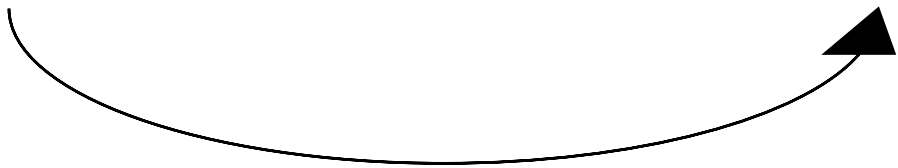
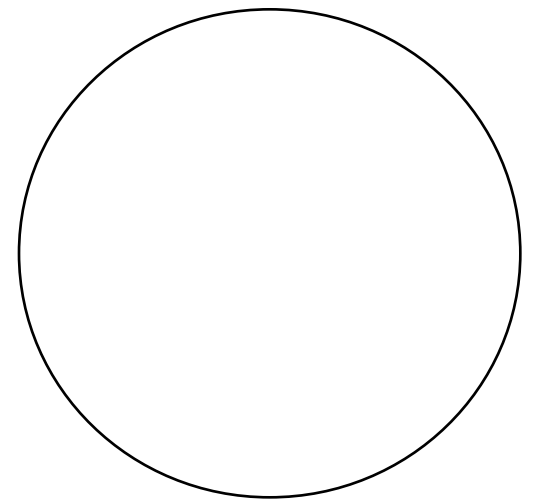
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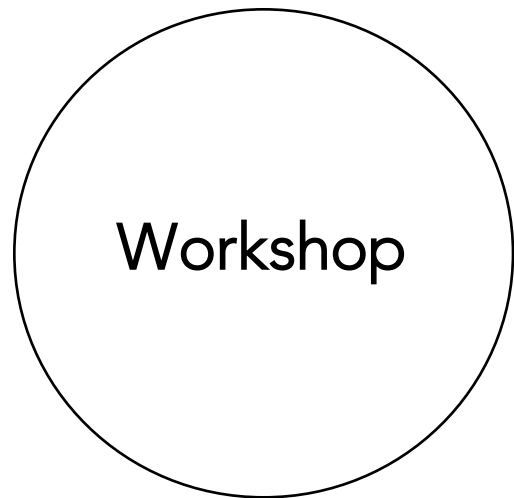
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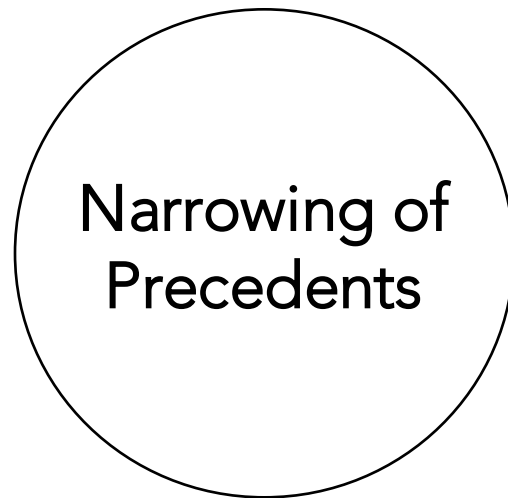
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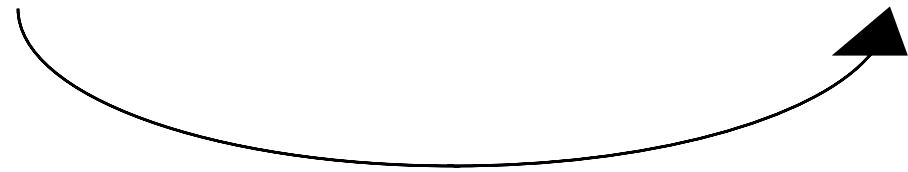
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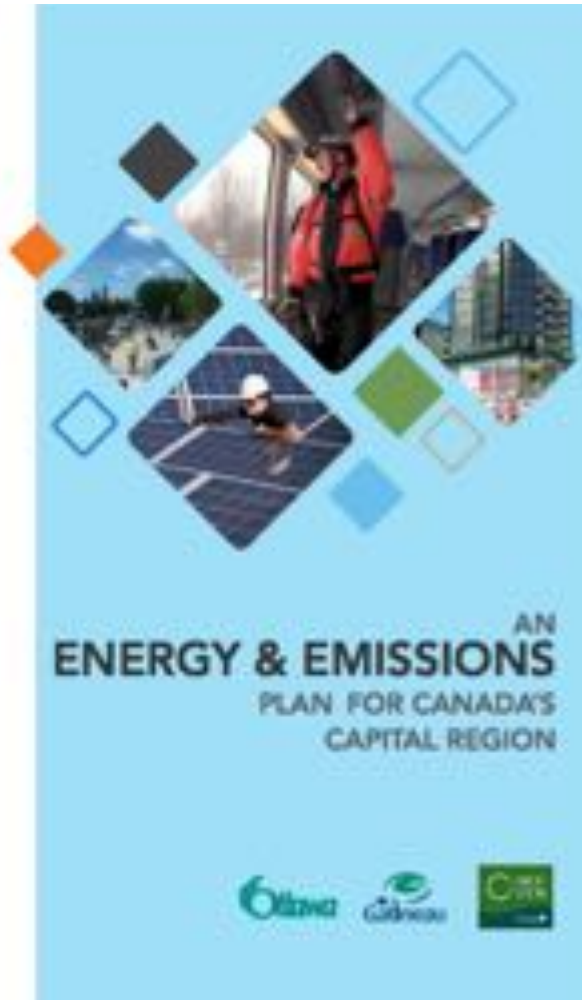
An aerial photograph of a city skyline, likely Toronto, featuring a prominent clock tower and various buildings. The foreground is dominated by a dense forest of trees, and a river or lake is visible in the bottom right corner. The sky is overcast with grey clouds. The text "PROJECT CONTEXT" is overlaid in the center in a large, black, sans-serif font.

# PROJECT CONTEXT

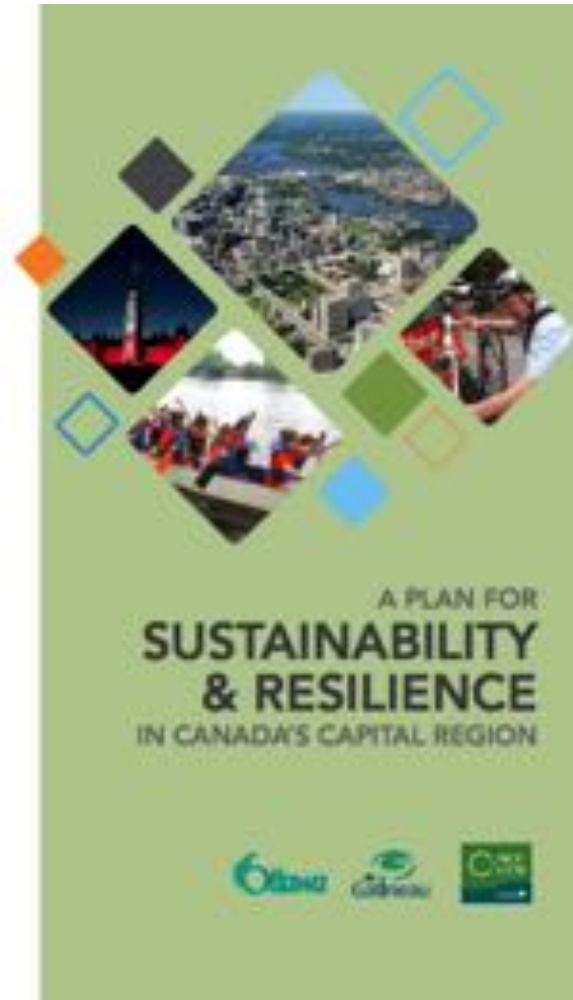


# FRAMING OUR FUTURE

FRAMING OUR FUTURE



FRAMING OUR FUTURE



FRAMING OUR FUTURE





# Project Charter

**Project Name: Beyond 2036: Setting the Stage  
for Ottawa's Next Official Plan**

**Date:** July 5, 2017

**Author:** Bruce Finlay

**Version:** 1.5

# DEFINITIONS

1

Driver of Change

2

City Resilience



# DRIVER OF CHANGE

*“Any issue, challenge, or opportunity which will affect Ottawa’s future growth and development.”*

- ✓ Environmental
- ✓ Demographic
- ✓ Technological
- ✓ Economic





# CITY RESILIENCE

*“The **capacity** of individuals, communities, institutions, and businesses within a city to **survive, adapt, and grow** no matter what kinds of **shocks and stresses** they experience.”*



T

*“Identify the drivers of change that could affect Ottawa’s future growth.”*

A

*“Summarize municipal best practices relating to building resilience to these drivers of change.”*

S

K

*“Make recommendations on how Ottawa can best use scenario planning to build municipal resilience.”*

S





# SUMMARY OF RESEARCH

# KEY QUESTIONS

- ✓ What is scenario planning?
- ✓ How does one create and evaluate scenario plans?
- ✓ What are some relevant case studies?
- ✓ How does one classify scenario plans?





# Classifying Scenario Plans

*Arnab Chakraborty & Andrew McMillan (2015)*

*University of Illinois*




*“Scenario planning is a **strategic planning method** used by planners to conceive, develop, and evaluate **multiple plausible futures** for the growth and development of a city or region. This process allows planners to **identify a preferred course of action** and set priorities.”*



# KEY FINDINGS

- ✓ Value of using scenario planning
- ✓ Drivers of change should be incorporated into scenarios
- ✓ Create 3 – 5 scenarios in development process



An aerial photograph of a city skyline, featuring various high-rise buildings and structures. The image is slightly blurred, creating a soft background for the text. The text 'PRECEDENT COLLECTION' is centered in a large, bold, black, sans-serif font.

PRECEDENT  
COLLECTION



Athens Wellington Mississauga Tokyo  
San Francisco Mexico City Chicago Istanbul  
Belgrade Bangkok Berkeley Helsinki Glasgow  
Pittsburgh Rotterdam Paris New York City Victoria  
Berlin Christchurch Boston Budapest  
Canberra Thessaloniki Melbourne Baltimore The Hague  
Stockholm Birmingham Boulder Edmonton  
Copenhagen Vejle Bristol Manchester  
Calgary London



A word cloud of city names. The names are arranged in a roughly circular pattern. Fifteen names are highlighted in red, while the others are in grey. The red names are: Athens, Wellington, Mexico City, Berkeley, Glasgow, New York City, Boston, Christchurch, Melbourne, Boulder, Bristol, San Francisco, Bangkok, Rotterdam, Paris, and Pittsburgh. The grey names are: Mississauga, Tokyo, Chicago, Helsinki, Istanbul, Belgrade, Paris, Victoria, Budapest, Berlin, The Hague, Canberra, Birmingham, Baltimore, Stockholm, Edinburgh, Copenhagen, Vejle, London, and Manchester.

Athens Wellington Mexico City Berkeley Glasgow New York City Boston Christchurch Melbourne Boulder Bristol San Francisco Bangkok Rotterdam Paris Pittsburgh Mississauga Tokyo Chicago Helsinki Istanbul Belgrade Paris Victoria Budapest Berlin The Hague Canberra Birmingham Baltimore Stockholm Edinburgh Copenhagen Vejle London Manchester

A word cloud of city names. The cities are arranged in a roughly circular pattern. The following cities are highlighted in red: Helsinki, The Hague, Stockholm, Copenhagen, and Vejle. All other cities are in grey.

Athens Wellington Mississauga Tokyo  
San Francisco Mexico City Chicago Istanbul  
**Helsinki**  
Belgrade Bangkok Berkeley Glasgow  
Rotterdam Paris New York City Victoria  
Pittsburgh Berlin Christchurch Boston Budapest  
Canberra Thessaloniki Melbourne Baltimore **The Hague**  
Birmingham Boulder Edmonton  
**Stockholm** Bristol  
**Copenhagen** London Manchester  
Calgary

A word cloud of city names. The names are arranged in a roughly circular pattern. The names are: Athens, Wellington, Mississauga, Tokyo, Chicago, Mexico City, San Francisco, Helsinki, Istanbul, Berkeley, Glasgow, Belgrade, Bangkok, Paris, New York City, Rotterdam, Pittsburgh, Christchurch, Boston, Berlin, Melbourne, Budapest, Canberra, Thessaloniki, Birmingham, Baltimore, The Hague, Stockholm, Vejle, Boulder, Edinburgh, Copenhagen, Calgary, London, Bristol, and Manchester. The names 'Belgrade', 'Berlin', 'Birmingham', 'Baltimore', 'Budapest', 'Chicago', 'London', 'Manchester', 'Mississauga', 'Tokyo', and 'Victoria' are highlighted in red, while all other names are in grey.

An aerial photograph of a city skyline, likely Pittsburgh, featuring a prominent bridge with arches in the foreground, a river, and various buildings in the background. The word "WORKSHOP" is overlaid in large, bold, black capital letters across the center of the image.

# WORKSHOP





# RESULTS

- ✓ Break-out sessions, review drivers and 37 cities:
  - Environmental
  - Demographic
  - Technological
  - Economic
- ✓ Gather feedback, expert opinion activity
- ✓ Tally responses, group de-brief





An aerial photograph of a city street scene. In the foreground, a large, rectangular parking lot is filled with numerous cars parked in neat rows. The parking lot is bordered by a concrete curb and a yellow-painted curb. To the right of the parking lot, a multi-lane road with white lane markings and a yellow center line runs diagonally. In the background, a dense urban landscape is visible, featuring a variety of buildings, including several tall skyscrapers and many smaller, multi-story commercial buildings. The overall scene is captured from a high angle, providing a clear view of the parking lot's layout and the surrounding city environment.

# NARROWING PRECEDENTS

# VARIATION 1

Workshop



Environmental	Demographic	Technological	Economic
Edmonton Edmonton Metropolitan Growth Plan	Chicago Go to 2040: Comprehensive Regional Plan	Tokyo Creating the Future: Long Term Vision	Edmonton Edmonton Metropolitan Growth Plan
New York City One New York: A Strong and Just City	Edmonton Edmonton Metropolitan Growth Plan	Helsinki Helsinki City Plan Vision 2050	London City of London Local Plan
Mississauga Our Future Mississauga	Boston Resilient Boston	London City of London Local Plan	Stockholm Stockholm: A Sustainably Growing City
Helsinki Helsinki City Plan Vision 2050	Calgary Calgary Resilience Strategy	Birmingham Birmingham 2026: Our Future Vision	The Hague The Hague Agenda Setting Workshop
Boston Resilient Boston	Birmingham Birmingham 2026: Our Future Vision	San Francisco Resilient San Francisco	Calgary Calgary Resilience Strategy
Berlin Berlin Strategy: Urban Dev. 2030	Helsinki Helsinki City Plan Vision 2050	Manchester Local Development Framework: Core Strategy Dev. Plan	Canberra ACT Planning Strategy
Wellington Wellington Resilience Strategy	San Francisco Resilient San Francisco	Boulder City of Boulder Resilience Strategy	Boulder City of Boulder Resilience Strategy
Mexico City CDMX Resilience Strategy	Mississauga Our Future Mississauga	Mississauga Our Future Mississauga	Copenhagen The Coherent City: Municipal Strategy 2014
Christchurch Resilient Greater Christchurch	Vejle Vejle Resilience Strategy	Berkeley Berkeley Resilience Strategy	Pittsburgh OnePGH: Resilient Pittsburgh
Boulder City of Boulder Resilience Strategy	Manchester Local Development Framework: Core Strategy Dev. Plan	Baltimore City of Baltimore Master Plan	Paris Paris Adaptation Strategy



# TOP 10 DRIVERS

Workshop



Environmental	Demographic	Technological	Economic
Floods	Immigration	Autonomous Vehicles	Employment Skills & Training
Renewable Energy	Population Growth	Ageing Infrastructure	Diversification
Supply of Developable Land	Ageing Population	Digital Infrastructure	Globalization
Extreme Storms	Housing	Transit Oriented Development	Economic Competition
Demand for Power	Shifts in Labour Market	Infrastructure Demand	Automation
Increase in Rainfall Intensity	Social Mobility	Inadequate Public Transit	Economic Change
Urban Heat Island	Placemaking	Regionalization	Regionalization
Wastewater Capacity	Unemployment	Cyber Security	Industry Mix Changes
Damage to Natural Areas	Retention	Renewable Energy	Inequality
Warmer Temperatures	Education	Infrastructure Failure	Economic Uncertainty

# VARIATION 2

Number of Top 10 Ottawa Drivers Identified





Environmental
Floods
Renewable Energy
Supply of Developable Land
Extreme Storms
Demand for Power
Increase in Rainfall Intensity
Urban Heat Island
Wastewater Capacity
Damage to Natural Areas
Warmer Temperatures



Environmental
<b>Istanbul</b> 2014-2023 Istanbul Regional Plan
Paris Paris Adaptation Strategy
Athens Athens Resilience Strategy for 2030
London City of London Local Plan
Mexico City CDMX Resilience Strategy
New York City One New York: A Strong and Just City
Bangkok Resilient Bangkok
Berlin Berlin Strategy: Urban Dev. 2030
Boston Resilient Boston
Canberra ACT Planning Strategy



Demographic
Immigration
Population Growth
Ageing Population
Housing
Shifts in Labour Market
Social Mobility
Placemaking
Unemployment
Retention
Education



Demographic
<b>Chicago</b> Go to 2040: Comprehensive Regional Plan
<b>New York City</b> One New York: A Strong and Just City
<b>Vejle</b> Vejle Resilience Strategy
<b>Thessaloniki</b> Resilient Thessaloniki: Strategy for 2030
<b>Birmingham</b> Birmingham 2026: Our Future Vision
<b>Boston</b> Resilient Boston
<b>Bristol</b> Bristol Resilience Strategy
<b>Calgary</b> Calgary Resilience Strategy
<b>Christchurch</b> Resilient Greater Christchurch
<b>Melbourne</b> Resilient Melbourne



Technological
Autonomous Vehicles
Ageing Infrastructure
Digital Infrastructure
Transit Oriented Development
Infrastructure Demand
Inadequate Public Transit
Regionalization
Cyber Security
Renewable Energy
Infrastructure Failure



Technological
<b>Berkeley</b> Berkeley Resilience Strategy
<b>Manchester</b> Local Development Framework: Core Strategy Dev. Plan
<b>Boston</b> Resilient Boston
<b>Helsinki</b> Helsinki City Plan Vision 2050
<b>Edmonton</b> Edmonton Metropolitan Growth Plan
<b>Victoria</b> City of Victoria Official Community Plan
<b>Baltimore</b> City of Baltimore Master Plan
<b>Tokyo</b> Creating the Future: Long Term Vision
<b>New York City</b> One New York: A Strong and Just City
<b>Stockholm</b> Stockholm: A Sustainably Growing City



Economic
Employment Skills & Training
Diversification
Globalization
Economic Competition
Automation
Economic Change
Regionalization
Industry Mix Changes
Inequality
Economic Uncertainty



Economic
<b>Edmonton</b> Edmonton Metropolitan Growth Plan
Mexico City CDMX Resilience Strategy
Mississauga Our Future Mississauga
Calgary Calgary Resilience Strategy
Rotterdam Rotterdam Resilience Strategy
Melbourne Resilient Melbourne
Budapest Budapest 2030: Long-term Urban Dev.
Helsinki Helsinki City Plan Vision 2050
Birmingham Birmingham 2026: Our Future Vision
Berlin Berlin Strategy: Urban Dev. 2030



# VARIATION 3

Plan Classification



## Plan Classification

### Chicago

Go to 2040: Comprehensive Regional Plan

### Veje

Veje Resilience Strategy

### New York City

One New York: A Strong and Just City

### Thessaloniki

Resilient Thessaloniki: Strategy for 2030

### Birmingham

Birmingham 2026: Our Future Vision

### Boston

Resilient Boston

### Bristol

Bristol Resilience Strategy

### Calgary

Calgary Resilience Strategy

### Christchurch

Resilient Greater Christchurch

### Melbourne

Resilient Melbourne





# VARIATION 4

Climate

Environment Only



# KÖPPEN CLASSIFICATION

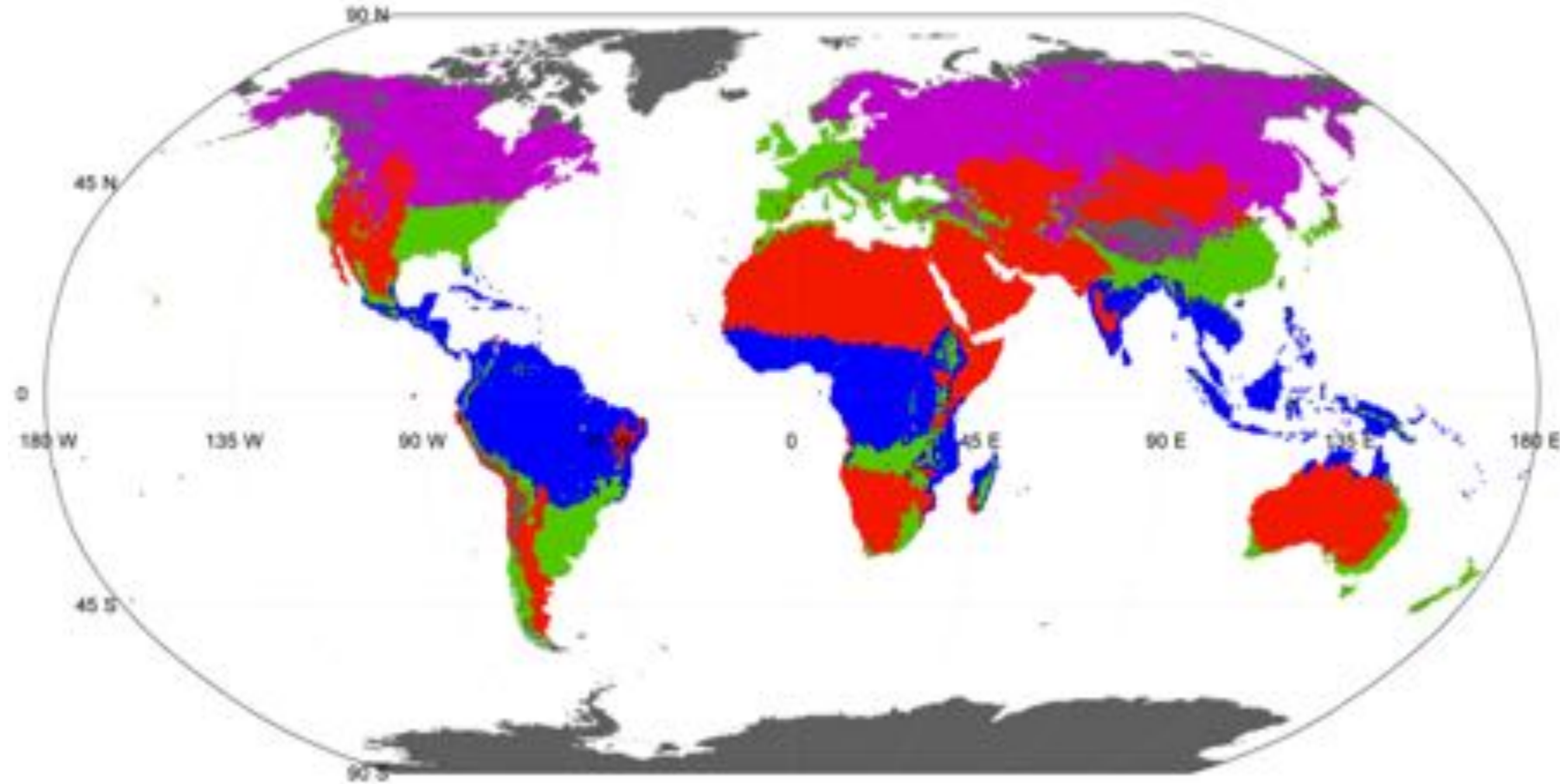
Tropical Climates

Dry Climates

Humid Mild Climates

Continental Climates

Cold Climates (Polar)



## Köppen Classification

Calgary (Dfb)

Edmonton (Dfb)

Helsinki (Dfb)

Mississauga (Dfb)

Chicago (Dfa)

New York City (Dfa)





CONCLUSIONS  
&  
RECOMMENDATIONS



An aerial photograph of a city, likely New York City, showing a dense urban landscape with numerous skyscrapers and buildings. A large red number '1' is overlaid on the image, positioned in the upper-middle section. The background is slightly blurred, emphasizing the text and the number.

1

Scenario Planning is a Valuable Tool  
for Building City Resilience

# 1 Scenario Planning is a Valuable Tool for Building City Resilience

- ✓ Traditional planning forecasts a single likely future
- ✓ Envisioning multiple scenarios enhances collaboration, and creative solutions
- ✓ Scenarios do not have to be accurate to improve resilience





# 2


Consider the 41 Identified Drivers of Change as Inputs in Ottawa's Development of Scenarios

Environmental	Demographic	Technological	Economic
Floods	Immigration	Autonomous Vehicles	Employment Skills/Training
Renewable Energy	Population Growth	Ageing Infrastructure	Diversification
Developable Land Supply	Ageing Population	Digital Infrastructure	Globalization
Extreme Storms	Housing	Transit-Oriented Development	Competition
Demand for Power	Shifts in Labour Market	Infrastructure Demand	Automation
Rainfall Intensity/Increase	Social Mobility	Inadequate Public Transit	Economic Change
Urban Heat Islands	Place Making	Transit Regionalization	Regionalization
Wastewater Capacity	Unemployment	Cyber Security	Industry Mix Changes
Damage to Natural Areas	Retention	Renewable Energy	Inequality
Warmer Temperatures	Education	Infrastructure Failure	Economic Uncertainty
Decreased Air Quality			

■ - Opportunities

■ - Vulnerabilities




Environmental	Example
Floods	
Renewable Energy	
Developable Land Supply	
Extreme Storms	
Demand for Power	
Rainfall Intensity/Increase	
Urban Heat Island	
Waste Water Capacity	
Damage to Natural Areas	
Warmer Temperatures	
Decreased Air Quality	

 - Opportunities

 - Vulnerabilities




Demographic	Example
Immigration	 <p>The graphic features the Birmingham 2026 logo at the top left, with the text 'Birmingham 2026' and 'Our vision for the future' to its right. Below this is a grid of 12 small images arranged in two rows of six. The top row contains: a person working at a desk, a cityscape, a person playing tennis, a solid pink square, a group of people, and a person in a red dress. The bottom row contains: a woman smiling, a group of people, a person working at a desk, a group of people, a person in a red dress, and a solid green square. At the bottom of the graphic are three logos: Birmingham City Council, BIRMINGHAM LOCAL LEADERSHIP PARTNERSHIP, and Sustainable Community Strategy.</p>
Population Growth	
Ageing Population	
Housing	
Shifts in Labour Market	
Social Mobility	
Place Making	
Unemployment	
Retention	
Education	

 - Opportunities

 - Vulnerabilities



Technological	Example
Autonomous Vehicles	
Ageing Infrastructure	
Digital Infrastructure	
Transit-Oriented Development	
Infrastructure Demand	
Inadequate Public Transit	
Transit Regionalization	
Cyber Security	
Renewable Energy	
Infrastructure Failure	

■ - Opportunities

■ - Vulnerabilities





Economic	Example
Employment Skills/Training	
Diversification	
Globalization	
Competition	
Automation	
Economic Change	
Regionalization	
Industry Mix Changes	
Inequality	
Economic Uncertainty	

■ - Opportunities

■ - Vulnerabilities





An aerial photograph of a residential neighborhood that has been severely flooded. The water is murky and covers most of the ground, including streets and lawns. Several houses are visible, some with their roofs above water. A large, bold red number '3' is superimposed over the center of the image.

3

Consider the City's Varying Ability to  
Control Drivers in Scenario  
Development



4

Respect Relationships Between Drivers  
in Scenario Development



An aerial photograph of a city, likely New York City, showing a large stadium (Citi Field) and a river (the Hudson River) in the foreground. The background shows a dense urban area with many buildings. The image is slightly faded to make the text stand out.

5

Take a Multi-Layered Approach to  
Build Scenarios



# Opportunities

Ex: Transition to Renewable Energy, Digital Infrastructure

# Vulnerabilities

Ex: Unemployment, Inequality

# Foundational Elements

Ex: Climate Change, Immigration



An aerial photograph of a city, likely New York City, showing a dense urban landscape with numerous skyscrapers and buildings. A large, bright red number '6' is superimposed in the upper center of the image. The background is slightly blurred, emphasizing the text.

# 6

Implement a Collaborative, Multi-Stakeholder Scenario Development Process

# 6 Implement a Collaborative, Multi-Stakeholder Scenario Development Process

1. Scoping
2. Stakeholder and Resident Value Analysis
3. Development of a 'Business as Usual' Scenario
4. Stakeholder and Public Education Campaigns
5. Workshops
6. Scenario Development
7. Scenario Evaluation





An aerial photograph of a city, likely Atlanta, Georgia, showing a river (the Chattahoochee River) flowing through the urban landscape. A large dam is visible in the foreground, with water cascading over its spillways. The city buildings and green spaces are visible in the background.

# 7

Mechanisms for Multi-Jurisdictional  
Cooperation on Future Drivers of  
Change Should be Developed



8

Identify Specific Strategies to Address  
Drivers of Change





## GOAL 2.4.

Integrate a water sensitive approach to urban design through blue and green infrastructure.

### ACTION 2.4.1

#### (X) Promote the restoration of bodies of water and watersheds.

Regenerating and restoring natural water bodies and watersheds can prevent flooding and encourage adaptation to droughts caused by climate change.

**Responsible Parties:** SEEMA.

**Partners:** TRC, LAMUS URBAN, Durst Embassy, Cellares.

**Period:** 2016 - 2026.

#### **Resilience Value:**

Environmental cleanup of watersheds and rivers and the production and management of green infrastructure have a number of environmental, economic, and social benefits that contribute to meeting the basic needs of the population; to enriching natural assets, and to strengthening adaptive capacities in the event of a decrease in the water supply.



**ACTION 2.4.1.1:** Implement the comprehensive rescue program of the Magdalena and Cauca Rivers.

The program of development of the Magdalena and Cauca river basins involves river flows and banks, and channels and manages the nearby forest, thereby contributing to the area's green infrastructure. Through a comprehensive system, investment will also help promote environmental awareness and culture, education, recreation, and promote the creation of parks spaces within the river basins.

**Responsible Parties:** SEEMA.

**Partners:** LAMUS URBAN.

**Period:** 2016 - 2026.



A vibrant street scene with outdoor dining, trees, and a clear blue sky. The image shows a wide, paved pedestrian walkway lined with outdoor seating areas for restaurants and cafes. People are seen sitting at tables, some under colorful umbrellas. The buildings are multi-story with large windows and balconies. A large, leafy tree is on the right side, and a street lamp is visible on the left. The sky is bright blue with scattered white clouds.

9

Future Resilience Strategies Should  
Embrace a Range of Uncertainty

# 9

## Future Resilience Strategies Should Embrace a Range of Uncertainty

- ✓ New drivers of change will arise
- ✓ Relative importance of drivers of change will shift
- ✓ Current trends will change
- ✓ Plans must be regularly reviewed and updated
  - Ensures relevancy and allows for adaptive management



9



2007



2011



2015



FINAL THOUGHTS



THANK YOU  
MERC I

*Questions?*

