



# Vancouver's Earthquake Preparedness:

Infrastructure

Buildings

Emergency Management

Urban Search & Rescue

Activities Completed & Future Efforts

# AGENDA

- **Olympic Experience- Sadhu Johnston**
- **Infrastructure- Peter Judd**
  - **Bridges**
  - **Water Systems**
- **Buildings-Will Johnston**
  - **Building Codes for New and Existing Buildings**
- **Urban Search & Rescue (USAR)- John McKearney**
  - **Training**
  - **USAR Facility**
- **Emergency Planning- Kevin Wallinger**
  - **Emergency Operations Center**
  - **Community Education**

# Olympic Experience

- Importance of early integration
- Joint planning and training across all sectors
- Able to enhance existing plans and procedures
- Centralized coordination of activities
- Reaffirmed and strengthened relationships
- EOC was activated and tested for 60 days
- Emergency Management Steering Committee established

**“Integrated planning for public safety moved ahead by about 10 years because of the Olympics”**

# Olympic Experience

- Engagement with external partners (utilities, telecoms, VCH...etc)
- Emergency Management Steering Committee
- Integration across all departments:
  - Proactive planning
  - Infrastructure investments
  - Emergency social services
  - Supplies and equipment
  - Public education and engagement
  - USAR and all hazards response
  - Building codes



# Significant Capital Investments 1990 – 2010 (Over \$107M)

- Dedicated Fire Protection System (\$54M)
- Bridge upgrades (Burrard, Granville, \$14M)
- Emergency Operations Centre Upgrades (\$2M)
- VFRS Equipment (\$12M)
- Urban Search and Rescue Facility (\$1.7M)
- Creation of E-Comm (facility, radio infrastructure) (\$24M)

# Infrastructure

## Bridges and Water Systems

# Metro Vancouver Reservoir Network

- Vancouver is fed water at 1st Narrows, 2nd Narrows and from Coquitlam via 45th Ave
- If north crossings are lost – Coquitlam feed likely to hold
- If reservoirs operable post disaster - procedures in place to isolate reservoirs and directly feed some hospitals



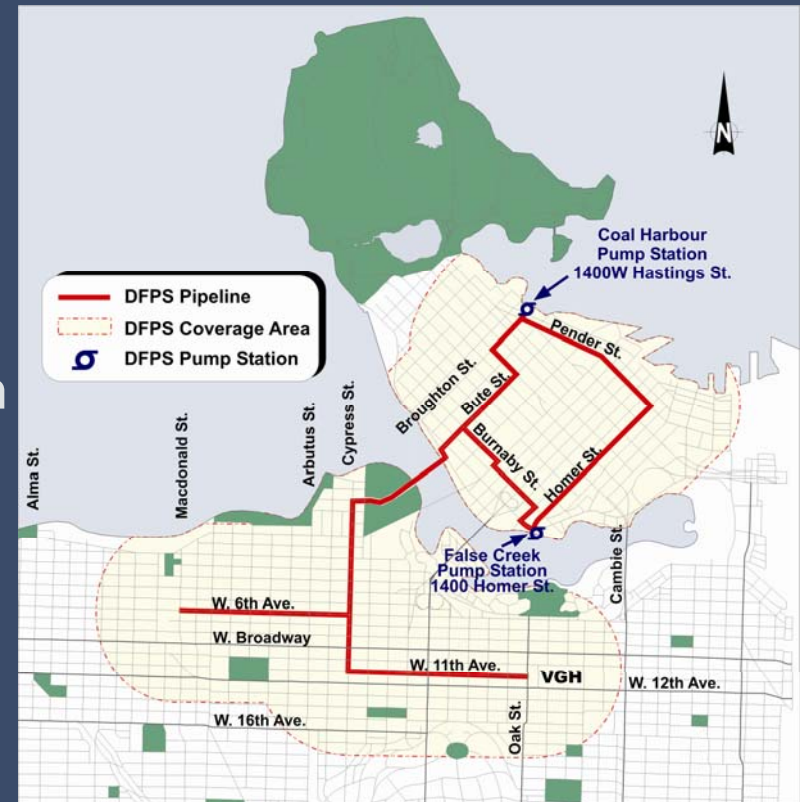
# Waterworks Emergency Response Objectives

- Provide water for firefighting including the dedicated fire protection system
- Repair and restore water system on priority basis – minimize damage from broken mains
- Provide an adequate supply of potable water focusing on high priority facilities
- Protect public safety by maintaining high standard of water quality



# Dedicated Fire Protection System

- Fire Protection for Downtown core and Kitsilano
- 80,000 litres per minute high pressure (300 psi) potable or saltwater supply
- Hardened steel mains
- Fire Hoses have 1500 meter range from Hydrants
- Cost of Installation - \$54 Million



# Well Inventory

- Langara golf course, McCleery golf course, Langara Mall (Private well heads)
- Recent upgrades done at Langara in 2009 to protect water quality and enhance production
- McCleery slated for similar upgrading in 2011.
- Private haulers to be utilized for delivery.
- Built ramp so fire trucks can pump from surrounding water bodies.



# Bridges and Streets

- Seismic upgrading of City bridges over past 20 years:
  - Granville Bridge \$7.4 M
  - Burrard Bridge \$7.1 M
  - Grandview Viaduct \$0.3 M
- Seismic upgrading of Provincial /TransLink bridges since 1999:
  - Oak Street
  - Knight Street
  - 2nd Narrows
  - Lions Gate



# Bridges and Streets

- Deck restraint



# Building By-law Seismic Requirements

# City's Building By-law (Seismic Requirements)

## New Construction:

- Seismic Standards Developed by National Research of Council of Canada
- Standards continually updated and revised based on latest research and experience
- Seismic Standards adopted by City, as well as Provinces and Territories as made available
- City first and only jurisdiction in Canada to mandate seismic design for one and two family homes (Since 2001)
- Seismic requirements for one and two family homes only now being considered by the Province of BC Building Code

# City's Building By-law (Seismic Requirements)

## Existing Buildings:

- City is a leader with respect to seismic upgrade requirements for existing buildings in Canada
- Since early 1970's City has mandated seismic upgrades to existing buildings as they are renovated (initially based on monetary values)
- For almost ten years City has mandated a graduated scale of upgrades based on the nature of work done to a building rather than monetary values (New Upgrade Model)
- New Upgrade Model now mandates non- structural type upgrades for smaller renovation projects which was never required previously.

## Higher Qualifications for Structural Engineer's in Vancouver:

- Professional Engineers responsible for seismic designs of larger projects must have a higher level of qualification through the Association of Professional Engineers and Geo-Scientists of BC
- Vancouver only jurisdiction in Canada to mandate this requirement.

# VANCOUVER

## HEAVY URBAN SEARCH & RESCUE

# CAN - TF1

## CANADA TASK FORCE ONE

# Team History

- Established in 1995 – First “Heavy” team in Canada
- 65 members – January, 2000
- 99 members – 1<sup>st</sup> Quarter 2011



# USAR Governances Structure

**Corporate Management Team**

**City Manager's Office**

**USAR Steering Committee**

**USAR Team Manager and Task  
Force Leaders**

**USAR Team Members**

# Team Composition

- 63 trained members
- 36 new members – 1<sup>st</sup> quarter 2011
- Team Composition (99 total members)
  - VFRS – 56
  - BCAS – 19
  - Engineering – 17
  - VPD – 7

# Team Capabilities

- **Emergency Medical Response**
- **Structural Collapse Specialist**
- **Confined Space rescue**
- **Rope Rescues technicians**
- **Trench rescue**
- **Flood water rescue**
- **Haz – Mat Technicians**

# Structural Collapse First Response Capability

- Two Fire Halls
  - #1 Hall @ Prior & Heatley
  - #9 Hall @ Victoria & 2<sup>nd</sup> avenue
- Quick response of Fire Personnel (24/7) to more rapidly respond within City
- Supported by Engineering, VPD & BCAS

# Team Activation Procedure

- Decision to deploy USAR assets made by Department of Foreign Affairs and International Trade (DFAIT)

In discussion with Public Safety Canada (PSC)

- DFAIT offers Canadian assistance Abroad
- Requests are received
- Best response options determined
- PSC contacts Task Force for readiness report
- PSC would contact EMBC AND CoV with situational report

# Team Training

- Extensive training in 2011 and 1<sup>st</sup> quarter 2012 to meet national certification standards
- Established working advisory group on national training standard for all disciplines within HUSAR

# Team Training



# Team Training



# Team Training



# Team Training



# Team Training



# National Training Exercise Ottawa Oct. 2010



# Training Facility

- **Scheduled completion March 25<sup>th</sup>, 2011**
- **Cost to complete \$1.7 million**
  - **Federal/City cost sharing**
- **Indoor training facility**
- **Cache storage**
- **Equipment repair/maintenance**

# Training Facility



13/03/2011

# Training Facility



02/03/2011

# Logistical Function Equipment Cache

- Inventory management
  - Cache value \$3.1 M.
  - Seconded Logistics Chief – from Eng. 75%
- Equipment supply and deployment readiness
  - Equipment service and storage
  - Medical supplies
  - Food
  - PPE
  - Tools
  - Communication equipment



# Emergency Management and the Operations Center

# Emergency Operations Centre (EOC)



- Inter-agency coordination
- Information sharing
- Coordinated planning
- Integrated communication
- Post-disaster facility



# Communications and Emergency Supplies

- **Emergency Telecommunications**
  - Police, Fire, Engineering, Parks, EOC, City Hall
  - Regional, provincial and national
  - Radio and satellite
  - Supported by over 150 volunteers
- **26 Emergency Supply Containers**
  - Pre-positioned at Community Centres
  - Support immediate needs of displaced people
  - Additional container at the PNE for pets

# Planning and Social Services

- **Response Planning**
  - Initial Response Guidelines (hazard specific)
  - Muster zones and Area Command Posts
  - Containers in place in 2011 to support response
  - Damage assessment process
  - Identification of critical infrastructure
- **Emergency Social Services**
  - Regional group lodging planning
  - Reception Centres
  - Over 200 volunteers

# Staff Training and Staff Preparedness

- **Staff training**
  - Over 150 staff trained for EOC
  - Exercises (Olympics, Fireworks, ShakeOut)
- **City preparedness**
  - Emergency cabinets in civic buildings
  - Emergency kits in vehicles
  - Staff discount for personal emergency supplies
  - Preparedness info on CityWire and CrewTalks

# Public Education and Awareness

- **Neighborhood Emergency Preparedness Program**
  - Free workshops for the public
    - Personal Preparedness
    - Emergency Preparedness for you and your pet
    - Neighborhood team building
  - 6 videos available on line
- **Community and neighborhood fairs**
- **“ShakeOut BC”**
- **Public readiness surveys**

# 2011 Priorities

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- Establishment of Command Posts
  - Communications and emergency supplies at 6 muster sites
  - \$250K in 2011 capital funding
- Increased Public Engagement
- Learning from Christchurch, NZ
  - Exploring staff seconded to Christchurch, NZ
  - Spend 1-2 months learning from their experience

# 2011 Priorities

- Finalize Tri-Lateral MOU with Province and Federal Government for USAR Deployment
- Further analysis of existing buildings in public and private sector with reporting
- Consider expanding Dedicated Fire Protection System
  - Mobile pumping capability (eg. barge)

# Questions?