

# Energy & Climate Action Committee: Developing a Climate Plan for Chatham

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## Outline

1. Charge by Select Board
2. Climate Risks - Ecosystem Services - Unmanaged Outcomes
3. Economic Impact of SLR (CC Commission Report)
4. Actions & findings to date
5. Natural Resources Working Group Risk Assessment
6. Priorities for: Natural Resources - Carbon Reduction - Infrastructure
7. Immediate Town-Wide Priorities

# Energy & Climate Action Committee Charged by the Select Board to:

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- Study current practices of Town staff and committees towards addressing climate impacts
- Develop a process for addressing climate impacts
- Develop recommendations for town climate action



# Chatham's Climate Risks

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Extreme Weather  
Sea Level Rise  
Floods  
Storm Surge  
Rising Temperatures  
Ocean Acidification  
Unknowns



# Chatham's Resources Impacted NOW

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- Storms eroding protective beaches and banks
- Sea level rise drowning salt marshes
- Warmer waters feed algae blooms, stress native spp.
- Extreme weather, rising temps and drought degrade wetland, woodland ecosystems, aquifer
- High energy storms destroy trees, increase flooding
- Increased invasive vegetation & loss of natives



# Natural Resources: Free “Ecosystem Services”:

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- Remove carbon dioxide from the atmosphere
- Store (sequester) Carbon
- Protect against flooding and storm damage
- Provide vital wildlife habitat and food
- Are critical to the town’s economic health
- Maintain overall resilience of the community



# Unmanaged Risk Outcomes

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- Coastal erosion with loss of beaches, marshes
- Flood-damaged homes, roads, infrastructure
- Land and coastal ecosystem stress or collapse
- Drinking and coastal water degradation
- Loss of biodiversity & fisheries



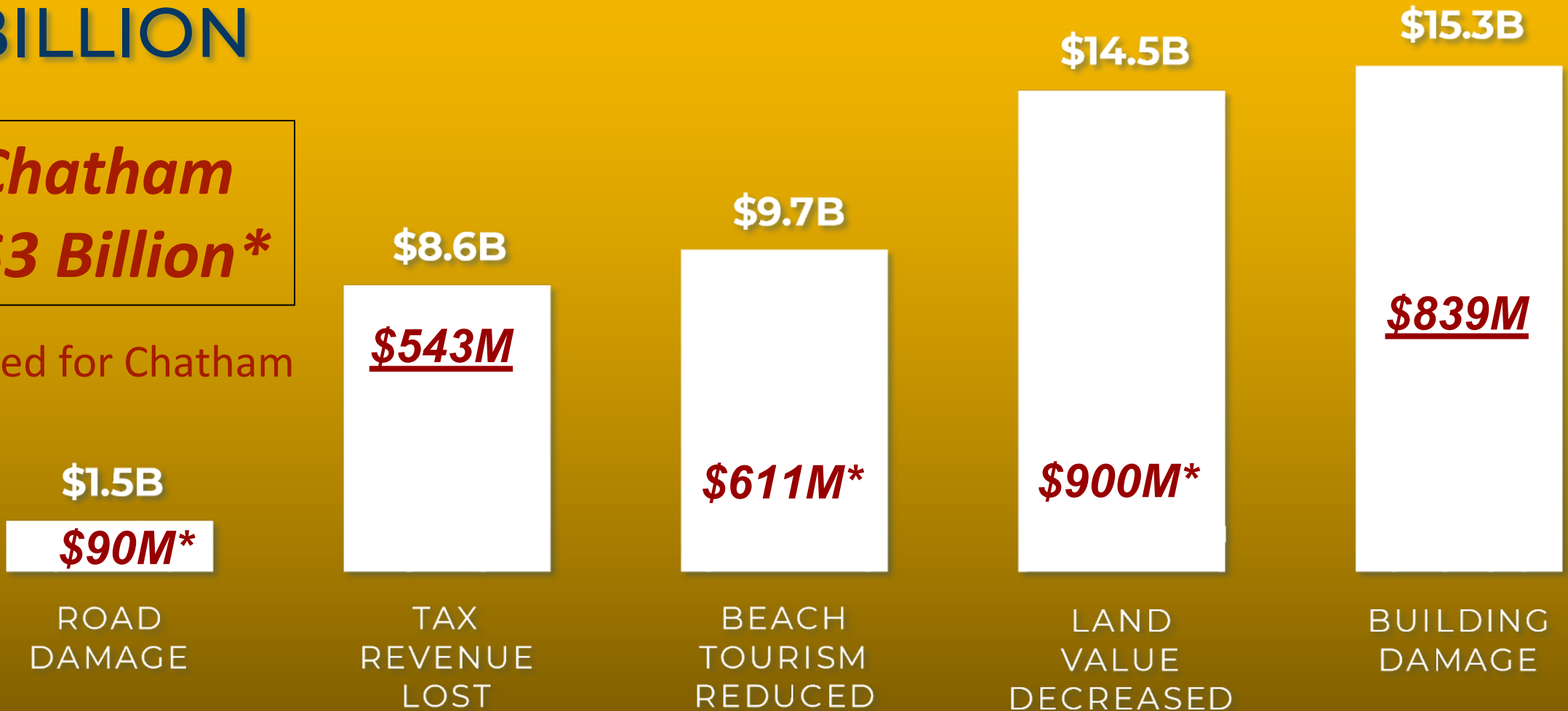
# Cape Cod Commission Economic Impact Analysis

## Sea Level Rise

**\$50**  
BILLION

**Chatham**  
**~\$3 Billion\***

\*estimated for Chatham



# Steps ECAC Has Taken

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- Interviewed Town staff & members of Planning, Natural Resources, and Conservation Commission
- Surveyed planned and completed climate actions
- Assembled volunteer group to assess threats to Natural Resources and determined top priorities
- Reviewed Climate Plans from Nantucket, Falmouth, Cape Cod Commission Reports



# Findings on Town Preparedness

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Staff well-versed on crisis,

but current issues occupy most of attention and resources

Climate change on the radar of Town Committees,

but none have clear authority or full responsibility to address issues

Recommendation:

Solutions will require coordination among staff, committees and community

Some issues require urgent attention (provided to Select Board in handout)

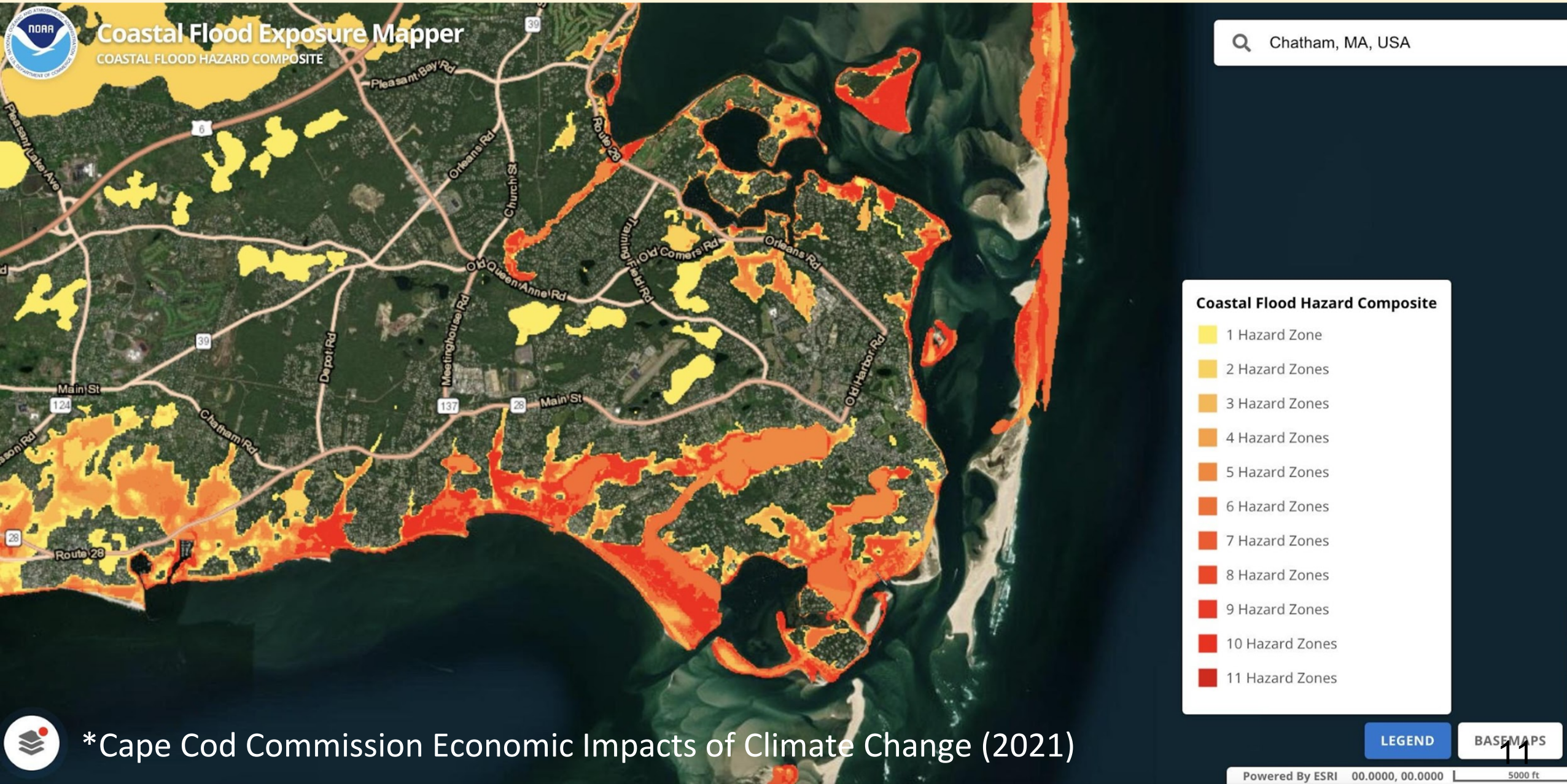
# Natural Resources Working Group

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- Identified natural resources and ecosystem services that minimize climate impacts
- Reviewed leading models of Sea Level Rise
- Determined best available model for the State of Massachusetts  
MA Climate Vulnerability Model - Coastal Risk Screening Tool  
Estimates range from 3' to 7.5' rise by 2100  
Applied mid-point average of 2' SLR by 2050  
Acknowledged storm surge will increase in frequency & intensity
- Assessed the risks (both likelihood and severity) to natural resources



# Chatham's Coastal Climate Change Hazards





# Risk Assessment Results: 20 Top Risks

## Risk Assessment Process

Five experienced reviewers

- Identified risks to resources
- LIKELIHOOD (scale 1-5)
- SEVERITY (scale 1-5 )
- URGENCY (scale 1-5)

Use of Risk Assessment

- Feasibility (\$\$\$, time, regulations)
- Assess multiple benefit of actions

Top Four:  
Marsh  
Protection

LOSS AND DAMAGE OUTCOMES	PRIORITY SCORE
Damage to Salt Marshes from Storm Surge	115
Loss of Salt Marshes from Storm Surge	101
Damage to Salt Marshes from SLR-based Flooding	96
Loss of Salt Marshes from SLR-based Flooding	85
Erosion: South Side Beaches	84
Growth of invasive species (plants, insects, diseases)	78
Erosion: Outer Beach	77
Over wash: Sand Movement	68
Ocean Acidification	60
Hurricanes and wind events	60
Fisheries Migration	52
Stormwater runoff w/ excessive nutrient from precipitation-based flooding	51
Loss of Trees Damage from precipitation-based flooding	44
Weakening of trees from drought	42
Damage to trees from precipitation-based flooding	41
Inland Flash Flooding	40
Salt water intrusion into groundwater from SLR-based Flooding	39
Salt water inundation of freshwater wetlands and ponds from Storm Surge	37



# Importance of Salt Marshes

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- Sequester & trap Carbon. Most concentrated Carbon Sinks on earth
- Buffer shoreline from erosion, traps sediments
- Store floodwaters
- Serve as shelter, food, nursery - 75% of NE fisheries species depend habitat
- Filter runoff and excess nutrients, improves coastal water quality





# Priority: Protect Natural Resources

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- Update Pleasant Bay Sea Level Rise Report (2017)
- Create a coastal resilience zone and restrict development within the protected area
- Assess and evaluate the effects of projected SLR to south coastal barrier beaches and dunes
- Preserve salt marshes and prepare for the need to accommodate salt marsh migration where feasible
- Investigate new approaches for protecting salt marshes
- Investigate potential to acquire vulnerable coastal properties



# Priority: Reducing Carbon Footprint

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- Approve the Net Zero Ready Building Codes at 2023 ATM
- Promote Cape Light Compact  
Weatherize **every home and business** in Chatham  
(only 19.9% of Chatham homes - lowest levels in State)
- Accelerate conversion to electric vehicles & increase charging sites
- Require Affordable Housing to be Net-Zero & built near activity centers



# Priority: Roads & Infrastructure Investments

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- Chatham is presently working with Cape Cod Commission to obtain grant funding to identify issues/impacts with low lying roadways
- Develop Prioritization & Feasibility within Climate Action Plan
- Consider options that reduce Chatham's transportation-related carbon footprint



# Next Steps for ECAC

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- Review & prioritize the recommendations for action
  - Continue interviews with staff and committees for input  
Health, Shellfish, South Coast, Facilities, Finance, etc.
  - Develop an implementation schedule for actions
  - Assign responsibilities & execute
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- ECAC needs from Select Board:
    - Continued authority to proceed with our planning
    - Schedule of periodic update from ECAC to Select Board



# The Town of Chatham must:

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**Reduce** our collective **carbon** footprint

**Strengthen protection** of salt marshes and other  
**natural resources**

**Prioritize** road and other **infrastructure investments**

**Educate** community & encourage **participation**

# Immediate Priority Recommendations - 2022

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- **Authorize Town Manager to convene cross-departmental working group to assess & prioritize actions**
- **Appoint sustainability coordinator to manage actions**
- **Develop “Climate Action and Resilience Plan”**
  - Strengthen protective regulations and bylaws
  - Plan for robust public outreach & input from Community