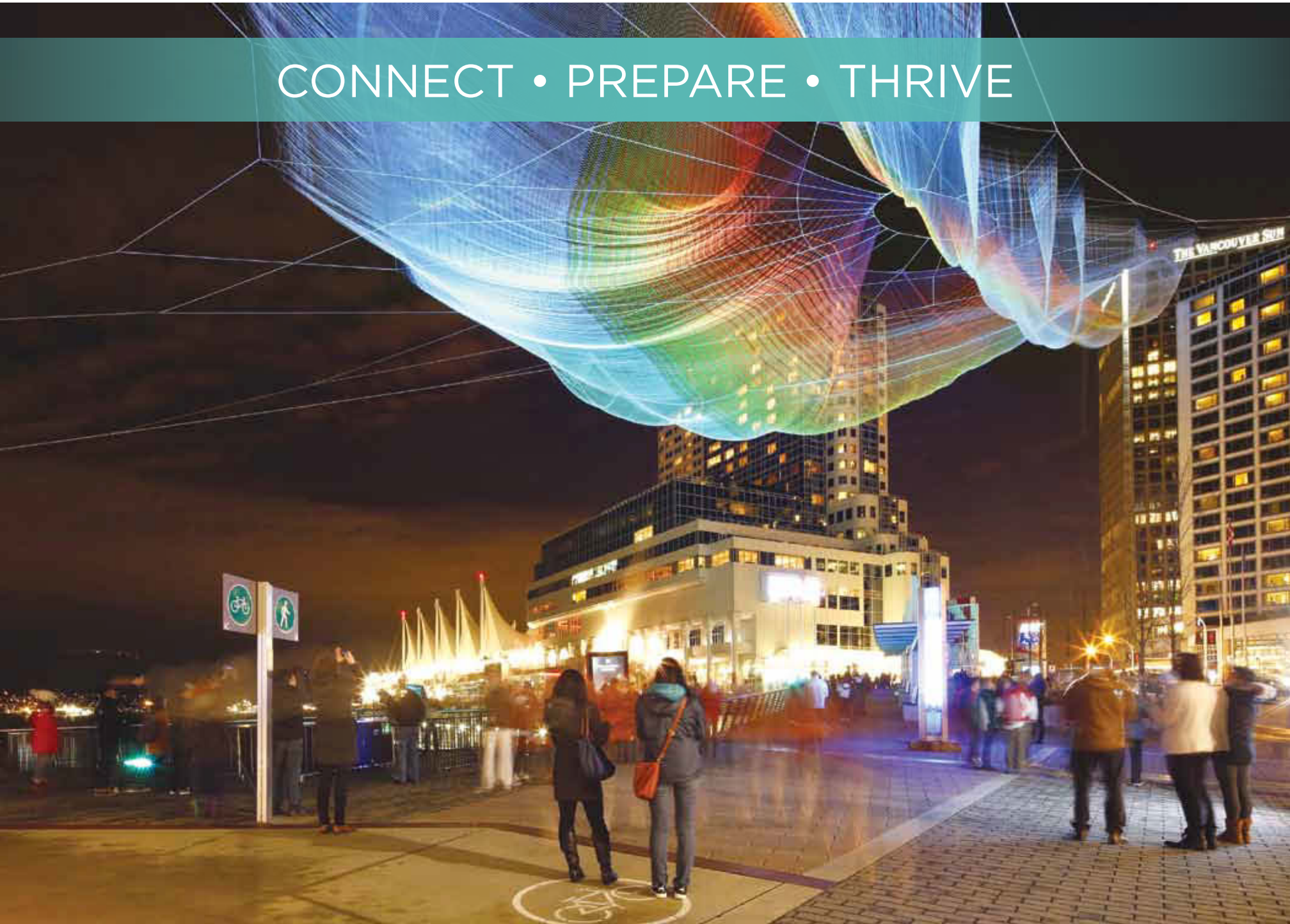


RESILIENT VANCOUVER



CONNECT • PREPARE • THRIVE





RESILIENT VANCOUVER

From disasters to economic inequity, cities around the world are tackling the most pressing issues of our time. Through holistic initiatives supporting prepared neighbourhoods, a collaborative government and safe and adaptive buildings and infrastructure, this multi-year strategy builds our collective capacity to prepare for, recover from and thrive in the face of changes and challenges.





Acknowledgement of the Traditional, Unceded Territories of the Musqueam, Squamish and Tsleil-Waututh Nations

A resilient future for the City of Vancouver is inextricably linked to reconciliation with and among the Indigenous Peoples of this land, who have been here since time immemorial and continue to have thriving, living cultures. Thus, the Resilient Vancouver strategy starts with the acknowledgement that what is now known as Vancouver is located on the traditional, unceded territories of the xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh (Squamish) and sə́ilwətaʔt / sə́ilwítulh (Tsleil-Waututh) Nations.

As Vancouver looks to foster a resilient future, we have much to learn from Musqueam, Squamish, Tsleil-Waututh and Urban Indigenous people who, despite systematic and institutional efforts to eradicate their communities and their

cultures, have survived and represent a growing and powerful force — revitalizing their languages and cultures, reclaiming and naming traditional cultural spaces and fighting to shape new relationships among all peoples of this land.

Acknowledging and building a shared understanding of the experience and strength of Indigenous People in Vancouver and across Canada is a critical step in envisioning a resilient future in which there is space for all to thrive. As a City of Reconciliation, Vancouver City Council has committed to “form a sustained relationship of mutual respect and understanding with local First Nations and the Urban Indigenous community”. This is an ongoing and evolving commitment, and one that is foundational to a successful resilience strategy.



Letter from the Mayor



Vancouver is a hub of diversity and culture, and a city of stunning natural beauty that inspires economic innovation and social movements. We are among the most liveable cities in the

world, and yet, we are also a city at risk. From disasters to disparity, Vancouverites are on the frontlines of many of the world's most pressing resilience challenges. Through our Resilient Vancouver strategy, and by building on the strength and knowledge of our community, we are preparing to face them head on.

Here on the traditional and unceded territory of the Musqueam, Squamish and Tsleil-Waututh Nations, resilience is not new. It is a concept that has been embedded in the laws and culture of the Indigenous Peoples that have been stewards of this land since time immemorial.

Knowledge of many of our city's greatest shocks — including earthquakes and floods — has been shared for generations through Indigenous oral histories. Others, like a lack of affordability and growing social inequity, are a product of unjust colonial systems that have excluded people based on the colour of their skin, their cultural heritage and their gender.

In Vancouver we have the responsibility, the capacity and the collective knowledge to address these challenges. We are already taking bold action. We are committed to Reconciliation with Indigenous Peoples, and are working hard to make space for women and underrepresented groups at decision-making tables. We are finding new ways to deliver low- and middle-income housing and we are leading the way in climate change mitigation and adaptation.

Resilient Vancouver builds on this strong foundation and amplifies work underway across our community. The strategy draws on the deep knowledge of our residents to empower individuals, businesses and organizations to prepare for disasters and to do their part to take care of each other when times are tough. Resilient Vancouver serves as a building block for our forthcoming City-wide Plan, supporting integrated and holistic planning for an era of uncertainty, so that future generations can survive, adapt and thrive no matter what shocks and stresses they face.

This strategy has been a collective effort, strengthened by the expertise and diversity of voices that have contributed. I am grateful to the thousands of Vancouverites, stakeholders and partners who participated in this process

and have committed to implementation, and for the support and partnership with 100 Resilient Cities and partners around the world.

It is my honour to launch the Resilient Vancouver strategy, and to invite you to continue working with us to ensure Vancouver remains strong, vibrant and resilient — a city that works for everyone.

With gratitude,

A handwritten signature in black ink that reads "E Kennedy Stewart". The signature is fluid and cursive.

Kennedy Stewart
Mayor of Vancouver



Letter from 100 Resilient Cities

On behalf of 100 Resilient Cities – Pioneered by The Rockefeller Foundation (100RC), congratulations to Mayor Kennedy Stewart, Chief Resilience Officer Katie McPherson, and the City of Vancouver on the release of Resilient Vancouver.

With the city's first Resilience Strategy, Vancouver has taken the critical step of recognizing its assets and areas of strength, while simultaneously acknowledging its challenges and identifying ways to leverage strengths to fill those gaps. This work is the product of broad engagement with a multitude of local residents, community leaders, and other stakeholders from across a variety of sectors, and represents a blueprint for preparing for a more resilient future at the regional, city, neighborhood, and personal level.

Since Vancouver joined the 100RC Network in 2016, we have worked in partnership to create a Strategy firmly grounded in the city's vibrant diversity and history as a leader in areas such as sustainability. The work addresses the specific shocks and stresses facing Vancouver, such as earthquakes, affordability, and climate change, merging these social, physical, and environmental challenges into a comprehensive approach to the future. The roadmap presented by Resilient Vancouver sets the city up for future success, not least because the

process of engaging Vancouverites of all backgrounds in innovative ways has already laid the groundwork to prepare them in the face of both known and unknown challenges ahead. In this way, Vancouver will continue to serve as an inspiration to other cities looking to build resilience worldwide.

We at 100RC are especially excited to see the unique framing of Resilient Vancouver implemented through concrete actions like the Resilient Neighbourhoods Program and the holistic Resilient Buildings model. These actions are just a few of the many that Vancouver has set to create a city focused every day on the principles of reconciliation, equity and intersectionality, sustainability, recovery, and reciprocity.

While the release of Vancouver's Resilience Strategy marks a critical milestone in the city's resilience journey, we recognize that the work is far from over. The implementation of the actions outlined in the pages that follow are the real work required to support thriving and prepared neighborhoods, build a proactive and collaborative government, and ensure that buildings and infrastructure are safe and adaptive today and into the future, regardless of what challenges that future brings.

We look forward to watching this work continue, creating a better city for all Vancouverites.

Sincerely,



Michael Berkowitz
President, 100 Resilient Cities



GUIDING PRINCIPLES



RECONCILIATION



EQUITY AND
INTERSECTIONALITY



SUSTAINABILITY



RECOVERY



RECIPROCITY

PRIORITY AREAS

THRIVING AND PREPARED NEIGHBOURHOODS

OBJECTIVES:

- 1.1** Cultivate community connections, stewardship and pride
- 1.2** Empower communities to support each other during crises and recover from disasters
- 1.3** Transform the way community understands risks and prepares for local hazards
- 1.4** Strengthen social and cultural assets and services

PROACTIVE AND COLLABORATIVE CITY

OBJECTIVES:

- 2.1** Elevate the voices of underrepresented groups to improve resilience outcomes
- 2.2** Shape an inclusive city that can adapt to changes and turn challenges into opportunities
- 2.3** Strengthen organizational capacity to manage risk and recover from shocks and stresses
- 2.4** Advance holistic, collaborative disaster risk reduction and recovery planning

SAFE AND ADAPTIVE BUILDINGS AND INFRASTRUCTURE

OBJECTIVES:

- 3.1** Improve building performance to protect lives, decrease displacement and accelerate recovery following earthquakes
- 3.2** Plan, design and upgrade civic facilities to serve the current and future needs of our diverse communities and changing environmental conditions
- 3.3** Anticipate threats, and mitigate and minimize disruption to civic infrastructure and critical services
- 3.4** Promote regional collaboration to assess, finance and fortify lifeline infrastructure and supply chains

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1

INTRODUCTION



Situated on the Salish Sea, and within the unceded homelands of the Musqueam, Squamish and Tsleil-Waututh Nations, Vancouver is a young and growing city in a land rich in cultural heritage. The City of Vancouver is 1 of 21 municipalities, one Treaty First Nation and one Electoral Area that make up Metro Vancouver. Our residents and businesses contribute and benefit from many regionally coordinated services and infrastructure. Recognized around the world as a progressive city committed to social, environmental and economic sustainability, Vancouver is home to an expanding and diverse population, unparalleled natural beauty, a vibrant creative sector and Canada's fastest growing economy.

And yet, amidst these strengths and assets, Vancouver faces

many complex and interconnected challenges that impact the resilience of our residents, neighbourhoods, businesses and urban systems.

Our sustainable future is threatened by catastrophic earthquakes and sea level rise. In recent years, wildfire smoke and extreme weather have become our “new normal” and continue to disproportionately impact people that experience social isolation, chronic health issues, poverty and other barriers. Social and economic inequities, unaffordable housing and cycles of mental health and addiction crises undermine the well-being of all our residents, and the capacity of the City and local organizations to plan proactively and recover from disruptions and shocks. Transformative policies, partnerships and investments are required so that our social and physical infrastructure can continue to serve our community in a rapidly changing future.

Vancouver is not alone. The 2019 Global Risk Report¹ identifies natural disasters, extreme weather and the failure of climate mitigation as among the most significant threats to global stability. In addition, declining trust in government, increasing political polarization, declining mental health and economic and social inequities are identified as critical factors undermining humankind's ability to survive, adapt and thrive. With 70 per cent of the world's population expected to live in

urban areas by 2050, cities are on the front lines of these trends and challenges; cities will also be the source of many solutions.

Fostering resilience and finding local solutions to these shocks and stresses demands collaboration and creativity. It requires us to take a holistic and inclusive approach to understanding the drivers of risk in our community and anticipating future trends.

The Resilient Vancouver strategy is aimed at enhancing the capacity of our neighbourhoods, our government and our buildings and infrastructure to serve our diverse communities today, to reduce chronic stresses, and to withstand and recover from inevitable shocks. Our strategy acknowledges that our challenges will evolve over time, and that we must be forward thinking and adaptive to thrive in an era of rapid change.

Supported by strong partnerships and cross-departmental collaboration, Vancouver is well-positioned to rise to this challenge and embed resilience into the fabric of our city. Through a collaborative and human-centred approach, and by leveraging the creativity and experience of our community and our partners, we can invest in the health, well-being and affordability of our community today, while actively reducing risk for future generations.

VANCOUVER TODAY



631,486
Residents



46.4%
Population
Growth
1986-2016



52%
First Language
Other than
English



114 km²
Land Area



#1
Fastest Growing
Canadian
Economy



99%
of People Live within
10 Minutes of
Green Space




44%
of Residents Not
Making a Living
Wage



75%
Increase in
Average Rent
2001-2017



53%
of Households
are Renters

An aerial photograph of Vancouver, British Columbia, Canada. The image shows a dense urban skyline with numerous high-rise buildings in the background, overlooking a large body of water (False Creek). In the foreground, there is a large, lush green park area with many trees and a large building complex. The text is overlaid on a semi-transparent circular area in the center of the image.

Resilience is the capacity of individuals, communities, institutions, businesses and systems within a city to survive, adapt and thrive, no matter what kinds of chronic stresses and acute shocks they experience.

Working with 100 Resilient Cities

In 2016 the City of Vancouver was awarded membership in the 100 Resilient Cities Network (100RC), an initiative pioneered by the Rockefeller Foundation. Through this partnership, Vancouver joined a cohort of 100 cities around the globe committed to working together to become more resilient to the physical, social and economic challenges of the 21st century.

100 Resilient Cities defines urban resilience as *“The capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow, no matter what kinds of chronic stresses and acute shocks they experience.”*

Shocks are sudden-onset events, such as earthquakes, floods and extreme weather. Stresses are conditions that weaken the urban fabric of a city on a daily or reoccurring basis, such as racism, social isolation and poverty.

In Vancouver, a local commitment to reconciliation and community health, a growing green economy and climate mitigation and adaptation efforts all contribute to urban resilience. Our partnership with 100 Resilient Cities has supported the City of Vancouver in building upon this strong foundation, learning from and sharing with other global cities and, most importantly, convening and collaborating with local partners and stakeholders.

In 2017, Chief Resilience Officers from around the globe convened at the 100 Resilient Cities Summit in New York.



Photograph supplied by 100 Resilient Cities

A Strong Foundation

Resilient Vancouver is not a standalone strategy — it has emerged from a history of strategic initiatives that have advanced social, environmental and economic sustainability and resilience, and it supports and will be embedded through a number of forthcoming initiatives. Resilient Vancouver knits together and celebrates the vital foundations of resilience articulated through these strategies, and addresses critical gaps required to sustain our community in a rapidly changing future. The highlighted strategies represent recent and forthcoming policy that contributes to an equitable, sustainable and resilient future.

Existing Strategies

Reconciliation Framework

Established in 2014, the City of Vancouver adopted a Reconciliation Framework that works towards three long-term goals: strengthening local First Nations and Urban Indigenous relations; promoting Indigenous arts, culture, awareness and understanding; and incorporating First Nations and Urban Indigenous perspectives for more effective City services. Reconciliation is an ongoing process that continues to evolve and informs all civic work.

Earthquake Preparedness Strategy

In 2013, Vancouver developed an Earthquake Preparedness Strategy to prepare for and respond to earthquakes in Vancouver. This was the City's first major strategy to address this hazard and identified 56 actions across three categories: volunteers and community, critical services and buildings. A key need identified through this work was support for developing a comprehensive assessment of seismic risk in Vancouver.

Transportation 2040

Transportation 2040 is a long-term strategic plan for the city that will help guide resilient transportation and land use decisions and public investments for the years ahead. It supports travel modes that use renewable

fuels and that move more people with less pollution—like electric cars, transit, and active transportation modes such as walking and cycling. This includes supporting low-impact local goods movement and delivery services.

Housing Vancouver

Launched in 2017, Housing Vancouver is the City's 10-year strategy to reduce Vancouver's housing affordability gap and to provide a strong foundation for the city's future. Ambitious targets include creating 72,000 new homes in Vancouver in the next 10 years, half of which will serve households making less than \$80,000. Together with the Vancouver Affordable Housing Fund, this plan will drive many changes across the city to ensure that our diverse communities can continue to grow.

Climate Adaptation Strategy

Created in 2012 and updated in 2018, the Climate Adaptation Strategy is Vancouver's Climate Resilience framework and complements the Resilient Vancouver Strategy. The Climate Adaptation Strategy includes five goal areas with priority and supporting actions aimed at minimizing climate change impacts and enhancing Vancouver's capacity to withstand impacts from rising temperatures, more intense and frequent rainfall and sea level rise.

Healthy City Strategy

Launched in 2014, the Healthy City Strategy articulates the City of Vancouver's commitment to social sustainability and equity, and is the foundation for the City's strategic efforts to build the conditions in which people can live, thrive and prosper. The Strategy is comprised of 13 long-term goals and ambitious targets for 2025. Targets aim to advance population health and well-being and promote inclusion, connection, equity and resilience, while integrating economic and environmental sustainability into social policy. It focuses on three core domains: healthy people, healthy communities and healthy environments.

Greenest City 2020

The Greenest City Action Plan (GCAP) is the overarching environmental sustainability framework for the City of Vancouver. This globally recognized environmental policy articulates a vision, targets, key actions and indicators for monitoring how Vancouver's environmental performance changes over time. It was first adopted in 2011 with targets to 2020. In 2019, Council directed staff to develop the next iteration of this strategy, integrating lessons from the past and addressing emerging environmental issues.

Supporting a Resilient Future

Resilient Vancouver will succeed to the extent that it supports and evolves with interconnected strategies. Our City is moving several important initiatives forward that seek to foster a more equitable, sustainable and resilient future. Each of these initiatives embed and advance resilience.

Forthcoming Strategies

City-wide Plan

In 2018, Council directed staff to develop a scope for the first City-wide Plan in decades. As of June 2019, the scoping process is underway. A City-wide Plan will provide an opportunity to integrate resilience directly into urban planning and to host a collaborative process in setting long-term resilience and risk reduction targets.

Creative City Strategy

The Creative City Strategy will provide a comprehensive new framework and vision for art, culture and creativity, which will reflect the City's commitment to reconciliation and equity, include previously underrepresented voices and communities, build partnerships across communities and work to strengthen arts and culture.

Equity Framework

Vancouver is developing a framework to address our most critical social stress – deeply embedded and growing inequity. The forthcoming Equity Framework has roots in social sustainability and the Healthy City Strategy, and is being informed and developed through careful consultation with equity-seeking groups. This work seeks to more strongly align internal organizational processes and practices to promote accelerated social sustainability, inclusion and diversity across all department work at the City for the benefit of all.

Rain City Strategy

Recognizing growing pressure on our natural and built water systems, Vancouver is creating a Rain City Strategy to ensure the long-term resilience and sustainability of water resources, and the health of our residents and environment through the integration of green infrastructure.



Community Perspectives on Resilience

Resilience means different things to different people. In our consultations with over 2,500 stakeholders, many people spoke about disasters and the failure of physical infrastructure as being key threats to resilience that we need to understand and manage. We also heard that when it comes to withstanding and recovering from shocks, it is human capacity, neighbourhood connections and lived experience that matter most. Throughout our process we continuously heard about incredible social and physical assets as well as local knowledge

and strengths that contribute to day-to-day resilience, which we must learn from and amplify to foster a resilient future.

Most importantly, here on the unceded territory of the xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh (Squamish) and səliwətaʔ / səliʔwɪlɬ (Tsleil-Waututh), we have much to gain and learn by recognizing and elevating the knowledge of Indigenous Peoples, who have been here for millennia and have long embodied resilience and reciprocity through law and culture. Indigenous Peoples continue to demonstrate

incredible resilience through their work to revitalize their languages and cultures, reclaim and name their spaces and in fighting to shape a new relationship between all people within this land.

The City of Vancouver hosted many dialogues where we asked the community about Vancouver's greatest strengths, about the meaning of resilience and about local examples. The responses were diverse and thoughtful, and reflected the deep knowledge and experience that already exist in our community.





Community Responses

What are Vancouver's greatest strengths?

- › Diversity and lived experience of residents
- › Strong entrepreneurial spirit
- › Culture of economic and social innovation
- › Artistic and creative sectors
- › Non-profits and local businesses contributing to vibrant communities
- › Civic assets, including community centres and libraries
- › Commitment to the environment
- › Access to parks and protection of nature
- › Growing green economy

What does resilience mean to you?

- › It's not just about bouncing back, it's about bouncing forward
- › The collective strength and ability to recover and adapt without the loss of our core identity
- › Learning from challenges and becoming stronger

› A community that can rebound and recover

› People being able to help each other in times of crisis, disaster and social problems

› Healing and being able to help

› Planning with love for future generations

What are examples of resilience in Vancouver?

- › The ongoing fight for Indigenous rights and freedoms and reconciliation
- › Community-led response and advocacy around the ongoing opioid crisis
- › City response to the refugee crisis and support for new immigrants
- › Community coming together to clean up after the Stanley Cup Riots
- › Embracing LGBTQ and two-spirited human rights.
- › Successful lobby by Chinatown and Strathcona residents to stop the freeway.

Stories of Resilience

From cultural redress to emergency response, our community shared many examples of resilience. Documenting and learning from these experiences is an important part of shaping a resilient future.

The Great Vancouver Fire of 1886



On June 13, 1886, the Great Vancouver Fire destroyed all but 3 of the city's 1,000 buildings and killed dozens of people in only 30 minutes. To escape the flames, people jumped into the Burrard Inlet and would have perished if they had not been rescued by Sk̓wx̓wú7mesh (Squamish) Nation paddlers. Paddlers, mostly women, set out across the inlet in dozens of canoes and rescued people fleeing the burning city. The rescuers paddled back and forth through the night bring them back to the safety of the north shore and generously cared for them as they recovered.

Nora Hendrix Place and Hogan's Alley, 2019



Bulldozed in 1971 to make way for the Georgia Viaduct, Hogan's Alley was once the heart of a vibrant Black community in Vancouver. Today, the viaduct is slated to be removed, and key blocks of this once thriving community are being designed as a way to revive the neighbourhood and address this loss. Members of the Hogan's Alley Society are working tirelessly to illuminate the history of this neighbourhood, to centre Black voices in the planning process, and to revitalize and reclaim Black cultural spaces in the neighbourhood. In 2019 the City of Vancouver and the Province of B.C. opened a temporary modular housing project in Strathcona named after Nora Hendrix, a community leader who helped start the first Black church in Vancouver

and was a cook at Vie's Chicken and Steak House in Hogan's Alley. Nora Hendrix Place is a 52 unit building that is meant to reflect and advance the long term vision of this site to be developed by the Black community, as outlined in the Northeast False Creek Plan.

Opening of Warming Centres, December 2016



In December 2016 Vancouver experienced an unusually long cold snap, with temperatures falling below freezing over several days, and several inches of snow accumulating. Shelters across the region were filled with people who were homeless trying to find respite from the icy conditions. The Vancouver Park Board and the City partnered to keep several community centres open overnight as low-barrier Warming Centres to augment shelter capacity and support for those most vulnerable.

This life-saving intervention saw over 2,000 visits across several locations. The Warming Centres have since continued to operate every winter since.

Gathering of Canoes, July 2017



In July 2017, more than 2,500 people gathered to watch a flotilla of 25 canoes and 350 canoe pullers paddle along Vancouver's coastline. The Gathering of Canoes was the final stop on a 10-day Pulling Together Canoe Journey down the B.C. coast, an act of solidarity and cooperation toward reconciliation between Indigenous communities and non-Indigenous Canadians. At the Hadden Park shore near the Vancouver Maritime Museum, Elders and Chiefs from the Host Nations welcomed canoes to their shared traditional territory using traditional protocol.





Creating Our Strategy

Our Approach

From the beginning, the City of Vancouver set out to develop a resilience strategy through a process that would:

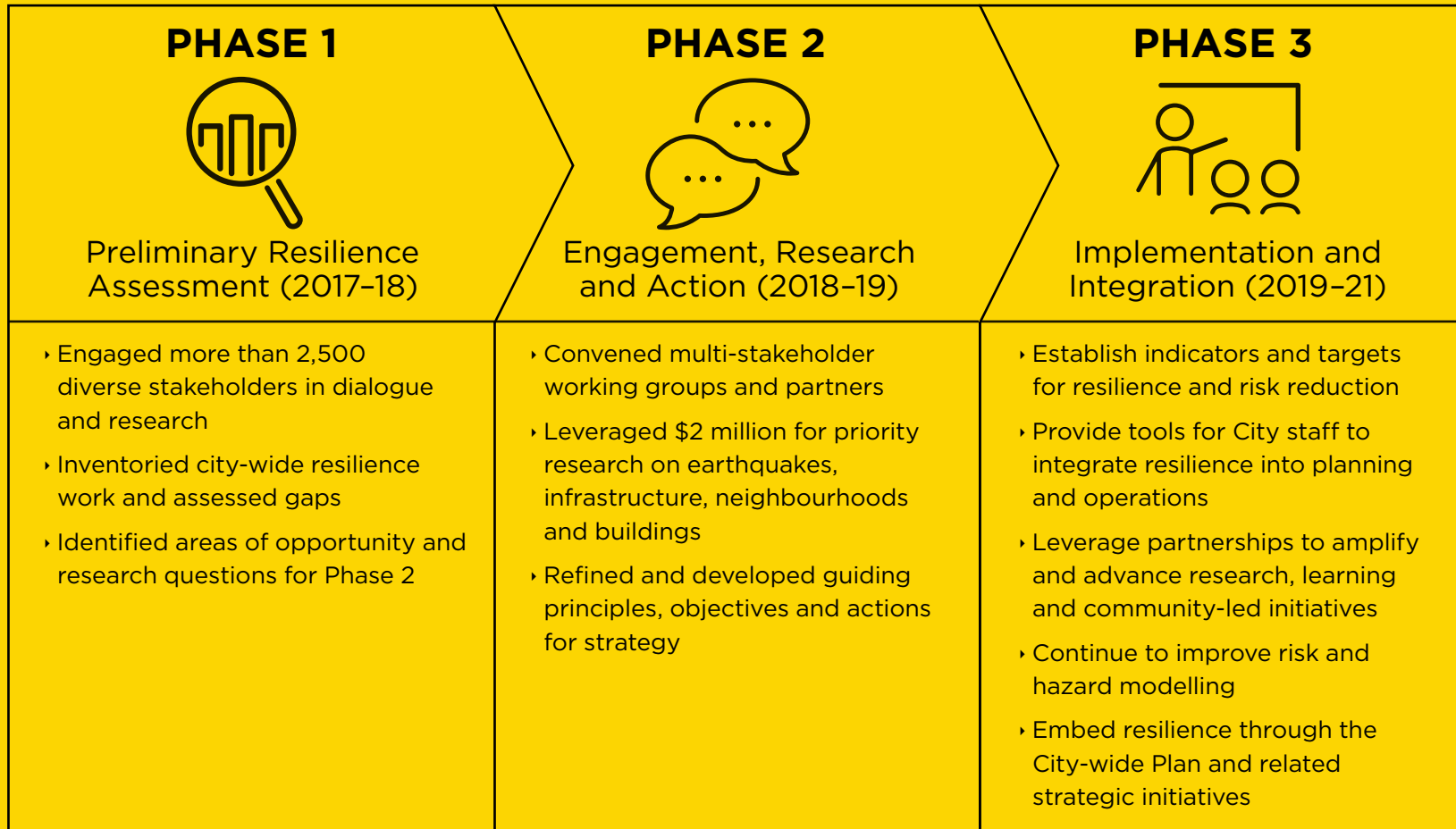
- **Address critical gaps** and avoid duplication by dedicating resources and convening partners around issues and threats not already being addressed, or where new efforts are required;
- **Amplify existing efforts** by highlighting and celebrating work undertaken across our community;
- **Leverage partnerships** through reciprocal collaboration with other levels of governments and civic and community partners working towards resilience goals; and
- **Embed resilience** by developing support tools and processes for City departments and community organizations.

Resilient Vancouver was developed through a multi-phase process supported by local and global partners, and in collaboration with all City departments. Phase 1 culminated with a Preliminary Resilience Assessment. In Phase 2, we initiated high-priority work with partners and produced this strategy. Moving forward, we will set targets for objectives and implement actions through integration with related city initiatives and in collaboration with partners.

Live music was part of the 2018 CityStudio Bridge Warming, a youth-led event to build community resilience through social connection and place-making in underutilized spaces.



Participants discuss personal and community resilience at the Sharing Our Stories event



A Strategy Built on Partnerships

In addition to consultation with thousands of stakeholders, a cornerstone of the strategy development process has been strong, reciprocal partnerships, which will be fundamental to successful implementation. From hyper-local to global, this strategy would not have been possible without constant collaboration, including with key partners listed below.

Institutional and Academic Partners

The Vancouver City Planning Commission, Vancouver Economic Commission, Simon Fraser University (SFU) and the University of British Columbia (UBC) supported the City's Preliminary Resilience Assessment process by hosting workshops, contributing to research and offering expertise and insight throughout the process. In addition, students from SFU, UBC, the Global Network for Advanced Management, Emily Carr University of Art + Design, Langara College and CityStudio have made significant contributions to resilience projects.

Community Organizations

Resilient Neighbourhoods partners and collaborators, including Britannia Community Services Centre, Dunbar Community Centre Association, Collingwood Neighbourhood House, 312 Main, Our Place, and Neighbour Lab, were central to enabling outreach to residents, community organizations, and underrepresented voices within their neighbourhoods. The partnerships and networks established by these groups extend deep into the community and reach across other cities.

Pathways to Disaster Risk Reduction Collaborative

Spearheaded by Natural Resources Canada, the PDRR Collaborative includes 10 steering committee members and many other contributing organizations (including regional, provincial and federal government partners, global organizations and academic institutions.) The initiative brings subject matter experts together with end-users to enhance information and tools to advance risk reduction in the Vancouver region. This project is central to future work to model and evaluate options for social, economic and hazard resilience, and provides the data and modelling required to inform robust community dialogue on resilience priorities and targets moving forward

Seismic Policy Advisory Committee

Inclusive of all levels of government and academia, and including numerous local engineers, the Seismic Policy Advisory Committee has brought together world-leading experts to generously commit their time, expertise and research to support a leading-edge assessment of earthquake risk to buildings in Vancouver, and set the foundation for effective risk reduction policy.



Resilient Neighbourhoods Program Kick-off Workshop at False Creek Community Centre



Seismic Policy Advisory Committee gathered at the University of British Columbia

Learning from a Global Network

Across the globe, cities in the 100 Resilient Cities network have inspired many of the objectives and actions in Resilient Vancouver.

TEAM CANADA

Vancouver is one of four Canadian cities in the 100 Resilient Cities Network. From the outset, Montreal, Toronto, Calgary and Vancouver have worked together to share ideas, highlight Canada-wide issues and advocate for resilience on a national scale. Moving forward, this partnership will continue to be active and support other Canadian cities in their resilience efforts.

SAN FRANCISCO

Launched financing incentive programs to encourage property owners to implement seismic retrofits as well as energy efficiency improvements.

TULSA

Is creating physical tributes and monuments to memorialize its historic Black Wall Street in order to encourage dialogue and build social cohesion.

WASHINGTON DC

Is creating a geospatial tool that will help residents understand climate risk and track climate adaptation progress.

QUITO

Is strengthening innovative modelling tools that help visualize the distribution of risk in order to support planning efforts and decision-making.

BUENOS AIRES

Is committed to promoting women's full development as part of its Strategy, and is launching a gender indicators system to raise awareness and increase understanding of inequities so that they can be addressed.



PARIS

Is building a Citizen Reserve Network, partnering with neighbourhood organizations across the city to train citizens to respond in the event of an emergency while building community connection on an everyday basis.

ROME

Is conducting an analysis and implementing measures to protect civic infrastructure and buildings, with a particular emphasis on schools, in the event of shocks such as earthquakes.

AMMAN

Is promoting inclusivity and social cohesion by fostering a sense of belonging for immigrants, particularly through programs that support youth employment and entrepreneurship among migrants.

MELBOURNE

Along with multi-sector partners, Melbourne is launching creative collaborations with artists to build community preparedness for natural disasters through the arts.

SYDNEY

By understanding risks and interdependencies of critical infrastructure and developing an integrated strategy to address them, Sydney is preparing to withstand future shocks.

WELLINGTON

Is collaborating at the regional level to enhance planning for recovery post-disaster.



SHOULD I BE WORRIED?

2

STRESSES AND SHOCKS

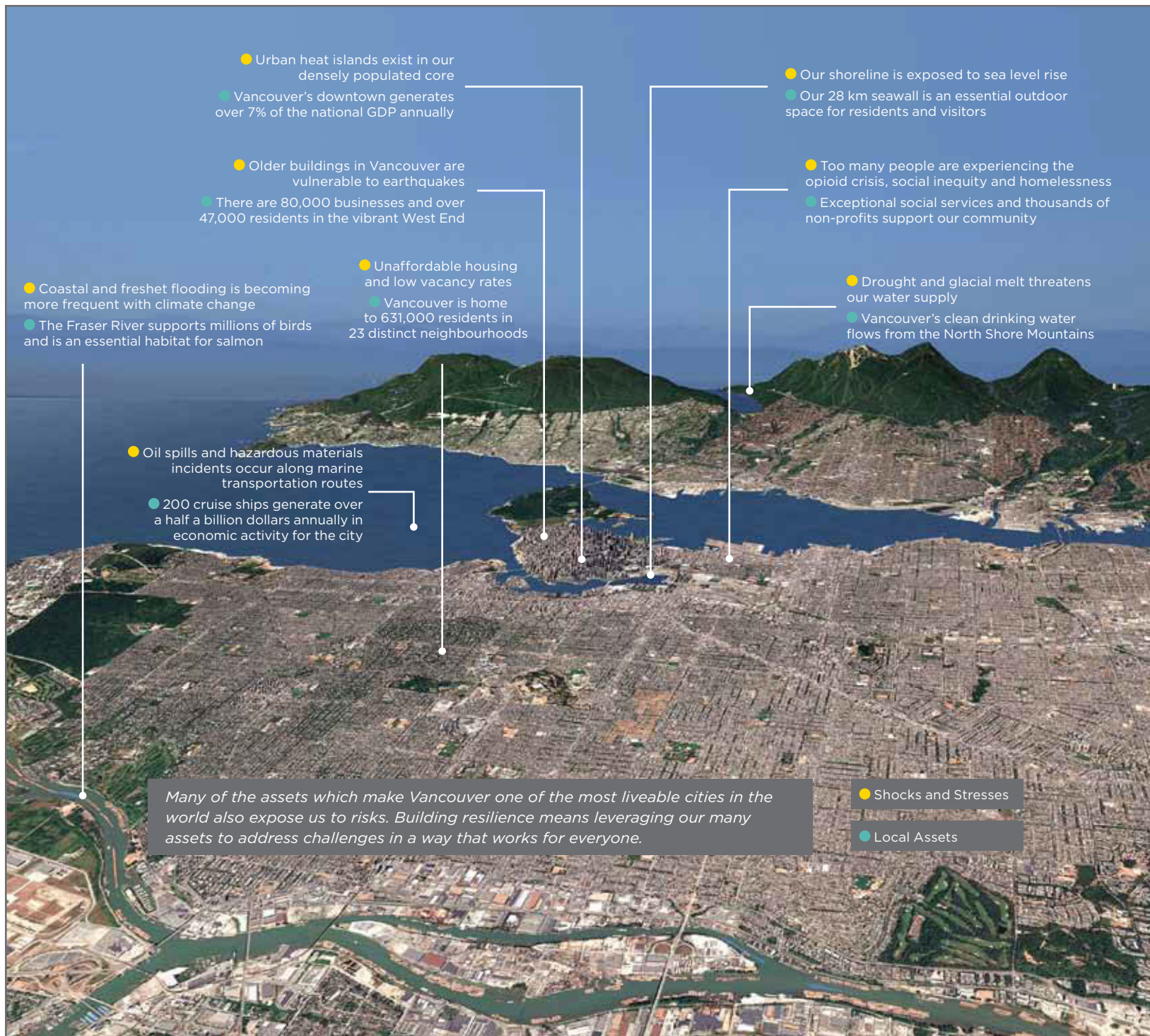
Residents of Vancouver live with risk every day. Our resilience is influenced by physical geography and the natural environment, our urban infrastructure and buildings and social, political and economic systems.

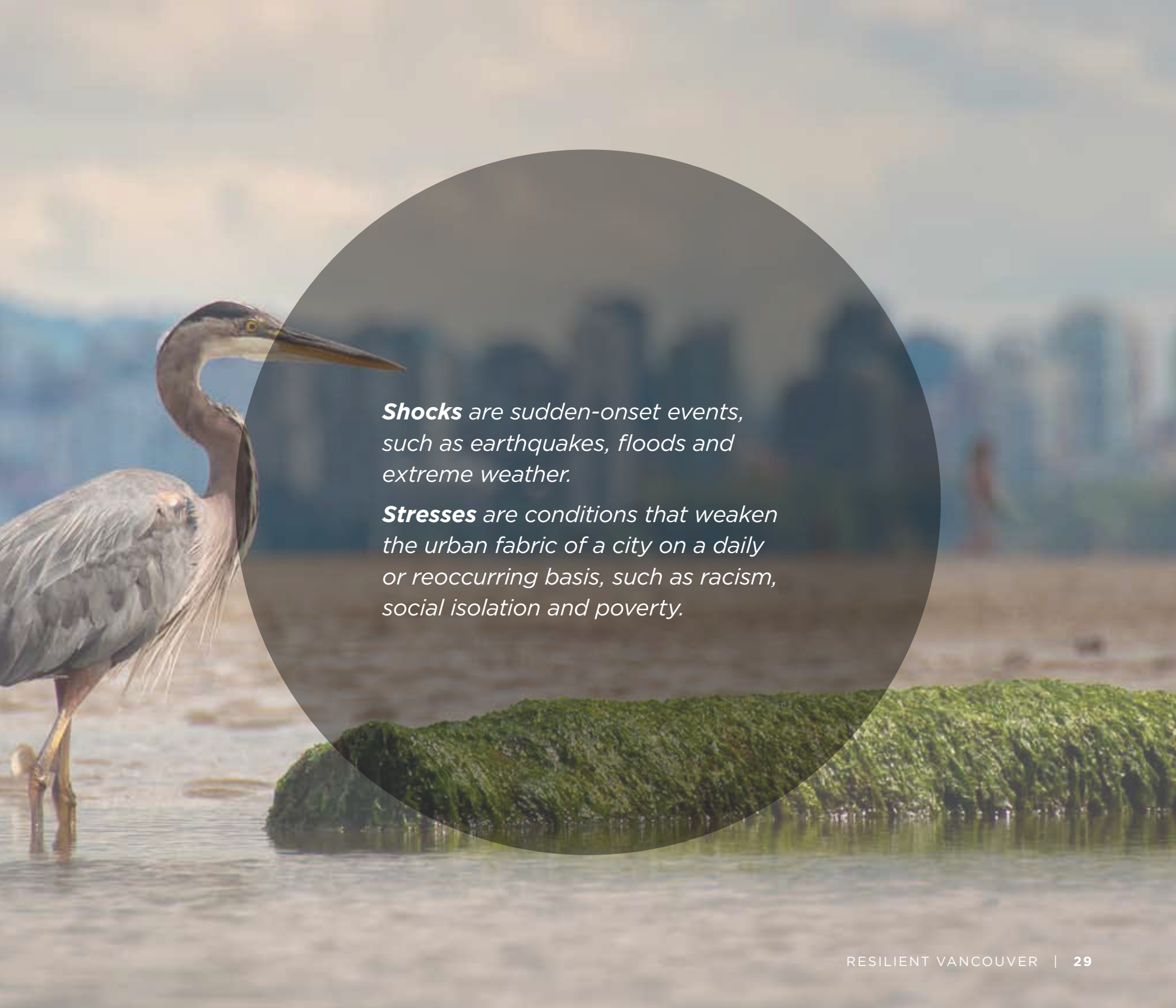
Many of the same qualities and assets that make Vancouver among the most desirable places in the world to live also pose unique challenges for resilience. The stunning mountains and shoreline that surround us support incredible biodiversity and enhance our quality of life, but they also remind us of our

exposure to earthquakes and flooding. Our port and position as the Pacific Gateway create thousands of jobs and economic growth, and yet expose us to oil spills and hazardous materials incidents that threaten our natural environment and health.

As our city grows and is influenced by global trends, the shocks and stresses we face will continue to evolve. While this strategy addresses many current challenges, resilience is not static. Vancouver must continue to be vigilant and forward thinking to identify and manage emerging challenges.







Shocks are sudden-onset events, such as earthquakes, floods and extreme weather.

Stresses are conditions that weaken the urban fabric of a city on a daily or reoccurring basis, such as racism, social isolation and poverty.

Stresses

Social and Economic Stresses

Social and economic stresses result in inequities that undermine groups and individuals' ability to manage and benefit from change, and to withstand and recover from shocks. In Vancouver, we see this in the way that our growing economy excludes many from the Indigenous and Black communities and people of colour, and in the way that snowstorms and power outages are inconvenient for some, but life threatening for others. Similarly, many trends we face, such as an aging population, are not inherently negative, but they represent changes that need to be considered.

Understanding the social and economic stresses and trends that impact our community on a daily basis is critical to creating solutions that will build real resilience for our residents and our systems, regardless of if and when disaster strikes.

“Affordable housing is our number one priority — everyone in Vancouver should have somewhere safe and secure they can call home. Innovative housing solutions are crucial in providing homes that are accessible to all people to ensure our residents can stay living and working in the city”.
- Mayor Kennedy Stewart

Affordability

Vancouver is one of the least affordable cities in North America; unaffordable commercial and residential properties, coupled with low average incomes and rising costs of food and services, fuel the affordability crisis. Employers find it challenging to attract and retain talent, while young families are moving away from the city.

Aging Population

Projections indicate a 92 per cent increase in the number of people aged 65 and older by 2041, and a 10 per cent increase in people aged 0–64. While many seniors are living longer, healthier lives, the number of seniors experiencing poverty and housing insecurity is rising, putting new demands on social and government services.

Debt and Low Wages

Vancouverites carry more debt than anywhere else in Canada, and are vulnerable to even small economic changes². In 2015, Vancouver's median income was \$65,327, compared to a Canadian median income of \$70,336. There is a \$7,000 difference in median salary between men and women.

Food Insecurity

In Vancouver 10 per cent of households experience food insecurity, with single mothers having the highest rates of any household type at 34 per cent (five times higher than couples with no children)³. Food insecurity has life-long impacts on the health and well-being of individuals and communities. Food security is also threatened by a decline in culturally appropriate foods: between 2009 and 2016, 56 per cent of food service retailers in Chinatown closed.



Resilience in Action: Temporary Modular Housing

Vancouver is experiencing a housing affordability and homelessness crisis. In addition to long-term planning, the City of Vancouver is constructing temporary modular housing to provide immediate relief for hundreds of people living without a home. Since 2017, 600 units have been opened, and more are planned. Residents of temporary modular housing are offered support, such as life skills training as well as health and social services. They are provided two meals a day and opportunities to engage through community groups, volunteer work and social events. Safe housing provides a platform for people to build healthy lives, and also reduces exposure to shocks, like extreme weather.



Homelessness

The 2018 homeless count identified 2,181 homeless people in Vancouver. Indigenous people are vastly overrepresented in these numbers. In 2018 and 2019, modular housing has been constructed as a temporary response to this crisis. In the event of a major earthquake, more than 150,000 people would be immediately homeless.

Gender Inequity

The City's Women's Equity Strategy found that only 57 per cent of women feel safe walking in their neighbourhoods after dark compared to 75 per cent of men, and 80 per cent of reported intimate partner violence is against women. There is an 11.8 per cent employment gap between women and men. For Indigenous and Black women, women of colour, and LGBTQ2+ people, these statistics are more acute.

Lack of Diversity in Decision-Making

The underrepresentation of people with disabilities and of those who are non-white or gender diverse in civic leadership roles and engagement activities reflect embedded institutional barriers. During consultations, the community shared that inequity and exclusion of diverse voices reinforces these barriers throughout the decision-making and planning processes.

Poverty

More than one in five children in Metro Vancouver live in poverty, including more than 40 per cent of children in single-parent homes⁴. Nearly half of residents in Vancouver do not earn a living wage, while 70 per cent of people in the Downtown Eastside are considered low income.

Racism

A 2017 survey found that 82 per cent of people identifying as visible minorities experienced racism, and 33 per cent said they have been a target of abuse⁵. Racial inequity has been deeply embedded in Vancouver through policy for generations, and through hate and fear, a rise in racist sentiment in Canada is undermining resilience efforts. Almost half of Vancouverites were born outside Canada, and 2.2 per cent of residents (14,000) identify as Indigenous.

Social Isolation

A recent survey found that 50 per cent of Vancouverites are unable to identify four people they could confide in, and only 54 per cent reported a strong sense of community⁶. Almost 40 per cent of households in Vancouver consist of a single person. In a disaster, social isolation creates barriers to neighbours caring for one another.



Resilience in Action: Developing an Equity Framework

In Vancouver, continued efforts to create a more equitable and just society not only improve the day-to-day lives of our residents, they are essential for building the capacities of individuals, cities, organizations and governments to manage and recover from shocks.

Informed by the Healthy City Strategy, Vancouver is developing an Equity Framework to address the systemic causes of many social and economic stresses. This includes tools and guidance for applying an intersectional approach to city planning and policy. Intersectionality is a way of seeing how a group of people or social problem is affected by mutually reinforcing systems that work together to create inequity and social exclusion.

From a resilience perspective, this means understanding the way that differences in gender, age, race, culture, class, language and ability combine and intersect with social and institutional systems to influence a person's lived experience and, in turn, the way they experience and recover from shocks.



“To the extent that we are progressive and resilient today, it is because of people that stood up and fought for what is right”.

- Community voice

It's important to acknowledge that inequity and vulnerability to shocks and stresses does not indicate a lack of personal resilience. People that experience inequities demonstrate exceptional personal resilience every day, and have fought hard for many of the progressive values we claim today. By learning from these experiences and by resourcing and prioritizing community solutions, we can not only reduce risk, but foster better outcomes for all communities and people.



Environmental and Infrastructure Stresses

In addition to social and economic stresses and trends, Vancouver is vulnerable to several interrelated environmental and infrastructure pressures. Our infrastructure is aging at a time when our population is growing, and our environment is rapidly changing. We need to look at new and creative solutions to ensure that the services provided by our infrastructure and environment can continue to serve increased demand from our community under changing conditions.

Increasing Demand and Aging Civic Facilities

Many of Vancouver's civic facilities, including firehalls, police buildings, community centres, libraries and service yards, were constructed before the introduction of strict seismic and energy standards. As our population grows and climate changes, our facilities will fall under increasing pressure to provide more services. Continued and accelerated investment in resilient civic facilities is an important component of community well-being, emergency response and risk reduction, especially in high-risk neighbourhoods.

Aging Buildings

There are more than 90,000 buildings in Vancouver. Vancouver sets high standards for new buildings, but has limited tools to improve older buildings, many of which are at high risk from earthquakes and were not constructed for a hotter climate and contribute to unsafe and unstable conditions for occupants. Less than 50 per cent of residents have insurance for earthquakes,

and most renters do not have any insurance at all. The cost of renovations and the threat of “renoviction” are barriers to upgrades and safety that must be overcome.

Water System and Resources

By 2050, a 58 per cent decline in snow pack will impact Vancouver's drinking water reservoirs, while more intense rainstorms will increase risk of flooding. Currently 27 per cent of water system infrastructure is in poor or very poor condition. The City regularly upgrades water pipes to higher seismic standards during repair and road work, but this does not guarantee the resilience of water systems on private property.

Climate Change

Canada is warming at a rate faster than the rest of the world⁷. A changing climate is driving declining biodiversity, threats to human health and global conflict and migration; it is also driving new and transformative policy and technology — all of which will influence Vancouver's resilient future.





Resilience in Action: Doing Our Part to Prevent Climate Breakdown

In 2019, Vancouver City Council directed staff to develop new targets to confront the climate emergency, and join cities around the world committed to doing their part to limit global warming to 1.5 C. The result is an ambitious plan that will transform the urban design of our city and regenerate natural ecosystems. By integrating equity and resilience into this work, Vancouver is in a position to help lead that change in way that benefits all people.





Food System Resilience

A 2009 report identified that Vancouver's supply of produce would last 72 hours at any given time⁸. Many Indigenous and local food sources have declined through development, pollution and invasive species, and are under continued pressure from climate change. Shocks like earthquakes threaten access to food resources. Many food suppliers, community kitchens, businesses and non-profits lack business continuity and emergency plans.

Regional Infrastructure and Supply Chains

Regionally, many highways, rail lines, pipelines and digital networks that serve Vancouver have been constructed in flood plains and seismic zones. They are vulnerable to extreme weather, landslides, avalanches and accidents. Disruptions to supply chains limit access to food, water, energy and supplies for Vancouverites, and have significant impacts on the national economy. Eighty per cent of municipally owned infrastructure in our region is not insured.



Resilience in Action: Working with Partners to Keep Transportation Networks Open

The City of Vancouver's transportation network includes more than 40 bridges. While priority bridges are being upgraded, inspecting all bridges post-disaster is important to enable the safe flow of people and emergency supplies post-disaster. To accelerate this process, Vancouver's Engineering Department has worked in partnership with local engineering firms to develop leading-edge processes to deploy and inspect priority bridges in the aftermath of an earthquake. Priority bridges have been documented, including the development of a unique assessment process for non-technical staff to facilitate expedited visual assessment to determine if a bridge should remain open or be closed.



Shocks

Vancouver experiences a range of shocks and hazards every year, and we have strong emergency plans in place capable of managing the majority of these cases without outside support. However, as the frequency of events increases, and as the growth of our city means more people are exposed, we must build risk reduction and resilience into future planning.

Climate and Geo-Physical Shocks

Earthquakes

Vancouver is at risk from multiple types of earthquakes. Hundreds of small earthquakes occur in our region every year, and while most are not felt, a major earthquake is inevitable in our future.

Forest Fires / Air Quality

2017 and 2018 were the worst fire seasons recorded in B.C. In 2017 alone, 1.2 million hectares of land burned, over \$568 million was spent on fire suppression and over 65,000 British Columbians were displaced, with many evacuees coming to Vancouver for support and shelter⁹. In the future the number of climate refugees will increase and air quality will worsen for Vancouverites as a result of regional fires, and the risk of more localized forest fires will increase.

Coastal and Riverine Flooding

The Greater Vancouver region is at significant risk of flooding from the Fraser River and from coastal storm surge events that threaten important regional infrastructure and supply chains. It has been estimated that worst-case coastal flooding today will cost \$19 billion, with riverine flooding costing \$22 billion. Without active risk reduction measures, these are projected to increase to \$24 and \$32 billion respectively by 2100.¹⁰

Extreme Weather and Temperatures

By 2050, hot days will be 4 C hotter and heat waves more frequent; rainfall event intensity will increase 33–63 per cent. Extreme heat and cold are already impacting Vancouverites.



Technological and Health Shocks

Oil Spills

An increase in shipping also increases the likelihood of marine and pipeline oil spills. A worst-case marine oil spill and the resulting clean-up operations may cost the local economy over \$1 billion, and could expose a significant number of people to toxic fumes. A 2014 study indicated that Vancouver’s \$41 billion brand value could experience losses of \$4 billion due to a major oil spill.¹¹

The Cost of Disasters

Compared to other Canadian cities, Vancouver’s hazard profile contributes to heightened exposure to shocks with significant long-term impacts. For example, our region is vulnerable to both catastrophic earthquakes and floods, and while these events do not occur frequently, the magnitude of impact dwarfs that of other major Canadian hazards. Exposed local and regional infrastructure is a key driver of risk and potential economic loss. The table to the right compares these potential disasters with other significant disasters experienced elsewhere in Canada.

Public Health Emergencies

– Opioid Crisis

The ongoing opioid emergency is one example of a public health emergency. A poisoned opioid supply has resulted in thousands of lives lost and millions of dollars re-directed towards response. Exacerbated by stigma, a shock occurs every time a new poisoned supply is released in Vancouver.

Infrastructure Failure and Disruption

Infrastructure failures and disruptions have broad consequences for interdependent systems. Cyber-attacks, gas-line failures, power outages, and transit shut-downs pose unique and complex risks to our economy, people and critical systems.

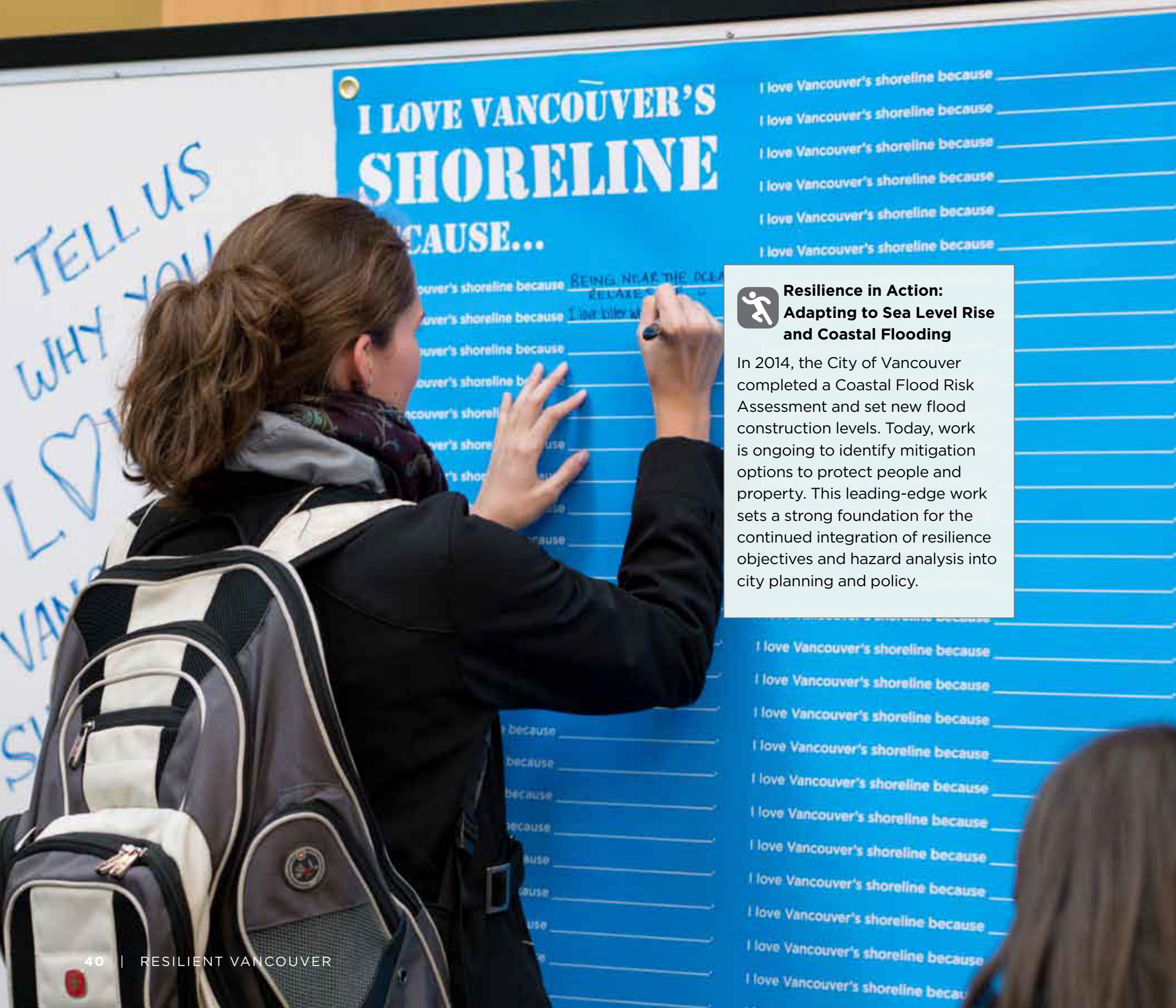
Hazardous Materials

Hazardous materials move regularly through Vancouver via road, river, sea and rail and are concentrated around ports and industrial lands. Hazardous materials incidents contaminate the soil, air and water, threatening human and ecological health. For example, in 2015 a container fire spread toxic smoke across parts of East Vancouver for 2 days before being extinguished.

Residential Fires

Vancouver Fire and Rescue Services responds to hundreds of fires annually. Each year 20 to 30 of these require an Emergency Social Services (ESS) response to provide basic needs support to evacuees with no alternative shelter or support networks.

| EVENT | COST |
|--|--|
| 9.0 M Cascadia Earthquake (modelled) | \$75 billion direct economic losses (projected) |
| 500-year Fraser River Flood (modelled) | \$20–30 billion direct economic losses (projected) |
| 2017 Fort MacMurray Fire | \$4.54 billion direct losses |
| 2013 Alberta Floods | \$6 billion direct losses ¹² |
| 1998 Quebec Ice Storm | \$1.6 billion direct losses |
| 2013 Toronto Floods | \$1.0 billion direct losses ¹³ |



I LOVE VANCOUVER'S SHORELINE BECAUSE...

I love Vancouver's shoreline because _____
I love Vancouver's shoreline because _____
I love Vancouver's shoreline because _____
I love Vancouver's shoreline because _____
I love Vancouver's shoreline because _____
I love Vancouver's shoreline because _____

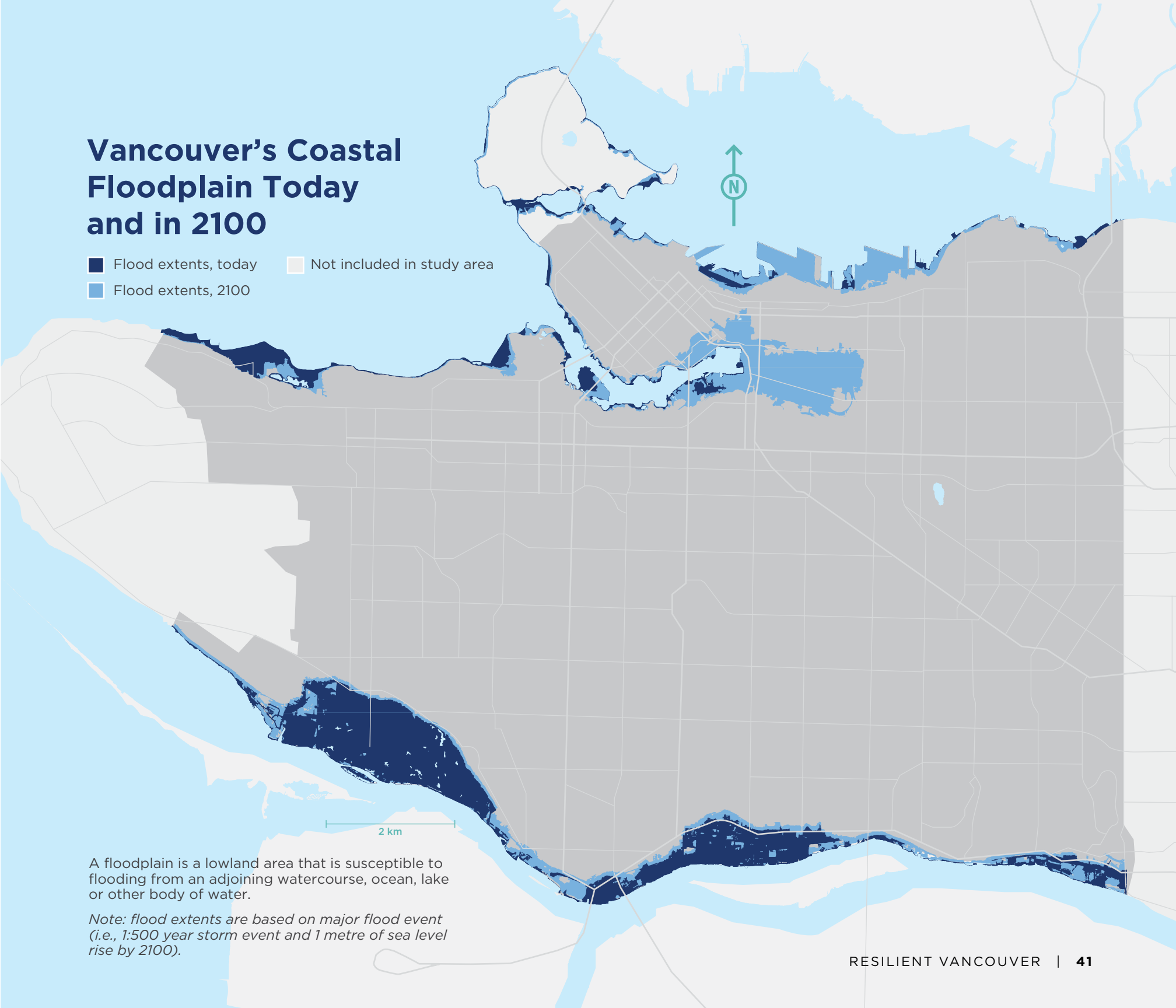


Resilience in Action: Adapting to Sea Level Rise and Coastal Flooding

In 2014, the City of Vancouver completed a Coastal Flood Risk Assessment and set new flood construction levels. Today, work is ongoing to identify mitigation options to protect people and property. This leading-edge work sets a strong foundation for the continued integration of resilience objectives and hazard analysis into city planning and policy.

Vancouver's Coastal Floodplain Today and in 2100

- Flood extents, today
- Flood extents, 2100
- Not included in study area



A floodplain is a lowland area that is susceptible to flooding from an adjoining watercourse, ocean, lake or other body of water.

Note: flood extents are based on major flood event (i.e., 1:500 year storm event and 1 metre of sea level rise by 2100).

Earthquakes — Understanding Local Risks

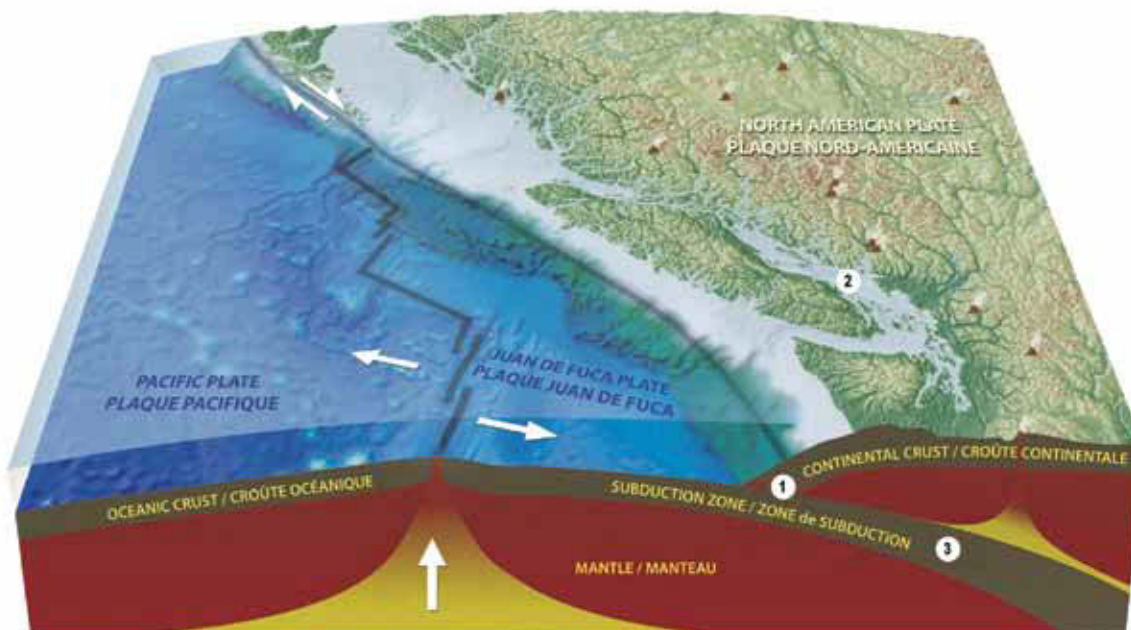
Our region is vulnerable to three types of damaging earthquakes shown in the graphic below: (1) A Cascadia Subduction Zone megathrust earthquake that could result in a 9.0 earthquake; (2) shallow crustal earthquakes that occur closer to the surface and pose significant risks to Vancouver; and (3) deep intra-slab earthquakes that are usually less damaging but more frequent.

In 2018 City staff convened an advisory committee of world-leading technical experts to assist us to improve our understanding of the earthquake risk and to shape policy to mitigate risk to buildings in Vancouver. In partnership

with Natural Resources Canada, the University of British Columbia and local engineers, the City conducted a seismic risk assessment including over 90,000 buildings.

For the first phase of our risk assessment of buildings we examined a shallow crustal 7.3 magnitude earthquake centred in the Strait of Georgia, similar to the 2011 earthquake which took place in Christchurch, New Zealand.

Modelling will continue to evolve, but this assessment provides us with the information necessary to develop targeted policy to reduce risk, prevent loss and support our community to recover.



What could an earthquake mean for Vancouver?

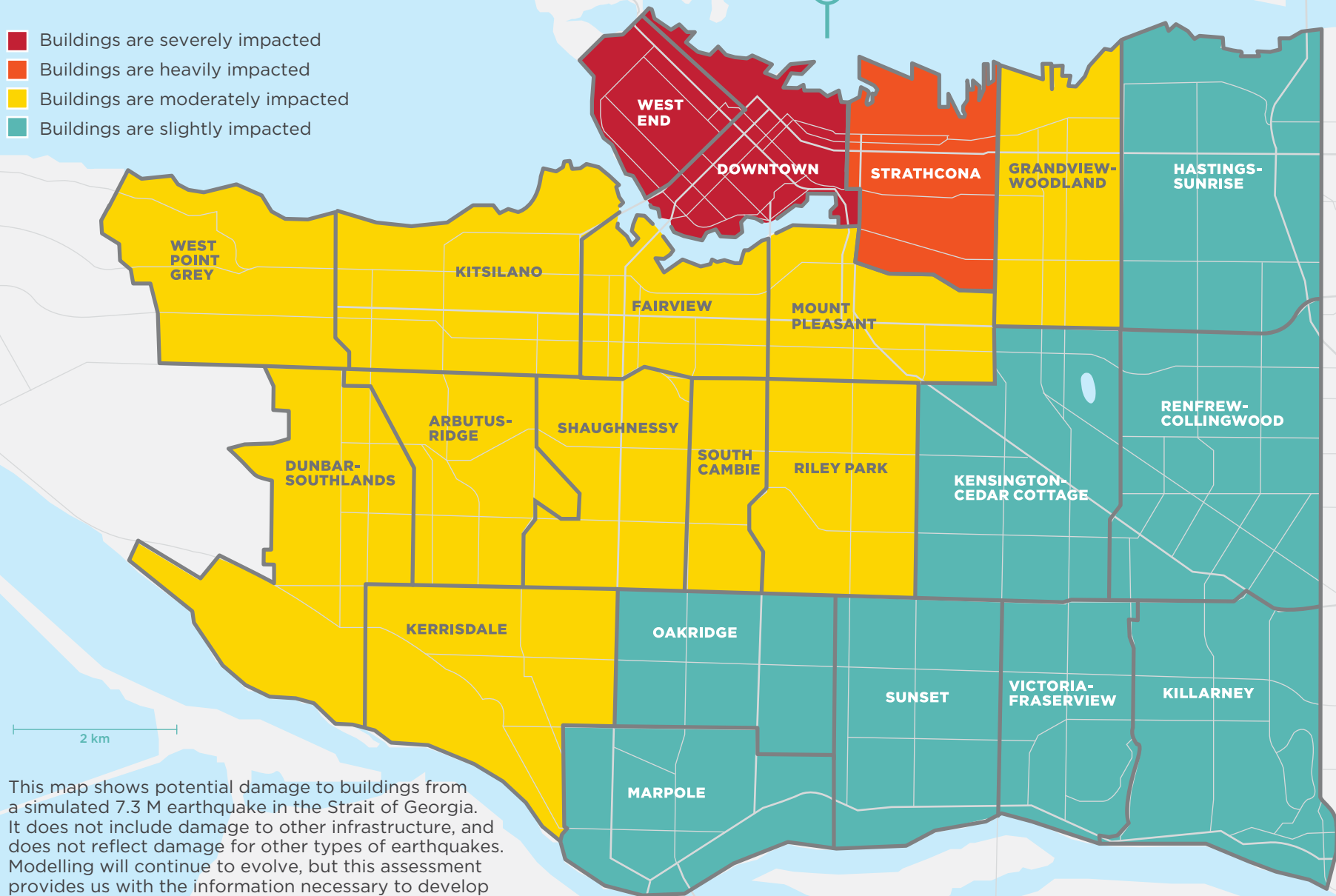
If the modelled magnitude 7.3 Strait of Georgia earthquake were to happen today, the city of Vancouver would experience major damage including:

- More than 10,000 of the 90,000 buildings in Vancouver would be unusable for an extended time; more than 4,000 of those buildings would likely require demolition
- More than 150 buildings would likely collapse
- Large sections of downtown, the West End and the Downtown Eastside would be heavily damaged and need to be cordoned off, leaving them inaccessible for months or even longer
- Buildings and businesses located along commercial corridors would suffer significant damage, slowing response and delaying recovery
- Nearly half of the city's residents would be displaced for more than a month, with almost 150,000 for more than three months
- More than 11,500 people are likely to be injured, and of those more than 1,100 could be severely injured or die
- Financial losses from building damage alone are estimated to be in the order of at least \$8 billion in Vancouver

Seismic Risk in Vancouver:

Damage to Buildings from Modelled Georgia Strait 7.3 M Earthquake

- Buildings are severely impacted
- Buildings are heavily impacted
- Buildings are moderately impacted
- Buildings are slightly impacted



This map shows potential damage to buildings from a simulated 7.3 M earthquake in the Strait of Georgia. It does not include damage to other infrastructure, and does not reflect damage for other types of earthquakes. Modelling will continue to evolve, but this assessment provides us with the information necessary to develop targeted policy to reduce risk, prevent loss and support our community to recover. Researchers confirm that these estimates are conservative (low), based on observations from other events worldwide.





Resilience in Action: VanSlam 2019

The Vancouver Emergency Management Agency and OEM, with VEMA, oversees a comprehensive staff training and exercise program. In 2019, Vancouver held Exercise VanSlam, a full-scale training exercise involving nearly 700 participants, including volunteers, first responders, building inspectors, city departments and external agencies active at 30 sites, to test the City's response and communications plans. The exercise included activation of the Urban Search and Rescue Team, Disaster Staging Areas, Emergency Social Services and Emergency and Departmental Operations Centres. Although the city has robust plans in place, the damage from an earthquake means that many locations and people will remain inaccessible, and mitigation must remain a key priority to reduce risk.





3

RESILIENCE PRIORITIES, OBJECTIVES AND ACTIONS

Resilience in Vancouver will grow through efforts across many scales. The Resilient Vancouver strategy honours and builds upon the deep knowledge and generational work of community members and organizations, businesses, institutional partners and city government

to understand and address pressing urban issues. It is not the intent of this strategy to duplicate that work, but rather to elevate and learn from it.

This strategy is built on the premise that shocks and disasters are inevitable in our complex world, and that actions to

reduce risk must also contribute to day-to-day resilience. The strategy recognizes the need to seek and invest in co-beneficial actions and to empower partners and communities to participate in this work.

Our strategy focuses on building knowledge and capacity where gaps exist, including related to earthquake and disaster resilience, and in changing the way we plan and operate to better anticipate and prepare for changing future conditions.

The Resilient Vancouver strategy is built upon five guiding principles, and structured around three priorities.



Each priority area contains focused objectives and specific actions. These build on and complement existing work by the City of Vancouver, while also addressing significant gaps and risks. The objectives provide high-level direction, while the actions are near-term opportunities to enhance resilience. A number of actions are already underway, and others will be refined and initiated between 2019 and 2021.

Fostering Resilience at Multiple Scales



Guiding Principles

Throughout our research and consultation, staff heard that continued work to advance reconciliation, equity and sustainability are critical to the long-term resilience of our city, and must be pursued in concert with strategies to enhance resilience to shocks and stresses. Further, we heard that respectful, reciprocal relationships set the foundation for the collective action and trust required to address our greatest challenges. We also heard that we should ensure that our strategy doesn't stop at survival, but that it focuses on the capacity of our community to heal and recover in the aftermath of shocks. The following five principles underpin our strategy and will guide the refinement and implementation of actions towards our objectives.



RECONCILIATION

As Vancouver is on the unceded territories of the *xʷməθkwəy̓əm* (Musqueam), *Sḵw̓x̓wú7mesh* (Squamish) and *səlilwətaʔt / selilwítlh* (Tseil-Waututh) Nations, who have lived here for millennia, it is essential that we continue to build reciprocal relationships recognizing their generous and resilient cultures and take direction from them. Vancouver's reconciliation journey is just beginning, and this work is inextricably linked to resilience in our community.



EQUITY AND INTERSECTIONALITY

The impacts of shocks and stresses are not equal for all people. Systems of oppression like colonization, racism, sexism and classism are stresses that impact people on a daily basis, and these power systems are amplified in the context of shocks. Truly advancing resilience means elevating and supporting people within our community that are most at risk and have been systematically excluded from power structures for generations. We can do this by prioritizing equity and intersectionality in all of our work. Moving forward, as Vancouver's Equity Framework evolves, the resilience team will revisit and reassess our work, and integrate emerging principles and accountability mechanisms.



SUSTAINABILITY

Social, economic and environmental sustainability are long-term values that are championed through a range of city strategies and initiatives. Our ability to withstand shocks in the future relies on the health and well-being of current and future generations, the maintenance and regeneration of natural systems, the mitigation of climate change, the protection of biodiversity and inclusive economic development. Initiatives to enhance resilience must abide by the principle of sustainability and vice-versa. Vancouver has a strong foundation to build on this regard, and must continue to lead, act and advocate for bold innovation and action towards social, environmental and economic sustainability.



RECOVERY

Our first priority as government is protecting and facilitating the health, wellness and safety of the residents and visitors to our city. Recovery means moving beyond a focus on response and survival in the face of shocks and stresses. It means planning and designing physical and social systems and structures that are flexible, adaptive and redundant enough to bounce back when they experience shocks, and intentionally planning to regenerate and 'build back better' when crises occur. A focus on recovery includes post-event planning as well as investment in mitigation that minimizes the impact of shocks and alleviates chronic stresses.



RECIPROCITY

This is a strategy built on partnerships. It has been supported by local knowledge and global networks. Strong, trusting relationships and diverse perspectives are central to solving tough problems. The City of Vancouver has convening power and influence, which we can and should leverage to support reciprocal partnerships that amplify resilience efforts. In our relationships and engagements, we must avoid simply extracting knowledge, but instead use these opportunities to build the capacity of our community, and recognize and value the resources contributed by many groups and individuals to make our city a better place.



**PRIORITY 1:
THRIVING AND PREPARED
NEIGHBOURHOODS**

Objectives:

- 1.1** Cultivate community connections, stewardship and pride
- 1.2** Empower communities to support each other during crises and recover from disasters
- 1.3** Transform the way communities understand risks and prepare for local hazards
- 1.4** Strengthen social and cultural assets and services



**PRIORITY 2:
PROACTIVE AND
COLLABORATIVE CITY**

Objectives:

- 2.1** Elevate the voices of underrepresented groups to improve resilience outcomes
- 2.2** Shape an inclusive city that can adapt to changes and turn challenges into opportunities
- 2.3** Strengthen organizational capacity to manage risk and recover from shocks and stresses
- 2.4** Advance holistic, collaborative disaster risk reduction and recovery planning



**PRIORITY 3:
SAFE AND ADAPTIVE BUILDINGS
AND INFRASTRUCTURE**

Objectives:

- 3.1** Improve building performance to protect lives, decrease displacement and accelerate recovery following earthquakes
- 3.2** Plan, design and upgrade civic facilities to serve the current and future needs of our diverse communities and ever-changing environmental conditions
- 3.3** Anticipate threats and mitigate and minimize disruption to civic infrastructure and critical services
- 3.4** Promote regional collaboration to assess, finance and fortify lifeline infrastructure and supply chains





Resilience Priority 1: Thriving and Prepared Neighbourhoods

Objective 1.1: Cultivate community connections, stewardship and pride

Objective 1.2: Empower communities to support each other during crises and recover after disasters

Objective 1.3: Transform the way communities understand risk and prepare for local hazards

Objective 1.4: Strengthen social and cultural services and assets

Neighbourhoods are at the intersection of social and economic life, and are where shocks and stresses play out in the lives of our residents. In Vancouver, the strength and flexibility of our social fabric are critical to everyday support for residents and businesses, and essential for the healing and recovery of our city when faced with disasters.

When disaster strikes, our communities will need to rely on each other, yet too many residents report a lack of understanding of how to help themselves, much less their neighbours. Community organizations and residents articulated an urgent need for emergency planning and preparedness information and tools at the local level.

By listening to community, we heard that resilience includes being prepared for emergencies, but that it starts with

strengthening relationships and empathy among diverse neighbours, sharing knowledge and ideas, contributing to problem solving and caring for local spaces.

The four objectives supporting this priority recognize the foundational role of community relationships and connections, the importance of robust cultural and social infrastructure and the need to leverage local knowledge and creativity to prepare for and recover from shocks and stresses. Resilience in our neighbourhoods is enhanced by ongoing work through Vancouver's Healthy City Strategy, and that is being led by groups and individuals across our community.



Objective 1.1: Cultivate community connections, stewardship and pride

Resilience actions should serve a community in its day to day and enable it to recover from disasters. Supporting healthy social and cultural connections is one example of this. We know that social cohesion and connection to culture are key indicators of community health and well-being. They are also indicators of disaster resilience, and help ensure people bounce back (or forward) from crises, to feel safe in their homes and neighbourhoods and to thrive and be happy. With nearly 50 per cent of Vancouverites unable to identify four people they would call in an emergency, and regional projected population growth of 1 million people by 2040, building social and cultural connections is essential. From the community, we heard that resilience starts in our neighbourhoods, through participation in formal and informal activities, and through events that engage and celebrate diversity. By making space for dialogue, engaging newcomers in civic innovation and supporting neighbourhood-driven resilience initiatives, we can weave a social fabric that is inclusive and strong enough to withstand the greatest challenges.

1.1.A: Promote open and ongoing dialogue about Vancouver’s past, present and future

Working with partners, Vancouver will continue to support ongoing community dialogue that fosters empathy and understanding across diverse groups, and enables us to talk about hard issues — ranging from racism to climate change. The resilience team will support the community and city departments working to hold space and amplify efforts to elevate the current and historical experiences of diverse people and groups in Vancouver. This will be achieved by forthcoming initiatives like the Creative City Strategy, and ongoing initiatives like Indigenous naming of civic facilities.

1.1.B: Promote community leadership opportunities for newcomers

The Vancouver Immigration Partnership will work to identify strategic opportunities with groups such as student councils, parent advisory committees, strata councils and residential associations to create more opportunities where people of diverse backgrounds, languages and cultures can reach out and connect with each other, participate in local decision-making and create change.

1.1.C: Create Neighbourhood Resilience Labs

Residents and organizations have the capacity and interest to design and test new ideas to build connections and resilience in the places they live, work and play. Community members have requested a clear pathway and civic support for residents, businesses and community groups to test, iterate, launch and scale innovative ideas and interventions aimed at building resilience in their neighbourhoods. Through a cross-departmental effort, Vancouver will explore options to support Neighbourhood Resilience Labs, physical locations for residents and groups to propose and test new ideas.

1.1.D: Identify and support participatory budgeting opportunities

Participatory budgeting aims to put budget decisions directly into the hands of local residents, and helps build trust and understanding between the community and government. It builds civic literacy and pride while decentralizing decision-making power into the hands of residents. Building on the success of the West End Participatory Budgeting pilot, Vancouver will continue to seek new opportunities for resident-led decision-making.



Resilience in Action: Sharing with Neighbours

A Thingery is a community-owned lending library of things located in a modified shipping container. A Thingery helps create more resilient communities by reducing a person's ecological footprint, strengthening social connections and assisting in emergency preparedness. The Thingery is one of many projects that inspired the action for Neighbourhood Resilience Labs.



Resilience in Action: Naming the nécaʔmat ct Strathcona Library

Opened in 2017, the nécaʔmat ct Strathcona Library is the City's first civic building with an official Indigenous name. nécaʔmat ct Strathcona encompasses the idea of 'we are one' in the hən̓q̓əmi̓əŋ (Musqueam) language. This name recognizes and honours the Coast Salish peoples and their traditional unceded territories, while also reflecting the neighbourhood's historic city name, Strathcona.

Local First Nations were consulted on the branch name in relation to suggested First Nations names and the use of specific Coast Salish languages. The first full-service branch in the Strathcona, Chinatown and Downtown Eastside neighbourhoods, the building also includes affordable housing managed by the YWCA. The naming of the library encourages awareness of Indigenous heritage and reconciliation.



Objective 1.2: Empower communities to support each other during crises and recover from disasters

Place-based planning and response networks are an important complement to government emergency plans and operations — especially when it comes to reaching vulnerable people at critical moments right after major disasters, and helping each other to recover afterwards. When disasters happen, many people will turn first to the organizations that they frequent and trust for safe and accessible care. Local organizations and businesses that serve their community day-to-day are uniquely positioned to assess and address the impacts that their communities may face during crises, and with the right support can mobilize to save lives and hasten recovery.

1.2.A: Launch and scale the Resilient Neighbourhoods Program with a toolkit and grants

The Resilient Neighbourhoods Toolkit, co-created with community partners, includes a suite of tools, ideas and exercises for all ages and abilities. The City is working with partners to design the next phase of the Resilient Neighbourhoods Program and to release the toolkit in conjunction with a small grant stream.

1.2.B: Support a community-led Downtown Eastside Neighbourhood Disaster Response and Recovery planning process

Fifteen years ago, a consortium of non-profit organizations developed a proposal for a community-led emergency response plan to address health and wellbeing concerns for the Downtown Eastside. Of key concern is the need to ensure the continuity of services offered by non-profits, faith-based and cultural organizations. Today, community organizations, neighbourhood service providers and first responders continue to express an urgent need for neighbourhood-specific, culturally appropriate disaster response and recovery plans in this neighbourhood. Recent earthquake and climate

assessments point to high vulnerability of infrastructure in this neighbourhood. Staff have begun engaging with residents and organizations in this area, and will continue to work with them to determine the best role for the City in this process.

1.2.C: Train and support staff at community centres and libraries to participate in community disaster resilience

Vancouver's libraries and community centres are an important part of the social fabric, with access to networks across the city, and may also serve as community Disaster Support Hubs. Working together with the Park Board, Vancouver Public Library and the City will refine plans for these centres to contribute to an emergency response, and provide training to staff to support and host Resilient Neighbourhoods Events and Workshops.





Resilience in Action: The Resilient Neighbourhoods Program

Neighbourhood and community organizations play a key role in combatting social and economic stresses and fostering resilience. From the outset, the City sought to work with and learn from community, and to understand what resilience means for our diverse neighbourhoods. The City of Vancouver provided grants to four community partners to work closely with the Resilient Vancouver team to develop and pilot the Resilient Neighbourhoods Program. Over nearly two years, this program enabled deep engagement with community organizations, diverse neighbourhoods and residents to concurrently build resilience while informing actions for the Resilient Vancouver Strategy.

The pilot has resulted in the co-creation and testing of community asset mapping tools, resilience action plans, delivery of emergency preparedness training and exercises and the sharing of knowledge, ideas and challenges across diverse communities. Community-based organizations demonstrated a desire to take stronger roles in leading and deepening place-

based resilience initiatives on topics including disaster preparedness, food equity and climate adaptation, among others. The co-creation process allowed the City and community partners to develop a new type of working relationship through an ongoing, two-way dialogue that fostered trust and understanding. It has also enabled partner organizations to lead their own resilience building efforts.

Key lessons from this work include the power of local networks and reciprocal relationships to sustain local action. City government, community-based organizations, businesses, academic institutions and philanthropic partners all have different and important roles to play in building resilience in our neighbourhoods, and all bring unique access to knowledge, resources and capacities. As the pilot wraps up, the City of Vancouver is working with multiple partners to capture learnings and secure support for scaling the program through a networked approach — one that supports collaboration across many partners to empower neighbourhood-level efforts to mitigate, adapt, prepare and recover from shocks and stresses.





Resilience in Action: The Resilient Neighbourhoods Program



Britannia Community Services Centre hosted local teens for a “Hunger Games” resilience event, challenging them to work together using limited resources to set up shelters, find water, and communicate with each other. Photo Credit: Lindsay Grant



312 Main collaborated with students at Emily Carr University to explore local food and design emergency food preparation and provision for the neighbourhood.



Collingwood Neighbourhood House convened an emergency preparedness discussion with seniors.



Dunbar Community Centre Association ran four Disaster Support Hub exercises.

Objective 1.3: Transform the way communities understand risks and prepare for local hazards

A recent survey on emergency preparedness found that 92 per cent of local residents are concerned about earthquakes, yet less than half feel prepared for emergencies. Through our consultation we heard residents' concern about a lack of information helping them understand what risks and hazards may mean for them specifically, and that traditional messaging and materials about emergency preparedness are not appropriate for many residents. Motivating and empowering our community to act requires information about risks and hazards to be accessible, meaningful and relevant. Leaders in this field are moving towards communication and engagement that foster collective action and build on lived experience. Through art, culture and the input of diverse people, Vancouver will embark on a journey to change the way we talk about risks and hazards.



1.3.A: Engage artists to explore and inspire creative solutions to complex challenges

Artists explore, interpret and spark dialogue about society's toughest challenges. In 2019, Vancouver and Melbourne will collaborate to host Creative Approaches to Disaster Resilience, a creative lab and learning exchange bringing together artists, community organizations, scientists and emergency managers to explore creative opportunities to engage the community in resilience conversations. The intent of this exchange is to seed new partnerships and explore options for ongoing and future collaboration between the creative sector and resilience efforts.



1.3.B: Launch a digital tool to help the public understand and prepare for earthquakes and climate change impacts

Vancouver is working with the Geological Survey of Canada to develop a digital tool that will make information about earthquakes, flooding, and sea level rise easily available online. Through a human-centred design process, the tool will provide neighbourhood-scale hazard and risk information, alongside actions that people can take to reduce risks to themselves and their families, homes, businesses and neighbourhoods.

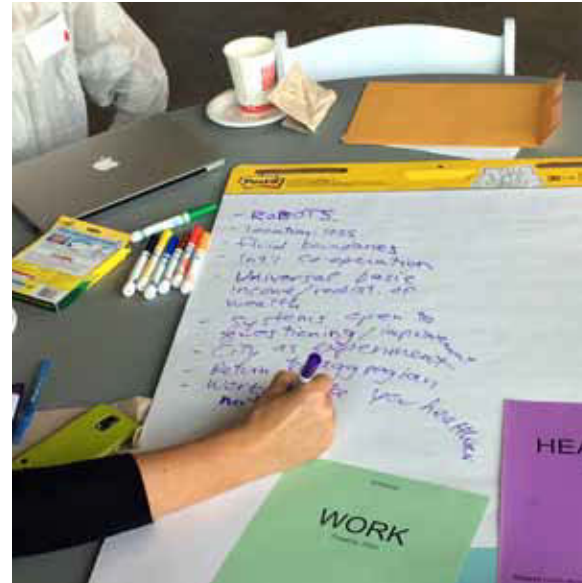


Around the world, artists are an important part of imagining resilience. Vancouver has been inspired by REFUGE, a multi-year production led by Arts House and supported by Resilient Melbourne, to explore climate change and disaster response through the arts.

Photo Credit: Arts House, City of Melbourne

1.3.C: Apply an intersectional lens to revise emergency and resilience education and engagement materials

By applying an intersectional lens, staff will consult with the community and work with the Province of B.C. to create new training methods and materials that are reflective of the diverse needs of our community and our evolving understanding of risk. This will not only foster awareness and empower specific populations, it will also strengthen neighbourhood planning, community connection and long-term self-sufficiency before, during and after emergencies.



Resilience in Action: Engaging Youth in Emergency Preparedness

In 2019, Vancouver was host to Future City Builders, an initiative to engage youth in the future of resilient cities. Inspired in part by the Resilient Neighbourhoods Program, the Future City Builders chose Emergency Preparedness as the focus of their 2019 youth initiative, and 30 inspiring young Vancouverites created bold and innovative concepts to advance resilience in Vancouver.

Photo Credit: NeighbourLab





Future City Builders was presented in partnership with Youthful Cities and Evergreen, and was championed by RBC Future Launch. Learn more here: youthfulcities.com/fcb-vancouver. Photo Credit: Steph Koenig

Objective 1.4: Strengthen social and cultural assets and services

Day-to-day social and cultural assets, including many non-profits, provide services like translation, food programs and childcare that enable more people to participate in the economy, be active in their communities and cope with shocks and stresses. We heard from many people that their personal resilience was bolstered by support from social, cultural and civic services; we also noted many concerns about growing demand for services as inequity grows, and limited surge capacity to respond in large disasters. Embedding resilience into the planning and delivery of social, cultural and civic services will help support our growing community in times of greatest need.



1.4.A: Evaluate resilience of food assets and meal providers and services in high-risk neighbourhoods

During community mapping exercises, we heard that our physical infrastructure is important, to a large extent, because of the social and cultural services it supports. Food assets and low-cost meal providers were consistently highlighted for their importance to social and cultural connections, and for their potential role in disaster recovery. A study done in parallel with this strategy found that many were not well prepared to function during long-lasting power outages and other emergencies. For people that rely on non-profits and community kitchens for meals, there was recognition of the need to invest in the resilience of these services and of the opportunity to leverage them to provide food during emergencies. By supporting the ongoing work of local food providers, and in collaboration with the food policy team, Vancouver will develop a process to evaluate the resilience of food assets, starting with high-risk neighbourhoods.



Low-cost meal providers are a vital community asset. Coordination to ensure that such non-profits can continue to deliver these services in communities day to day and during emergencies is an important step towards resilience.

1.4.B: Create a Capacity Building Action Plan and Non-profit Partnering Framework

The non-profit sector in Vancouver is economically important. The City relies on non-profit partners to deliver critical front-line services. Through partnership with Vancouver's non-profit sector, the City will create a framework to guide the City's work in strengthening the resilience, stability and impact of Vancouver's non-profit sector. This plan will recognize the City's mutually beneficial relationship with the sector, and will advocate internally and externally for opportunities to stabilize organizations through robust partnering opportunities, workforce development and core, multi-year operational and program funding.

1.4.C: Leverage investments in civic assets and infrastructure to create local economic opportunities

The City of Vancouver owns and operates billions of dollars of civic assets and infrastructure that contributes to the vibrancy and wellbeing of our neighbourhoods. In 2019, the City introduced a Social Value Procurement Framework that ensures that, when appropriate, the resources invested in these assets will also be leveraged to benefit and build capacity for equity-seeking groups, strengthening social,

physical and economic resilience in our neighbourhoods through the lifecycle of a project. The social value framework is part of an ongoing commitment to advance economic, environmental and social sustainability for all Vancouver residents and families. It was a key action of the Healthy City Strategy, and supports priorities relating to reconciliation, equity, inclusion, diversity, accessibility and resilience.





Resilience Priority 2: Proactive and Collaborative City

- Objective 2.1:** Elevate the voices of underrepresented groups to improve resilience outcomes
- Objective 2.2:** Shape an inclusive city that can adapt to changes and turn challenges into opportunities
- Objective 2.3:** Strengthen organizational capacity to manage risk and recover from shocks and stresses
- Objective 2.4:** Advance holistic, collaborative disaster risk reduction and recovery planning

The magnitude of the challenges Vancouver is facing exceeds what any one entity or group can solve alone. Thriving in a rapidly changing future requires the collaboration and commitment of people and groups as diverse and complex as the city itself. By engaging meaningfully with communities and facilitating external partnerships, Vancouver can learn from the knowledge and experience of local stakeholders and global cities. We can share and invest in new technologies and research, embed resilience into our planning processes and adapt City systems to serve our community more equitably. Through a spirit of reciprocity, learning and innovation, the objectives and actions in this section promote reflection, foresight and partnerships to collectively imagine and strategically create a resilient city for all.



Objective 2.1: Elevate the voices of underrepresented groups to improve resilience outcomes

The implementation of this strategy offers an opportunity to amplify the voices of those who experience shocks and stresses most acutely, and to build capacity and support for their continued participation in civic processes. Empowering those who are underrepresented in civic processes and decision-making will have positive outcomes for our entire community. This objective is not just about bringing more people to the table to participate – this is about creating space for underrepresented groups to define the issues and change the process so that outcomes work for more people. By meaningfully engaging with our diverse community we can intentionally strengthen our social fabric and co-create city systems that enable more people to thrive.



2.1.A: Elevate and incorporate Indigenous knowledge and culture through resilience work

In support of our overarching guiding principle of reconciliation, In 2019 Vancouver will hold space for and work with a group of local Indigenous artists and knowledge holders to advise on ways of elevating and honouring Indigenous knowledge, art and culture as we build climate and disaster resilience, and to explore different ways of working together towards resilience in the future.



2.1.B: Leverage resilience initiatives to strengthen civic literacy and access for underrepresented groups

Civic literacy and trusting relationships are pre-requisites to meaningful engagement with diverse groups. Through the Resilient Vancouver process, we have heard many ideas from the community about how to support meaningful civic engagement. By continuing to partner with trusted community organizations, using plain language and making available resources required for culturally competent and accessible engagement, Vancouver will use this strategy to advance civic literacy and evolve engagement processes.





2.1.C: Deepen our understanding of the experiences of diverse women and youth (inclusive of trans*, gender-diverse, two-spirit people and cis women) regarding climate change and disasters

In conjunction with the Women Deliver conference, staff will convene an event and initiate a dialogue to hear and learn from the experiences of diverse women and girls as they relate to disasters, climate change and emergencies. This is one tangible action informing an evolving process to apply an intersectional lens to resilience work, and to elevate and support the role of women in creating a resilient city.



Anthonia Ogundele, Dalia Gonzalez, Chief Janice George and Vi Antoine shared their stories of resilience at the 2019 Women Deliver Satellite Session.

Women and Resilience

Women play a unique and often undervalued role in disaster resilience and recovery. In most emergencies it is primarily women who take on the role of caring for those who have been injured or displaced, care for children and seniors and find food, shelter and social support for their families. While significant resources are directed at infrastructure redevelopment, it is the unpaid labour of women that often drives social and psychological recovery for families and communities.

Women are also more vulnerable to disasters. Global evidence shows that women and girls are less likely to survive disasters, and domestic and sexual violence increases following disasters. Emergency shelters are often unsafe or inaccessible for women and gender-diverse people, and this is heightened for Indigenous and Black people and women of colour. In the aftermath of disasters, economic gender inequity is reinforced. For example, in the absence of childcare and school, women and girls often stay home to care for families, while men return to work. Vancouver's City Council is committed to gender equity. The leadership of women and gender-diverse people and explicit support for them in disaster planning, preparedness and recovery is an essential component of both resilience and gender equity.

Objective 2.2: Shape an inclusive city that can adapt to change and turn challenges into opportunities

As Vancouver embarks on developing a City-wide Plan, we have an incredible opportunity to learn from the past, and to embed resilience into the future of our urban fabric. Using new technologies and techniques, we can anticipate trends and capture emerging economic opportunities. Through hazard modelling and scenario planning, we can proactively reduce risk for current and future generations.

2.2.A: Implement state-of-the-art hazard modelling tools to reduce risk through land use, zoning and urban design

Vancouver is partnering with Natural Resources Canada to create modelling tools that integrate hazard information into land-use planning and design. For the first time, planners will be able to proactively reduce risk from multiple hazards through site-specific policy, planning and urban design.

Vancouver will be the first city in Canada to have access to this tool, which will eventually become available nationally.

2.2.B: Enable transformative city planning through strategic foresight and scenario planning

Strategic foresight is a leading method for planning for uncertainty. It is used to anticipate and imagine different cultural, economic, social, political and economic trends, shocks and stresses and consider how they may interact to impact future conditions. In 2019, Vancouver will utilize foresight methods to inform an Employment Lands and Economy study. By considering multiple scenarios and trends spanning automation to climate change, the City will not only evaluate demand scenarios, we can also design policy that shapes a resilient economy, able to adapt to inevitable disruptions and serve our diverse employment needs. Vancouver is working with leaders in this field to explore how this approach can be expanded to other city planning processes, and to build capacity for staff and stakeholders.

2.2.C: Develop a dynamic building lifecycle database

Vancouver has an opportunity to improve the analysis and tracking of city priorities, ranging from safety to affordability, by improving the way information about buildings is recorded and stored. Vancouver will learn from other cities to scope and develop a Dynamic Building Lifecycle Database to track seismic and energy retrofits and other city metrics, and to support planning and development processes that advance the City's resilience objectives.



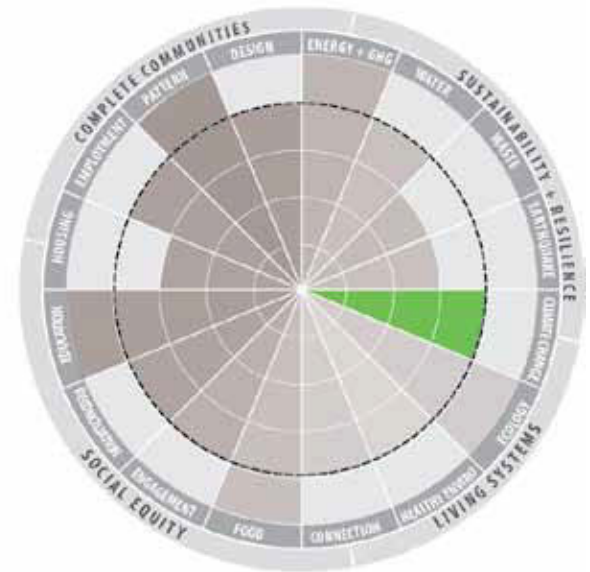
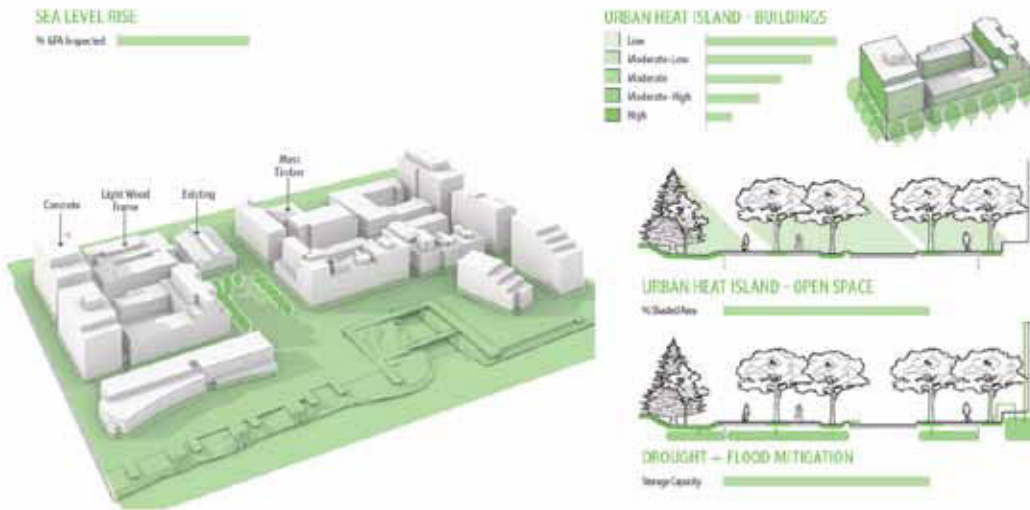
Artists play a central role in helping community to imagine a resilient future.

2.2.D: Create and test a Resilient Neighbourhood Design Framework

In collaboration with global experts and City departments, the City Design Studio is developing a neighbourhood design tool that connects physical design indicators with resilience objectives. This tool enables planners to evaluate the co-benefits and trade-offs of different design approaches

on a wide range of objectives — from disaster risk reduction to walkable communities. Used in concert with deep community engagement, this tool will support better outcomes and ensure that planners are considering multiple, intersecting issues in the design of communities. This tool is currently being refined and will be piloted first in the Southeast False Creek neighbourhood.

CLIMATE CHANGE



Sample outputs from the Resilient Neighbourhood Design Framework. Indicators are being established to evaluate resilience across a range of intersecting factors. The tool will help planners model the potential impacts of different options and evaluate outcomes.

Objective 2.3: Strengthen organizational capacity to manage and recover from shocks and stresses

A stable city government is essential for a resilient community. City operations, finances and staff are all impacted by shocks and stresses. Coordinating internal efforts to manage hazards and embed resilience throughout the organization will bolster our capacity to anticipate and withstand inevitable shocks. By building on our current strengths and applying the United Nations Sendai Framework for Disaster Risk Reduction, our staff and our City can support fiscally responsible, proactive and life-saving actions for current and future generations.

2.3.A: Align city governance, resources and policy related to climate and earthquake mitigation, adaptation and risk reduction

Staff have identified an opportunity to strengthen coordination and governance of actions related to risks and hazards. By working together, Resilience, Sustainability, Emergency Management, and Risk Management teams can streamline risk reduction and adaptation efforts and resources through City-coordinated decision-making and planning processes for our greatest hazards. This aligns with the Sendai Framework and leading international resilience and adaptation practices.

2.3.B: Connect emergency management and business continuity planning processes

Emergencies impact city staff and departments in many ways. Staff may be affected personally, and they may also be called upon to lead emergency operations. This means departments need to make decisions about how to support staff during recovery and focus limited resources. Ensuring the continuity of City services goes hand in hand with effective emergency management for the public. Currently business continuity planning is done independent of the development of emergency plans. Connecting these processes is important to identify resource gaps, ensure that staff understand their role in emergencies and maintain critical levels of service. This is also important for advising the public about what they can and cannot expect from the city when emergencies happen.

2.3.C: Evaluate and embed resilience into financial planning

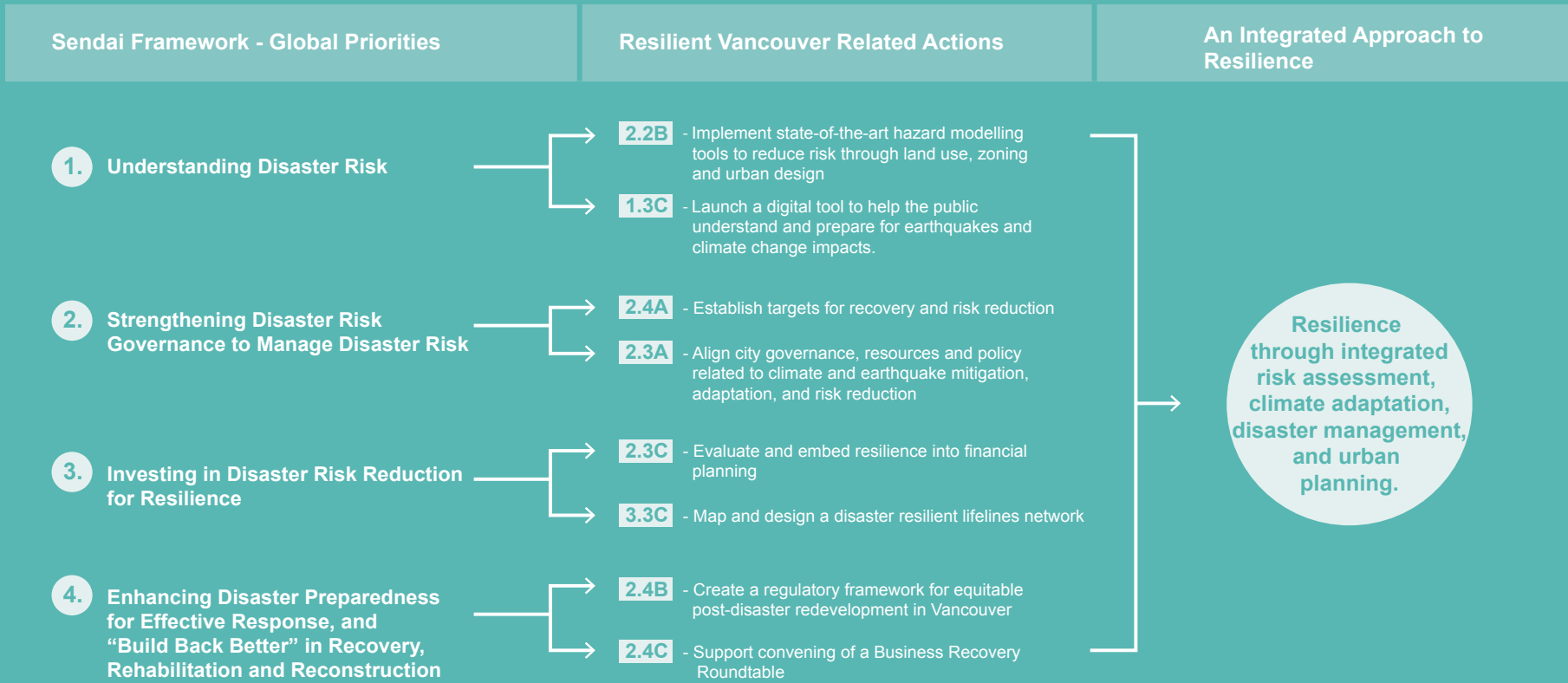
In 2019 Vancouver City Council approved a budget and capital plan emphasizing resilience as a key objective of the City's investments, and recognizing the need for new tools to support the integration of resilience into financial planning and budgeting. The Finance Team, together with the Resilience Team, has worked with 100RC platform partners to review

leading practices and lessons learned from municipalities that have experienced shocks. This will inform the development of a conceptual model to support municipalities to identify impacts of different shocks and stresses and adopt processes to support long-term financial resilience, alongside objectives including sustainability and equity.

2.3.D: Align local action with the United Nations Sendai Framework for Disaster Risk Reduction

The United Nations (UN) Sendai Framework for Disaster Risk Reduction 2015–2030 draws on experiences of past global crises to provide a holistic approach that prioritizes disaster prevention and recovery. The Framework has recently been adopted by both the Government of Canada and the Province of B.C., and is increasingly being applied by progressive cities and communities working to build resilience to multiple hazards. By aligning with the UN Sendai Framework, Vancouver can exemplify leading practices, share a common approach across decision makers and ensure that our actions towards disaster risk reduction and resilience amplify and integrate our social, economic and environmental sustainability objectives. As a next step, staff will work across departments and with partners to assess opportunities for local application and implementation of the Sendai Framework.

Aligning Resilient Vancouver with the Sendai Framework for Disaster Risk Reduction



The UN Sendai Framework for Disaster Risk Reduction aligns with the Sustainable Development Goals, and sets out key approaches to reduce risk to hazards by establishing risk reduction priorities and targets that can be translated from global to local levels. It is centered on a “whole-of-society” approach, which ensures active participation of and engagement with those most deeply affected, and often excluded, by traditional planning and decision making, as well as collaboration across public, private and non-profit sectors. This graphic shows how many of the actions in the Resilient Vancouver Strategy support the Sendai Priorities, and can advance our efforts towards an integrated and all-hazards approach to risk reduction.

Objective 2.4: Advance holistic, collaborative disaster risk reduction and recovery planning



Pre-planning for recovery is essential to support communities to bounce-forward after a shock, to re-start the economy and to achieve equitable outcomes through well-managed re-development. In the absence of a strong recovery framework, communities end up in reactive mode, making quick decisions without time to evaluate their long-term consequences and reinforcing vulnerabilities through unplanned redevelopment. Cities and organizations that actively plan for recovery can achieve more equitable outcomes and opportunities for residents, reduce risk in the future and prevent “disaster capitalism”. Like city-building, recovery and risk reduction is most successful when it follows a whole-of-society approach and recognizes the unique role of different stakeholders and players in emerging from a crisis.

2.4.A: Create a regulatory framework for equitable post-disaster redevelopment in Vancouver

Redevelopment after disasters is more effective if planning and regulation have been considered in advance, and if there is a strong vision for recovery. Amidst destruction, disasters also provide a rare opportunity to rebuild a city that addresses the changing needs of all



residents. The development of the City-wide Plan provides an excellent opportunity to imagine what our city might look like after a disaster, and to think about how we would want to rebuild a city that meets the needs of future generations. By working in parallel with the development of the City-wide Plan, and using scenario planning, Vancouver will work with partners to imagine recovery, and develop a framework for post-disaster redevelopment that minimizes recovery time and prioritizes “building back better”.

2.4.B: Support convening of a Business Recovery Roundtable

Research shows that 40–60 per cent of small businesses fail following a disaster. Our seismic assessment has identified significant risks to the city’s employment lands and commercial corridors. Economic recovery will rely not only on the physical resilience of buildings where businesses are located, but on the resilience of supply chains, the safety of employees and the capacity to draw people back to the city following a disaster. Prepared businesses can also be activated to provide critical response services and supplies. Vancouver will work with partners to support the convening of a Business Recovery Roundtable to advance this discussion, and advocate for a stronger role for the private sector in regional recovery planning initiatives.



2.4.C: Establish targets for recovery and risk reduction through the Pathways to Disaster Risk Reduction Project

Vancouver will serve on the steering committee and support our partners to contribute to the Pathways to Disaster Risk Reduction project. This collaborative project brings together entities responsible for land use and development, critical infrastructure and emergency response, and provides a platform to set and work towards local and regional risk reduction and recovery targets (e.g., emergency shelter capacity and timelines and prioritization of recovery of critical services, economic activities and infrastructure). For our part, the City will bring local community partners and city staff to the table with seismologists, climate scientists, modellers and researchers to develop a set of risk reduction and recovery targets informed by science and the community.

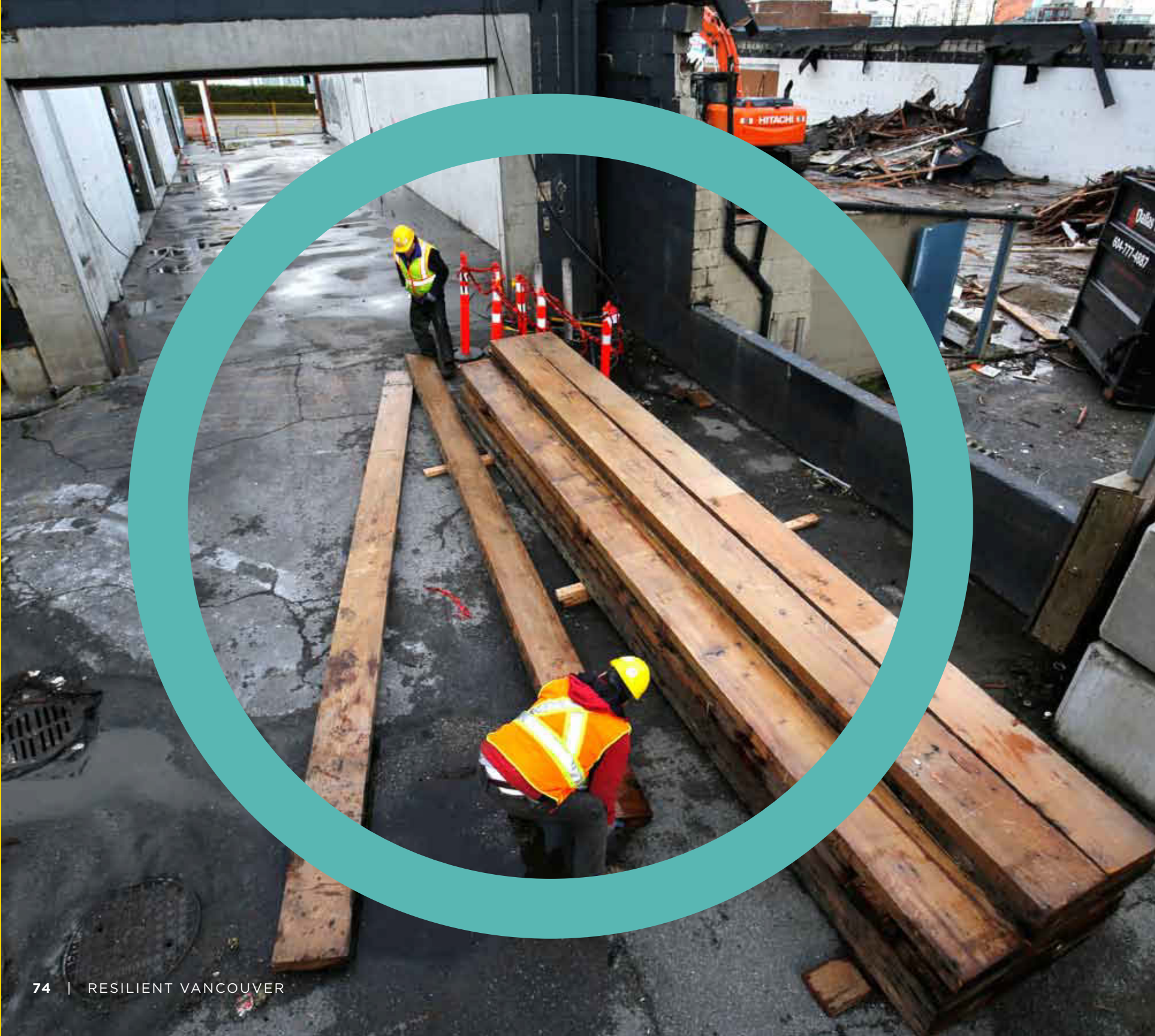


Resilience in Action: Reducing Risk Together

Today, new climate and earthquake data help us to pinpoint and prioritize infrastructure and buildings at greatest risk, and to see where and how people and businesses may be affected. With regional projected population growth of 1 million by 2030 (not including the very real potential for a surge in climate or political migrants and refugees), we're working with partners and creating new tools to model the way growth and social stresses intersect with aging infrastructure, climate change and hazards to increase the consequence of disruption.

Spearheaded by Natural Resources Canada, 10 organizations, including all levels of government, have come together to launch the Pathways to Disaster Risk Reduction project to address this challenge.

This \$4 million initiative, funded in part through a federal grant, aims to transform our regional understanding of the cascading impacts of earthquakes and climate change hazards and to create cost-benefit analysis tools for risk reduction that also incorporate social and economic indicators. By strengthening data and modelling capabilities and establishing indicators for resilience, the project will deepen regional collaboration and enable strategic investment in resilient physical and social infrastructure. Through this work, Vancouver will improve our understanding of infrastructure interdependencies and vulnerabilities, develop hazard modelling tools, evaluate social and economic impacts of risk reduction policy, and support local and regional recovery and risk reduction planning. Vancouver's participation in this project over two years will support many Resilient Vancouver objectives, and will also include active participation from community partners.



Resilience Priority 3: Safe and Adaptive Buildings and Infrastructure

- Objective 3.1:** Improve building performance to protect lives, decrease displacement and accelerate recovery following earthquakes
- Objective 3.2:** Plan, design and upgrade civic facilities to serve the current and future needs of our diverse communities and ever-changing environmental conditions
- Objective 3.3:** Anticipate threats and mitigate and minimize disruption to civic infrastructure and critical services
- Objective 3.4:** Promote regional collaboration to assess, finance and fortify lifeline infrastructure and supply chains

The natural and built environments are inextricably linked to the well-being of residents and the economy. From earthquakes to climate breakdown, Vancouver's buildings and infrastructure, and the essential services they provide, face multiple evolving pressures and must transform to serve the changing needs of the community. The regional and interconnected nature of our infrastructure systems, not to mention the cost of failure, means that we have a vested interest in working with external partners and ensuring local redundancies in the event of disasters.

With respect to major disasters, the failure of buildings and infrastructure threatens lives, housing supply, affordability and the national economy. There are limited regulatory options currently available to make existing buildings safer or minimize

the threat of displacement, but we now have the information we need to create targeted and effective policy. Vancouver must contribute to, and advocate for, the support and investment required to ensure that our buildings and infrastructure can provide safe, reliable services to residents and businesses today and under changing future conditions. Through the application of systems thinking, and the use of new technologies and innovative policy, the objectives and actions under this priority are targeted at actively reducing risk to critical infrastructure, buildings and services, while supporting the well-being of residents today and in the future.



Objective 3.1: Improve building performance to protect lives, decrease displacement and accelerate recovery following earthquakes

A damaging earthquake will inevitably occur in Vancouver. New data and modelling technology have enabled City staff working with the expert Seismic Policy Advisory Committee to evaluate the specific ways that different building types will perform and how neighbourhoods, businesses and people are likely to be impacted. This work greatly enhances our understanding of earthquake risk, expanding our ability to consider proactive risk reduction, mitigation and recovery (weeks, months and years before and after an earthquake) rather than only the immediate life and safety response (hours and days immediately after an earthquake).

While we must continue to build response capacity, meaningfully reducing risk requires that we proactively and strategically address the risk posed by existing buildings. Through targeted policy, incentives, advocacy and collaboration with the Province of B.C., the City of Vancouver will set targets for risk reduction and initiate actions today to improve at-risk buildings, reduce risk for residents and businesses and enable recovery when an earthquake occurs.



3.1.A: Advance performance-based design and recovery-based code requirements for critical buildings

New buildings play an important role in reducing our overall seismic risk. Every building is an opportunity to make a resident, city block or neighbourhood safer and more able to recover. Currently, building codes throughout Canada only require that buildings will not collapse in an earthquake — meaning new buildings should protect life, but may not be functional or inhabitable afterwards. Starting with critical facilities, Vancouver will evaluate options to promote and achieve recovery-based design so that buildings can function and serve the community after an earthquake.



3.1.B: Formalize a cross-departmental Resilient Buildings governance model

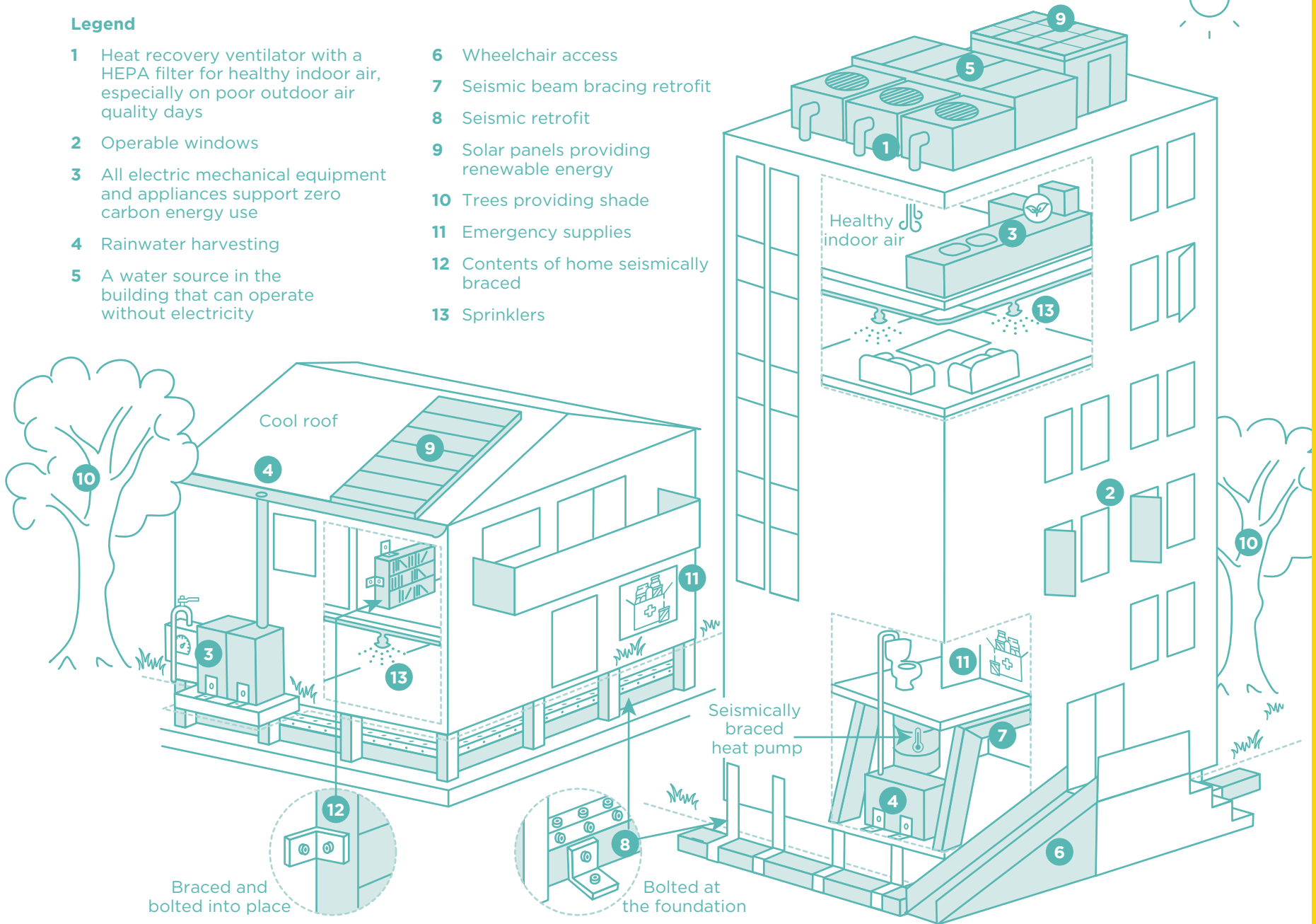
Buildings are the target and source of many policies and challenges — from affordability to reducing emissions, Vancouver needs an increased stock of resilient buildings capable of serving the needs of our community today and allowing us to better recover from disasters and adapt to future conditions. For private and civic facilities, a resilient buildings approach demands that we prioritize safety and affordability for tenants when considering all building improvements, and that we maximize co-benefits when upgrades are taking place. Through an expanded Resilient Buildings committee, staff responsible for policy related to housing, affordability, green buildings, seismic safety, heritage and accessibility will work together to identify co-benefits, promote innovation, explore incentives and set targets that balance and support multiple priorities.

Resilient Buildings



Legend

- 1 Heat recovery ventilator with a HEPA filter for healthy indoor air, especially on poor outdoor air quality days
- 2 Operable windows
- 3 All electric mechanical equipment and appliances support zero carbon energy use
- 4 Rainwater harvesting
- 5 A water source in the building that can operate without electricity
- 6 Wheelchair access
- 7 Seismic beam bracing retrofit
- 8 Seismic retrofit
- 9 Solar panels providing renewable energy
- 10 Trees providing shade
- 11 Emergency supplies
- 12 Contents of home seismically braced
- 13 Sprinklers



Inspired by Los Angeles, staff will work to assess options to achieve resilience objectives through policy for buildings



3.1.C: Complete seismic risk assessment and engage stakeholders to identify risk reduction and policy options for existing buildings

In the coming months, we will work to understand how different types of earthquakes will impact our city, to evaluate the impact of earthquakes to infrastructure (e.g., roads, bridges, water systems, communications), to assess secondary impacts such as fires or lack of access to social services and to understand the compounding risks associated with climate change and other hazards. We will conduct a social and economic assessment of earthquakes and of potential policy options. In collaboration with the Province of B.C., we will engage broadly with stakeholders to put forward a set of policy options to mitigate risk for existing buildings. As part of this work, we will develop support tools and advocate for incentives for home and building owners to take action.

Risk Reduction Spectrum



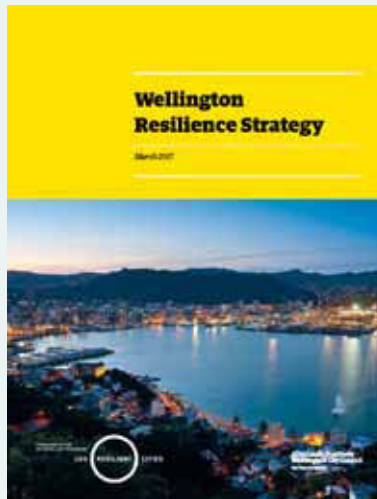
Source: City of Palo Alto, Rutherford • Chekene

In California, policy options to reduce seismic risk for buildings range from light-touch options, such as taking an inventory of buildings and simply notifying owners of building risk, to more intensive options like mandatory evaluation and retrofits. This graphic illustrates the range of options used in other cities with high seismic risk.

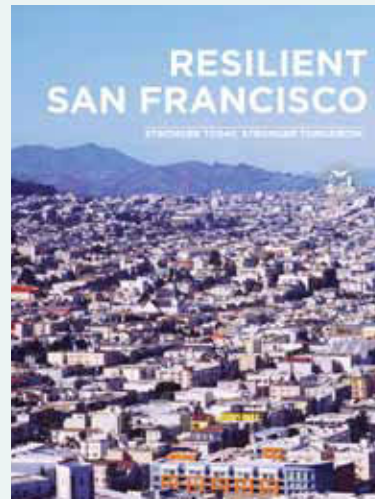


Learning from Experience: Wellington & San Francisco

In collaboration with the Province of B.C. and with support from stakeholders, the City will explore a broad spectrum of policy options to reduce risks to buildings. We will continue to learn from the experience of other cities.



In response to national policy passed in 2016 requiring retrofits on earthquake-prone buildings, Wellington is prioritizing upgrades of buildings along critical transportation routes to ensure access and minimize disruption. Other critical buildings or especially weak buildings will also have an accelerated timeline for upgrade, while heritage buildings may be considered for extensions.



In 2013, on the anniversary of the San Francisco Great Earthquake and Fire of 1906, San Francisco instituted a mandatory retrofit requirement on all older, wood-framed residential buildings with a soft storey. This weakness leaves more than 5,000 of these buildings, housing over 100,000 residents, at risk of collapse in a serious earthquake.

Objective 3.2: Plan, design and upgrade civic facilities to serve the current and future needs of our diverse communities and changing environmental conditions

City-owned civic facilities include community centres, firehalls, police buildings, public works yards and libraries that provide important day-to-day services, and serve as critical coordination points for response and recovery in the face of shocks and stresses. These facilities can serve as shelters during emergencies and will be central points of recovery after disasters. Investment in these facilities should be prioritized to reduce risk for our community, and design of the spaces must be flexible and adaptable to meet current and future community needs.



3.2.A: Explore options to accelerate climate and seismic upgrades or redevelopment of civic buildings to enhance community recovery capacity

Redevelopment and upgrade of civic facilities is an important component of community risk reduction and recovery. Despite this, many civic facilities and emergency response buildings are not eligible for federal disaster mitigation and adaptation funding. Vancouver will explore options to prioritize and accelerate seismic retrofits and replacement of civic facilities to support post-disaster response and recovery in the city's highest risk neighbourhoods. As part of this, we will explore new financing options and risk-transfer mechanisms, and advocate for changes to senior government funding that would complement investment in resilient civic facilities.



3.2.B: Integrate updated climate and seismic priority projects into the capital plan process

Establishing a priority framework within our capital plan, informed by climate and seismic risk reduction, represents a key opportunity to enhance community resilience, accelerate recovery and reduce financial risk. The City of Vancouver has already contributed to best practices for integrating climate change into capital planning. We will leverage this knowledge and expand our practice to include new information about neighbourhood seismic risk and resilience, and if required, to prioritize and integrate the projects with the greatest resilience outcomes into the capital planning process.



3.2.C: Continue civic infrastructure resilience and interdependency assessments with Public Safety Canada

In 2017, the Resilient Infrastructure Working Group partnered with Public Safety Canada to evaluate select civic infrastructure using a qualitative review process to evaluate risk, interdependencies and resilience gaps and opportunities. This process complements Vancouver's business continuity and asset management programs. Vancouver will continue to leverage this federally designed program where appropriate to assess civic infrastructure, and integrate outcomes into our Asset Management Program.



**Resilience in Action:
Civic Facilities Seismic Program**

As part of the City’s effort to evaluate and enhance the seismic performance of our civic facilities, the 1969 East Wing of City Hall was demolished in 2017, and has been replaced with the Helena Rose Gutteridge Plaza, a public open space celebrating Vancouver’s first female Councillor.

The West Annex was retrofitted to fully meet current building code seismic standards and an earthquake early warning system has been installed in the West Annex. In addition to these buildings, the redevelopment of firehalls #5 and #17 is ongoing, and the City is undertaking seismic upgrade of firehall #12.



The 1969 East Wing of City Hall was demolished in 2017, and has been replaced with the Helena Rose Gutteridge Plaza.

City Hall West Annex Seismic Retrofit



To seismically retrofit the West Annex, engineers use buckling-restrained braces.

Objective 3.3: Anticipate threats and mitigate and minimize disruption to civic infrastructure and critical services

The continuity of civic infrastructure and services is essential to the well-being of our community and our economy. Threats emerge not only from natural hazards, but from aging infrastructure, technological changes and intentional attacks. Strategically evaluating and investing in infrastructure can save money and lives, achieve co-benefits for community well-being, risk reduction and climate adaptation, and increase partnership opportunities, including eligibility for financing and grants from senior government.

3.3.A: Develop a city-wide framework for critical infrastructure management and decision-making

Create a dedicated cross-departmental critical infrastructure position to develop and support the implementation of a common framework to guide critical infrastructure management and decision-making, establish and update risk assessment guidelines and performance objectives for critical infrastructure, coordinate infrastructure resilience efforts across departments and contribute to regional and cross-sectoral infrastructure working groups.

3.3.B: Refine and test post-disaster assessment protocols for infrastructure and buildings

Building on the initiatives called for in the 2013 Earthquake Preparedness Strategy, the City will accelerate efforts to design processes to rapidly screen private and civic buildings, and critical infrastructure, after a major earthquake. Assessment is an essential first step to recovery, ensuring safety and allowing residents to repair and return to their businesses and homes.

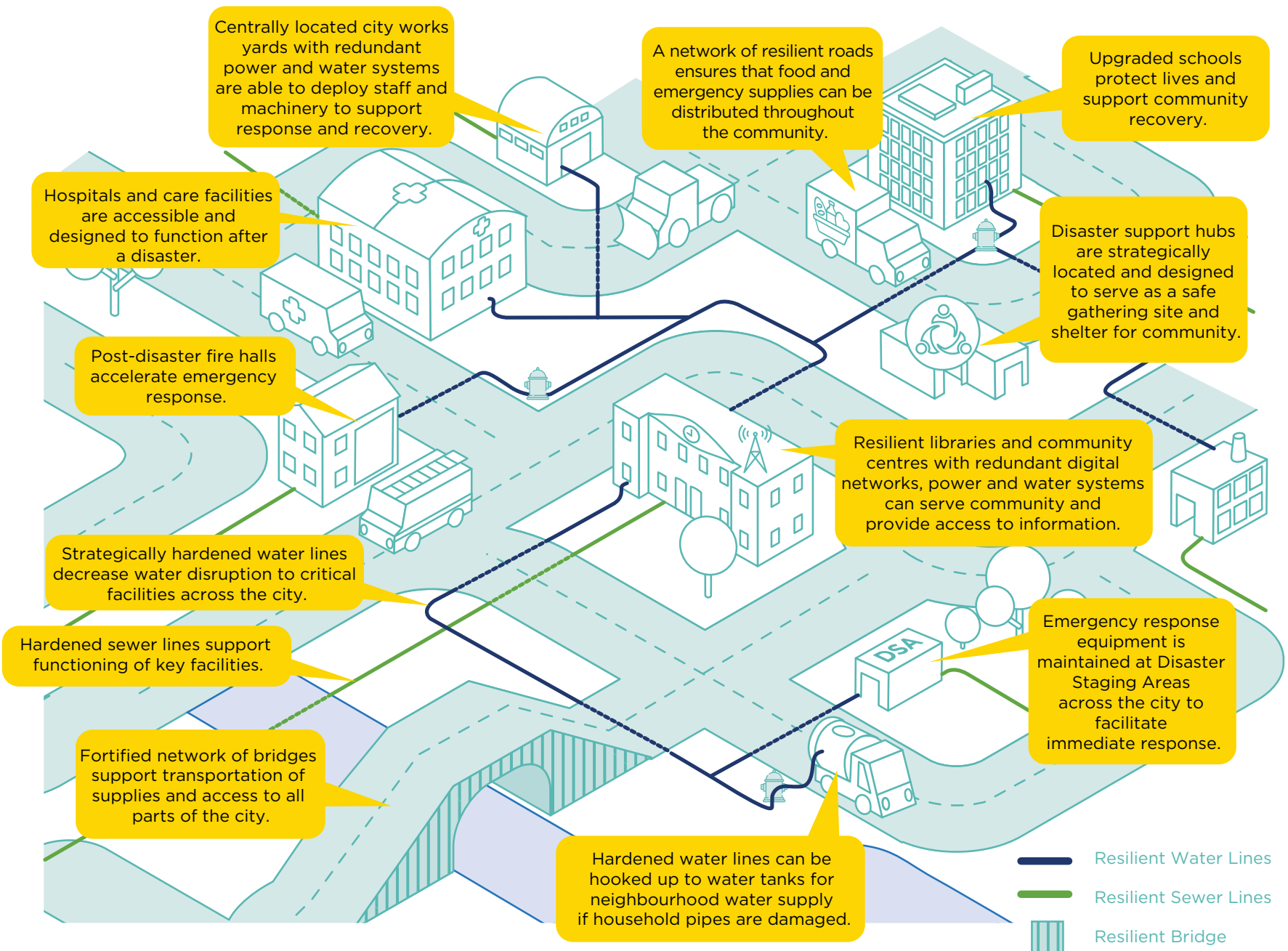
3.3.C: Establish risk assessment guidelines and recovery targets for critical infrastructure

Vancouver will update risk assessment guidelines to include analysis of interdependencies and the consequence of failure of critical infrastructure. Vancouver will convene a process to establish service-level recovery targets and timelines to inform both infrastructure design and emergency response plans.

3.3.D: Map and design a disaster resilient lifelines network

Staff will work to map and assess feasibility for a prioritized, distributed network of shock-resilient lifeline infrastructure, including priority expansion of roads, bridges, hardened water and sewer systems and flood management infrastructure. This will enable emergency service access and delivery of resources to critical facilities and hard-to-reach neighbourhoods. As the city evolves, staff will explore the expansion of the dedicated fire protection system (e.g., along the Broadway corridor), pump stations and flood protection infrastructure. This approach can guide long-term capital investment, support strategic asset management and renewal, inform policy and regulation and create opportunities for partnerships, including external funding.

Imagining a Disaster Resilient Lifelines Network



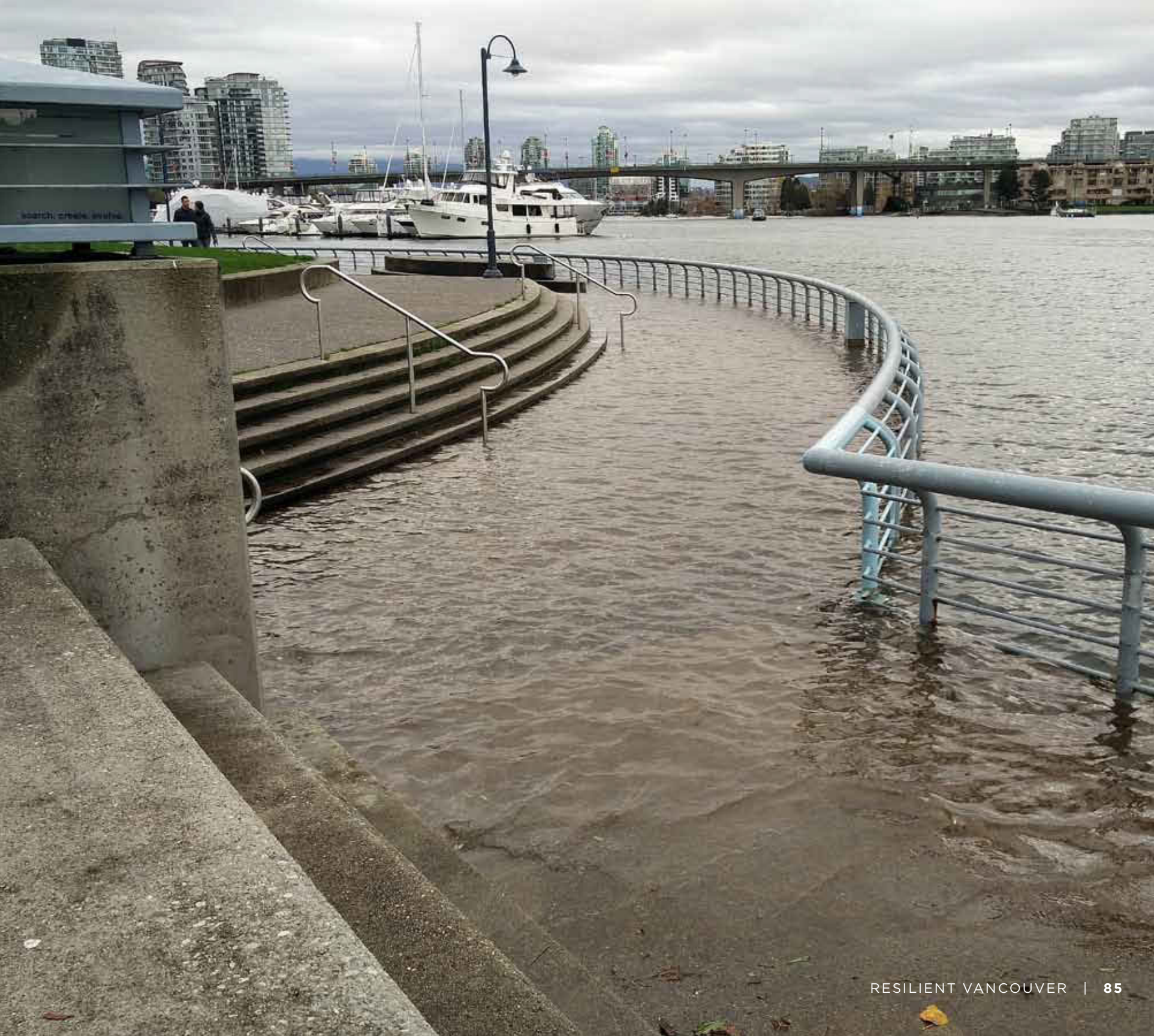


Resilience in Action: Northeast False Creek

Northeast False Creek is one of the last areas in Vancouver's downtown core to be developed, connecting the densely populated downtown peninsula and the proposed site of the new St. Paul's Hospital. This coastal area is susceptible to liquefaction and coastal flooding as a result of former industrial activity and sea level rise. Resilience planning for this area requires special consideration.

Through the removal of the seismically vulnerable viaducts, the construction of a resilient road network, a sea level rise adaptation strategy and the assessment and seismic upgrade design of the Cambie Bridge, the City is working to ensure that the downtown core, new hospital, residents and businesses in this growing area will be well-connected, including during emergencies. This approach sets a strong precedent for future planning, and inspires the design of a city-wide resilient lifeline network.





Objective 3.4: Promote regional collaboration to assess, finance and fortify lifeline infrastructure and supply chains



A worst-case Fraser River flood is an increasingly likely event, with catastrophic regional consequences affecting critical infrastructure that our city and economy requires to function.


The regional infrastructure supporting Vancouver's supply chains is managed by different entities and vulnerable to a wide range of hazards and disruptions well beyond our jurisdictional boundaries. Robust local and regional supply chains directly support our national economy, and the ability of local residents to access critical services. As single entities, infrastructure owners may not be able to justify preventive investment or upgrades. However, when viewed as a system with economic and social impacts, the justification for multi-stakeholder investment may emerge. Sharing data and information and aligning priorities across regional municipalities and infrastructure owners has been challenging. Today, new technologies now enable us to model regional infrastructure and hazards, and evaluate the cascading impacts of

failure, making the case for investment. Globally, new financing tools are emerging that support investment in resilient infrastructure that can be explored for application in our region.

A key recommendation from the 2016 Understanding Risk Conference in Vancouver is the development of a common platform for information sharing and resilience efforts in the region. Such an approach has been used successfully in San Francisco and Wellington to coordinate and reach consensus on infrastructure resilience targets and restoration priorities. The collaborative, reciprocal approach set out in the Resilient Vancouver strategy supports a similar model, and the City will continue to work across sectors and with partners to achieve long-term regional resilience to all hazards.

 **3.4.A: Convene private and public sector experts to explore innovative financing options for resilient infrastructure**

Vancouver will work with insurance and risk finance experts, as well as regional stakeholders and senior government to explore financing options to accelerate investment in local and regional infrastructure, and to protect critical supply chains. Vancouver will partner to convene stakeholders starting in 2019.

 **3.4.B: Pilot a cascading impact assessment process in partnership with the Port of Vancouver**

Vancouver will partner with the Port of Vancouver and the Dutch non-profit Deltares to host a multi-stakeholder workshop to evaluate potential cascading impacts of coastal flooding across a variety of infrastructure and systems. This pilot process will start by looking at an area currently vulnerable to flooding that will be increasingly exposed as sea levels rise. The intent of the workshop is to develop a shared understanding of the risk and economic impact of flooding in order to inform near-term emergency planning and future adaptation measures.

 **3.4.C: Support regional resilience efforts by sharing seismic assessment process, findings and tools with regional stakeholders and planning partners**

In the Vancouver region, there are several entities working on different aspects of infrastructure resilience, including the Fraser Basin Council, Trans Link, the Integrated Partnership for Regional Emergency Preparedness and various Metro-Vancouver committees. Vancouver is supportive of a regional resilience approach, and as our seismic assessment process evolves, we will engage with and share our process and findings with regional municipalities, local First Nations, planning entities and infrastructure owners. By advocating and supporting our partners, Vancouver can enable solutions and collaboration that will benefit the entire region.

Infrastructure and Insurance

Less than half of residents have adequate insurance for local hazards, and the majority of municipally owned linear infrastructure (e.g., roads and water lines) is not insured. Even if it was, insurance does not prevent damage, and it may not materialize in the case of a major incident. A recent report from the C.D. Howe Institute confirms that without action to reduce risk, a major earthquake in our region would exceed risk tolerance thresholds for private sector insurance, overwhelm federal backstop measures and exceed the capacity for recovery at all levels of government¹⁴. In other words, this is a regional problem with national economic implications that cannot be addressed exclusively through response planning and post-disaster recovery funding.



Looking Ahead: What does the future hold?

Resilient Vancouver is a comprehensive strategy that lays out priority areas, objectives and actions for the City of Vancouver to improve resilience to both shocks and stresses over the short, medium and long term.

Improving resilience means holistically targeting shocks like earthquakes and stresses like social isolation. No one challenge stands alone, and no one organization or government is solely responsible. Participation on every level, from individual to regional, and from the public, private and non-profit sectors, is essential to successfully building a resilient future for all.

This strategy represents the start of a journey, one that will continue to evolve with new ideas and changing conditions. Moving forward, the City of Vancouver will work with partners and community stakeholders to establish targets for resilience that reflect our guiding principles of Reconciliation, Equity, Sustainability, Reciprocity and Recovery. We will continue to support community-led and place-based initiatives to prepare for and recover from emergencies. We will work across silos and departments and support a human-centred approach to build capacity, strategically invest in infrastructure and proactively embed resilience into our plans and processes. Building on a strong foundation, this strategy seeks to elevate and amplify the incredible assets of our community and address our biggest gaps to create a city that truly serves everyone in both good times and bad.

None of this work can be accomplished without strong, collaborative partnerships. At the closing of this strategy, we acknowledge that while the actions we take may be revised and renewed over time, the way we need to do this work — through committed, reciprocal partnerships — will remain constant. In a rapidly changing and increasingly complex world, shocks and stresses can only be addressed through collective action at the local, regional and global levels. Through collaboration, foresight, careful planning and thoughtful allocation of resources, we can strengthen our communities today and anticipate and manage emerging challenges and changes.

We are grateful for all those that have advised us so far. We hope you will join us on Vancouver's resilience journey.

Contributors to Resilient Vancouver

Resilient Vancouver has been made possible by the support, collaboration, expertise and commitment of over 2,500 individuals, stakeholders and organizations. This diversity of voices and perspectives will be essential to the success of our ongoing resilience journey. It has been an honour for the Resilient Vancouver team to work with and learn from local and global partners. We are eternally grateful for your contributions to this Strategy and to our community, and look forward to continued collaboration.

Public:

- › Over 2,000 members of the public who contributed their ideas and expertise during community consultations
- › Non-Profit and Community Organizations:
- › 312 Main Community Co-op
- › 411 Seniors Centre Society
- › Architectural Institute of British Columbia (AIBC) Post-Disaster Response Committee
- › Association of Neighbourhood Houses of B.C.
- › Britannia Community Services Centre
- › Building Resilient Streets
- › Collingwood Neighbourhood House
- › Community Resilience to Extreme Weather (CREW) Toronto
- › Developmental Disabilities Association
- › Dunbar Community Centre Association and Dunbar Earthquake and Emergency Preparedness (DEEP)
- › Earthquake Engineering Research Institute (EERI-BC)
- › Engineers and Geoscientists BC (APEGBC)
- › Evergreen BC
- › Future City Builders

- › Global Earthquake Model Foundation
- › KidSafe
- › Neighbour Lab
- › OurPlace
- › Neighborhood Empowerment Network (San Francisco)
- › SNAP Toronto
- › The Thingery
- › Vancouver Foundation
- › Vancouver Society of Children's Centres
- › Wellington Region Emergency Management Office
- › Women Transforming Cities

Academic Partners:

- › Emily Carr University of Art + Design
- › University of British Columbia
 - › Sauder School of Business
 - › SCARP
 - › Earthquake Engineering Research Facility
- › Western University
- › Institute for Catastrophic Loss Reduction
- › Langara College
- › Simon Fraser University
 - › RADIUS
 - › Public Square

Public Sector Organizations:

- › Building and Safety Standards Branch, Office of Housing and Construction Standards, Ministry of Municipal Affairs and Housing
- › California Earthquake Authority
- › Emergency Management BC
- › Natural Resources Canada and Geological Survey of Canada
- › North Shore Emergency Management
- › Public Safety Canada
- › Vancouver School Board

City of Vancouver Affiliated Groups and Agencies:

- › CityStudio
- › LGBTQ2+ Advisory Committee
- › Persons with Disabilities Advisory Committee
- › Urban Indigenous Peoples' Advisory Committee
- › Vancouver City Planning Commission
- › Vancouver Economic Commission
- › Youth Advisory Committee

Private Sector Businesses and Organizations:

- › ARUP Group
- › Ausenco
- › Building Owners and Managers Association BC

- › Bush, Bohlman & Partners
- › Glotman Simpson
- › Greater Vancouver Board of Trade
- › Insurance Bureau of Canada
- › Read Jones Christoffersen
- › Kinetica
- › Sage On Earth Consulting

100 Resilient Cities Platform Partners:

- › AECOM
- › Center for Active Design
- › Deltares
- › Ernst & Young
- › Global Network for Advanced Management
- › Institute for State and Local Governance, CUNY (Equality Indicators Project)
- › UrbanFootprint

100 Resilient Cities Network:

- › Team Canada: Calgary, Montreal and Toronto Resilience Teams
- › Cities of Melbourne, Wellington, Mexico, Quito, Medellin, Athens, Christchurch, Los Angeles, Atlanta, San Francisco, Seattle, Boston, New York
- › Arts House Melbourne and Refuge Team
- › International Resilience Teams from other 100RC cities



Resilient Vancouver Strategy Overview and Partners

| Objective | Action | Related / Supporting Initiatives | Lead City Department(s) | Supporting Departments and External Groups | Status |
|--|--|---|---|---|-----------------------------|
| Priority 1: Thriving and Prepared Neighbourhoods | | | | | |
| 1.1: Cultivate community connections, stewardship and pride | 1.1.A: Promote open and ongoing dialogue about Vancouver's past, present and future | Healthy City Strategy, Reconciliation Framework, Chinatown Revitalization, Hogan's Alley | ACCS, PDS | Resilience, Civic Engagement and Communications, Community Partners | Ongoing |
| | 1.1.B: Promote community leadership opportunities for newcomers | Vancouver Immigration Partnership, Healthy City Strategy | ACCS, Vancouver Immigration Partnership | City Studio, ACCS, Park Board | Scoping (seeking resources) |
| | 1.1.C: Create Neighbourhood Resilience Labs | Viva Vancouver, City Studio | PDS, Engineering Services | Resilience, PDS, Park Board, Engineering, ACCS, VEMA | Not yet started |
| | 1.1.D: Identify and support participatory budgeting opportunities | Engaged City Task Force | FRS | Civic Engagement and Communications | Ongoing |
| 1.2: Empower communities to support each other during crises and recover from disasters | 1.2.A: Launch and scale the Resilient Neighbourhoods Program with a toolkit and grants | Greenest City, Earthquake Preparedness Strategy | Resilience | VEMA, PDS, Park Board | Scoping |
| | 1.2.B: Support a community-led Downtown Eastside Neighbourhood Disaster Response and Recovery planning process | Healthy City Strategy, Disaster Support Hubs, Climate Adaptation Strategy | Resilience, VEMA | ACCS, Vancouver Coastal Health, Multiple Community Partners | Not yet started |
| | 1.2.C: Train and support staff at community centres and libraries to participate in community disaster resilience | Earthquake Preparedness Strategy, Climate Adaptation Strategy | Park Board, VPL, ACCS | VEMA, Resilience, PDS | Scoping |
| 1.3: Transform the way communities understand risks and prepare for local hazards | 1.3.A: Engage artists to explore and inspire creative solutions to complex challenges | Creative City Strategy | Resilience | VEMA, PDS, Resilience, ACCS, 312 Main, City of Melbourne | Planned |
| | 1.3.B: Launch a digital tool to help the public understand and prepare for earthquakes and climate change impacts | Smart City, Climate Adaptation Strategy, Earthquake Preparedness Strategy | Resilience | EM, PDS, Natural Resources Canada | Ongoing |
| | 1.3.C: Apply an intersectional lens to revise emergency and resilience education and engagement materials | Equity Framework, Engaged City, Earthquake Preparedness Strategy, Climate Adaptation Strategy | VEMA | PDS, Resilience, ACCS, EMBC | Planned |
| 1.4: Strengthen social and cultural assets and services | 1.4.A: Evaluate resilience of food assets and meal providers and services in high-risk neighbourhoods | Food Strategy, Social Infrastructure Plan, Cultural Infrastructure Plan, Earthquake Preparedness Strategy | ACCS, Resilience | Resilience, PDS, VEMA | Planned |
| | 1.4.B: Create a Capacity Building Action Plan and Non-profit Partnering Framework | Healthy City Strategy | ACCS | All City Departments, Non-profits | Scoping |
| | 1.4.C: Leverage investments in civic assets and infrastructure to create local economic opportunities | Healthy City Strategy | ACCS, REFM, FRS | Resilience, PDS | Ongoing |

| Objective | Action | Related / Supporting Initiatives | Lead City Department(s) | Supporting Departments and External Groups | Status |
|--|--|--|-------------------------|---|-----------------|
| Priority 2: Proactive and Collaborative City | | | | | |
| 2.1: Elevate the voices of underrepresented groups to improve resilience outcomes | 2.1.A: Elevate and incorporate Indigenous knowledge and culture through resilience work | Reconciliation Framework, Equity Framework | Resilience | Intergovernmental Relations and Strategic Partnerships, PDS, VEMA, ACCS, Musqueam, Squamish and Tsleil-Waututh Nations, Local Indigenous Partners | Ongoing |
| | 2.1.B: Leverage resilience initiatives to strengthen civic literacy and access for underrepresented groups | Engaged City | Resilience | Civic Engagement and Communications | Ongoing |
| | 2.1.C: Deepen our understanding of the experiences of diverse women and youth (inclusive of trans*, gender-diverse, two-spirit people and cis women) regarding climate change and disasters | Women's Equity Strategy, Equity Framework | Resilience | ACCS, PDS | Planned |
| 2.2: Shape a city that can adapt to changes and turn challenges into opportunities | 2.2.A: Implement state-of-the-art hazard modelling tools to reduce risk through land use, zoning and urban design | City-wide Plan, Climate Adaptation Strategy | Resilience | Planning, Engineering, VEMA, Natural Resources Canada, ICLR, UBC | Planned |
| | 2.2.B: Enable transformative city planning through strategic foresight and scenario planning | City-wide Plan, Employment Lands Study, Equity Framework, Healthy City Strategy, Greenest City | PDS | Resilience, Civic Engagement and Communications, ACCS, PDS, HR, Brookfield Institute | Scoping |
| | 2.2.C: Develop a dynamic building lifecycle database | City-wide Plan, green buildings, affordability and rental programs | DBL | IT, PDS, VEMA | Not yet started |
| | 2.2.D: Create and test a Resilient Neighbourhoods Design Framework | City-wide Plan, Equity Framework, Climate Adaptation Strategy, Renewable City | PDS | All City Departments | Ongoing |
| 2.3: Strengthen organizational capacity to manage risk and recover from shocks and stresses | 2.3.A: Align city governance, resources and policy related to climate and earthquake mitigation, adaptation and risk reduction | Climate Adaptation Strategy, Earthquake Preparedness Strategy, Risk Management | Resilience, VEMA, PDS | All Departments for City-wide Implementation | Scoping |
| | 2.3.B: Connect emergency management and business continuity planning processes | Climate Adaptation Strategy, Earthquake Preparedness Strategy, Risk Management | VEMA, Risk Management | All Departments | Not yet started |
| | 2.3.C: Evaluate and embed resilience into financial planning | City-wide Plan, Capital and Operational Planning, Climate Adaptation Strategy | FRS | Resilience, PDS, REFM, Engineering, Park Board | Scoping |
| | 2.3.D: Align local action with the United Nations Sendai Framework for Disaster Risk Reduction | Supporting Initiatives: Earthquake Preparedness, City Wide Plan, Climate Adaptation, Risk Management, Green Infrastructure | VEMA, Resilience, PDS | Risk Management, ENG, ACCS, NRCAN, EMBC, FBC | Scoping |
| 2.4: Advance holistic, collaborative disaster risk reduction and recovery planning | 2.4.A: Create a regulatory framework for equitable post-disaster redevelopment in Vancouver | City-wide Plan, Equity Framework, Earthquake Preparedness Strategy | PDS | VEMA, Resilience, ACCS, DBL | Not yet started |
| | 2.4.B: Support convening of a Business Recovery Roundtable | Small Business Support, Vancouver Economic Commission | Resilience, VEMA | Board of Trade, Tourism Vancouver, BIAs, Simon Fraser University | Not yet started |
| | 2.4.C: Establish targets for recovery and risk reduction through the Pathways to Disaster Risk Reduction Project | Earthquake Preparedness Strategy, City-wide Plan, Asset Management, Healthy City Strategy, Climate Adaptation Strategy | Resilience | VEMA, PDS, ACCS, Engineering, GIS, NRCAN, GEM, EERI, FBC, UBC, EMBC | Planned |

| Objective | Action | Related / Supporting Initiatives | Lead City Department(s) | Supporting Departments and External Groups | Status |
|---|--|---|-------------------------|--|-----------------|
| Priority 3: Safe and Adaptive Buildings and Infrastructure | | | | | |
| 3.1: Improve building performance to protect lives, decrease displacement and accelerate recovery following earthquakes | 3.1.A: Advance performance-based design and recovery-based code requirements for critical buildings | Earthquake Preparedness Strategy | DBL | Resilience, PDS, VEMA | Scoping |
| | 3.1.B: Formalize a cross-departmental Resilient Buildings governance model | Green Buildings, Housing Vancouver, Climate Adaptation Strategy | DBL | PDS, Resilience, ACCS, REFM | Scoping |
| | 3.1.C: Complete seismic risk assessment and engage stakeholders to identify risk reduction and policy options for existing buildings | Earthquake Preparedness Strategy | Resilience | DBL, PDS, Civic Engagement and Communications, SPAC, Provincial Government | Ongoing |
| 3.2: Plan, design and upgrade civic facilities to serve the current and future needs of our diverse communities and ever-changing environmental conditions | 3.2.A: Explore options to accelerate climate and seismic upgrades or redevelopment of civic buildings to enhance community recovery capacity | Facilities Seismic Program, Earthquake Preparedness Strategy | REFM | FRS, Park Board, VPL | Ongoing |
| | 3.2.B: Integrate updated climate and seismic priority projects into the capital plan process | Earthquake Preparedness Strategy, Climate Adaptation Strategy | REFM, FRS | Resilience, PDS, VPL, Park Board, VFERS, VPD, Risk Management, ACCS, VEMA | Scoping |
| | 3.2.C: Continue civic infrastructure resilience and interdependency assessments with Public Safety Canada | Risk Management, Asset Management, Facilities Planning | REFM, FRS | FRS, Resilience, Engineering, VFERS, VEMA | Ongoing |
| 3.3: Anticipate threats and mitigate and minimize disruption to civic infrastructure and critical services. | 3.3.A: Develop a city-wide framework for critical infrastructure management and decision-making | Asset Management, Risk Management, Climate Adaptation Strategy, Earthquake Preparedness Strategy, IT Resilience | Risk Management | Engineering, Resilience, REFM, PDS, VFERS, VPD, ACCS, VEMA | Scoping |
| | 3.3.B: Refine and test post-disaster assessment protocols for infrastructure and buildings | Earthquake Preparedness Strategy, Climate Adaptation Strategy, Asset Management | VEMA | DBL, Engineering, REFM | Ongoing |
| | 3.3.C: Establish risk assessment guidelines and recovery targets for critical infrastructure | Asset Management, Risk Management, Large Site Policy, Climate Adaptation Strategy, Earthquake Preparedness Strategy | Resilience | ENG, DBL, FRS, VEMA, VFERS, PDS, REFM | Not yet started |
| | 3.3.D: Map and design a disaster resilient lifelines network | Climate Adaptation Strategy, Capital Planning, Asset Management, Earthquake Preparedness Strategy, City-wide Plan | Engineering, REFM | IT, VEMA, Resilience, PDS, ACCS, Park Board, VPL | Not yet started |
| 3.4: Promote regional collaboration to assess, finance and fortify lifeline infrastructure and supply chains | 3.4.A: Convene private and public sector experts to explore innovative financing options for resilient infrastructure | Risk Management, Asset Management, Capital Planning | Resilience | FRS, PDS, FICOM, NRCAN, IBC, FBC | Scoping |
| | 3.4.B: Pilot a cascading impact assessment process in partnership with the Port of Vancouver | Climate Adaptation Strategy, City-wide Plan | PDS | Resilience, VEMA, ENG, Port of Vancouver, 100RC | Complete |
| | 3.4.C: Support regional resilience efforts by sharing seismic assessment processes, findings and tools with regional stakeholders and planning partners | Earthquake Preparedness Strategy | Resilience | VEMA, PDS, Engineering, REFM Regional Partners | Planned |

City of Vancouver Departmental Acronyms:

- ACCS: Arts, Culture and Community Services
- DBL: Development, Buildings and Licensing
- FRS: Finance, Risk and Supply Chain Management
- HR: Human Resources
- IT: Information Technology
- PDS: Planning, Urban Design and Sustainability
- REFM: Real Estate and Facilities Management
- VEMA: Vancouver Emergency Management Agency
- VFRS: Vancouver Fire and Rescue Services
- VPD: Vancouver Police Department
- VPL: Vancouver Public Library

Non-City Acronyms:

- BIA: Business Improvement Association
- EERI: Earthquake Engineering and Research Institute
- EMBC: Emergency Management British Columbia
- FBC: Fraser Basin Council
- GEM: Global Earthquake Model Foundation
- NRCan: Natural Resources Canada
- UBC: University of British Columbia

Endnotes:

¹<https://www.weforum.org/reports/the-global-risks-report-2019>

²<https://globalnews.ca/news/4057149/vancouver-highest-debt-transunion/>

³http://www.bccdc.ca/pop-public-health/Documents/Household%20food%20insecurity%20in%20BC_Vancouver%20Coastal%20infographic.pdf

⁴<https://stillin5.ca/regional-factsheets/>

⁵<https://www.vancity.com/SharedContent/documents/News/Vancity-Report-Immigration-racial-discrimination.pdf>

⁶https://www.myhealthmycommunity.org/Portals/0/Documents/Community%20Profiles/Vancouver_final.pdf

⁷<https://www.canada.ca/en/environment-climate-change/news/2019/04/canadas-climate-is-warming-twice-as-fast-as-global-average.html>

⁸<http://www.vancouvereconomic.com/wp-content/uploads/2016/07/the-economy-of-local-food-in-vancouver.pdf>

⁹<https://www2.gov.bc.ca/gov/content/safety/wildfire-status/about-bcws/wildfire-history/wildfire-season-summary>

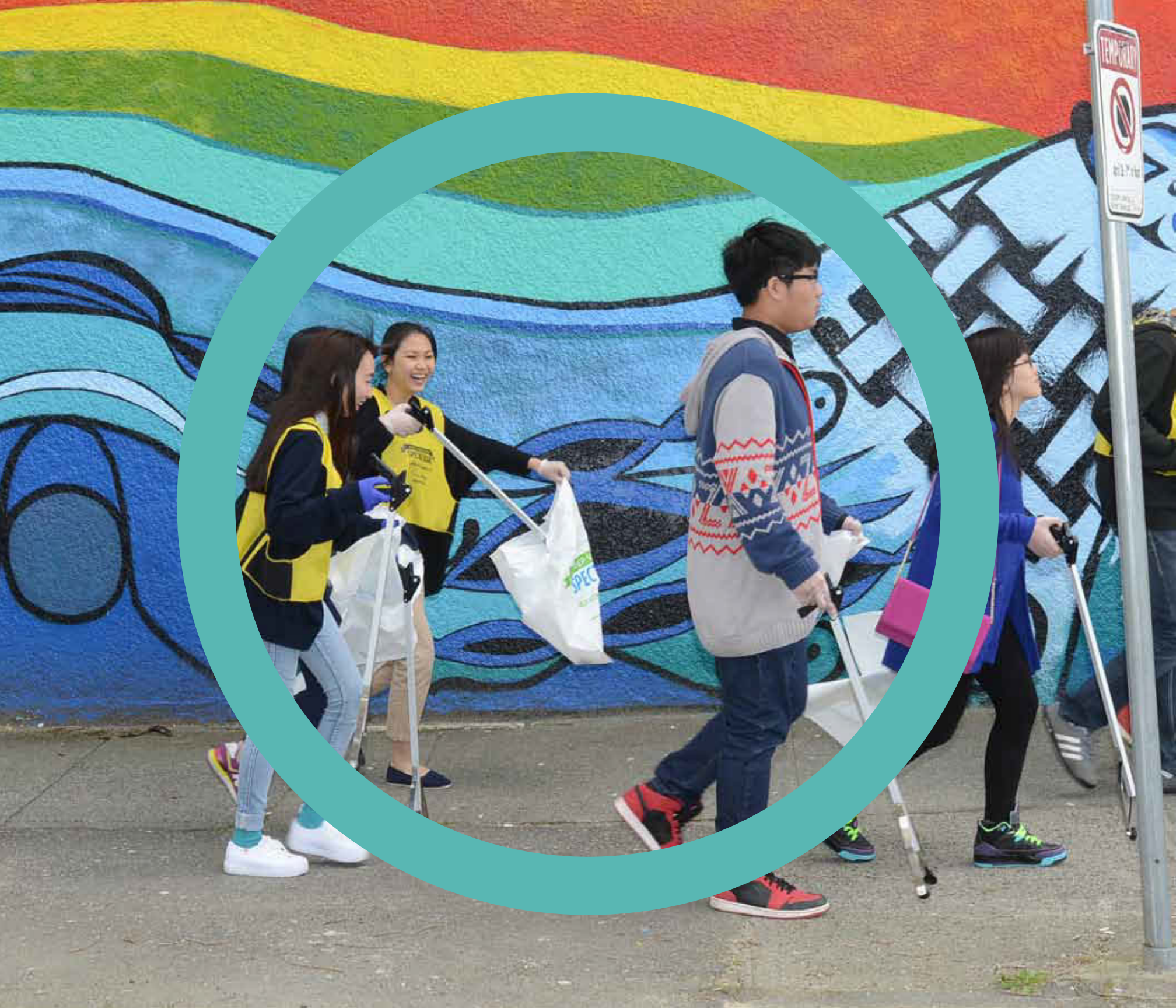
¹⁰https://www.fraserbasin.bc.ca/_Library/Water_Flood_Strategy/FBC_LMFMS_Phase_1_Report_Web_May_2016.pdf (p 19)

¹¹<https://vancouver.ca/green-vancouver/neb-evidence-library.aspx>

¹²<http://www.calgary.ca/UEP/Water/Pages/Flood-Info/Flooding-History-Calgary.aspx>

¹³<https://ec.gc.ca/meteo-weather/default.asp?lang=En&n=5BA5EAF1&offset=3&toc=show>

¹⁴https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Commentary%20454_0.pdf







For more information:

Visit vancouver.ca/resilientvancouver or phone 3-1-1
TTY: 7-1-1 / Outside Vancouver: 604-873-7000

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