

FINAL REPORT

Municipal Vulnerability & Preparedness
(MVP) & Hazard Mitigation Plan (HMP)
Update 2020



COMMUNITY RESILIENCE BUILDING WORKSHOP SUMMARY OF FINDINGS REPORT

The following document captures the top hazards facing Aquinnah, the rich environmental, cultural, and infrastructural features comprising the town, and a range of strategies identified by local stakeholders to mitigate risk.



TOWN OF AQUINNAH
MVP (Municipal Vulnerability Preparedness) & HMP (Hazard Mitigation Plan) Update
SUMMARY OF FINDINGS
Listening Sessions January 16 and March 5, 2020



Coastal heathland and dunes forming Aquinnah's southern shoreline

Overview

Aquinnah is located at the westernmost end of Martha's Vineyard and represents the island's most remote outpost. The year-round population typically fluctuates between 350 and 400 residents and is known for its Native American heritage. Incorporated as Gay Head in 1870, the Town changed its name to Aquinnah in 1998. Since then, the entirety of Aquinnah has been designated a District of Critical Planning Concern, which subjects all forms of development to careful review by local Boards and/or Committees. In turn, siting and architectural vernacular are very intentional, ensuring that the Town's natural resources remain intact and central to its identity.

Aquinnah's landscape encompasses soft rolling hills, sprawling heathlands, magnificent ocean vistas, and the famous Gay Head Cliffs, a recognized Natural Landmark. As noted in the Town's Open Space Plan, "Aquinnah shares certain characteristics with the other towns on Martha's Vineyard: overall seclusion from the mainland, highly variable seasonal populations, lifestyles and landscapes dominated by the ocean, and unique economic constraints." In addition, its limited access to the remainder of the island and its remoteness to critical First Responder, Healthcare, and Ferry facilities, make Aquinnah acutely vulnerable in certain hazard scenarios. Yet this same reality has yielded an enduring social fabric amongst its townspeople.

Summary of Findings

A draft of this Report was presented to the public on March 5, 2020 at the Aquinnah Town Hall, along with the products of the workshops. Basemaps, vulnerability zones, and other revealing local classification maps comprised key resources for attendees at the Town's November 16, 2019 Community Resilience Building Workshop (CRB) and can be found in the Appendix. Also included there are charts identifying the strengths, vulnerabilities, major hazards, and prioritized strategies for enhancing resiliency, as well as the presentation materials exhibited to workshop attendees. This final Report also includes data presented by CRB facilitators at the November 16th workshop.

Background

Four key elements motivated the Town to commit to the State's MVP process:

- The Town is geographically remote relative to dense urban centers with their attendant services, and fairly removed from many key facilities on Martha's Vineyard itself.
- Aquinnah is surrounded nearly entirely by water, with just 3000 feet of its boundary comprised of land; this makes it acutely vulnerable to storms and Sea Level Rise (SLR).
- There is limited access to the Town by automobile, and the single approach is low-lying, making it vulnerable to SLR and storm surge.
- The Town is small, receives very limited resources from the Commonwealth, and therefore lacks the capacity to fully confront mounting climate change-related risks on its own.

The Core Team was comprised of Town and Tribal staff, engaged citizenry, and the Town's seasonal contingent. Its MVP-certified provider, the Martha's Vineyard Commission, was chosen in part because of its familiarity with the history of the Town and the range of stakeholders relevant to this vulnerability and preparedness work. In planning for the CRB Workshop, the Core Team became quickly aware that a number of ongoing initiatives will underpin resiliency planning within the town. Indeed, Aquinnah possesses a cadre of individuals very active on climate mitigation and adaptation issues.

The Workshop's central objectives were to:

- Define top local natural and climate-related hazards of concern;
- Identify existing and future strengths and vulnerabilities;
- Develop prioritized actions for the Community; and
- Identify immediate opportunities to collaboratively advance actions to increase resilience.

Top Hazards and Vulnerable Areas

During the Orientation portion of the CRB workshop, MVC presented the most pronounced hazards facing the community. They ranged from Sea Level Rise, Storms, and Flooding to Temperature and Precipitation Extremes, Wildfire, and Sea Surface Temperature Rise and Ocean Acidification. Key projections included a local climate akin to Maryland by 2050 and North Carolina by the end of the century. High-end SLR estimates topped six feet over the latter time horizon (see Appendix, Vulnerability Maps).

These hazards omen significant change for Aquinnah -- socially, culturally, and coastally. The historically renowned cranberry crop, harvested by the Wampanoag Tribe, is at stake, as it requires a minimum of 100 nights of frost to remain viable -- a benchmark threatened by rising atmospheric temperatures. Vector-borne illnesses are expected to proliferate with both a warming climate and resulting habitat shifts for vegetation, mosquitos, and ticks.

The immediate hazards facing the community were discussed against the backdrop of the local wrath of historical storms. The Hurricane of 1938 is perhaps the most notable; surge from the south obliterated Hariph's Creek Bridge and left Aquinnah and a small portion of Chilmark cut off entirely from the remainder of

Martha's Vineyard (see Appendix, Overview Presentation slides). That torrent of water then continued across Quitsa and Menemsha Ponds and decimated an entire village then existing at Lobsterville. The Bridge was again wiped out in 1944. Flooding from a 1954 storm inundated the bridge, but the structure endured as floodwaters receded.

In the past decade, repeated storms have battered coastal Aquinnah. Superstorm Sandy of 2012 scoured the sandy soil beneath Lobsterville Road, causing its pavement to buckle and making the road impassable. Winter Storm June of 2015, Hurricane Hermine of 2016, Winter Storms Niko & Stella of 2017, and Tropical Storm Jose of 2019 have all left their marks on Aquinnah's barrier beaches, fragile wetland resources, and hallowed cliffs.

SLR is already markedly impacting the south shore of Martha's Vineyard, rendering several miles of Aquinnah shoreline exposed to open ocean at extreme risk. Storms of course have long left their mark where land meets sea. Yet the mounting frequency of these events, compounded by SLR, increasingly puts Aquinnah in the crosshairs of climate change. At the CRB Workshop, four teams of 8-10 people each identified the top hazards currently imperiling Aquinnah. And while there was no formal ranking, the vulnerabilities created by Storms and Precipitation Extremes featured heavily in the discussion.

The presentation was punctuated by a video that showcased restoration work done on Lobsterville's barrier beach and culvert, which were severely damaged by Superstorm Sandy along this northern shoreline of the Town.

The 4 major hazards identified by the community are best described as:

Storms encompass hurricanes, blizzards, and NorEasters, and are closely related to SLR. Although storms are generally concentrated, acute events, SLR is grouped with storms given that the impacts of the two are similar and mutually reinforcing. Shorelines are highly impressionable to storms, as these weather events can damage or destroy waterfront infrastructure. At its extreme, storm surge threatens injury or death as well as property damage (see Appendix, surge map).

Precipitation Extremes include rainfall, flooding, drought, and wildfire. As climate change accelerates, southeastern Massachusetts is projected to see more total rainfall. Moreover, these events are expected to be more extreme in volume and duration: flooding will become increasingly frequent and intense; and short term droughts will become more routine, making the Town more vulnerable to wildfire (see Appendix, rainfall data sheet and flood zone maps).

Sea Surface Temperature Rise and Ocean Acidification have severe implications for the future of chemical composition of seawater, making it more acidic. This is owing to mounting levels of carbon dioxide found in the atmosphere and absorbed by the oceans. Food chains will be increasingly disrupted, most notably shellfish. Aquinnah has a stake in this both culturally, and for those whose livelihoods depend on fishing or aquaculture.

Temperature Extremes of Ambient Air round out the top hazards facing Aquinnah. These extremes will continue to trend decisively in an upward direction. Habitats and harvests are squarely at stake with these shifting conditions.

Vulnerabilities

The hazards noted above have particular relevance for a number of vulnerable areas and elements across the Town. At the workshop, strengths and vulnerabilities were identified under an Environment, Infrastructure, and Social rubric – and they're somewhat further refined in their itemization below:

Shoreline

- Dogfish Bar – numerous low-lying homes within the floodplain; SLR impacts will be very palpable here
- Southwest coast (Moshup & Philbin Beach) – high rates of erosion
- Aquinnah Cliffs – groundwater pressure accelerates erosion
- Lobsterville and West Basin – subject to ongoing erosion from waves out of the northeast

Herring Creek also deserves mention as Menemsha and Squibnocket Ponds' silt and sand gets churned up from storms and deposited in this tributary, sometimes rendering the creek bed completely dry at low tide. Fortunately, dredging to reestablish adequate depths for perennial water circulation is scheduled to be completed in the Spring of 2020.

Roads & Culverts

- Moshup
- Lobsterville
- West Basin
- East Pasture Road -- State Road intersection

*A map populated with data released by the MA Department of Marine Fisheries Division of Ecological Restoration, subsequent to the workshop, shows 38 total culverts across the town of Aquinnah.

Other Infrastructure

- Communications – Distributed Antenna Systems (DAS) opted for over a single, large tower; DAS back-up power supply rendered inadequate in cold weather; Eversource unable to use buckets on trucks to repair power lines when winds surpass 20 mph
- Steamship Authority – sole year-round freight ferry provider increasingly opting for large boats, less capable of withstanding rough seas; SSA has not acknowledged the exigency of long-term adaptation or committed to mitigation
- Supply Chain – near full reliance on a single ferry provider; service and delivery disruptions imminent during storms; island has roughly just 48 hours worth of heating fuel reserves should deliveries from the mainland be suspended

Population

- Aging Population – demographic trends foreshadow declining numbers of local families with children and continued uptick of seniors, though it should be noted the latter are often retirees who represent a valuable resource for volunteer-driven efforts
- Socially Isolated Residents – dozens of seniors live alone, in poor proximity to many key services down island and sometimes along unpaved roads that can become impassable during storms.

Additional Social Features

- Tourism / Economy – tourist destinations also double as vulnerable sites across town
- Cultural Heritage – numerous locations of cultural significance are situated in vulnerable areas, subject to climate change impacts: Gay Head Lighthouse and Aquinnah Cliffs, low-lying archeological sites and cranberry bogs.

Strengths and Vulnerabilities for the Town of Aquinnah

Group members concluded that many features and facilities represented both a resiliency of the community and a vulnerability to various hazards.

The channel into Menemsha Harbor provides access to refuge during storms, keeping numerous boats protected. Menemsha is also a home port to the Coast Guard, situating this resource in very close proximity to the town as Menemsha Pond and its channel are shared by Aquinnah and Chilmark. Yet this same entry is vulnerable to sediment deposition and storm surge. Without a navigable channel, fishing and rescue boats are confined to port and Menemsha Pond is inadequately flushed.

Utilities represent another duality. A major substation upgrade in Chilmark will benefit customers residing in Aquinnah by making the grid more resilient during extreme weather events; power lines atop the highly exposed Aquinnah Circle were recently buried as well, making that infrastructure serving the Town's primary economic hub far more protected. However, there is little local redundancy built into the power grid by Eversource, as just a single roadway corridor reaches the Town. A single disruption to the utility poles and wires along this stretch causes vast outages further up-island, particularly Aquinnah. These blackouts can be further compounded by the limitation, noted above, that utility repair teams are grounded when winds are too severe for scaling the poles (a frequent challenge when riding out storms on the island).

Access to Aquinnah is a key consideration when planning for and responding to storms. Hariph's Creek, connecting Nashaquitsa and Stonewall Ponds, is spanned by a low-lying bridge that represents the only artery leading to Aquinnah from down island. The epic storms referenced earlier underscore the precarious position of this bridge. In 1998, Hariph's Creek Bridge was reconstructed with "cheek" walls that provide reinforcement to endure some degree of lateral force; this was an upgrade from the structure that previously existed. While the bridge is now better engineered than it was in the 20th century, it remains vulnerable - and is only designed to accommodate the 50 year flood.

West Basin and Lobsterville can be accessed by boat, providing the Town with an alternate access point should State Road become impassable for whatever reason. That being said, entry points by water are typically precarious during storms, and the road extending to West Basin was undercut and eroded by storm surge during Superstorm Sandy, to say nothing of its vulnerability to SLR given its low-lying nature.

Other features of town that were also flagged as both assets and vulnerabilities include the Aquinnah Cliffs and its shops, Tribe-Town Partnership/Relations, Seasonal Population Boom, and The Town's Property Tax Base along the coast. For that matter, Beaches and Coastal Wetlands, Fisheries, and Wild Food Sustainability

received similar treatment; they are key assets in the face of Climate Change, but also possess elements vulnerable to the hazards identified at the workshop.

Another multifaceted feature of the community is its Emergency Response personnel. The Town has a small police department and fire department and is served by a tri-town ambulance service currently based in West Tisbury. These professionals have been supplemented by a grass-roots Community Emergency Response Team (CERT). These residents are improving communications before, during, and after storm events, educating about preparedness, and working to add sheltering capacity. By the same token, the ranks of able-bodied townspeople are expected to drop significantly in the coming decades, with seniors comprising over half the town population by 2035.

Strengths

Outright strengths in the community identified at the workshop include Restrictive Zoning Bylaws and the Wampanoag Tribe's Natural Resources Department.

In 2000, the entire town of Town of Aquinnah was designated a District of Critical Planning Concern (DCPC). The bylaw promotes the natural landscape and works to keep this heritage intact. Siting of manmade structures is highly regulated, minimizing erosion and clearing of native vegetation. Designed largely to preserve natural resources, these restrictions enable oceanic changes to the shoreline to generally happen without acute threat to manmade assets.

The Town is also peppered with marshes, bogs, tidal flats, and other types of wetland resources. Its Conservation Commission is committed to regulations more restrictive than those promulgated by the Massachusetts Department of Environment Protection (DEP). This again makes the town more resilient by restricting development in buffers to these flood-prone zones – providing an often clear path for wetland migration resulting from SLR.

Another decisive strength of the Town in managing climate change risk is the Wampanoag Tribe's Natural Resource Department. A team of six individuals comprises its staff, and it focuses on areas ranging from resource management to environmental protection to emergency response. Beyond a robust expertise in their disciplines, they've proven adroit at securing grant funding to advance restoration, remediation, and emergency preparedness initiatives. This is further bolstered by access to dedicated funding for sovereign Native American Tribes recognized by the US Department of the Interior.

Even during spells of Tribe-Town tension, the Department remains highly focused on its mission and partners with community groups that bring added value to its work. CERT and Tribe Natural Resources Department team members are jointly strategizing to pool resources available for disaster response, including but not limited to sheltering capacity.

The Town Hall / Police Station was also flagged as a community strength in the face of climate change. Its central location, along State Road, makes it a practical hub and daytime sheltering facility for townspeople from all corners of town. It possesses cooking facilities along with backup generators and is the chosen venue

for a multitude of events throughout the calendar year. At the workshop, numerous participants cited ways to upgrade this facility in preparation for daytime sheltering demands.

Recommendations and Strategies to Improve Resilience

The afternoon portion of the workshop featured a cross-pollination of action ideas, with participants discussing strategies to mitigate risks enumerated that morning or reinforce identified local strengths. These action ideas were captured in matrices distributed across the four groups and have been synthesized into a unified / master [CRB matrix](#).

Highest Priority

Given the frequency of recent storm events, it is little surprise that participants found common ground on building capacity for emergency response. From providing more training for a burgeoning CERT membership to improving facilities at Town Hall, the collective will supports investment in these areas. There was a definitive interest in bolstering ranks by attracting young residents, in light of the projected increase in the average age of townspeople over the next 15 years.

Participants also touted the value of the town's coastal wetlands and see their management as critical to the town's fate. This same thinking extends to its coastal embayments, freshwater ponds, and groundwater access. Strategies addressing these focus areas all merit swift and committed attention, in the estimation of the CRB working groups.

A number of additional infrastructure-centric items also generated attention. Maintaining roads and culverts, along with enlisting a transportation planner to develop a comprehensive transportation plan were high on the priority ladder. Measures to make the power grid more resilient and strengthen communications rounded out more of the critical action item list. The specific high priority ideas in their entirety are as follows:

- To protect roads and culverts:
 - Engage an engineer to evaluate State Road vulnerabilities and solutions
 - Raise Hariph's Creek Bridge
 - Maintain culverts and assess those in need of upgrades
 - Develop community culvert maintenance teams
 - Assess / improve culverts near Moshup-Old South Roads & East Pasture-State Roads
 - Enlist a coastal scientist to develop a shoreline management plan identifying areas vulnerable to inundation and erosion and evaluating possible actions including nature-based solutions, managed retreat, and hard infrastructure where negative impacts can be minimized
 - Promote fuel removal adjacent to dwellings and implement a wildfire management plan across town
 - Research dry hydrant capacity for Moshup

To protect and improve the grid:

- Develop micro grid / PV & battery backup at town-owned buildings
- Conduct a feasibility study for solar, wind, and tidal power potential

- Secure a complementary generator for DAS
- Move wires underground at vulnerable locations (ie. Moshup)
- Research loop / redundancy options
- Prune trees at select locations
- Develop Emergency Plan for scenario where infrastructure is not functional

To improve Communications & Emergency Response:

- Develop micro grid
- Assess prospects of communication tower at lighthouse or town dump
- Distribute radios, satellite phones
- Increase ranks of trained town responders
- Offer more training opportunities for 1st responders
- Disseminate preparedness materials
- Strengthen CERT advanced scenario planning
- Initiate texting protocol between residents and 1st Responders during disaster response
- Enlist transportation / technical planner to review emergency response plans and suggest improvements
- Develop an evacuation plan, including what to do if infrastructure is wiped out
- Create & distribute maps to town residents about evacuation routes and points of contact in evacuation scenarios

To upgrade capacity of Town Hall:

- Develop micro grid
- Improve bathroom to meet universal needs
- Accommodate daytime sheltering
- Improve functionality of space occupied by Police

To protect Home Values and the Town's Property Tax Base:

- Develop coastal land use management plan / strategies to reduce risk to exposed residences
- Develop land management plan to allow for clearing that helps mitigate fires and includes habitat considerations to reduce climate change stressors to wildlife

To protect Wetland Resources:

Assess wetlands issue / odor on Oxcart Road

Assess vulnerability in potential SLR advancement areas to determine if zoning district boundaries should be redefined

Develop overall wetlands management plan for wetland resources across town

To protect Ponds:

- Assess and reestablish eel grass
- Assess water exchange issues in ponds and bays
- Investigate ways to expand local aquaculture
- Explore incentives and programs to upgrade septic systems and de-nitrify
- Develop overall pond management plan

To improve natural / artisanal freshwater resources

- Inventory artisanal wells and ensure they're accessible and yield clean water
- Pilot infiltration wells and transfer water to aquifer
- Replace pipes where necessary
- Develop regulations to protect Cooke's Spring; replace facilities there
- Pursue solar back up capacity for well pumps and/or hand pumps

To reduce vector borne diseases:

- Prescribe burns for underbrush
- Communicate with property owners on how to mitigate mosquito proliferation
- Improve deer control measures

Popular Vote

At the conclusion of the team's discussion of Action ideas, each group nominated a presenter to share its ideas with the larger group. All remaining participants were then each given three green stickers and prompted to place those stickers next to the action(s) they felt most deserved swift attention – on a master list generated by MVC staff. The five measures that tallied highest were:

- Establish / expand a micro grid with solar and battery backup at the Town buildings
- Approve a cell tower and/or improve Distributed Antenna Systems (DAS) service
- Create affordable housing incentives to attract young generation
- Establish alternatives / contingencies / protocols and/or transportation master plan to contend with vulnerable roads and stabilize a port of entry at West Basin
- Remove wildfire fuel and / or develop a land management review to allow for clearing that helps mitigate fires and includes habitat considerations to reduce climate change stressors to wildlife (may include bylaw review)

Medium Priority

There were a number of other compelling ideas generated that were not dubbed high priority but merit close attention. Several features will benefit if these ideas get traction: from the Town's aging population and supply chain to its seasonal population and property tax base, to name a few. Strategies to make these key elements of Town more resilient are enumerated, below. It's also worth noting that a number of the measures participants identified intersect with other disaster response strategies.

To strengthen the Steamship Authority and overall supply chain:

- Develop an emergency plan for the scenario where infrastructure is wiped out
- Board of Selectmen should apply pressure to Steamship Authority to plan for SLR & climate disruption

To better prepare second-home owners and visitors:

- Strengthen public education and improve communication re storms and emergencies

To better account for the town's aging population and socially isolated residents:

- Strengthen CERT planning
- Harden the grid
- Explore mixed use zoning for subsidized housing and food forest behind Town Hall (for a better mix of downsizing options)
- Educate about Cape Light Compact and Mass Saves incentives for heat pumps

To better protect its beaches:

- Enlist a coastal scientist to help develop a shoreline management plan identifying areas vulnerable to inundation and erosion, along with a suite of actions including nature-based solutions, managed retreat, and hard infrastructure where negative impacts can be minimized
- Nourish Lobsterville Beach
- Research breakwaters at Lobsterville

To better leverage the expertise and bandwidth of the Tribe's Natural Resources Department:

- Revisit partnership, opportunities, options, and resources

To promote a greener tourist and local economy:

- Extend bike paths to reduce vehicular use

To improve its fisheries:

- Research new areas suitable for shellfish habitat and kelp farming

To better maintain Herring Creek:

- Dredge and improve built structures

To promote wild food sustainability:

- Explore incentives and promote denitrifying septic systems and innovative alternatives to maintain pond water quality
- Monitor blooms
- Improve monitoring and overall management

Lower Priority

Finally, there were several strategies discussed that have significance but are generally understood as low priority. They are as follows:

To ensure access to Menemsha Pond and Harbor, via the channel:

- Pressure the federal government to dredge in light of harbor of refuge status; improve channel management
- Secure air transport, medical boat

To protect the Aquinnah cliffs and circle, and its economy:

- Develop a wetlands management plan to mitigate erosion; enlist a hydrologist and drill and assess pilot infiltration wells in order to better control erosion
- Support the Aquinnah Cliffs Committee and their stormwater management recommendations

To account for the vulnerability of low-lying Dogfish Bar:

- Develop an evacuation plan
- Establish a point of contact for evacuation scenarios
- Issue reminder maps

To preserve Aquinnah's rural character:

- Extend bike paths to reduce vehicular use

CRB Workshop Invitees (asterisk indicates invitee attended CRB workshop)

- *Adrian Higgins; Carpenter/Builder/Town resident
- *Adrianna Ignacio; Business owner
- *Alan Rugg; Finance Committee
- *Beckie Scotten Finn; Natural Resources Dept Tribe
- *Berta Welch; Aquinnah Cultural Center
- *Bill Lake; Aquinnah Climate and Energy Committee
- *Carla Cuch; Business owner
- *Chris Manning; Tribal Ranger
- *Chris Seidel; MVC
- *Chrissie Laury; Climate and Energy Committee/Tribe
- *Dan Doyle; MVC
- *Gabriella Camilleri; Town Clerk
- *Isaac Taylor; Planning Board
- *Jacob Vanderhoop; Aquinnah Shop
- *Jeffrey Madison; Town Administrator
- *Jim Glavin; Health Dept. Chair
- *Jim Newman; Selectman
- *Jim Vercruysse; MV Commission
- *Jo-Ann Taylor; MVC
- *John Dumas; Eversource representative
- *Kathy Newman; MV Commission
- *Lenny Butler; Lighthouse Advisory Board
- *Meghan Gombos; Climate and Energy Committee
- *Molly Purves; MV Times
- *Morgan Hodgson; CERT team member
- *Nayra Martinez; AT&T / First Net Representative

- *Noli Taylor; Aquinnah Climate and Energy Committee
- *Paul Manning; Police Officer/Tribal member
- *Rhandi Belain; Police Chief
- *Rick Karney; MV Shellfish Group
- *Roxanne Ackerman; Up Island School Committee
- *Sam Hart; Trustees of Reservations
- *Sarah Thulin; Conservation Commission
- *Simon Bolin; Fire Chief
- *Tom Murphy; Planning Board member
- *Trisha Peters; Health Agent
- Alexandra Taylor; Business owner
- Andrew Jacobs; Water testing specialist WTGHA
- Belinda Booker; EMT
- Ben Retmeir; Tri-Town
- Bettina Washington; Wampanoag Tribe
- Buddy Vanderhoop; Assistant shellfish constable
- Chip Vanderhoop; Shellfish constable/harbormaster
- Comcast Representative;
- Daniel Phelan; Harvest Sun Solar, Technician
- David Vanderhoop; Sassafras/local business owner
- Derrill Bazzey; Community Preservation Committee
- Elaine Vanderhoop; Realtor
- Elissa Turnbull; Librarian
- Forrest Filler; Aquinnah CERT
- Gary Haley; Selectman
- Gary Robinson; Emergency Manager
- Hollis Smith; Fisherman
- Jason Baird; Medicine Man
- Jay Bodnar; Contractor
- Jay Smalley; Highway surveyor/groundskeeper
- Jed Smith; Builder
- Jerry Green; Doctor
- Jim Mahoney; Planning board member
- Jim Wallen; Planning Board
- John Clark; Island Water Source Inc.
- Juli Vanderhoop; Selectman
- June Manning; VTA board/Vineyard Gazette
- Lenny Jason; Building inspector
- Liz Witham; Filmmaker

- Marcella Andrews; Water testing specialist WTGHA
- Meg Bodnar; Realtor
- Mike Hebert; Cape Light Compact/Housing Committee
- Mitzi Pratt; Conservation Commission
- Nick Bologna; Contractor
- Peter Temple; Planning board member
- Richard Skidmore; Gay Head Lighthouse keeper
- Rob Meyers; Director of Energy Technology and Engineering at SMC
- Robert Ogden; County Sheriff
- Ryan Malonson; Cemetary Commission/Chief of Wampanoag Tribe
- Sarah Saltonstall; Board of Health member
- Saskia Vanderhoop; Sassafras/local business owner
- Sophia Welch; Administrative Assistant
- Stephen McKenna; Cape & Islands Regional Coordinator (Coastal Zone Management)
- Steve Yaffe; Tree Warden/Conservation Commission
- Theresa Manning; Business owner
- Tim Carroll; Chilmark Emergency Response Chair
- Tyler Moreis; Tribal Ranger
- Verizon Representative; Peter Bowman
- Verizon Representative; Ellen Cummings
- Woody Vanderhoop; Wampanoag Tribe

The Core Team and MVC discussed the benefits and detriments of a number of different dates to host the CRB Workshop; they ultimately decided Saturday, November 16 would be cold enough that invitees might be coaxed indoors for an extended workshop session and that Thanksgiving was late enough in the month that few would have already departed for holiday travel. Furthermore, it did not conflict with the Wampanoag Tribe's Annual Meeting and Election, slated for the following day, November 17th.

At the very first meeting between the Core Team and MVC, a wish list of attendees put together by Core Team members was reviewed, along with these invitees' respective affiliations. All involved agreed there should be representation from all demographics and stakeholder groups across the Town. The list grew to upwards of 90 people as the team understood that not all invitees would attend; for that reason, there was strategic duplication of some of the affiliations.

Listening Session – January 16th, 2020

This Listening Session was designed as forum for public engagement and was tailored to those who did not attend the CRB workshop. The Core Team presented both the key hazards facing Aquinnah townspeople and the many action items identified at the workshop itself to address the town's myriad key features relevant to climate change. A lively discussion ensued among the nearly 20 community members who attended, in addition to the Core Team and MVC staff.

Key topics prompting the most discussion at the Listening Session were the culverts found across town and their condition, along with artesian wells and pumps to access their reserves – for both drinking water and firefighting purposes. Making the grid more resilient and the Town less reliant on conventional utilities were also reoccurring themes. The townspeople seemed keenly aware of Aquinnah’s unique position up island should it need to rely on itself on the heels of a natural disaster. The reality that but a single roadway provides access to the remainder of the island and that it has failed on a number of occasions was a catalyst for discussion centered around pragmatic ways to mitigate risk.

Attendees also expressed concern about the integrity of well pipes and culverts. Beyond just an interest in upkeep, there was a clear desire to assess prospective artesian wells and possible hand pumps. Erosion and open water circulation patterns also consumed several minutes of dialogue, revealing local intrigue at the possibility of harnessing tidal forces in some form – whether to combat erosion or generate renewable energy.

Listening Session – March 5, 2020

*click [here](#) to view footage from the session

Another Listening Session was held following release of a draft of this Report, at which home-baked delights were provided by the Core Team. A recap of the primary hazards, strengths, vulnerabilities, and action ideas to address resiliency challenges opened the meeting. The Draft Report was available for all who attended (as well as posted on the Town website well in advance), and the key sections were discussed. This was not as heavily attended as the first, but a spirited conversation ensued nonetheless.

Information relating to the 2020 Hazard Mitigation Plan Update was also provided, as the MVC discussed how vulnerability findings may differ from the 2015 release. While there is no significant change to the datasets being used for the analyses, a more refined land use cover dataset will be utilized, which could impact the town’s wildfire risk. This issue prompted conversation, with a Planning Board member explaining that the town’s bylaws are not nearly as restrictive around tree cutting of fuel sources as many locals perceive them to be.

Culvert maintenance was also a point of interest for the group, and it was announced that a culvert assessment training session is scheduled for April 2020 on the island. The Core Team hopes that the training may generate enough interest around this infrastructure to form an “adopt a culvert” program, in which volunteers would maintain select culverts in their vicinity through a coordinated effort. Some uncertainty remains around how to handle culverts on private roads if abutting homeowners are not interested in participating. This fanned out into broader conversation about maintenance standards for private roads in general, most notably those serving a key function during hazard events.

The Core Team also solicited input from those in attendance around exactly which action item should form the basis of this Spring’s funding proposal to the MVP program. After the top priority items from the CRB workshop and draft Report were presented, the group focused its attention on developing a micro grid at the Town Hall, which would effectively make the facility more resilient for daytime sheltering purposes. It was

agreed that development of a micro grid should take into account current consideration of major renovations of the Town building complex. Team members indicated there is already a funding commitment to support development of a micro grid through Cape and Vineyard Energy Cooperative and that the MVP review committee might view such a synergy favorably when evaluating proposals.

The Town's Climate and Energy Committee will continue work on this project and prepare an action grant submission once the MVP office's next round of action grant applications opens.

While there are a number of forces at play, it's worth noting that a number of resiliency-related initiatives are getting more traction following the CRB workshop:

- The Aquinnah CERT team continues to proactively prepare for emergencies through recruitment, training, and strategic planning.
- A working group is now meeting routinely to explore the feasibility of developing six acres of town-owned property near Town Hall for affordable housing, regenerative agriculture, and dreamscape/playground development.
- Collaboration with the Tribe's Natural Resources Department has prompted a best practices exploration for residential-scale beachfront nourishment through plantings and landscaping.
- Additional dialogue with the Tribe's Natural Resource Department has led to an upcoming culvert assessment training held on the island for numerous island stakeholders through the Massachusetts Department of Marine Fisheries Division of Ecological Restoration; this may facilitate establishment of the adopt-a-culvert program discussed above.

CRB Workshop Project Team

- Gabriella Camilleri, Town Clerk; Core Team Project Lead
- Jeffrey Madison, Town Administrator; Core Team Member
- Noli Taylor, Climate & Energy Committee; Core Team Member
- Beckie Scotten-Finn, Wampanoag Tribe Natural Resources Department; Core Team Member
- William Lake, Climate & Energy Committee; Core Team Member
- Meghan Gombos, Climate & Energy Committee; Facilitator
- Jo-Ann Taylor, MVC; MVP Certified Facilitator
- Chris Seidel, MVC; MVP Certified Facilitator
- Dan Doyle, MVC; MVP Certified Facilitator

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Summary prepared by The Martha's Vineyard Commission

*The 2020 Hazard Mitigation Plan Update for Dukes County will include all required assessments for Aquinnah, and will be submitted separate from this report.

Appendix

Critical Facilities Basemap*, as provided to each table

Critical Facilities Basemaps*, as annotated by working groups

Town of Aquinnah Vulnerability Maps (series of four) as provided to each working group

Wampanoag Tribe Vulnerability Maps (series of six) as provided to each working group

Climate Impacts – Rainfall and Drought

Community Resilience Building Overview Presentation (32 slides)

Aquinnah Open Space Report maps (series of seven, as hung on the wall for CRB Workshop)

Charts of Strengths, Vulnerabilities, Major Hazards, and Prioritized Strategies to Enhance Resiliency

*HMP component of the combined MVP/HMP project submission will include a slightly different Basemap given additional critical facilities have recently been identified.

