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# Planning for Climate Change

*Local problems...Local Solutions*

Ryan Bennett, Planner II  
*Energy & Hazard Mitigation Specialist*



Cape & Islands Energy & Climate Change Conference  
September 24, 2013



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*“The ongoing debate in the scientific community is not about whether climate change will occur, but the rate at and extent to which it will occur and the adjustments needed to address its impacts.”*

*- Massachusetts Climate Change Adaptation Report, 2011*

# Climate Science - 2050 Projections

## *MA Climate Adaptation Plan*



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Annual Temperature	Increase of 4 - 5°F
Annual Sea Surface Temperature	Increase of 3°F
Annual precipitation	increase 5% – 8%.
Droughts	will occur 5 -7 times every 30 years
Snow days	decrease by 2 days per month
Sea-Level Rise	8 inches to 16 inches
Increased intensity of hurricanes	
Increased frequency and duration of storms	

# Local Impacts



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## Existing Threats

- Erosion
  - Average rate approx. 1 – 3'/year
    - higher rates in Eastham, Dennis, Brewster, Sandwich and on CCNS beaches
    - One storm event can exceed average



## Emerging Concern

- Water Quality
- Fisheries
- Flooding



Photo credits: Eric Williams, capecodonline.com



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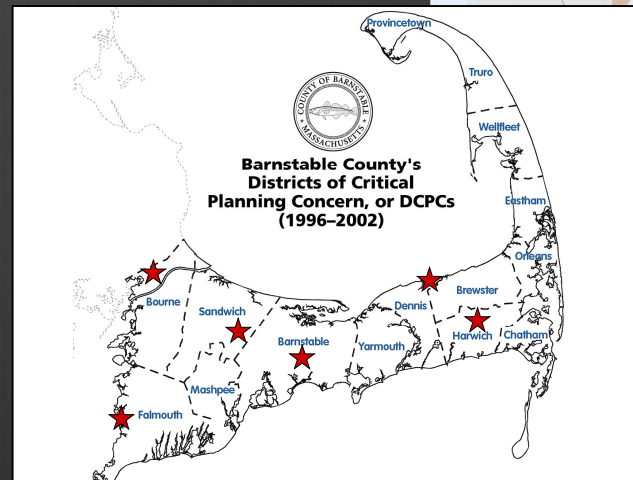
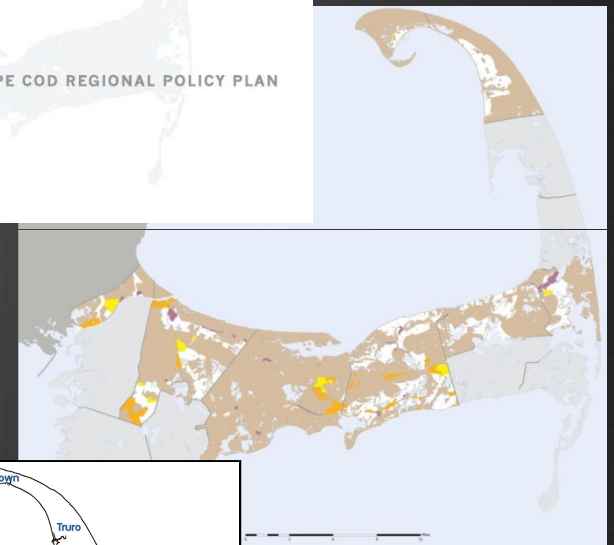
How can we address the  
problem?

# CCC Planning Policies



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- **Regional Policy Plan (RPP)**
  - Minimum Performance Standards; Land Use, Open Space, Transportation, Energy, Water Resources
- **Land Use Vision Map (LUVM)**
  - Guide growth toward Economic Centers and away from Resource Protection Areas (including coastal flood hazard areas)
  - Cooperative planning effort w/towns
  - Partially completed in 2009
- **District of Critical Planning Concern (DCPC)**



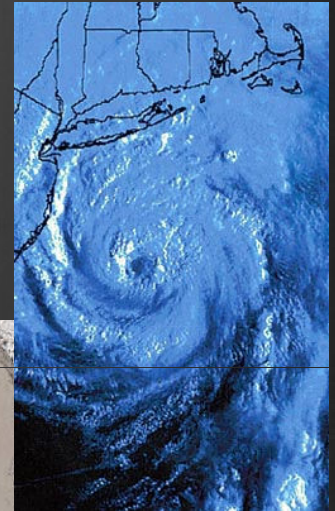


# CCC *Climate Change* Planning Initiatives



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- RPP Update & 208 Plan - Green Infrastructure & Climate “Lens”
- Multi-Hazard Mitigation Plans
- UPWP
  - Risk & Vulnerability Assessment for Critical Transportation Infrastructure (FY13)
  - Mitigation Plan (FY14)
- LUVU Update
  - Coastal PPAs
- Regional Partnerships
  - WBNERR Community Resiliency Index
  - PCCS Coastal Change Research – Science for Sediment Management
- GIS Services



# RPP & 208 Water Quality Management Plan Updates



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## RPP Update:

- Green Infrastructure & Climate “Lens”

## 208 Plan:

- Identify opportunities for green infrastructure
- Screen potential capital infrastructure sites for future inundation & SLR risk



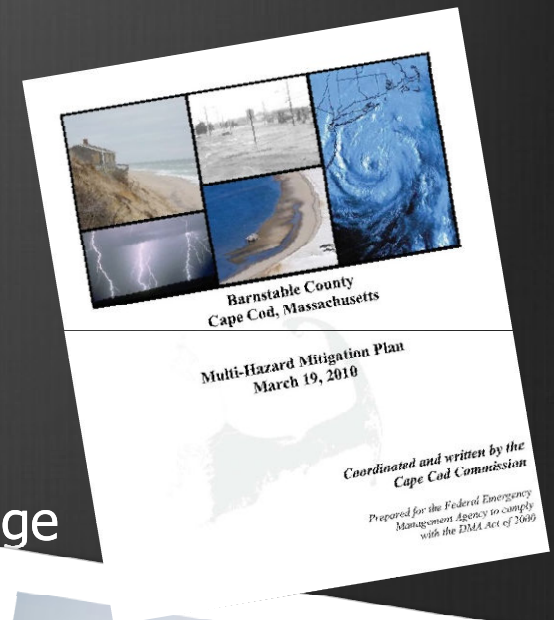


# Regional and Local FEMA MHM Plans



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- Barnstable County's Regional Plan certified 2010
- 5 certified Local Plans; 2 pending
- 6 Local plans to begin update Fall 2013
- Regional Plan update to begin 2014
- Regional and town plans (require FEMA approval)
  - Risk & Vulnerability Assessment
  - Mitigation Strategy
  - Action Items
- Access to implementation funding



# UPWP



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## *Risk & Vulnerability Assessment of Critical Transportation Infrastructure (FY13)*

- Federal Highway Administration's (FHWA) Vulnerability Assessment Framework
- Identify regional critical assets and modes
- Assess vulnerability to climate impacts

## *Mitigation & Adaptation Strategy for Critical Transportation Infrastructure (FY14)*

- Develop mitigation strategy for vulnerable assets and modes



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Cape Cod Metropolitan Planning Organization (MPO)  
Unified Planning Work Program for  
Transportation Planning Activities  
(October 1, 2012 – September 30, 2013)



# 2014 RLUM



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## Revised Definitions and Mapping

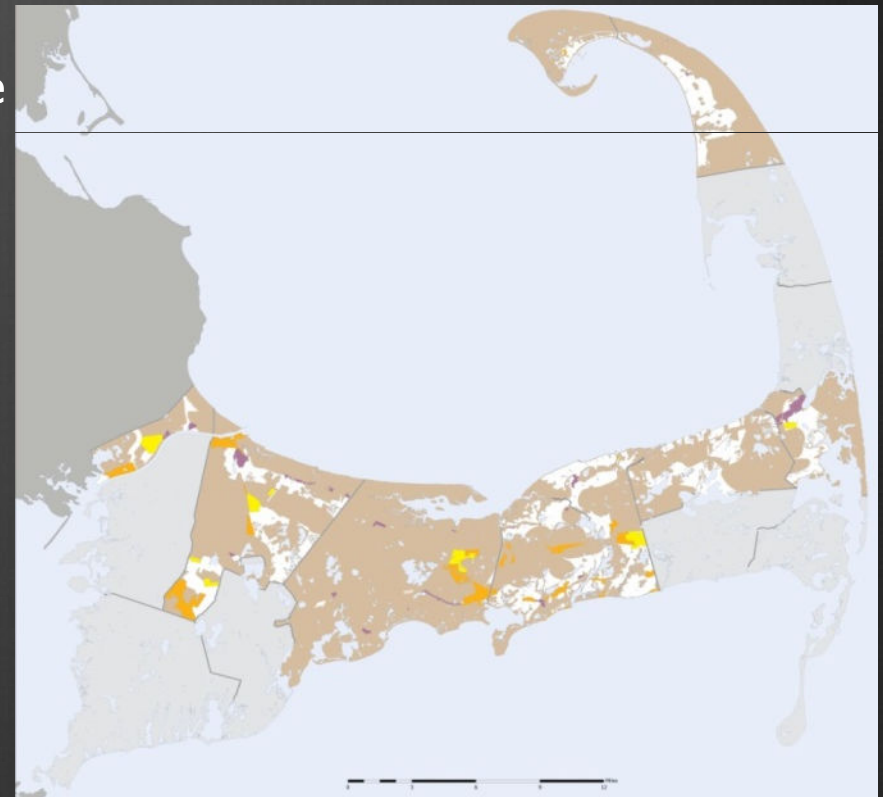
### New Land Use Category: Priority Protection Areas (PPA)

Will include undeveloped land in:

- Land Subject to Coastal Storm Flowage
- Sea, Lake, Overland Surges by Hurricanes (SLOSH) Zones
- Barrier Beaches
- Salt Marshes
- Wetlands
- Vernal Pools

As well as:

- NHESP Bio-map Core Habitat
- Potential Public Water Supply Areas
- National and State Parks and Reserves

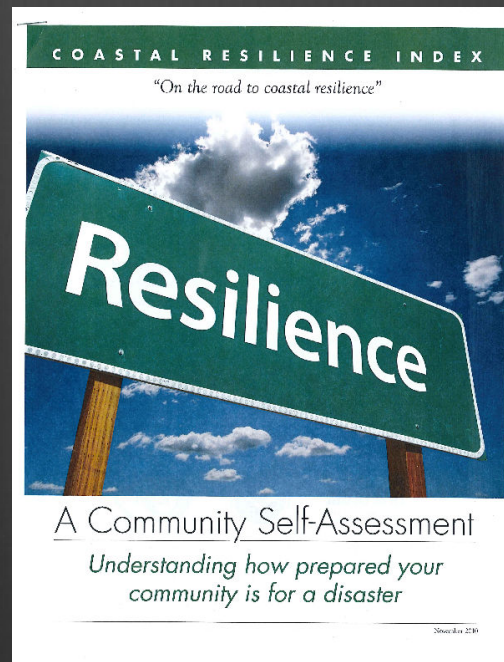
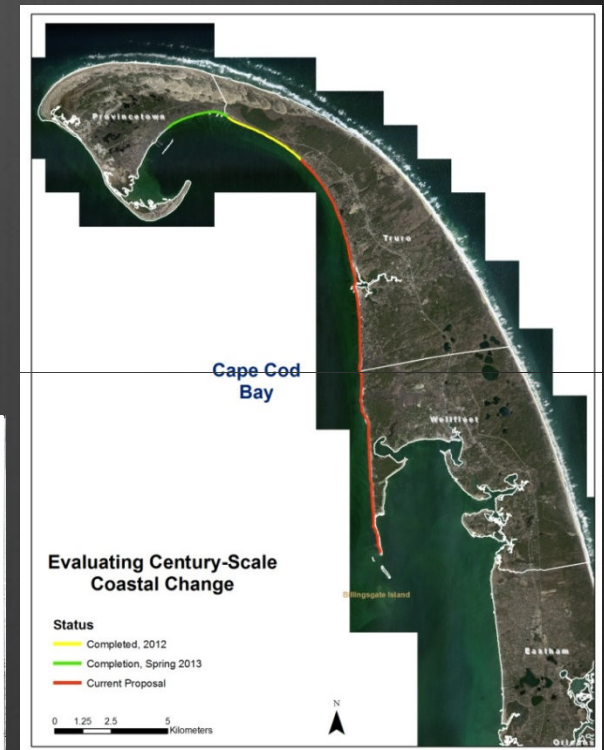


# Regional Partnerships



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Provincetown Center for Coastal Studies  
*Coastal change research for  
sediment management planning*



Waquoit Bay Reserve  
Coastal Resiliency Index  
*A Community Self Assessment Tool*



# GIS Services



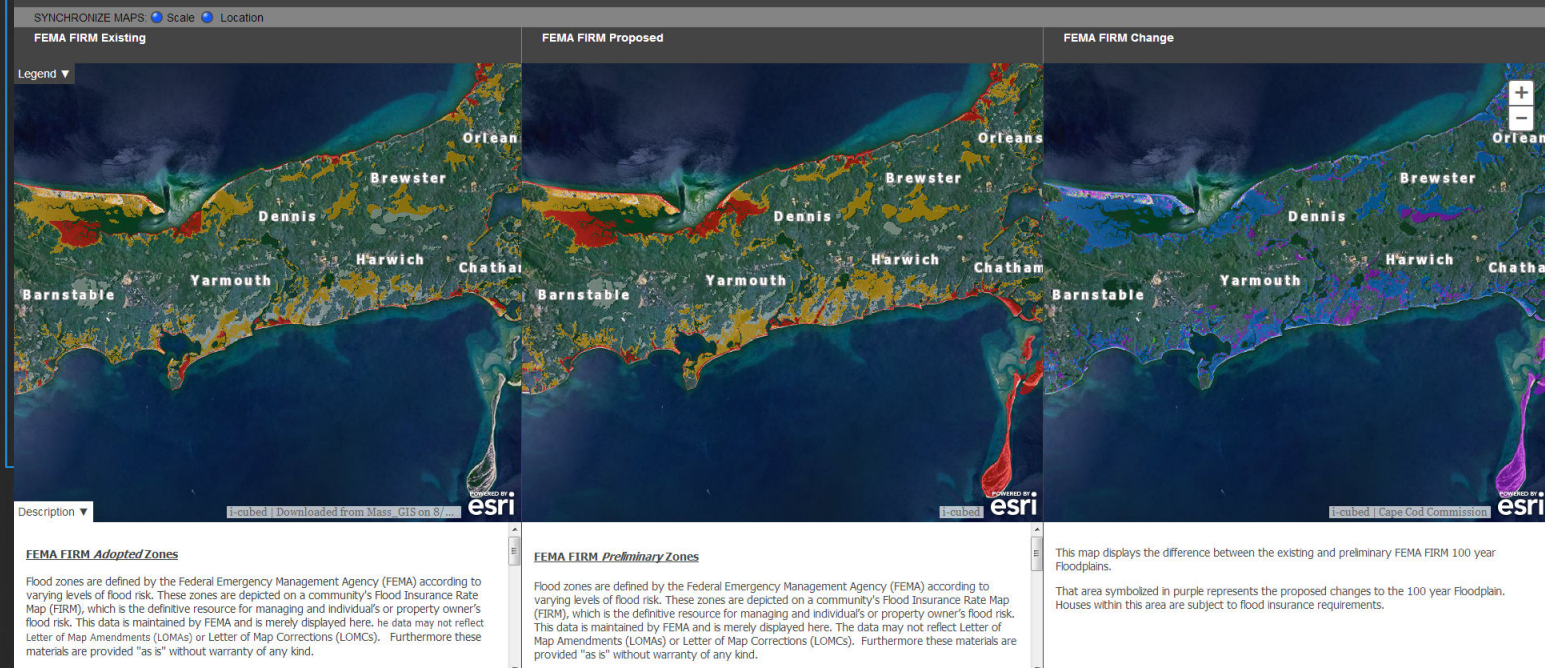
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## Web Mapping Applications

- Watershed MVP: <http://www.watershedmvp.org/>
- Preliminary FIRMs:  
[http://cccommission.maps.arcgis.com/apps/Compare/storytelling\\_compare/index.html?appid=e16623f58d784cf585bb3e1946f42fae](http://cccommission.maps.arcgis.com/apps/Compare/storytelling_compare/index.html?appid=e16623f58d784cf585bb3e1946f42fae)
- SLOSH Viewer (coming soon)

### Comparison between Existing and Proposed FEMA Flood Insurance Risk Map (FIRM) .

This floodplain viewer has been created by the Cape Cod Commission as an information sharing tool. This data is maintained by FEMA and is merely displayed here 'as is', without warranty of any kind. Please contact [rbennett@capecodcommission.org](mailto:rbennett@capecodcommission.org) for questions about this tool.





# Thank You



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