

# Adaptation for the Built Environment

## Property

- Land Acquisition: Undeveloped lands, Vulnerable Properties that have sustained significant damage, etc,
- Regulation: Coastal Setback Requirements, Floodplain Zoning, etc.

## FLOOD ZONES

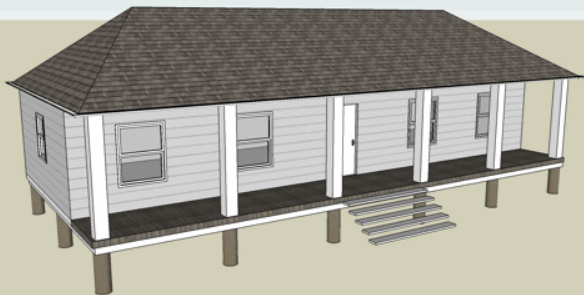


# Adaptation for the Built Environment

## Property

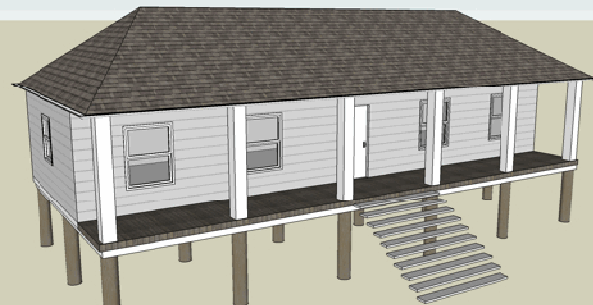
- Land Acquisition: Undeveloped lands, Vulnerable Properties that have sustained significant damage, etc,
- Regulation: Coastal Setback Requirements, Floodplain Zoning, Planning Consistency Review, etc.
- Floodproofing: 'Freeboard', Patios designed to minimize large debris in the event of failure, etc.

No Freeboard



flood insurance: **\$5,499**

3' of Freeboard



flood insurance: **\$2,084**

Source: LA  
Storm Smart  
Coasts

# Adaptation for the Built Environment

## Infrastructure

- Coastal: Sea Walls, Revetments, Barrier beaches, etc.



*Scituate*



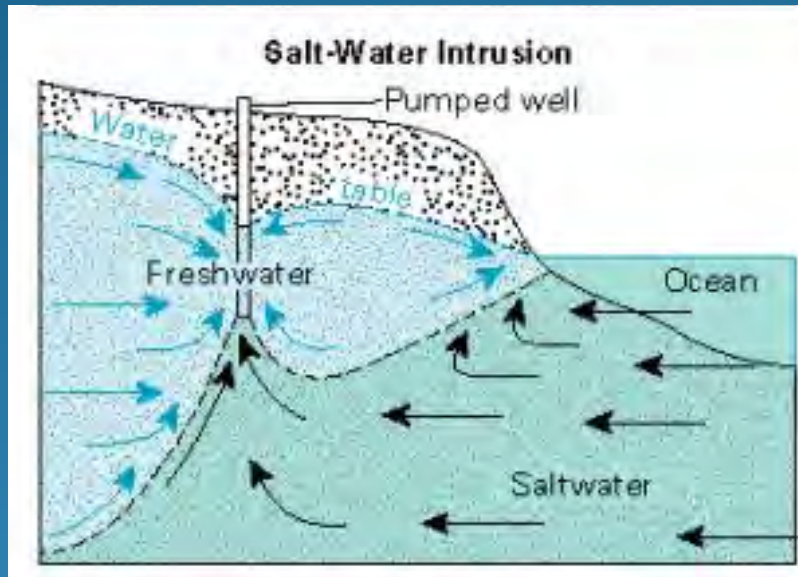
*Source: Friends of the San Juans*



# Adaptation for the Built Environment

## Infrastructure

- Coastal: Sea Walls, Revetments, Barrier beaches, etc.
- Water: Drinking Water, Waste Water, Storm Water, etc.



Source: Earth System Science Education Alliance



Source: MassRivers Alliance

# Adaptation for the Built Environment

## Infrastructure

- Coastal: Sea Walls, Revetments, Barrier beaches, etc.
- Water: Drinking Water, Waste Water, Storm Water, etc.
- Transportation: Roadways, Drainage, Sidewalks, etc.



Source:  
Jason Burtner,  
MA CZM

# Adaptation for the Built Environment

## Infrastructure

- Coastal: Sea Walls, Revetments, Barrier beaches, etc.
- Water: Drinking Water, Waste Water, Storm Water, etc.
- Transportation: Roadways, Sidewalks, etc.
- Utilities: Heating, Electric, Air Conditioning, etc.



Source: Easi-Set Industries

# Adaptation for the Natural Environment

- Protect Wetlands: Update Wetland Bylaws, Restore Deteriorated Wetlands, etc.



*Source: US Army Corps of Engineers*



# Adaptation for the Natural Environment

- Protect Wetlands: Update Wetland Bylaws, Restore Deteriorated Wetlands, etc.
- Maintain shoreline features: Planting Dune Grasses, Renourishing Beaches, etc.



Source:  
Vineyard  
Gazette

photo by Jaxon White



# Adaptation for the Natural Environment

- Protect Wetlands: Update Wetland Bylaws, Restore Deteriorated Wetlands, etc.
- Maintain shoreline features: Planting Dune Grasses, Renourishing Beaches, etc.
- Conservancy District
- Rolling Easements
- Transfer of Development Rights (TDR)

# Supporting Adaptation

## **Resources to support Adaptation will:**

- Include sources that can be re-purposed or re-directed to support adaptation strategies
- Likely to include new resources yet to be developed

**For example, projected costs to maintain crumbling sea walls, revetments and bulkheads, are expected to push the limits of current State and municipal funding sources.**

- New alternatives will need to be explored

# Re-Focus Existing Opportunities

- **Federal Emergency Management Grants (FEMA)**
  - *Accommodate climate change considerations in hazard mitigation and recovery efforts*
- **National Oceanic and Atmospheric Administration (NOAA)**
  - *Pursue opportunities to address climate change impacts in restoration projects*
- **Other Funding and Technical Assistance Resources**
  - *Invite opportunities for innovative approaches, e.g. COAST Tool*

# Re-Focus Existing Opportunities

## **State Funding and Technical Assistance Programs**

- Open Space Funding
- Infrastructure Project Funding
- Technical Assistance Programs

## **Town Funding and Work Programs**

- Develop a Capital Investment Program (CIP)
- General Taxes and Fees
- General Revenue Bonding



# Identifying New Opportunities

- **Multi-Municipal Collaboration**
- **Modified Infrastructure Legislation**
- **District Financing**
- **Utility/Enterprise Fee**

# Next Steps

- Complete review and explore opportunities for resources to support adaptation strategies
- Complete study by the end of December 2011
- Pursue additional partnerships and funding sources to support more specific investigations

***Goal to provide towns with best available information needed to plan accordingly for the future***

# FINAL KEYPAD QUESTIONS

# Given the threat of existing and future coastal hazards, what do you feel is the best way for your town to prepare?

1. Revise zoning & building regulations to include more hazard mitigation considerations

9%



2. Provide more information and education for residents & businesses

5%



3. Invest in more coastal infrastructure

14%



4. Purchase more open space & other land along the coastlines

9%



5. A combination of actions above

60%









6. No action needed; climate change is not a real threat

2%





# Given the threat of existing and future coastal hazards, what do you feel is the best way for your town to support actions that reduce these risks?

1. Rely on existing town resources and funding  
7% 
2. Seek opportunities for new resources and funding  
2% 
3. Work with neighboring towns to pool existing resources  
7% 
4. Seek policy changes at the state and/or federal level to support municipal action  
2% 
5. A combination of actions above  
79% 
6. No action needed; climate change is not a real threat  
2% 

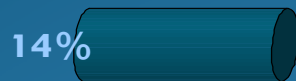
# MEETING EVALUATION

# Did this forum increase your understanding of understanding of the coastal processes affecting the coastlines along the South Shore?

1. Definitely



2. Somewhat



3. A little



4. Not really



# Did this forum increase your understanding of the State's initiative to advance climate change adaptation?

1. Definitely



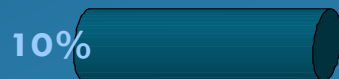
2. Somewhat



3. A little



4. Not really



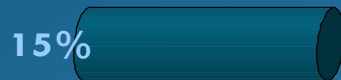


# Did this forum increase your understanding of how climate change could impact coastlines in your town?

1. Definitely



2. Somewhat



3. A little



4. Not really

