

Sea Level Rise Projection

based on 2010 LiDAR elevation data & accounting for MHHW

Oak Bluffs, MA

Pre-Disaster Mitigation Plan

Sea Level Rise Scenarios: 1.5ft and 5ft
 Mean High High Water Present Average
 Offset from NAVD88 Datum = +1.0ft

- Affected Structures (Yellow dot)
- Bridges (Yellow rectangle)
- Transmission Lines (Pink line)
- Critical Facilities (Red dot)
- Affected (Red dot)
- Not Affected (Black dot)
- Sea Level Rise plus Mean High High Water Offset
 - <= 2.5ft (Light blue)
 - >2.5ft to 6.0ft (Dark blue)
- Roads
 - Primary Road (Thick black line)
 - Secondary Road (Thin black line)
 - Tertiary Road (Dashed black line)
- Town Boundary (Dashed grey line)

A datum is a reference from which measurements are made. The datum indicates where zero is. For example, the top of a tree may be 30ft high from the ground but that same treetop is only 10ft high from the top of the neighboring rooftop.

NOTES:
 This map was produced by the Martha's Vineyard Commission for the Pre-Disaster Mitigation Project of June 2013. Funding for the Pre-Disaster Mitigation Planning Grant was provided by the Massachusetts Emergency Management Agency.

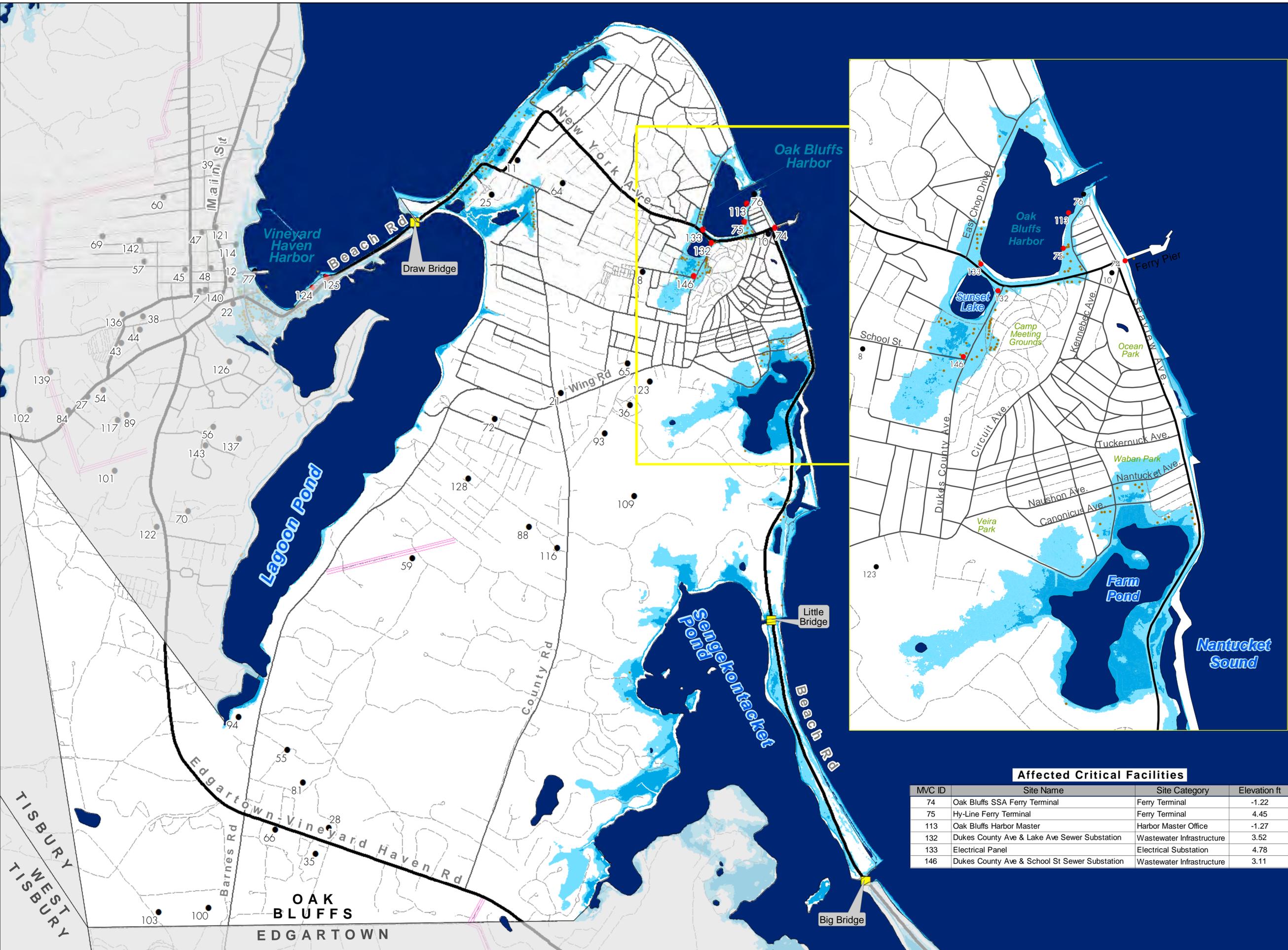
In 2010, LiDAR (Light Detection and Ranging) terrain data was collected along the coast of Martha's Vineyard and the Elizabeth Islands on behalf of FEMA. The data was processed by MassGIS into digital elevation models in geoTIFF format. The elevation points, collected at 3ft spacing and two decimal point precision have a vertical accuracy of 0.47ft. The data exceed the required 1.19ft accuracy for 2ft contour generation.

The average offset between the MHHW tidal datum and the NAVD88 datum was calculated for the Island by the MVC. Values were reported by NOAA (online at their Tides & Currents page) for three Island tidal benchmarks: Menemsha, Vineyard Haven Harbor, and Edgartown Harbor. Based on those three sites, on average, MHHW is 1.06ft greater than NAVD88.

To account for this MHHW to NAVD88 offset, the MVC added an additional 1 foot to the sea level rise scenarios.

DISCLAIMER:
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Compiled By: Martha's Vineyard Commission, CL Seidel, 11/26/13, ph. 508-693-3453, www.mvcommission.org
 Data: Town Boundary - MassGIS 2002; Roads - MHD/MassGIS 2005; Critical Facilities & Infrastructure - MEMA 2006 and MVC 2013; LiDAR Elevation Data - FEMA 2010 & MassGIS 2012; Structures - MassGIS 2013 release from 2011 aerial photos
 Projection: Stateplane, MA Mainland, NAD83, Meters
 File: cb_pdm; Oak_SeaLevel_MHHW_2013.mxd - Original in color



MVC ID	Site Name	Site Category	Elevation ft
74	Oak Bluffs SSA Ferry Terminal	Ferry Terminal	-1.22
75	Hy-Line Ferry Terminal	Ferry Terminal	4.45
113	Oak Bluffs Harbor Master	Harbor Master Office	-1.27
132	Dukes County Ave & Lake Ave Sewer Substation	Wastewater Infrastructure	3.52
133	Electrical Panel	Electrical Substation	4.78
146	Dukes County Ave & School St Sewer Substation	Wastewater Infrastructure	3.11

TISBURY
 WEST
 TISBURY

OAK
 BLUFFS
 EDGARTOWN

100 & 500 Year Flood Map Oak Bluffs, MA

Pre-Disaster Mitigation Plan

- Affected Structures
- Bridges
- Transmission Lines
- Critical Facilities
- Not Affected
- Affected
- Flood Zones*
- 100 Year (VE Zone)
- 100 Year (AE Zone)
- 500 Year Zone
- Roads
- Primary Road
- Secondary Road
- Tertiary Road
- Town Boundary

*Data provided by FEMA - Preliminary DFIRM June 2013

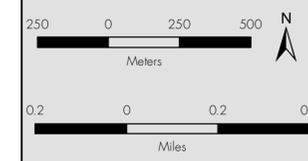
NOTES:
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The 100 year & 500 year flood areas represent a subset of the data available on the paper Flood Insurance Rate Maps (FIRM) as provided by the Federal Emergency Management Agency (FEMA). These data were developed by FEMA to support floodplain management and planning activities but do not replace the official paper FIRMs. These data are not suitable for engineering applications or site work nor can the data be used to determine absolute delineations of flood boundaries. Instead the data should be used to portray zones of uncertainty and possible risks associated with flooding. These data do not replace the paper FIRMs which remain the official documents.

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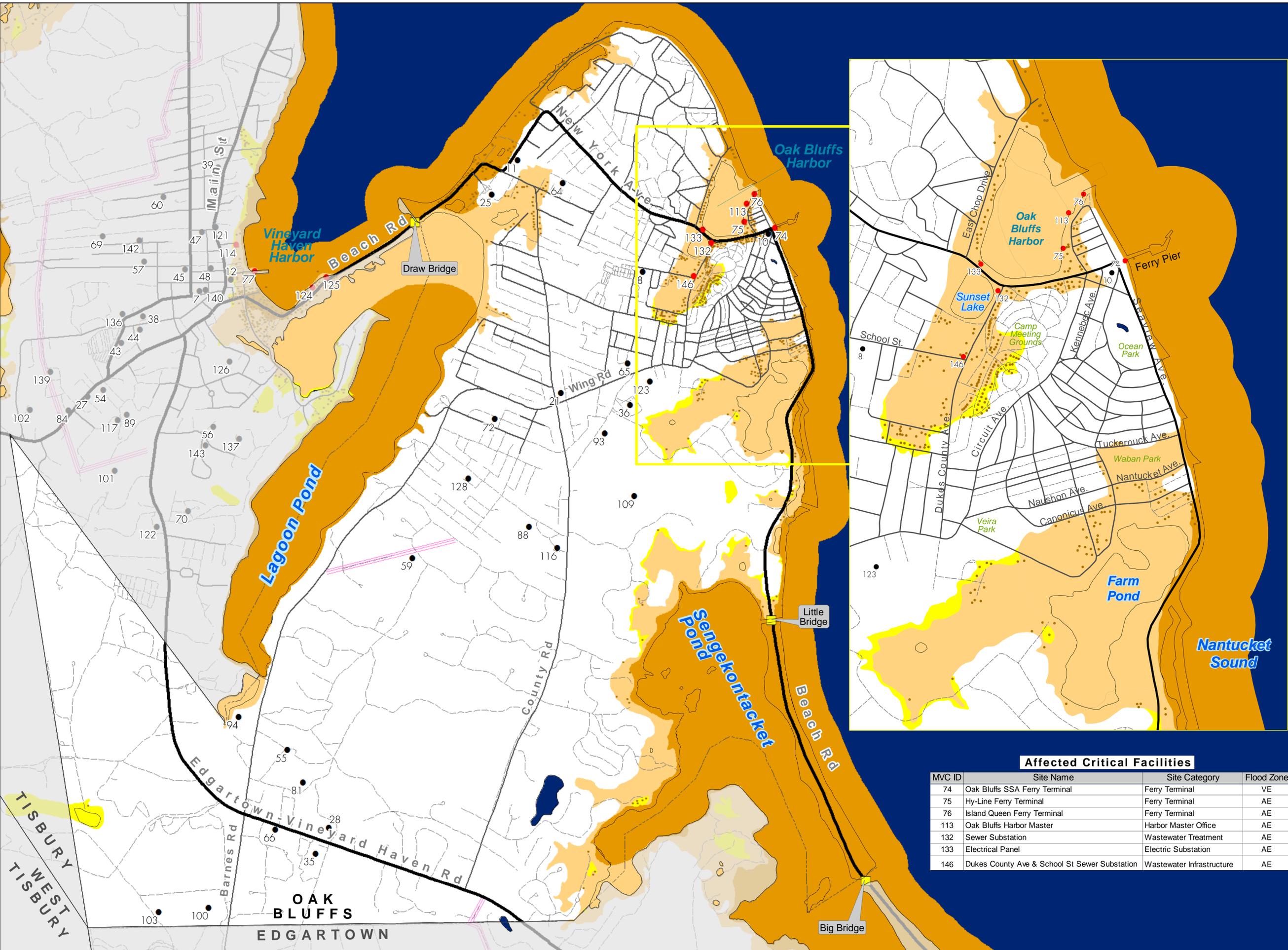
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Data: Town Boundary - MassGIS 2002; Roads - MHD/MassGIS 2005; Critical Facilities & Infrastructure - MEMA 2006 and MVC 2013; Flood Data - Preliminary DFIRM FEMA June 2013; Structures - MassGIS 2013 release from 2011 aerial photos
Projection: Stateplane, MA Mainland, NAD83, Meters
File: c:\s_pdm; Oak_dfirm_prelim_2013.mxd - Original in color



Affected Critical Facilities

MVC ID	Site Name	Site Category	Flood Zone
74	Oak Bluffs SSA Ferry Terminal	Ferry Terminal	VE
75	Hy-Line Ferry Terminal	Ferry Terminal	AE
76	Island Queen Ferry Terminal	Ferry Terminal	AE
113	Oak Bluffs Harbor Master	Harbor Master Office	AE
132	Sewer Substation	Wastewater Treatment	AE
133	Electrical Panel	Electric Substation	AE
146	Dukes County Ave & School St Sewer Substation	Wastewater Infrastructure	AE



TISBURY
WEST
TISBURY

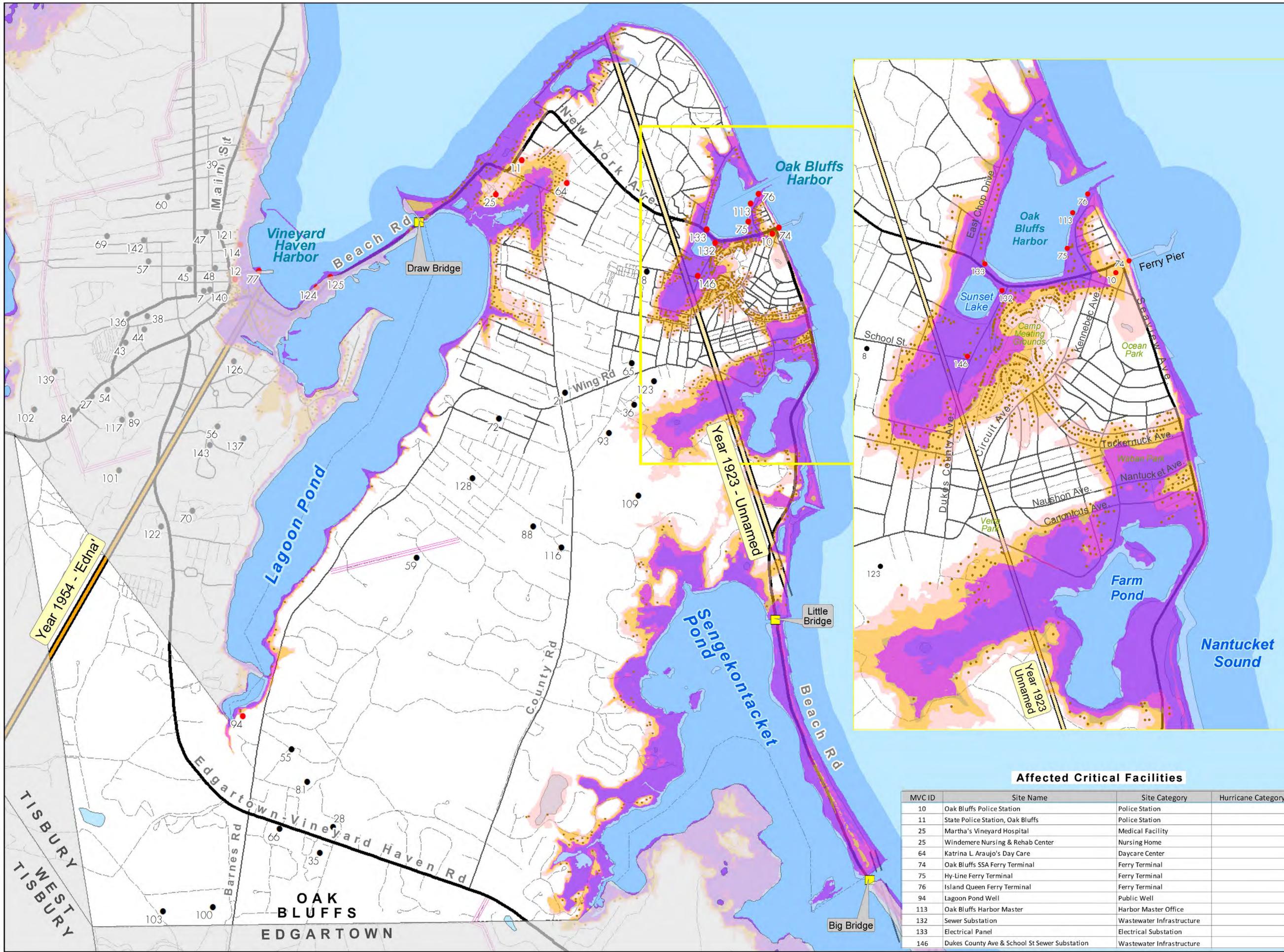
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Hurricane Surge Inundation and Hurricane Tracks

Oak Bluffs, MA

Pre-Disaster Mitigation Plan



Affected Structures

- Affected Structures

Bridges

- Bridges

Transmission Lines

- Transmission Lines

Critical Facilities

- Affected
- Not Affected

FEMA 100 Year Flood Zone*

- FEMA 100 Year Flood Zone*

Hurricane Surge Inundation (Flooding) Worst Case Scenario

- Category 1
- Category 2
- Category 3
- Category 4

Hurricane Track CATEGORY

- TS - Tropical Storm (39-73 MPH)
- H1 - Category 1 (74-95 MPH)

Roads

- Primary Road
- Secondary Road
- Tertiary Road

Town Boundary

- Town Boundary

*Data provided by FEMA - Preliminary DFIRM June 2013

NOTES:
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Per USACE:
 Hurricane surge elevations were determined by the National Hurricane Center using the PV2 SLOSH model basin, and assumed peak hurricane surge arriving at mean high water.

The hurricane surge inundation areas shown on this map depict the inundation that can be expected to result from a worst case combination of hurricane landfall location, forward speed, and direction for each hurricane category.

The primary elevation data source was LiDAR data collected from Nov 2009 to Feb 2010 by Camp Dresser and McKee. This data was supplemented with MassGIS Digital Terrain Model (DTM) files which were made available in April 2003.

ACCURACY:
 SLOSH Model Elevation Data: +/- 20 percent
 LiDAR Elevation Data: +/- 0.5ft vertical; +/- 1ft horizontal
 Shoreline Data: Less accurate than LiDAR; Hence, discrepancies will be visibly noticeable when displayed together.

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 Data: Town Boundary - MassGIS 2002; Roads - MHD/MassGIS 2005; Critical Facilities & Infrastructure - MEMA 2006 and MVC 2013; Inundation Areas - USACE 2013; Hurricane Track - NOAA; Flood Zone - FEMA Preliminary June 2013
 Projection: Stateplane, MA Mainland, NAD83; Meters
 File: cks_pdm; Oak_HursSLOSH_2013_v2.mxd - Original in color

Affected Critical Facilities

MVC ID	Site Name	Site Category	Hurricane Category
10	Oak Bluffs Police Station	Police Station	3
11	State Police Station, Oak Bluffs	Police Station	4
25	Martha's Vineyard Hospital	Medical Facility	4
25	Windemere Nursing & Rehab Center	Nursing Home	4
64	Katrina L. Araujo's Day Care	Daycare Center	4
74	Oak Bluffs SSA Ferry Terminal	Ferry Terminal	1
75	Hy-Line Ferry Terminal	Ferry Terminal	1
76	Island Queen Ferry Terminal	Ferry Terminal	1
94	Lagoon Pond Well	Public Well	3
113	Oak Bluffs Harbor Master	Harbor Master Office	1
132	Sewer Substation	Wastewater Infrastructure	1
133	Electrical Panel	Electrical Substation	1
146	Dukes County Ave & School St Sewer Substation	Wastewater Infrastructure	1



Wildland Urban Interface Oak Bluffs, MA

Pre-Disaster Mitigation Plan

- Contiguous Woodlands
 - area >=50 acres
 - 1000ft Buffer Area
- Vegetation
 - Pitch Pine or Shrub Oak
- Fire Lane
 - Affected Structures
 - Bridges
 - Transmission Lines
- Critical Facilities
 - Affected
 - Affected Public Well
 - Not Affected
 - Not Affected Public Well
- Roads
 - Primary Road
 - Secondary Road
 - Tertiary Road
 - Town Boundary

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Woodlands habitat was identified from the 2005 land use data from MassGIS. Non-forest land uses were buffered 250ft and the forest area that did not overlap the non-forest plus 250ft was retained. Those contiguous forest areas of 50 acres or more are represented in this data layer.

A structure is considered within the wildlife threat area if it is within a contiguous 50 acre woodland area or within its 1000ft buffer area or within the existing pitch pine/shrub oak area.

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Data: Town Boundary - MassGIS 2002; Roads - MHD/MassGIS 2005; Critical Facilities & Infrastructure - MEMA 2006 & MVC 2013; Woodlands - MassGIS 2005 & MVC 2013; Vegetation - TNC 2005; Structures - MassGIS 2011 (released 2013) & MVC 2013; Fire Lane - MVC 2005
Projection: Stateplane, MA Mainland, NAD83, Meters
File: cls_pdm; Oak_WildFire_2013.mxd - Original in color



Affected Critical Facilities			
MVC ID	Site Name	Site Category	Inside Buffer or Pitch Pine
28	Martha's Vineyard Community Services	Medical Facility	Buffer
28	Martha's Vineyard Community Services Child Center	DayCare Center	Buffer
35	Martha's Vineyard Regional High School	School	Buffer
35	Martha's Vineyard Regional High School	MassCare Center	Buffer
36	Oak Bluffs Elementary	School	Pitch Pine
36	Oak Bluffs Elementary	MassCare Center	Pitch Pine
55	Plum Hill School @ Featherstone Farm	DayCare Center	Buffer
64	Katrina L. Araujo's Day Care	DayCare Center	Pitch Pine
81	Woodside Village Complex	Elderly Housing	Buffer
93	Farm Neck Well	Public Well	Pitch Pine
94	Lagoon Pond Well	Public Well	Buffer
100	State Forest Well	Public Well	Buffer
103	Alward Well	Public Well	Buffer
109	Trade Winds Airfield	Airport	Pitch Pine
116	Oak Bluffs DPW Equipment	Public Works Equipment Storage	Pitch Pine
123	Airdyberg Housing	Elderly Housing	Pitch Pine

