To: West Tisbury Selectmen
From: Kate Warner
For: July 10, 2019 Meeting

It is thought that we have 5-10 years to truly impact the course of climate change and 20 years before it is truly upon us. The expectation is that we will see increased significant weather events, flooding, wildfire due to drought and other consequences of a changing and unpredictable climate. We are, of course, in a unique situation because we have no ability to have a good evacuation plan. We will be here for those extreme weather events and need to prepare accordingly.

The time to act is now, before a catastrophe strikes: a major hurricane, or other severe weather event. While planning will help, concrete actions must be taken to ensure the safety of the residents of the town and the island. A coordinated effort is needed. In addition, my hope is that in adapting to the challenge, we can also make great strides towards mitigating and reversing our impact on the planet.

As suggested, I have read West Tisbury's Emergency Plan that is available on the town's website, our Municipal Vulnerability Preparedness Plan, met with Russell Hartenstine, our Emergency Management Director and with Sue Hruby, Chairman of the Energy Committee.

The Emergency Plan

The general structure of the Emergency Plan is relevant, some of the specifics need updating. The EP outlines the kinds of emergencies the town might experience: Hurricanes, Fire, Terrorist Attack, Global Incident and others. It is set up to address how the town responds in the case of an imminent danger: the sequence of events to be followed, who in the town is to be involved in the emergency effort.

In meeting with Russ, he says his focus is on "acute" emergencies: a hurricane is soon to hit the island, for example. He is concerned that we have an aging population and a lack of upcoming volunteers and labor and that we have an increasing number of people who are over 65 years old. We also have the challenge that in the summer, our population is greatly increased and that would seriously impact our ability to offer support to all in an extreme situation. He would like to see those who are 65 and older leave the island in the case of an emergency.

He feels that the emergency managers across the island are a good team. His own personal approach has been that in Year 1, he planned to assess the situation/demographics in our town. In Year 2, he would like to do outreach to provide information and outreach about our emergency plan.

Other Emergency-Related Documents

There are other documents that have been prepared by the State and by organizations in Woods Hole that could be helpful to us.

CodeRED is an emergency notification system that the island is part of. For this to be effective, current telephone numbers and associated street addresses need to be gathered from our residents and businesses. Russ explained that this is our regional, secondary system. In the case of an urgent, emergency alert, FEMA (and MEMA) can

also send out an alert to people's cell phones regardless of whether they have registered with CodeRED.

The Massachusetts Homeowners Handbook to Prepare for Coastal Hazards also has some good information. It is 96 pages long so will not be read by everyone but could inform the town as to some approaches to preparation for and adaptation to an island with more extreme weather events. It defines what is a tropical storm and what is a hurricane and notes that Hurricane Bob was a 2 on a scale of 5 in hurricane severity. We have never experienced greater than a 3 here to date. It outlines how to prepare for a severe storm- if staying in place or evacuating. It also suggests ways to retrofit your home so that it is more able to withstand high winds and water. It lists different ways to protect windows in the event of a hurricane.

The town currently has about 1920 houses. Some may have hurricane ties at the lower end of rafters that connect to the top plate. The Building Code that required a continuous tie down path was instituted in February 2011. Only 87 of our houses are from 2011 onward. Whether things could be done to retrofit our houses to be more storm-resilient is a question.

Russ and I agreed that what I was thinking about and aiming to assist with was longer term than what the EP addresses. I am focused on strategies for the medium and long term. This is more in keeping with the Municipal Vulnerability Preparedness Plan.

Municipal Vulnerability Preparedness Plan

The MVPP was done in concert with Chilmark and outlines a number of goals that are directly related to the impacts of climate change. I believe you were all at that workshop so are familiar with the outcome. Some of the matrix items are listed below.

Access to Services

Access to and function of Steamship Authority with sea level rise, storm surge and flooding

Access to hospital with sea level rise, storm surge and flooding

- ***Ferry piers and bridge rebuilt to accommodate sea level rise***

Stormwater Management on our roads (which are part of the island system)

- ***Reduce flood impacts by identifying and correcting discharges from Town and Commonwealth roadways where they cross streams***
- ***Establish South Rd as a critical facility from town line to town line and prioritize its storm protection and adaptation to rising sea level.***
- ***Raise parts of Tiah's Cove Rd***
- ***Reduce flood impacts by identifying stormwater systems that have potential to discharge hazardous materials in the event of a storm or flood and installing an emergency shut-off system in each of those systems***
- ***Map stormwater collection areas and discharges***

Energy Resilience

- ***Selective undergrounding of most-vulnerable wires,***
- ***grid modernization;***
- ***More solar microgrids;***
- ***Reduce reliance on grid,***
- ***add redundancy***
- ***Electric backup for pumping water wells/ hand pumps***
- ***Increase fuel storage capacity***

Food Resilience

- ***Increase local food production and storage***

Communication

- ***Communication and transportation for pre-identified isolated elders as part of hazard response (already exists?). Incorporate climate change into Healthy Aging MV;***
- ***In-house elder services; community-based plan and education and outreach;***
- ***long term recovery plan, neighborhood-based***
- ***Improve communication infrastructure resilience***

Public Education and Implementation

- ***Hire resilience coordinator and educator; educate coastal landowners about shoreline management, and public about usage***
- ***Benchmarks in visible locations showing high water marks, to build awareness about sea level rise and storm surges***

Zoning and Building Changes

- ***changed subdivision regulations in response to hazards of climate change***
- ***changing building zones in response to revised flooding information***
- ***unbuilding where possible in flood prone zones***

West Tisbury Energy Committee

I met with Sue Hruby, Chairman. We talked about her understanding of the impacts of climate change from talking with a Columbia University climatologist. He told her that the two greatest concerns are increased heat -which will cause warmer water and stronger weather events- and sea level rise. She also explained that wind shear has kept us from being subject to greater hurricane impact but that the wind shear is dissipating. She and others on the committee also have fears about drought and the greater potential for fire in the State Forest and on the Woods property.

The Energy Committee is currently focused on completely an upgrade to the Howes House heating system from an oil boiler to air source heat pumps. They also are working with VSEC, (Vineyard Sustainable Energy Committee) on a Town Meeting Warrant article that will ask for support for a net-zero carbon island.

Nantucket Coastal Conference

This is an annual conference that is put on by MA CZM and Woods Hole Sea Grant. It alternates between being held here and on Nantucket. Next year it is here.

The keynote speaker was Ruperto Chaparro, Director of Puerto Rico's Sea Grant College Program. He described the impacts of Hurricanes Irma and Maria and the struggle Puerto Rico has had to recover from those events. To begin his talk, he listed the greatest challenges that had occurred:

- 3000 people dead (mostly elderly people who could not get the services they needed or needed electricity – such as for dialysis- and could not get it.) Also the poorest were among those who died.
- 6 months until electricity was restored
- 3 months without water
- 2 months without telephones
- He said that the most important thing after such an extreme weather event is social capital. You are not able to get out and about but you are able to help your

neighbors and check, particularly, on those who will have the greatest challenge in surviving the storm and its impacts.

- Issue of Stafford Act: FEMA disaster money only rebuilds things as they were. It does not allow for upgrades to make things better.
- Also mentioned that PR's carrying capacity was reached long ago. There is too much building by the shores in places where it should not be.

Rest of Nantucket Conference was devoted to:
Presentations that showed how sea level rise and flooding would impact Nantucket. Prediction is that sea will rise 6-9' by 2100. This will leave a large portion of their pier area and commercial area under water. One problem is that natural hazards are episodic events so people don't remember them and are not pro-active.

NOAA website has data that shows the impacts that are predicted.

Vulnerability and risk management assessment by the Trustees of Reservations about their 35 Massachusetts properties. On their top 5 list is Wasque and Cape Poge. They also described efforts underway to raise the access road to Crane's Beach due to flooding that is already occurring.

Coastal Stability: concerns about shore stabilization and keeping salt marshes healthy as they are impacted by sedimentation from washover events.

Issues to do with shellfish industry: acidification of the oceans and the impact on shellfish and the growing of their shells. Current efforts to restore the shellfish industry on Nantucket. The Cape and Islands have some of the highest acidification in our waters due in part to climate change but also because of fresh water flow into the oceans that have too much nitrogen loading. (a septic system and fertilizer issue)

Nantucket Planning and Resilience. Their top 5 priorities are-

- Resiliency Coordination. They are hiring a Resiliency Coordinator and have a Coastal Resiliency Advisory Committee in place. (CRAC)
- Isolation from the mainland. Concern about resilience of existing transportation infrastructure and facilities
- Tidal Wetland Restoration
- Historic Preservation Guidelines. The conference was continuing for 2 more days to address "Keeping History Above Water." This is of particular concern because of where the town of Nantucket is.
- Infrastructure Resiliency Plan—alternate routes

They have a Hazard Mitigation Plan in place, (federal/FEMA related- affects flood insurance), Municipal Vulnerability Plan (state) & a Coastal Management Plan. (local)

Their Next steps: maximize grant opportunities, hire their resiliency coordinator, talk to homeowner associations and community groups so people understand the consequences of not being proactive.