



# City of Vancouver: Climate Change Adaptation

Vancouver  
City

Fraser Basin Council  
January 18th, 2012  
Tamsin Mills, Sustainability Group





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## Metro Vancouver facing future threat from rising sea levels

BY CHAD SKELTON, VANCOUVER SUN AUGUST 18, 2011

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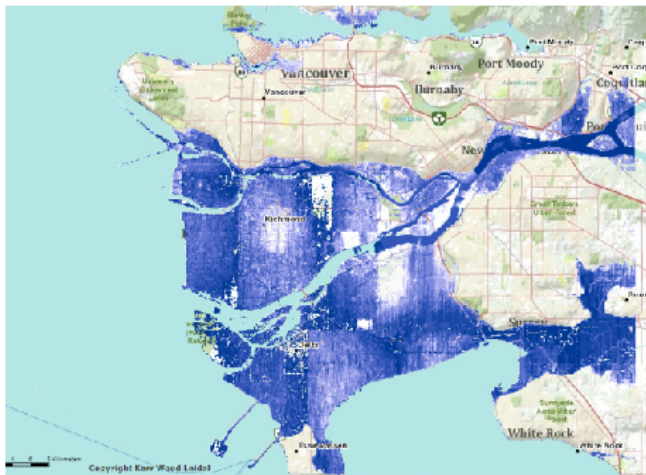
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This map shows the region's vulnerability to projected rising sea levels. Darker blue means a higher risk of flooding. See more detailed map at <http://tinyurl.com/floodmap2100>

METRO VANCOUVER - Rising sea levels could cause flooding in Metro Vancouver communities that never had to worry about it before, such as

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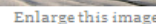


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In a report released Thursday, the National Roundtable on the Environment and Economy forecasts that climate change will have a variety of increasingly harmful impacts, from flooding in low-lying coastal regions and threats to Canada's timber supply, to health problems caused by worsening air quality.

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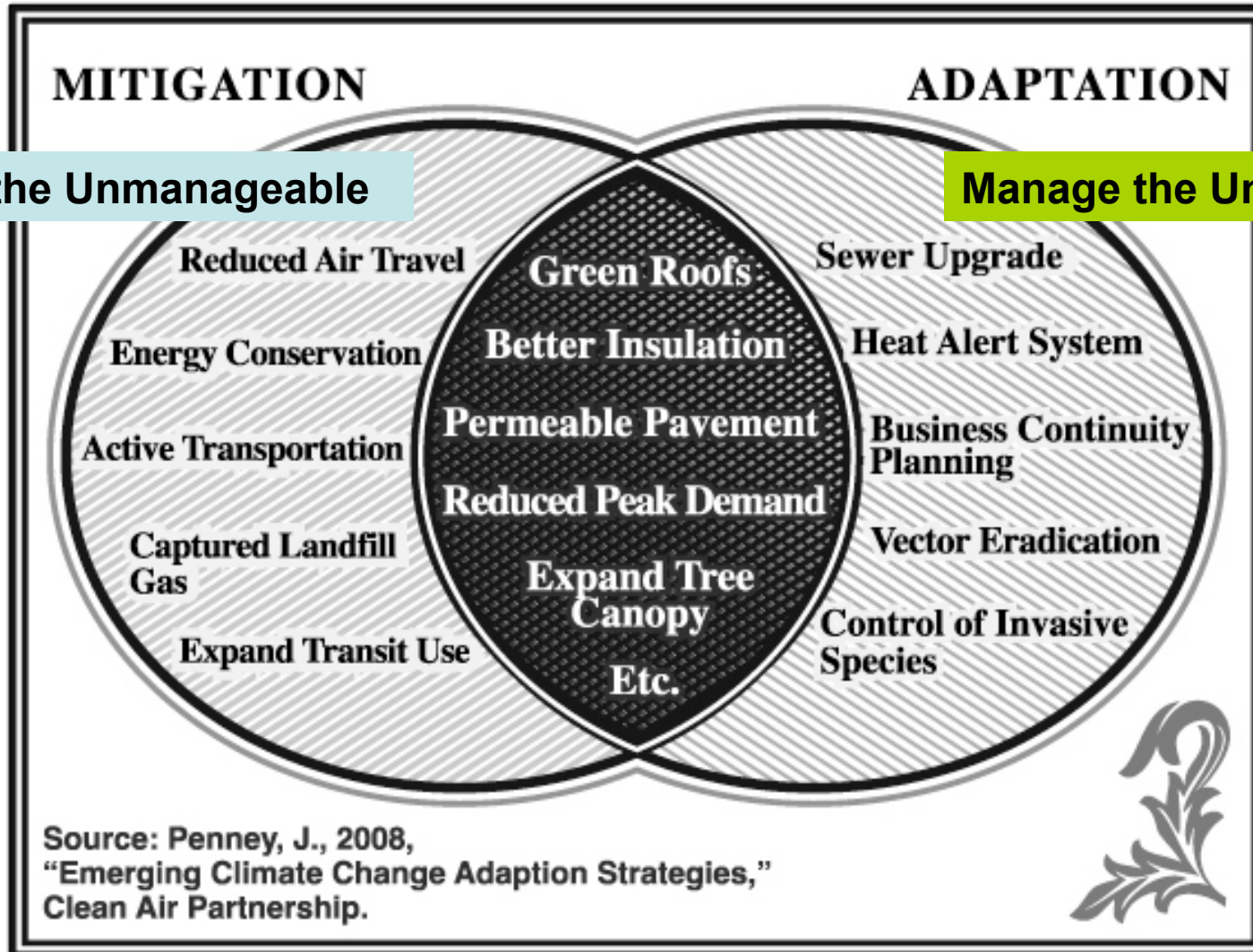
“THIS IS NOT JUST ABOUT COPING WITH  
CLIMATE CHANGE, BUT PROSPERING  
THROUGH IT.”

# Outline

- Adaptation Planning: what we are doing
- Sea Level Rise:
  - Why we need to think about it now
  - What we are doing

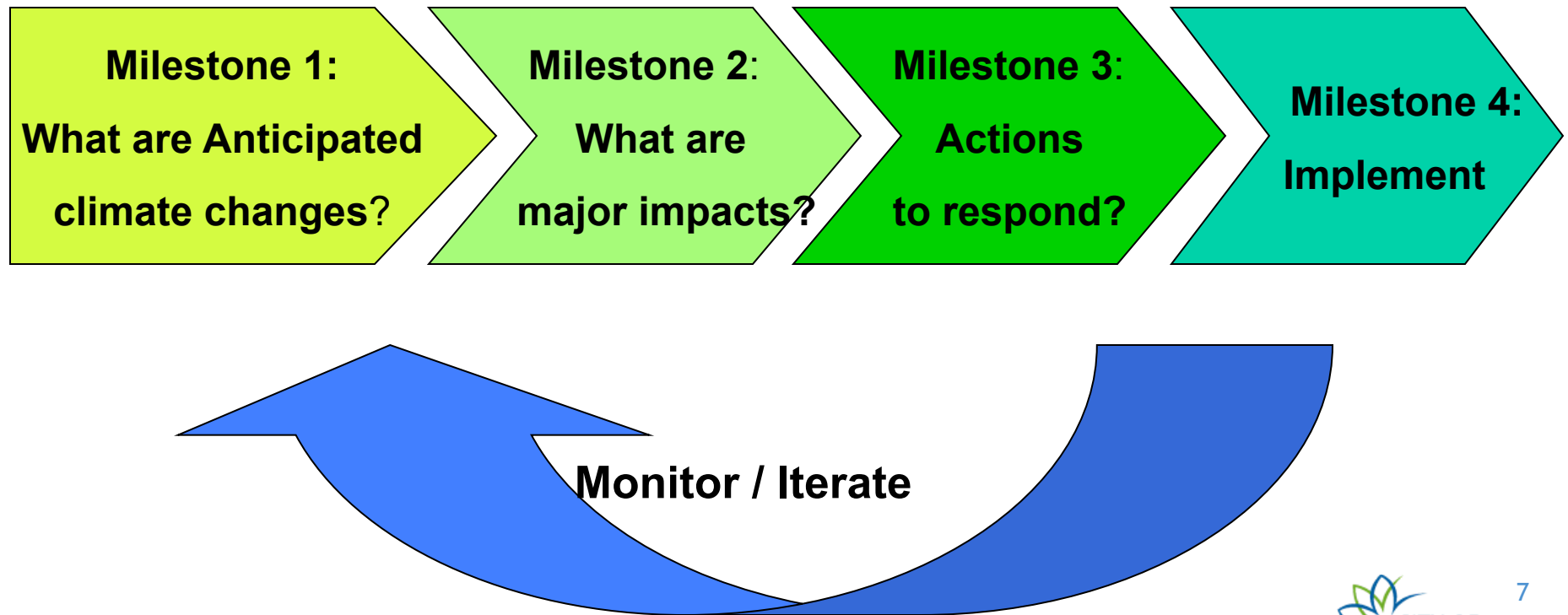


# What is Adaptation?



# How are we planning adaptation?

## ICLEI Adaptation Initiative





## Milestone 1: How Will Vancouver's Climate Change?



Increased rainfall volume and intensity

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Increase in intensity and frequency of extreme events

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Sea Level Rise: 1.0m by 2100

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2 degrees warmer annually by 2050, more summer heat waves



## Milestone 2: Prioritize Impacts

- Water Related Impacts:
  - Increased surface water flooding
  - Increases in private property sewer backups
  - Increases in combined sewer overflows
  - Water supply shortages felt in late summer
  - Increased erosion, damage to structures and loss of habitat from sea level rise
  - Reduced gravity drainage of existing system
  - Increased flooding and storm surge damage as sea levels rise

## Milestone 3: Prioritize and Evaluate Actions

- Workshops with departments to identify possible actions for impacts
  - Awareness
  - Brainstorm actions
  - Identify low hanging fruit
- Evaluate Actions
  - Co-benefit
  - Build on existing projects / window of opportunity
  - Implementation capacity
  - Cost-effectiveness

# Building Resilience: examples from other Cities

- **Chicago:** Reducing urban heat island through hot spot mapping, tree planting and reflective roof standards
- **Boston:** Modifying development review guidelines to provide direction on resilience to climate change
- **N.Y.C:** Incorporating climate change into design and performance standards
- **Toronto:** Changes to bylaws for green infrastructure
- **Copenhagen:** Direct street flooding to parking lots and parks

# Sea Level Rise

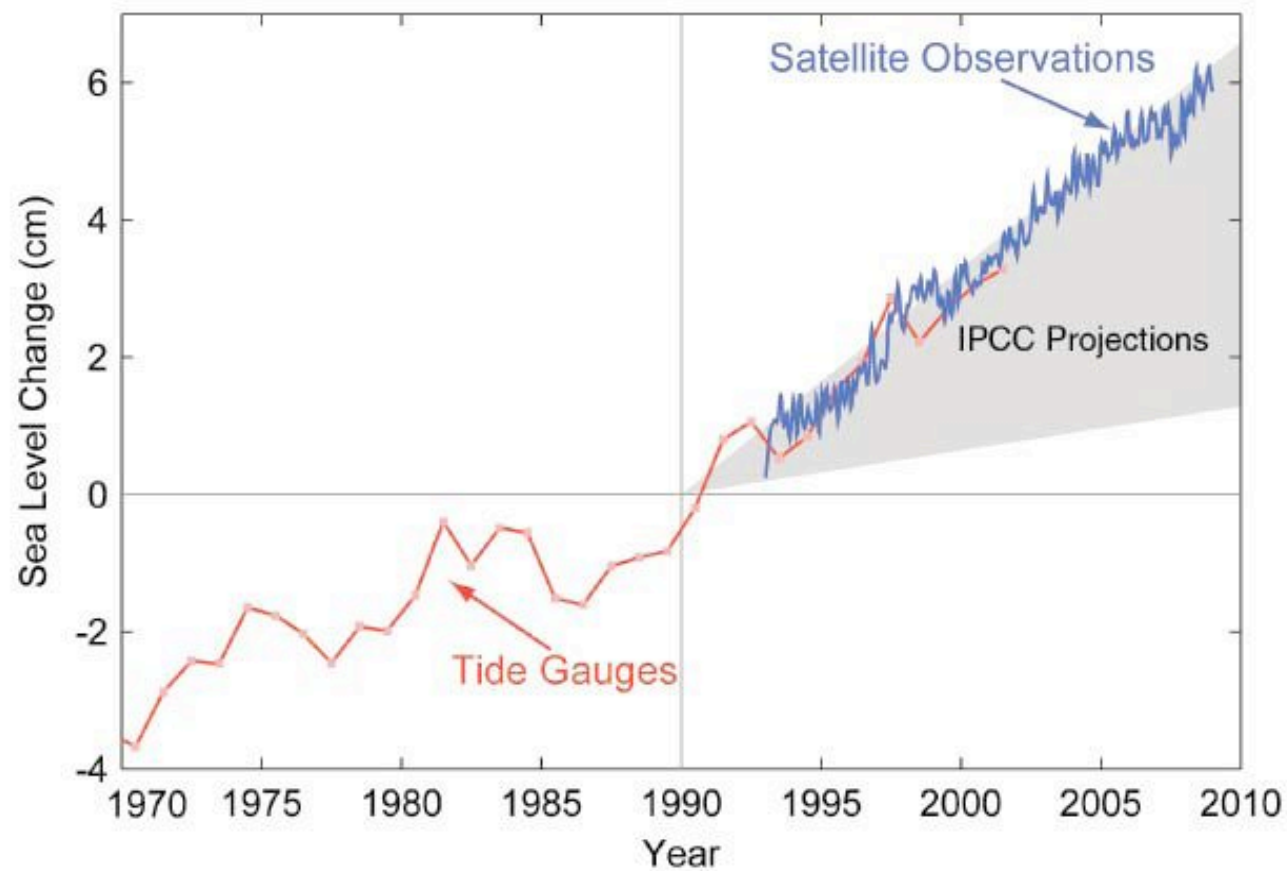
“Flooding is an acute example of where climate and socio-economic systems interact”



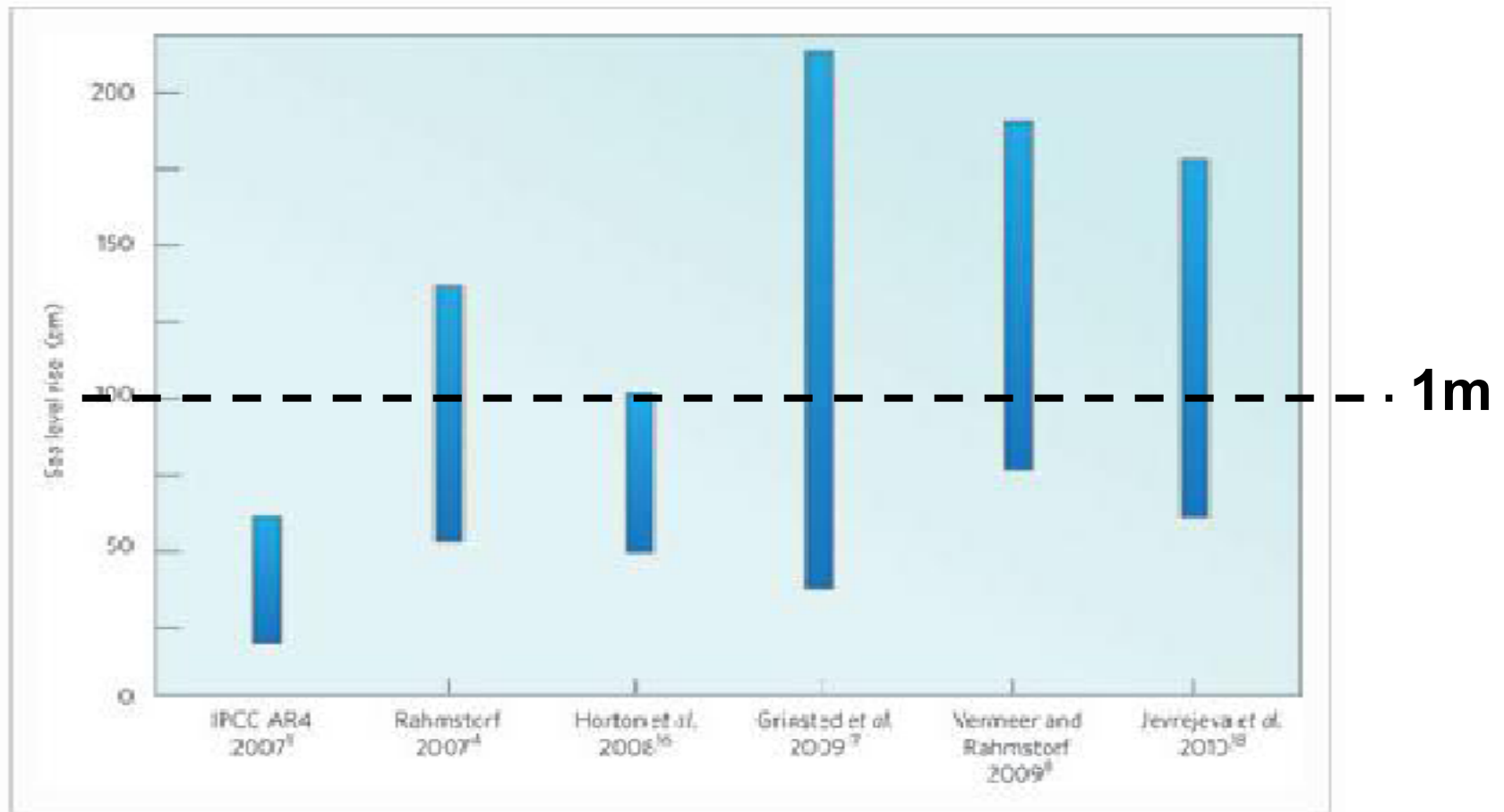
Source: BTA Works, July 2011



# Sea Level Rise Trend: Sea Level Change 1970 - 2010



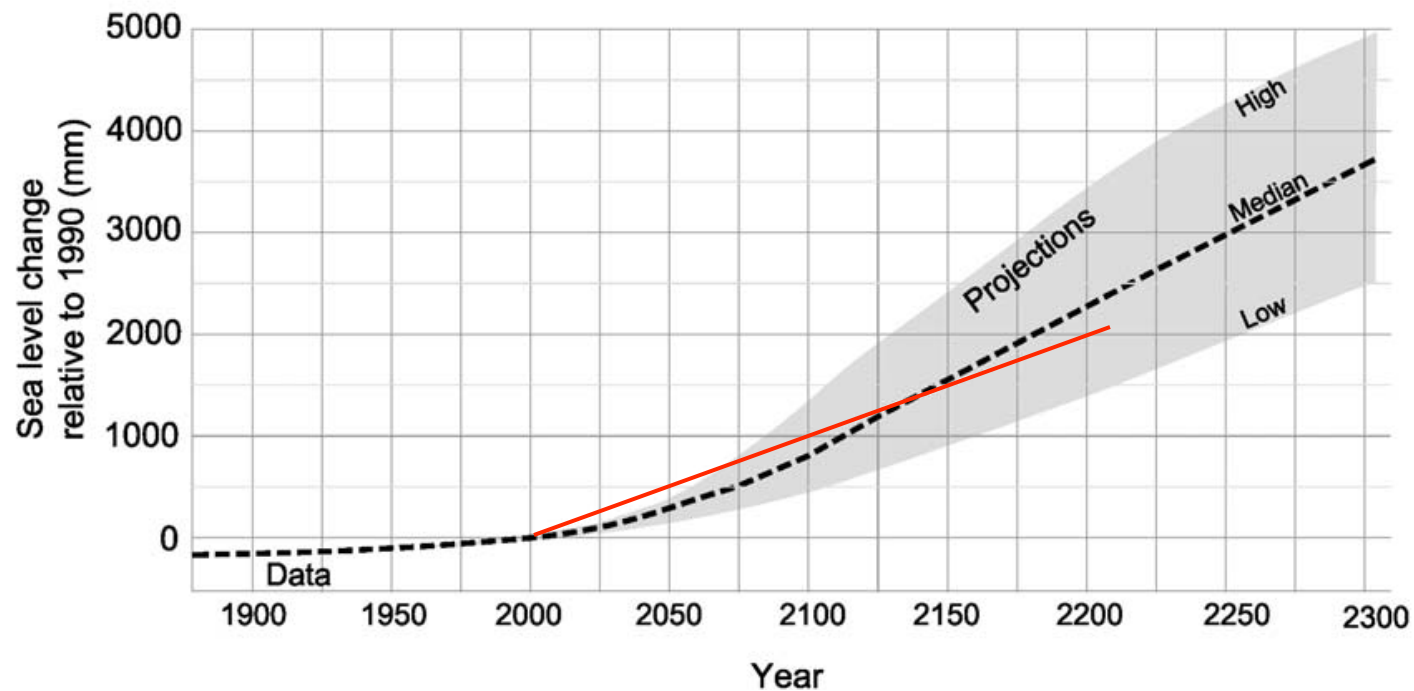
# Sea Level Rise - Range of Projections



Source: S. Rahmstorf, "Nature" April 6, 2010

# Sea Level Rise (SLR) Guidance from Province

Development Timeframe	Guideline SLR Allowance
Lifespan to Year 2050	0.5 m
Lifespan to Year 2100	1.0 m
Lifespan to year 2200	2.0 m



— Recommended curve for BC SLR policy

# Tools for Flood-hazard Management

- Province downloaded responsibility to flood hazard management to Municipalities in 2004
- **Tools in CoV Flood-proofing Policies:** flood construction levels and setbacks
- Flood Construction Levels (FCLs): keep *living spaces* and *goods damageable by floodwaters* above flood levels



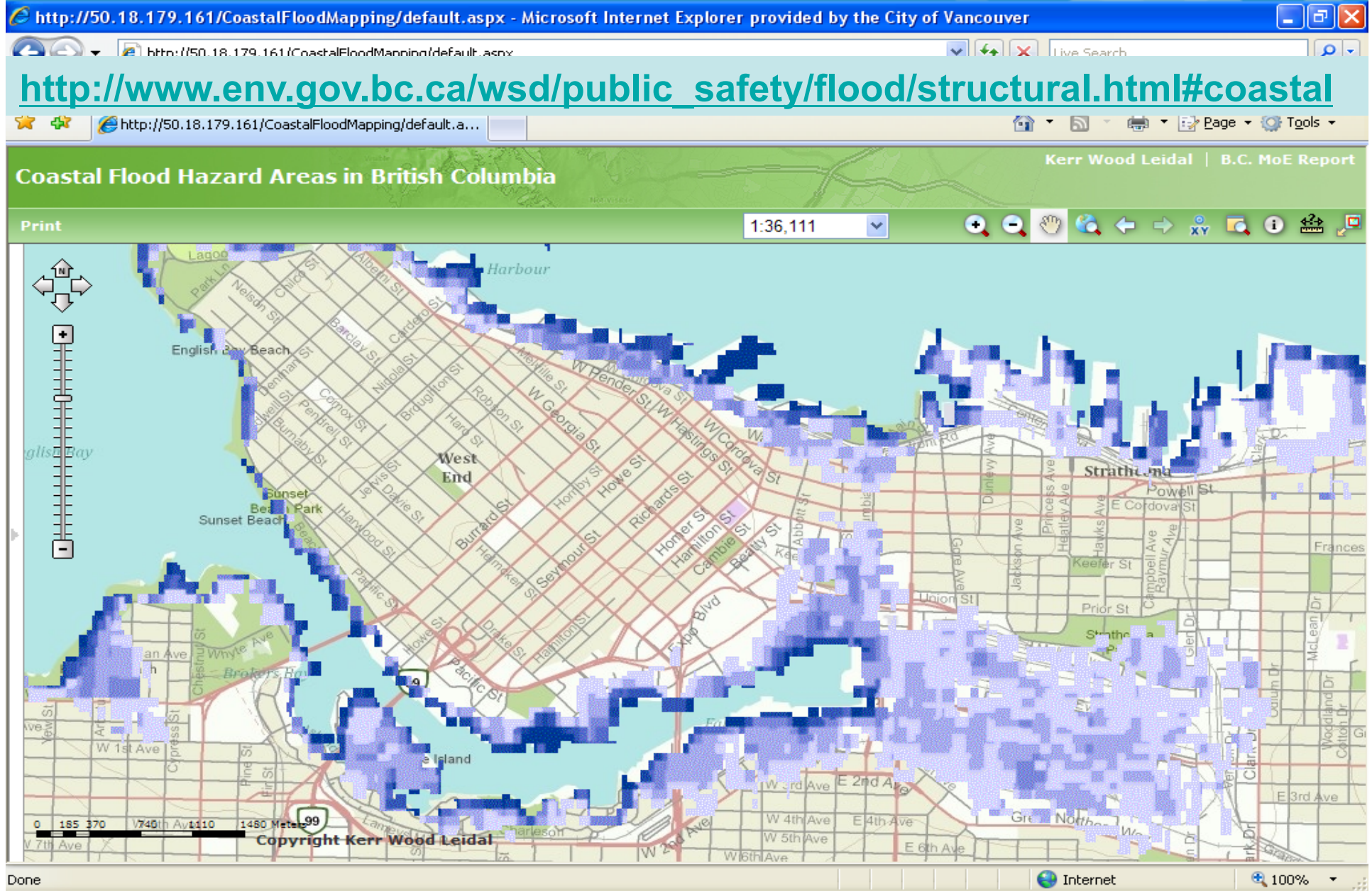
# Ministry of Environment Guidelines

## May 2011

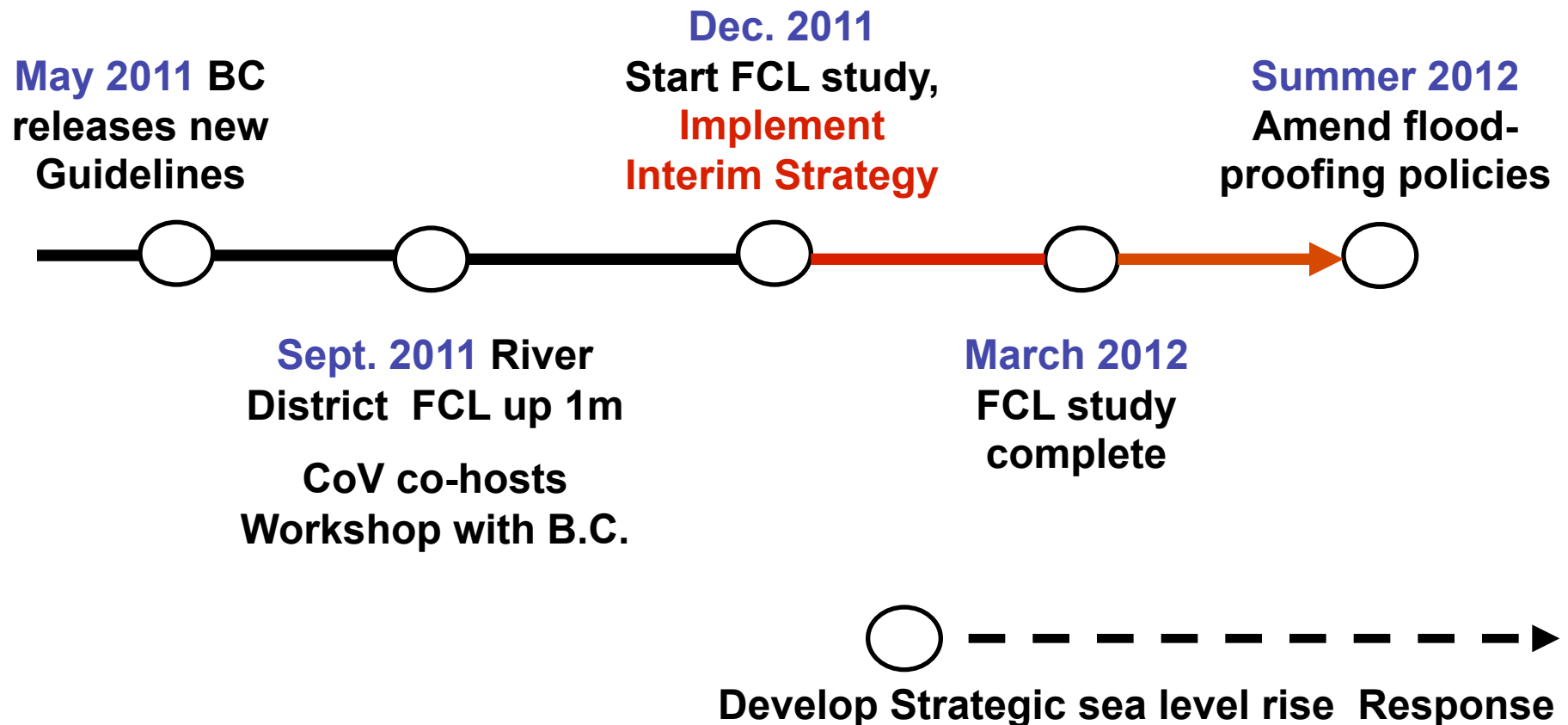
- *Climate Change Adaptation Guidelines for Sea Dikes and Coastal Flood Hazard Land Use*
- Guidelines = methodology
- Published for Coast but adaptable for Fraser
- Currently recommends FCLs behind dikes as well

	Current FCL	Guidelines FCL
Fraser River	3.5m or 3.8m	The Delta: 6.2m
Vancouver Harbour	3.5m	5.6m

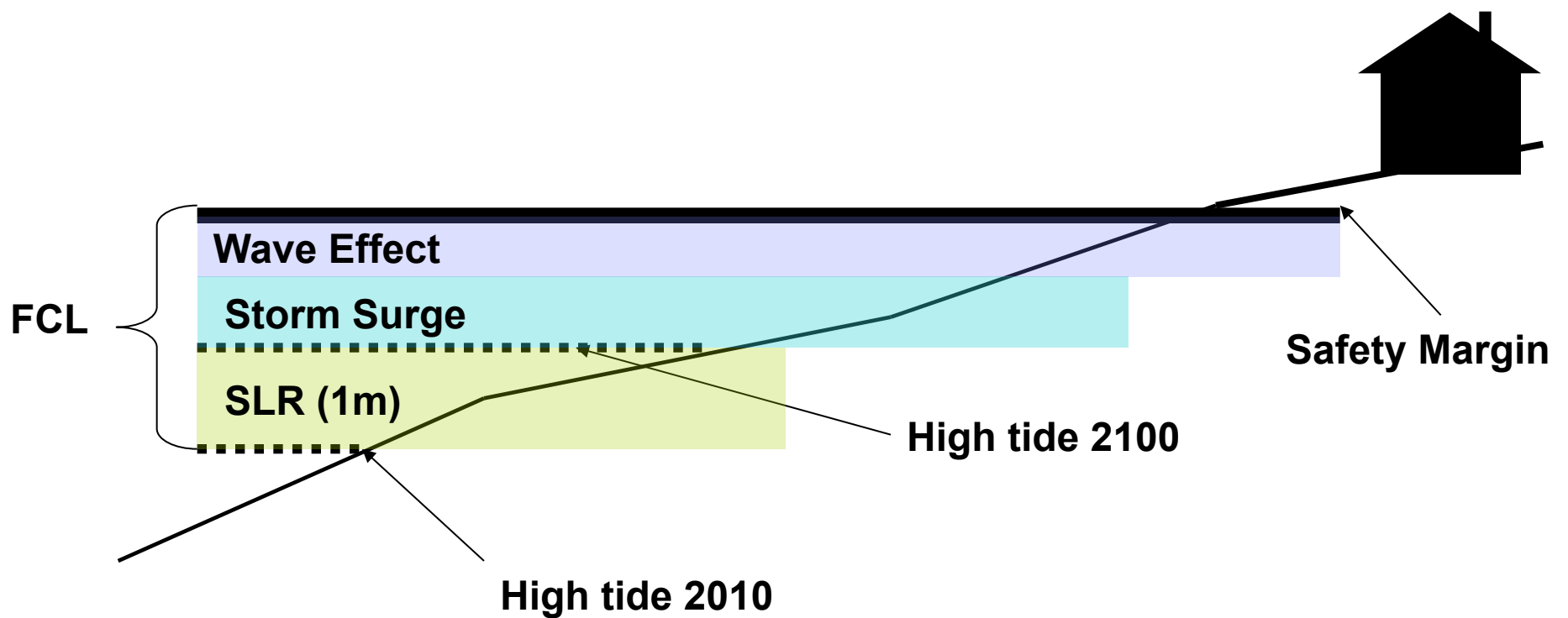
# Sea Level Rise: What Are We Expecting?



# City of Vancouver Actions



# Why the 1m? FCL Components





## Next Steps for Sea Level Rise Response

- New Flood-proofing Policies in the Summer
- Climate Change Adaptation Strategy complete in Spring, 2012
- Work on strategic sea level rise response:
  - Hold the Line: Dikes, flood gates, high seawall
  - Manage Retreat: Protect some, change land use
  - Build Up: build up roads and buildings
- Continued regional coordination

# Thank You

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