



Municipal Work Session on Adaptation Planning for Coastal Hazards

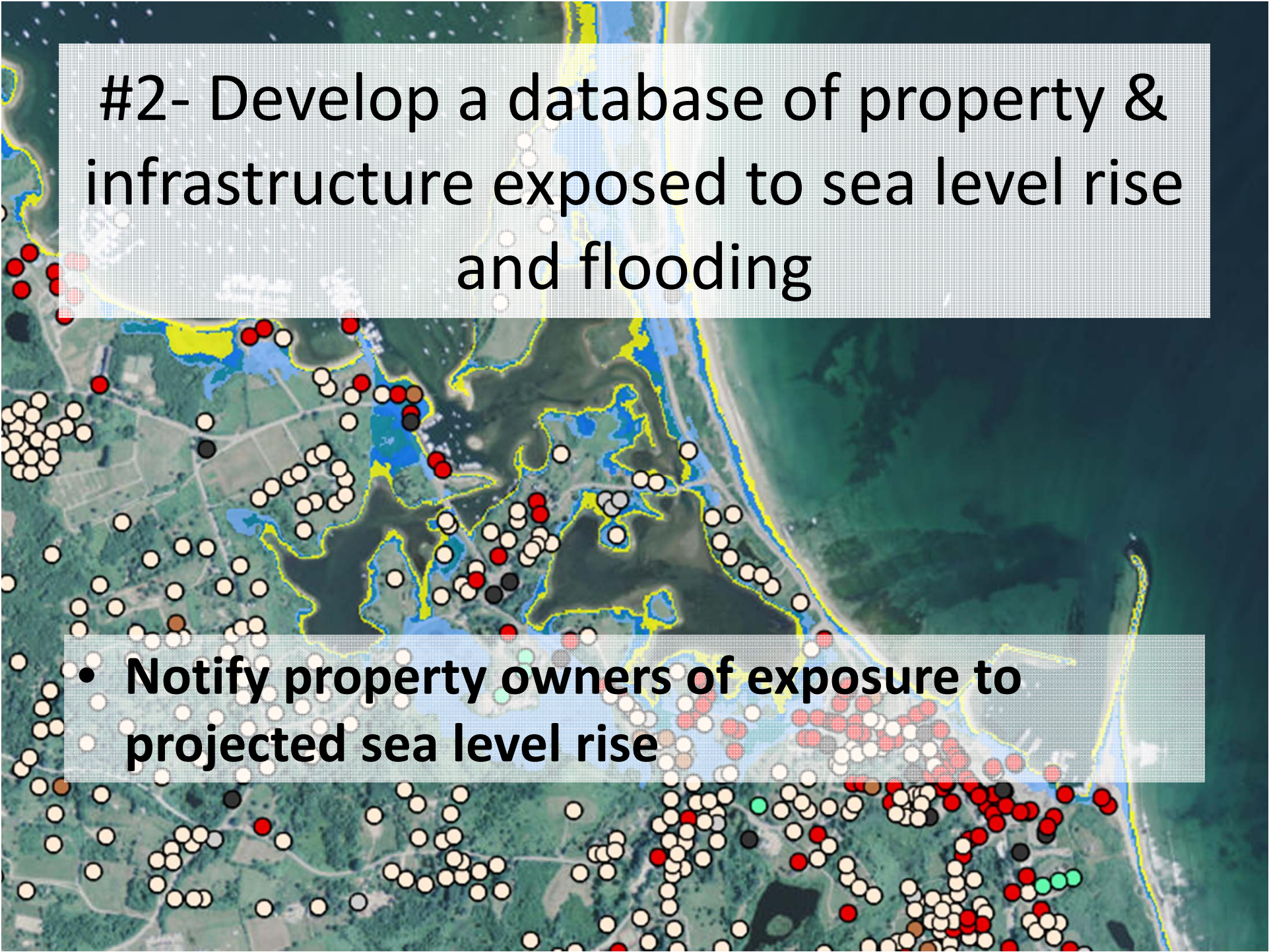
Review of Adaptation Strategies



#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

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

An aerial photograph of a coastal region, likely a marsh or wetland area, with numerous small circular markers overlaid. The markers are colored red, white, and black, and are distributed across the land. Yellow and blue lines delineate specific areas, possibly representing flood zones or property boundaries. The background shows a mix of green vegetation and blue water bodies.

#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.

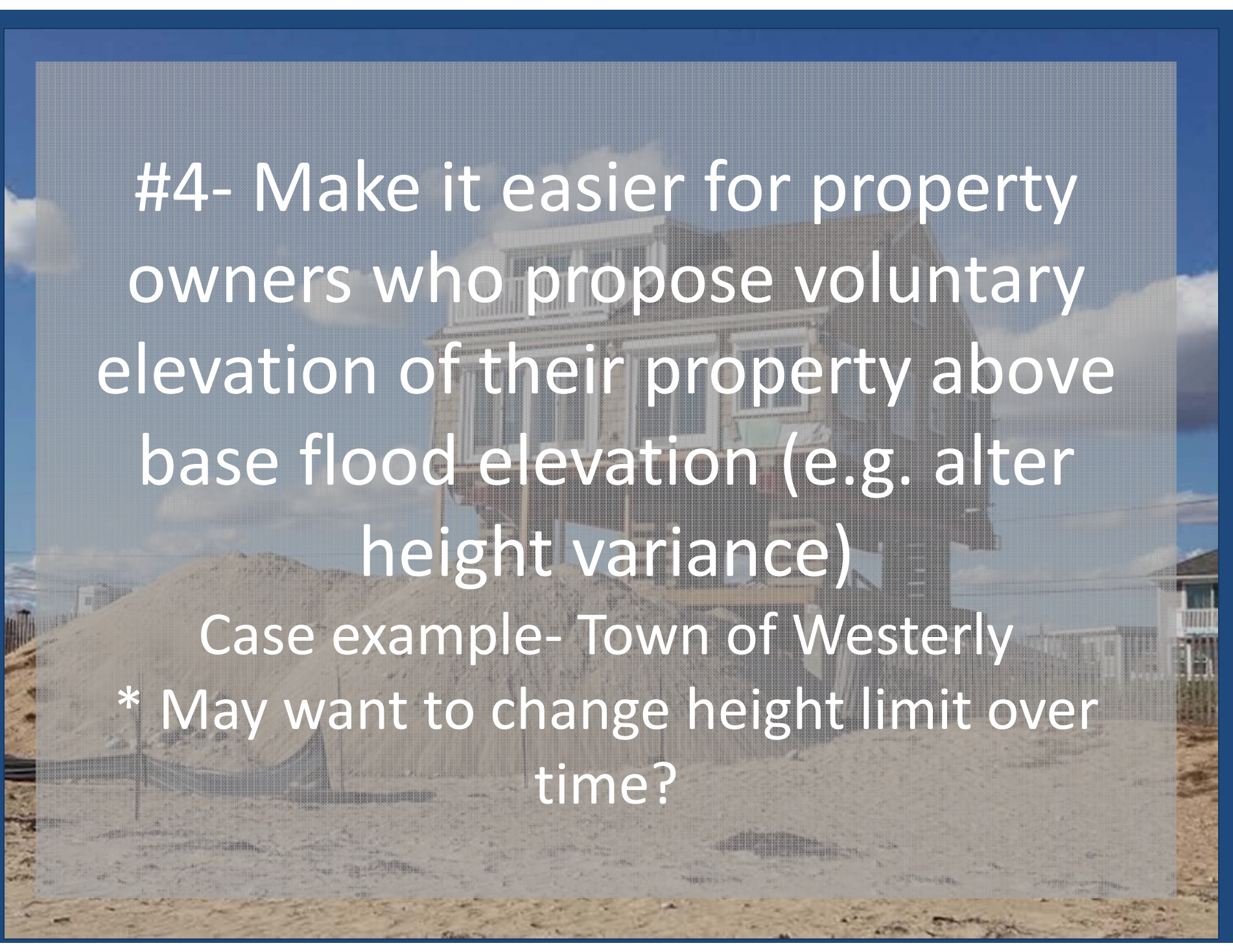
Submitted: _____

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: _____



#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 scene. In the foreground, there's a stone breakwater and a wooden pier. A red crane is visible in the middle ground, and a blue boat is docked on the left. In the background, there are houses on a hill under a clear blue sky. 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 & **recommend upgrade in Transportation Improvement Program (TIP)**.
- For municipal roads & infrastructure :
 - 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 infrastructure. Maintain roads that are perpendicular to the coast, and design the area of the road 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



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

- Examples:
 - downzoning post-storm
 - buyouts or purchase development rights