



Resilient Vancouver

Connect. Prepare. Thrive.

Presentation to Council, April 23, 2019

Katie McPherson, Chief Resilience Officer

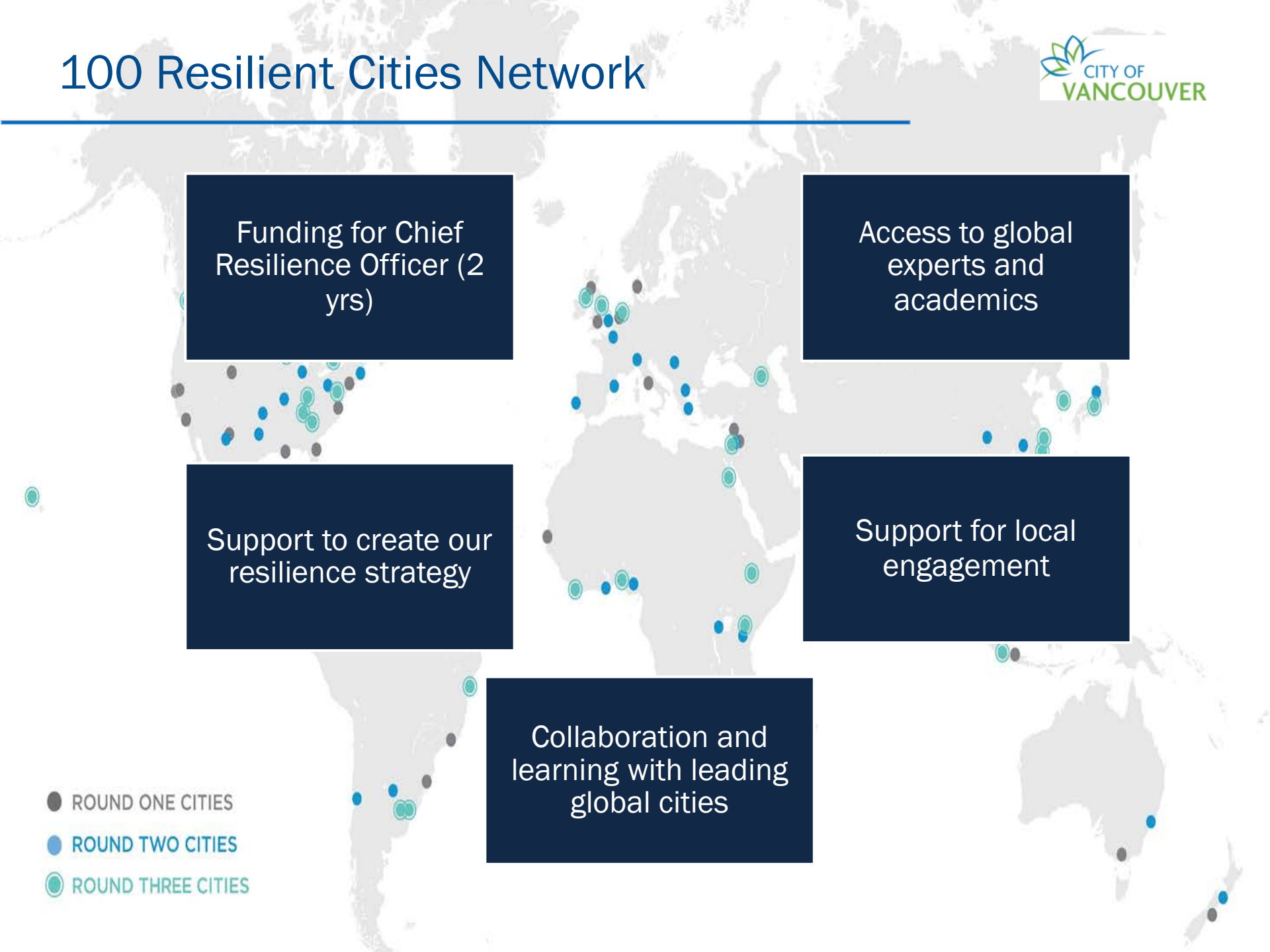


Today's Presentation

- Context
- Framework for Resilient Vancouver Strategy
 - Findings, Objectives and Key Actions
- Next steps



100 Resilient Cities Network



Funding for Chief Resilience Officer (2 yrs)

Access to global experts and academics

Support to create our resilience strategy

Support for local engagement

Collaboration and learning with leading global cities

- ROUND ONE CITIES
- ROUND TWO CITIES
- ROUND THREE CITIES

Strategy Development Process



Assess Gaps &
Opportunities
2017-18

Develop the
Strategy
2018-19

- Engaged 2500+ local stakeholders
- Partnered with all levels of government, academics, community groups & subject matter experts
- Leveraged \$2 million in grants and in-kind contributions to date
- Initiated key pieces of work (Seismic Assessment, Resilient Neighbourhood Program, Critical Infrastructure)
- Secured commitment and support for actions moving forward

Recommendation to Council




Assess Gaps &
Opportunities
2017-18

Develop the
Strategy
2018-19

Embed,
Integrate &
Implement
2019 & beyond

THAT Council approve the framework for the Resilient Vancouver Strategy, generally as described in this report, and direct staff to finalize the Strategy and associated implementation plan.

THAT Council direct staff to integrate the Resilient Vancouver Strategy framework and key findings from research and engagement into the development of the City-Wide Plan.

An aerial photograph of a city skyline, likely Vancouver, viewed from a distance. The foreground is dominated by a dense, lush green forest. A winding road or path cuts through the forest, leading towards a rocky shoreline and a body of water. In the background, a dense cluster of modern high-rise buildings forms the city skyline under a clear sky. A large white circular graphic is overlaid on the center of the image, containing text.

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

- 100 Resilient Cities

Resilience is ...

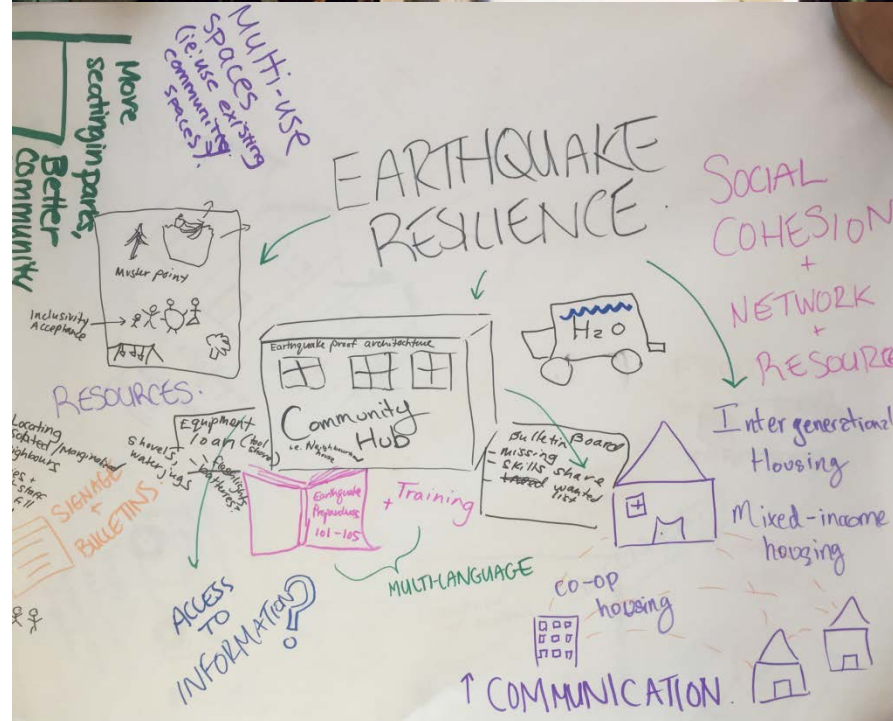
“Planning with love for future generations”

“Being able to help each other in times of crisis, disaster and social problems”

“Healing and being able to help each other”

“Learning from challenges and becoming stronger”

“Ability to bounce forwards”



What's impacting our resilience?



Shocks: Acute events like earthquakes, floods, snow storms, heat waves, wind storms, etc.

Stresses: Chronic issues like affordability, poverty, stigma, racism, social isolation, aging infrastructure, etc.



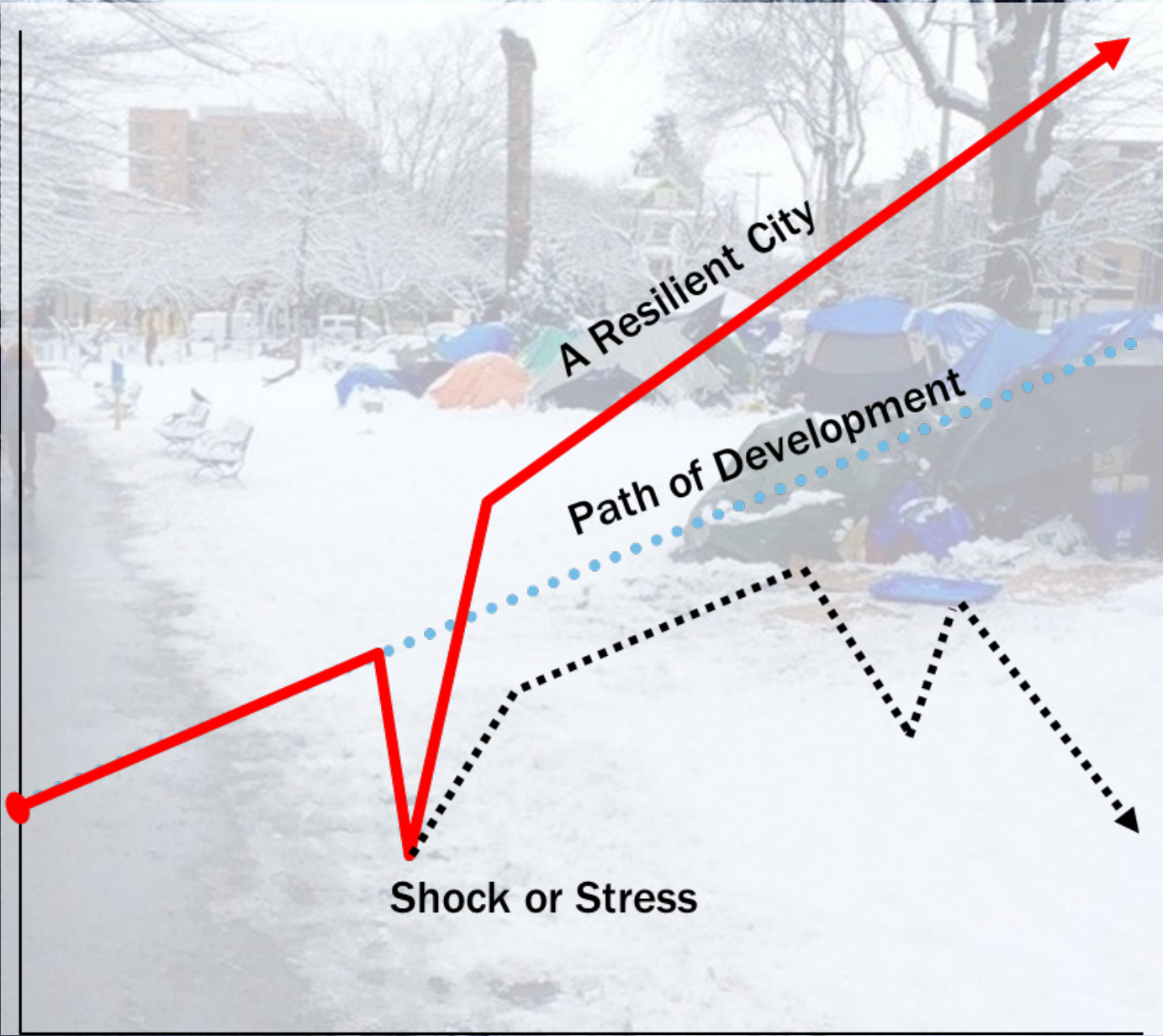
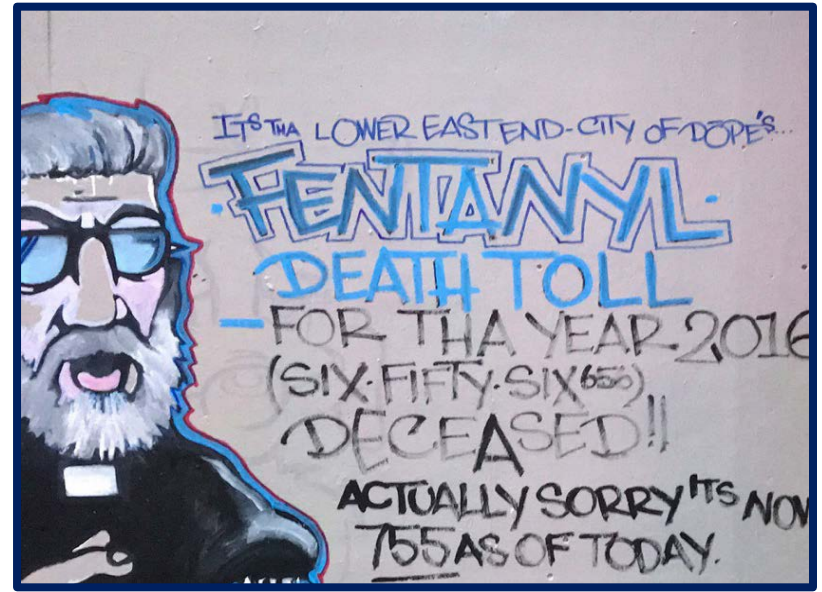


Photo credit: Toronto Star, Feb 2019

A Strong Foundation



Local Knowledge and Lived Experience



Guiding Principles

- Reconciliation
- Equity
- Reciprocity
- Ecological sustainability



Resilient Vancouver Strategy

Guiding Principles

3 Focus Areas

12 Resilience Objectives

45 Enabling Actions

Our Approach

- ✓ Address major gaps
- ✓ Embed resilience
- ✓ Leverage local partnerships
- ✓ Empower community



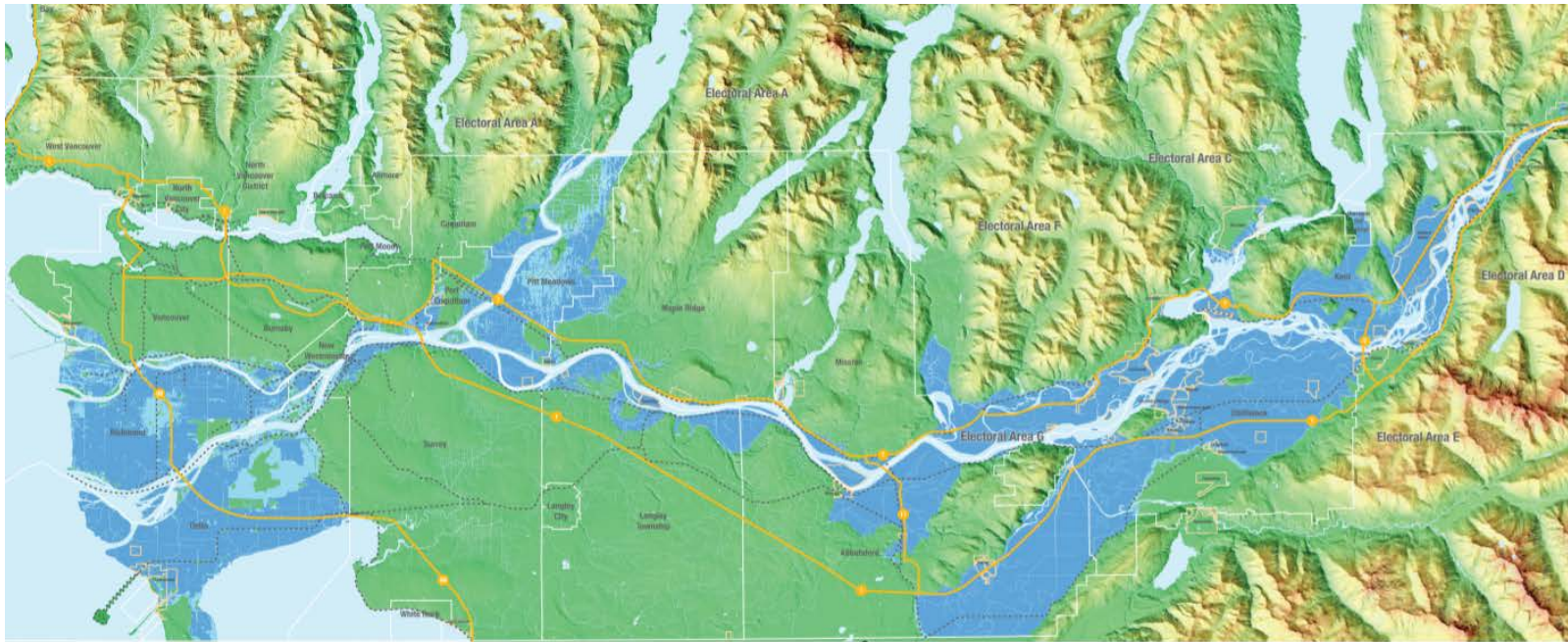
An aerial photograph of a city at dusk or dawn, showing a dense urban landscape with various buildings, streets, and green spaces. A large white circular overlay is centered on the image, containing the text "Safe, Adaptive Buildings & Infrastructure". The text is in a bold, white, sans-serif font. The background shows a mix of older brick buildings and modern high-rise structures. A street with a sign that says "322 WATER" is visible in the lower-left quadrant. The sky is a pale blue, and the city lights are beginning to glow.

**Safe, Adaptive
Buildings &
Infrastructure**

Local Challenges

- Aging infrastructure
- Affordability
- Growth and demand
- Complexity
- Climate Change
- Earthquakes

Regional Interdependencies



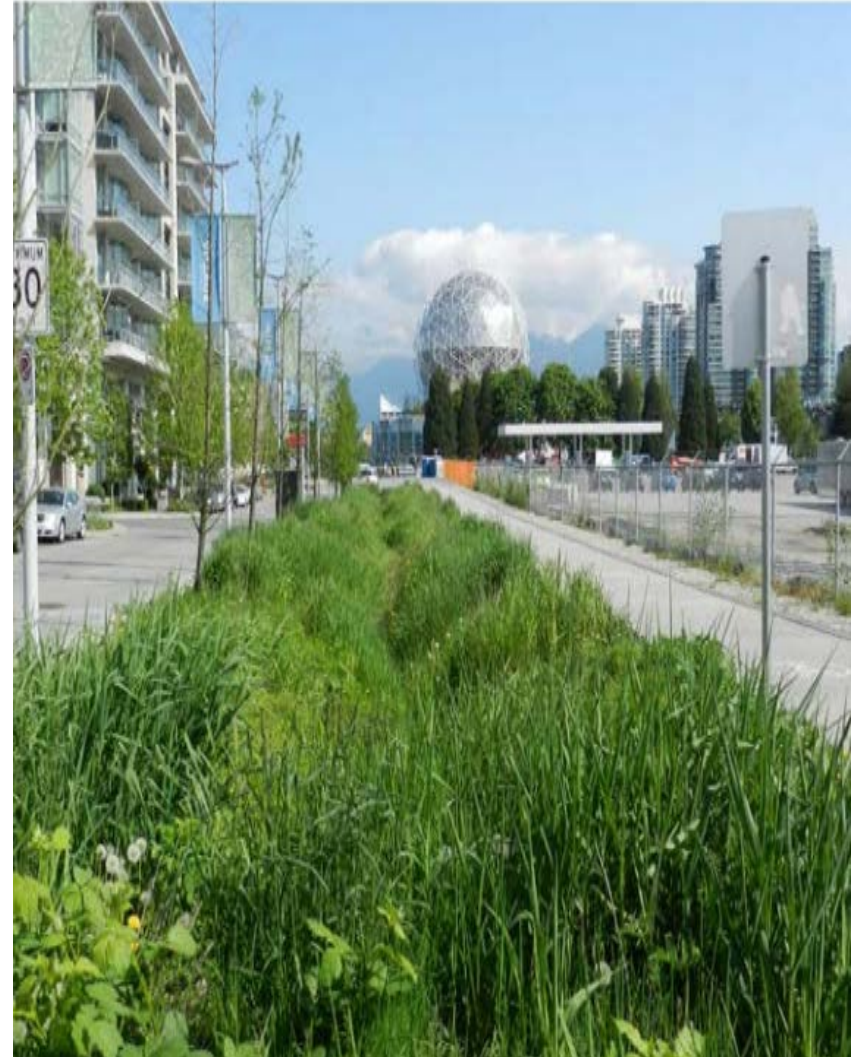
Regional Fraser River Flood Map Scenario, Fraser Basin Council

Natural Gas Pipeline Explosion, Prince George



Strengths

- Progressive approach to climate adaptation and resilience
- Investment in Green Infrastructure and Water Resilience
- Civic Facilities Seismic Program
- Dedicated Fire Protection System



Addressing our Gaps – Earthquake Modelling

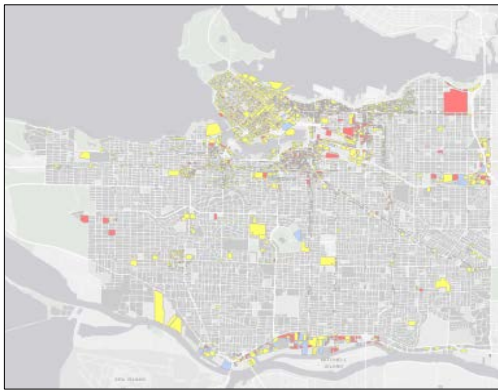
Inventory

+

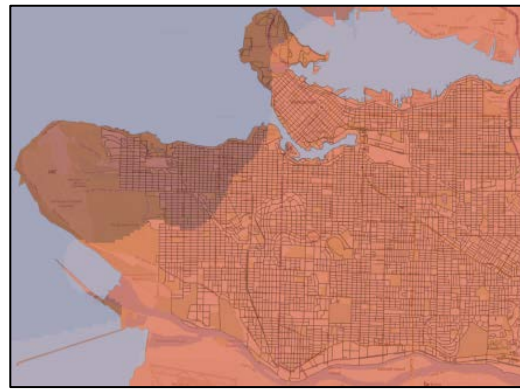
Hazard

=

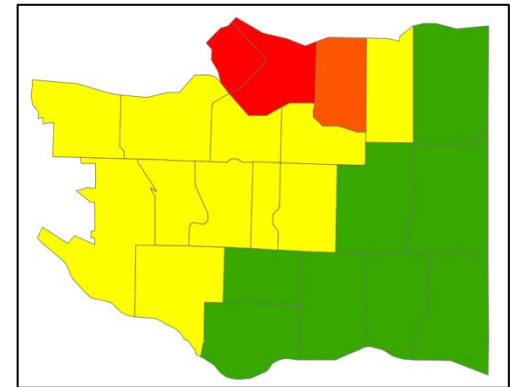
Risk



92,000
Buildings



Georgia Strait M7.3
Planning Scenario



GEM – OpenQuake
Consequences, Indicators

Modelled Seismic Risk to Buildings



1 in 10 buildings unusable*

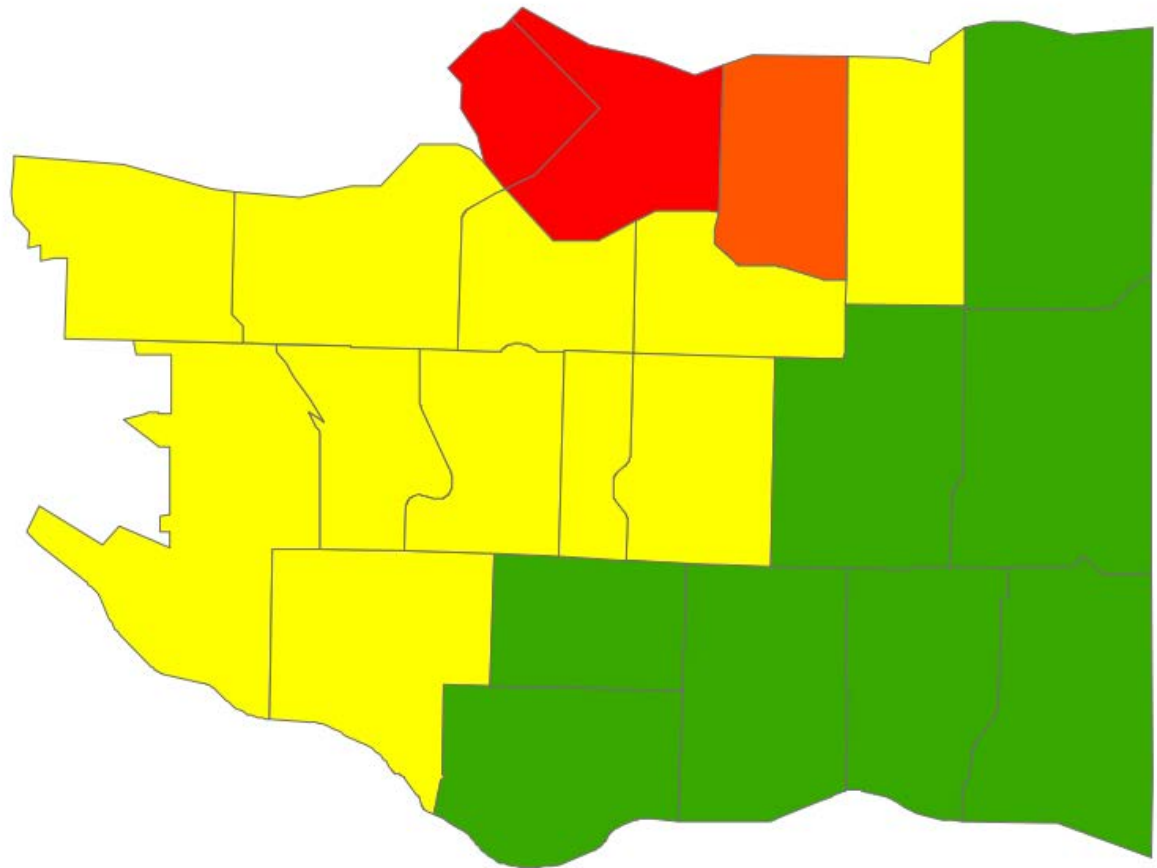


Nearly 1/2 of residents displaced for more than 1 month; 150 000 for more than 3 months*



More than 11,500 injuries; 1,100 severe or fatal*

*Based on modelled impact to buildings only, does not include infrastructure failure, emergency response, socio-economic impacts or cascading impacts



Severity of Impact by Poor Building Performance
Census Dissemination Area



Building Damage

Simulated 7.3 M Georgia Strait Earthquake

By Census Dissemination Area
April 2019

Objectives: Buildings & Infrastructure



Plan, design and upgrade civic facilities to serve our diverse communities under changing future conditions

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

Improve building performance to protect lives, decrease displacement, and accelerate recovery following an earthquake

Anticipate threats and minimize disruption to civic infrastructure and critical services

- Assess socio-economic impacts
- Establish risk reduction and recovery targets (in conjunction with city wide plan)
- Engage broadly
- Partner with the Province

Seismic Policy Advisory Committee



ENGINEERS &
GEOSCIENTISTS
BRITISH COLUMBIA



Institute for Catastrophic
Loss Reduction

Building resilient communities

Institut de prévention
des sinistres catastrophiques

Pour des collectivités résistantes

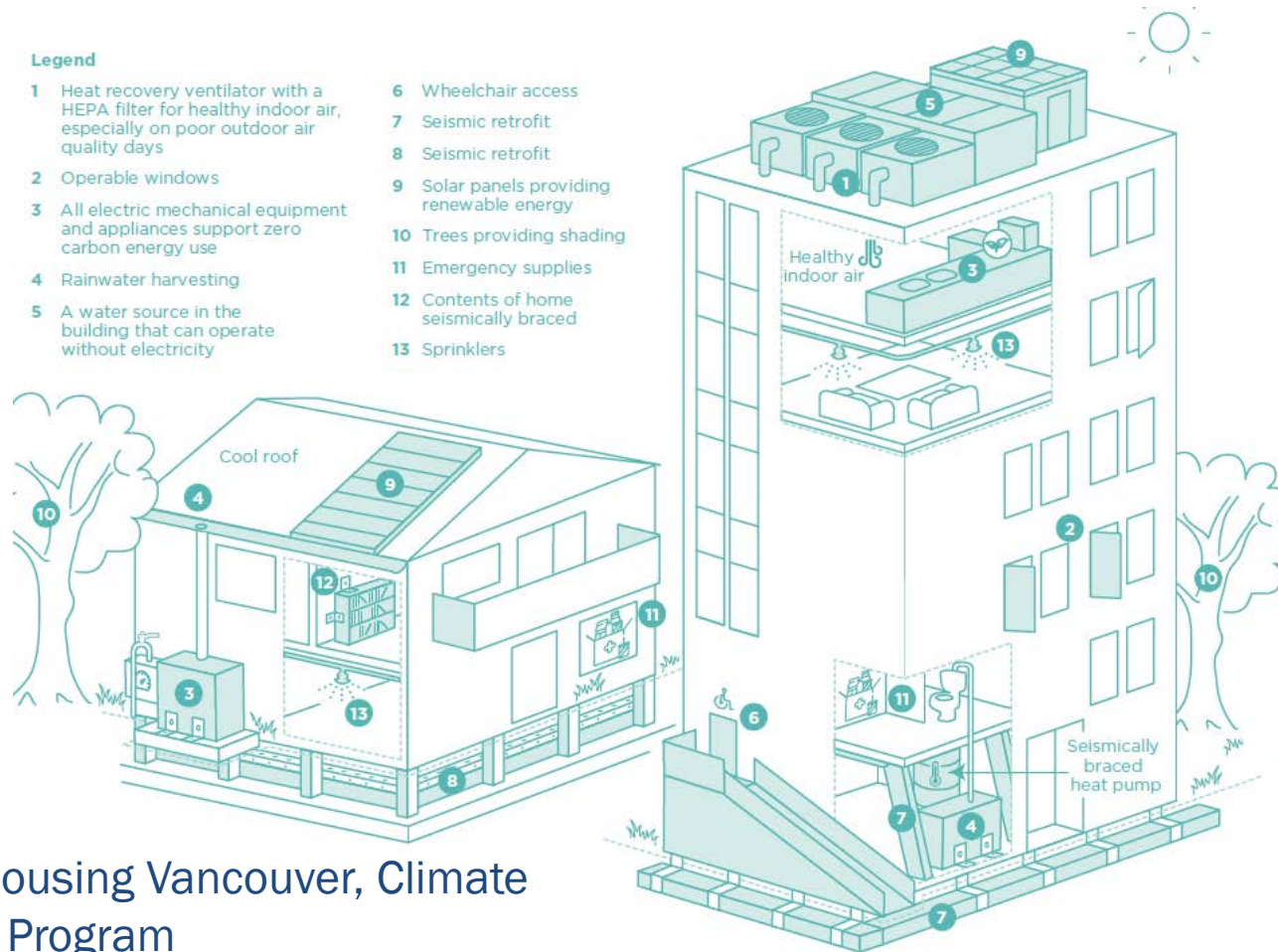
Resilient Buildings

Identify co-benefits and incentives to promote:

- Accessibility
- Affordability
- Climate adaptation
- Safety
- Community recovery

Legend

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



Builds on: Green buildings, Housing Vancouver, Climate Adaptation, Facilities Seismic Program

Inspired by: Toronto, Wellington, Melbourne, San Francisco, Los Angeles, Berkeley, Boston, Victoria, BC Housing

Action: Disaster Resilient Infrastructure Network



- Facilitate distribution of resources to critical facilities and throughout our city
- Prioritize and coordinate investment in resilient infrastructure
- Enable people to stay in their homes
- Accelerate social and economic recovery



Builds on: Dedicated Fire Protection System, North East False Creek, Coastal Flood Risk Assessment, Disaster Staging Areas

Partners: NRCan, UVic, UBC, ICLR, Fraser Basin Council

Inspired by: San Francisco, Los Angeles, Boston, Calgary

Proactive & Collaborative Government



Governance in the Face of Uncertainty

1900



2007



2030



2050



- Strategic foresight and scenario planning
- Alignment of climate adaptation, risk management and emergency management functions
- UN Framework for Disaster Risk Reduction (DRR)

Objectives: Proactive & Collaborative Government



Shape a city that can recover from shocks, adapt to change, and turn challenges into opportunities

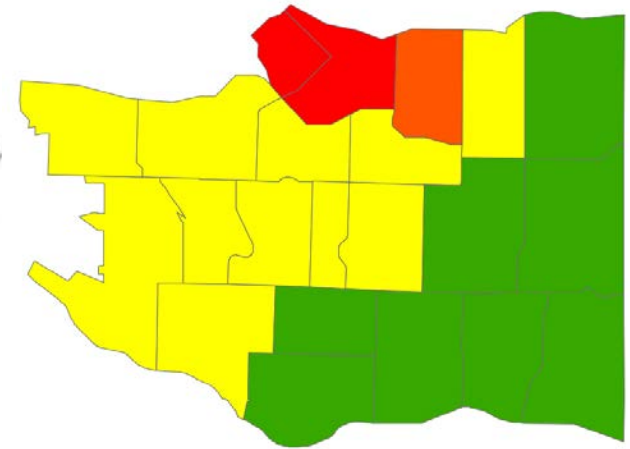
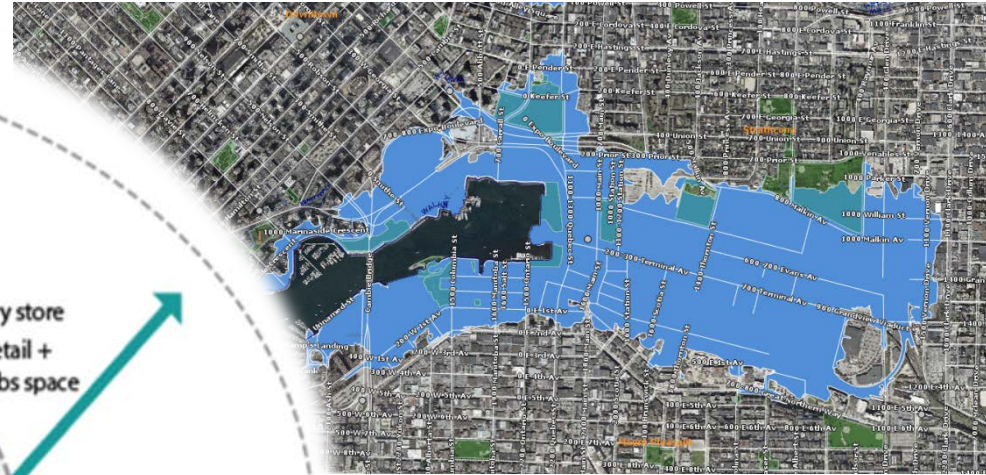
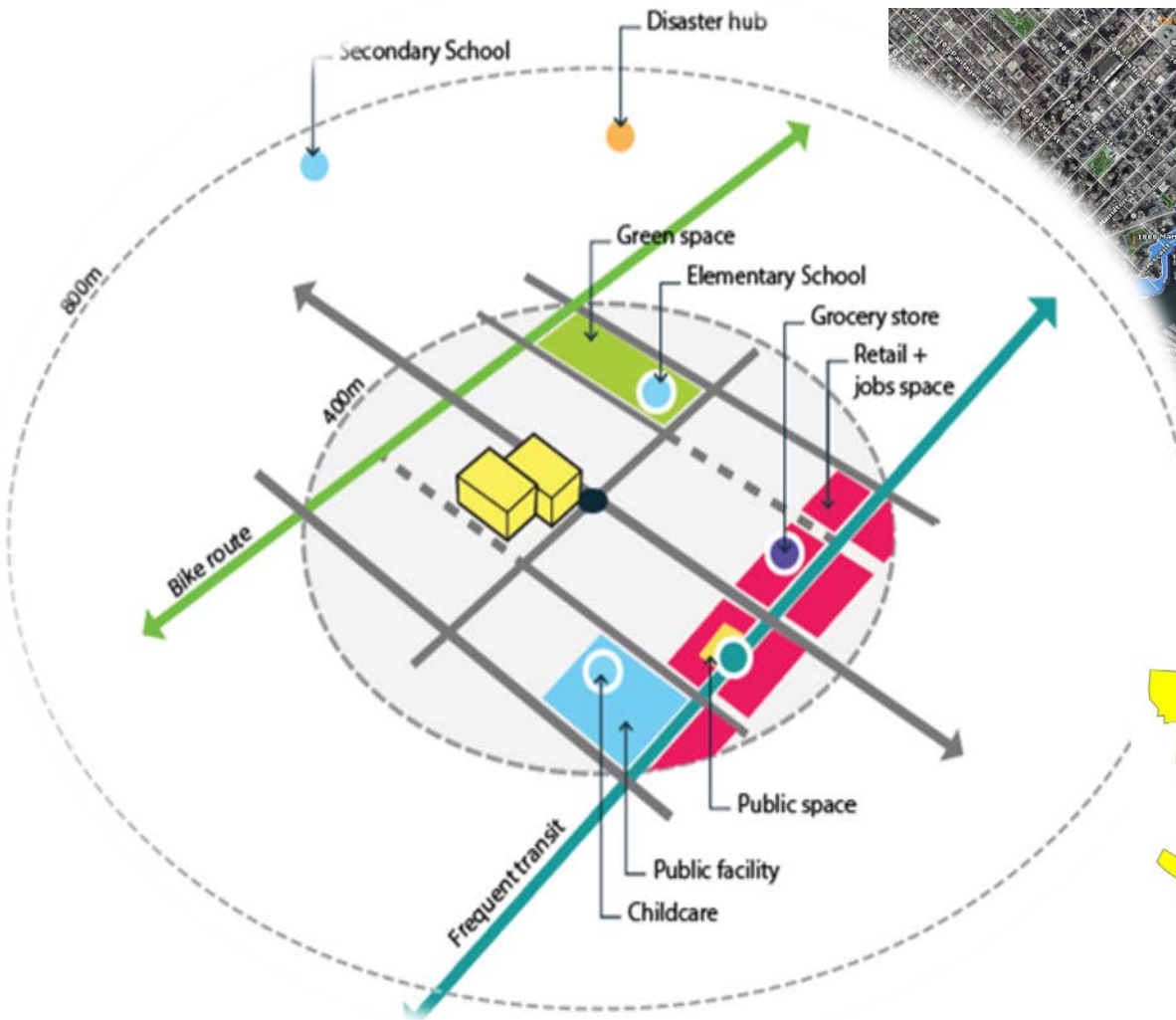
Advance holistic, collaborative disaster risk reduction and recovery planning

Elevate the voices of under-represented groups

Strengthen organizational capacity to manage risk and recover from shocks



Action: Reduce risk through hazard modelling, land-use & urban design



Partners: DRR Pathways Project, Centre for Active Design, UBC
Inspired by: New York, The Hague, Rotterdam, Norfolk, Stockholm

Action: Women in Resilience Dialogue



- Learning from experiences of diverse women in resilience and recovery
- Integrate this knowledge into planning and practice
- Foster ongoing and meaningful dialogue
- Create opportunities for future generations



Partners: EMBC

Inspired by: UNISDR, Women Transforming Cities, Melbourne

Thriving and Prepared Neighbourhoods



Photo credit: Vanessa Richards

Objectives: Neighbourhoods



Cultivate
community
connection,
stewardship
and pride

Transform the
way
community
understands
and prepares
for local
shocks and
stresses

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

Strengthen
cultural, social
and civic
services and
assets

Resilient Neighbourhoods Program

- ✓ Community Asset Mapping
- ✓ Resilience Action Plans
- ✓ Emergency preparedness & training
- ✓ Knowledge sharing and exchanges

Next Steps : Resilient Neighbourhood Tool-kit & Grant Stream



Inspired by: Wellington, Seattle, San Francisco, Boston, Toronto, Kitchener, Edmonton, Victoria

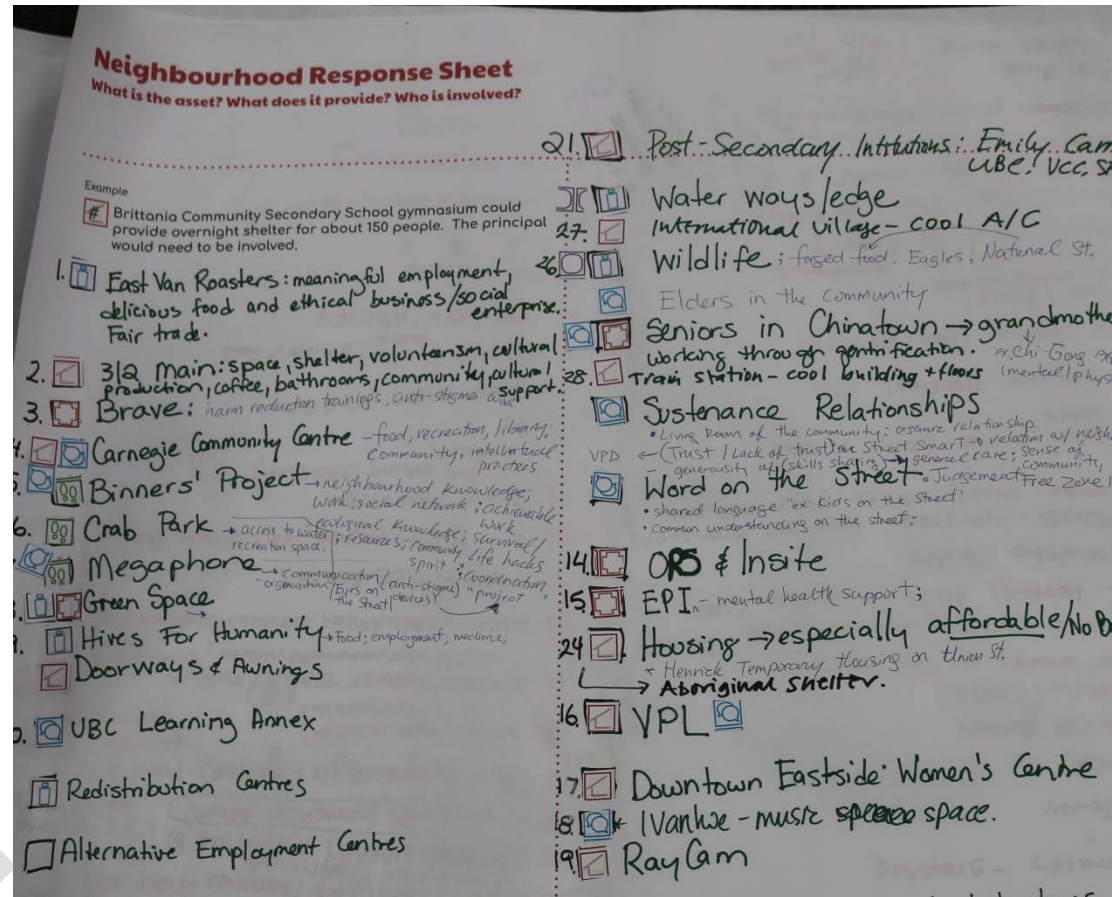
Neighbourhood Resilience in Action



Action: DTES Emergency Response & Recovery Plan

- Support for community-requested process
- Respond to urgent need
- Empower those that are able to act
- Enable place-based emergency planning

72 Hours
Let's make a difference



A PROJECT OF COMMUNITY ORGANIZATIONS

The Development of a specialized Emergency and Disaster Response Model and Recovery-Rebuilding Plan to address needs of Vulnerable populations in Vancouver's Inner City and Downtown Eastside

Action: Resilient Neighbourhood Living Labs

- Activate public and private spaces
- Strengthen place-based connections
- Support local solutions
- Strengthen civic relationships



Inspired by: Thingery, NeighbourLab, Evergreen, City Studio, New York, Melbourne, New Orleans, San Francisco, citizen leaders all over the world.

Celebrating Resilience – Upcoming Events

- Neighbourhood Resilience Walks
- Women Deliver Resilience Event
- Creative Lab Learning Exchange with Local Artists & City of Melbourne
- UBCM Conference – Theme of Resilience



Summary

- A strategy built on local and global partnerships
- Addresses critical gaps to meaningfully reduce risks
- Promotes proactive and inclusive planning
- Empowers and elevates community voices
- This is the start of a journey



We can do this

- Leveraged more than \$2 million to date
- Confirmed partnerships and contributions for implementation
- Opportunity to integrate and refine through City Wide Plan
- Embed through departmental initiatives
- Reciprocal partnerships with community & stakeholders



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Recommendation to Council

- THAT Council approve the framework for the Resilient Vancouver Strategy, generally as described in this report, and direct staff to finalize the Strategy and associated implementation plan.
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Next Steps

- Finalize & publish strategy document (June)
- Launch Resilient Neighbourhood Tool-kit & stream
- Integration with City wide plan & continuation of ongoing actions
- Further implementation and resource needs to be addressed as part of annual budget process

An aerial photograph of a marina at sunset. The water is dark blue with ripples. In the foreground, several wooden docks are visible, with many sailboats moored. A small boat with people is in the water. In the background, there are mountains and a large building with a white roof. A circular white border is overlaid on the image, containing the text.

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