

# Municipal Work Session on Adaptation Planning for Coastal Hazards Westerly, RI

Westerly Library  
October 29, 2015  
9:00am-12:00pm

## Agenda

### Meeting Purpose: Increase awareness of:

- o RI Mapping tools & planning resources available, where to find them (particularly STORMTOOLS);
- o New state planning requirements for climate change and natural hazards, as well as the linkages between comprehensive plans and local hazard mitigation plans; and
- o Example municipal adaptation strategies and where to get more information.

9:00 **Welcome & Introductions**

- o *Please share one issues of concern of yours related to planning for natural hazards & climate change?*

9:15 **Overview of Issues and Ongoing Initiatives**-Teresa Crean, URI Graduate School of Oceanography Coastal Resources Center & RI Sea Grant (CRC/RISG)

- o RI Shoreline Change Special Area Management Plan- Grover Fugate, *RI Coastal Resources Management Council*
- o Natural Hazards & Climate Change in Local Comprehensive Plans- *Caitlin Greeley, RI Statewide Planning*
- o Hazard Mitigation Planning- *Jess Stimson, RI Emergency Management Agency*

9:45 **Discussion**

- o *Where are you at currently with your Comp Plan and Haz Mit Plan?*
- o *Have you started to plan for or adapt to sea level rise, storms, or erosion?*
- o *Issues you are struggling with related to coastal hazards & adaptation?*

10:00 **Break**

10:20 **Overview of STORMTOOLS: A new RI tool developed to understand exposure to sea level rise & storm flooding** – Dawn Kotowicz, CRC/RISG

10:30 **Review of Adaptation Strategies**– Teresa Crean, CRC/RISG

11:30 **Keypad Polling & Discussion**- Dawn Kotowicz, CRC/RISG

11:50 **Wrap Up & Next Steps**- Pam Rubinoff, CRC/RISG

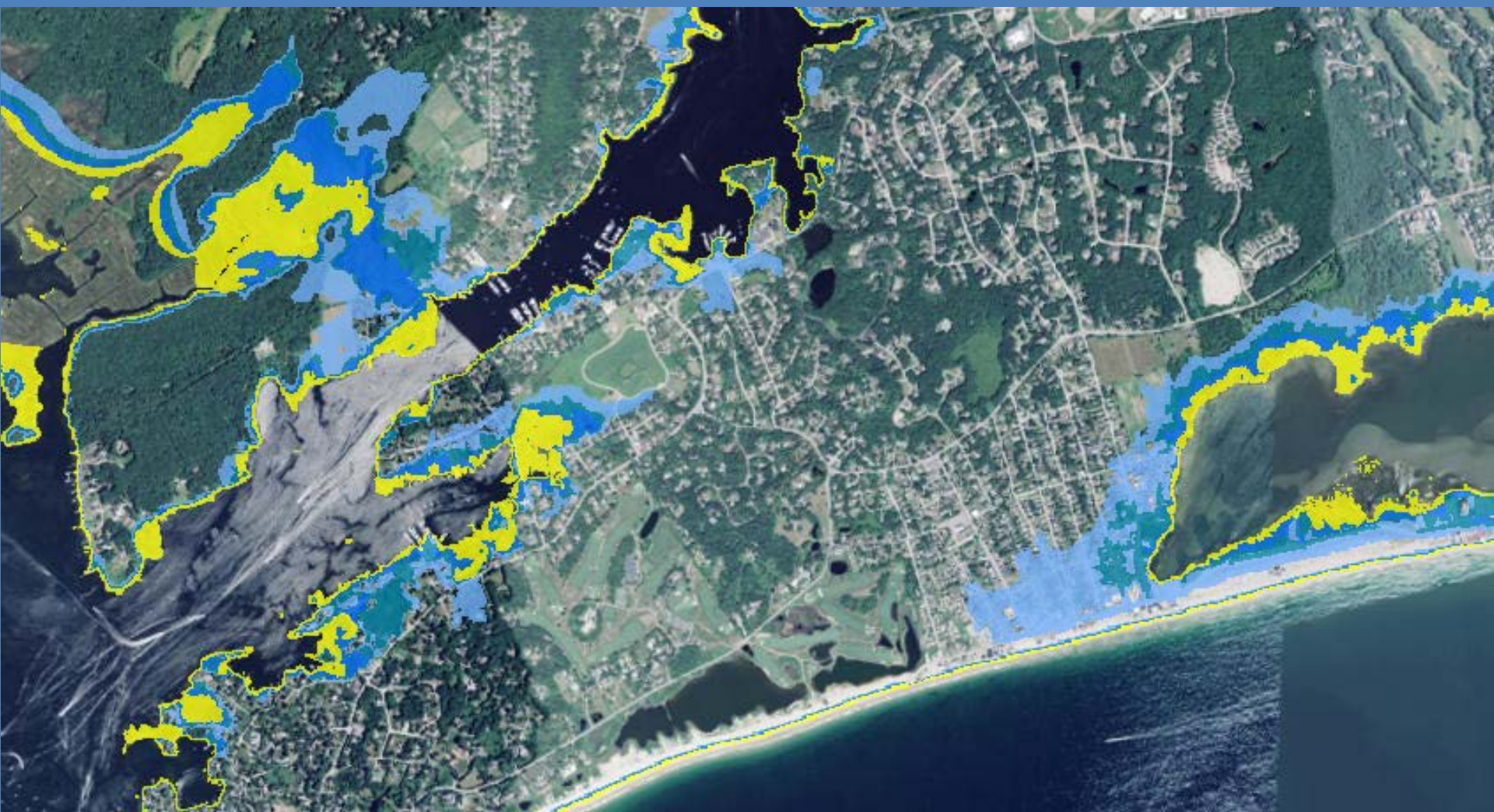
- o What are your challenges/barriers?
- o What do you need help with?
- o What are some actions that you can start working on in the short term? No regret actions?

12:00 **Adjourn**

*This effort has been made possible through funding from the U.S. Department of Housing and Urban Development & the Rhode Island Community Development Block Grant – Hurricane Sandy Disaster Recovery*

[www.beachsamp.org](http://www.beachsamp.org)





**Municipal Work Session on Adaptation Planning for Coastal Hazards  
Town of Westerly - October 29, 2015**



# Atlantic Ave, 2012



Source: RIDOT Flickr Page, "Hurricane Sandy in Rhode Island"

# Atlantic Ave, 2012



Source: RIDOT Flickr Page, "Hurricane Sandy in Rhode Island"

# Westerly, RI

Atlantic Ave | Washington County

## King Tide Report by [David Prescott](#)



 10/28/2015 | 11:34 am

*(1 hours 18 minutes after high tide)*



### WEATHER OVERVIEW



**Wind Speed:** 18.7 MPH

**Wind Direction:** 83°

**Temperature:** 57°F

**Rainfall (Calendar Day):** 0"

**Rainfall (Past 24 Hours):** 0"

*[\(Click here for full weather details\)](#)*

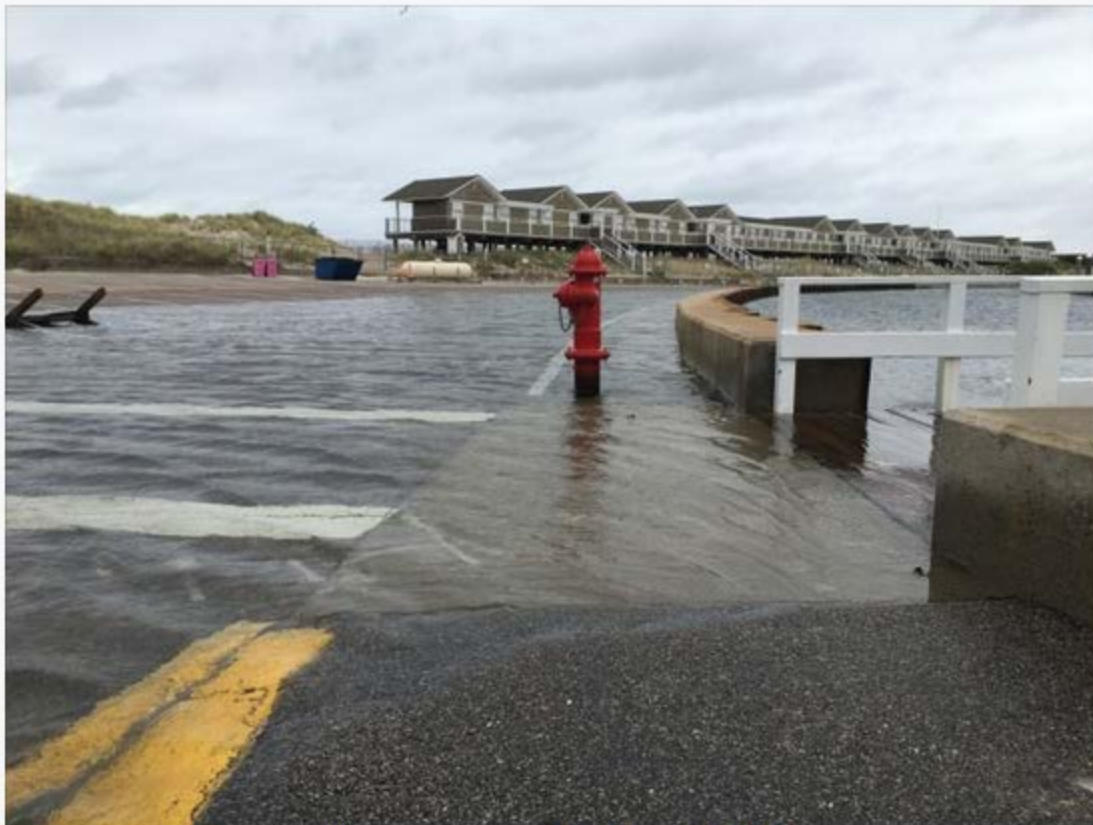
### TIDAL OVERVIEW

**"Flooding on Atlantic. No obvious connection to Winnapaug. However, tasted water and it is definitely salt water. Coming up through the ground."**

# Westerly, RI

Watch Hill Historic District | Washington County

## King Tide Report by [David Prescott](#)



"Entrance to watch hill yacht club"

 **10/28/2015 | 10:56 am**

**NEAR HIGH TIDE** (0 hours 40 minutes after high tide)



### WEATHER OVERVIEW



**Wind Speed:** 17.1 MPH

**Wind Direction:** 75°

**Temperature:** 57°F

**Rainfall (Calendar Day):** 0"

**Rainfall (Past 24 Hours):** 0"

[\(Click here for full weather details\)](#)



# Review of Adaptation Strategies

# #1- Identify Areas At Risk

- **Use STORMTOOLS to map:**
  - 1 foot, 3 feet and 5 feet of sea level rise
  - Flood extent a 4% annual flood event (25 year return period) and a 1% annual flood event (100 year return period)
  - Examine the combined impacts of storm surge and sea level rise to better understand the impacts of future storm related flooding using the following scenarios:
    - 4% annual flood event (25 year return period) plus 1 foot of sea level rise; and
    - 1% annual flood event (100 year return period) plus 5 feet of sea level rise.
- **Use CRMC Shoreline Change Maps to Examine Erosion Risk over Design Life of Infrastructure**





An aerial photograph of a coastal region, likely a wetland or marsh area, with a large body of water on the right. The land is green and brown, with a network of waterways and canals. Numerous small circles are overlaid on the map, representing property locations. Some circles are white with black outlines, while others are solid red, black, or green. A yellow line traces the boundary of a flooded area, which is shaded in light blue. The text is overlaid on a semi-transparent white box in the upper left and lower left.

## #2- Develop a database of property & infrastructure exposed to sea level rise and flooding

- **Notify property owners of exposure to projected sea level rise**

# #3- Integrate Sea Level Rise & Storm Surge into Municipal Permit/Variance Review Process

Example:

- Add a checkbox to application forms “Is proposed project located within the Special Flood Hazard Area or exposed to projected sea level rise?”

## CHECKLIST FOR DEVELOPMENT PLAN REVIEW

The following material is required to be submitted for a Development Plan Review Application unless specifically exempted by the Planning Board. All material should be submitted to the Planning Board not less than 21 days prior to its Regular Meeting date.

1. A list of the names and addresses of all property owners within 200 feet of all property lines of the subject property.

Submitted: \_\_\_\_\_

Waiver Requested: \_\_\_\_\_

2. A copy of all Variances, Modification and/or Special Use Permit approvals attached to the property.

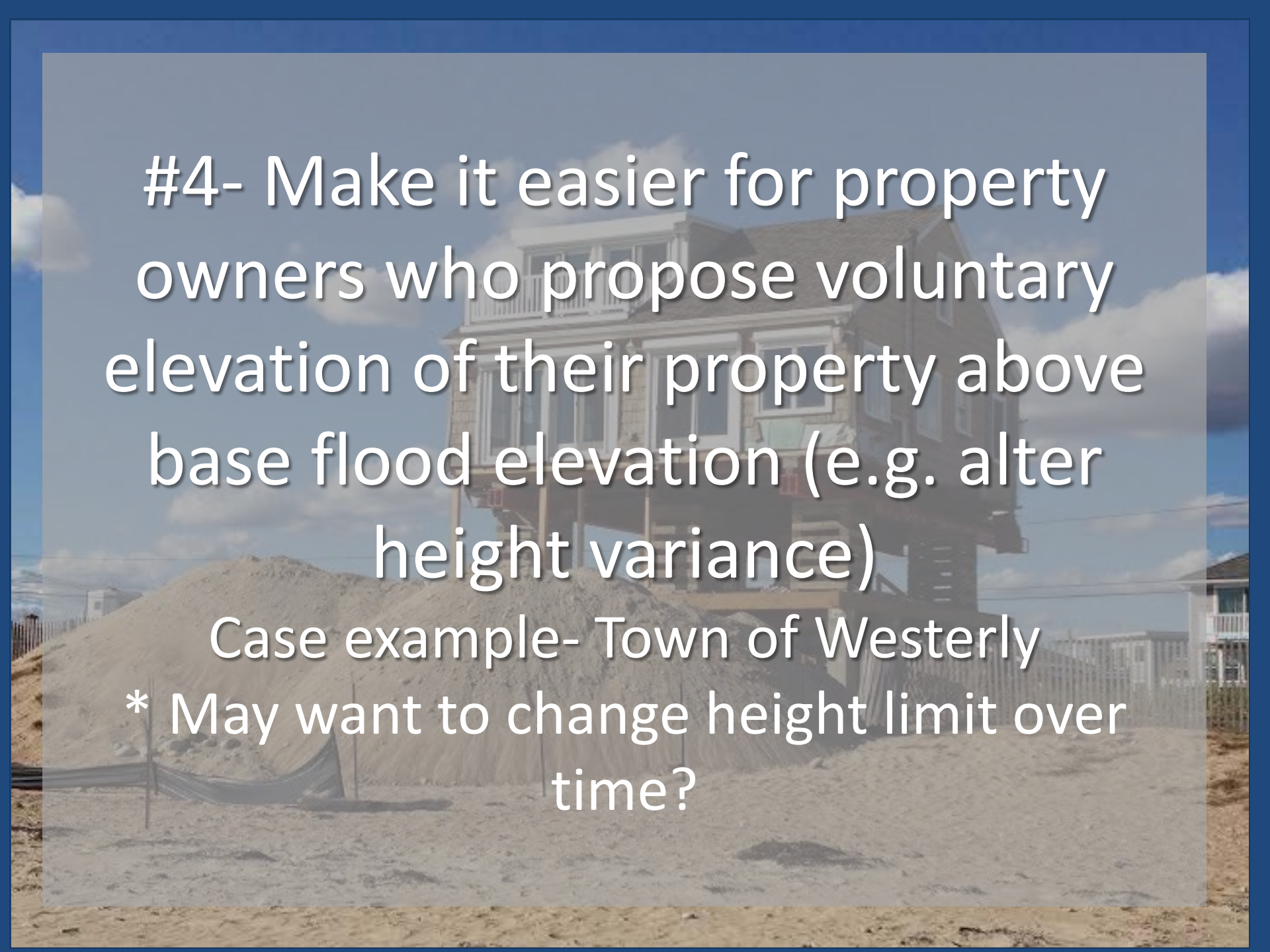
Submitted: \_\_\_\_\_

Waiver Requested: \_\_\_\_\_

3. All materials required in support of the Special Use Permit decision, revised to reflect that decision, including any conditions or stipulations imposed.

Submitted: \_\_\_\_\_

Waiver Requested: \_\_\_\_\_

A photograph of a two-story house elevated on stilts, with a large pile of sand in the foreground. The house has a brown roof and white trim. The background shows a blue sky with some clouds and other houses in the distance.

#4- Make it easier for property owners who propose voluntary elevation of their property above base flood elevation (e.g. alter height variance)

Case example- Town of Westerly

\* May want to change height limit over time?

A photograph of a harbor construction site. In the foreground, a concrete pier is under construction, with a large red crane positioned on it. The water is blue, and several boats are docked in the background. Residential houses are visible on the hillside behind the harbor. The text is overlaid on a semi-transparent blue rectangle in the center of the image.

**#5- Require projects in the Capital Improvement Program (CIP) and Transportation Improvement Program (TIP) be evaluated for exposure to storm surge, projected sea level rise, and erosion**

# # 6- Develop incentives for property owners within at risk areas to adapt voluntarily

Examples:

reduced permitting fee, tax credits,  
assessed value doesn't increase  
with increased freeboard

# #7- Develop & adopt an emergency permitting process to expedite post-storm recovery

- Case example- Town of Westerly following Superstorm Sandy

J. Gray 10/30/12 Block Island, RI

# #8- Planning for Storm and Sea Level Rise Impacts to Infrastructure

- Identify and prioritize state roads impacted for funding through **Transportation Improvement Program (TIP)**.
- For municipal roads & infrastructure :
  - **Redesign and maintain infrastructure over the long-term**
  - **Roadways – assess feasibility of alternate routes**
  - **Cost-benefit or tradeoff analysis**
  - **Special tax district** (similar to a fire district or sewer district)
  - Design infrastructure within flood zones to **withstand periodic flooding**

# #9- Apply and/or advance in FEMA's Community Rating System

*National Flood Insurance Program*

## **Community Rating System**

A Local Official's Guide to

Saving Lives

Preventing Property Damage

Reducing the Cost of Flood Insurance

FEMA 573



**FEMA**



An aerial photograph of a coastal area. In the foreground, there is a sandy beach with some people and a building. A road runs along the beach. Behind the road is a large green area, likely a golf course, with several buildings and a white tent. A large body of water, possibly a bay or harbor, is in the middle ground, filled with many sailboats. In the background, there are more buildings and a hillside overlooking the water.

# #10- Within at risk areas, increase open space and reduce density

- **Examples:**

- downzoning post-storm

- buyouts or purchase development rights

A photograph of a sunset over a rocky beach. The sun is low on the horizon, creating a bright orange and yellow glow that reflects on the water. The sky is a mix of soft pinks, oranges, and purples. The foreground shows dark, wet rocks scattered across a sandy beach, with gentle waves lapping at their bases. The overall mood is serene and contemplative.

# Questions/Discussion



# Roadway & Infrastructure Discussion

Source: RIDOT Flickr Page, "Hurricane Sandy aftermath in Westerly"

# #8- Planning for Storm and Sea Level Rise Impacts to Transportation Infrastructure

- Identify and prioritize state roads impacted & **recommend upgrade in Transportation Improvement Program (TIP).**
- For municipal roads :
  - Determine what would be **required to redesign and maintain this infrastructure over the long-term**
  - **Look for alternate routes**
  - **Conduct a cost-benefit or tradeoff analysis** to determine the long-term costs of maintaining or reconstructing road, against the tax revenues generated
  - Explore the feasibility of enacting a **special tax district** (similar to a fire district or sewer district) or impact fee assessed to the users of the roadway.
  - Minimize new or expansions to shore parallel roadways. Maintain roads that are perpendicular to the coast, and design the area of the road within flood zones to withstand periodic flooding

---

<b>Return Period</b>	<b>Example RI Storm of this Size</b>	<b>Chance in any given year</b>	<b>Percent Chance of Occurring During a 30-year Mortgage</b>	<b>Percent Change of Occurring During a 100 Year Design Life (e.g. Municipal Infrastructure)</b>
<b>25 years</b>	Superstorm Sandy Along the Southern RI Coast	4 in 100 (4%)	71%	98%
<b>100 years</b>	1938 Hurricane (Category 3)	1 in 100 (1%)	26%	63%

---

An aerial photograph of a coastal town. In the foreground, there is a sandy beach with blue lounge chairs and a building with a red roof. A harbor area is filled with numerous small white boats docked at piers. A larger white ferry boat is moving through the water, leaving a white wake. In the background, there are several multi-story buildings, some with red roofs, and a parking lot filled with cars. The text "Wrap Up & Next Steps" is overlaid in white, bold font across the top center of the image.

# Wrap Up & Next Steps

- **What are your challenges/barriers?**
- **What do you need help with?**
- **What are some actions that you can start working on in the short term? No regret actions?**