

The word "HALIFAX" is written in a bold, white, sans-serif font. It is positioned in the upper right quadrant of the slide, set against a dark blue background that is part of a larger geometric design consisting of overlapping triangles in various shades of blue.

# Climate Change in Halifax: Are We Ready?

12<sup>th</sup> Annual Elisabeth Mann Borgese Ocean Lecture

Shannon Miedema, Energy & Environment  
June 8, 2016

# Sustainability Starts with Council

- Regional Municipal Planning Strategy
  - Goal: to achieve a shared vision of the future of Halifax – **healthy, vibrant and sustainable communities**
  - Also used as our Integrated Community Sustainability Plan
    - gas tax requirement
- Municipal Climate Change Action Plan
  - addition requirement of ICSP in Nova Scotia
- Priorities Plans related to climate change
  - Greenhouse Gas Emissions Reduction Plan
  - Community Energy Plan
- Council approved an emissions reduction target of 30% below 2008 levels by 2020

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# Energy & Environment

Sea Level Rise / Coastal Flooding	Floodplain & Watershed Studies	Stormwater Management	Water Quality Monitoring	Shoreline Erosion Controls
LIDAR & Vulnerability Mapping	ICSP/MCCAP	Risk Management Framework	GHG Reduction Plan & 2020 Target	Urban Forest Master Plan
EU Policy Exchange with Estonia	Climate Adaptation Studies	Community Energy Plan	Renewable Energy - Solar City	Energy Efficiency
Emergency Preparedness	Housing Affordability	100 Resilient Cities Challenge	Food Security	Halifax Green Network Plan

- Partnerships with other government departments, NGOs, academic institutions, industry & the public are critical for success

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# Sea Level Rise - Updating

- Flood scenario mapping to 2100 redone using IPCC AR5 estimates
  - uses research (Daigle) that localizes these estimates for the Halifax Harbour
- In discussions with stakeholders to cost share the reflying and expansion of our LIDAR coverage
  - to include all of our coastline and watersheds
  - For accurate & up-to-date digital elevation models
- Next we will update the flood scenario maps and redo the land vulnerability assessment for Halifax Harbour

# Planning for Sea Level Rise

- Municipal Planning Strategy and Land Use By-law for downtown Halifax waterfront area
  - ground floor elevation must be minimum 2.5 m above the ordinary high-water mark
- Development Agreements to encourage appropriate development
  - E.g. King's Wharf development on the Dartmouth waterfront
- To be considered in the development of the Centre Plan (new Secondary Municipal Planning Strategy for the Regional Centre)
- Considered on a project-by-project basis

# Coastal Erosion Controls - Northwest Arm Seawall



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# Coastal Erosion Controls – Living Shoreline Project



St. Mary's Boat Club, Halifax

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# EU-Canada Urban Policy Exchange Initiative

- Participation in an EU-funded, EU-Canada Policy Exchange
- Themes:
  - low carbon development
  - climate adaptation
  - biodiversity
- Rare opportunity for cities to collaborate internationally



## EU-Canada Partner Cities

Almada, Portugal  
Hannover, Germany  
Tallinn, Estonia  
Vitoria-Gasteiz, Spain

Saanich, Canada  
Ottawa, Canada  
Halifax, Canada  
Edmonton, Canada

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# CHANGING CLIMATE CHANGING COMMUNITIES

"Peggy's Cove" Flickr/Amin Mat Azahar

## 2016 LIVABLE CITIES FORUM

[www.livablecitiesforum.com](http://www.livablecitiesforum.com)

The Westin Nova Scotian, Halifax

September 12-14, 2016



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# Other Climate Considerations

- Implementation of the Urban Forest Master Plan
  - Recommends tree species that can withstand anticipated climate changes
  - Trees prevent erosion and are critical in stormwater management and carbon sequestration
- Halifax was a city of study for two cost-benefit studies on climate change adaptation
  - Atlantic Coastal Infrastructure and Property in the Atlantic Provinces (6 study sites)
    - Halifax Harbour – shipping road & rail infrastructure
  - A Study of Economic Impacts on the Weather Effects of Climate Change on Vulnerable Communities
    - Halifax & Mississauga
  - Available on NRCan's online Adaptation Platform

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# Solar City Program

- Solar City Pilot Project
  - Residential program using rooftop solar panels for domestic hot water heating
  - 388 systems installed over 2 years
  - HRM financing by voluntary Local Improvement Charge
- NEW Solar City Program
  - **Launching June 15, 2016**
  - Three solar technology options:
    - Solar Photovoltaic (PV)
    - Solar Air
    - Solar Hot Water
- [www.halifax.ca/solarcity](http://www.halifax.ca/solarcity)

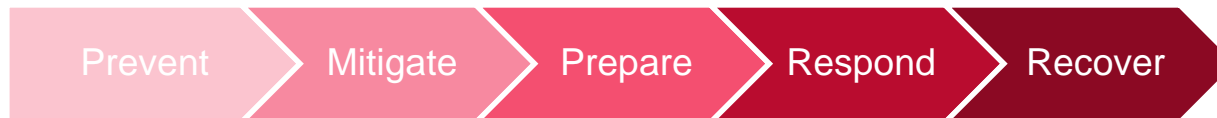
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# Resiliency in HRM

- Urban Resilience: the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what chronic stresses and acute shocks they experience
- Involves emergency management as well as environmental, economic, and social considerations

# Hazard, Risk & Vulnerability Analysis (HRVA)

- Atlantic Security Group updated municipal HRVA, completed in March 2015
- Important tool for emergency planning



- Typically, the more spent on prevention, the less spent on response
- These 5 pillars of emergency management can be applied to climate adaptation & resiliency
- Pilot project with Eastern Passage/Cow Bay on climate hazard mapping and emergency preparedness

# Thank You

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