

Regionalization of Assessing Services

Martha's Vineyard Commission

June 27, 2019

The Martha's Vineyard Commission (MVC) is the spatial data steward for Dukes County. The MVC views the Island as one entity instead of six individual pieces. To identify some near-term regionalization assessing goals for the island of Martha's Vineyard, the MVC gathered the Island's six assessors to brainstorm.

The outcomes of this Community Compact Grant are as follows:

- A) GIS data needs assessment for the Island's 6 assessing departments
- B) Acquisition/Creation of additional spatial data
- C) Uploading valuable spatial data to Dukes County's ArcGIS OnLine Cloud Space
- D) Creation of [Dukes County's Open Data Hub](#)
- E) Identification of Future Data Needs/Applications

Benefit to Region

Five of the Island's towns utilize the same consultant for their online interactive parcel viewer. However, each town contracts separately for this resource and there is often not consistency within the data presented. By bringing the assessors together and discussing their additional data needs, they were able to get onto the same page and have consensus about the ancillary data to include on those websites.

Previously, any ancillary data utilized on the parcel viewer websites was added in an ad hoc way. The consultant, focusing on one town at a time, would contact the MVC and request X dataset for X town. Then at another time, they would reach out to the MVC for the same dataset, but for a different Island town. This led to instances of having different versions of the same dataset on a neighboring town's parcel website.

Utilizing ArcGIS OnLine and the Open Data Hub permits the MVC to upload the most current version of each dataset to a central location which is accessible by whomever the MVC specifies (i.e. town employee, consultant, public). Metadata is included describing each dataset and, when needed, the MVC can replace the online data with an updated/revised version.

With the data in the County's ArcGIS OnLine Cloud Space, the MVC connected that Cloud to what is now the County's Open Data Hub. This Hub/portal, is a feature through ESRI which complies with the Open Data Standard. The Hub provides an online environment where the data are readily accessible to everyone for search, preview, and download.

Future ancillary data acquisition by the town's consultant for the parcel map viewers will consist of either a) the consultant using the dataset's REST service URL and pulling the data directly from the Dukes County Cloud into their web application or (b) the consultant will download the data from the Dukes County Open Data Hub, and upload it to the respective town's parcel application.

Item A) GIS data needs assessment for the Island's 6 assessing departments

Initially, the MVC proposed a series of online interactive maps which would show, at an island-wide scale, various property metrics derived from the assessing data. Such metrics as: Floor Area Ratio, Assessed Value per Acre, Number of Units, Ratio of Building Value to Land Value. The online maps would be available to the assessors and, if desired, shared with the public.

The assessors did not see themselves gaining big value from such a site. Rather, it was identified through the discussion that the assessors felt they would benefit most from having additional data in their online parcel viewer web applications. Some of the desired data already existed within the MVC's GIS data collection; otherwise it could readily be obtained or created. Other data was identified as either requiring more time to create or requiring additional funding and time.

See Appendix A for the listing of data currently within each town's online parcel viewer website. To gain a fuller understanding of the big picture of Assessing and GIS on Martha's Vineyard, see Appendix B for the GIS & Assessing Software Overview

Item B) Acquisition/Creation of additional spatial data

The MVC uploaded the following data for the extent of Martha's Vineyard or Dukes County, to their ArcGIS OnLine Cloud Space. These data are not currently included in the town's parcel viewer applications.

- Road Centerlines – MassDOT (derived from aerial photos)
- Paved vs Unpaved Roads (will requiring gathering local info & updating attributes of existing data from MassDOT/MassGIS).
- Historic Coastline (MassCZM) (includes accretion/erosion rate over time)
- Flooding Potential from Sea Level Rise (i.e. 1ft, 2ft)
- 2ft Elevation Contours
- Chapter 61 Lands
- Parcels Connected to Town Water
- Parcels Connected to Town Sewer (new addition to Tisbury's & Edgartown's websites)

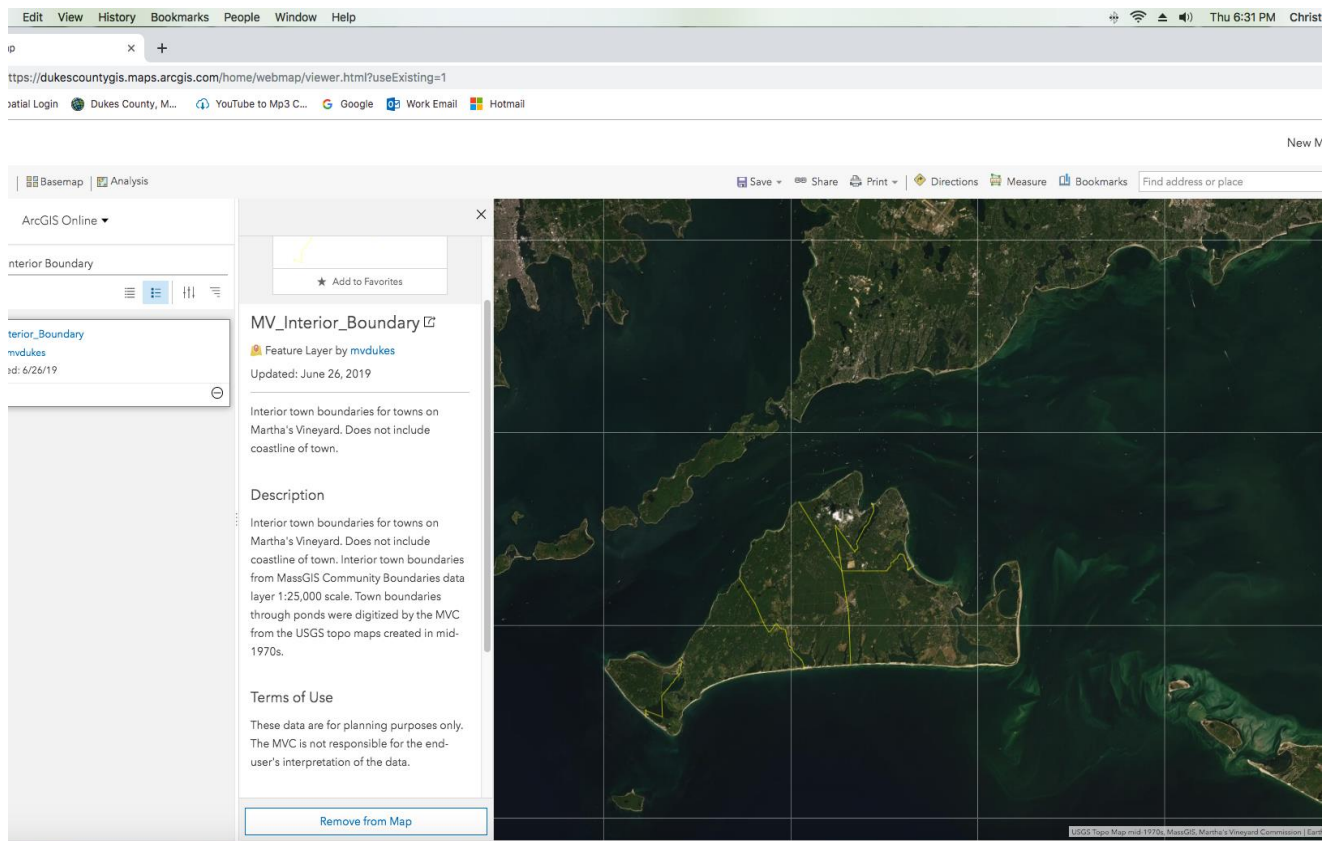
Current versions of the following will also be uploaded to the County's ArcGIS Hub & available for download. These are datasets that are already on some or all the Vineyard town's online parcel viewing websites.

- Open Space/Conservation Land
- NHESP Estimated & Priority Habitat
- Potential Vernal Pools
- Title 5 Setback Areas
- Points of Interest (Lighthouses, Municipal Facilities, & other public buildings)
- NHESP Certified Vernal Pools
- Interior Town Line
- Trail Data
- Road Labels
- Road Centerlines per MassDOT
- Building Roofprints
- Watershed Boundaries
- Parcel Boundaries for all towns (latest per MassGIS)
- Historic Districts

- Overlay Zones (aka DCPCs; includes Coastal District – Shore & Inland Zones)
- Zoning Boundaries
- FEMA Flood Zones
- Hurricane Inundation Areas (aka SLOSH)
- BioMap2 Core Habitat
- BioMap2 Critical Natural Landscape
- Wetlands
- Parcels connected to Town Sewer

C) Uploading valuable spatial data to Dukes County's ArcGIS OnLine Cloud Space

The datasets listed above were uploaded to our AGOL Cloud and attributed with metadata (a few are still in-process). Below is a screenshot of the content view from the administrator's log-in. A second screenshot is provided showing an add data view from within AGOL's map viewer. Anyone with an AGOL account can access this mapping interface and search for and add data to a map provided the dataset is shared with 'everyone'.



D) Creation of [Dukes County's Open Data Hub](#)

Please use this link to access our data hub. No password or accounts are needed. This hub provides easier access to the data stored within our AGOL Cloud. From the hub one can search, preview data on a map or in a table, and/or download the data in a variety of formats. Additionally, from the hub, a web application developer, can obtain the GeoService and/or GeoJSON URL address to the source data file (in the AGOL Cloud) and pull the data directly into their application. This is "open data" and transparent municipal government in action.

<http://data-dukescountygis.opendata.arcgis.com/>

The screenshot shows the 'Dukes County, MA GIS' Open Data hub. The header includes the Dukes County logo and the text 'Dukes County, MA GIS'. Below the header is a row of seven historical 'ENTERING' signs for different towns: CHILMARK (1694), EDGARTOWN (1871), COSNOID (1864), OAK BLUFFS (1907), and TISBURY (1671). A search bar is visible, and the main content area contains a 'Search' section with a search input field and a menu with options for 'Data' and 'Documents'.

E) Identification of Future Data Needs/Acquisitions and Applications

Through the brainstorming meeting the assessors expressed how their departments are the central hub for many of the other offices in town hall. Hence, there would be tremendous benefit to migrating some data currently kept in other department's 'silos' and incorporating it or linking it to the assessor's database. There are various solutions for accomplishing this, which will not be discussed here, but each of the following could be an independent data creation/conversion/integration project.

1. Planimetrics from current Aerial Photos (i.e. Digitization of street features such as telephone poles, manhole covers, fire hydrants, etc. from high resolution aerial photos). Creation of this data would require acquiring new imagery for Martha's Vineyard via a low-level aerial flight. This process would require all Town's to sign-on to the concept and approve an estimated cost; then solicit RFPs; final funding would need approval at Town meeting.
2. Well & Septic Locations – Digitize from Board of Health plans, the locations of private wells and septic tanks. If not documented on paper, then GPS these features in the field.
3. Building Permits – Obtain building permit info from the Building Inspector's office for permits from the previous calendar year. Be able to code by type of permit.
4. Variances from ZBA – Obtain the list of parcels granted variances from the Zoning Board of Appeals.
5. Traffic Summaries – Delineate where detailed traffic studies have been conducted and publish that to an interactive online map, so the data are readily available.

6. Abutters Lists for Abutting Towns – The assessors current online parcel viewer does not permit them to identify parcels within the neighboring town. Hence it would be beneficial to develop an online interactive map containing (a) all the towns parcel data; (b) a tool to identify all parcels within X feet of a parcel of interest; (c) generate a list of Map & Lot IDs of all parcels within the buffered area. The MVC intends to compile this application in FY20 (funding provided by annual Town assessments to the MVC).

APPENDIX A

Data Contained within each Town's Parcel Viewer Interactive Website

Data Layers on Town's Interactive Parcel Data Viewer Website	<i>last updated March 2019</i>					
	Aquinnah	Chilmark	Edgartown	Oak Bluffs	Tisbury	West Tisbury
MassGIS Data - Open Space (by Owner)	✓	✓	✓			✓
Open Space - Type of Owner					✓	
MassGIS Data - NHESP - Estimated Habitat of Rare Wildlife	✓	✓	✓	✓	✓	✓
MassGIS Data - NHESP - Priority Habitats of Rare Species	✓	✓	✓	✓	✓	✓
MassGIS Data - Potential Vernal Pools	✓	✓	✓		✓	✓
MassGIS Data - Title 5 Setback Areas	✓	✓	✓		✓	✓
MassGIS Data - FEMA Q3 Flood Zones		✓				
MassGIS Data - Major Drainage Basins (State-wide)		✓				
MassGIS Data - Zone II				✓		
Contours (10ft Interval i.e. 88ft, 98ft, 108ft)	✓		✓		✓	✓
Contours (3m Interval)		✓				
Contours (2ft interval)				✓		
DEP Wetlands (general categories)		✓		✓	✓	✓
Zoning (Only 3 Categories 1-3, 2A 3, 2A-3)		✓				
Zoning			✓		✓	✓
Zoning - Overlay Zoning						✓
Zoning - Coastal DCPC						✓
Historic District			✓			✓
MVCMA Outline				✓		
Utility Easement Lines				✓		

Right of Way & Private Right of Way				✓		
Parcel Lines				✓		
Parcel Labels (#, Street, Parcel ID, Dimensions)				✓		
Bathymetry				✓		
MA Places (Police, Fire, etc)				✓		
Sewered Parcels				✓		
Trade Winds Airfield Outline				✓		
FEMA Flood Data - 500yr & 100yr				✓		
FEMA Flood Data 100 year: VE & AE				✓		
MVC Data - Points of Interest (Lighthouses, General, Muni. Facilities)	✓		✓		✓	✓
MVC Data - NHESP Vernal Pools	✓		✓	✓	✓	✓
MVC Data - Interior Town Line	✓		✓		✓	✓
MVC Data - Trail Data (Points & Lines)	✓		✓		✓	✓
MVC Data - Road Lables	✓		✓		✓	✓
MVC Data - Road Centerlines (from aerial photos)	✓		✓		✓	✓
MVC Data - Building Roofprints	✓		✓	✓	✓	✓
MVC Data - Watershed Boundaries	✓		✓		✓	✓
MVC Data - Parcels (all towns)	✓		✓		✓	✓
MVC Data - DCPCs (aka Overlay Zones)	✓		✓	✓	✓	✓
MVC Data - Zoning	✓		✓	✓	✓	✓
MVC Data - Flood & Storm - FEMA dFIRM	✓		✓		✓	✓
MVC Data - Flood & Storm - SLOSH	✓		✓		✓	✓
MVC Data - BioMap2 - Core Habitat	✓		✓		✓	✓
MVC Data - Biomap2 - Critical Natual Landscape	✓		✓		✓	✓

MVC Data - Wetlands (detailed legend)	✓		✓		✓	✓
MVC Data - Open Space (access)				✓	✓	✓
Wetlands (1:12,000) (duplicate of MVC Data - Wetlands)			✓			
Municipal Buildings - Fire Stations					✓	
Municipal Buildings - Libraries (many categories)					✓	
Municipal Buildings - Police (Local County State)					✓	
Municipal Buildings - Schools (many categories)					✓	
Municipal Buildings - Town Halls					✓	
Neighborhood Map	✓					✓
Year of Latest Imagery	2017 ESRI	2017 ESRI	2017 ESRI	2018 Google; 2009 MassGIS	2017 ESRI	2017 ESRI

APPENDIX B

Software & Licensing Background: GIS & Assessing Software Overview

Each Vineyard town pays a consultant to create, manage, and host their online parcel viewer. Five of the six towns, all but Oak Bluffs, use the same consultant (CAI Inc.) for the parcel viewer. Those same towns utilize CAI Inc for digital/GIS parcel boundary updates. Oak Bluffs uses a different company (*Name?*) for their online parcel viewer and boundary updates.

Edgartown and West Tisbury pay an additional fee to CAI Inc for use of custom 'Staff Tools' that they can access through their online parcel viewer. The 'Staff Tools' required a user name and password for login to utilize custom reporting options.

Chilmark also purchases 'Query Manager' desktop tools from CAI Inc. Query Manager is an add-in component to ESRI's ArcMap Desktop application. Query Manager is an additional fee to CAI Inc. on top of the licensing fee to ESRI. The two licensing fees must be maintained.

Every town uses a CAMA system (Computer Assisted Mass Appraisal). Oak Bluffs and Chilmark use the PK CAMA and the remaining towns use Vision CAMA. Tisbury and Edgartown each pay an additional fee to Vision to utilize Vision's integrated GIS Tools/Map Viewer. These integrated Vision GIS Tools rely on ESRI's ArcMap Desktop software. Hence, the two licensing fees must be maintained.

The County of Dukes County participates in an Enterprise License Agreement with ESRI. This contract provides access to ArcGIS OnLine (an interactive mapping service & cloud storage space) and unlimited licensing of ArcMap Desktop as well as some other ESRI software components. The MVC, the Sheriff's Department, and all the Vineyard's towns (except for Edgartown) are partners in this agreement. The MVC is the administrator for the ArcGIS OnLine site and local technical lead, providing customer support for this contract.

The Martha's Vineyard Commission (MVC) maintains the collection of GIS data for Dukes County. The data includes such datasets as: FEMA flood zones, wetlands, town zoning, town overlay zoning districts, etc. Prior to the creation of the Data Hub, the MVC provided the assessor's online parcel viewer consultant with these and other data layers upon request. The MVC periodically delivered a data update to each town hall so that the data could be utilized by the assessors in their ESRI ArcMap Desktop GIS software. Going forward, the MVC will publish all the datasets listed previously under Item B to the Dukes County Data Hub.

Software Utilized by Martha's Vineyard's Assessors -- as of June 2019							
	ESRI License Agreement	Consultant for Parcel Data Edits	Online Parcel Viewer Website	Parcel Viewer's Online Staff Tools	Query Manager Desktop Tools	CAMA Appraisal Software	CAMA's GIS Add-on Component*
Aquinnah	✓	✓	✓			✓	
Chilmark	✓	✓	✓		✓	✓	
Edgartown		✓	✓	✓		✓	✓
Oak Bluffs	✓	✓	✓			✓	
Tisbury	✓	✓	✓			✓	✓
West Tisbury	✓	✓	✓	✓		✓	
*For this componet to function, the ESRI License needs be under current maintenance/licensing contract.							

