Agenda

- Strategy Overview
- Strategy Implementation Update
  - Sewer and Water Systems
  - Transportation Systems
  - Civic Facilities
  - Private Buildings
  - Continuity of Operations
  - Volunteers and Community Support
  - Training and Exercises
  - Coastal Response and Firefighting
- Summary
Earthquake Preparedness Strategy - Background

**Highlights – Council Directed Initiatives**
- Started seismic upgrades to bridges
- Dedicated fire protection system
- Canada Task Force 1 - Heavy urban search & rescue team
- Emergency supply containers
- Emergency operations centre

**Development of the Earthquake Preparedness Strategy**
Concurrent implementation of Quick Win initiatives

**Strategy Implementation**
- Public Events
- Emergency Info. Plan
- Vancouver Volunteer Corps
- Cont. Bridge Upgrades
- Hardening key components of water system
- Emerg. Transportation Plan for Downtown
- Seismic Review of City Facilities
- Training & Exercises

**Status**
- 85% of actions complete or in progress

**Disaster Support Hubs** roll-out

**Civic Facility Upgrades**

**Seismic Retrofit Initiative**

**Coastal Response Exercise**
Earthquake Preparedness Strategy - Partners

TECHNICAL ADVISORY GROUP:
UBC Engineering, NRCan, Geological Survey of Canada

WORKING GROUPS

EARTHQUAKE PREPAREDNESS STEERING COMMITTEE

SPONSOR:
Director of Emergency Management

CHAMPION:
CMO

EXTERNAL LIAISONS

EMBC - IPREM
Metro Vancouver
BC Hydro
Fortis BC
Translink
CP Rail
Port Metro
Health Authorities
Vancouver Board of Trade & EPICC
Earthquake Preparedness Strategy – 55 Actions

55 Actions

Continuous Review: 2016
- 4 actions + 3 Actions

3 ACTIONS

ASSESS RISK

21 ACTIONS

REDUCE RISK

31 ACTIONS

PREPARE TO RESPOND

RESPOND & RECOVER
Scorecard – October 2016

<table>
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<th>Completed</th>
<th>In Progress</th>
<th>Remaining</th>
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- 47 of the 55 actions (85%) are complete or in progress.
- Remaining actions are scheduled to begin in 2017 or 2018.
Sewer and Water Systems
Past Action

- Water Utility Response Plan
- Dedicated Fire Protection System (DFPS)
- Maintain emergency wells
- Ongoing water main replacement program
- Restrained-joint transmission mains
- Pilot Japanese Couplings
- Pressure-reducing Valve Stations are earthquake resilient
Water System – Current Actions

- Risk-based strategy for hardening key vulnerabilities in the water system
- Enhanced access to post-earthquake firefighting water supply, including Fire Boat Pumping Capacity and portable hose-reel for above-ground hydrant system
- Collaborating with Health Authorities to enhance post-earthquake servicing plans
Past Action

- Sewer utility response plan
- Regional plans to upgrade treatment plants
- 100% sewage pump stations have back-up power generation capacity
Ongoing: new pump stations are designed to be post-disaster operational and have flexible connections
Transportation Systems
Past Action

• Seismic upgrades to key bridges ($14 million in seismic upgrades over past 20 years)

• Disaster Response Routes

• Bridge Response Plan

• Downtown Transportation Emergency Response Plan

• 67% upgrades to Granville St. Bridge
  • Self-ready design for remaining Granville Bridge Upgrades
Transportation System – Current Actions

- Bridge Seismic Screening Assessment
- Bridge post-earthquake Inspections Guides
  - 3 of 4 guides complete. Next step is to train staff on the inspections.
Continuity of Operations
Past Actions

Business Continuity Facilities

- Assessment and prioritization of City’s business units
- Assessment and identification of suitable unoccupied worksites for business continuity functions
Current Actions

- Business Continuity Facilities
  - Enhance alternate worksites to support operational continuity of critical business units
    - Evaluation and implementation of back-up power generation options
    - IT and equipment upgrades

- Earthquake Response Supply Chain Assessment

- Update of fuel service contracts

- Emergency Management Information Systems procurement

- Pilot of Emergency Notification System for staff
Civic Facilities

CITY OF VANCOUVER
Structural and Non-Structural Seismic program

- **Approach:**
  - Program → prioritize buildings
  - Screening and studies
  - Define implementation projects
  - Implement

- **Prioritization Principles:**
  - Emergency Response
  - Business Continuity
  - High Occupancy
Structural program:
- Complete: 170 screening reviews, 11 detailed studies
- In progress:
  - 25 further detailed studies
  - East Wing / West Annex

Non-Structural program:
- In progress:
  - RFP for consultant for 12 prioritized buildings
  - VPD Kootenay Building - Skylight Upgrade
Civic Facilities

• **East Wing Deconstruction**
  - Moved 370 staff
  - Training in Vacant Building
  - Deconstruction now
  - Reconstruction of platform Spring 2017
  - Used vacant East Wing for Police and Fire exercises
Civic Facilities

- **West Annex Seismic Upgrade**
  - Contract awarded
  - Start of construction Sept. 2016
  - Pilot installation of Early Warning System and Strong Motion Instrumentation
Private Buildings
Phased approach incorporating **response preparedness** and **mitigation/prevention** initiatives

- **Response Preparedness**
  - Life-saving, rescue, coordination
- **Mitigation**
  - Building Damage Assessment
  - New buildings
  - Existing Buildings
Phased approach incorporating response preparedness and mitigation/prevention initiatives

Response Preparedness
- CAN-TF1 Heavy Urban Search and Rescue
- Damage Assessment Program

Disaster Staging Areas
- Tools & Equipment

Training & Exercises
- Collaboration BC Housing, APEG BC, AIBC, NSEM

Mitigation
- Seismic Provisions in VBBL
- Seismic Upgrade Triggers in VBBL

Adopt New National Seismic Provisions early

Seismic Retrofit Initiative
Buildings – Current Actions

- Review revised National Building Code with a view to adopt seismic provisions early
- Leadership with experience in this field
  - Kaye Krishna
    GM Development, Building, and Licensing
  - Gil Kelley
    GM Planning, Urban Design, and Sustainability
Launch Seismic Retrofit Initiative

Interdisciplinary Task Force:
- Risk assessment
- Regulatory review
- Existing CoV tools
- Levels and methods of retrofitting
- Potential retrofit strategies

Collaboration:
- Mechanisms and tools used by other state and local governments
- Leverage 100 Resilient Cities network
- Engage senior levels of government for support
Volunteers and Community Resilience
Ongoing development of the Vancouver Volunteer Corps

- Specialized teams:
  - Emergency Social Services (ESS)
  - Neighbourhood Emergency Assistance Team (NEAT)
  - Public Education
  - Amateur Radio (VECTOR)

- 833 active volunteers, over 1000 trained since 2012

- Simplified intake process

- Focus on developing depth in our volunteer pool
  - Building capacity through new leadership opportunities and advanced training.
  - Established Volunteer Advisory Committees
Public Safety Deployments and Response (2015-16)

- Marathassa Oil Spill
- Roundhouse Group Lodging Centre
- Fort McMurray Wildfire (Red Cross call centre)
- Celebration of Light, Canada Day, FIFA World Cup, Santa Claus Parade, Pride
- Over 20 Emergency Social Services Call-outs supporting more than 260 displaced residents
Disaster Support Hubs Launch

- Officially launched during Emergency Preparedness Week - April 29, 2016
- Low-tech tool to promote grassroots response and planning at neighbourhood level
- 25 signs installed to identify Hubs across the City (including 23 Park Board Community Centres, Fraserview Library and Oppenheimer Park)

Ongoing Community Resilience Building

- Incorporating Hubs into deployment plans for volunteers
- Creating community emergency planning tool-kit
- Pilot Map your Resilientville community workshop in Dec 2016
Training and Exercises
Training and Exercises

**2015**
- Significant response operations (Port Chemical Fire, Marathassa Oil Spill, Windstorm)
- CMT Oil Spill Tabletop Exercise

**2016**
- Develop and train on new Standard Operating Procedures and new systems to implement lessons learned from 2015 operations
- Exercise Coastal Response & CMT Earthquake Tabletop Exercise

**2017**
- Training on Building Damage Assessment Plan
- Training on new Emergency Information Management System
- Functional EOC Exercises and Building Damage Assessment Tabletop Ex.

**2018 – 2019**
- Planning and execution of Full Scale Earthquake Exercise, including activation of Disaster Staging Areas, Disaster Support Hubs, and Building Damage Assessment Plan.
- Exploring opportunities for regional and provincial partnerships for the exercise.
Can-TF1: Heavy Urban Search And Rescue Team

- June, 2016 – Port Alberni Full Scale Exercise of B.C. Initial Response Protocol to a Catastrophic Event
- 9.0 earthquake and 20 meter Tsunami Wave Scenario
- Port Alberni was the most damaged community in the 1964 Alaska Earthquake
- Exercises from Mexico to Alaska – Military to Civilian
Coastal Response “Base of Operations”
Exercise Coastal Response 2016

Key Learnings

- Can-TF1 is prepared – Great inter-operability for skills with Can-TF2, 3 & 4.
- Communication challenges, enhancements required to meet the current needs and inter-operability with other agencies.
- Transportation challenges
- Importance of regular training Exercises

Recommendations

- Continue to maintain joint training with other Can-TF Teams.
- Currently evaluating other Can-TF Teams technology to determine appropriate requirements.
- Upon receipt of Federal funding procurement process will be initiated for required transportation.
Fire-fighting Capacity
Fire Boats
Oil Boom Reel
3 New Hose Reels

- Extended above ground hydrant system
  - 3 Trailers – each carries 660 feet of 6” Firehose supply.
We continue to review the strategy as we identify further actions and remove redundancies.

The risk to City’s Critical Infrastructure and services continues to be mitigated. Response plans are in place to restore and respond to impacted services.

Significant upcoming work includes:

- Continued empowerment of the community to build resilience around the Disaster Support Hubs
- Launch of a seismic retrofit initiative for private buildings
- Major seismic work on City Facilities (East Wing and West Annex) and implementation of an early warning system in the West Annex
- Implementation of a multi-year training and exercise plan