



## North Shore Emergency Management Office

City of North Vancouver District of North Vancouver District of West Vancouver



## Damage Assessment:

*the road from modelling to resiliency*

Mike Andrews  
Emergency Planning Officer

# JANUARY 2015



- Flooding across the region lacked a common operating picture
- Delay in obtaining useful information from the field



# RDA APP

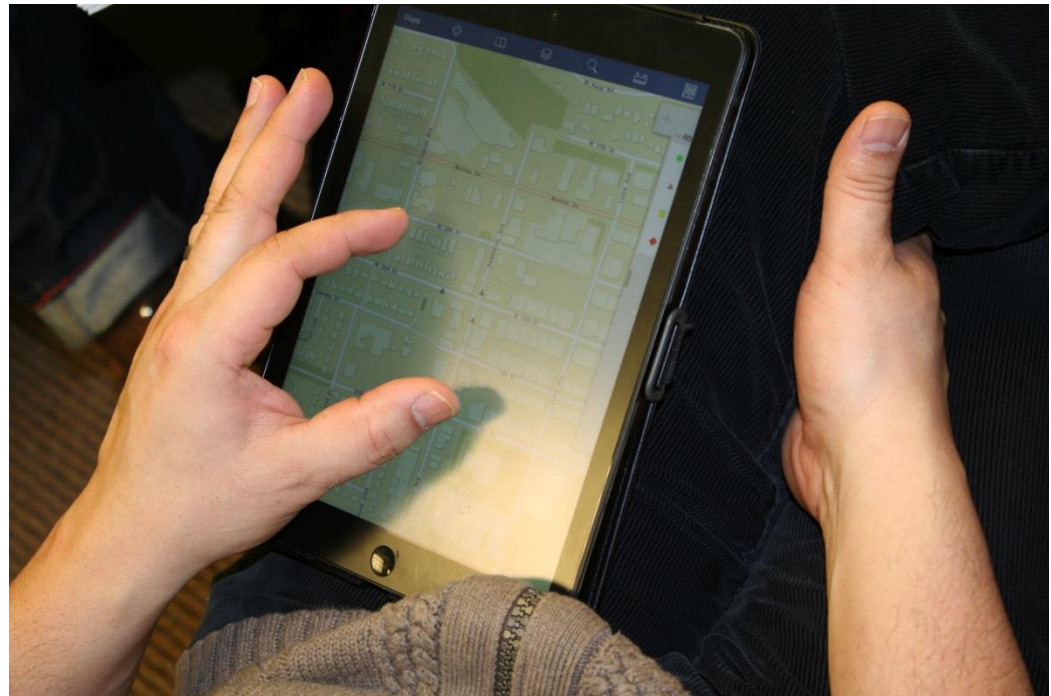


- Partnered with BC Housing and UBC “Capstone” students
- Use of ESRI Canada’s ArcGIS Collector App as platform
- Also built Incident Report and Evacuation Notification layers

**Rapid Damage Assessment Form**

Collection Date: \_\_\_\_\_ Incident Date: \_\_\_\_\_  
Reporting Station: \_\_\_\_\_ Address: \_\_\_\_\_  
Building Name: \_\_\_\_\_ Type of Construction: \_\_\_\_\_  
Number of stories above ground: \_\_\_\_\_ Number of stories below ground: \_\_\_\_\_  
Number of residential units (single residential buildings): \_\_\_\_\_  
Primary Occupancy: \_\_\_\_\_  
Observed Conditions: \_\_\_\_\_  
Posting: \_\_\_\_\_  
Further Actions: \_\_\_\_\_

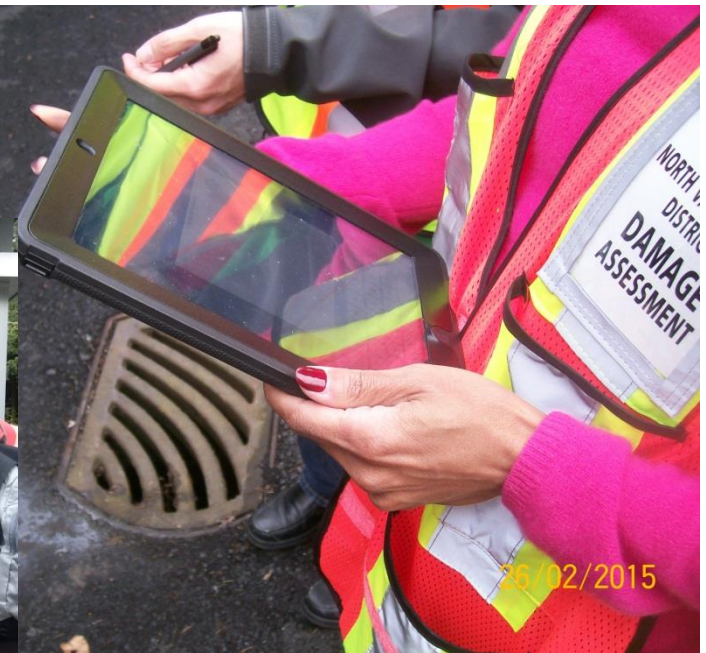
Estimated Building Damage
None
1 - 25%
26 - 50%
51 - 75%
76 - 90%
91 - 100%



# DAMAGEX 2015



- Functional APP exercise to familiarize assessors
- Transcribed pre-scripted damage reports of 15 facilities, 6 locations
- Multi-platform assessment (iOS, Android, phones & tablets)
- With and without connectivity
- Simultaneous radio test



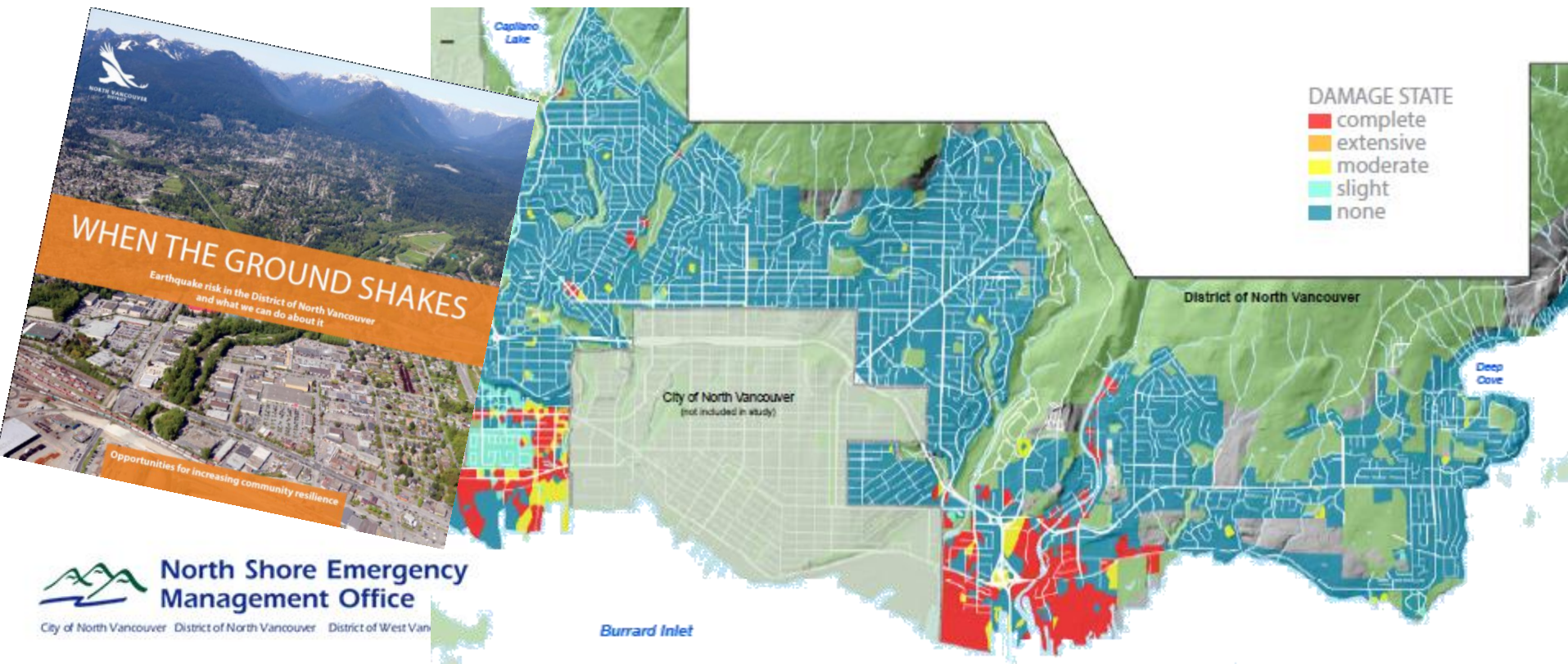
**North Shore Emergency  
Management Office**

City of North Vancouver District of North Vancouver District of West Vancouver

# EARTHQUAKE SCENARIO



- M7.3 Central Georgia Strait earthquake
- Building on Exercise Shore Shake 2014, functional EOC exercise
- Modelled for the North Shore using HAZUS software
- [www.dnv.org](http://www.dnv.org)



# OPERATION WINDSHIELD



- Objectives include EOC processes, transportation logistics, technology
- Damage assessment; modelling, windshield, RDA and infrastructure
- Engaged response entities, air & marine resources
- Build or enhance agency relations



# DAMAGE ASSESSMENT



- Windshield Assessment & Situational Awareness
  - ✓ Operational resources playing
  - ✓ Newly developed Incident Report app
  - ✓ Geo-spatial integration



# DAMAGE ASSESSMENT



- Rapid Damage Assessment
  - ✓ 6 municipal teams playing
  - ✓ Newly developed RDA app
  - ✓ Pre-conference tour interaction



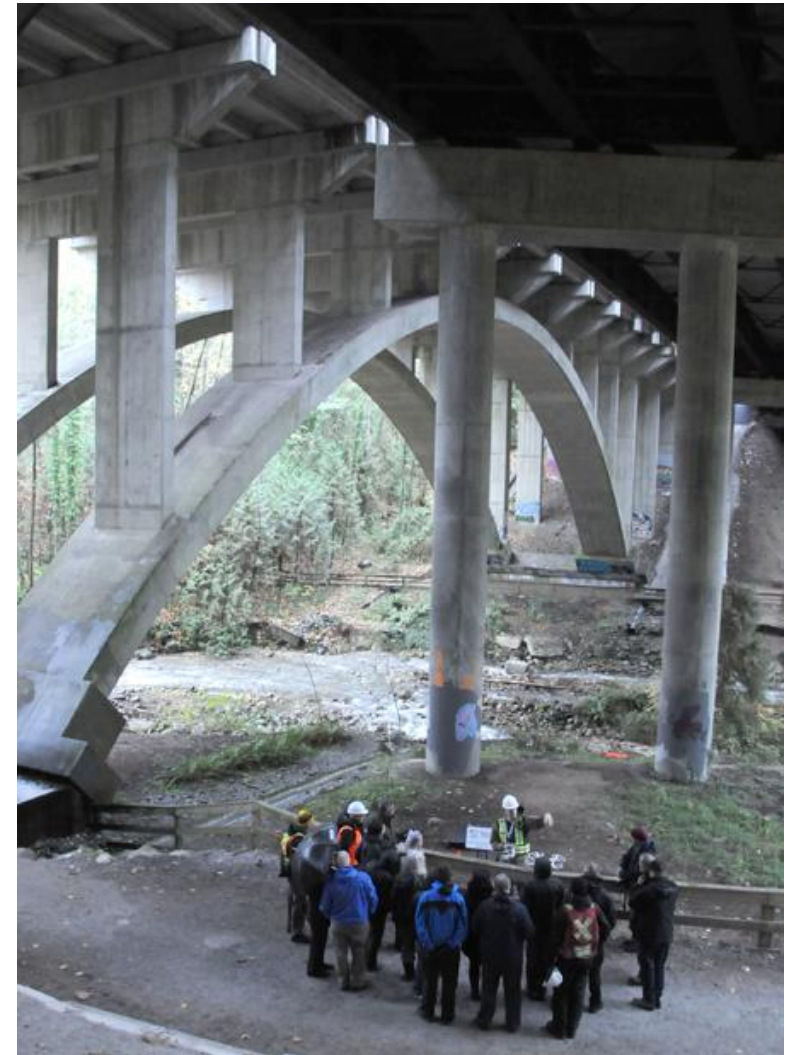
# DAMAGE ASSESSMENT



# DAMAGE ASSESSMENT



- Infrastructure
  - ✓ Engineering DOC play
  - ✓ UAV flights of bridge & dam
  - ✓ BC Hydro & industry engagement



# AIR OPERATIONS



- EMBC Post-Disaster Air Asset Management

- ✓ Resource request process
- ✓ Prioritization of allocation

- Unmanned Aerial Vehicles

- ✓ Seymour Dam
- ✓ Mosquito Creek Highway Bridge
- ✓ HazMat scenario

- Aircraft

- ✓ Damage helicopter flight
- ✓ North Shore Rescue LZ management
- ✓ Transport Canada imagery flight
- ✓ PEP Air photo overflight



# MARINE OPERATIONS



- Heavy Urban Search & Rescue Scenario
  - ✓ Barge HUSAR vehicles to North Shore
  - ✓ Move HUSAR personnel by RCM SAR
  - ✓ Ambleside Park
- Sea to Sky Scenario
  - ✓ Highway 99 bypass
  - ✓ BC Ferries & MoTI
  - ✓ Slip assessment
  - ✓ UBC project
- Other elements
  - ✓ Hovercraft
  - ✓ Foreshore damage assessment



# ENGAGED AGENCIES



The following agencies have partnered with NSEM, the City of North Vancouver, District of North Vancouver and District of West Vancouver in the planning and/or play of this exercise:

Architectural Institute of BC

BC Ambulance

BC Disaster Psycho-Social Team

BC Ferries

BC Housing

BC Hydro

Canexus Chemicals

CN rail

Coast Guard Canada

Emergency Management BC

Environment Canada

ESRI Canada

Lehigh Materials

Lions Gate Hospital

McElhanney Consulting Services

Metro Vancouver

North Shore Rescue

Port Metro Vancouver

RCMP

Royal Canadian Marine SAR

Selkirk Systems

The Salvation Army

TransCAER

Translink

Tymac Launch Services

Univar Canada

Vancouver HUSAR Team

West Vancouver Police

BC Ministry of Transportation & Infrastructure

Association of Professional Engineers & Geoscientists of BC

Department of Foreign Affairs, Trade and Development (DFATD)

Emergency Preparedness and Business Continuity Conference

THANK YOU to all of our

volunteers and local

government partners who

assisted with exercise design

and facilitation!