Resilience planning in Canada: An analysis of resilience in local governments' strategic planning documents

by

Laura Beattie

B.E.S., University of Waterloo, 2014

Project Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Resource Management (Planning)

in the
School of Resource and Environmental Management
Faculty of Environment

SIMON FRASER UNIVERSITY
Fall 2023

Declaration of Committee

Name:	**Laura Beattie**
Degree:	**Master of Resource Management (Planning)**
Title:	**Resilience planning in Canada: An analysis of resilience in local governments' strategic planning documents**
Committee:	**Andréanne Doyon** Supervisor Assistant Professor, Resource and Environmental Management
	Sean Markey Committee Member Professor, Resource and Environmental Management

Abstract

Resilience planning has grown in popularity as it offers opportunities to address complex challenges faced by cities; however, operationalizing resilience proves to be difficult. Through a comprehensive policy analysis of 171 Canadian local governments' strategic plans, this research aims to understand how resilience is incorporated into planning documents. Results indicate that there are many approaches to meaningfully incorporate resilience, but strategic plans must prioritize resilience by defining it, incorporating it throughout the plan, referring to different resilience topics, and presenting information through a clear design. Within the Canadian context, local governments also have the opportunity to customize inclusions of resilience to be place-based and use opportunities to be creative.

Keywords: Resilience; Urban resilience planning; Strategic planning; Long-range planning; Canadian policy analysis

Acknowledgements

I'd like to respectfully acknowledge and honour the unceded traditional territories of the Coast Salish peoples, including the xʷməθkʷəy̓əm (Musqueam), Sḵwx̱wú7mesh Úxwumixw (Squamish), səl̓ilw̓ətaʔɬ (Tsleil-Waututh), and kʷikʷəƛ̓əm (Kwikwetlem) Nations, on which SFU Burnaby is located and where this research took place. While my research focuses on resilience in relation to settler colonial planning structures, I want to recognize the importance of Indigenous governance in resilience planning since time immemorial and into the future.

I'd also like to share immense gratitude to the many people who have supported me throughout this research project. Thank you to Dr. Andréanne Doyon for constant guidance including many brainstorming sessions, editing rounds, and being the most supportive supervisor I could have asked for. Thank you to Tira Okamoto for always being there to talk through my research, Wesley Chenne for detailed edits, Sean Markey for acting as my second reader and providing thoughtful questions and comments to strengthen this paper, and everyone else who provided academic or emotional support along the way (it truly takes a village!). Lastly, thank you to my loving partner, Falko Wong, for the endless support and feeding me during the past two years while I've been in grad school.

Table of Contents

List of Tables

List of Figures

1.0 Introduction

There is a critical need to respond to climate change (Béné et al. 2018) as its associated impacts are becoming progressively urgent (Béné et al. 2018; Evans 2011; Filho et al. 2019; Folke et al. 2021). Cities and their local governments must take responsibility for its anthropogenic impacts (Ahern 2011; Chelleri et al. 2015; Folke et al. 2021). Planning can offer solutions to address these complexities (Filho et al. 2019), however, there is evidence that "traditional planning tools are often insufficient to tackle these problems and challenges" (Albrechts 2016, 1). Scholars have identified resilience planning as a promising alternative to traditional planning as it can be more flexible, adaptive, and collaborative, as well as apply a systems-thinking approach (Coaffee et al. 2018; Sellberg et al. 2018; Woodruff et al. 2018).

While different conceptualizations of resilience exist, this study understands urban resilience as that defined by Meerow, Newell, and Stults (2016): "the ability of an urban system - and all its constituent socio-ecological and socio-technical networks across temporal and spatial scales - to maintain or rapidly return to desired functions in the face of a disturbance, to adapt to change, and to quickly transform systems that limit current or future adaptive capacity" (39). The concept of urban resilience has increased in prominence and use by scholars, planners, and policy makers (Wagenaar and Wilkinson 2015; Woodruff et al. 2018) due to its holistic and transdisciplinary nature (Béné et al. 2018; Coaffee 2013; Leichenko 2011; Meerow, Newell, and Stults 2016). However, operationalizing urban resilience is challenging and scholars have explicitly called for more empirical evidence of resilience planning (Coaffee et al. 2018; Sellberg et al. 2018; Woodruff et al. 2018).

Through a comprehensive policy analysis, this research aims to advise planners, policy makers, and other resilience practitioners to meaningfully incorporate urban resilience into strategic plans to enable local governments to be sufficiently flexible, innovative, and resilient to prepare, withstand, adapt, and thrive in the face of challenges such as those related to climate change. This has been done by answering the following research question: How is resilience incorporated into Canadian local governments' strategic planning documents?

2.0 Literature Review: Planning for Resilience

This literature review begins with an introduction to resilience and urban resilience, followed by the role of planning in implementing or operationalizing resilience. It presents the need for more empirical and comparative research of resilience in local government policy, and the study of the inclusion of resilience in local governments' strategic plans in Canada.

The concept of resilience has evolved over time (Davoudi et al. 2012; Moloney and Doyon, 2021; Moser et al. 2019; Woodruff et al. 2018). The Latin root word, resi-lire, means to spring back (Davoudi et al. 2012; Moloney and Doyon, 2021), but resilience today has many meanings, including discipline-specific ones, such as engineering, psychology, and ecological resilience (Datola 2023; Meerow and Stults, 2016). Urban resilience, in particular, has increased in prominence since 2010 (Meerow, Newell, and Stults 2016). It is used by scholars and practitioners (Davoudi et al. 2012; Leichenko 2011; Meerow, Newell, and Stults 2016; Woodruff et al. 2018; Wagenaar and Wilkinson 2015; Yamagata and Shariff 2018) "to consider multiple risks and hazards in a holistic fashion" (Coaffee 2013, 326) through proactive methods across transdisciplinary boundaries (Béné 2018; Meerow, Newell, and Stults 2016; Coaffee 2013; Leichenko 2011). However, even with its growing popularity, definitions of resilience and urban resilience often remain unclear or inconsistent, which can slow advancement of resilience concepts (Meerow, Newell, and Stults 2016; Moser et al. 2019). Common across many definitions of resilience is the ability of a system to adapt, persist, absorb, recover, reorganize, transform, or simply deal with change (Adger 2003; Ahern 2011; Ahern 2013; Elmqvist et al. 2019; Sellberg et al. 2018).

Resilience planning has been identified as a promising alternative to traditional planning to address complexities of climate change as it can be more flexible, adaptive, and collaborative (Coaffee et al. 2018; Filho et al. 2019; Sellberg et al. 2018; Spaans and Waterhout 2017; Woodruff et al. 2018). Traditional planning frequently relies on stability, certainty, and a strong understanding of problems at hand (Albrechts and Balducci 2013; Christensen 1985; Forester 1993; Schön 1971); but with the uncertainties of climate change, cities today cannot offer such clarity (Albrechts and Balducci 2013). To plan for the contemporary city, more dynamic and adaptable

strategic planning methods are needed (Wilkinson 2011). Resilience planning follows “a ‘systems’ approach, acknowledging the interdependencies between shocks and chronic stressors, such as poverty, aging infrastructure, and climate change” (Woodruff et al. 2018, 2). It involves the practice of applying resilience thinking, a framework that aims to understand social-ecological systems while centering resilience concepts and embracing change (Folke 2010; Walker and Salt 2006), to strategic planning (Sellberg et al. 2018).

The inclusion and application of resilience in planning has increased rapidly (Meerow, Newell, and Stults 2016; Meerow et al. 2019; Woodruff et al. 2018) - particularly regarding local climate change planning (Alibasic 2018; Kythreotis and Bristow 2016). “In the span of a few decades, the focus of planning has shifted from sustainability, to climate change mitigation and adaptation, to resilience” (Woodruff et al. 2018, 10). Such a shift has occurred as the opportunities for resilience planning become more widely recognized. As urban settings become increasingly complex, resilience planning is seen as part of the solution to address wicked problems and sustainability challenges through adaptation and transformation (Chelleri et al. 2015; Coaffee et al. 2018).

Resilience is not without its criticisms and shortcomings. Effectively operationalizing resilience has proved to be challenging (Sellberg et al. 2018; Bonnet and Birchall 2023) due to the concept’s malleability and inconsistencies, which also makes development of metrics difficult (Meerow, Newell, and Stults 2016; Meerow and Stults 2016). More empirical research, understanding, and concrete guidance is needed to effectively operationalize resilience through planning (Chelleri et al. 2015; Moser et al. 2019; Coaffee et al. 2018; Sellberg et al. 2018; Shaw and Maythorne 2013; Wagenaar and Wilkinson 2015; Woodruff et al. 2018). Sellberg et al. (2018) found that there have been few comparisons of resilience planning in real-world settings, and Coaffee et al. (2018) argue that “resilience professionals lack comparative information on effective implementation strategies” (404). Previous studies have often focused on single cities, or on the Rockefeller Foundation’s 100 Resilient Cities Program (e.g., Behestian et al. 2018; Croese et al. 2020; Fitzgibbons and Mitchell, 2019; Fitzgibbons and Mitchell 2021; Galderisis et al. 2020; Lu and Stead 2013; Moloney and Doyon 2021; Spaans and Waterhout 2017; Woodruff et al. 2018). Practitioners and local governments have called for more guidance and understanding on how to implement resilience within cities (Chelleri et al. 2015; Meerow, Newell, and Stults 2016; Moser et al. 2019).

This research responds to these calls by investigating how resilience is incorporated into Canadian local governments' strategic plans. Strategic plans are "long-range, comprehensive, general policy guide[s] for the future" (Hodge, Gordon, and Shaw 2021, 155). They are "essential to creating public value [by] enhancing quality of life … in the face of an uncertain future" (Guyadeen et al. 2023, 1) and can improve organizational decision-making, especially in the allocation of resources such as budgeting to complete identified actions (Albrechts 2016; Guyadeen et al. 2023; Plant 2009). Strategic planning can support capacity building (Balducci 2020), which complements resilience planning as it values the adaptive capacity of a system (Smit and Wandel 2006). Further, strategic planning has the power to facilitate the experimentation that is required when planning for uncertainty, urban transformation, and resilience (Balducci 2020; Elmqvist et al. 2019).

Strategic planning documents, also known as land use plans, municipal development plans, and community plans (among others), were chosen to investigate the incorporation of resilience as they are a significant planning tool across Canadian local governments (Hodge, Gordon, and Shaw 2021). In Canada, provincial and territorial legislation requires that local governments create strategic plans, but required content differs across jurisdictions. "[T]here has been considerable scholarly debate about the appropriate scope, content, and procedures for strategic planning in local government" (Guyadeen et al. 2023, 1), but commonalities do exist across plans. Most plans are forward thinking in direction (i.e., 10 to 30 years), include both general and broad perspectives (high-level and values-based), contain comprehensive viewpoints (including significant physical and non-physical factors), and focus on the natural and built environment (including local ecosystems and biodiversity, living areas, working areas, transportation, community facilities, amenities, and services) (Hodge et al. 2021, 155).

3.0 Methodology

The aim of this research is to determine how resilience is incorporated into Canadian strategic plans. This was accomplished through a document analysis of strategic plans from Canadian local governments. The data collection and analysis consisted of three steps, 1) the identification of local governments, 2) the identification and eligibility of strategic plans, and 3) the analysis of the strategic plans.

3.1 Identification of local governments

Data for this research was acquired through a publicly available and federally created list of Canadian Geographical Names Data.[1] The data used in this research was last updated on June 15, 2022. The data is provided to the Canadian government by each individual province and territory (10 provinces and three territories); notably, there is no standardization of geographic names between provinces and territories.

First, due to language limitations, the data from Quebec and its associated local governments was removed, as their plans were largely in French. Next, data not relevant (including CGNDB ID, Language, Syllabic Form, Toponymic Feature ID, and Relevance at Scale) were removed. The remining data was filtered to include Generic Category Populated Place and related Generic Terms Charter Community, City, District Municipality, Metropolitan Area, Mountain Resort Municipality, Municipality, Resort Municipality, and Town as well as the Generic Category Administrative Area and its included Generic terms Municipal County and Municipal District. Upon reviewing the list, any duplicate locations (locations listed in both French and English languages) were removed. This list included 1066 local governments across Canada. Next, any local government with a population of less than 4500 was removed from the study.[2] This population size was chosen as a recognition that smaller jurisdictions may not have the resources to complete their own strategic plan (e.g., plans completed by consultants) or

[1] https://natural-resources.canada.ca/earth-sciences/geography/download-geographical-names-data/9245

[2] Populations for all 1066 local governments were determined using 2021 census data. Population data was often found using Statistics Canada but sometimes came from provincial websites (such as the Alberta Regional Dashboard (https://regionaldashboard.alberta.ca/#/), the website of the local government, or a local news source.

may not be large enough to be legally required to complete a strategic document. While this meant that a large population range existed between some local governments, the goal was to include as many local governments and their strategic plans as possible for a robust and meaningful analysis. 662 local governments were removed from this list and 404 local governments remained in the analysis.

3.2 Identification and eligibility of strategic plans

The next step involved collecting the strategic plans for each of the 404 local governments. As there is no federally standardized process for the naming of strategic plans, each province/territory mandates their own plan name (see Table 1 below for a list of plan names by province and territory). Local governments also varied the date of implementation associated with the plan. For this research, the year of the plan was recorded as the date it was adopted, approved, released, or passed by the local council. Dates were not always obvious or consistent, but the goal was to determine the initial adoption and implementation of the plan (when it initially came into effect) rather than simply when it was amended, updated, or reviewed in between strategic planning cycles.

Table 1. Comparative Provincial Planning Terminology.

Province / Territory	Strategic Plan	Provincial Planning Legislation
Alberta	Municipal Development Plan (MDP)	*Municipal Government Act*
British Columbia	Official Community Plan (OCP)	*Local Government Act / Vancouver Charter*
Manitoba	Development Plan (DP)	*Planning Act*
New Brunswick	Municipal Plan (MP)	*Community Planning Act*
Newfoundland & Labrador	Municipal Plan (MP)	*Urban and Rural Planning Act*
Northwest Territories	General Plan (GP)	*Community Planning and Development Act; Cities, Towns and Villages Act*
Nova Scotia	Municipal Planning Strategy (MPS)	*Municipal Government Act*
Nunavut	Community Plan /General Plan (CP)	*Planning and Project Assessment Act; Nunavut Land Use Plan (draft)*
Ontario	Official Plan (OP)	*Planning Act*

Prince Edward Island	Official Plan (OP)	*Planning Act*
Quebec	Planning Programme (Plan d'urbanisme) (PP)	*Act Respecting Land Use Planning & Urban Development (Loi sur l'aménagement et l'urbanisme)*
Saskatchewan	Official Community Plan (OCP)	*Planning and Development Act*
Yukon	Official Community Plan/ Local Area Plan/ Planning Study (OCP)	*Municipal Act, Area Development Act, Subdivision Act*

Source: adapted from Hodge, Gordon, and Shaw 2021, 176-177.

Through this process, local governments were removed if they did not have a clearly identified strategic plan, did not have a plan in English, or if the plan was combined with another local government (e.g., regional plan, intermunicipal plan), thus lacking full autonomy to implement actions described in the plan. If plans were in draft form, but still publicly available, the draft was included in the analysis.[3] Based on this filtering criteria, 388 local government plans remained. Of these plans, 288 were adopted, approved, released, or passed by Council on or after the year 2010. 2010 was chosen as the cutoff date because it corresponds with the rise of resilience as an important issue in urban policy (Davoudi et al. 2012; Leichenko 2011; Meerow, Newell, and Stults 2016; Coaffee et al. 2018).

The 288 strategic plans were analyzed using Nvivo, a qualitative data analysis software. The plans were first analyzed using the 'Text Search' function to determine if the plans included "resilient" and its stemmed words (resilient, resilience, and/or resiliency). A small proportion of plans were excluded because they were scanned images and illegible to the software. 172 of 288 plans (60%) included resilient and stemmed words at least once. Resilience counts were later adjusted to remove repetitive language (such as repetition of the same section heading), references that were not original words of the plan itself (e.g., exact quotes from Regional Growth Strategies, verbatim quotes from community consultation sessions)[4] or if the mentions were part of a neighbourhood plan or a supplementary portion of the strategic plan such as an appendix. The frequency of "resilient" and stemmed words ranged from one to eighty-five once adjusted (Appendix A – Strategic Plan Details). This led to an adjusted count of 171 plans that remained in the analysis (see Figure 1 below).

[3] Some draft plans analyzed (e.g., Brockville) included suggested wording changes (e.g., track changes). Only wording proposed for the future plan was included (if words were suggested to be changed or removed, they were not included in the analysis).

[4] Coaldale was removed as both mentions of resilience were not in the plan itself, but rather in Appendix A regarding a verbatim quote from a community member during the engagement process.

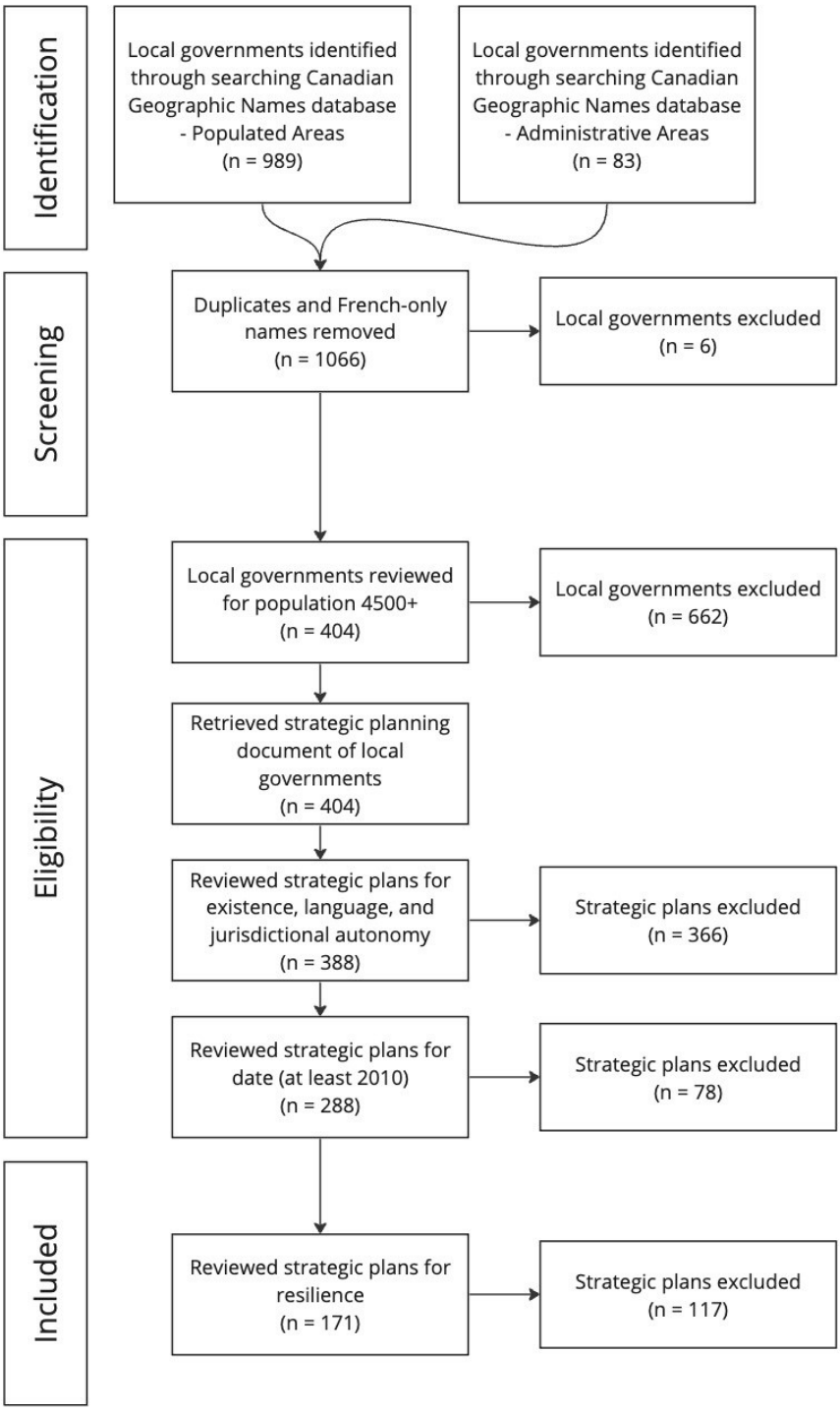

Figure 1. Flow diagram of the systematic review process.

3.3 Analysis of strategic plans

The 171 plans were analyzed to determine how resilience is being incorporated into Canadian strategic plans and identify learning opportunities.

As “the presence or absence of key components within a plan” are important for assessments of ‘good’ plans (Guyadeen et al. 2023, 2), which are likely to have meaningful content, plans were reviewed for both the inclusion and location of resilience. First, each plan was reviewed to determine if it defined resilience, and if so, how.

Second, plans were analyzed to determine the location of resilience, with emphasis on the following three locations: the table of contents, the vision, and as an overarching component (including goals; principles, pillars, and themes; sections and subsections; values and purpose; and strategic directions or priority areas).

Third, the plans were reviewed for topics referencing resilience. The topics include the five common categories included in strategic plans as provided by Hodge, Gordon, and Shaw (2021): “natural environment, living areas, working areas, community facilities, [and] circulation” (155). For the purpose of this study, community facilities was adapted to be community and public, and circulation was adapted to be transportation. Two additional categories were created to capture mentions of resilience related to climate change as well as hazards and disasters, as these are commonly referenced within resilience literature (see Alibasic 2018; Bonnet and Birchall 2023; Datola 2023; Filho et al. 2019; Meerow and Stults 2016). Through the data analysis process, nine additional categories were created to capture recurring themes of resilience in the strategic plans: energy, food, future oriented, governance, Indigenous, infrastructure, land use and development, planning, and water. This led to a total of 16 resilience categories identified through literature and data analysis: climate change; community and public (social support and relations); energy; food; future oriented; governance (decision-making and collaboration); hazards and disasters; Indigenous; infrastructure; land use and development; living areas; natural environment; planning; transportation; water (use, management, and access); and working areas.

Some specific mentions of resilience (subcategories) were included in more than one category when appropriate (e.g., food costs was included in both food and economic categories, transportation planning was included in both transportation and planning

categories, climate change resilient communities was categorized in both climate change and community and public categories, etc.) A full list of mentions and their categorizations can be found in Appendix B – Resilience Mention Categorization.

4.0 Results

The following results have been derived from the 171 strategic plans that include "resilient" and stemmed words. This section includes definitions of resilience and details of where resilience is located within the plans, particularly focusing on tables of contents, visions, and overarching components. Resilience mentions throughout plans are then presented through 16 categories and relevant subcategories with examples, particularly focusing on the following categories: community and public, climate change, hazard and disaster, working areas, natural environment, infrastructure, land use and development, food, future oriented, living areas, and planning.

4.1 How is resilience defined?

Definitions allow the reader to fully understand what is being said and are especially important with a word like resilience that has evolved over time, possessing many different meanings (Meerow, Newell, and Stults 2016; Moser 2019); definitions are important for policy making and implementation, as well as shaping discourses around newer concepts (Tozer 2018) like resilience. Definitions of resilience are included in 21% (n=36 of 171) of plans analyzed (see Appendix C – Resilience Definitions). Within these 36 plans, there are a total of 45 definitions as six local governments (Dawson Creek (BC), Huntsville (ON), North Cowichan (BC), Ottawa (ON), Sarnia (ON), and Vancouver (BC)) include multiple definitions for different forms of resilience. Definitions are similarly split with 49% (n=22) being definitions for resilience, generally, and 51% (n=23) being specific types of resilience. Community resilience and economic resilience are the most common types of specific definitions. Only two plans include both general and specific definitions: Dawson Creek defines both the terms resilient and resilient community while Huntsville defines resilience, resilient economy, resilient environment, resilient infrastructure, and social resiliency. The location of the 45 definitions varies; 28 definitions are located within the main part (body) of the plan and 17 definitions are located in a specified definitions section such as a glossary. Of the plans that include multiple definitions, these appear throughout the body of the plan, with the exception of Vancouver that includes definitions within both the main text and the glossary.

4.2 Where is resilience located?

The table of contents of each plan was reviewed for inclusions of resilience, as this may indicate its inclusion throughout the entire plan. 18% (n=31) of the 171 plans explicitly include resilience in the table of contents, most often when a section or subsection includes resilience. The visions of each plan were also reviewed for inclusions of resilience. Visions are important because they are often situated at the beginning of strategic plans and provide insight for future directions of the local government. Ideal visions represent citizen preferences for future urban form and natural environments (Hodge et al., 2021, 164; Ruming 2018) and set the tone for the entire plan. Of the 171 plans, 26% (n=44) include resilience in the vision. In most cases, resilience is mentioned once in the plan's vision, but Campbell River (BC), Courtenay (BC), North Cowichan, and Whistler (BC) mention resilience twice while Kamloops (BC) and West Vancouver (BC) mention resilience three and four times respectively in their plan's vision.

Some plans, such as Canmore (AB), include resilience at the forefront of its identity: "Canmore is a resilient and vibrant community socially, economically, and environmentally. Its strength is in its resourceful and engaged citizens, who thrive together on the strength of the community's heritage, long-term commitment to the diversity of its people, and health of the mountain landscape" (Canmore MDP 2016, 1). Other plans, such as the City of North Vancouver (BC), reference resiliency in response to climate change: "In 2031, the City of North Vancouver will be a vibrant, diverse, and highly livable community that is resilient to climate or other changes, and sustainable in its ability to prosper without sacrifice to future generations" (North Vancouver (City) OCP 2014, 2). Owen Sound (ON) explicitly states that every decision will consider resiliency: "The City of Owen Sound is where you want to live. A complete community that values the natural environment, cultural diversity, historic streetscapes, vibrant waterfront and provides a sense of belonging. The City will plan to evolve as a centre for growth, opportunity and innovation while ensuring that equity, inclusion, diversity, sustainability, resiliency, and quality of life are considered in every decision" (Owen Sound OP, 4).

30% (n=51) of the plans include resilience in an overarching way through goals (anticipated achievement); overarching principles, pillars, and themes (decision-making frameworks); sections and subsections (distinct named parts of plans); values and

purpose (desired outcomes); and strategic directions or priority areas (actionable items or activities). Sections or subsections had the highest inclusion of resilience (n=27; 16%), followed by overarching and specific goals (n=19; 11%), and principles, pillars, and themes (n=17; 10%). Least common, but still important, were values and purpose (n=7; 5%) and strategic directions or priority areas (n=5; 3%). Some plans incorporate resilience within more than one overarching component. 20% (n=35) of plans include mentions of resilience but not as the primary focus while 50% (n=85) of plans include resilience with little context or relation to the rest of the plan, or as a specific policy, or objective.

For example, Argyle (NS) includes two resilience-related goals: “Increase the Diversity and Resilience of the Local Economy” and “Foster Resilient, Sustainable, and Distinct Communities” (Argyle MPS 2020, 11-12), while Sidney (BC) identifies “Goal 6. A healthy and resilient community that takes action to address climate change” (Sidney OCP 2022, 9). Economic resiliency was included as a specific section or subsection as well as in the table of contents of more than one plan, including Armstrong (BC), Richmond (BC), and Williams Lake (BC). Osoyoos (BC) also has a section dedicated to economic resiliency, the sole mention of resilience in the entire plan. Some plans, such as Barrie (ON), Huntsville, Nanaimo (BC), North Cowichan, Ottawa, Squamish (BC), and Vancouver, include a variety of overarching components. These local governments often incorporate resilience multiple times within the same component (e.g., Barrie has six subsections related to resilience: Sustainable and Resilient Design, Planning for Resilience, Community Resilience, Social and Economic Resilience, Resource Resilience, and Infrastructure Resilience; and Huntsville’s four pillars of resiliency: environmental, economic, social, infrastructure) and multiple times across components (e.g., Ottawa includes resilience within a subsection and strategic direction; and North Cowichan includes resilience in its purpose, sections, principles, and goals).

4.3 What topics are discussed in relation to resilience?

Of the 16 resilience categories identified through literature and data analysis (climate change; community and public; energy; food; future oriented; governance; hazards and disasters; Indigenous; infrastructure; land use and development; living areas; natural environment; planning; transportation; water; and working areas), no plan included all categories (see Figure 2 below). However, 74% (n=127) of the plans

reference more than one type of resilience. Nine local governments reference at least 75% of the categories: Oak Bay (BC) and Winnipeg (MB) reference 14 categories; Vancouver, Ottawa, and Whistler reference 13 categories; and Nanaimo, Okotoks (AB), North Cowichan, and Squamish reference 12 categories. Details of all 171 local governments can be found in Appendix A – Strategic Plan Details. The resilience categories with the highest inclusion in plans are: community and public (n=116; 68%), climate change (n=95; 56%), working areas (n=87; 51%), and natural environment (n=69; 40%). The least referenced are: water (n=10; 6%), followed by Indigenous (n=11; 6%) (see Figure 3 below).

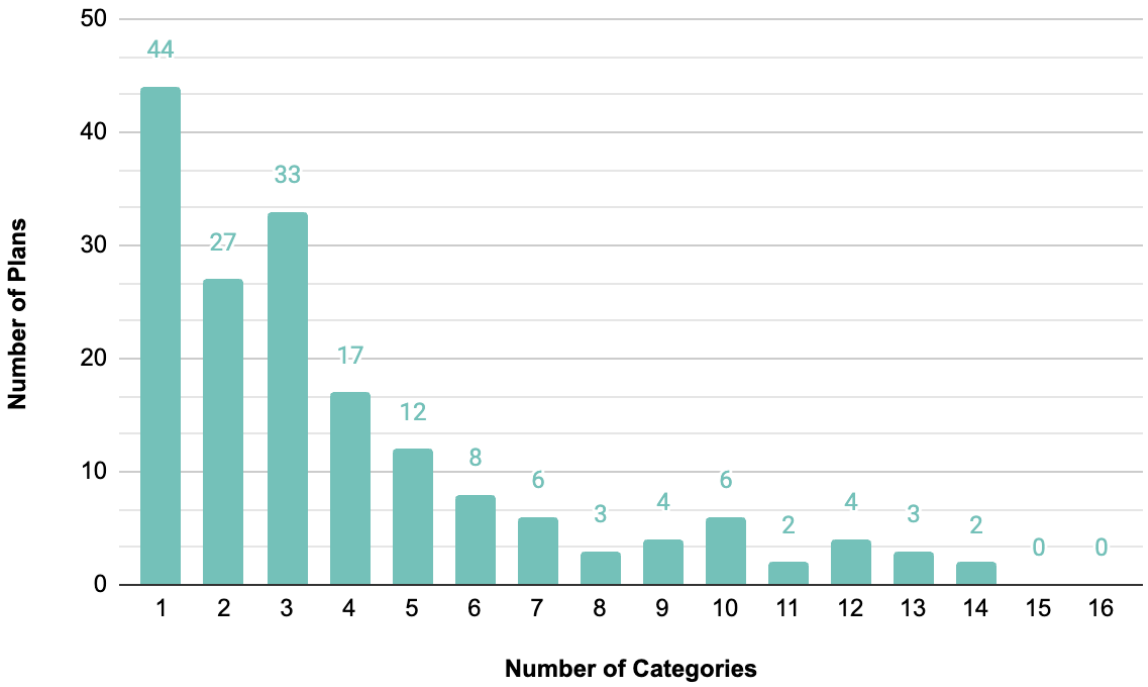

Figure 2. Frequency of resilience categories by number of plans.

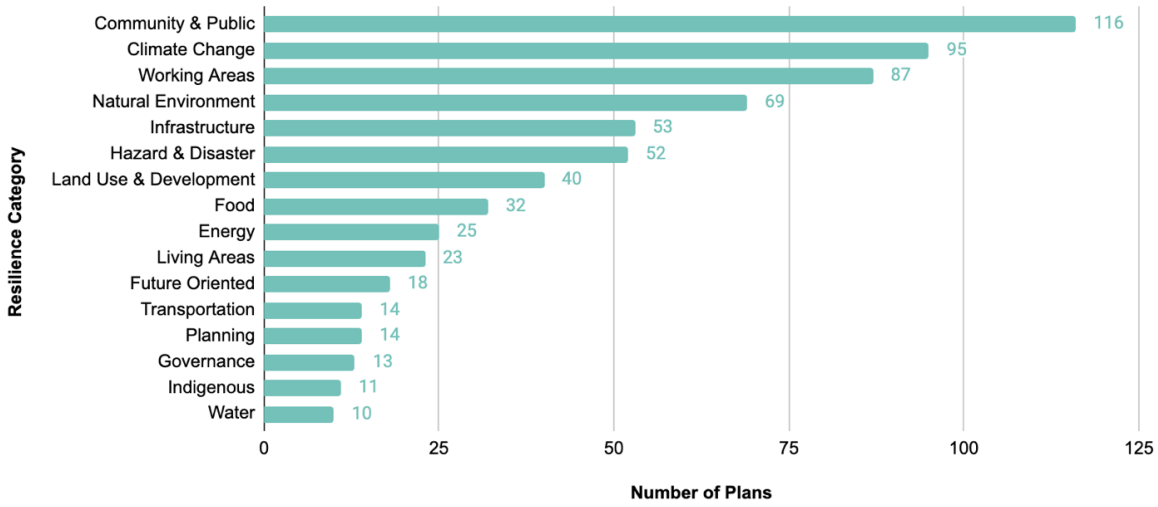

Figure 3. Resilience category by number of plans.

Each of these defined resilience categories have additional subcategories; that is, more specific applications of resilience when read in detail. A full list of categories and their corresponding subcategories can be seen in Appendix D – (Sub)Categories. Key findings from this category analysis are highlighted below starting with the most significant.

Community and Public: Resilience is referenced the most often and with the most depth with regards to the community and public category. Community resilience is often used to link multiple topics together, given that a resilient community can strengthen resilience in other areas. For example, Sooke (BC) has a goal to "Create a safe and resilient community for all" (Sooke OCP 2022, 51), which is supported by policy objectives pertaining to transportation; parks; trails; the health of land, air, and water; climate change impacts; infrastructure; recreation and community facilities; and community partners. It was also very common for local governments to state aspirations of achieving resilience as part of their identity. In each of these cases, it was categorized as community and public resilience since the local government is representative of the community members and general public. For example, Victoria (BC) aspires to be "a more sustainable and resilient city" (Victoria OCP 2012, 11), while Huntsville dedicates a section to becoming "a resilient Huntsville" (Huntsville OP 2019, 3).

Climate Change and Hazard/Disaster: Many plans state the need to be resilient to the impacts of climate change overall and/or to hazard and disaster events.

Climate change resilience is mentioned in 56% (n=95) of plans, while hazards and disasters were mentioned in 30% (n=52) of plans. While separate categories, these two are presented together because they are highly interconnected. Even though climate change is the second most referenced category, it is most often referenced in a very general sense. More specific impacts of climate change overlap with other defined categories or specific disasters (e.g., flooding, extreme heat, pandemic, sea level rise, seismic hazards, wildfire, etc.), which may be categorized as hazard/disaster. 25% (n=42) of plans reference both climate change and hazards/disasters. Emergency preparedness and risk management are subcategories where resilience is mentioned to be valuable in addressing climate change and hazards/disasters. For example, St. Albert (AB) dedicates a subsection to “Risk Management and Resiliency” (MDP 2021, 74).

Working Areas: This category represents resilience regarding the economy, jobs, businesses, commercial and industrial lands, and related subcategories. 51% (n=87) of plans mentioned resilience in these ways. The economic context is almost always local, but a few plans, such as North Vancouver (City) and Kitchener (ON), discuss resilience in the context of the global economy. While the economy is also most often applied in a general sense (e.g., a resilient economy), plans like Fort Saskatchewan (AB), Barrie, and North Cowichan identify specific economic disruptions or changes such as cycles, downturns, shifts, shocks, and stressors. Resilience is also commonly mentioned in relation to jobs and employment, including job security, diversification, general workforce, employment base, etc. Williams Lake dedicates a policy theme and section to ‘Resilient Economy’ (see Table 2 for definition), which outlines specific policies and objectives to achieve a resilient economy and references this topic throughout other parts of the strategic plan.

Natural Environment: The natural environment category was included in 40% (n=69) plans. Many local governments (e.g., Duncan (BC), Nanaimo, Ottawa, Vernon (BC)) reference broad concepts of ecosystems, the environment, and ecology, while sometimes mentioning related concepts such as ecosystem services, environmental health, and ecological assets. Environmental systems and networks also arose as being important to resilience and the natural environment. This is evident through subcategories including greenspace networks (Ottawa), natural systems (Martensville (SK) and North Vancouver (City)), and Natural Heritage Systems, which is a specific planning term used in Ontario (Barrie, Collingwood, County of Brant, Huntsville,

London). Trees, in particular, are commonly linked to resilience through subcategories such as community forests (Moncton (NB)), urban canopy (Sarnia), urban forest (LaSalle (ON), Lincoln (ON), Markham (ON), New Westminster (BC), Pitt Meadows (BC), Prince Albert (SK)), and tree canopy (Medicine Hat (AB), Nanaimo, Ottawa). Penticton (BC) dedicates a subsection of land use goals and policies to Environment and Resilience, which references resilience to natural hazards, protection and enhancement of natural areas, greenhouse gas emissions, energy use and production, water reduction, and waste management (OCP 2019).

Infrastructure: Infrastructure-related resilience is mentioned in 31% (n=53) of reviewed plans. Infrastructure involves elements such as municipal services, stormwater management, and utilities. Some plans specifically mention resilient infrastructure (Huntsville and Winnipeg), while others mention sustainable infrastructure while tying in resilience (Victoria). Drumheller (AB) dedicates an entire subsection to Flood Resilient Infrastructure.

Land Use & Development: Land use and development is mentioned in relation to resilience in 23% (n=40) of plans. This category comprises of subcategories such as buildings, development, and urban design, which often involve private property. Resilience in relation to land use and development is sometimes used to connect other categories, for example Huntsville linked land use and social resiliency: “Sensitive land uses include residential uses, institutional uses, parkland and open spaces, which should be protected from incompatible uses in order to ensure social resiliency” (OP, 173). Winnipeg and Barrie similarly link land use and urban design with climate resilience.

Food: Food and resilience are referenced together in 19% (n=32) of plans. Examples include mentions of food systems (e.g., Vernon, Nelson (BC), Castlegar (BC)), food supply (e.g., Esquimalt (BC), Vancouver), and food production (e.g., Huntsville, North Cowichan, Fernie (BC)).

Future Oriented: As plans were reviewed, it became clear that some local governments (n=18; 11%) look to resilience as part of a solution for tackling future uncertainties more generally across many categories. For example, Sidney mentions resilience regarding unpredictability; North Cowichan, North Vancouver (City), and

Surrey (BC) include resilience to address future challenges; and Whistler and Richmond (BC) reference resilience alongside external trends and challenges. Growth management is another subcategory regarding resilience. For example, Okotoks incorporates resiliency to climate events as being important for managing growth, and Dawson Creek includes a section called “Our Plan for Resiliency” which “describes how Dawson Creek will work towards resilience over the long term with respect to growth” (OCP 2018, 4).

Living Areas: Living areas and resilience appears in 13% (n=23) of plans involving subcategories such as neighbourhoods (e.g., Canmore, Wheatland County (AB)), residential areas (e.g., Vernon) and housing (e.g., Barrie, Cornwall (ON), Esquimalt, North Cowichan, Oak Bay, Oliver (BC), Ottawa, Sooke, Vancouver, Winnipeg).

Planning: Planning and specific resiliency actions are another way that resilience was identified (n=14; 8%). While planning is sometimes used in a general sense (e.g., planning for a resilient city), some local governments reference subordinate plans specific to resilience, such as Barrie’s Resiliency Strategy and Nanaimo’s Climate Resiliency Strategy. Specific types of planning are also important to resilience such as disaster resilience planning (Squamish), resiliency planning (Winnipeg), transportation planning (Victoria), and watershed planning (White Rock (BC)).

Other Trends: Resilience and governance-related topics appear in 8% (n=13) of plans and include topics such as city systems (Sarnia), municipal processes (North Cowichan), and partnerships with other jurisdictions (Dawson Creek). When resilience is mentioned alongside Indigenous topics (n=11; 6%) in plans, it is most often in reference to reconciliation or naming a specific First Nation(s) as being an important relationship to achieve resilience. For example, in their strategic plan (2022), Courtenay “commits to ongoing respectful government-to-government relationships with K’ómoks First Nation that nurtures trust and resiliency” (32). The categories of energy, transportation, and water are collectively included in only 15% (n=25) or less of plans. One example is Victoria’s plan that includes a subsection addressing Climate Change and Energy Resiliency with a focus on greenhouse gas reporting, climate change-related risk and vulnerability assessments, and mitigation and adaptation measures through an updated Climate and Energy Resiliency Plan.

5.0 Discussion

This analysis paper has been guided by the following research question: how is resilience incorporated into Canadian local governments' strategic planning documents? Results show that of the 171 plans analyzed, resilience is incorporated through a wide variety of methods, locations, and levels of detail. While many plans incorporate resilience, some plans excel more than others. Of all plans reviewed, some local governments' plans stood out from the rest; however, the way in which these plans stood out, did not follow a prescriptive format, and often varied depending on tactics used. The following 15 local governments' plans stood out (listed alphabetically): Barrie, ON; Duncan, BC; Huntsville, ON; Kelowna, BC; Nanaimo, BC; North Cowichan, BC; North Vancouver (City), BC; Oak Bay, BC; Okotoks, AB; Ottawa, ON; Squamish, BC; Vancouver; BC; Victoria, BC; Whistler, BC; and Winnipeg, MB. Some of these plans stood out by weaving resilience throughout their plan in the table of contents, the vision, and at least one overarching component; others included multiple comprehensive definitions of resilience; some included resilience using many different topics; finally, others presented information clearly through the design of the plan and using resilience-specific icons. The differences in how these local governments incorporated resilience in a meaningful way emphasizes the opportunities available to local governments to be creative and customize their plans. This comprehensive policy review is the largest of its kind, to the knowledge of the authors, and provides relevant guidance for practitioners of resilience planning.

This research found a strong relationship between the inclusion of resilience definitions and resilience being incorporated throughout the plan. Given the diversity of definitions and extensive evolution of resilience concepts over time (Meerow, Newell, and Stults 2016), strategic plans must clarify what is actually meant when referring to resilience. Definitions should be clear, digestible, easy to locate, and ideally include general and specific types of resilience to help mitigate "discursive confusion [that] may result in conflicting policy implementation in practice" (Tozer 2018, 177). This analysis shows that Huntsville uses resilience intentionally and comprehensively as their plan includes a general definition of resilience, as well as four specific definitions (economy, environment, social, and infrastructure) located at the beginning of relevant sections.

Having multiple definitions of resilience is important because resilience has the capability to perform as a boundary object that is malleable and can link multiple concepts and disciplines to improve engagement and collaboration among diverse stakeholders (Meerow, Newell, and Stults 2016; Moser et al., 2019; Woodruff et al., 2018). This is well suited for use by planners, who can use resilience to work across systems, sectors, and disciplines. This holistic approach is necessary to tackle the complex problems urban environments face today, especially with the increasing severity of impacts from climate change. This research found that, given the transdisciplinary and transboundary nature of resilience and strategic planning (Graham and Mitchell 2016), local governments that applied resilience across the 16 categories analyzed were also more successful at meaningfully incorporating resilience.

As previously mentioned, there are no standardized templates for how local governments must create their strategic plans in Canada. While this makes analysis of plans more difficult, it also provides opportunities for local governments to customize plans and incorporate resilience for each context (i.e., the needs and desires) of those being planned for in creative ways. Further, there are important considerations for making plans accessible. Guyadeen et al. (2023) emphasize that “having an easy to understand and engaging plan” (2) is important for high quality plans, while Stevens (2013) argues that “[plans] should be written and organized in such a way as to maximize their readability, interpretability, and user-friendliness” (473). Design techniques can be used to improve the readability (Guyadeen et al. 2023) so that resilience content is well organized. This is important for meaningful incorporation of resilience because it allows the reader, and those implementing the vision and actions, to understand the intent of the plan. Huntsville and Oak Bay’s plans were organized and designed in an easy-to-follow way and linking together important concepts of resilience. For example, Oak Bay’s plan included resilience icons as visual cues, and Huntsville’s plan had four pillars of resilience that were meaningfully incorporated throughout.

Plans’ visions are also integral to meaningful incorporation of resilience. As strategic plans are forward thinking documents, visions have the ability to summarize the aspirations of the entire plan upfront. “[Strategic] planning ‘creates’ a vision for the future environment” that works to validate values through collective experience and “invent a world that would not otherwise be” (Albrechts 2004, 750). When resilience is included in a plan’s vision, it can be used as a lens (or guiding light) through which to view all other

parts of the plan and thus, effectively operationalizing resilience. With this type of approach, decision-makers can evaluate action implementation and conflicting priorities and resources against the desired future described in the vision.

This study has shown that while there are clear methods of prioritizing resilience for meaningful incorporation in strategic plans - including defining resilience, incorporating resilience throughout the plan, connecting to a variety of resilience categories, and presenting information through clear design - intentional and creative incorporation must also be conducted.

6.0 Conclusion

This research analyzed 171 local governments' strategic plans to examine the inclusion of resilience and its related topics. 21% (n=36) of plans include definitions of resilience with general and specific definitions being nearly equally represented. 18% (n=31) of plans explicitly include resilience in the table of contents, 26% (n=44) include resilience in the vision, and 30% (n=51) of the plans include resilience through overarching plan components. Of the 16 categories of resilience identified, community and public resilience is the most frequently incorporated category. Other commonly mentioned categories include climate change, working areas, and the natural environment. The built environment, including infrastructure and land use, also receive significant attention.

Overall, this study presents how resilience is defined, where resilience is located, and what resilience topics are discussed to determine meaningful incorporation of resilience in Canadian strategic plans, thus providing practitioners with empirical data to understand how to better operationalize resilience. To meaningfully incorporate resilience, strategic plans must define general and specific uses of resilience, incorporate it throughout the plan by embedding resilience in overarching components, connect to a variety of resilience topics, and present information in an organized way. These approaches prioritize resilience within strategic plans and must be applied with creativity according to the specific context of the local government.

This research used the Canadian Geographical Names Data list as of June 2022 and strategic plans were collected until February 2023 (including only those from 2010 onwards); however, as plans are often updated and reviewed every five to ten years, the specific results only represent a moment in time. As resilience becomes further embedded within Canadian strategic plans, it would be worthwhile to examine newer plans to determine if progress in meaningful incorporation and operationalization of resilience is being achieved. Future studies of strategic plans should also include plans that are written in French and additional analysis parameters such as income, equity and justice, and political context (such as provincial mandates). While this study focused on settler colonial perspectives, Indigenous worldviews should also be considered as resilience planning progresses.

References

Adger, W. Neil. 2003. “Building Resilience to Promote Sustainability.” *IHDP Update, International Human Dimensions Programme on Global Environmental Change*, February 1.

Ahern, Jack. 2011. “From Fail-Safe to Safe-to-Fail: Sustainability and Resilience in the New Urban World.” *Landscape and Urban Planning* 100 (4). Amsterdam: Elsevier BV: 341–43. doi:10.1016/j.landurbplan.2011.02.021.

Ahern, Jack. 2013. “Urban Landscape Sustainability and Resilience: The Promise and Challenges of Integrating Ecology with Urban Planning and Design.” *Landscape Ecology* 28 (6). Dordrecht: Springer Netherlands: 1203–12. doi:10.1007/s10980-012-9799-z.

Albrechts, Louis. 2004. “Strategic (Spatial) Planning Reexamined.” *Environment and Planning. B, Planning & Design.*, Environment and Planning B: Planning and Design, 31 (5). London, England: SAGE Publications: 743–58. doi:10.1068/b3065.

Albrechts, Louis, and Alessandro Balducci. 2013. “Practicing Strategic Planning: In Search of Critical Features to Explain the Strategic Character of Plans.” *DisP - The Planning Review* 49 (3). Routledge: 16–27. doi:10.1080/02513625.2013.859001.

Albrechts, Louise. “Some Ontological and Epistemological Challenges.” In *Situated Practices of Strategic Planning: An International Perspective*, edited by Albrechts, Louise, Alessandro Balducci, and Jean Hillier, 1-11. London: Routledge, 2016.

Alibasic, Haris. 2018. *Sustainability and Resilience Planning for Local Governments: The Quadruple Bottom Line Strategy*. Sustainable Development Goals Series. Cham: Springer International Publishing AG. doi:10.1007/978-3-319-72568-0.

Balducci, Alessandro. 2020. “Planning for Resilience.” In Risk and Resilience: Socio-Spatial and Environmental Challenges, edited by Alessandro Balducci, Daniele Chiffi, and Francesco Curci, 15-25. Cham: Springer International Publishing.

Beheshtian, Arash, Kieran P. Donaghy, H. Oliver Gao, Sahar Safaie, and Richard Geddes. 2018. “Impacts and Implications of Climatic Extremes for Resilience Planning of Transportation Energy: A Case Study of New York City.” *Journal of Cleaner Production* 174. Elsevier Ltd: 1299–1313. doi:10.1016/j.jclepro.2017.11.039.

Béné, Christophe, Lyla Mehta, Gordon McGranahan, Terry Cannon, Jaideep Gupte, and Thomas Tanner. 2018. “Resilience as a Policy Narrative: Potentials and Limits in the Context of Urban Planning.” *Climate and Development* 10 (2). Taylor & Francis: 116–33. doi:10.1080/17565529.2017.1301868.

Bonnett, Nicole L., and S. Jeff Birchall. 2023. “The Influence of Regional Strategic Policy

on Municipal Climate Adaptation Planning." *Regional Studies* 57 (1). Cambridge: Routledge: 141–52. doi:10.1080/00343404.2022.2049224.

Chelleri, Lorenzo, James J Waters, Marta Olazabal, and Guido Minucci. 2015. "Resilience Trade-Offs: Addressing Multiple Scales and Temporal Aspects of Urban Resilience." *Environment and Urbanization* 27 (1). SAGE Publications Ltd: 181–98. doi:10.1177/0956247814550780.

Christensen, Karen S. 1985. "Coping with Uncertainty in Planning." *Journal of the American Planning Association* 51 (1). Washington, D.C: Taylor & Francis Group: 63–73. doi:10.1080/01944368508976801.

Coaffee, Jon. 2013. "Towards Next-Generation Urban Resilience in Planning Practice: From Securitization to Integrated Place Making." *Planning Practice & Research* 28 (3). Routledge: 323–39. doi:10.1080/02697459.2013.787693.

Coaffee, Jon, Marie-Christine Therrien, Lorenzo Chelleri, Daniel Henstra, Daniel P. Aldrich, Carrie L. Mitchell, Sasha Tsenkova, Éric Rigaud, and The Participants. 2018. "Urban Resilience Implementation: A Policy Challenge and Research Agenda for the 21st Century." *Journal of Contingencies and Crisis Management* 26 (3): 403–10. doi:10.1111/1468-5973.12233.

Croese, Sylvia, Cayley Green, and Gareth Morgan. 2020. "Localizing the Sustainable Development Goals Through the Lens of Urban Resilience: Lessons and Learnings from 100 Resilient Cities and Cape Town." *Sustainability* 12 (2). Basel: MDPI AG: 550-. doi:10.3390/su12020550.

Datola, Giulia. 2023. "Implementing Urban Resilience in Urban Planning: A Comprehensive Framework for Urban Resilience Evaluation." *Sustainable Cities and Society* 98: 104821. doi:10.1016/j.scs.2023.104821.

Davoudi, Simin, Keith Shaw, L. Jamila Haider, Allyson Quinlan, Garry Peterson, Cathy Wilkinson, Hartmut Funfheld, Darryn Mcevoy, Libby Porter, and Simin Davoudi. 2012. "Resilience: A Bridging Concept or a Dead End? 'Reframing' Resilience: Challenges for Planning Theory and Practice Interacting Traps: Resilience Assessment of a Pasture Management System in Northern Afghanistan Urban Resilience: What Does It Mean in Planning Practice? Resilience as a Useful Concept for Climate Change Adaptation? The Politics of Resilience for Planning: A Cautionary Note." *Planning Theory & Practice* 13 (2): 299–333. doi:10.1080/14649357.2012.677124.

Elmqvist, Thomas, Erik Andersson, Niki Frantzeskaki, Timon McPhearson, Per Olsson, Owen Gaffney, Kazuhiko Takeuchi, and Carl Folke. 2019. "Sustainability and Resilience for Transformation in the Urban Century." *Nature Sustainability* 2 (4). Nature Publishing Group: 267–73. doi:10.1038/s41893-019-0250-1.

Evans, J P. 2011. "Resilience, Ecology and Adaptation in the Experimental City." *Transactions of the Institute of British Geographers* 36 (2): 223–37. doi:10.1111/j.1475-5661.2010.00420.x.

Filho, Walter Leal, Abdul-Lateef Balogun, Olawale Emmanuel Olayide, Ulisses M.

Azeiteiro, Desalegn Y. Ayal, Pastor David Chavez Muñoz, Gustavo J. Nagy, et al. 2019. “Assessing the Impacts of Climate Change in Cities and Their Adaptive Capacity: Towards Transformative Approaches to Climate Change Adaptation and Poverty Reduction in Urban Areas in a Set of Developing Countries.” *The Science of the Total Environment* 692. Elsevier BV: 1175–90. doi:10.1016/j.scitotenv.2019.07.227.

Fitzgibbons, Joanne, and Carrie L. Mitchell. 2019. “Just Urban Futures? Exploring Equity in ‘100 Resilient Cities.’” *World Development* 122. Oxford: Elsevier Ltd: 648–59. doi:10.1016/j.worlddev.2019.06.021.

Fitzgibbons, Joanne, and Carrie L. Mitchell. 2021. “Inclusive Resilience: Examining a Case Study of Equity-Centred Strategic Planning in Toronto, Canada.” *Cities* 108. Kidlington: Elsevier Ltd: 102997-. doi:10.1016/j.cities.2020.102997.

Folke, Carl, Stephen Carpenter, Brian Walker, Marten Scheffer, Terry Chapin, and Johan Rockström. 2010. “Resilience Thinking: Integrating Resilience, Adaptability and Transformability.” *Ecology and Society* 15 (4). The Resilience Alliance. doi:10.5751/ES-03610-150420.

Folke, Carl, Stephen Polasky, Johan Rockström, Victor Galaz, Frances Westley, Michèle Lamont, Marten Scheffer, et al. 2021. “Our Future in the Anthropocene Biosphere.” *Ambio* 50 (4). Dordrecht: Springer Netherlands: 834–69. doi:10.1007/s13280-021-01544-8.

Galderisi, Adriana, Giada Limongi, and Konstantina-Dimitra Salata. 2020. “Strengths and Weaknesses of the 100 Resilient Cities Initiative in Southern Europe: Rome and Athens’ Experiences.” *City, Territory and Architecture* 7 (1). Berlin/Heidelberg: Springer Berlin Heidelberg: 1–22. doi:10.1186/s40410-020-00123-w.

Graham, Alexandra, and Carrie L. Mitchell. 2016. “The Role of Boundary Organizations in Climate Change Adaptation from the Perspective of Municipal Practitioners.” *Climatic Change* 139 (3–4). Dordrecht: Springer Netherlands: 381–95. doi:10.1007/s10584-016-1799-6.

Guyadeen, Dave, Daniel Henstra, Shivani Kaup, and Grace Wright. 2023. “Evaluating the Quality of Municipal Strategic Plans.” *Evaluation and Program Planning* 96 (February): 102186. doi:10.1016/j.evalprogplan.2022.102186.

Hodge, Gerald, David L. A. Gordon, and Pamela Shaw. 2021. *Planning Canadian Communities: An Introduction to the Principles, Practices, and Participants in the 21st Century.* Seventh edition. Nelson Education.

Kythreotis, Andrew, and Gillian Bristow. 2016. “The ‘Resilience Trap’: Exploring the Practical Utility of Resilience for Climate Change Adaptation in UK City-Regions.” *Regional Studies* 51 (July): 1–12. doi:10.1080/00343404.2016.1200719.

Leichenko, Robin. 2011. “Climate Change and Urban Resilience.” *Current Opinion in Environmental Sustainability* 3 (3): 164–68. doi:10.1016/j.cosust.2010.12.014.

Lu, Peiwen, and Dominic Stead. 2013. “Understanding the Notion of Resilience in

Spatial Planning: A Case Study of Rotterdam, The Netherlands." *Cities* 35. Elsevier Ltd: 200–212. doi:10.1016/j.cities.2013.06.001.

Meerow, Sara, Joshua P. Newell, and Melissa Stults. 2016. "Defining Urban Resilience: A Review." *Landscape and Urban Planning* 147 (March): 38–49. doi:10.1016/j.landurbplan.2015.11.011.

Meerow, Sara, Pani Pajouhesh, and Thaddeus R. Miller. 2019. "Social Equity in Urban Resilience Planning." *Local Environment* 24 (9). Abingdon: Routledge: 793–808. doi:10.1080/13549839.2019.1645103.

Meerow, Sara, and Melissa Stults. 2016. "Comparing Conceptualizations of Urban Climate Resilience in Theory and Practice." *Sustainability (Basel, Switzerland)* 8 (7). MDPI AG: 701-. doi:10.3390/su8070701.

Moloney, Susie, and Andreanne Doyon. 2021. "The Resilient Melbourne Experiment: Analyzing the Conditions for Transformative Urban Resilience Implementation." *Cities* 110. Elsevier Ltd: 103017-. doi:10.1016/j.cities.2020.103017.

Moser, Susanne, Sara Meerow, James Arnott, and Emily Jack-Scott. 2019. "The Turbulent World of Resilience: Interpretations and Themes for Transdisciplinary Dialogue." *Climatic Change* 153 (1–2). Dordrecht: Springer Netherlands: 21–40. doi:10.1007/s10584-018-2358-0.

Plant, Thomas. 2009. "Strategic Planning for Municipalities: Ensuring Progress and Relevance: Strategic Planning for Municipalities." *Performance Improvement (International Society for Performance Improvement)* 48 (5): 26–35. doi:10.1002/pfi.20076.

Ruming, Kristian. 2018. *Urban Regeneration in Australia: Policies, Processes and Projects of Contemporary Urban Change*. Milton: Taylor and Francis. doi:10.4324/9781315548722.

Schön, Donald A. 1971. *Beyond the Stable State.* Random House.

Sellberg, M. M., P. Ryan, S. T. Borgström, A. V. Norström, and G. D. Peterson. 2018. "From Resilience Thinking to Resilience Planning: Lessons from Practice." *Journal of Environmental Management* 217 (July): 906–18. doi:10.1016/j.jenvman.2018.04.012.

Shaw, Keith, and Louise Maythorne. 2013. "Managing for Local Resilience: Towards a Strategic Approach." *Public Policy and Administration* 28 (1). London, England: SAGE Publications: 43–65. doi:10.1177/0952076711432578.

Smit, Barry, and Johanna Wandel. 2006. "Adaptation, Adaptive Capacity and Vulnerability." *Global Environmental Change* 16 (3). Elsevier Ltd: 282–92. doi:10.1016/j.gloenvcha.2006.03.008.

Spaans, Marjolein, and Bas Waterhout. 2017. "Building up Resilience in Cities Worldwide – Rotterdam as Participant in the 100 Resilient Cities Programme." *Cities* 61. Kidlington: Elsevier Ltd: 109–16. doi:10.1016/j.cities.2016.05.011.

Stevens, Mark R. 2013. “Evaluating the Quality of Official Community Plans in Southern British Columbia.” *Journal of Planning Education and Research* 33 (4). Los Angeles, CA: SAGE Publications: 471–90. doi:10.1177/0739456X13505649.

Tozer, Laura. 2018. “Urban Climate Change and Sustainability Planning: An Analysis of Sustainability and Climate Change Discourses in Local Government Plans in Canada.” *Journal of Environmental Planning and Management* 61 (1). 176–194. doi: 10.1080/09640568.2017.1297699

Wagenaar, Hendrik, and Cathy Wilkinson. 2015. “Enacting Resilience: A Performative Account of Governing for Urban Resilience.” *Urban Studies* 52 (7). SAGE Publications Ltd: 1265–84. doi:10.1177/0042098013505655.

Walker, B. H., and David Salt. 2006. *Resilience Thinking: Sustaining Ecosystems and People in a Changing World / Brian Walker and David Salt; Foreword by Walter Reid.* Island Press.

Wilkinson, Cathy. 2011. “Strategic Navigation: In Search of an Adaptable Mode of Strategic Spatial Planning Practice.” *The Town Planning Review* 82 (5). Liverpool University Press: 595–613.

Woodruff, Sierra C., Sara Meerow, Missy Stults, and Chandler Wilkins. 2018. “Adaptation to Resilience Planning: Alternative Pathways to Prepare for Climate Change.” *Journal of Planning Education and Research*, October. SAGE Publications Inc, 0739456X18801057. doi:10.1177/0739456X18801057.

Yamagata, Yoshiki, and Ayyoob Sharifi. 2018. *Resilience-Oriented Urban Planning: Theoretical and Empirical Insights*. Vol. 65. Lecture Notes in Energy. Cham: Springer International Publishing AG. doi:10.1007/978-3-319-75798-8.

Appendix A. Strategic Plan Details.

Geographical Name	Province - Territory	Population (2021)	Plan Year (orig.)	Resilience Count (adjusted)	# of Resilience Categories Mentioned
Abbotsford	British Columbia	153,524	2016	5	5
Airdrie	Alberta	77,027	2014	5	2
Antigonish (Town)	Nova Scotia	4,656	2020	2	2
Argyle	Nova Scotia	7,670	2020	7	3
Armstrong	British Columbia	5,323	2014	10	3
Arnprior	Ontario	9,629	2017	1	1
Aurora	Ontario	62,057	2010	1	1
Barrie	Ontario	147,829	2022	45	11
Beaumont	Alberta	21,106	2019	11	5
Bradford West Gwillimbury	Ontario	42,880	2021	8	5
Brantford	Ontario	104,688	2021	1	1
Brazeau County	Alberta	7,179	2011	1	1
Bridgewater	Nova Scotia	8,790	2014	1	1
Brockville	Ontario	22,293	2021	4	3
Brooks	Alberta	14,671	2019	2	1
Burlington	Ontario	186,948	2018	7	5
Caledon	Ontario	76,581	2010	1	2
Cambridge	Ontario	138,479	2012	2	2

Campbell River	British Columbia	35,519	2012	9	3
Camrose (City)	Alberta	19,532	2011	1	1
Canmore	Alberta	15,990	2016	9	4
Castlegar	British Columbia	8,338	2011	8	4
Chester	Nova Scotia	10,693	2019	2	2
Chilliwack	British Columbia	100,580	2014	4	4
City of West Kelowna	British Columbia	38,311	2011	2	3
Cold Lake	Alberta	15,165	2021	2	2
Coldstream	British Columbia	11,171	2016	2	3
Collingwood	Ontario	24,811	2022	8	4
Colwood	British Columbia	18,961	2018	4	4
Comox	British Columbia	9,158	2011	2	2
Conception Bay South	Newfoundland and Labrador	27,168	2012	1	3
Corner Brook	Newfoundland and Labrador	19,333	2013	1	2
Cornwall, PEI	Prince Edward Island	6,574	2022	6	5
Cornwall, ON	Ontario	47,845	2017	1	1
County of Brant	Ontario	39,474	2022	15	5
County of Wetaskiwin No. 10	Alberta	11,212	2022	5	3
Courtenay	British Columbia	63,300	2022	20	9
Creston	British Columbia	5,583	2017	8	4
Crowsnest Pass	Alberta	5,663	2021	6	3

Cumberland	Nova Scotia	30,538	2018	1	1
Cypress County	Alberta	7,524	2021	7	4
Dawson Creek	British Columbia	12,323	2018	18	9
Devon	Alberta	6,632	2017	4	3
Drumheller	Alberta	7,945	2020	34	8
Duncan	British Columbia	5,047	2022	17	10
East Gwillimbury	Ontario	34,637	2010	1	1
Edmonton	Alberta	1,010,899	2010	7	1
Edmundston	New Brunswick	16,437	2019	1	1
Espanola	Ontario	5,185	2017	2	2
Esquimalt	British Columbia	17,533	2018	7	5
Fernie	British Columbia	6,320	2014	12	5
Fort Saskatchewan	Alberta	27,088	2021	21	8
Fort St. John	British Columbia	21,465	2017	7	4
Fredericton	New Brunswick	63,116	2020	10	5
Georgina	Ontario	47,642	2016	4	2
Grand Falls-Windsor	Newfoundland and Labrador	13,853	2021	4	1
Gravenhurst	Ontario	13,157	2016	1	1
Hearst	Ontario	4,794	2017	3	3
Hinton	Alberta	10,077	2017	1	1
Hope	British Columbia	6,686	2016	2	3

Humboldt	Saskatchewan	6,033	2016	1	1
Huntsville	Ontario	21,147	2019	78	9
Kamloops	British Columbia	97,902	2018	9	2
Kelowna	British Columbia	144,576	2022	45	10
Kentville	Nova Scotia	6,630	2019	1	1
Kings	Nova Scotia	62,914	2019	4	3
Kingston	Ontario	132,485	2010	10	6
Kitchener	Ontario	256,885	2014	2	1
Labrador City	Newfoundland and Labrador	7,412	2018	2	1
Lac La Biche	Alberta	8,155	2022	3	2
Lacombe County	Alberta	10,283	2017	2	4
Lake Country	British Columbia	15,817	2018	1	1
LaSalle	Ontario	32,721	2018	5	3
Leamington	Ontario	29,680	2021	3	3
Leduc	Alberta	14,907	2020	3	3
Leduc County	Alberta	14,416	2019	4	1
Lethbridge	Alberta	101,799	2021	18	7
Lethbridge County	Alberta	10,120	2022	1	1
Lincoln	Ontario	25,719	2014	6	4
Lloydminster, AB	Alberta	20,204	2013	1	1
London	Ontario	422,324	2016	15	11

Maple Ridge	British Columbia	90,990	2014	9	2
Markham	Ontario	338,503	2013	5	3
Martensville	Saskatchewan	10,549	2021	12	6
Marystown	Newfoundland and Labrador	5,204	2019	2	1
Medicine Hat	Alberta	65,203	2020	10	7
Merritt	British Columbia	7,051	2022	15	5
Midland	Ontario	17,817	2019	9	3
Miramichi	New Brunswick	17,692	Newer than 2010 but exact date unknown	5	2
Mission	British Columbia	41,519	2018	1	1
Mississauga	Ontario	717,961	2010	4	3
Moncton	New Brunswick	79,470	Newer than 2010 but exact date unknown	2	3
Morinville	Alberta	10,442	2012	2	1
Municipal District of Big Lakes No. 125	Alberta	4,986	2010	2	1
Municipal District of Westlock No. 92	Alberta	7,186	2016	1	1
Nanaimo	British Columbia	90,504	2022	46	12
Nelson	British Columbia	11,106	2013	11	4
New Westminster	British Columbia	78,916	2017	14	7
Niagara-on-the-Lake	Ontario	19,088	2019	3	3
North Cowichan	British Columbia	31,990	2022	46	12
North Vancouver (City)	British Columbia	58,120	2014	35	10

North Vancouver (District)	British Columbia	91,790	2011	10	3
Oak Bay	British Columbia	17,990	2014	15	14
Okotoks	Alberta	31,413	2021	53	12
Olds	Alberta	9,577	2021	1	1
Oliver	British Columbia	5,094	2017	2	3
Orangeville	Ontario	30,167	2021	5	4
Osoyoos	British Columbia	5,556	2021	1	1
Ottawa	Ontario	1,017,449	2021	70	13
Owen Sound	Ontario	21,612	2021	3	2
Parksville	British Columbia	13,642	2013	2	2
Peachland	British Columbia	5,789	2018	2	1
Penetanguishene	Ontario	10,077	2018	1	1
Penticton	British Columbia	36,885	2019	12	6
Pitt Meadows	British Columbia	19,146	2022	15	7
Port Moody	British Columbia	33,535	2014	5	3
Powell River	British Columbia	13,942	2014	4	3
Prince Albert	Saskatchewan	37,756	2015	3	3
Prince Edward	Ontario	25,704	2021	3	4
Prince George	British Columbia	76,708	2011	13	6
Prince Rupert	British Columbia	12,220	2021	11	6
Qualicum Beach	British Columbia	9,303	2018	6	3
Quesnel	British Columbia	9,889	2019	4	5

Quispamsis	New Brunswick	18,768	2018	3	1
Redcliff	Alberta	5,866	2019	1	1
Regina	Saskatchewan	226,404	2013	4	3
Richmond, BC	British Columbia	209,937	2012	5	2
Richmond Hill	Ontario	202,022	2010	20	7
Rocky Mountain House	Alberta	6,302	2021	6	3
Rocky View County	Alberta	41,028	2021	4	2
Rothesay	New Brunswick	11,977	2021	6	4
Saint John	New Brunswick	69,895	2012	3	2
Sarnia	Ontario	72,047	2014	7	5
Saskatoon	Saskatchewan	266,141	2020	11	1
Sault Ste Marie	Ontario	72,051	2022	7	4
Sidney	British Columbia	12,318	2022	24	8
Sioux Lookout	Ontario	5,839	2018	1	1
Smithers	British Columbia	5,378	2010	5	2
Sooke	British Columbia	15,086	2022	18	10
Spallumcheen	British Columbia	5,307	2011	2	1
Spruce Grove	Alberta	39,607	2016	10	2
Squamish	British Columbia	23,819	2018	35	12
St. Albert	Alberta	69,789	2021	18	6
St. John's	Newfoundland and Labrador	110,525	2021	2	1

Stony Plain	Alberta	18,371	2020	3	1
Strathcona County	Alberta	99,225	2017	6	2
Sturgeon County	Alberta	20,061	2014	3	2
Surrey	British Columbia	568,322	2014	14	10
Sylvan Lake	Alberta	16,354	2014	3	2
Tecumseh	Ontario	23,300	2021	3	3
Terrace	British Columbia	14,633	2018	4	1
Timmins	Ontario	41,145	2010	1	1
Vancouver	British Columbia	662,248	2022	85	13
Vaughan	Ontario	323,103	2010	1	1
Vegreville	Alberta	5,673	2012	1	1
Vernon	British Columbia	44,519	2013	13	7
Victoria (City)	British Columbia	91,867	2012	28	10
View Royal	British Columbia	11,575	2011	3	3
West Vancouver	British Columbia	44,122	2018	20	6
Weyburn	Saskatchewan	11,019	2020	2	2
Wheatland County	Alberta	8,738	2013	2	2
Whistler	British Columbia	13,982	2020	24	13
White Rock	British Columbia	21,939	2017	3	4
Whitehorse	Yukon	28,201	2022	9	4
Williams Lake	British Columbia	10,947	2011	21	6
Winnipeg (City)	Manitoba	749,607	2022	36	14

Wolfville	Nova Scotia	5,057	2020	17	9
Yarmouth (Town)	Nova Scotia	6,829	2016	1	1
Yellowhead County	Alberta	10,426	2013	2	2
Yellowknife	Northwest Territories	20,340	2020	3	3
Yorkton	Saskatchewan	16,280	2014	6	3

Appendix B. Resilience Mention Categorization.

Local Government	Resilience Topics	Natural Environment	Living Areas	Working Areas	Community & Public	Transportation	Climate Change	Disaster / Hazard	Energy	Food	Future Oriented	Governance	Indigenous	Infrastructure	Land Use & Development	Planning	Water
Abbotsford	economy; convervation; climate change & disaster; stormwater	x		x			x	x						x			
Airdrie	community; economy			x	x												
Antigonish (Town)	flood resilient parks, flood- resilient trails	x						x									
Argyle	community; identity; economy; environmental	x		x	x												
Armstrong	economy; ecosystems; community	x		x	x												
Arnprior	energy conservation								x								
Aurora	climate change						x										

Barrie	urban design; planning; community; social and economic; resource; infrastructure; embracing and managing growth; planning for a resilient city; identity; Natural Heritage System; climate re: land use and asset mgmt; climate resili re: land use and natural heritage system; Resilient City policies; urban design standards; Design for climate resiliency; building and landscape design; sustainable and resilient design; climate change impacts; planning	x	x	x	x		x			x	x	x		x	x	x	

	for resilience; climate and economic resili re: circular economy; socially resilient community; economic re: changing labour needs; community resilience; community re: climate change mitigation; community re: design elements to mitigate climate change impacts; social and economic resili re: food security; social and economic resili re: housing options; social and economic re affordable housing; economic re: diverse workforce;																

	economic re home occupations throughout neighbourhoods; resource resilience; infra resili; economic shifts; employment land base; Resiliency strategy;																	
Beaumont	community; developments re: climate change; transportation system; climate change re: floodplain and wetland management; climate change	x			x	x	x									x		
Bradford West Gwillimbury	infrastructure; ecological footprint; community re: climate change; community/ sustainability; urban farming	x			x		x			x					x			

Brantford	climate change						x											
Brazeau County	economy			x														
Bridgewater	stormwater system														x			
Brockville	climate; infrastructure; economic change			x			x								x			
Brooks	economy			x														
Burlington	identity; community re: climate change; infrastructure; flooding and erosion; climate change re: food and agri				x		x	x		x					x			
Caledon	ecosystems + climate change	x					x											
Cambridge	natural environments to support wildlife, employment base	x		x														
Campbell River	community; economic; "systems of communication			x	x									x				

	with First Nations"; food and agri																	
Camrose (City)	economy (local)			x														
Canmore	community; economy; neighbourhoods; climate change		x	x	x		x											
Castlegar	community; community re: climate change; economy; food system			x	x		x			x								
Chester	identity ("resilient municipality"); economic development			x	x													
Chilliwack	community; economy re: labour force; environment & biodiversity; flood protection	x		x	x			x										
City of West Kelowna	community & economic; agriculture			x	x					x								

Cold Lake	wastewater / sanitary system; economic conditions			x										x				
Coldstream	community re: climate change; economy			x	x		x											
Collingwood	Natural Heritage System; communities re: climate change; development; environmental	x			x		x								x			
Colwood	resilient community, sea level rise & natural disasters; climate change (shoreline and marine habitats); aquatic ecosystems; sensitive ecosystems	x			x		x	x										
Comox	community; local economy			x	x													

Conception Bay South	community re: climate change and hazards				x		x	x										
Corner Brook	climate change (re: "the utilization of energy efficiency, renewable energy sources, groundwater protection, reduced water consumption, and storm water management for the purpose of groundwater recharge.")						x							x				
Cornwall, ON	climate change re: infrastructure; community; climate change re: housing; identity; development re: climate change		x		x		x							x	x			
Cornwall, PEI	climate change						x											

County of Brant	climate change; identity; economy; climate change re: Natural Heritage System; public spaces; community; infrastructure; woodlands and vegetation	x		x	x		x							x			
County of Wetaskiwin No. 10	identity; economy; agricultural economy; energy supply			x	x				x								
Courtenay	economic resources; community-wide resili; community; "ongoing respectful government-to-government relationships with K'ómoks First Nation that nurtures trust and resiliency"; neighbourhoods; community re: buildings and		x	x	x		x	x		x			x	x	x		

	landscape; risks and impacts of climate change; infrastructure and services; neighbourhood and community organizing; food systems; community; resilience assessments re: climate change; community involvement with food systems; local economy re: climate change; development and property maintenance resili to hazard risk;																	
Creston	community; natural assets & infrastructure; the OCP; climate	x			x		x										x	

Crowsnest Pass	community; ecosystem; stormwater system	x			x									x			
Cumberland	tidal energy								x								
Cypress County	community; economy; climate change; flooding			x	x		x	x									
Dawson Creek	community; "Dawson Creek will work towards resilience over the long term with respect to growth, economic development, fiscal sustainability and the creation and nurturing of effective partnerships with other jurisdictions; resilient friendship between Canada and USA (re: highway			x	x	x	x	x	x	x	x	x					

	construction); economically resilient community; community resilience re: partnerships between local govt; community resilience re: emergency mgmt and extreme weather events; infra re: climate; community resili re: future climate risks; decision making re: climate; climate resilience planning & collaboration; community resili re: food/energy/water security; community re: climate resili; climate and emergency access/egress re: transportation																	

Devon	economic; community design; infrastructure			x											x	x		
Drumheller	development; flood; flood infra; Drumheller's assets; flood mitigation infra and land use planning re: climate change; flood resilience; identity; land use / development re: flooding; flood; future development re: flooding; community re: flood mitigation from climate change; flood protection policy; flood; existing development flood safer; existing development or removing development re:	x	x	x	x		x	x							x	x		

	flooding; unique places and historic neighbourhoods; Drumheller Resiliency and Flood Mitigation Office; existing neighbourhoods and infrastructure re: flooding; Erosion control and bank stabilization; flood protection to neighbourhoods; additional on-site flood mitigation requirements; flood-resilient development; economic development; municipal servicing and utilities; flood resilient infrastructure;																	
Duncan	identity; economy and business	x		x	x		x	x			x			x	x	x	x	

	community; environmental health; Cowichan region long range plan; resili growth management through land use; climate change; flooding re: climate change; community re: climate change; climate; environmental; blue-green infrastructure systems as resili measures to address climate change/flooding/increase connectivity/access to nature; climate change re: water reuse and rainwater capture; environmental re: design guidelines																

East Gwillimbury	economy			x														
Edmonton	food and agri system;									x								
Edmundston	natural and climatic hazards							x										
Espanola	climate change; climate change + vegetation	x					x											
Esquimalt	climate change re: housing; earthquake; climate change; food in an emergency; community; food supply; disaster		x		x		x	x		x								
Fernie	economy; community re: emergency preparedness; community re: food production; climate change; droughts re: climate change; community			x	x		x	x		x								

Fort Saskatchewan	economy; in pillar: community + emergency preparedness + climate change + economic/social/env + infrastructure; growth strategy and community resili re: "economic downturns, extreme weather and to deal with modern day health crisis such as diabetes, obesity, and heart diseases"; economic cycles; employment; local economy; community ("place to live and work"); environment; environment re: building and development; economic cycles;	x		x	x		x	x			x			x	x		

	tourism and cultural industry; extreme weather events; infrastructure; overall resilience of the city; local economy																	
Fort St. John	sustainable community; climate change; energy; food & agri system				x		x		x	x								
Fredericton	identity; buildings & utilities; flood; community re: climate change; community; flooding re: infrastructure; development; climate change / extreme weather events; community re: disaster preparedness				x		x	x							x	x		
Georgina	development; communities; building design				x											x		

Grand Falls-Windsor	community				x													
Gravenhurst	environmental	x																
Hearst	"communities that are resilient to climate change"; stormwater management re: climate change				x		x								x			
Hinton	economy			x														
Hope	wastewater infrastructure + climate change; community re: telecommunications infrastructure				x		x								x			
Humboldt	infrastructure and services														x			
Huntsville	Identity; economy; “global economic impacts, climate change and other stressors”; community re:	x		x	x	x	x		x	x					x	x		

	change; social; identity re: policies; pillars of resiliency (environmental, economic, social, infrastructure); environment re: climate change; environmental/natural re: character and identity; economic/business friendly balanced with employment and growth; social / caring; infrastructure re: reliable and cost-effective; four pillars; natural environment and tourist economy; environment re: adapting to change (natural and human); environment re:																	

	natural heritage system + climate change + energy conservation; natural ecosystem re: natural heritage system; environmental re: energy conservation; env re: climate change; ecosystems; natural heritage features re: water; economically sustainable community re: GHG reduction; economy re: managing fast and slow growth; economy re: jobs; economic; environmental and economic resiliency linked; social and economic resiliency linked; economic re: town-wise policies;																	

	economic re: various economic sectors; a complete community; resilience re: growth and development; waterfront community; social; balancing needs of community; socially resilient community; healthy community re: long term (natural, social, and built environments); balanced services and facilities; local food production / sales to local residents; social resale re: active transportation; infrastructure and social; social re: open space and parkland; social resale and																

	community well-being re: public institutions and facilities; social: cultural heritage; social re: land use ("Sensitive land uses include residential uses, institutional uses, parkland and open spaces, which should be protected from incompatible uses in order to ensure social resiliency"); infra; infra re: env.al change; community and infra;																	
Kamloops	community; economy			x	x													
Kelowna	community; social; food system; community re: managing growth and development;	x		x	x		x		x	x	x			x	x			x

	identity; community re: climate change / sustainability (linked with "infrastructure, buildings, ecological systems and community networks"); community re: economy; Town more resilient to climate events re: managing growth; climate change; buildings; community; identity; residents; community re: sustainability / being green; community re: economy; community re: development and asset mgmt; economy (for communities); local																	

	economy for equity and resili (re vulnerable populations); ecosystem health / watersheds; community re: sustainable water; food and agri systems; local electricity grid; managing growth; community re: climate change; utilities / infra; "corporate and community resilience and adaptation measures"; food security; energy distribution system; electricity supply to new neighbourhoods; electricity distribution;																

	buildings; economy re: anchor institutions																	
Kentville	community				x													
Kings	community re: changing environment; population; community	x			x							x						
Kingston	climate change; community re: "natural and human-made hazards & climate change" ; community; climate-resilient architectural design; climate change re: natural heritage system and watersheds; community	x			x		x	x								x		x
Kitchener	as part of global economy; in			x														

	sustainability definition																	
Labrador City	eco-tourism, economic (re: diverse communities)			x														
Lac La Biche	economy; identity			x	x													
Lacombe County	community re: flooding + watershed management; economy	x		x	x			x										
Lake Country	community				x													
LaSalle	community; climate change; urban forests	x			x		x											
Leamington	climate change; infrastructure & development re: climate change						x								x	x		
Leduc	identity; climate adaptation; economy			x	x		x											

Leduc County	economy			x														
Lethbridge	economy; community; neighbourhood development; transportation; downtown area; climate change re: utility systems; climate change; neighbourhoods		x	x	x	x	x							x	x			
Lethbridge County	energy supply								x									
Lincoln	sustainable community; emergencies and/or climate change; urban forest	x			x		x	x										
Lloydminster, AB	community				x													
London	climate change, adaptable to change; adaptable to change re: transportation,	x		x	x	x	x	x	x	x	x				x	x		

	sustainable development, energy costs; "disaster resilient community"; identity re: heritage; "sustainable or resilient cities" re: Smart City programming; infrastructure; food and agriculture; climate change & extreme weather; climate change adaptation; natural heritage systems																	
Maple Ridge	community; greenspace and landscaping re: climate change				x		x											
Markham	economy; Natural Heritage Network; urban forest; infrastructure	x		x											x			

Martensville	economic re: climate change: biodiversity and protected areas; water & transport infrastructure; climate change; natural systems re: climate change; community re: extreme weather events; flood and droughts; identity; community preparedness re: extreme events	x		x	x		x	x						x			
Marystown	community				x												
Medicine Hat	"practical approach to resiliency and growth management"; economy; climate change; disruptive technologies; "founded in resilience" (not categorized);	x		x	x		x	x			x	x					

	economy; tree canopy re: rainstorm events; flooding; community re: drought																	
Merritt	community; emergency preparedness; climate; environment & extreme weather events; buildings and infrastructure; climate change; wildfire				x		x	x						x	x			
Midland	waterfront community; community; sustainable community; climate change	x			x		x											
Miramichi	climate change; flooding						x	x										
Mission	community				x													

Mississauga	identity; development / infrastructure				x										x	x		
Moncton	city; climate change and community forest approach;	x			x		x											
Morinville	climate change						x											
Municipal District of Big Lakes No. 125	economy			x														
Municipal District of Westlock No. 92	community				x													
Nanaimo	Climate Action and Resiliency Plan; ecosystems; economy; climate change preparation; identity; An adaptable city is a resilient city; environment; community re: climate change	x	x	x	x		x	x		x			x	x	x	x	x	x

	mitigation; ecological assets and natural diversity re: climate change; community capacity re: climate change; community capacity re: natural hazards; climate change resilience lens; community assets and infrastructure re: extreme weather events; Incorporate climate resilience into new construction projects and building retrofits; climate change resilient development; Urban tree canopies, natural areas, and greenways re: climate resiliency;																

	natural infrastructure re: climate; climate resili landscaping; ecosystem biodiversity re: climate change; climate change re: rainwater management systems; drinking water supply; stormwater system re: climate change; infrastructure re: climate change; children, youth and family resili re: social support / innovation / partnerships; intergenerational connection / resili across life stages; emergencies re: food security; community re:																

	emergency mgmt/preparedness /mitigation; "A culture of preparedness and resilience in City government, workplaces, households, and businesses across the community"; seismic buildings; city services re: business continuity; business continuity (for all types of biz); emergency mgmt with first nations; infrastructure ; community re: public art; climate re: parks; climate re: park landscaping; waterfronts re: climate change; climate resili; urban																	

	design near water bodies/courses; economy; neighbourhood emergency preparedness; Climate Resiliency Strategy; work with Snuneymuxw First Nation to build mutual resilience																
Nelson	community; energy; economy; food system; "economic, social, ecological, and cultural systems"			x	x				x	x							
New Westminster	growth; community; climate change re: energy & GHGs; social connectedness; climate change; urban forest; community re: urban design; natural hazards;	x			x		x	x	x		x				x		

Niagara-on-the-Lake	development; identity; landscapes	x			x										x		
North Cowichan	resilient, inclusive communities; relationship with Cowichan Nations; communities; resili in the face of future challenges and opportunities; participatory, iterative approach to create communities (re: regeneration); community re health and safety; community re: connection, reconciliation and relationship building; community re: response to change and emerging issues; built and natural	x	x	x	x		x	x		x	x	x	x		x	x	

	environments; communities; communities and regions future re: climate change (and thinking about climate action from every angle); climate impacts (and relationship with reduced consumption and improved social conditions); communities; growth management re: climate emergency; communities; communities re: responding to change; natural ecosystems and environments; local economy; "The concept of resilience is																	

	therefore fundamental to all aspects of the OCP, whether social or physical."; built and natural environments; communities that "Foster social connection and resiliency through the built environment, volunteerism, emergency response planning, neighbourhood events and other ways of enabling residents to engage with each other and in municipal processes."; community; ecological biodiversity; diversity in																

	ecosystems; neighbourhoods re: affordable housing; communities re: climate change impacts and extreme weather events; biodiversity / ecosystem health; community re: Municipal Natural Asset Initiative; development in natural hazard areas; development re: wildfires; development re: flooding; community re: local food production; local food system; economy; economic shocks and stressors; community re: local economy / commercial retail																	

	and neighbourhoods that are livable, affordable, and resilient; natural environment re: climate change; development re: natural hazard risk; building development resili to climate change																
North Vancouver (City)	Climate and other changes; climate change; “other global social, economic and environmental forces (e.g. global economy)”; future challenge and change; community; community capacity building; identity; transportation system; transportation re:	x		x	x	x	x	x	x		x			x		x	

	extreme weather / natural disasters; community re: emergencies and disasters; natural and human made emergencies; natural systems; human potential re: climate change; climate change re: local energy security; Building Adaptive and Resilient Communities Program; community; climate change; climate change; climate-related hazards; natural areas; community re: climate change; municipal services and infrastructure; infrastructure re:																	

	climate; economic re: financial planning and budgeting																	
North Vancouver (District)	financial; businesses; economy; energy prices; wildfire hazard			x				x	x									
Oak Bay	Community health and resilience; community, identity; community resilience and sustainability re: climate change and energy, natural environment, neighbourhoods, built environment, housing, business and commerce; natural features / environment; community; “For each section in the OCP, we identify	x	x	x	x	x	x	x	x	x			x	x	x	x	x	

	the key relationships between the topic and Community Health and Resilience. In this way, we emphasize the cohesion and integration among all of the OCP sections, and Oak Bay's over-riding commitment to economic, environmental and social (including cultural) sustainability."; food and agriculture system; climate action; climate change and energy (re: health and well-being, air quality and GHG reduction, energy and infra, risk reduction for																	

	lives and property); community re: climate change; “coordination of climate change and energy resiliency plans” / policies / initiatives with “federal, provincial, regional and local governments, other public agencies, Songhees and Esquimalt Nations, community organizations, and businesses”; natural environment (re: ecosystems, urban force, air / water / soil quality, energy and Infra costs, health and well-being); land use framework (re: character, commercial areas,																

	welcoming living and work areas, walkability); community re: community amenities; built environment re: unique character, social gathering , buildings, neighbours; community re: sense of place; housing re: changing needs, neighbourhood character, move people and diversity, lowering housing costs; affordable and inclusive housing; mixed use and commerce re: business, commercial areas, proximity to																

	shopping and services, tourists; community institutional and social well-being re: community member needs, cultural enrichment, health, residents and tourists; parks and recreation re: ecosystems, active lifestyle, social connections, residents / tourists; heritage re: natural heritage landscape, built environment, history values, residents and tourists; transportation re: active transportation, mobility needs, energy use and GHGs, villages;																

	utilities and services re: infrastructure, waste / water / energy use, long term needs, operational costs; emergency management re: saving lives, preserving env, protect property, community networks and partnerships; municipal and community re: emergency management Sections that specifically highlight resilience re: Community Health and Resilience: climate change and energy, natural environment, land																

	use framework, built environment, housing, mixed use and commerce, community institutional and social well-being, parks and recreation, heritage, transportation, utilities and services, emergency management																
Okotoks	Community; social; food system; community; identity; community; community re: economy; climate events; climate change; buildings; community; identity; residents; community; community re: development	x		x	x		x	x	x	x	x	x		x	x		x

	patterns and asset management; economy; strong local economy; water management; community re: watersheds; food and agriculture systems; local electricity grid; managing growth (1.4); “Climate Change, Community Resilience, and Environment”; climate change; utilities; corporate and community resilience; food security; energy distribution system; electricity supply to new neighbourhoods; electrical distribution system;																	

	buildings; economy re: anchor institutions;																	
Olds	noise		x															
Oliver	community re: housing type; wildfire		x		x			x										
Orangeville	community; climate change / sustainability; infrastructure; drought; stormwater management				x		x	x						x				
Osoyoos	business			x														
Ottawa	extreme heat; identity; "climate and health resiliency"; climate change (re tree canopy); local economy; "pandemic and economic resiliency"; climate change re: energy; site and building	x	x	x	x	x	x	x	x	x				x	x	x	x	

	design as part of development; flood risks / stormwater runoff; communities re: energy, transport, and housing; site and building design; development design; power disruptions; energy availability and costs; floods / stormwater runoff; infra re: climate change + stormwater mgmt; floods; climate change re: Nbs; "Natural resilience to climate change"; global impacts re: food and agri; Climate Resiliency Strategy; climate; built environment / community re:																

	traffic-related air pollution; healthy and resilient communities re: built env; community re: 15 min neighbourhoods; community re: accessible + inclusive; building design; rural economy; community re: active transport + green design; design goals and targets; identity re: growth mgmt/greener (x2); climate change re: urban design, 15 min neighbourhoods, + tree canopy; resilient design practices and																

	technologies; power disruptions; climate and energy resiliency re: alternative rooftop designs (eg greenhouses. rooftop gardens); climate change re: asset mgmt; infrastructure re: extreme weather events; climate change re: extreme weather (eg heat) via greenspace network; identity re: trees; climate re: tree canopy; climate re: greenspace network; climate change re: healthy watersheds; climate re: " Schools and their surrounding context" + healthy and inclusive																	

	communities; climate resilience in the Downtown Core Transect; buildings re: zoning; climate re: Greenspace designation; climate re: ecosystem services; identity re" Greenbelt Transect Area; impacts of extreme heat; climate re: built environment and heat; design features re: development; power outages; design features re development; climate re: building retrofits/renos; climate re: development; climate re heat island effect;																

Owen Sound	identity; climate change				x		x											
Parksville	economy; community			x	x													
Peachland	natural hazards							x										
Penetanguishene	identity				x													
Penticton	natural hazards; identity; economic development; development (building); weather & climate stresses; climate change; environment	x		x	x		x	x							x			
Pitt Meadows	community; food system; climate change & agriculture; ecosystems; urban forest; infrastructure; climate hazards; disaster; q̓i̓c̓əy̓ (Katzie) people	x			x		x	x		x			x	x				

Port Moody	community; climate change; infrastructure				x		x							x				
Powell River	energy; ecosystem services & climate change	x					x		x									
Prince Albert	environment & community; food; urban forests	x			x					x								
Prince Edward	community; climate change; environmental stresses	x			x		x	x										
Prince George	economy, "a community that is economically resilient"; climate change re: storm water management, climate change adaptation, community; development; climate change; climate change and extreme events			x	x		x	x						x	x			

Prince Rupert	community; industrial lands; development and infrastructure re: climate change; natural environments; buildings re: climate change; climate change	x		x	x		x								x	x		
Qualicum Beach	community re: emergency preparedness; community re: health & wellness; vegetation; community health	x			x			x										
Quesnel	economy; "adapt to impacts of a changing economy, environment, and demographics"; community; "climate resilient community"	x	x	x	x		x											
Quispamsis	community				x													

Redcliff	building materials														x		
Regina	climate change; health & safety re: infrastructure				x		x							x			
Richmond Hill	natural linkage/greenway system; economic downturns	x		x													
Richmond, BC	Economy; identity re: external challenges; economy; climate change; community re: global challenges (eg food security, energy security, groundwater security, intertidal ecological security); community re: vibrant city; econ re: residential and business tax base growth balancing; economic re: econ	x		x	x		x				x			x		x	

	dev policies; Resilient Economy Strategy; employment lands; natural environment; ecosystem / ecological network; climate change; climate change resilient infrastructure;																	
Rocky Mountain House	identity; economy; climate change			x	x		x											
Rocky View County	community; financial			x	x													
Rothesay	identity; community; climate change re: urban forest; flooding	x			x		x	x										
Saint John	economy; climate change			x			x											
Sarnia	natural disaster; economy; urban	x		x				x	x			x						

	canopy; energy; city systems; extreme weather events																	
Saskatoon	community, emergency services and preparedness, heritage conservation, ecology, natural asset management re: community, climate, community re: urban forestry, climate change, adaptation, land & infrastructure development				x													
Sault Ste Marie	economy; climate change; community design re: climate change; tree & vegetation species	x		x			x									x		
Sidney	neighbourhoods; community re: climate change; W̱SÁNEĆ people;	x	x	x	x		x			x	x		x					

	food and agri system in Saanich; food systems / food and agri re: avoid loss of land to development; economy re: job security and local employment base; ecosystems re: climate change + unpredictability;																
Sioux Lookout	climate change						x										
Smithers	sustainability; economy	x		x													
Sooke	infra re: climate change; community re: transportation; community re: equity and respect; community (and safety) >> related objectives range from transport to parks to	x	x	x	x	x	x		x	x			x	x			

	environment to climate change etc; infrastructure; low carbon resili re: local economy; community; TMP re: community; environment re: community; parks re: community R; infra and municipal systems (eg water supply) re: climate change; infrastructure; food and agri systems (re: env impacts); residents re: housing; community re: facilities and programming; community re: equity (re T'Sou-ke Nation, equity planning, participation); community;																

	community re: parks and trails; ecological; streetscape and public realm re: climate change; social cohesion; property assessed clean energy																	
Spallumcheen	n/a; disaster							x										
Spruce Grove	community sustainability; community; economy			x	x													
Squamish	Disaster resilience planning; community health & well-being; neighbourhoods; economy; community re: agencies, organization, businesses, government; First	x	x	x	x		x	x	x	x		x	x		x	x		

	Nations collaboration/ reconciliation; government to government relationships (re: First Nations); ecosystems; flood hazards; climate change adaptation; disasters + emergencies; community; community re: disaster response; emergency preparedness and mitigation; healthy built environments; local food system; community facilities and services (e.g. child care); natural hazards; community; climate action (energy + resource efficiency)																	

St. Albert	infrastructure; risk management; identity; infrastructure re: climate change; infrastructure; community; identity; development re: municipal services and infra to reduce env.al impacts; risk mgmt and climate change; ecosystem resili re: natural features + open spaces	x			x		x	x						x	x		
St. John's	climate change,						x											
Stony Plain	community				x													
Strathcona County	climate change; energy sector						x		x									
Sturgeon County	community; climate				x		x											
Surrey	economy; energy costs & climate change; community;	x		x	x		x	x	x	x	x			x	x			

	future challenges re: "the effects of climate change, higher prices for energy and food, and increasing costs to renew public infrastructure"; emergency preparedness; energy; urban design; Energy, Emissions and Climate Resiliency; food availability & costs																	
Sylvan Lake	identity; economy			x	x													
Tecumseh	community; trees & vegetation; climate change	x			x		x											
Terrace	community; identity				x													
Timmins	economy			x														
Vancouver	Resilience strategy (Vancouver Plan	x	x	x	x	x	x	x		x		x	x	x	x	x		

	meant to incorporate); diversified economy; neighbourhoods; foundational principle (shown with icon re: policy application); reconciliation and resilience (uplift India ways of knowing); equity and resilience (community resili) >>(links foundational principles together on pg 17); resilience of disproportionately impacted communities (re: maps have gaps); “Resilience is determined and influenced by many,																	

	many factors - physical geography and the natural environment, urban infrastructure and buildings, and social, political, and economic systems."; general resilience; community re: health/safety/well-being/business/natural env; identity; collaborative work; priority areas: thriving and prepared neighbourhoods, proactive and collaborative city, safe and adaptive buildings and infrastructure; shocks / stresses (heat waves, pandemic); extreme																	

	hazards (flooding, sea level rise, air quality, extreme heat, seismic risk); neighbourhoods and communities as part of building blocks and layers in the city; water infrastructure / utility services; resale future re: complete neighbourhoods; waterfront and public spaces re: sea level rise; neighbourhoods (complete); identity re land use/housing options; equity and resili; hazard and risk re: equity and data; communities re: equity; equity re: housing, hazard exposure; communities re:																	

	environments / placemaking and urban design; communities re urban design; local development industry; building design; buildings re: durability and adaptability; neighbourhoods; economy; economy re: Industrial/Employment Areas and Business Districts; economy re: jobs; climate change; identity re: climate change; climate change adaptation / action; climate change re: ecosystem restoration; urban forest; transportation																	

	network; resilience and climate responsiveness through natural assets; community infrastructure; Resilient Vancouver Strategy (mentioned a couple of times); community re: health, well-being through community-serving spaces; public space network; nature and ecology; neighbourhood re: ecological health; community-led stewardship of public spaces; water, sewer, and drainage systems; water and water resources; water distribution system;																	

	food systems x3; food supply chains and community-based food initiatives; NbS definition																	
Vaughan	woodlands	x																
Vegreville	transportation					x												
Vernon	[community] as "active participants in pursuing economic, environmental and social sustainability and resilience"; community; RGS; food system; ecosystem; economy; community history; "commercial and residential area"; climate change; change (in general); identity; community	x	x	x	x		x			x	x							

Victoria	climate change and energy; disaster planning; identity re: uncertainty; identity; community; community capacity building; climate change and energy; economy; transportation planning re: climate change; Climate and Energy Resiliency Plan; aquatic ecosystems re: climate change; community re: "Sustainable infrastructure for municipal and regional services"; climate change and energy scarcity and costs; community re: climate change and energy; infrastructure asset	x		x	x	x	x	x	x					x	x	x	

	management re: climate change and energy; low-carbon economy; economic change; disaster-resilient community; disaster; seismic hazards; "The capacity to prepare for and respond to change is a cornerstone of a sustainable and resilient community." in Adaptive Management chapter																	
View Royal	food and agri system; sustainable infrastructure; economy			x						x				x				
West Vancouver	infrastructure; community; foundation of community vision; long term re:	x		x	x		x	x						x				

	environment; community / community health; economy; tax base for the community; businesses / community re: costly climate change impacts; infrastructure and community; municipal infra/utility systems; infra re: climate change and extreme weather events; utility systems re: climate change and extreme weather events; natural hazards and extreme weather events; climate resili across community; community resili re:																	

	business consideration costly climate change impacts; climate change and vulnerable populations; climate change; community health and social well-being; community re: emergencies; community resiliency during emergencies, disasters and extreme weather events; coastal flooding																	
Weyburn	community; climate change				x		x											
Wheatland County	neighbourhoods; energy options		x						x									
Whistler	neighbourhoods, local economy, changing climate,	x	x	x	x	x	x	x		x	x	x		x	x		x	

	tourism based economy, economy + collaboration and partnerships, adapting to external trends/changes (such as globalization, demographic changes, upward pressures on energy and transportation prices, and growing competition), forests re: water filtration, stormwater management and flood protection; community and ecological, natural areas re: climate change, natural resilience to climate change; infrastructure,																

	natural environment and socio-economic systems re: climate change; community re: hotter drier summers; structures re: emergency management; neighbourhood; community re: disaster recovery; food system; “infrastructure, natural environment and socio-economic systems have become increasingly resilient to a changing climate”; community re: climate change; “Increase the resilience of Whistler’s infrastructure,																	

	natural environment and socioeconomic assets from the potential impacts of a changing climate.”; transportation system, water supply and distribution systems re: climate change and natural disasters; sewer collection and treatment systems																	
White Rock	community re: infrastructure; watershed planning re: climate change						x								x		x	x
Whitehorse	climate change; community; infrastructure re: climate change; economic; municipal assets			x	x		x								x			

Williams Lake	economy; community economic resili; economy re: employment; economy re: employment lands; community; local economic community; regional food system; "cultural diversity and resiliency celebration with First Nations; local jobs; job diversification; communication with general community and biz for economic resili; amenity migration re: resili econ; city branding process; industrial land development strategy re			x	x					x	x	x	x				

	economy; economic development; boundary expansion																
Winnipeg (City)	Environmental, climate resilient growth, workforce, identity, sustainability (general), environmental resilience re: Clean water and sanitation, Affordable clean energy, Responsible consumption and production, Climate action, Life below water, Life on land, “Strengthen civic systems that support community resilience – whether related to the environment, the	x	x	x	x	x	x	x	x		x	x		x	x	x	x

	local economy, healthy built environments, or disaster preparedness.”; leadership and governance systems re: change; climate-resilient infrastructure; resiliency planning; municipal services and regulations; complete communities; climate change and natural hazards; organizational alignment through policy and enforcement tools; regional planning and cost sharing resiliency; workforce; low-carbon future; sustainable																

	transportation; low-carbon / energy efficient buildings; waste management re: landfill; ecosystems; climate action; climate resilient growth re: land use, infra, transportation; climate resilient growth re: city building, transportation, infrastructure, and complete communities; economy; community re: safety and emergency preparedness; community re: human rights and equity; “land use, transportation, and infrastructure																

	planning" re: city building; climate re: growth, GHG reduction and complete communities; affordable and supportive housing, public spaces and urban design																	
Wolfville	economic; community; climate action; sea level rise re: climate change); infrastructure; food system infrastructure; asset management; development (as a neighbourhood focus area); neighbourhoods		x	x	x		x	x		x		x		x	x			
Yarmouth (Town)	community				x													

Yellowhead County	labour force, community			x	x													
Yellowknife	identity; transportation networks; land dev re: climate change				x		x									x		
Yorkton	climate change; weather; environment & biodiversity; economy	x		x			x											

Appendix C. Resilience Definitions.

Local government	Definition Text	Definition location
Argyle, NS	Resilient: We are resilient. From our commitment to each other, to our community, and to our neighbours we adapt together to prosper in a changing world.	Body (p11)
Barrie, ON	Resilience: Resilience is the ability to adapt and evolve to respond to significant, systemic change, and recover quickly from challenges, threats, and adversity.	Body (p132)
Beaumont, AB	Resilience: The capacity of a system to withstand and bounce back intact from environmental or human disturbances.	Glossary (p93)
Campbell River, BC	Resilient economy: A diverse, resilient economy contributes to prosperity and quality of life, providing for stable employment, capital investment, support for community good and services, and property taxes that pay for public infrastructure, services, and amenities.	Body (p10-109)
Cornwall, ON	Sustainable/resilient community: A sustainable/resilient community is one that will enjoy long term prosperity. Through wise decision making, protecting the natural environment, investing in infrastructure, reducing energy consumption and encouraging low impact development, the municipality can prepare for the potential impacts of climate change and protect the long term prosperity of the city.	Body (p2-10)
Courtenay, BC	Community resilience: This is a measure of a sustained ability of a community to utilize available resources to respond to, withstand, and recover from adverse situations respectively. It includes but is not limited to public health and emergency preparedness, climate adaptation, infrastructure protection, and economic recovery.	Glossary (p272)
Creston, BC	Resilient plan: First, that the Plan be resilient, that is, that it be flexible and lend itself to the inevitable and often unpredictable economic, environmental, and social changes that are sure to emerge in the modern world.	Body (p65)
Cypress County, AB	Resilience: Resilience means the capacity of a system to withstand and bounce back intact from environmental or human disturbances.	Glossary (p100)

Dawson Creek, BC	Resilient: The ability to be adaptable in the face of change and thrive in an ever-evolving environment is key for the success of Dawson Creek to be a resilient, desirable place for people to live, work and play.	Body (p19)
	Resilient community: A resilient community is one that can effectively manage its new growth and development in a manner that capitalizes on existing infrastructure through infill and intensification of vacant and under-utilized lands.	Body (p19)
Huntsville, ON	Resilience: Resilience is the ability of people, places, institutions and systems to manage shocks and stressors and build stronger, more prosperous communities.- Institute for Sustainable Communities	Body (p3)
	Resilient economy: A resilient economy is diverse and able to adjust to periods of both fast-paced and slower growth, and the changing opportunities presented at those times.	Body (p43)
	Resilient environment: A resilient environment must be able to adapt to both those changes naturally occurring and those changes occurring due to human and land use activities. These changes include climate change and pressures on natural features from adjacent urban and rural land uses and development. The Official Plan will promote innovative and sustainable development to protect natural features in order to minimize and mitigate the effect of changes on the natural environment. The fewer and more gradual the changes, the more resilient and adaptable the environment can be to change.	Body (p12)
	Resilient infrastructure: Resilient infrastructure can accommodate environmental changes, such as climate change and pressures from development, while being financially viable over its life cycle.	Body (p180)
	Social resiliency: Social resiliency involves the balanced provision of needs for housing, education, health care, employment, food, safety, security and cultural and recreational opportunities. Individual needs vary with age, income, ability, skills, background and interests. As communities change and grow, it is important to provide for these needs and ensure that a high quality of life is maintained, contributing to a socially resilient community.	Body (p145)
Kelowna, BC	Resilience: The ability of a system and its component parts to anticipate, absorb, accommodate, or recover from sudden or unexpected changes.	Glossary (p169)
Kingston, ON	Resilience: The ability of a system, entity, community or person to withstand shocks while still maintaining its essential functions and to	Glossary (p30)

	recover quickly and effectively.	
LaSalle, ON	Resilient community: A resilient community can effectively respond to emergencies because it has a plan in place, responsibilities assigned and facilities available.	Body (p10)
Lethbridge, AB	Resiliency: Resiliency is the ability to respond and adapt to changes and challenges. It can be approached individually or through community wide efforts. Resiliency is about creating a position of readiness where the community is able to react and adapt to external forces and their impacts. These forces can be sudden changes - for example, major events or local emergencies, or they can be gradual - like demographic shifts and climate change. Adapting and building resilience means looking at the ways the city is designed and maintained, and enhancing connections among people and groups in the community - especially those who have historically been marginalised - to improve the community's ability to respond to and recover from events.	Body (p77)
Lincoln, ON	Resilient community: A resilient community can effectively respond to emergencies, both related to climate change and otherwise, because it has a plan in place, responsibilities assigned, and facilities available. Natural or human made disasters are considered and the necessities of life are provided, particularly for those who are most at risk.	Body (p70)
Merritt, BC	Safe and resilient community: A safe and resilient community is a community that fosters the growth, health, well-being, and creativity of its people, while also protecting current, and promoting future investments. Providing policies to enhance the safety of Merritt through the built-environment, and also through community and social service supports, will help the people of Merritt, grow and thrive in Merritt through generations.	Body (p130)
Midland, ON	Resilient: A resilient community can effectively respond to emergencies because it has a plan in place, responsibilities assigned and facilities available. Natural or human made disasters are considered and the necessities of life are provided, particularly for those who are most at risk. Access to power, food, water and health care is ensured, while emergency services are equipped to operate and provide assistance in all conditions;	Body (p21)

Nelson, BC	Resiliency: Resiliency is about maintaining and enhancing the economic, social, ecological, and cultural systems that strengthen our ability to withstand future challenges. Our Resiliency is dependent on our ability to: • Foster healthy relationships to ensure residents trust and support each other in times of need; • Foster a diverse, flexible business community that sustains our prosperity; • Continue to build local, green infrastructure that uses resources thriftily and efficiently; • Adapt and flourish despite an uncertain, changing climate and environment; • Champion transparent, participatory decision making	Body (p8)
New Westminster, BC	Resilience: Becoming a resilient community by ensuring all policy areas contribute to a more socially, economically and environmentally sustainable city. Forward thinking initiatives growing out of City policy will help prepare the city to adapt to the impacts of climate change.	Body (p32)
North Cowichan, BC	Resilient community: A resilient community is able to respond and adapt to emerging issues in a nimble and unified way. It recognizes the accelerating pace of change, the multiple and shifting challenges we face as a community, including health crises, mental health and substance use disorders, housing and food, affordability, and numerous climate change-related impacts. Through planning and action, we will strive for resilient built and natural environments and ensure iterative and adaptive processes that can better respond to change while supporting citizens during challenging times.	Body (p21)
	Resilient community: A resilient community means we are able to respond and adapt to emerging issues in an effective, unified way. Resilient communities provide the foundation individuals and families need to attain well-being. Resiliency means we recognize and respond to change and the multiple and shifting challenges we face as a community such as COVID -19 pandemic, mental health and substance use disorders, affordability, and climate change impact. In addition to strengthening community and social networks, resiliency also lies in the quality and integrity of our natural ecosystems to support a variety of healthy plant and animal species, and in the capacity of our farmland to produce food, regenerate soil, and resist pests and invasive species. The local economy is also more resilient to supply chain disruptions when an increasing share of goods and	Body (p68)

	services are generated locally and from multiple sources. With climate change, infrastructure systems, both above and below ground, need to be designed to withstand increased stresses from weather extremes. Long-term asset management planning can help ensure the systems on which we all rely are upgraded in an orderly and timely fashion, and new development be planned and designed in a site-adaptive fashion to maximize infrastructure efficiency and capability. The concept of resilience is therefore fundamental to all aspects of the OCP, whether social or physical.	
North Vancouver (City), BC	Resilient community: Resilient Community refers to the community's ability to adapt and become a more complete and livable community despite the natural, physical (human-made), human, social, cultural and economic impacts of climate change and other global forces (e.g. global economy).	Glossary (p93)
Okotoks, AB	Resilience: the level of disturbance that a social, economic or ecological system can undergo and, precluding further disturbance within a specified time period, recover equivalent functional capacity.	Glossary (p191)
Ottawa, ON	Climate resilience: The capacity of a community, business or natural environment to prevent, withstand, respond to and recover from changing climate conditions and extreme weather events.	Glossary (p259)
	Sustainable & resilient design: Principles in site and building design to protect against the depletion of critical resources like energy, water, land, and raw materials, reduce greenhouse gas emissions, prevent environmental degradation throughout its life cycle, and create built environments that are liveable and comfortable while being safe and resilient to the impacts of a changing climate.	Glossary (p266)
Prince George, BC	Resiliency: Ability to withstand both expected and unexpected changes (which in this case are related to climate change).	Glossary (p221)
Prince Rupert, BC	Resilience: resilience speaks to the capacity of a system to absorb shocks and maintain function. The latter emphasizes natural and social diversity as a characteristic of high resiliency.	Body (p24)
Sarnia, ON	Resilient city systems: Resilient city systems maintain their functions in the face of stresses and change.	Body (p113)

	Resilient City: It is the intent of this Plan to foster a resilient City that does not waste energy, that promotes improved environmental quality, and that can anticipate and adapt to change.	Body (p113);
Sidney, BC	Low carbon resilience: Focuses on developing integrated strategies that both reduce greenhouse gas emissions (mitigation) and vulnerability to climate change impacts (adaptation).	Glossary (p158)
Sooke, BC	Resilience: This is a measure of a sustained ability of a community to utilize available resources to respond to, withstand, and recover from adverse situations. It includes but is not limited to public health and emergency preparedness, climate adaptation, infrastructure protection, and economic recovery.	Glossary (p237)
Spruce Grove, AB	Resilience: The ability to tolerate disturbance and adapt to change. A resilient system can withstand shocks and rebuild itself when necessary. The concept is often linked to ecosystem resilience (with humans viewed as part of the ecosystem) but can be applied to community sustainability. Communities increase their resilience by actively influencing and preparing for environmental, economic and social change.	Glossary (p92)
Squamish, BC	Resilient / resilience: The ability to anticipate risk, limit or mitigate impacts, and adapt, evolve and grow when faced with change. A resilient community is self-reliant and ensures those most in need have access to essential services such as food, housing, water, and energy to support ongoing social, economic and environmental health.	Glossary (p272)
Strathcona County, AB	Resilience: Means the capacity of a system to withstand and bounce back intact from environmental or human disturbances.* *As defined in the Regional Growth Plan	Glossary (p175)
Vancouver, BC	Resilience: We will proactively plan for an uncertain future so we can withstand, adapt, recover, and thrive in the face of shocks like earthquakes and climate change impacts, and reduce stresses like affordability and inequities.	Body (p24)
	Resilience: Resilience is the ability of individuals, communities, organizations, businesses, and systems within a city to survive, adapt, and thrive in the face of shocks (acute disruptions like earthquakes or heat waves) and address stresses (chronic issues like affordability and social isolation).	Glossary (p158)
Victoria,	Resilient community: The capacity to prepare for and respond to	Body (p171)

BC	change is a cornerstone of a sustainable and resilient community.	
Williams Lake, BC	Resilient economy: Resilient Economy. Our economy relies on resource-based industries, the strengths and assets of our local community and innovation. We are committed to designing our local economy to fulfill community-held strategic goals for the future and the principles of sustainability, resulting in prosperity for all community members.	Body (p3-4)
Winnipeg, MB	Resilience: The proactive capacity of a system, community, or society exposed to hazards to mitigate and adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure through responsible long-term planning for resource sustainability and asset management.	Glossary (p48)
Wolfville, NS	Resilient community: The Town of Wolfville is also committed to being a resilient community where ‘disruptions’ can be managed effectively. It will be important to adapt to change while maintaining stability into the future. Community stability allows for innovations on and the ability to pursue a unique path where Council can take actions that reflect the values of the community.	Body (p15)

Appendix D. (Sub)Categories

Category Source: Hodge, Gordon, and Shaw 2021				
Natural Environment	**Living Areas**	**Working Areas**	**Community & Public**	**Transportation**
Air pollution	15-minute neighbourhood	Amenity migration	Accessible community	Active transportation
Aquatic ecosystems	Affordable housing	Anchor institutions	Balancing community needs	Transport infrastructure
Biodiversity	Complete neighbourhoods	Business	Children	Transportation
Community forest	Demographics	Business continuity	Collaborative work	Transportation networks
Conservation	Housing	Circular economy	Community	Transportation planning
Ecological assets	Housing options	Commercial area	Community capacity	
Ecological footprint	Neighbourhood	Costs	Community capacity building	
Ecology	Neighbourhood development	Diverse workforce	Community connection	
Ecosystem	Noise	Diversified economy	Community equity	
Ecosystem health	Residential area	Downtown area	community facilities and programming	
ecosystem restoration	Unique places and historic neighbourhoods	Eco-tourism	Community health	
Ecosystem services		Economic	Community history	
Environment		Economic cycles	Community sustainability	

Environmental health		Economic development	Community-serving spaces	
Environmental stress		Economic downturn	Complete community	
Erosion control and bank stabilization		Economic home occupations	Cultural	
Floodplain and wetland management		Economic resources	Cultural heritage	
Greenhouse gas		Economic sectors	Disproportionately impacted communities	
Greenspace network		Economic shifts	Green space and landscaping	
Greenway		Economic shocks and stressors	Health	
Greenway/greenway system		Economic systems	Health and safety	
Landscapes		Economy	Heritage conservation	
Natural asset(s)		Employment	Human rights	
Natural diversity		Employment base	Identity	
Natural environment		Employment land base	Intergenerational connection / resilience across life stages	
Natural features		Fast and slow economy growth	Parks	
Natural Heritage Network/System		Financial	Parks and recreation	
Natural systems		Financial planning and budgeting	Parks and trails	
Nature		Fiscal sustainability	Placemaking	
Nature-based solutions		Global economic impacts	Political systems	
Physical geography		Industrial lands	Proactive and collaborative city	

Protected areas		Job diversification	Public space network	
Sensitive ecosystems		Job security	Public spaces	
Shoreline and marine habitats		Labour force	Schools	
Sustainability (unless explicit about a different type of sustainability)		Local development industry	Social	
Urban canopy		Local economy	Social cohesion	
Urban forest		Local jobs	Social connectedness	
Urban tree canopy		Low carbon economy	Social resilience re: public institutions and facilities	
Vegetation		Low carbon resilience re: local economy	Social systems	
Woodlands		Prices	Social wellbeing	
		Rural economy	Streetscape and public realm	
		Socio-economic systems	Sustainable community	
		Tax base for community	Volunteerism	
		Tourism and cultural industry	Vulnerable populations	
		Tourist economy	Waterfront	
		Workforce	Waterfront and public spaces	
			Waterfront community	
			Well-being	
			Wellness	

			Youth and family resilience re: social support / innovation / partnerships	

Category Source: Academic Literature		Category Source: Policy Analysis			
Climate Change	**Hazard / Disaster**	**Energy**	**Food**	**Future Oriented**	**Governance**
Climate action	Climate events	Clean energy	Community-based food initiatives	Boundary expansion	Adapting to external trends/changes (such as globalization, demographic changes, upward pressures on energy and transportation prices, and growing competition)
Climate adaptation	Climate hazards	Electricity supply	Food and agriculture	Disruptive technologies	Asset management
Climate change	Coastal flooding	Energy	Food availability	Embracing and managing growth	City branding
Climate change adaptation	Disaster planning	Energy availability and costs	Food costs	External challenges	City systems
Climate change mitigation	Disaster response	Energy conservation	Food in emergency	External trends	Government to government relationships
Sustainability	Drought	Energy distribution system	Food production	Future challenges	Leadership and governance systems re: change
Weather	Emergency	Energy efficiency re: climate action	Food production / sales to local residents	Future challenges and opportunities	Municipal processes
	Emergency preparedness	Energy options	Food supply	Growth management re: land use; growth	Organizational alignment through policy and enforcement tools
	Emergency response planning	Energy sector	Food supply chains	Growth strategy	Partnerships and friendships re: other jurisdictions
	Environmental stress	Energy supply	Food system	Managing growth	Population
	Extreme heat	Energy use	Food system infrastructure	Other global forces	Practical approach to resiliency and growth management

	Extreme weather	Local electricity grid	Global impacts re: food and agriculture	Unpredictability	Residents
	Extreme weather event	Local energy security	Local food production		Resource
	Flooding	Power disruptions	Regional food system		
	Flooding and erosion	Power outages	Urban farming		
	Hazard exposure	Tidal energy			
	Heat island effect				
	Modern day health crisis				
	Natural disaster				
	Natural hazard				
	Pandemic				
	Rainstorm events				
	Resilience assessments				
	Risk management				
	Sea level rise				
	Seismic hazards				
	Wildfire				

Category Source: Policy Analysis				
Indigenous	**Infrastructure**	**Land Use & Development**	**Planning**	**Water**
Food resilience in addition to Indigenous Peoples stewardship	Blue-green infrastructure	Alternative rooftop design	Adaptive and Resilient Communities Program	Drinking water supply
Indigenous people as resilient	Infrastructure	Architectural design	Climate Action and Resiliency Plan	Water management
Partnering with First Nations	Infrastructure asset management	Building and landscape design	Climate and Energy Resiliency Plan	Water quality
Partnerships with First Nations re: climate change and energy resilience plans	Municipal assets	Building development	Climate Resiliency Strategy	Water reuse and rainwater capture
Reconciliation	Municipal services	Building(s)	Disaster planning	Water security
Reconciliation and resilience	Services and facilities	Built environment	Disaster resilience planning	Water supply and distribution systems
Relationship with First Nation	Stormwater management	City building	Emergency response planning	Water use
Relationship with First Nation that nurtures trust and resiliency	Stormwater system	Community design	Financial planning	Watershed(s)
Relationship with First Nation to build mutual resilience	Sustainable infrastructure for municipal and regional services	Design guidelines	Official Community Plan	
Resilient community with First Nation neighbour	Telecommunications infrastructure	Development	Planning	
Resilient system of communication with First Nations	Utilities	Future development	Planning for a resilient city	
Specific name of First Nation and/or Indigenous group	Utility services	Healthy built environments	Region's long-range plan	
	Utility systems	Land use and asset management	Regional planning	
	Wastewater infrastructure	Structures	Resilience strategy	
	Water distribution system	Sustainable development	Resiliency planning	
	Water infrastructure	Urban design	Resilient Economy Strategy	

	Water, sewer, and drainage systems	Waste management re: landfill	Specific plan or strategic name	
		Zoning	transportation planning	
			Watershed planning	