

Appendix D-6
Ottawa and Sandusky Counties, OH
Discovery Report

Discovery Report

Great Lakes Coastal Flood Study

Lake Erie

Ottawa County and Sandusky County, Ohio

Individual Discovery Report

Report Number 01

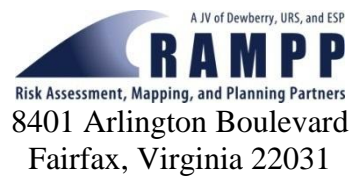
March 2013



FEMA

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Department of Homeland Security
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DATE SUBMITTED: March 2013

Project Area Community List

Ottawa County	Sandusky County
Ottawa County (Unincorporated Areas)	Sandusky County (Unincorporated Areas)
Marblehead, Village of	
Oak Harbor, Village of	
Port Clinton, City of	
Put-In-Bay, Village of	

This list includes the communities within the Project Area covered by this report for the Great Lakes Coastal Study under consideration for new Federal Emergency Management Agency (FEMA) Risk Mapping, Assessment and Planning (Risk MAP) products and datasets, which may include Flood Insurance Studies (FISs) and Flood Insurance Rate Maps (FIRMs). Not all communities will receive new/updated FEMA Risk MAP products and datasets or FISs and FIRMs.

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AAL	Average Annualized Loss
BFE	Base Flood Elevation
CAV	Community Assistance Visit
CBRS	Coastal Barrier Resources System
CELCP	Coastal and Estuarine Land Conservation Program
CID	Community Identification Number
CIS	Community Information System
CMAG	Coastal Management Assistance Grant
C-MAN	Coastal Marine Automated Network
CNMS	Coordinated Needs Management Strategy
CO-OPS	Center for Operational Oceanographic Products and Services
CRS	Community Rating System
DFO	Department of Fisheries and Oceans
FEMA	Federal Emergency Management Agency
FIPS	Federal Information Processing Standards
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
GIS	Geographic Information System
GLCRG	Great Lakes Coastal Restoration Grant
Hazus-MH	FEMA's Multi-Hazard Risk Assessment and Loss Estimation Software Program
HUC8	Hydrologic Unit Code 8
HWM	High Water Mark
LESEMP	Lake Erie Shore Erosion Management Plan
LOMA	Letter of Map Amendment
LOMC	Letter of Map Change
LOMR	Letter of Map Revision
LOMR-F	Letter of Map Revision based on Fill
MLI	Midterm Levee Inventory
NAVD88	North American Vertical Datum of 1988
NDBC	National Data Buoy Center
NFIP	National Flood Insurance Program

Acronyms and Abbreviations

NGDC	National Geophysical Data Center
NID	National Inventory of Dams
NOAA	National Oceanic and Atmospheric Administration
OCMP	Ohio Coastal Management Program
ODNR	Ohio Department of Natural Resources
PAL	Provisionally Accredited Levees
Risk MAP	Risk Mapping, Assessment, and Planning
SFHA	Special Flood Hazard Area
SWL	Still Water Level
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

SECTION ONE DISCOVERY OVERVIEW

The Federal Emergency Management Agency (FEMA) Risk Mapping, Assessment, and Planning, or Risk MAP, program helps communities identify, assess, and reduce their flood risk. Through Risk MAP, FEMA provides information to enhance local mitigation plans, improve community outreach, and increase local resilience to floods.

During the Discovery phase of Risk MAP project development, FEMA:

- Gathers information about local flood risk and flood hazards
- Reviews mitigation plans to understand local mitigation capabilities, hazard risk assessments, and current or future mitigation activities
- Supports communities within the coastal area to develop a vision for the future
- Collects information from communities about their flooding history, development plans, daily operations, and stormwater and floodplain management activities
- Uses all information gathered to determine which areas require mapping, risk assessment, or mitigation planning assistance through a Risk MAP project
- Develops Discovery Map and Report that summarize and display the Discovery findings

1.1 GREAT LAKES COASTAL FLOOD STUDY

FEMA has initiated a coastal analysis and mapping study to produce updated Flood Insurance Rate Maps (FIRMs) for coastal counties along the Great Lakes. The new coastal flood hazard analyses will utilize updated 1-percent-annual-chance (100-year) flood elevations obtained from a comprehensive storm surge study being developed by the U.S. Army Corps of Engineers (USACE).

An updated coastal flood study is needed to obtain a better estimate of coastal flood hazards on the Great Lakes. The current, effective FIRMs are outdated primarily because of the age of data and the coastal methodologies used in producing them. Major changes in National Flood Insurance Program (NFIP) policies and methodologies have been implemented since the effective dates of many Flood Insurance Studies (FIS) in the area, creating the need for an update that will reflect a more detailed and complete hazard determination.

The Great Lakes Coastal Flood Study includes a system-wide solution that provides a comprehensive analysis of storm and high water events within the Great Lakes Basin. This program is funded through the FEMA Risk MAP program. FEMA, USACE, the Association of State Floodplain Managers, State partners, and FEMA contractors will collaborate in updating the coastal methodology and flood maps. FEMA manages the NFIP, which is the cornerstone of the national strategy for preparing communities for flood-related disasters.

1.2 PURPOSE OF GREAT LAKES DISCOVERY

The purpose of the Great Lakes Discovery is to update NFIP products to increase public awareness of short- and long-term lake level variations, storm events, and associated storm surge and waves to improve community resiliencies related to flood losses (life, property, and business).

This Discovery Report discusses the communities potentially affected by coastal flooding in Ottawa and Sandusky Counties, OH, as shown in Figure 1.

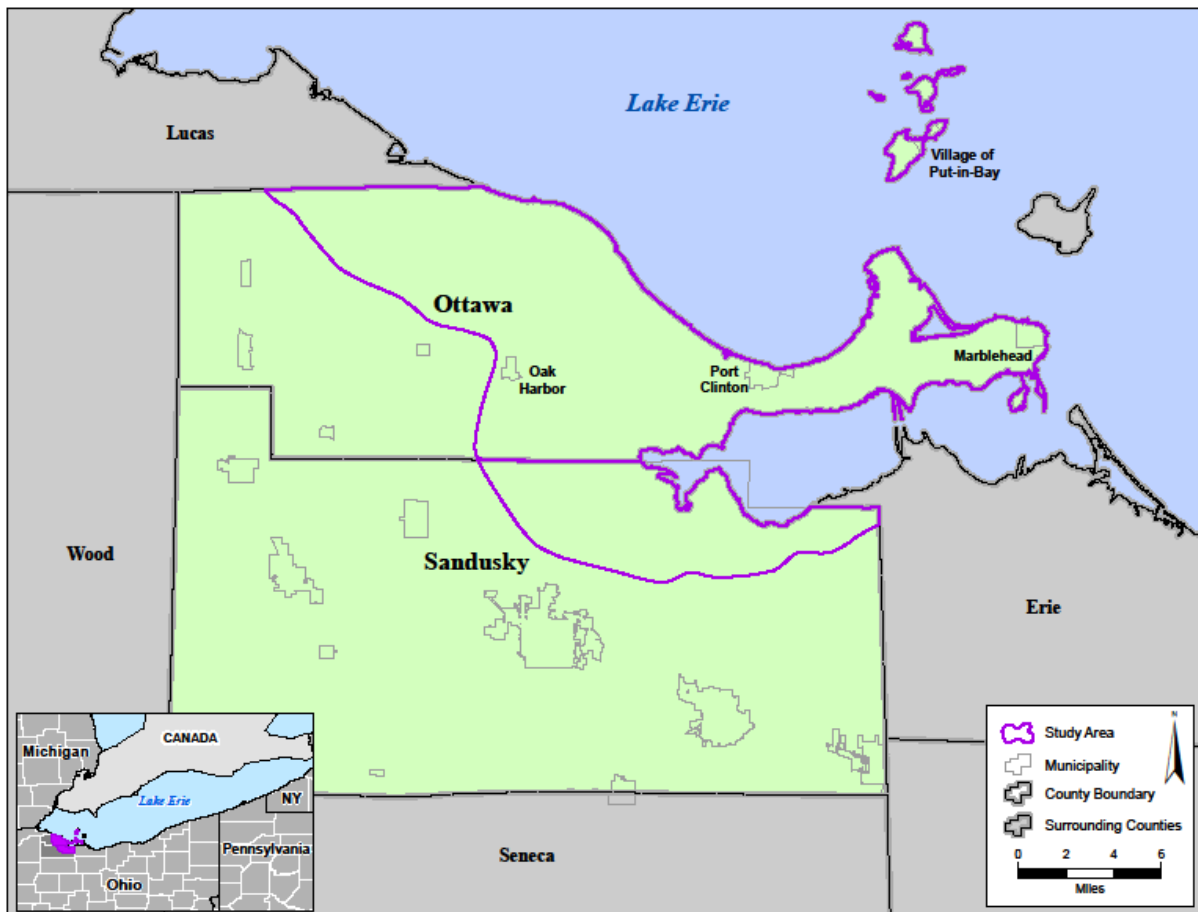


Figure 1: Project Area Map

1.3 COASTAL FLOOD RISK PRODUCTS

The Risk MAP Program will provide State and community officials with three flood risk products to help them gain a better understanding of flood risk and its potential impact on communities and individuals. These products will also enable communities to take proper mitigation actions to reduce this risk. The three products are:

- Flood Risk Report
- Flood Risk Map
- Flood Risk Database

These products will summarize information captured in the Flood Risk Datasets during a Flood Risk Study. The associated datasets could include regular and enhanced products:

- Changes Since Last FIRM
- Flood Depth and Analysis Grids
- Flood Risk Assessment Data
- Areas of Mitigation Interest
- Areas Affected by Increased Inundation
- Wave Hazard Severity Areas
- Coastal Wave Height Grid
- Erosion Risk Determination

SECTION TWO GREAT LAKES OUTREACH STRATEGY

2.1 LAKE ERIE DISCOVERY STAKEHOLDER COORDINATION

To communicate effectively throughout the life of a possible Risk MAP project in the Great Lakes Coastal Flood Study, the use of email, telephone, and letters will be essential. A master list of stakeholders in the communities within the Project Area covered by this report (Ottawa and Sandusky Counties, OH) is included in the Attachments. A total of 57 invitations were sent to stakeholders in the Ottawa and Sandusky Counties portions of the Lake Erie Coastal Flood Study project.

Representatives from the local governments, including cities, townships, and villages, are considered fundamental stakeholders in this process because they have been elected or appointed to represent the interests of the residents of the Project Area. In addition to local governments, county officials were invited to participate in the Discovery Meetings. See Attachments for a complete list of the stakeholders who were invited to the Discovery Meetings.

SECTION THREE SUMMARY OF DATA ANALYSIS

During the Discovery portion of the Lake Erie Coastal Flood Study project, a massive amount of tabular and spatial data was collected for all communities from Federal and State sources, as well as through phone interviews and the Discovery Coastal Data Request forms sent to each community. Section 3 describes the types of data that the project team collected for the study area before the Discovery Meeting. The Data Analysis that follows Table 1 is divided into two sections: Section 3.1 describes the data that can be used for Risk MAP products and Section 3.2 describes the information that helped the study team form a better understanding of the Project Area.

Table 1: Data Collected for Ottawa and Sandusky Counties, OH

Data Types	Deliverable/Product	Source	Date of Data Collection	Resolution
Average Annualized Loss Data	Discovery Map	Federal Emergency Management Agency (FEMA)	April 2011*	Nationwide
Census Blocks	Discovery Map	U.S. Census Bureau	Dec. 2011	Countywide
Contacts	Discovery Report	Local Community Web sites, State/FEMA Updates	Dec. 2011	Countywide
Community Assistance Visits	Discovery Report	FEMA Community Information System (CIS), Ohio Department of Natural Resources (ODNR)	Dec. 2011	Countywide
Community Rating System	Discovery Report	FEMA's "Community Rating System Communities and Their Classes"	Dec. 2011	Nationwide
Comprehensive Plans	Discovery Report	Local Community Web sites	Dec. 2011	Countywide
Coastal Barrier Resources System	Discovery Map	U.S. Fish and Wildlife Service	Nov. 2011*	Nationwide
Coastal Construction	Discovery Map	U.S. Army Corps of Engineers (USACE)	July 2012	Nationwide
Coordinated Needs Management Strategy	Discovery Map	FEMA	July 2012	Countywide
Critically Eroded Beach Areas	Discovery Report	ODNR	Dec. 2011*	Statewide

Summary of Data Analysis

Data Types	Deliverable/Product	Source	Date of Data Collection	Resolution
Critical Facilities	Discovery Report	Local Mitigation Plans	April 2012	Countywide
Dams	Discovery Report	USACE, National Inventory of Dams, Flood Insurance Rate Map Database, ODNR Dam Safety Program	April 2012	Countywide
Declared Disasters	Discovery Report	FEMA's "Disaster Declarations Summary"	April 2012	Nationwide
Demographics, Industry	Discovery Report	U.S. Census Bureau, Local Mitigation Plans	April 2012	Countywide
Effective & Preliminary Floodplains	Discovery Map	FEMA Map Service Center and Mapping Information Platform	April 2012	Countywide
Flood Insurance Policies	Discovery Report	FEMA CIS	April 2012	Nationwide
Hazards Mitigation Plans and Status	Discovery Report	Local Mitigation Plans, Ohio Emergency Management Agency	April 2012	Countywide
Hazard Mitigation Assistance Program Grants Received	Discovery Report	FEMA's "Hazard Mitigation Program Summary," Community Input	April 2012	Nationwide
Hazard Mitigation Projects	Discovery Report	ODNR, Local Mitigation Plans	May 2012	Countywide
Historical Flooding	Discovery Report	Effective Flood Insurance Study (FIS), Local Mitigation Plans	April 2012	Countywide
Historical Storm Events	Discovery Report	Effective FIS, Local Mitigation Plans	April 2012	Countywide
Individual/Public Assistance	Discovery Report	FEMA's "Public Assistance Subgrantee Summary"	April 2012	Nationwide
Flood Insurance Policies	Discovery Report	FEMA CIS	April 2012	Nationwide
Letters of Map Change	Discovery Report	FEMA's Mapping Information Platform	April 2012	Countywide
Meteorological Gages	Discovery Map	National Oceanic and Atmospheric Administration (NOAA) Great Lakes	April 2012	Region-wide

Data Types	Deliverable/Product	Source	Date of Data Collection	Resolution
		Environmental Research Laboratory		
Midterm Levee Inventory (MLI)	Discovery Report	MLI database	Nov. 2011*	Nationwide
Ordinances	Discovery Report	Local Community Web sites, ODNR	April 2012	Countywide
Repetitive Loss	Discovery Report	FEMA CIS	April 2012	Countywide
Shoreline Classification	Discovery Map	USACE	July 2012	Countywide
Stream Gages	Discovery Map	United States Geological Survey	April 2012	Countywide
Water Level Gages	Discovery Map	NOAA, Canadian Department of Fisheries and Oceans	April 2012	Region-wide
Wave Gages	Discovery Map	NOAA	April 2012	Region-wide

* Date of Data Release

3.1 DATA THAT CAN BE USED FOR FUTURE COASTAL FLOOD RISK PRODUCTS

During the Discovery process, the project team created a database of available flood hazard and flood risk assessment data. This database not only provides an inventory of available data, but helps identify gaps in the flood hazard data. State, county, and government geographic information system (GIS) Web sites can provide some of the pertinent data, but local knowledge of flooding and mitigation projects is critical to help accurately determine flood risks and mapping needs. Therefore, local and regional data were also used where available.

3.1.1 Average Annualized Loss Data

The Average Annualized Loss (AAL) data provide a general understanding of the dollar losses associated with a certain frequency of flood event within a county and are used to get a relative comparison of flood risk. They are determined by FEMA’s Multi-Hazard Risk Assessment and Loss Estimation Program, otherwise known as Hazus-MH. The current Hazus-MH analysis is based on approximate flood boundaries and national datasets. The calculation is based on flood elevation estimates using the 10-meter Digital Elevation Model on streams with drainage areas of at least 10 square miles. Additional information about the Hazus-MH process and tool can be found at <http://www.fema.gov/protecting-our-communities/hazus>.

The countywide results for Ottawa and Sandusky Counties were obtained from the report called “FEMA Hazus AAL Usability Analysis” dated April 13, 2011 (FEMA 2011c) and are shown in Table 2. AAL data summarized at the census block level are shown on the Discovery Maps.

Table 2: Hazus AAL Data for Sandusky and Ottawa Counties, OH

FIPS Code	County	Total (in \$ K)	Building (in \$ K)	Content (in \$ K)
39143	Sandusky	5,121	2,167	2,768
39123	Ottawa	47,279	23,236	23,025

Source: FEMA 2011a

FIPS = Federal Information Processing Standards

3.1.2 Bathymetry

Bathymetric data are available from National Oceanic and Atmospheric Administration (NOAA) National Geophysical Data Center (NGDC) hydrographic surveys from 1942, 1948, 1974, and 1976, as well as NOAA Office of Coast Survey nautical charts. The NGDC (2012) data can be found at

<http://www.csc.noaa.gov/topobathy/#> and <http://maps.ngdc.noaa.gov/viewers/bathymetry/>.

The nautical charts (NOAA 2012) can be found at

<http://www.charts.noaa.gov/OnLineViewer/GreatLakesViewerTable.shtml>.

3.1.3 Erosion Data

The Division of Geological Survey and the Office of Coastal Management of the Ohio Department of Natural Resources (ODNR) mapped the Lake Erie coast to identify coastal erosion areas since 1988. In 2010, the latest Coastal Erosion Area Maps were released. The extent of coastal recession between 1990 and 2004 was determined using mathematical calculations, aerial photographs, site visits, and extensive quality and consistency reviews. Coastal recession rates for the next 30 years were estimated based on the current recession rates, assuming no measures are taken to address the causes. Areas projected to erode beyond a certain threshold are designated as coastal erosion areas and are identified on coastal erosion maps.

Coastal erosion maps can be found at the local ODNR offices or viewed online at

<http://www.dnr.state.oh.us/tabid/22499/Default.aspx> (ODNR 2010).

A Coastal Erosion Area Permit is required to build within a coastal erosion area if (1) the property is immediately adjacent to Lake Erie, and (2) the owner wishes to build a new structure or add 500 or more square feet (as measured at ground level) to an existing structure that is within a coastal erosion area. This applies to residential, commercial, industrial, institutional, and agricultural buildings and septic systems. The permit process ensures that construction in areas susceptible to coastal erosion includes provisions to protect coastal bluffs and control erosion rates.

3.1.4 Federal Land

Federal lands data were obtained from the National Atlas Web site

(<http://www.nationalatlas.gov/mld/fedlanp.html>) (National Atlas of the United States 2006). The map layer shows lands owned or administered by the Federal Government, including the Bureau of Land Management, the Bureau of Reclamation, the U.S. Department of Agriculture Forest

Service, the Department of Defense, the U.S. Fish and Wildlife Service, the National Park Service, the Tennessee Valley Authority, and other agencies. Only areas of 640 acres or more are included.

The Federal land in Ottawa County is the Ottawa National Wildlife Refuge. Together with Cedar Point and West Sister Island refuges in Lucas County, it protects approximately 9,000 acres of habitat and some of the last remnants of the "Great Black Swamp" in the heart of the Lake Erie marshes.

There are no Federal lands in Sandusky County.

3.1.5 Jurisdictional Boundaries

Jurisdictional boundaries were obtained from the Ottawa County and Incorporated Areas Preliminary FIRM database dated November 10, 2010 (FEMA 2010) and from the Sandusky County and Incorporated Areas FIRM database dated April 18, 2011 (FEMA 2011b).

3.1.6 Publicly Owned Land

There are several State-owned lands along the shoreline of Ottawa County, including South Bass Island State Park, Dempsey State Park, Catawba Island State Park, East Harbor State Park, and Crane Creek State Park.

Public shoreline access points, beaches, parks, etc., along Lake Erie can be found at Ohio’s Lake Erie Public Access Guidebook Web site (<http://www.ohiodnr.com/tabid/21033/Default.aspx>).

3.1.7 Shoreline Information

The shoreline along Ottawa County (including Sandusky Bay, Sugar Island, Middle Bass Island, South Bass Island, and North Bass Island) is approximately 118.1 miles and the shoreline is 13.4 miles along Sandusky County.

The shoreline classification information was obtained from USACE Detroit District (USACE 2012). It summarizes the shoreline types, lands use, shoreline coverage, and vegetation types along the shoreline, as shown in Tables 3 through 6.

Table 3: Summary of Shoreline Types

County	Total Shoreline (miles)	Shoreline Type				
		Artificial Shoreline (miles)	Boulders, Bedrock (miles)	Cohesive Clays and Silts (miles)	Sand (miles)	Shingles, Pebbles, Cobbles (miles)
Ottawa	118.1	100.7	5.6	-	3.7	8.1
Sandusky	13.4	13.4	-	-	-	-

Source: USACE 2012, Lake Erie Shoreline Classification

Table 4: Summary of Shoreline by Land Uses

Shoreline by Land Use								
County	Total Shoreline (miles)	Commercial/Industrial (miles)	Farm (miles)	Forest (miles)	High Density Residential (miles)	Moderate Density Residential (miles)	Low Density Residential (miles)	Park (miles)
Ottawa	118.1	8.8	3.3	3.2	9.3	64.3	4.7	24.6
Sandusky	13.4	-	-	-	-	1.1	-	12.3

Source: USACE 2012, Lake Erie Shoreline Classification

Table 5: Summary of Shoreline Coverage

Shoreline by Coverage								
County	Total Shoreline (miles)	Bluff (2'-10') (miles)	Coastal Wetland (miles)	Dune (2'-10') (miles)	Flat Coast (miles)	High Bluff (>10') (miles)	High Dune (>10') (miles)	Other (miles)
Ottawa	118.1	3.7	16.5	-	96.1	1.2	-	0.6
Sandusky	13.4	-	12.3	-	1.1	-	-	-

Source: USACE 2012, Lake Erie Shoreline Classification

Table 6: Summary of Shoreline Vegetation Types

Shoreline by Vegetation Type								
County	Total Shoreline (miles)	High-Density Shrubs or Trees (miles)	Moderate-Density Shrubs or Trees (miles)	Low-Density Shrubs or Trees (miles)	Manicured Lawn (miles)	None (miles)	Unmaintained Non-Woody Vegetation (miles)	Other (miles)
Ottawa	118.1	23.6	25.6	4.3	53.1	3.7	7.8	-
Sandusky	13.4	-	-	-	1.7	-	11.7	-

Source: USACE 2012, Lake Erie Shoreline Classification

3.1.8 Stream Lines/Hydrographs

Stream lines were obtained from the Ottawa County and Incorporated Areas Preliminary FIRM database dated November 10, 2010 (FEMA 2010) and from the Sandusky County and Incorporated Areas FIRM database dated April 18, 2011 (FEMA 2011b).

3.1.9 Topography

As part of the Great Lakes Coastal Flood Study, Light Detection and Ranging data were collected by the USACE to develop topographic and bathymetric data along the Lake Erie shoreline.

The topographic data are expected to become available during the spring of 2013 for the Lake Erie study area. The new topographic data may be used for the transect-based coastal flood

hazard analysis as well as the mapping of the coastal flood risks. Existing high-resolution topographic data are currently available from the NOAA Coastal Service Center at <http://csc.noaa.gov>.

3.1.10 Transportation

Transportation data were obtained from the Ottawa County and Incorporated Areas Preliminary FIRM database dated November 10, 2010 (FEMA 2010) and from the Sandusky County and Incorporated Areas FIRM database dated April 18, 2011 (FEMA 2011b).

3.1.11 Watershed Boundaries

The Watershed Boundary Dataset Hydrologic Unit Code 8 (HUC8) boundaries were obtained from the U.S. Department of Agriculture Natural Resources Conservation Service GeoSpatial Data Gateway Web site (<http://datagateway.nrcs.usda.gov/>).

Ottawa County contains portions of three HUC8 watersheds: Lake Erie (04120200), Cedar-Portage (04100010), and Sandusky (04100011).

Sandusky County contains portions of two HUC8 watersheds: Cedar-Portage (04100010) and Sandusky (04100011).

3.2 OTHER DATA AND INFORMATION

Ottawa County is a sparsely developed area covering 253 square miles north and west of Sandusky Bay along the shore of Lake Erie and includes several small islands in the lake. The county is bounded on the north by Lucas County, on the west by Wood County, on the south by Sandusky County, and on the south and east by Erie County (Sandusky Bay) (see Discovery Maps in Attachment C). Several small unincorporated villages are located at highway intersections and along the shoreline on the mainland and on the islands (FEMA 2010).

Two distinct geological regions are present in the county, both formed during the Ice Age. The land west of Port Clinton is generally flat, rising gently to the southwest. Rivers and streams have cut through surface layers of mud and clay. The two major streams in the county, the Toussaint and Portage Rivers, become wide and very slow moving as they approach Lake Erie. Humans have altered the natural drainage system by adding drain fields and residential areas. The mean elevation of this area is approximately 30 feet above mean lake level (FEMA 2010).

The eastern portion of the county, including the lake islands, is composed of hard rock knobs which resisted glacial flows. These knobs are generally sharp bluffs rising approximately 20 to 30 feet above lake level along the northern shore and tapering down to the south. The rock is largely limestone with some areas of dolomite and sandstone. Natural drainage is over land with no stream beds apparent (FEMA 2010).

The climate is typical of the northern mid-continent but is modified by the proximity of Lake Erie. Typical temperatures in the county in the summer range from 64 degrees Fahrenheit (°F) to 84 °F (recorded in July), and from 19 °F to 32 °F in winter (recorded in January). The average annual rainfall is 33.7 inches. Average annual snowfall is 25.9 inches measured in the Ottawa National Wildlife Refuge (FEMA 2010).

Sandusky County is located in north-central Ohio. It is bordered on the north by Sandusky Bay, off Lake Erie, and Ottawa County, to the east by Erie County, to the south by Seneca County, and to the west by Wood County (see Discovery Maps in Attachment C)..

During the War of 1812, Fort Stephenson, now the City of Fremont, was successfully defended against the British and Indians, and in 1820, Sandusky (meaning “cold water”) County was established. It has remained primarily agricultural, as its soil is fertile and easily cultivated. At the time of the previously effective FIS, only 8.7 percent of the 266,240 acres in the county had been developed. Some of the undeveloped area is wooded or wetland, the wooded areas being primarily ash swamp forest (FEMA 2011b).

The climate of Sandusky County is classified as continental. Such a climate is marked by sizable annual and diurnal ranges in temperature. At the time of the previously effective FIS, the average monthly temperature in Fremont ranged from a high of 73.7 °F in July to a low of 26.0 °F in January. The average annual precipitation in the City of Fremont is 34.28 inches, ranging from an average monthly high of 4.10 inches in June to a low of 1.99 inches in February. The Sandusky County area receives an average annual rainfall of approximately 34.67 inches and an average annual snowfall of approximately 32.8 inches (FEMA 2011b).

The soils of Sandusky County were developed from glacial till and glacial lake deposits. The basic topography of the area ranges from flat or depressed areas to gently sloping, and the soils are primarily poorly drained (FEMA 2011b).

3.2.1 Coastal Barrier Resources System

Coastal barriers are unique land forms that protect distinct aquatic habitats and serve as the mainland’s first line of defense against damage from coastal storms and erosion. The Coastal Barrier Resources System (CBRS) defines a coastal barrier as a landform composed of unconsolidated shifting sand or other sedimentary material that is generally long and narrow and entirely or almost entirely surrounded by water. They are sufficiently above normal tides so that they usually have dunes and terrestrial vegetation.

The CBRS boundaries were downloaded from U.S. Fish and Wildlife Service Web site (http://www.fws.gov/CBRA/Maps/Data_Disclaimer_Shapefiles.html).

Ottawa County has CBRS in the northern Township of Erie, North Bass Island, and Middle Bass Island.

Sandusky County has no CBRS.

The CBRS layer is shown on the Discovery Maps in Attachment C.

3.2.2 Coastal Zone Protection Structures

The USACE maintains a large infrastructure of over 900 coastal structures in the United States. The coastal structures protect harbors and shore-based infrastructure, provide beach and shoreline stability control, provide flood protection, and protect coastal communities, roadways, and bridges. Coastal structures include seawalls, bulkheads, revetments, dikes and levees, breakwaters, groins, sills/perched beaches, and jetties and piers.

The coastal structure data were extracted from the Enterprise Coastal Inventory Database from the Engineer Research and Development Center and was provided through USACE Buffalo District in July 2012.

The USACE coastal structures in Ottawa County are listed below and shown in the Discovery Map. There are no USACE coastal structures listed in Sandusky County.

Ottawa County

- Port Clinton Harbor East Jetty, OH
- Port Clinton Harbor West Jetty, OH
- Sandusky Harbor Jetty, OH
- West Harbor North Breakwater, OH
- West Harbor South Breakwater, OH

During a review of the USACE oblique imagery, an additional 750 coastal structures along the Lake Erie U.S. coastline were identified. Manmade coastal structures visible from a map scale of 1:1,500 to 1:3,000 were marked and inventoried. The coastal structures for Ottawa and Sandusky Counties are shown on the Discovery Maps.

3.2.3 Community Assistance Visit

Statewide Community Assistance Visits (CAVs) are part of the evaluation and review process FEMA and local officials use to ensure that each community adequately enforces local floodplain management regulations to remain in compliance with NFIP requirements. Generally, a CAV consists of a tour of the floodplain, an inspection of community permit files, and meetings with local appointed and elected officials. During a CAV, observations and investigations focus on identifying issues in various areas, such as community's floodplain management regulations (ordinance), community administration and enforcement procedures, engineering or other issues with the FIRMs, and other problems in the community's floodplain management.

Any administrative problems or potential violations identified during a CAV are documented in the CAV findings report. The community is notified and given the opportunity to correct those administrative procedures and remedy the violations to the maximum extent possible within established deadlines. If a CAV is closed, then the issues brought up in the CAV have been adequately addressed by the community.

The summary reports of CAV findings were extracted from FEMA Community Information System (<https://portal.fema.gov/famsVuWeb/home>) on October 2, 2012.

The history of CAV activity in Sandusky and Ottawa Counties is summarized in Table 7. The State has conducted eight CAVs in six coastal communities in Ottawa County, and two CAVs in Sandusky County (Unincorporated Areas).

There are no open CAVs in Ottawa and Sandusky Counties. All of the CAVs shown in Table 7 have been addressed and the CAVs have been closed.

Table 7: Summary of CAV Findings in Ottawa and Sandusky Counties, OH

County	CID	Community	CAV Date	Ordinance	Enforcement	Engineering	Other Problems	Biennial	Program Problems	violations	Remedial Actions	CAV closed*	Agency
Ottawa, OH	390432	Ottawa County (Unincorporated Areas)	6/22/1998	Serious	Serious	None	None	N	N	Y	N	10/4/2006	State
			6/4/2002	None	Minor	None	None	Y	N	Y	N	10/4/2006	State
			6/6/2006	Minor	Serious	None	Serious	N	Y	Y	N	10/20/2006	State
	390748	Marblehead, Village of	8/9/1993	Minor	Serious	Minor	Minor	N	N	Y	N	8/23/1993	State
	390433	Oak Harbor, Village of	5/29/1996	None	Minor	None	None	N	N	Y	Y	10/4/2006	State
	390434	Port Clinton, City of	5/2/1996	Serious	Serious	None	None	Y	N	Y	-	10/5/2006	State
390600	Put-In-Bay, Village of	6/14/1994	Serious	Serious	None	Serious	Y	Y	Y	N	9/2/1994	State	
Sandusky, OH	390486	Sandusky County (Unincorporated Areas)	3/15/1993	Serious	Minor	None	None	N	Y	N	-	9/24/1993	State
			5/28/2009	Serious	Serious	None	None	N	N	Y	Y	8/4/2009	State

CID = Community Identification Number

CAV = Community Assistance Visit

* The issues brought up during a CAV have been adequately addressed before it is officially closed.

3.2.4 Community Rating System

The Community Rating System (CRS) is a voluntary incentive program to provide flood insurance premium discounts to NFIP-participating communities that take extra measures to manage floodplains above the minimum requirements. A point system is used to determine a CRS rating. The more measures a community takes to minimize or eliminate exposure to floods, the more CRS points are awarded, and the higher the discount on flood insurance premiums.

The list of CRS communities is available on FEMA’s Web site at <http://www.fema.gov/library/viewRecord.do?id=3629> (FEMA 2011a).

As shown in Table 8, only Ottawa County (Unincorporated Areas) participates in the CRS program. The rest of the communities in Sandusky and Ottawa Counties don’t participate in the CRS program.

Table 8: CRS Ratings for Ottawa and Sandusky Counties, OH

	CID	CRS Entry Date	Current Class	% Discount for SFHA	% Discount for Non-SFHA
Ottawa County (Unincorporated Areas)	390432	10/1/1992	9	5	5

CID = Community Identification Number
 CRS = Community Rating System
 SFHA = Special Flood Hazard Area

3.2.5 Comprehensive Plans

A comprehensive plan is a document that provides the framework and policy direction for land use decisions. Comprehensive plans usually include chapters detailing policy direction affecting land use, transportation, housing capital facilities, utilities, coastal and rural areas.

Comprehensive plans identify where and how growth needs will be met.

Table 9 summarizes the status of the comprehensive plans in Ottawa and Sandusky Counties.

Table 9: Summary of Comprehensive Plans for Ottawa and Sandusky Counties, OH

Participating Jurisdiction	Comprehensive Plan Status	Web site
Sandusky County	2003	http://www.sanduskycountyedc.net/index.php?page=sc-comprehensive-plan

Ottawa County: A Comprehensive Plan could not be found for Ottawa County, or any of the coastally influenced communities in Ottawa County.

Sandusky County: The Comprehensive Plan for Sandusky County has established parameters for floodplain management activities within the unincorporated areas of Sandusky County. It limits and mitigates development within flood hazard areas, promotes additional site planning to conserve natural resources, expands the floodplain program to minimize flood hazards, and continues to inventory county’s natural resources.

The Sandusky County Comprehensive Plan anticipates a continuation of the existing pattern of increased rural residential development, which increases pressure to develop within identified 100-year floodplains. The county has adopted floodplain regulations that limit this development, and all NFIP-participating communities within the county have similar requirements. Development within the floodplain is expected to remain minimal.

In addition, the plan encourages the continual preservation of Sandusky River Watershed and Coastal Zone. The goals of watershed-level planning are to maintain long-term ecosystem integrity, to protect Sandusky County's culturally important areas, and to protect recreational and scenic values. These goals, guided through the assistance of the Sandusky River Watershed Coalition, are achieved by establishing specific reserves that protect the County's:

- Floodplain resources
- Coastal Zone (as previously delineated)
- Sensitive soils and unstable terrain
- Endangered plant and animal species
- Cultural values
- Scenic and recreational values
- Linkages among different watershed-level planning areas

It also addresses the management of wetlands, zoning and land use, agricultural resources, infrastructure, transportation, and other services that may be affected by flooding.

The County's Flood Damage Prevention Regulations incorporate specific requirements relating to construction and other types of development within determined floodplain areas. These rules are in compliance with NFIP regulation.

3.2.6 Coordinated Needs Management Strategy and NFIP Mapping Needs

FEMA's Coordinated Needs Management Strategy (CNMS) was initiated through FEMA's Risk MAP program in 2009. The CNMS is a FEMA initiative to update the way FEMA organizes, stores, and analyzes flood hazard mapping needs information for communities. The CNMS is only for riverine studies at this time. There are three classifications within the CNMS: "Valid," "Unverified," and "Unknown." New and updated studies (those with new hydrologic and hydraulic models) performed during the Map Modernization program were automatically determined to be "Valid," and the remaining studies went through a 17-element validation process with 7 critical and 10 secondary elements. A stream study has to pass all of the critical elements and at least seven secondary elements to be classified as "Valid." Studies that have a strong indication of change that may impact the delineation of the flood hazard or flood elevation (but warrant further analysis to validate the change) are classified as "Unverified." Streams with a status of "Unknown" are those that have a study underway, will be evaluated in the future, or do not have sufficient information to determine whether they are "Valid" or "Unverified" (FEMA 2012b). Currently, all Ohio counties have undergone the CNMS classification process.

Table 10 summarizes the draft results of the validation analysis obtained from CNMS in July 2012.

Table 10: CNMS Status for Ottawa and Sandusky Counties, OH

County	FIPS	Stream Mileage			Total
		Valid	Unknown	Unverified	
Ottawa	39123	118.6	N/A	38.0	156.6
Sandusky	39143	331.6	N/A	18.5	350.1

FIPS = Federal Information Processing Standards

3.2.7 Critical Facilities

Ottawa County identified 74 critical facilities in the county. The addresses of these facilities were found in the Ottawa County All-Hazards Mitigation Plan (Ottawa County 2004). There were four critical facilities located within the 100-year floodplain area, but no critical facilities in coastal erosion areas. Table 11 lists the critical facilities in Ottawa County.

Table 11: Summary of Critical Facilities in Ottawa County, OH

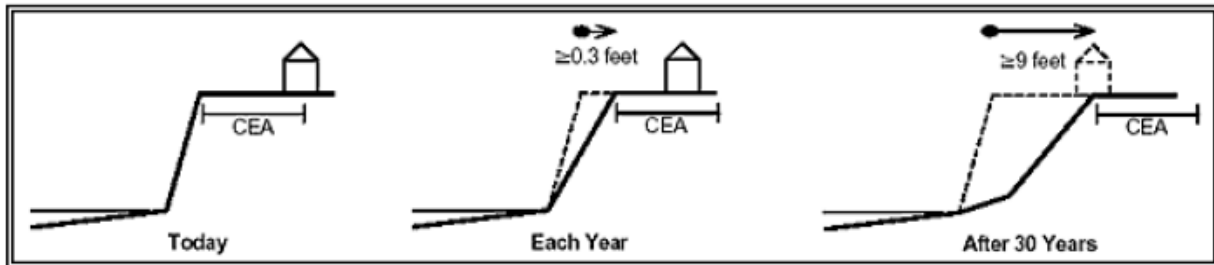
Facility Type	Number	Within 100-year Floodplain
Fire Stations/EMS Stations	17	N/A
Military Reservation Facility	1	N/A
Hospitals/Nursing Homes	4	N/A
Airport	4	1
Industrial Facilities	6	N/A
Local Utilities	12	3
Major Bridges	1	N/A
Coastal Guard Station Facility	1	N/A
Schools	24	N/A
Nuclear Power Plant	1	N/A
Emergency Management Facility	1	N/A
Handicapped Facilities	2	N/A

In addition, two facilities, Browning Ferris Industries of Ohio Inc. Landfill and Davis-Besse Nuclear Power Plant, were identified as manmade hazards and could potentially cause significant damage to the County (Ottawa County 2004). The location of the nuclear power plant is shown on the Discovery Map.

In Sandusky County, the critical facilities, including hospitals, schools, fire departments, law enforcement offices, and nursing homes are shown in Appendix C of the Sandusky County Hazard Mitigation Plan (Sandusky County Mitigation Committee 2009).

3.2.8 Critically Eroded Beaches and Beach Nourishment/Dune Replacement Projects

Coastal Erosion Area Maps are discussed in Section 3.1.3 of this report. Figure 2 illustrates the effects of coastal erosion over a 30-year period.



*Source: Erie County Natural Hazards Mitigation Plan, 2005

Figure 2: Effects of Coastal Erosion

General erosion rates for Sandusky Bay (including shores in Erie, Ottawa, and Sandusky Counties) are provided in Table 12. The long-term recession rates cover the years 1877 to 1973; the short-term rates represent data from 1973 to 1990 (ODNR 2011).

Table 12: Lake Erie Erosion Statistics: Ottawa County and Sandusky Bay, OH

County	Long-Term Distance (feet)	Long-Term Rate (feet/year)	Short-Term Distance (feet)	Short-Term Rate (feet/year)
Ottawa	208	2.0	21	1.2
Sandusky Bay (Erie, Ottawa, Sandusky)	241	2.8	32	1.8

More detailed coastal erosion statistics can be found in the Ottawa County All-Natural Hazard Mitigation Plan (2004). The report indicated that there were 367 parcels of land in the coastal erosion area: 190 on the mainland and 177 on Put-in-Bay Islands. These parcels included about 70 acres of land in the coastal erosion areas. There were 130 structures within these parcels: 69 of them on Put-in-Bay Island and 61 on the mainland. However, only 27 structures were actually in the coastal erosion setback area (16 in Township of Carroll [unincorporated area] and 11 in Put-in-Bay). These numbers might change because of the updated Coastal Erosion Area Maps.

To address the coastal erosion issue, ODNR began the preliminary stages of erosion management plan development in the late 1990s. More recently, ODNR began development of the formal Lake Erie Shore Erosion Management Plan (LESEMP) for local communities and individual property owners help manage coastal erosion. The recommendations contained within will serve as best practices for the management of erosion along Ohio’s coast. LESEMP is a non-regulatory initiative and will not be used for implementation or enforcement of regulatory measures.

LESEMP is still under development, with a few chapters completed. It is available at:

http://www.ohiodnr.com/Coastal_Main_Menu/HelpforLandowners/ProgramsforResourceImprovement/LakeErieShoreErosionManagementPlan/LESEMP_Ch1_Introduction/tabid/23308/Default

[.aspx](#). Section B-18: Mitigation Plans Status and Mitigation Projects contain some erosion-related projects.

3.2.9 Dams

The National Inventory of Dams (NID) is a congressionally authorized database that documents dams in the United States and its territories. The current NID, published in 2010, includes information on 84,000 dams that are more than 25 feet high, hold more than 50 acre-feet of water, or are considered a significant hazard if they fail. The NID is maintained and published by USACE, in cooperation with the Association of State Dam Safety Officials, the States and territories, and Federal dam-regulating agencies. The database contains information about the dam’s location, size, purpose, type, last inspection, regulatory facts, and other technical data. The information contained in the NID is updated approximately every 2 years.

The NID is available at the USACE Web site <https://nid.usace.army.mil/>.

The NID shows that there are two dams in Sandusky County and two in Ottawa County. One in Sandusky County and two in Ottawa County have Emergency Action Plans. The locations of the dams are shown on the Discovery Maps and summarized in Table 13.

Table 13: Summary of Dams in Ottawa and Sandusky Counties, OH

FIPS	County	No. of Dams within County	Number of Dams with Emergency Action Plans	Numbers of Dams within Project Area
39143	Sandusky	2	1	0
39123	Ottawa	2	2	0

FIPS = Federal Information Processing Standards

The ODNR Dam Safety Program regulates the construction, operation, and maintenance of Ohio’s dams through the use of periodic inspections, permits, and regulations to protect them from damages due to failure. More information is available on the ODNR Dam Safety Web site <http://www.dnr.state.oh.us/water/tabid/3329/Default.aspx>.

3.2.10 Declared Disasters

The FEMA Disaster Declarations Summary is a summarized dataset describing all federally declared disasters. This information begins with the first disaster declaration in 1953 and features all three disaster declaration types: major disaster, emergency, and fire management assistance. The dataset includes declared recovery programs and geographic areas (county not available before 1964).

The list of FEMA’s disaster declarations (FEMA 2012c) is available on FEMA’s Web site at <http://www.fema.gov/data-feeds>.

Table 14 lists the major disaster declarations that have been declared in Ottawa and Sandusky Counties.

Table 14: Declared Disasters in Ottawa and Sandusky Counties, OH

Disaster Number	Declaration Date	Disaster Type	Incident Type	Description
Ottawa County				
266	7/15/1969	DR	Tornado	Tornadoes, Severe Storms, and Flooding
362	11/24/1972	DR	Flood	Severe Storms and Flooding
377	4/27/1973	DR	Flood	Severe Storms and Flooding
436	5/31/1974	DR	Flood	Severe Storms and Flooding
3055	1/26/1978	EM	Snow	Blizzards and Snowstorms
951	8/4/1992	DR	Severe Storm(s)	Severe Storms, Tornadoes, and Flooding
1227	6/30/1998	DR	Severe Storm(s)	Severe Storms, Flooding, and Tornadoes
1444	11/18/2002	DR	Severe Storm(s)	Severe Storms and Tornadoes
1556	9/19/2004	DR	Severe Storm(s)	Severe Storms and Flooding
3346	06/30/2012	EM	Severe Storm(s)	Severe Storms
Sandusky County				
266	7/15/1969	DR	Tornado	Tornadoes, Severe Storms, and Flooding
377	4/27/1973	DR	Flood	Severe Storms and Flooding
436	5/31/1974	DR	Flood	Severe Storms and Flooding
3055	1/26/1978	EM	Snow	Blizzards and Snowstorms
1227	6/30/1998	DR	Severe Storm(s)	Severe Storms, Flooding, and Tornadoes
1444	11/18/2002	DR	Severe Storm(s)	Severe Storms and Tornadoes
1556	9/19/2004	DR	Severe Storm(s)	Severe Storms and Flooding
3198	1/11/2005	EM	Snow	Snow
1651	7/2/2006	DR	Severe Storm(s)	Severe Storms, Tornadoes, Straight-Line Winds, and Flooding
3346	6/30/2012	EM	Severe Storm(s)	Severe Storms

DR = Major Disaster
EM = Emergency

3.2.11 Flood Insurance Policies

A community’s agreement to adopt and enforce floodplain management ordinances, particularly with respect to new construction, is an important element in making flood insurance available to home and business owners. For this Discovery project, data on flood insurance policies were gathered.

Table 15 summarizes the number of insurance policies, their premiums, the numbers and dollar amounts of paid losses, and the numbers of substantial damage for coastal communities in Ottawa and Sandusky Counties. The data are based on CAV Community Summary Reports that were extracted from the FEMA Community Information System (<https://portal.fema.gov/famsVuWeb/home>) on December 21, 2011.

Table 15: Summary of Flood Insurance Policies and Claims in Ottawa and Sandusky Counties, OH

Community	CID	Total Number of Policies	Total Premiums (\$)	Insurance in Force (\$)	Total Number of Closed Paid Losses	\$ of Closed Paid Losses	# of Substantial Damage Closed Paid Losses
Ottawa County							
Ottawa (Unincorporated Areas)	390432	1343	\$800,781	\$208,351,500	909	\$6,037,311.16	4
Marblehead, Village of	390748	6	\$2,025	\$1,510,300	4	\$27,981.88	0
Oak Harbor, Village of	390433	10	\$6,481	\$807,600	47	\$357,557.65	4
Port Clinton, City of	390434	485	\$140,752	\$61,780,200	149	\$917,592.11	1
Put-In-Bay, Village of	390600	21	\$25,997	\$5,501,200	12	\$82,702.78	2
Sandusky County							
Sandusky (Unincorporated Areas)	390486	173	\$110,269	\$24,278,300	53	\$299,293.59	3

CID = Community Identification Number

3.2.12 Gage Data

3.2.12.1 Meteorological Stations

The National Data Buoy Center (NDBC) is a part of the NOAA National Weather Service. The NDBC designs, develops, operates, and maintains a network of data-collecting buoys and coastal stations. NDBC provides hourly observations from a network of about 90 buoys and 60 Coastal Marine Automated Network (C-MAN) stations located nationally to measure wind speed, direction, and gust; atmospheric pressure; and air temperature. Water level is measured at selected stations. The historical and current data are available at the NDBC Web site <http://www.ndbc.noaa.gov/>.

In addition, NOAA’s Great Lakes Environmental Research Laboratory (GLERL) focuses on the Great Lakes. It maintains multiple datasets, including a collection of meteorological data in both the United States and Canada. The datasets can be found online at: <http://www.glerl.noaa.gov/ifyle/data/Station/Station.php?sta=All&year=All>. There are no GLERL stations in Ottawa and Sandusky Counties.

Table 16 shows the meteorological station identification number and location for the gages in the Lake Erie Coastal Flood Study area for Ottawa and Sandusky Counties. The station locations are shown on the Discovery Map.

Table 16: Meteorological Stations in Ottawa and Sandusky Counties, OH

Station ID	Location	Owner	Data	Years of Historical Data
SBIO1	South Bass Island, OH	National Data Buoy Center	Meteorological Observation	1983–Present
MRHO1	Marblehead, OH	National Oceanic and Atmospheric Administration National Ocean Service	Water Level Meteorological Observation	2005–Present

3.2.12.2 Stream Gages

The U.S. Geological Survey (USGS) National Water Information System Web Interface (<http://waterdata.usgs.gov/nwis>) provides real-time data for any given stream gage location. Table 17 shows the gage identification numbers and locations for the gages in Ottawa and Sandusky Counties. USGS stream gage locations are also shown on the Discovery Maps.

Table 17: Stream Gage Stations in Ottawa and Sandusky Counties, OH

County	Gage ID	Begin Date	End Date	Gage Location
Sandusky	4195500*	8/1/28	Current	Portage River at Woodville, OH
	4195600*	10/1/50	9/30/53	Portage River at Railroad Bridge at Woodville, OH
	4197450*	2/1/76	10/6/81	East Branch Wolf Creek near Bettsville, OH
	4197500*	8/21/46	9/30/49	Havens Creek at Havens, OH
	4198000*	10/1/23	Current	Sandusky River near Fremont, OH
Ottawa	4195820 ⁺	10/1/98	Current	Portage River near Elmore, OH
	4195825 ⁺	11/12/87	9/30/92	Lacape Creek near Oak Harbor, OH
	4195830 ⁺	12/17/87	9/30/92	Bayou Ditch near Oak Harbor, OH

*Gage expected to be outside of the storm surge inundation area

⁺Gage affected by tide, but expected to be outside of the storm surge inundation area

3.2.12.3 Water Level Station

NOAA’s Center for Operational Oceanographic Products and Services (CO-OPS) maintains several water level stations in the Lake Erie area. CO-OPS’s primary mission is the collection and dissemination of high-quality and accurate measurements of lake levels for scientific studies.

Table 18 shows the water level gage station ID and location for the gage in Ottawa and Sandusky Counties. The station location is shown on the Discovery Maps.

The station information and water level data are available at the NOAA CO-OPS Web site: http://tidesandcurrents.noaa.gov/station_retrieve.shtml?type=Great Lakes Water Level Data&state=Lake+Erie&id1=841.

Table 18: Water Level Stations in Lake Erie

Station ID	Location	Data	Year of Establishment
9063079 (MRHO1)	Marblehead, OH	Primary Water Level Meteorological Observation	1970

In addition, six gages are located along the Canadian shoreline of Lake Erie (Table 19). They are maintained by the Canadian Department of Fisheries and Oceans (DFO), Marine Environmental Data Service. The data are available at the DFO Web site: <http://www.meds-sdmm.dfo-mpo.gc.ca/isdm-gdsi/twl-mne/index-eng.htm>.

Table 19: Water Level Stations in Lake Erie along Canadian Shoreline

Station ID	Location	Data	Year of Establishment
12005	Bar Point, ON	Primary Water Level	1966
12065	Kingsville, ON	Primary Water Level	1962
12250	Erieau, ON	Primary Water Level	1962
12400	Port Stanley, ON	Primary Water Level	1927
12710	Port Dover, ON	Primary Water Level	1962
12865	Port Colborne, ON	Primary Water Level	1962

Monthly water level data are available for multiple gages dating back to the 1860s, and the USACE Detroit District has monthly Great Lakes water levels and connecting channel outflow records dating back to 1918. The connecting channel outflows include Chicago Diversion, Detroit River, Long Lac Diversion, New York State Barge Canal, Niagara River, Ogoki Diversion, St. Clair River, St. Lawrence River, St. Marys River, and Welland Canal.

The monthly high- and low-water-level data from the years 1918 to 2011 at Lake Erie are available at the USACE Web site:

<http://www.lre.usace.army.mil/greatlakes/hh/greatlakeswaterlevels/>.

The Great Lakes Water Levels Report provides daily mean water levels of Lake Erie for the past 3 months. The data are available at the USACE Web site:

<http://www.lre.usace.army.mil/greatlakes/hh/greatlakeswaterlevels/currentconditions/greatlakeswaterlevels/>.

3.2.12.4 Wave Gage/Buoy Stations

In addition to standard meteorological observation, all buoy stations and some C-MAN stations measure sea surface temperature and wave height and period. Conductivity and water current are measured at selected stations. The historical and current wave gage data are available at the NDBC Web site <http://www.ndbc.noaa.gov/>.

Table 20 shows the wave station identification number and location for the gages in the Lake Erie area. The station locations are shown on the Discovery Map.

Table 20: Wave Stations in Lake Erie

Station ID	Location	Owner	Data	Years of Historical Data
45005	W ERIE 28NM Northwest of Cleveland, OH	National Data Buoy Center	Wave Height Meteorological Observation	1980–Present
45132	Port Stanley	Environment Canada	Wave Height Meteorological Observation	1989–Present
45142	Port Colborne	Environment Canada	Wave Height Meteorological Observation	1994–Present

3.2.13 High Water Marks

No coastal High Water Mark (HWM) data were available from the USGS or USACE before the Discovery Meeting. Communities were asked about coastal HWMs during the Discovery Meeting; however, they did not have any data to provide.

3.2.14 Historical Flooding

Ottawa County has approximately 110 miles of shoreline that includes several marsh areas protected by the State and Federal Governments. Areas adjacent to streams and along Lake Erie are subject to inundation. The higher lake levels would increase the potential of flooding (Ottawa County Mitigation Plan 2004).

Historically, Lake Erie has experienced water level fluctuation up to 8.4 feet. The significant change of water level was due to the orientation of the lake relative to prevailing winds and the basin-like shape of the lake. In addition, the shallowness of the lake prevented the deeper return flows under high wind stress. The higher lake levels generally leads to greater flooding damage. The 1992 and 1998 flooding events are great examples (Ottawa County Mitigation Plan 2004).

The most severe floods of recent record occurred in the fall of 1972 and spring of 1973. The 1972 flood reached a Still Water Level (SWL) of 575.8 feet above the North American Vertical Datum of 1988 (North American Vertical Datum of 1988 [NAVD88]), and is in the range of the 10- to 5-percent-annual-chance flood (10- to 20-year recurrence interval). The 1973 flood reached 576.6 feet (NAVD88) and would be rated as a 5- to 2-percent-annual-chance flood (20- to 50-year recurrence interval). Another storm that clearly demonstrated lake flooding occurred in 1955. The exact SWL and recurrence rating was not established for this storm (FEMA 2010)

Waves produced on Lake Erie during northeast storms compound high water levels produced by these storms and create extensive flooding and storm damage problems along the shoreline of the mainland, lake and bay sides, and low-lying areas of the islands. The high water levels also follow Sandusky Bay, the Portage and Toussaint Rivers, Cedar Creek, and other small streams inland, and cause flooding in interior portions of the county (FEMA 2010).

In the Village of Put-in-Bay, the major portion of the flooding occurs on the isthmus, which connects the two larger portions of South Bass Island. This isthmus is occupied by the Perry Peace Memorial and has historically been flooded repeatedly by the stormy waters of Lake Erie (FEMA 2010).

Table 21 lists the estimated damage from the identified floods in the County (Ottawa County Mitigation Plan 2004). The details of the events can be found in Section 3.2.10, Declared Disasters.

Table 21: Estimated Damage from Identified Flooding Events in Ottawa County, OH

Year	\$ in Losses
1969	1,000,000
1972	615,863
1973	1,417,975
1974	858,824
1992	13,000,000*
1998	55,000,000*

*Includes tornado damage
Source: Ottawa County Mitigation Plan (2004)

In Sandusky County, flooding along the shoreline is mainly the result of strong easterly or northeasterly winds that create an increase in water level at the western end of Lake Erie. The entire shoreline from Sandusky to Toledo flooded on November 17, 1972 and April 9, 1973 (FEMA 2011b).

The countywide mitigation plan for Sandusky County (Sandusky County Mitigation Committee 2009) provides data on historical flooding events. These data were obtained from a variety of sources, including, but not limited to, the National Climatic Data Center, the USGS, FEMA, NOAA, personal interviews, ODNR, and the Hayes Presidential Center. A summary is provided in Table 22.

Table 22: Estimated Damage from Identified Flooding Events in Sandusky County, OH

Date of Occurrence	Location	Description of Losses	\$ in Losses (2009 Values)
March 1913	Countywide (Sandusky River, Ballville Dam)	Severe damage to homes (550), businesses, infrastructure, etc. throughout county. Three deaths.	(1913) \$1.1M (2009) \$24M

Date of Occurrence	Location	Description of Losses	\$ in Losses (2009 Values)
June 1937	Countywide (Sandusky River)	Damage to homes, businesses, some infrastructure, and crops	\$400,000, property \$100,000, crops
January–February 1959	Countywide (Sandusky and Portage Rivers)	Extensive damage to homes, businesses, and infrastructure; 25% of Fremont affected; three deaths	(1959) \$6M, private \$500,000, public (2009) \$34M
March 1963	Countywide (Sandusky River)	Damage to homes, businesses, some infrastructure, and crops	No data found
January 1993	Woodville (Portage River)	Flood caused damage to homes, businesses, and roads	\$500,000
April 1994	Woodville (Portage River)	Flood caused damage to homes, businesses, roadways, and a manufactured home	\$500,000
June 1997	Countywide (Sandusky and Portage Rivers)	Damage to homes, businesses, crops, etc. throughout County	\$170,000, property \$70,000, crops
August 1998	Woodville (Portage River)	Flooded homes, businesses, roads, and a manufactured home park	\$50,000
January 2005	Countywide (Portage and Sandusky Rivers)	Flooded homes and roads	\$1.8M
June 2006	Countywide	Flooded homes, business, and roads	\$1M
March 2008	Countywide (Bellevue Ground water induced)	Flooded homes and roads, York and Townsend Twp.	\$150,000

Source: Sandusky County Pre-Disaster Mitigation Plan (2009)

3.2.15 Land Use

Table 23 lists the latest land use data for Ottawa and Sandusky Counties.

Table 23: Summary of Land Use in Ottawa and Sandusky Counties, OH

	Area (square miles)	Urban	Cropland	Pasture	Forest	Open Water	Wetlands	Bare/Mines
Ottawa	255.1	8.12%	60.62%	10.90%	7.47%	7.01%	5.18%	0.72%
Sandusky	409.2	5.71%	71.64%	10.46%	6.55%	1.45%	3.77%	0.42%

Source: Ohio Department of Development, 2011

Agriculture is the predominant land use type in Ottawa County and it covers approximately 60 percent of the County. The other land use types such as residential, commercial/industrial, and forest are relatively low.

Land use within Sandusky County is primarily agriculture with over 200,000 acres of farmland. The urbanized areas are dispersed throughout the county, most generally within the most populated areas such as the Cities of Fremont, Clyde, and Bellevue.

3.2.16 Levees

The Midterm Levee Inventory (MLI) project compiled a database of structures that were designed to provide at least the minimum level of protection from the base flood level (1-percent-annual-chance). The latest MLI Status Report was published in November 2011 by FEMA. The report stated that 23 of 88 levees in Ohio counties have been inventoried. PAL stands for Provisionally Accredited Levees in Table 24.

The MLI Levee database shows two levee segments within the project area in Ottawa County (Table 24). No levees in Sandusky County are within the project area. The levee locations are shown on the Discovery Maps.

Table 24: Summary of Levees in Ottawa and Sandusky Counties, OH

Segment ID	Length (miles)	Name	Owner	Flood Source	FIRM Protection	Segment Certification	MLI Potential Hazard Classification	Design Frequency	FEMA Accreditation Date	Was a PAL?
Ottawa County										
1504001706	146.19	Ottawa County Dikes	-	Lake Erie	No	Not Certified	Zones AE and A1-A30	-	-	N/A
1504001707	50.16	Ottawa County Dikes	-	Lake Erie	No	Not Certified	Zones AE and A1-A30	-	-	N/A

FIRM = Flood Insurance Rate Map
 MLI = Midterm Levee Inventory
 PAL = Provisionally Accredited Levee

3.2.17 Letters of Map Change

A Letter of Map Change (LOMC) is a letter that reflects an official revision to an effective NFIP map. LOMCs are issued in place of the physical revision and republication of the effective FIRM. LOMCs include completed cases of Letters of Map Amendment (LOMAs) and Letters of Map Revision (LOMRs), including LOMRs based on fill (LOMR-Fs), and conditional LOMRs. The lists of LOMC cases were obtained from FEMA Mapping Information Platform Web site (<https://hazards.fema.gov/femaportal/wps/portal>) in April 2012.

LOMCs in Sandusky and Ottawa Counties were identified and Table 25 lists the number of LOMCs in each County. No Conditional LOMAs or Conditional LOMR-Fs were included. The LOMCs are shown on the Discovery Maps. Clusters of LOMCs indicate a need for updated maps.

Table 25: Summary of LOMC Cases in Ottawa and Sandusky Counties, OH

County	Number of Letters of Map Amendment	Number of Letters of Map Revision	Number of Letters of Map Amendment within Project Area
Ottawa County	310	0	119
Sandusky County	82	1	10

3.2.18 Mitigation Plan Status and Mitigation Projects

A local hazard mitigation plan is a long-term strategic/guidance document used by an entity to reduce future risk to life, property and the economy in a community. A hazard mitigation plan has the following elements:

- A public participation process for bringing together diverse stakeholders in the jurisdiction(s) to provide an array of input into the plan
- A risk assessment to identify the hazards, determine the people and property subject to those hazards, and estimate vulnerability
- A mitigation strategy that contains goals, objectives and an action plan to implement priority mitigation actions that reduce risk
- A maintenance process to ensure the plan is reviewed and updated
- An adoption requirement to ensure the support from participating jurisdictions

Local mitigation plans are required to be updated every 5 years to maintain eligibility for FEMA Hazard Mitigation Assistance grant programs.

The status of current hazard mitigation plans is shown in Table 26. The data were obtained from FEMA’s Plan Approval Status Report based on Regional reports for the end of May 2012 (FEMA 2012d) as well as Ohio Emergency Management Agency Mitigation Planning Web site (<http://ohiosharp.ema.state.oh.us/ohiosharp/Planning.aspx#lhmp>).

Table 26: Status of Hazard Mitigation Plans

Participating Jurisdiction	Approval Date	Expiration Date	Second Approval Date	Link
Ottawa	02/13/2006	02/13/2011	N/A	http://ohiosharpp.ema.state.oh.us/ohiosharpp/Planning.aspx#lhmp
Sandusky	02/18/2012	001/25/2015	N/A	http://ohiosharpp.ema.state.oh.us/ohiosharpp/Planning.aspx#lhmp

Ottawa County All-Natural Hazard Mitigation Plan (2004) was adopted by the Villages of Clay Center, Elmore, Genoa, Marblehead, Oak Harbor, Put-in-Bay, Rocky Ridge, and City of Port Clinton (Kasich, J.R., et al., 2011). However, it indicates that the mitigation plan for Ottawa County has expired in Plan Approval Status Report dated May 2012.

Sandusky County Mitigation Committee (2009) updated the County Mitigation plan in 2012. The original Mitigation Plan was adopted in 2004.

3.2.18.1 Hazard Mitigation Grant Program

Hazard mitigation initiatives are intended to actively reduce a community’s vulnerability to hazards and are developed to accurately reflect a community’s need. A variety of hazard mitigation projects has been submitted to FEMA’s Hazard Mitigation Grant Program. A list of completed projects was provided by FEMA in August 2012, and is summarized in Table 27. There are four projects in Ottawa County and none in Sandusky County. The locations of the mitigated properties are shown on the Discovery Maps.

Table 27: Hazard Mitigation Grant Projects

Jurisdiction	Project Description
City of Port Clinton	Physically elevate 10 homes to or above the 100-year base flood elevation
City of Port Clinton	Elevate six structures on Lake Erie
City of Port Clinton	Elevate nine single-family structures
City of Port Clinton	Acquire and demolish up to 10 structures near the Ohio River in accordance with the Hazard Mitigation Grant Program guidance

3.2.18.2 Public Assistance Projects

A list of Public Assistance-funded projects is available at the FEMA data feeds Web site: <http://www.fema.gov/data-feeds>.

There are no Public Assistance projects for Ottawa County.

In Sandusky County, there were 26 Public Assistance projects with \$114,510 of Federal share obligations for the snow event in January 2005.

3.2.18.3 Ohio Coastal Management Assistance Grants

To preserve, protect, and enhance Ohio's Lake Erie coastal resources, Ohio Coastal Management Program (OCMP) has provided grants help since 1998. More than \$3.5 million has been awarded since then to local communities through OCMP from NOAA. The grants are awarded on a competitive basis, with applicants providing a minimum of 50 percent of the project costs. This is a reimbursement grant program whereby the project sponsor is expected to make the initial outlays for the project and then request reimbursement.

The past grant projects are available at the ODNR Office of Coastal Management Web site (http://ohiodnr.com/coastal/LakeErie/Grants_CMAG/tabid/9337/Default.aspx) and summarized below.

3.2.18.4 Great Lakes Coastal Restoration Grants

Great Lakes Coastal Restoration Grants were part of a one-time \$30 million Congressional appropriation to the Great Lakes States. Ohio's portion of the funds was awarded in 2001 and a portion re-appropriated in 2003.

Seventeen projects were funded with Ohio's portion of the Federal grants. Ohio's funding priorities were protection of critical coastal areas, water quality protection and coastal restoration, and sustainable development initiatives. Selected projects were consistent with OCMP priorities and helped implement the goals of the Lake Erie Protection and Restoration Plan. The recipient's share of total project costs was 20 percent.

The funds were provided by NOAA and administered by the ODNR Office of Coastal Management. Proposals funded under this program were consistent with OCMP.

The grant projects are available at ODNR Office of Coastal Management Web site (http://ohiodnr.com/LakeErie/Grants_GLCRGs/tabid/9344/Default.aspx) and summarized in Table 27.

3.2.18.5 Grants from Coastal and Estuarine Land Conservation Program

Additional funding has been provided through Ohio's Coastal and Estuarine Land Conservation Program (CELCP) which is also administered by the Office of Coastal Management. CELCP submits up to three land acquisition projects annually to NOAA for funding consideration. NOAA reviews all applications, ranks the projects for funding priority, and submits this list to Congress. Congress makes the final determination as to what projects are funded.

Since the CELCP began, Ohio has secured more than \$16.8 million for 18 projects that leveraged more than \$34 million local dollars to acquire and conserve over 3,130 acres.

The past grants are available at ODNR Office of Coastal Management Web site (http://ohiodnr.com/LakeErie/CELCP_Selections/tabid/20009/Default.aspx) and summarized in Table 28.

Ottawa County has received \$464,150 in Ohio Coastal Management Program Grants. This has allowed for projects totaling \$1,354,162.

Sandusky County has received \$257,006 in Ohio Coastal Management Program Grants. This has allowed for projects totaling \$359,425.

Table 28: Mitigation Projects in Ottawa and Sandusky Counties, OH (through Ohio Coastal Management Program Grants)

Award Year	Grantee	Project Title	Grant Type	Grant Amount	Total Project Cost
2010	East Harbor State Park	East Harbor Region Naturalist Funding Project	CMAG	\$11,733	\$28,408
2009	Put-in-Bay Township Park District	Middles Bass Island East Point Preserve (formally known as: Lake Erie's Middle Bass Island Wildlife Area)	CMAG	\$50,000	\$322,062
2008	Danbury Township Board of Trustees	Meadowbrook Marsh Public Access Trail and Boardwalk	CMAG	\$50,000	\$103,000
2001	Danbury Township Trustees	Meadowbrook Acquisition Project	GLCRG	\$154,150	\$308,300
2000	City of Port Clinton	City of Port Clinton Comprehensive Coastal Land Area Master Plan	CMAG	\$33,800	\$67,600
1999	Ottawa County Visitors Bureau	Exhibits for Lake Erie Islands Regional Welcome Center	CMAG	\$70,000	\$395,000
1999	Put-in-Bay Twp. Trustees/Put-in-Bay Twp. Port Authority	Emergency Boat Launch & Ice Ramp Rehabilitation Phase II	CMAG	\$10,000	\$20,000
1998	City of Port Clinton	Waterworks Park Multi-Purpose Trail System	CMAG	\$25,000	\$40,000
1998	Put-In-Bay Township	Put-In-Bay Ice Ramp Rehabilitation	CMAG	\$40,000	\$57,800
1998	Toledo Metropolitan Area Council of Governments	Western Lake Erie Coastal Sanitary Surveys	CMAG	\$40,000	\$58,000
Total Coastal Grants to Ottawa County				\$464,150	\$1,354,162
2005	Sandusky River Watershed Coalition	Watershed Action Plan - Sandusky River - Tiffin	CMAG	\$40,606	\$81,212
2001	Sandusky County Park District	Muddy Creek Corridor Acquisition	GLCRG	\$216,400	\$278,213
Total Coastal Grants To Sandusky County				\$257,006	\$359,425

CMAG = Coastal Management Assistance Grant
 GLCRG = Great Lakes Coastal Restoration Grant

3.2.18.6 Locality Identified Mitigation Projects

Ottawa County identified a list of potential pre-disaster mitigation projects in Mitigation Plan (Ottawa County 2006). Four projects were identified for Ottawa County, one for City of Port Clinton, two for Village of Marblehead, one for Village of Oak Harbor, three for Village of Put-in-Bay, one for Township of Allen, three for Township of Bay, and one for Township of Erie.

Sandusky County also listed specific mitigation activities/proposals that were submitted by individual jurisdictions and approved by the committee (Sandusky County Mitigation Committee 2012). The status of mitigation proposal in the project area that would involve grant funding requests is listed in Table 29.

Table 29: Potential Mitigation Projects Identified by Sandusky County, OH

Proposal Description	Political Subdivision	Projected Cost	Project Status	Completion Date
Install a countywide communications system	Sandusky County	\$535,900	Open	N/A

Source: Sandusky County Pre-Disaster Mitigation Plan, 2012

3.2.19 Oblique Imagery

The USACE collected oblique imagery for the entire Great Lakes coastline in 2012. Oblique imagery is captured at an angle, as compared to the overhead view provided by orthophotos, and allows users a three-dimensional view of landscape, buildings, and other features. The oblique imagery for the entire Great Lakes Area can be viewed at <http://greatlakes.usace.army.mil/> and was also available for viewing during the Discovery Meetings. This dataset may be useful to communities during emergency response and planning as well as for the management of assets, critical facilities and public properties along the Lake Erie shoreline.

3.2.20 Ordinances

County regulations regarding development within known flood hazard areas can range from ordinances with minimum NFIP requirements to strong, pro-active ordinances that not only regulate and protect new and improved development in existing Special Flood Hazard Areas (SFHAs) but seek to mitigate the growth of SFHAs caused by increased runoff from developed areas and the degradation of natural flood control areas, such as wetlands and forests.

Title 44 of the Code of Federal Regulations Sections 60.3(a)–(e) describe the NFIP floodplain ordinance levels and provide the minimum requirements for community participation in the NFIP. The proper ordinance level for each community is determined by the type of flooding that is present within the community, as shown in Table 30.

Table 30: Floodplain Ordinance Levels

Ordinance Level	Description
A	Floodplains have not been identified
B	Floodplains with no base flood elevations (BFEs)
C	Floodplains with BFEs or coastal flooding with no high-hazard areas (Zone V)
D	Floodplains with BFEs and floodways
E	Coastal high-hazard areas identified, but no floodways
D & E	Both floodways and coastal high-hazard areas

Ordinance level information for Ottawa and Sandusky Counties is shown in Table 31.

Table 31: Program Status and Ordinance Level for Ottawa and Sandusky Counties, OH

County	Community	CID	Program Status	Ordinance Level
Ottawa County	Ottawa County (Unincorporated Areas)	390748	Participating	D
	Marblehead, Village of	390748	Participating	D
	Oak Harbor, Village of	390433	Participating	C
	Port Clinton, City of	390434	Participating	D
	Put-In-Bay, Village of	390600	Participating	D
Sandusky County	Sandusky County (Unincorporated Areas)	390486	Participating	D

CID = Community Identification Number

3.2.21 Regulatory Mapping

The effective FIS for Sandusky County and Incorporated Areas (FEMA 2011b) is dated April 18, 2011. Each jurisdiction included in this countywide FIS was compiled from their previously printed FIS reports. The status of coastal influenced jurisdictions is listed in Table 32.

The flood elevation estimates for Lake Erie within Sandusky County were prepared by the USACE, Great Lakes Hydraulics and Hydrology Branch. The report was completed in 1977 (USACE 1977).

FEMA is developing new countywide Flood Hazard Information for Ottawa County. Such information is still at preliminary stage and is not ready for distribution (FEMA 2010). Table 33 lists the effective FIS dates for Ottawa County communities.

Per the Preliminary FIS report dated November 10, 2010 (FEMA 2010), the flood elevation estimates for Lake Erie within Ottawa County were prepared by the USACE, Great Lakes Hydraulics and Hydrology Branch. The report was completed in 1988 (USACE 1988). Lake Erie flooding in Sandusky Bay was studied using the methods outlined in the Shore Protection Manual (USACE 1984).

Table 32: Effective FIS Status of Ottawa and Sandusky Counties, OH

County	Community	CID	Product Types	Initial FIRM	Previous FIS	Effective FIS
Ottawa County	Marblehead, Village of	390748	FIS & FIRM	02/01/1984	N/A	08/01/1983
	Oak Harbor, Village of	390433	FIS & FIRM	04/01/1982	N/A	10/01/1981
	Port Clinton, City of	390434	FIS & FIRM	09/30/1977	N/A	12/4/1986
	Put-In-Bay, Village of	390600	FIS & FIRM	09/30/1977	N/A	09/30/1977
Sandusky County	Sandusky County (Unincorporated Areas)	390486	FIS & FIRM	01/17/1979	July 1978	04/18/2011

CID = Community Identification Number

FIRM = Flood Insurance Rate Map

FIS = Flood Insurance Study

Sources: FEMA, Community ID Search Report, Ohio (FEMA 2012a) and FEMA, FIS Report for Sandusky County (All Jurisdictions), dated April 18, 2011

3.2.22 Repetitive Loss/Severe Repetitive Loss Properties

FEMA’s data suggest that claims for repetitive losses were filed in several communities in Ottawa and Sandusky Counties, as shown in Table 33.

Table 33: Summary of Repetitive Loss Ottawa and Sandusky Counties, OH

County	CID	Community Name	No. of Rep Losses
Ottawa	390433	Oak Harbor, Village of	4
	390432	Ottawa County (Unincorporated Areas)	112
	390434	Port Clinton, City of	11
Sandusky	390486	Sandusky County (Unincorporated Areas)	5

CID = Community Identification Number

3.2.23 Socio-Economic Analysis

Table 34 provides the census population data from 1990, 2000, and 2010 for Ottawa and Sandusky Counties.

Table 34: Summary of Population Data in Ottawa and Sandusky Counties, OH

County	1990 Population	2000 Population	2010 Population
Ottawa	40,029	40,985	41,428
Sandusky	61,963	61,792	60,944

Source: US Census Bureau, 2010

Ottawa County's 2000 total population according to the U.S. Census Bureau (2010) of was 40,029 and 40,985 in 2010. However, the population of the County is expected to decrease the next 20 years, with an expected decrease to 38,520 by 2030. The population was distributed among the twelve townships and eight villages (Ohio Department of Development 2011).

The majority of land in Ottawa County is covered by crops, followed by pasture and urban area.

Employment statistics show that the trade, Transportation and Utilities service represents the largest segment of jobs at over 20 percent, followed by hospitality service, manufacturing, education and health services, and government (Ohio Department of Development 2011).

According to Ottawa County Mitigation Plan (2004), the county experiences seasonal population. The County has over 8,000 seasonal housing units and 16,000+ boat ships in licensed marina and in excess of 9,000 campground sites. The occurrence of a natural hazard during the months that these facilities are in use would impact a much larger population than a natural hazard event during winter time.

Sandusky County is in the northwest region of the State and comprises approximately 400 square miles. It has 21 political subdivisions: three cities, six villages, and 12 townships. Sandusky County has a population over 60,944 (U.S. Census Bureau 2010). The population of the County is expected to decrease the next 20 years, with an expected decrease to 56,420 by 2030 (Ohio Department of Development 2011).

Fremont, the County's most populous city, is the County seat and is located in the middle of the County. There are no specific areas of concentrated populations. The three cities, Fremont, Clyde, and Bellevue are in the middle and eastern sections of the county.

Land use within the County is primarily agricultural with over 200,000 acres of farmland, but centers of commercialization are dispersed throughout the County, most generally within the most populated areas as identified above (Sandusky County Mitigation Committee 2009).

The future population growth in Sandusky County is expected to remain fairly constant. Current and projected tendencies are for populations to increase, mainly in suburban locations (Sandusky County Mitigation Committee 2009).

3.2.24 Transects

Cross-shore transects are used during coastal hazards analysis and mapping to define representative profiles for a shoreline reach to model coastal flood risks inland of the shoreline. The transect layout for coastal hazards analysis and subsequent floodplain delineation is

determined by physical factors such as changes in topography, bathymetry, shoreline orientation, and land cover data, in addition to societal factors such as variations in development and density. These physical and societal factors along with aerial photographs were reviewed to determine the appropriate placement for hazard modeling transects.

Transects were spaced at closer intervals (approximately two transects per shoreline mile) for more populated and varying coastal areas. In areas of low population and uniform coastline, transects were placed approximately 1 to 2 miles apart.

The draft transect layout is shown on the Discovery Maps. There are 73 proposed transects in Ottawa County and 6 in Sandusky County.

3.2.25 Other Resources

The Great Lakes Coastal Resilience Planning Guide Web site (<http://greatlakesresilience.org/>) provides helpful information on coastal topics and digital coastal GIS data inventory.

SECTION FOUR DISCOVERY MEETING

The Discovery Meeting for Ottawa and Sandusky Counties was held on August 1, 2012, in Oak Harbor, OH. Communities affected by coastal flooding in Ottawa and Sandusky Counties were invited to the Discovery meeting and 17 people, including representatives from FEMA, State agencies and communities, attended the meeting. The purpose of this meeting was to facilitate discussion about study needs, mitigation project needs, desired compliance support, and local flood risk awareness efforts. During the Discovery Meeting, fact sheets on the Great Lakes Coastal Flood Study were distributed. These fact sheets can be obtained from the project Web site at <http://www.greatlakescoast.org/tag/fact-sheets/>.

Discovery Maps were displayed at the meeting to stimulate the discussion. Attendees, including all affected communities and selected other stakeholders, were asked to cooperatively identify areas of concern in the Great Lakes Coastal Study area.

Discovery Meeting Minutes and all other meeting materials are included in Attachments C and D.

SECTION FIVE RISK MAP PROJECTS AND NEEDS

5.1 COASTAL STUDIES

Information and data collected as part of the Lake Erie Discovery effort and provided in this report will be used in the upcoming Great Lakes Coastal Flood Study for Lake Erie. A summary of the Great Lakes Coastal Flood Study project can be found at <http://www.greatlakescoast.org/> under the “Great Lakes Coastal Analysis & Mapping” section.

The upcoming study is expected to include the following tasks: creation of bathymetric and topographic data, base map acquisition, coastal flood hazard analysis, and Risk MAP product development.

5.2 MITIGATION PROJECTS

Flood mitigation is any action taken to reduce risk to people or property from flooding and its effects. Mitigation actions reduce flood risk to existing and future structures and their occupants, and are the foundation of most communities’ flood mitigation efforts.

Examples of mitigation actions include:

- Creating or updating Hazard Mitigation Plans
- Adopting standards beyond NFIP minimums for flood loss reduction
- Acquiring or relocating insured structures to reduce claims on the NFIP
- Elevating floodprone structures above the 1-percent-annual-chance flood
- Elevating or dry floodproofing insured non-residential structures
- Drainage projects that protect NFIP insured properties
- Retrofitting existing buildings and facilities
- Vegetative management / soil stabilization

The Hazard Mitigation Plan Status and Mitigation Projects for Ottawa and Sandusky Counties are described in Section 3.2.18.

As this Lake Erie coastal project moves forward, continued discussion regarding FEMA partnerships with local communities will be essential to assist in developing new mitigation actions and moving those actions forward.

5.3 COMPLIANCE

During the Discovery process, compliance issues were identified and discussed. Ottawa and Sandusky Counties have no open CAVs. Open CAVs can be an indicator of unresolved floodplain management issues. The type of floodplain management ordinances that each community has adopted may need to be changed once the Lake Erie Study is complete. As discussed in the Ordinance section of this report, the Village of Oak Harbor in Ottawa County will likely need to update their floodplain management ordinance at the completion of the study because they are the only coastal community without an ordinance at a level D. Once the Lake

Erie coastal study is complete, all communities should re-evaluate their ordinances and update them as required to maintain compliance with local and NFIP regulations.

5.4 COMMUNICATION

Throughout the Discovery process, community representatives and local stakeholders indicated a desire to be kept informed about the results of Discovery, the upcoming coastal flood study, and opportunities for public input throughout the study process. As a result of communication to date, new stakeholders have been identified and added to the master contact database for this study.

Ongoing communication and coordination will continue to be an essential part of the Lake Erie Coastal Flood Study. Throughout Discovery, Federal, State, and local stakeholders were kept informed via email, letters, newsletters, and meetings. The Great Lakes Coastal Flood Study Web site (<http://www.greatlakescoast.org>) is an excellent resource where stakeholders can obtain the most update-to-date information about the status of the Great Lakes Coastal Flood Study, data collection, upcoming meetings, new technical reports, the latest methodologies, fact sheets, and additional information. Social media sites, such as Twitter and Facebook, are also being used for the Great Lakes Coastal Flood Study.

5.5 UNMET NEEDS

During the Discovery Meetings, Lake Erie stakeholders had some concerns about adoption of new coastal floodplain maps and having to update zoning ordinances. There are currently no Zone V areas mapped along the Lake Erie shoreline and it is likely that the new flood study would result in the establishment of V Zones. As a result, communities would need to adopt more restrictive floodplain management ordinances.

At the conclusion of the Lake Erie Coastal Study, communities can examine the results of the study and determine if their existing mitigation projects and floodplain management programs are adequate or if they have needs that have not been met by the new study.

SECTION SIX CLOSE

State and local stakeholders were interested in the Discovery process and in providing local data that may assist in the upcoming Lake Erie Flood Study. Many stakeholders are interested in learning more about the new methodologies being used as part of the Great Lakes Coastal Flood studies, and how their community will be affected by the flood study. The information gathered in this Discovery process will provide invaluable information as the Lake Erie Coastal Flood Study proceeds.

SECTION SEVEN ATTACHMENTS

Attachment A: Communications

Attachment B: Data Collection

Attachment C: Discovery Maps

Attachment D: Discovery Meeting

SECTION EIGHT REFERENCES

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Attachment A: Communications

Attachment A-1: Local Stakeholder Contact Information

Attachment A-2: Discovery Meeting Invitations

Attachment A-3: Information Exchange Session Presentation

Attachment A-1

Local Stakeholder Contact Information

Organization Name	Organization Website	Point of Contact	Title	Address	City, ST Zip	Phone	Email	Group	Category	County/State/Watershed	Community
Alliance for the Great Lakes	http://www.greatlakes.org/contact	Angela Larsen	Coastal Program Manager	17 N. State St., Suite 1390	Chicago, IL 60602	312-939-0838, ext. 233	alarsen@greatlakes.org	Organization	Environmental	Region	All Lake Erie
Alliance for the Great Lakes	http://www.greatlakes.org/contact	Ohio Office Representative		PO Box 552	Chagrin Falls, OH 44022	216-630-8140	ohio@greatlakes.org	Organization	Environmental	Ohio	Ohio
Coastal States Organization	http://www.coastalstates.org	Representative for Lake Erie		Hall of the States, 444 North Capitol Street NW, Suite 322	Washington, D.C. 20001	202-508-3860	cso@coastalstates.org	Organization	Environmental	Region	All Lake Erie
Council of Great Lake Industries	http://www.cgli.org/	Representative for Lake Erie		3600 Green Ct., Suite 710	Ann Arbor, MI 48105	734-663-1944	StraderCo@aol.com	Organization	Development	Region	All Lake Erie
Council of Great Lakes Governors	http://www.cglg.org/contact/index.asp	Zoë Munro	Program Manager	20 North Wacker Drive, Suite 2700	Chicago, IL 60606	312-407-0177	zmunro@cglg.org	Organization	Government	Region	All Lake Erie
Council of Great Lakes Governors	http://www.cglg.org/contact/index.asp	David Naftzger	Executive Director	20 North Wacker Drive, Suite 2700	Chicago, IL 60606	312-407-0177	dnaftzger@cglg.org	Organization	Government	Region	All Lake Erie
Great Lakes Commission	http://www.glc.org	Tim A. Eder	Executive Director	2805 S. Industrial Hwy, Suite 100	Ann Arbor, MI 48104-6791	734-971-9135	teder@glc.org	Organization	Development	Region	All Lake Erie
Great Lakes United	http://www.glc.org	Brent Gibson	Director of Communications	4380 Main Street	Amherst, NY 14226	716-886-0142	bgibson@glu.org	Organization		Region	All Lake Erie
Ohio Lakefront Group	http://www.ohiolakefrontgroup.com/about/ohio-lakefront-group-board-of-directors/	Greg Baepler	Chairman	P.O. Box 2084	Sheffield Lake, OH 44054	440-925-0148	gbaepler@att.net	Organization	Community	Ohio	Ohio
Allen Township Board of Trustees	http://www.allentownship.us/officials.html	Craig Blausey	Chairman	4907 Martin-Williston Road	Martin, Ohio 43445	419-855-9056	craig@allentownship.us	Township	Government	Ottawa	Allen, Township of
Allen Township	http://www.allentownship.us/zoning.html	Nancy Sabin	Zoning Inspector	21030 W. Toledo St., P.O. Box 440	Williston, OH 43468	419-351-1561	nibas@toast.net	Township	Zoning	Ottawa	Allen, Township of
Bay Township	http://www.co.ottawa.oh.us/countyeiners/townshipcontacts.htm	Gerry Perry		4987 W Little Portage E Rd	Port Clinton, OH 43452	419-341-0235	n/a	Township	Government	Ottawa	Bay, Township of
Benton Township Zoning Commission	http://www.bentontownship.org/zoning_officials.html	Dale Kremer	Chairman	13936 W. Toussaint N Rd	Oak Harbor, OH 43449	419-898-2337	n/a	Township	Zoning	Ottawa	Benton, Township of
Benton Township Trustees	http://www.bentontownship.org/trustees_officials.html	James Buhro	President	1114 N. Stange Road	Graytown, Ohio 43432	419-707-2049	n/a	Township	Government	Ottawa	Benton, Township of

Organization Name	Organization Website	Point of Contact	Title	Address	City, ST Zip	Phone	Email	Group	Category	County/State/Watershed	Community
Benton Township	http://www.bentontownship.org/zoning_officials.html	Michael Reif	Zoning Inspector	15181 W. Rock Bottom Dr.	Graytown, OH 43432	419-356-3163	n/a	Township	Zoning	Ottawa	Benton, Township of
Carroll Township	http://carrolltownship.net/govtofficials.php	Donald St.Clair	Trustee	11080 W Toussaint East Rd	Oak Harbor, OH	419-898-4921	dstclair@carrolltownship.net	Township	Government	Ottawa	Carroll, Township of
Carroll Township	http://carrolltownship.net/govtofficials.php	John Verb	Trustee	11080 W Toussaint East Rd	Oak Harbor, OH	419-898-0170	jverb@carrolltownship.net	Township	Government	Ottawa	Carroll, Township of
Carroll Township	http://carrolltownship.net/govtofficials.php	Richard Keiser	Trustee	11080 W Toussaint East Rd	Oak Harbor, OH	419-898-4618	rkeiser@carrolltownship.net	Township	Government	Ottawa	Carroll, Township of
Catawba Island Township	http://catawbaislandtownship.com/	Gary Mortus		4822 E. Cemetery Rd	Port Clinton, OH 43452	419-797-4860	gmortus@catawbaislandtownship.com	Township	Buildings	Ottawa	Catawba Island, Township of
Catawba Island Township	http://catawbaislandtownship.com/	Matt Montowski	Chairman	4822 E. Cemetery Rd	Port Clinton, OH 43452	419-797-3031	mmontowski@catawbaislandtownship.com	Township	Zoning	Ottawa	Catawba Island, Township of
Danbury Township	http://www.danburytownship.com/officials.html	Charles B. Scott	Trustee	5971 E. Von Glahn Rd	Marblehead, OH 43440	419-734-4703	charles@danburytownship.com	Township	Government	Ottawa	Danbury, Township of
Danbury Township	http://www.danburytownship.com/officials.html	Dave Hirt	Trustee	1775 S. Church Road	Marblehead, OH 43440	419-732-2703	dave@danburytownship.com	Township	Government	Ottawa	Danbury, Township of
Danbury Township	http://www.danburytownship.com/officials.html	Dianne Rozak	Trustee	3265 S. Confederate Drive	Marblehead, OH 43440	419-798-4071	dianne@danburytownship.com	Township	Government	Ottawa	Danbury, Township of
Lakeside	http://lakesideohio.com/contact/main/directory	Kevin Sibbring	President & CEO	236 Walnut Ave.	Lakeside, OH 43440	866-952-5374, ext 243	questinfo@lakesideohio.com	Community	Government	Ottawa	Lakeside Private Community
Lakeside Property Owners Association	http://lakesideohio.com/organizations/main/property_owners	Riney Robertson		404 E. Third St	Lakeside, OH 43440	419-798-4588	riney@cros.net	Property Owners	Organization	Ottawa	Lakeside Private Community
Village of Marblehead	http://www.marbleheadvillageohio.com/	Jacqueline Bird	Mayor	513 W. Main Street	Marblehead, OH 43440	419-798-4074	marblehead.ohio@cros.net	Community	Government	Ottawa	Marblehead, Village of
Village of Marblehead	http://www.marbleheadvillageohio.com/	John Starcher	President Pro-Tem	513 W. Main Street	Marblehead, OH 43440	419-798-4074	marblehead.ohio@cros.net	Community	Government	Ottawa	Marblehead, Village of
Village of Oak Harbor	http://oakharbor.oh.us/pages/government.php	Fred Conley	Mayor	425 Church Street	Oak Harbor, OH 43449	419-898-5561	fredc@oakharbor.oh.us	Community	Government	Ottawa	Oak Harbor, Village of
Village of Oak Harbor	http://oakharbor.oh.us/pages/government.php	Robert A. Pauley	Administrator/ Zoning Inspector	146 Church Street	Oak Harbor, OH 43449	419-898-5561	rpauley@oakharbor.oh.us	Community	Zoning	Ottawa	Oak Harbor, Village of

Organization Name	Organization Website	Point of Contact	Title	Address	City, ST Zip	Phone	Email	Group	Category	County/State/Watershed	Community
Ottawa County Emergency Management	http://www.co.ottawa.oh.us/ottawacoema/index.html	Fred Petersen	Director	315 Madison Street	Port Clinton, OH 43452	419-734-6900	fpetersen@co.ottawa.oh.us	County	Emergency Management	Ottawa	Ottawa County
Ottawa County Soil and Water District	http://www.ottawaswcd.com/	Mike Libben	District Program Administrator	240 W. Lake Street	Oak Harbor, Ohio 43449	419-898-1595	mike.libben@ottawaswcd.com	County	Soil & Water District	Ottawa	Ottawa County
Ottawa County Engineer's Office	http://www.co.ottawa.oh.us/countyengineers/index.htm	Mr. Brunkhorst	County Engineer	315 Madison Street, Room 106	Port Clinton, OH 43452	419-734-6777	ottawacoeng@co.ottawa.oh.us	County	Engineering	Ottawa	Ottawa County
Ottawa County Commissioners	http://www.co.ottawa.oh.us/commissioners/commissioners.htm	Steven M. Arndt	President	315 Madison Street, Room 103	Port Clinton, OH 43452	419-734-6710	mstahl@co.ottawa.oh.us	County	Commissioners	Ottawa	Ottawa County
City of Port Clinton	http://portclintonohio.wordpress.com/zoning-department/	Kent Johnson	Zoning Inspector	1868 E. Perry Street	Port Clinton, Ohio 43452	419-734-5522	n/a	Community	Zoning	Ottawa	Port Clinton, City of
City of Port Clinton	http://portclintonohio.wordpress.com/president-of-council/	Linda J. Hartlaub	President of Council	1868 E. Perry Street	Port Clinton, Ohio 43452	419-734-5908	pcpoc@portclinton-oh.gov	Community	Government	Ottawa	Port Clinton, City of
City of Port Clinton	http://portclintonohio.wordpress.com/	Vincent P. Leone	Mayor	1868 E. Perry Street	Port Clinton, Ohio 43452	419-734-5522 Ext 8	pcmayer@portclinton-oh.gov	Community	Government	Ottawa	Port Clinton, City of
Portage Township	http://www.portagetownship.net/	Drew A. Surovjak	Chairman	2501 East State Road	Port Clinton, Ohio 43452	419-341-5445	dsurovjak@roadrunner.com	Township	Government	Ottawa	Portage, Township of
Portage Township	http://www.portagetownship.net/	Mary Gardner	Zoning Inspector	2501 East State Road	Port Clinton, Ohio 43452	419-734-7296	portzone@cros.net	Township	Zoning	Ottawa	Portage, Township of
Put-in-Bay Township Zoning Office	http://www.pibtownship.com/Put-in-Bay/zoning.html	Dennis Naylor	Zoning Inspector	P.O. Box 447	Put-in-Bay, OH 43456	419-341-2728	n/a	Township	Zoning	Ottawa	Put-in-Bay, Township of
Put-in-Bay Township Trustees	http://www.pibtownship.com/Put-in-Bay/electedofficials.html	Matt Miller	President	P.O. Box 127	Put-in-Bay, OH 43456	419-285-2292	n/a	Township	Government	Ottawa	Put-in-Bay, Township of
Village of Put-in-Bay	http://villageofpib.com/	Judith A. Berry	Mayor	435 Catawba Avenue, PO Box 503	Put-in-Bay, OH 43456	419-285-2443	pibmc@cros.net	Community	Government	Ottawa	Put-in-Bay, Village of
Salem Township	http://www.co.ottawa.oh.us/countyengineers/townshipcontacts.htm	Richard Lenke		2086 S. Woodrick Rd.	Oak Harbor, Ohio 43449	419-898-4576	n/a	Township	Government	Ottawa	Salem, Township of
City of Fremont Zoning Department	http://www.43420.org/index.php?page=zoning	Fran Gierhart	Zoning Inspector	323 South Front Street	Fremont, Ohio 43420	419-332-6950	zoning@fremontohio.org	Community	Zoning	Sandusky	Fremont, City of
City of Fremont Mayor's Office	http://www.43420.org/index.php?page=administration	Jim Ellis	Mayor	323 South Front Street	Fremont, Ohio 43420	419-334-5900	jellis@fremontohio.org	Community	Government	Sandusky	Fremont, City of

Organization Name	Organization Website	Point of Contact	Title	Address	City, ST Zip	Phone	Email	Group	Category	County/State/Watershed	Community
City of Fremont City Council	http://www.43420.org/index.php?page=city-staff-directory	Jim Weaver	President	323 South Front Street	Fremont, Ohio 43420	419-334-3787	n/a	Community	Government	Sandusky	Fremont, City of
City of Fremont Engineering Department	http://www.43420.org/	John Kuzma	City Engineer	323 South Front Street	Fremont, Ohio 43420	419-334-8963	engineer@fremontohio.org	Community	Engineering	Sandusky	Fremont, City of
Rice Township Office	http://www.alltheohio.com/Local/Ohio/Fremont/State+Government+-+Executive+Offices/rice-township-office_4377673	Rice Township Representative		1830 County Road 145	Fremont, OH 43420	419-355-1964	n/a	Township	Government	Sandusky	Rice, Township of
Riley Township Town Hall	http://www.ohiodnr.com/Ohio_Coast/RegulatoryHome/ceamaps/tabid/9279/Default.aspx	Riley Township Representative		3109 State Route 412	Fremont, OH 43420	419-334-2468	n/a	Township	Government	Sandusky	Riley, Township of
Riley Township Trustees Co	http://www.alltheohio.com/Local/Ohio/Fremont/State+Government+-+Executive+Offices/riley-township-trustees-co_4377675	Riley Township Trustee		1829 US Highway 6 E	Fremont, OH 43420	419-332-7778	n/a	Township	Government	Sandusky	Riley, Township of
Sandusky County Emergency Management	http://webeoc.ema.state.oh.us/ohiocountyEMADirectorList/countyemalist_web.aspx	Chris Mock	Director	2323 Countryside Drive - Suite B	Fremont, OH 43420	419-334-8933	cmock@bizwoh.rr.com	County	Emergency Management	Sandusky	Sandusky County
Sandusky County Engineer	http://www.sandusky-county.org/Elected%20Officials/County%20Engineers/default.asp	James R. Moyer	County Engineer	2500 West State Street	Fremont, OH 43420	419-334-9731	jmoyer@co.sandusky.oh.us	County	Engineering	Sandusky	Sandusky County
Sandusky County Regional Planning Commission	http://www.manta.com/c/mr4xk0b/sandusky-county-regional-planning-commission	John Randolph Willey	Executive Director	108 South Park Avenue	Fremont, OH 43420	419-334-6227	Willey_John@co.sandusky.oh.us	County	Planning	Sandusky	Sandusky County
Sandusky County Emergency Management	http://www.sandusky-county.org/County%20Services/Emergency%20Management/default.asp	Lisa Heyman	Assistant Director	2323 Countryside Drive - Suite B	Fremont, OH 43420	419-334-6423	scema@bizwoh.rr.com	County	Emergency Management	Sandusky	Sandusky County
Sandusky County Commissioner's Office	http://www.sandusky-county.org/County%20Services/Commissioners/default.asp	Warren Brown	County Administrator	622 Croghan Street	Fremont, OH 43420	419-334-6100	countyadministrator@co.sandusky.oh.us	County	Government	Sandusky	Sandusky County
Sandusky Township Zoning Department	http://www.sanduskytpw.com/board%20members.htm	Bruce Shank	Zoning Inspector	2207 Oak Harbor Road	Fremont, Ohio	419-332-3810	n/a	Township	Zoning	Sandusky	Sandusky, Township of
Sandusky Township Board of Trustees	http://www.sanduskytpw.com/	Marcus Williams	Trustee	2317 Glenn Drive	Fremont, OH 43420	419-334-3101	n/a	Township	Government	Sandusky	Sandusky, Township of

Organization Name	Organization Website	Point of Contact	Title	Address	City, ST Zip	Phone	Email	Group	Category	County/State/Watershed	Community
Townsend Township Town Hall	http://www.ohiodnr.com/Ohio_Coast/RegulatoryHome/ceamaps/tabid/9279/Default.aspx	Townsend Township Representative		County Rd. 294	Vickery, OH 43464	n/a	n/a	Township	Government	Sandusky	Townsend, Township of

Attachment A-2
Discovery Meeting Invitations



FEMA

July 12, 2012

Ms. Nancy Sabin
Zoning Inspector, Allen Township
21030 W. Toledo St., P.O. Box 440
Williston, OH 43468

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Ms. Sabin:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

The goal of Risk MAP is to support actions that make communities safer from flooding. The Risk MAP program wants to achieve continued improvement of flood hazard information for the National Flood Insurance Program (NFIP); to promote increased awareness and understanding of flood risk; to increase community engagement; and to identify and support of actions that local stakeholders can take to reduce natural hazard risks. For additional information on the Risk MAP Program, please visit http://www.fema.gov/plan/prevent/fhm/rm_main.shtm.

The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date:	Wednesday, August 1, 2012
Time:	3:00 pm to 5:00 pm
Location:	Oak Harbor Public Library
Address:	147 W. Main St., Oak Harbor, OH 43449

Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach specialists, and local planners to the meeting. Please RSVP to FEMA's study

Ms. Nancy Sabin
July 12, 2012
Page 2

contractor (RAMPP) Amelia Vincent at (301) 820-3186 or email to LakeErieCoastalFloodStudy@rampp-team.com no later than July 27, 2012.

So that we can better prepare for the upcoming Discovery Meeting, we are asking local communities to participate in an Information Exchange conference call and WebEx. This call will provide an overview of FEMA's Risk MAP program and the Discovery process, and will allow us to review with you our request for the exchange of coastal flood risk and hazard mitigation data, and to learn more about your community's coastal flood hazard risks and needs, in advance of the Discovery Meeting. The partnership and exchange of data between FEMA, the State of Ohio, and your community is vital to the success of identifying flood risks and needs that may impact your citizens.

The Information Exchange conference call is scheduled to occur:

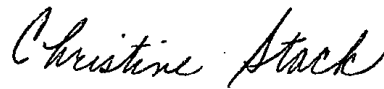
Date:	Tuesday, July 24, 2012
Time:	3:00 pm – 4:00 pm
Link to WebEx:	https://connect15.uc.att.com/urs/meet/?ExEventID=87175315
Call in number:	1-888-369-1427
Access Code:	7175315

If you or another community representative is unable to attend the Information Exchange conference call, we ask that you fill out and return the enclosed data request form by July 27, 2012. This is the same data request form that will be discussed during the conference call. The completed form can be sent to:

Via e-mail:	LakeErieCoastalFloodStudy@rampp-team.com
Or by mail:	Amelia Vincent, c/o RAMPP 12420 Milestone Center Drive, Suite 150 Germantown, MD 20876

We look forward to working with you to reduce the risks associated with coastal flooding and increase your community's resiliency for the long term. To learn more about Discovery, please visit <http://www.fema.gov/library> and search keywords "Discovery brochure" or contact Mike Hanke at (312) 408-5364 or michael.hanke@fema.dhs.gov. We look forward to discussing this with you during the Information Exchange call and/or seeing you at the upcoming Discovery Meeting.

Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Craig Blausey
Chariman, Allen Township Board of Trustees
4907 Martin-Williston Road
Martin, Ohio 43445

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Blausey:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

The goal of Risk MAP is to support actions that make communities safer from flooding. The Risk MAP program wants to achieve continued improvement of flood hazard information for the National Flood Insurance Program (NFIP); to promote increased awareness and understanding of flood risk; to increase community engagement; and to identify and support of actions that local stakeholders can take to reduce natural hazard risks. For additional information on the Risk MAP Program, please visit http://www.fema.gov/plan/prevent/fhm/rm_main.shtm.

The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date:	Wednesday, August 1, 2012
Time:	3:00 pm to 5:00 pm
Location:	Oak Harbor Public Library
Address:	147 W. Main St., Oak Harbor, OH 43449

Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach specialists, and local planners to the meeting. Please RSVP to FEMA's study

Mr. Craig Blausey
July 12, 2012
Page 2

contractor (RAMPP) Amelia Vincent at (301) 820-3186 or email to LakeErieCoastalFloodStudy@rampp-team.com no later than July 27, 2012.

So that we can better prepare for the upcoming Discovery Meeting, we are asking local communities to participate in an Information Exchange conference call and WebEx. This call will provide an overview of FEMA's Risk MAP program and the Discovery process, and will allow us to review with you our request for the exchange of coastal flood risk and hazard mitigation data, and to learn more about your community's coastal flood hazard risks and needs, in advance of the Discovery Meeting. The partnership and exchange of data between FEMA, the State of Ohio, and your community is vital to the success of identifying flood risks and needs that may impact your citizens.

The Information Exchange conference call is scheduled to occur:

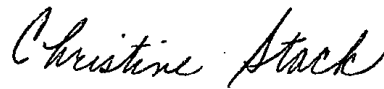
Date:	Tuesday, July 24, 2012
Time:	3:00 pm – 4:00 pm
Link to WebEx:	https://connect15.uc.att.com/urs/meet/?ExEventID=87175315
Call in number:	1-888-369-1427
Access Code:	7175315

If you or another community representative is unable to attend the Information Exchange conference call, we ask that you fill out and return the enclosed data request form by July 27, 2012. This is the same data request form that will be discussed during the conference call. The completed form can be sent to:

Via e-mail:	LakeErieCoastalFloodStudy@rampp-team.com
Or by mail:	Amelia Vincent, c/o RAMPP 12420 Milestone Center Drive, Suite 150 Germantown, MD 20876

We look forward to working with you to reduce the risks associated with coastal flooding and increase your community's resiliency for the long term. To learn more about Discovery, please visit <http://www.fema.gov/library> and search keywords "Discovery brochure" or contact Mike Hanke at (312) 408-5364 or michael.hanke@fema.dhs.gov. We look forward to discussing this with you during the Information Exchange call and/or seeing you at the upcoming Discovery Meeting.

Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Gerry Perry
Bay Township
4987 W Little Portage E Rd
Port Clinton, 43452

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Perry:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

The goal of Risk MAP is to support actions that make communities safer from flooding. The Risk MAP program wants to achieve continued improvement of flood hazard information for the National Flood Insurance Program (NFIP); to promote increased awareness and understanding of flood risk; to increase community engagement; and to identify and support of actions that local stakeholders can take to reduce natural hazard risks. For additional information on the Risk MAP Program, please visit http://www.fema.gov/plan/prevent/fhm/rm_main.shtm.

The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date:	Wednesday, August 1, 2012
Time:	3:00 pm to 5:00 pm
Location:	Oak Harbor Public Library
Address:	147 W. Main St., Oak Harbor, OH 43449

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Mr. Gerry Perry
July 12, 2012
Page 2

contractor (RAMPP) Amelia Vincent at (301) 820-3186 or email to LakeErieCoastalFloodStudy@rampp-team.com no later than July 27, 2012.

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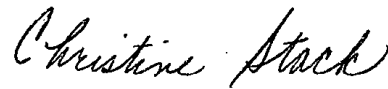
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Call in number:	1-888-369-1427
Access Code:	7175315

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Via e-mail:	LakeErieCoastalFloodStudy@rampp-team.com
Or by mail:	Amelia Vincent, c/o RAMPP 12420 Milestone Center Drive, Suite 150 Germantown, MD 20876

We look forward to working with you to reduce the risks associated with coastal flooding and increase your community's resiliency for the long term. To learn more about Discovery, please visit <http://www.fema.gov/library> and search keywords "Discovery brochure" or contact Mike Hanke at (312) 408-5364 or michael.hanke@fema.dhs.gov. We look forward to discussing this with you during the Information Exchange call and/or seeing you at the upcoming Discovery Meeting.

Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Michael Reif
Zoning Inspector, Benton Township
15181 W. Rock Bottom Dr.
Graytown, OH 43432

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Reif:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

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Mr. Michael Reif
July 12, 2012
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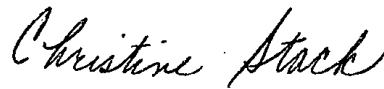
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Christine Stack
Division Director
Mitigation Division, FEMA Region V

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Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. James Buhro
President, Benton Township Trustees
1114 N. Stange Road
Graytown, Ohio 43432

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Buhro:

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Mr. James Buhro
July 12, 2012
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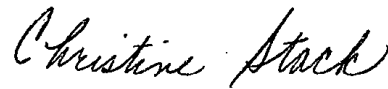
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Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Dale Kremer
Chairman, Benton Township Zoning Commission
13936 W. Toussaint N Rd
Oak Harbor, OH 43449

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Kremer:

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Mr. Dale Kremer
July 12, 2012
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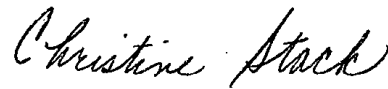
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Christine Stack
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Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Donald St.Clair
Trustee, Carroll Township
11080 W Toussaint East Rd
Oak Harbor, OH

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. St.Clair:

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Mr. Donald St.Clair
July 12, 2012
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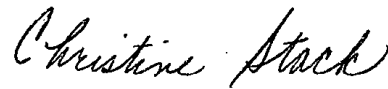
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Mitigation Division, FEMA Region V

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FEMA

July 12, 2012

Mr. John Verb
Trustee, Carroll Township
11080 W Toussaint East Rd
Oak Harbor, OH

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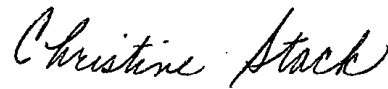
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FEMA

July 12, 2012

Mr. Richard Keiser
Trustee, Carroll Township
11080 W Toussaint East Rd
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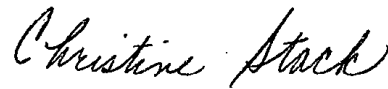
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Via e-mail:	LakeErieCoastalFloodStudy@rampp-team.com
Or by mail:	Amelia Vincent, c/o RAMPP 12420 Milestone Center Drive, Suite 150 Germantown, MD 20876

We look forward to working with you to reduce the risks associated with coastal flooding and increase your community's resiliency for the long term. To learn more about Discovery, please visit <http://www.fema.gov/library> and search keywords "Discovery brochure" or contact Mike Hanke at (312) 408-5364 or michael.hanke@fema.dhs.gov. We look forward to discussing this with you during the Information Exchange call and/or seeing you at the upcoming Discovery Meeting.

Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Matt Montowski
Chairman, Catawba Island Township
4822 E. Cemetery Rd
Port Clinton, OH 43452

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Montowski:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

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The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date:	Wednesday, August 1, 2012
Time:	3:00 pm to 5:00 pm
Location:	Oak Harbor Public Library
Address:	147 W. Main St., Oak Harbor, OH 43449

Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach specialists, and local planners to the meeting. Please RSVP to FEMA's study

Mr. Matt Montowski
July 12, 2012
Page 2

contractor (RAMPP) Amelia Vincent at (301) 820-3186 or email to LakeErieCoastalFloodStudy@rampp-team.com no later than July 27, 2012.

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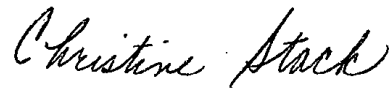
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Christine Stack
Division Director
Mitigation Division, FEMA Region V

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FEMA

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July 12, 2012
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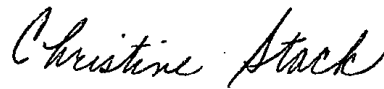
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Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
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FEMA

July 12, 2012

Mr. Charles B. Scott
Trustee, Danbury Township
5971 E. Von Glahn Rd
Marblehead, OH 43440

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Scott:

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Mr. Charles Scott
July 12, 2012
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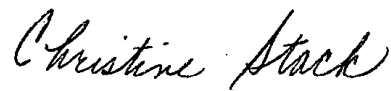
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Christine Stack
Division Director
Mitigation Division, FEMA Region V

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Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Dave Hirt
Trustee, Danbury Township
1775 S. Church Road
Marblehead, OH 43440

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Hirt:

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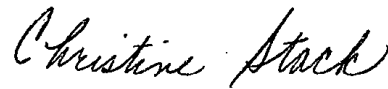
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Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Ms. Dianne Rozak
Trustee, Danbury Township
3265 S. Confederate Drive
Marblehead, OH 43440

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Ms. Rozak:

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Ms. Dianne Rozak
July 12, 2012
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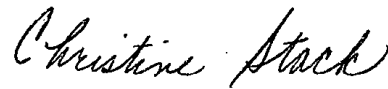
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FEMA

July 12, 2012

Mr. Jim Weaver
President, City of Fremont City Council
323 South Front Street
Fremont, Ohio 43420

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Weaver:

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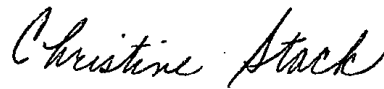
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FEMA

July 12, 2012

Mr. John Kuzma
City Engineer, City of Fremont Engineering Department
323 South Front Street
Fremont, Ohio 43420

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

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The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date:	Wednesday, August 1, 2012
Time:	3:00 pm to 5:00 pm
Location:	Oak Harbor Public Library
Address:	147 W. Main St., Oak Harbor, OH 43449

Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach specialists, and local planners to the meeting. Please RSVP to FEMA's study

Mr. John Kuzma
July 12, 2012
Page 2

contractor (RAMPP) Amelia Vincent at (301) 820-3186 or email to LakeErieCoastalFloodStudy@rampp-team.com no later than July 27, 2012.

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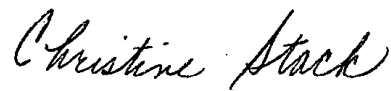
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Via e-mail:	LakeErieCoastalFloodStudy@rampp-team.com
Or by mail:	Amelia Vincent, c/o RAMPP 12420 Milestone Center Drive, Suite 150 Germantown, MD 20876

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Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Jim Ellis
Mayor, City of Fremont Mayor's Office
323 South Front Street
Fremont, Ohio 43420

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Ellis:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

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Mr. Jim Ellis
July 12, 2012
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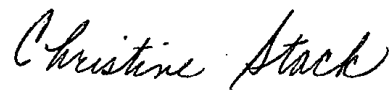
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Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

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Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Ms. Fran Gierhart
Zoning Inspector, City of Fremont Zoning Department
323 South Front Street
Fremont, Ohio 43420

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Ms. Gierhart:

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Ms. Fran Gierhart
July 12, 2012
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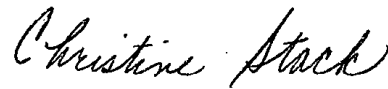
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Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Kevin Sibbring
President & CEO, Lakeside
236 Walnut Ave.
Lakeside, OH 43440

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Sibbring:

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Mr. Kevin Sibbring
July 12, 2012
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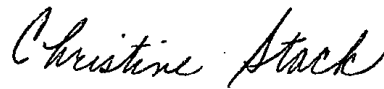
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Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Riney Robertson
Lakeside Property Owners Association
404 E. Third St
Lakeside, OH 43440

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Robertson:

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Mr. Riney Robertson
July 12, 2012
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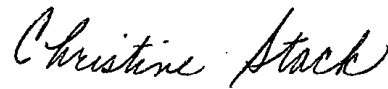
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Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Ms. Jacqueline Bird
Mayor, Village of Marblehead
513 W. Main Street
Marblehead, OH 43440

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Ms. Bird:

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Ms. Jacqueline Bird

July 12, 2012

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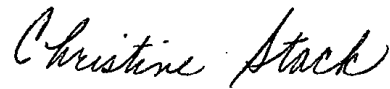
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Christine Stack
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Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. John Starcher
President Pro-Tem, Village of Marblehead
513 W. Main Street
Marblehead, OH 43440

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Starcher:

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July 12, 2012
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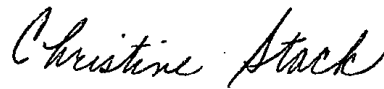
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Time:	3:00 pm – 4:00 pm
Link to WebEx:	https://connect15.uc.att.com/urs/meet/?ExEventID=87175315
Call in number:	1-888-369-1427
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Via e-mail:	LakeErieCoastalFloodStudy@rampp-team.com
Or by mail:	Amelia Vincent, c/o RAMPP 12420 Milestone Center Drive, Suite 150 Germantown, MD 20876

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Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Fred Conley
Mayor, Village of Oak Harbor
425 Church Street
Oak Harbor, OH 43449

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Conley:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

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The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date:	Wednesday, August 1, 2012
Time:	3:00 pm to 5:00 pm
Location:	Oak Harbor Public Library
Address:	147 W. Main St., Oak Harbor, OH 43449

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Mr. Fred Conley
July 12, 2012
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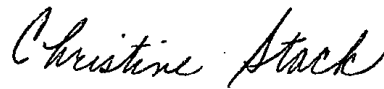
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Christine Stack
Division Director
Mitigation Division, FEMA Region V

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FEMA

July 12, 2012

Mr. Robert A. Pauley
Administrator/ Zoning Inspector, Village of Oak Harbor
146 Church Street
Oak Harbor, OH 43449

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Pauley:

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July 12, 2012
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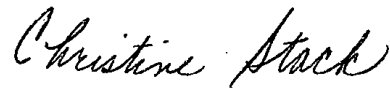
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Christine Stack
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Mitigation Division, FEMA Region V

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FEMA

July 12, 2012

Mr. Steven M. Arndt
President, Ottawa County Commissioners
315 Madison Street, Room 103
Port Clinton, OH 43452

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Arndt:

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Mr. Steven Arndt
July 12, 2012
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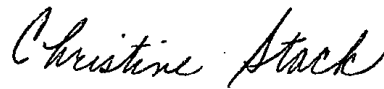
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FEMA

July 12, 2012

Mr. Fred Petersen
Director, Ottawa County Emergency Management
315 Madison Street
Port Clinton, OH 43452

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Petersen:

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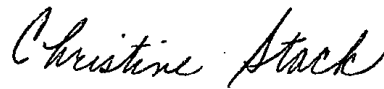
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FEMA

July 12, 2012

Mr. David A. Brunkhorst
County Engineer, Ottawa County Engineer's Office
315 Madison Street, Room 106
Port Clinton, OH 43452

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Brunkhorst:

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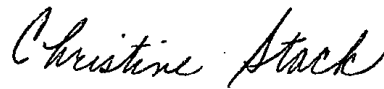
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FEMA

July 12, 2012

Mr. Mike Libben
District Program Administrator, Ottawa County Soil and Water District
240 W. Lake Street
Oak Harbor, Ohio 43449

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Libben:

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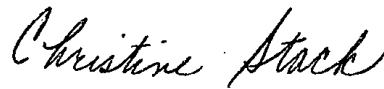
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Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Vincent P. Leone
Mayor, City of Port Clinton
1868 E. Perry Street
Port Clinton, Ohio 43452

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Leone:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

The goal of Risk MAP is to support actions that make communities safer from flooding. The Risk MAP program wants to achieve continued improvement of flood hazard information for the National Flood Insurance Program (NFIP); to promote increased awareness and understanding of flood risk; to increase community engagement; and to identify and support of actions that local stakeholders can take to reduce natural hazard risks. For additional information on the Risk MAP Program, please visit http://www.fema.gov/plan/prevent/fhm/rm_main.shtm.

The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date:	Wednesday, August 1, 2012
Time:	3:00 pm to 5:00 pm
Location:	Oak Harbor Public Library
Address:	147 W. Main St., Oak Harbor, OH 43449

Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach specialists, and local planners to the meeting. Please RSVP to FEMA's study

Mr. Vincent Leone
July 12, 2012
Page 2

contractor (RAMPP) Amelia Vincent at (301) 820-3186 or email to LakeErieCoastalFloodStudy@rampp-team.com no later than July 27, 2012.

So that we can better prepare for the upcoming Discovery Meeting, we are asking local communities to participate in an Information Exchange conference call and WebEx. This call will provide an overview of FEMA's Risk MAP program and the Discovery process, and will allow us to review with you our request for the exchange of coastal flood risk and hazard mitigation data, and to learn more about your community's coastal flood hazard risks and needs, in advance of the Discovery Meeting. The partnership and exchange of data between FEMA, the State of Ohio, and your community is vital to the success of identifying flood risks and needs that may impact your citizens.

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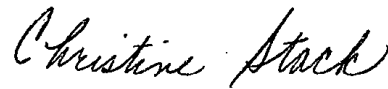
Date:	Tuesday, July 24, 2012
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Link to WebEx:	https://connect15.uc.att.com/urs/meet/?ExEventID=87175315
Call in number:	1-888-369-1427
Access Code:	7175315

If you or another community representative is unable to attend the Information Exchange conference call, we ask that you fill out and return the enclosed data request form by July 27, 2012. This is the same data request form that will be discussed during the conference call. The completed form can be sent to:

Via e-mail:	LakeErieCoastalFloodStudy@rampp-team.com
Or by mail:	Amelia Vincent, c/o RAMPP 12420 Milestone Center Drive, Suite 150 Germantown, MD 20876

We look forward to working with you to reduce the risks associated with coastal flooding and increase your community's resiliency for the long term. To learn more about Discovery, please visit <http://www.fema.gov/library> and search keywords "Discovery brochure" or contact Mike Hanke at (312) 408-5364 or michael.hanke@fema.dhs.gov. We look forward to discussing this with you during the Information Exchange call and/or seeing you at the upcoming Discovery Meeting.

Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Ms. Linda J. Hartlaub
President of Council, City of Port Clinton
1868 E. Perry Street
Port Clinton, Ohio 43452

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Ms. Hartlaub:

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Ms. Linda Hartlaub
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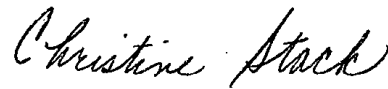
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Christine Stack
Division Director
Mitigation Division, FEMA Region V

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FEMA

July 12, 2012

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Zoning Inspector, City of Port Clinton
1868 E. Perry Street
Port Clinton, Ohio 43452

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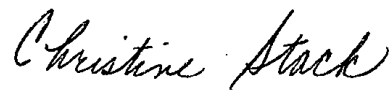
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Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Drew A. Surovjak
Chairman, Portage Township
2501 East State Road
Port Clinton, Ohio 43452

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Surovjak:

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Mr. Drew Surovjak
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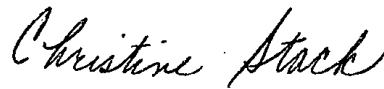
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Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Ms. Mary Gardner
Zoning Inspector, Portage Township
2501 East State Road
Port Clinton, Ohio 43452

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

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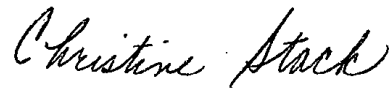
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FEMA

July 12, 2012

Mr. Matt Miller
President, Put-in-Bay Township Trustees
P.O. Box 127
Put-in-Bay, OH 43456

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

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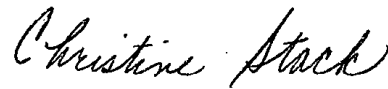
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FEMA

July 12, 2012

Mr. Dennis Naylon
Zoning Inspector, Put-in-Bay Township Zoning Office
P.O. Box 447
Put-in-Bay, OH 43456

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Naylon:

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Mr. Dennis Naylon
July 12, 2012
Page 2

contractor (RAMPP) Amelia Vincent at (301) 820-3186 or email to LakeErieCoastalFloodStudy@rampp-team.com no later than July 27, 2012.

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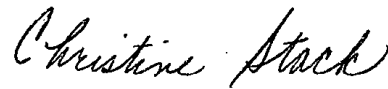
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Via e-mail:	LakeErieCoastalFloodStudy@rampp-team.com
Or by mail:	Amelia Vincent, c/o RAMPP 12420 Milestone Center Drive, Suite 150 Germantown, MD 20876

We look forward to working with you to reduce the risks associated with coastal flooding and increase your community's resiliency for the long term. To learn more about Discovery, please visit <http://www.fema.gov/library> and search keywords "Discovery brochure" or contact Mike Hanke at (312) 408-5364 or michael.hanke@fema.dhs.gov. We look forward to discussing this with you during the Information Exchange call and/or seeing you at the upcoming Discovery Meeting.

Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Ms. Judith A. Berry
Mayor, Village of Put-in-Bay
435 Catawba Avenue, PO Box 503
Put-in-Bay, OH 43456

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Ms. Berry:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

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The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date:	Wednesday, August 1, 2012
Time:	3:00 pm to 5:00 pm
Location:	Oak Harbor Public Library
Address:	147 W. Main St., Oak Harbor, OH 43449

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Ms. Judith Berry
July 12, 2012
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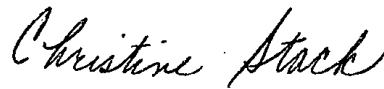
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Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Richard Lenke
Salem Township
2086 S. Woodrick Rd.
Oak Harbor, Ohio 43449

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Lenke:

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July 12, 2012
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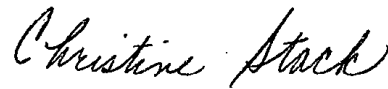
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Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Warren Brown
County Administrator, Sandusky County Commissioner's Office
622 Croghan Street
Fremont, OH 43420

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Brown:

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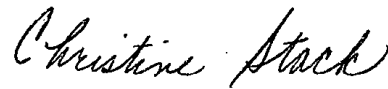
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Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Chris Mock
Director, Sandusky County Emergency Management
2323 Countryside Drive - Suite B
Fremont, OH 43420

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Mock:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

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Mr. Chris Mock
July 12, 2012
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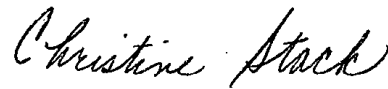
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Mitigation Division, FEMA Region V

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Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Ms. Lisa Heyman
Assistant Director, Sandusky County Emergency Management
2323 Countryside Drive - Suite B
Fremont, OH 43420

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Ms. Heyman:

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Ms. Lisa Heyman
July 12, 2012
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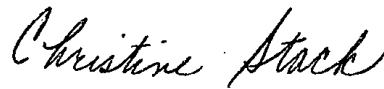
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Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. James R. Moyer
County Engineer, Sandusky County Engineer
2500 West State Street
Fremont, OH 43420

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Moyer:

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Mr. James Moyer
July 12, 2012
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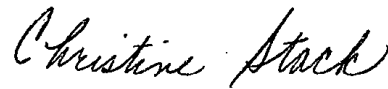
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Or by mail:	Amelia Vincent, c/o RAMPP 12420 Milestone Center Drive, Suite 150 Germantown, MD 20876

We look forward to working with you to reduce the risks associated with coastal flooding and increase your community's resiliency for the long term. To learn more about Discovery, please visit <http://www.fema.gov/library> and search keywords "Discovery brochure" or contact Mike Hanke at (312) 408-5364 or michael.hanke@fema.dhs.gov. We look forward to discussing this with you during the Information Exchange call and/or seeing you at the upcoming Discovery Meeting.

Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. John Randolph Willey
Executive Director, Sandusky County Regional Planning Commission
108 South Park Avenue
Fremont, OH 43420

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Willey:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

The goal of Risk MAP is to support actions that make communities safer from flooding. The Risk MAP program wants to achieve continued improvement of flood hazard information for the National Flood Insurance Program (NFIP); to promote increased awareness and understanding of flood risk; to increase community engagement; and to identify and support of actions that local stakeholders can take to reduce natural hazard risks. For additional information on the Risk MAP Program, please visit http://www.fema.gov/plan/prevent/fhm/rm_main.shtm.

The first phase of the Risk MAP process is Discovery. Through Discovery, input provided by communities will help FEMA to better understand local coastal flood risk data and needs, and characterize local conditions that contribute to coastal flood risk.

Your Discovery Meeting is scheduled to occur:

Date: Wednesday, August 1, 2012
Time: 3:00 pm to 5:00 pm
Location: Oak Harbor Public Library
Address: 147 W. Main St., Oak Harbor, OH 43449

Please save this date on your calendar. At the meeting, we will review the coastal flood risk data we have gathered to date and discuss your community's coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify your community's coastal flood hazard needs and subsequent Risk MAP regulatory and non-regulatory products and datasets that can be delivered during the Risk MAP project. We will also discuss how the coastal flood risks and needs are related to mapping, risk assessment, Hazard Mitigation planning, and grant programs available to eligible communities. To best facilitate this discussion, we would like to request your help in inviting community leaders, emergency managers, GIS specialists, engineers, outreach specialists, and local planners to the meeting. Please RSVP to FEMA's study

Mr. John Willey
July 12, 2012
Page 2

contractor (RAMPP) Amelia Vincent at (301) 820-3186 or email to LakeErieCoastalFloodStudy@rampp-team.com no later than July 27, 2012.

So that we can better prepare for the upcoming Discovery Meeting, we are asking local communities to participate in an Information Exchange conference call and WebEx. This call will provide an overview of FEMA's Risk MAP program and the Discovery process, and will allow us to review with you our request for the exchange of coastal flood risk and hazard mitigation data, and to learn more about your community's coastal flood hazard risks and needs, in advance of the Discovery Meeting. The partnership and exchange of data between FEMA, the State of Ohio, and your community is vital to the success of identifying flood risks and needs that may impact your citizens.

The Information Exchange conference call is scheduled to occur:

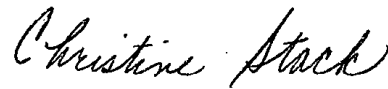
Date:	Tuesday, July 24, 2012
Time:	3:00 pm – 4:00 pm
Link to WebEx:	https://connect15.uc.att.com/urs/meet/?ExEventID=87175315
Call in number:	1-888-369-1427
Access Code:	7175315

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Or by mail:	Amelia Vincent, c/o RAMPP 12420 Milestone Center Drive, Suite 150 Germantown, MD 20876

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Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Marcus Williams
Trustee, Sandusky Township Board of Trustees
2317 Glenn Drive
Fremont, OH 43420

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Williams:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

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Mr. Marcus Williams
July 12, 2012
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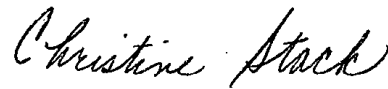
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Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form



FEMA

July 12, 2012

Mr. Bruce Shank
Zoning Inspector, Sandusky Township Zoning Department
2207 Oak Harbor Road
Fremont, Ohio

Re: Invitation to Attend Community Meetings Regarding Lake Erie Coastal Flood Risk for Ottawa and Sandusky Counties in Ohio

Dear Mr. Shank:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Erie and the rest of the United States Great Lakes through FEMA's Risk Mapping, Assessment, and Planning (MAP) Program. Data from this study will eventually be used to convey coastal flood hazard risk through revised Flood Insurance Rate Maps (FIRMs), also known as regulatory products, and new risk planning and assessment products and datasets, also referred to as non-regulatory products and datasets. Please see enclosed Risk MAP Flood Risk Products Fact Sheet. More information about the Great Lakes Coastal Flood Study may be found at <http://www.greatlakescoast.org>.

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Mr. Bruce Shank
July 12, 2012
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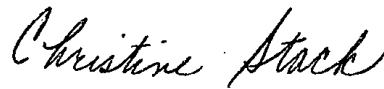
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Sincerely,



Christine Stack
Division Director
Mitigation Division, FEMA Region V

Enclosures: Risk MAP Flood Risk Products Fact Sheet
Community Discovery Coastal Data Request Form

Attachment A-3
Information Exchange Session
Presentation



Information Exchange Session for Lake Erie Discovery

Ottawa and Sandusky Counties, Ohio
July 24, 2012
3:00 pm – 4:00 pm



Cedar Point Amusement Park

RiskMAP
Increasing Resilience Together

Great Lakes Coastal Flood Study
greatlakescoast.org



Purpose of Information Exchange

- Introduction to Risk MAP
- Introduction to Great Lakes Flood Study and Discovery
- Learn more about your areas of concern, coastal flood risk, and coastal mitigation
- Bring the right people to the table early
- Identify data gaps



RiskMAP
Increasing Resilience Together

Great Lakes Coastal Flood Study
greatlakescoast.org



Risk MAP (Mapping, Assessment, and Planning) Vision



Goals

1. Address gaps in flood hazard data
2. Increase risk awareness to encourage risk reduction
3. Risk-based Mitigation Planning resulting in risk reduction actions
4. Enhanced digital platform to improve communication and sharing of risk data
5. Align programs and develop synergies



RiskMAP
Increasing Resilience Together

Great Lakes Coastal Flood Study
greatlakescoast.org



Overview of Great Lakes Coastal Flood Study



- Latest models, data, and technology
- Deliver updated flood maps and flood risk datasets
- Equip Federal Agencies, eight States and hundreds of coastal communities with data and planning tools to facilitate actions to enhance resiliency of the Great Lakes ecosystem



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Increasing Resilience Together

Great Lakes Coastal Flood Study
greatlakescoast.org



Hazard Mitigation Resources, Strategies & Actions



- Recent community hazard mitigation experiences?
 - Public Works
 - Building Standards
 - Community Planning and Hazard Mitigation Plan Update
 - Communication Processes, GIS, etc.
- New option to document ideas and actions through the FEMA Mitigation Action Form

Land Use Ordinances Zoning, Setbacks, Floodplain Management, etc.	Local Building Codes IBC, IRC, Local Regulations, etc.	Mitigation Projects Acquisition, Elevation, Floodproofing, etc.	Community Identified Mitigation Programs	Management Best Practices Integration of natural hazards into other planning mechanisms
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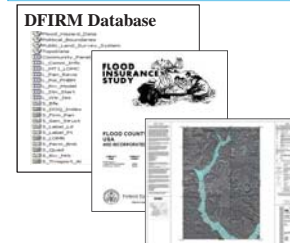
Great Lakes Coastal Flood Study
greatlakescoast.org



Products and Datasets: Regulatory and Non-regulatory

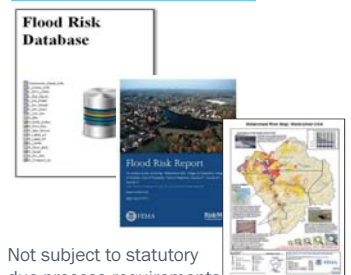


Traditional Regulatory Products



Subject to statutory due-process requirements

Non-Regulatory Products



Not subject to statutory due-process requirements

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Increasing Resilience Together

Great Lakes Coastal Flood Study
greatlakescoast.org



Products and Datasets: Coastal Products in Development



Erosion



Lake Erie Erosion
From ODNR website

Lake Levels



Lake Erie Shoreline
From Toledo Blade website

Shoreline Feature Dataset



Lake Erie Shoreline
From ODNR website



Risk MAP Overview: Shoreline Features Database

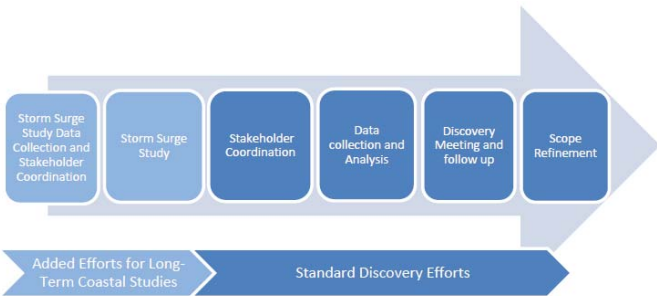


Shoreline Material	Primary Land Use	Primary Coast Type	Primary Vegetation
Sand	High Density Residential	High Dune, 10'+	None
Cohesive	Moderate Density Residential	Dune, 2' - 10'	High Density Shrubs/Trees
Cobble	Low Density Residential	High Bluff, 10'+	Moderate Density Shrubs/Trees
Diamicton*	Commercial/Industrial	Bluff, 2' - 10'	Low Density Shrubs/Trees
Shingle	Park Land	Coastal Wetland	Manicured Lawn
Bedrock	Farm Land	Flat Coast	Native Vegetation
Artificial	Forested		

- Contains primary and secondary Land Use tables – same for coast type and vegetation.
- Current project collects data at one-mile spacing, for scoping and cost
- Current project does not include field-based reconnaissance or sediment/subsurface soils collection



Great Lakes Coastal Flood Study Discovery Process Overview



Great Lakes Coastal Flood Study Discovery Meeting



Discovery Meeting Venue	Discovery Meeting Address	Discovery Meeting Date, Time
Oak Harbor Public Library	147 W. Main St. Oak Harbor, Ohio 43449	Wednesday 08/01/2012; 3:00 - 5:00 PM EST



Draft Discovery Meeting Agenda



- Why are we here?
- Coastal mapping and flood risk topics to be aware of
- How does this apply to my community?
 - NFIP compliance, hazard mitigation opportunities, and grant funding
- Interactive Session
 - Utilization of Coastal Flood Risk Products for Planning and Mitigation, Identification of Existing Local Coastal Data, View and Discuss Local Coastal Areas of Concern Using the Discovery Map, Discuss Mitigation Action Opportunities and Introduce the Mitigation Action Form
- Wrap Up

*Draft Transect Map Station: Talk to technical staff about draft transects and view draft transects in GIS
Mitigation Resources, Strategies, and Actions Station: Talk with FEMA and State staff about areas of concern and potential mitigation actions to help reduce risk. Fill out Mitigation Action Form.*



Great Lakes Coastal Flood Study Discovery Products



- Final Discovery Report
 - Single, comprehensive report for all of Lake Erie, with appendices for Discovery meeting counties
 - Includes pre-discovery data, meeting agenda, sign-in sheets, discussion topics, decisions made, etc.
- Final Discovery Maps
 - Including feedback from participants
 - Visual representation of meeting outcomes



Discovery Report

Worksheet Name, Worksheet Number,
County names
Community names
County
Report Number #



Who Should Attend the Discovery Meeting?



- **Community Officials**
 - CEO and Floodplain Administrators (FPAs)
 - Planners, GIS Specialists, Engineers, Outreach Specialists, Emergency Managers, and Community Leaders
- **State Representatives**
 - State Hazard Mitigation Officer (SHMO), National Flood Insurance Program (NFIP) Coordinators, Cooperating Technical Partners (CTPs)
- **Other Federal Agencies (NOAA, USACE, USGS)**
- **Regional Planning Agencies**
- **Great Lakes Organizations**

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Lake Erie Discovery



13 counties

- Ohio
 - Ashtabula
 - Cuyahoga
 - Erie
 - Lake
 - Lorain
 - Lucas
 - Ottawa
 - Sandusky
- Michigan
 - Monroe
 - Wayne
- New York
 - Chautauqua
 - Erie
- Pennsylvania
 - Erie



132 coastal communities

RiskMAP
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Data Request Form Overview



- Contact Information
- Base Map Data
- Coastal Data
- Other Data
- Historic Flood Data
- Risk Assessment
- Flood Mitigation Information
- Community Plans and Projects
- Any Other Comments/ Concerns Based on Local Knowledge

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Review of Data Collected To Date



- **Base Data**
 - Draft Transects
 - Shoreline Classification Dataset
 - Bathymetry and Topographic Data
 - Watershed Boundaries
 - Jurisdictional Boundaries
 - Transportation
 - Census Blocks
 - Average Annualized Loss (AAL)
 - Coordinate Needs Management Strategy (CNMS)
 - Coastal Barrier Resources System (CBRS)
 - Declared Disasters

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Review of Data Collected To Date



- **Mitigation**
 - Hazard Mitigation Plans
 - Hazard Mitigation Grants Program (HMGP) projects
 - Pre-Disaster Mitigation Program projects
 - Projects funded through Ohio Coastal Management Assistance Grants
 - Projects funded through Great Lakes Coastal Restoration Grants
 - Projects funded through Coastal and Estuarine Land Conservation Program
- **NFIP related Data**
 - Community Rating System
 - Community Assistance Visits
 - Flood Insurance Policies and claims
 - Repetitive Loss and Severe Repetitive Loss
 - Letters of Map Change (LOMC) cluster locations

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Review of Data Collected To Date



- **Structures**
 - Coastal structures
 - Dams and levees
- **Gage Stations**
 - Stream gages
 - Wave gages
 - Water level gages

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Increasing Resilience Together



Data Gaps



- Critically Eroded Beach Areas
- Beach Nourishment/Dune Replacement Projects
- Critical Facilities (in GIS format)
- High Water Marks
- Comprehensive Plans
 - Ottawa County
- Local Mitigation Plans
 - Ottawa County (expired on Feb 2011)

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Data Gaps



- Areas of recent or planned development
- Areas of high growth
- Recent land changes due to development, erosion, etc.
- Known flooding issues not represented on effective FIRMs or listed in CNMS
- On-going mitigation projects

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Increasing Resilience Together



Next Steps and Opportunity to Get Involved



- Assessment of data and information provided
- Identification of best practices:
 - Do you have an example of a local coastal mitigation best practice?
- Discovery meeting involvement:
 - Are you be interested in participating in Discovery Meeting facilitation?

THANK YOU FOR YOUR PARTICIPATION!

RiskMAP
Increasing Resilience Together



Who to Contact



- For more information: <http://www.greatlakescoast.org/>
- Send completed questionnaires to:
 - LakeErieCoastalFloodStudy@rampp-team.com
- FEMA Region V
 - Ken Hinterlong @ ken.hinterlong@fema.dhs.gov
 - Mike Hanke @ michael.hanke@fema.dhs.gov
- RAMPP
 - Amelia Vincent @ amelia.vincent@urs.com

RiskMAP
Increasing Resilience Together



Questions?



RiskMAP
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Attachment B: Data Collection

Attachment B-1: Data Request Forms

Attachment B-1

Data Request Forms

U.S. Department of Homeland Security

536 S. Clark St. 6th Floor

Chicago, IL 60605



FEMA

Community Discovery Coastal Data Request Form

Thank you for taking the time to complete this questionnaire. We are interested in obtaining coastal-specific data for your community. It will provide important information to help FEMA understand coastal flood risk issues in your community and to work with you in increasing your community's resilience to coastal flooding through implementation of the Risk MAP program. In addition, this form can be used as a way to prepare for the upcoming Discovery Meeting, as the topics on this form will be discussed throughout the meeting.

Once you have completed the questionnaire, please return the form:

Via e-mail: LakeErieCoastalFloodStudy@rampp-team.com
 By mail: Amelia Vincent, c/o RAMPP
 12420 Milestone Center Drive, Suite 150
 Germantown, MD 20876
 Or by fax: (301) 820-3009

Please provide as much information as possible. If you have any questions about the Discovery process or about completing this questionnaire, please contact:

Amelia Vincent, Amelia.Vincent@URS.com, (301) 820-3186

Contact Information	
Community/Organization	Sandusky County EMA / 911
Name:	Chris Mock & Lisa Heljman
Title:	Director & Assistant Director
Address:	3333 Courtryside Dr. Suite B Fremont, OH 43420
E-mail:	cmock@biz200hrr.com
Phone:	419-334-8933
Contact Preference	<input checked="" type="checkbox"/> Email <input type="checkbox"/> Phone <input type="checkbox"/> Mail

LHeljman@biz200hrr.com

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605



FEMA

Please check off the types of data you will provide by July 27, 2012.

Base Map Data		Please select available data type	
<input type="checkbox"/>	Topography (e.g., LiDAR or contour data)	<input type="checkbox"/> Hard copy	<input checked="" type="checkbox"/> Digital
<input type="checkbox"/>	Property information (e.g., Building footprints, parcel data, tax assessor's data)	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
Coastal Data			
<input type="checkbox"/>	Coastal structures (e.g., seawalls, levees, jetties, groins, etc.)	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
<input type="checkbox"/>	Coastal features (i.e., dunes and bluffs)	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
<input type="checkbox"/>	Shoreline change data	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
<input type="checkbox"/>	Locations of beach nourishment or dune restoration projects	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
<input type="checkbox"/>	Areas of significant beach or dune erosion	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
<input type="checkbox"/>	Mean high water	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
<input type="checkbox"/>	Mean lake level	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
Other Data			
<input type="checkbox"/>	Hydraulic structures (e.g., bridges, culverts, levees, dams) with inspection status, if available	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
<input type="checkbox"/>	Elevated roads	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
<input type="checkbox"/>	Critical facilities	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
<input type="checkbox"/>	Other known hazards with geographical boundaries, i.e., landslide hazard areas, storm surge inundation zones, wildfire hazard areas, etc.	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital
<input type="checkbox"/>	Other relevant data	<input type="checkbox"/> Hard copy	<input type="checkbox"/> Digital

*Regional Planning
has above information*

U.S. Department of Homeland Security

536 S. Clark St. 6th Floor

Chicago, IL 60605



FEMA

Please provide the following information about the community:

Historical Flood Data		
Are you aware of any coastal flooding issues not represented on effective FIRMs:	<input type="checkbox"/> yes <input type="checkbox"/> no	If yes, please explain and provide inundation areas of historic flooding events if available.
Risk Assessment		
Does your community have HAZUS-based loss estimates from average annualized loss?	<input type="checkbox"/> yes <input type="checkbox"/> no	If yes, please describe:
Does your community have other risk assessment data?	<input type="checkbox"/> yes <input type="checkbox"/> no	If yes, please describe:

Regional Planning has above information

U.S. Department of Homeland Security
536 S. Clark St. 6th Floor
Chicago, IL 60605



FEMA

Flood Mitigation Information

Does your community have a hazard mitigation plan?

- yes
 no

*Due for Update
2015*

If yes, what is the status of the hazard mitigation plan?

- being reviewed
 it has been adopted
 it is currently being updated
 it is planned for updates

Does the plan reflect any coastal flood hazards?

- yes
 no

If yes, please explain:

Does the hazard mitigation plan indicate any data deficiencies for flood hazards that could be addressed through a flood study, especially near coastal zones?

- yes
 no

If yes, please explain:

Does your community have on-going mitigation projects, such as acquisition, elevation, flood control, soil stabilization, natural systems restoration, floodproofing, etc.

- yes
 no

If yes, please describe the projects and their locations:

*Woodville Village
repetative flooding
on residential homes.
mitigation Grant
turned down. Cost
Benefit Analysis
did not meet
guidelines*

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Chicago, IL 60605



FEMA

<p>Any specific coastal mitigation projects?</p>	<p><input type="checkbox"/> yes <input checked="" type="checkbox"/> no</p>	<p>If yes, please explain:</p>
<p>Does your community have experience with coastal flood disasters and flood disaster recovery?</p>	<p><input type="checkbox"/> yes <input checked="" type="checkbox"/> no</p>	<p>If yes, please explain:</p>
<p>Does your community coordinate floodplain management programs with programs for the management and planning of open space? If possible, any coastal specific?</p>	<p><input type="checkbox"/> yes <input type="checkbox"/> no</p>	<p>If yes, please explain:</p>

Regional Planning Unit has information

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FEMA

<p>Have you had any prior proactive mitigation actions and planning efforts that resulted in reduced losses? If possible, any coastal specific?</p>	<p><input checked="" type="checkbox"/> yes <input checked="" type="checkbox"/> no</p>	<p>If yes, please describe: <i>Flood wall built in front of the Sandusky River</i></p>
<p>Has your community applied and granted Individual Assistance/Public Assistance grants for declared disasters?</p>	<p><input checked="" type="checkbox"/> yes <input type="checkbox"/> no</p>	<p>If yes, please describe and provide the locations of these grants projects: <i>Snow. Declaration - Public Flooding - Public Tornado - Public</i></p>
<p>Has your community applied for FEMA Hazard Mitigation Grants program or other mitigation funds (USACE, NRCS, USGS, state Hazard Mitigation officer, etc.) in the past?</p>	<p><input checked="" type="checkbox"/> yes <input type="checkbox"/> no</p>	<p>If yes, please describe and provide the locations of on-going/planned/finished grants projects/structures: <i>2005 - mitigation Grant for writing plan.</i></p>

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FEMA

How would you rank the community's ability to implement mitigation actions and to communicate flood risk to citizens?		<input type="checkbox"/> high <input checked="" type="checkbox"/> medium <input type="checkbox"/> low
Community Plans and Projects		
Does your community have a comprehensive plan?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	If you answered yes and you have a hazard mitigation plan, was your hazard mitigation plan coordinated with the comprehensive plan? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Does your community's comprehensive plan have a special consideration for coastal areas?	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no	If yes, please explain elements/regulations that affect coastal area development.
Does your community have a coastal zone management plan?	<input type="checkbox"/> yes <input type="checkbox"/> no	If yes, please provide a digital or hard copy of the plan.
Does your community have planning staff or a planning/zoning commission and other measures, such as ordinances, administrative plans, or other programs contributing to effective administration of floodplain zoning, building codes, open space preservation, and coastal zone management?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no	If yes, please explain this group's role in floodplain management and provide examples of the types of programs in place: <i>Regional Planning</i>

Regional Planning has info

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FEMA

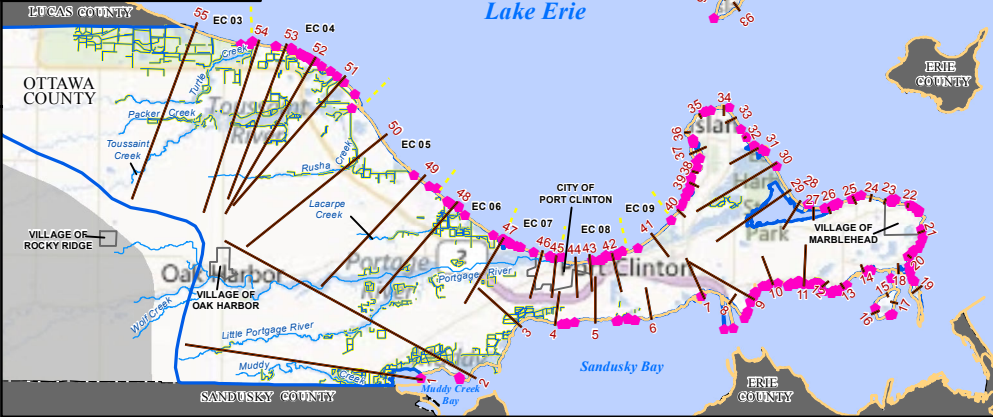
<p>Does your community have areas of recent or planned development/re-development and areas of high growth or other natural land changes (e.g., wildfires or landslides):</p>	<input type="checkbox"/> yes <input type="checkbox"/> no	<p>If yes, please describe:</p>
<p>Are there any locations of other ongoing studies or projects and studied areas that have been modified since the effective map and require an updated study. (e.g., highway improvement, seawall improvement, etc.)</p>	<input type="checkbox"/> yes <input type="checkbox"/> no	<p>If yes, please describe:</p>
<p>Any other comments/concerns based on local knowledge:</p>		

Regional Planning has this into

Attachment C: Discovery Maps

Coastal Structures and Transects*

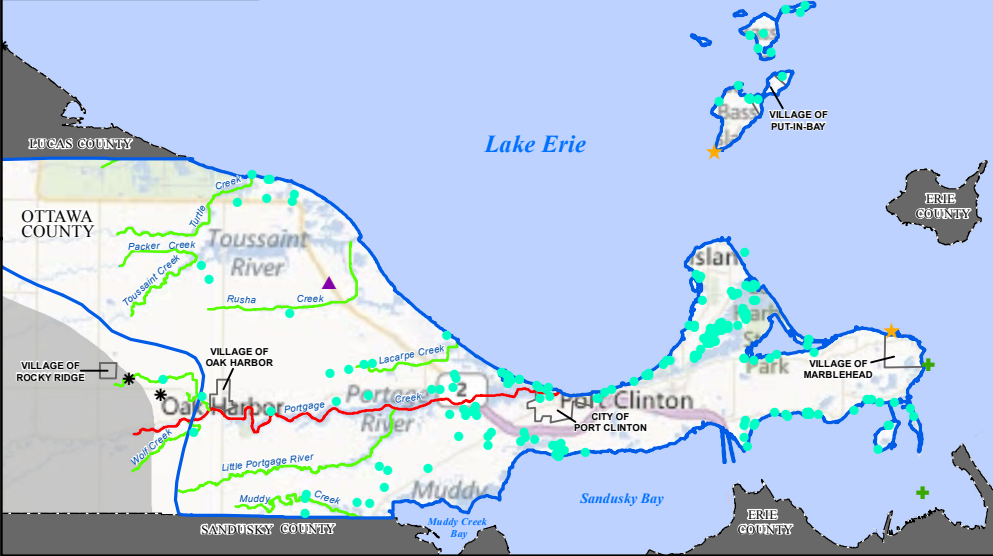
Lake Erie Shore Erosion Management Plan
 Reach Legend
 EC 03- Ward's Canal to Turtle Creek
 EC 04- Turtle Creek to Toussaint River
 EC 05- Toussaint River to Camp Perry Eastern Road
 EC 06- Camp Perry Eastern Road to Lakefront Marina
 EC 07- Lakefront Marina to Portage River
 EC 08- Portage River to Knecht's Marina
 EC 09- Knecht's Marina to Rock Ledge



Average Annualized Loss and CBRS** Data



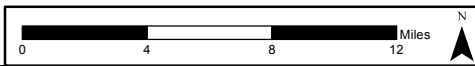
CNMS*** Status



NFIP Total Losses					
Community	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments (\$)
Ottawa County	1,112	909	0	202	6,037,311
Marblehead, Village of	6	4	0	2	27,982
Oak Harbor, Village of	52	47	0	5	357,558
Port Clinton, City of	185	149	0	34	917,592
Put-in-Bay, Village of	15	12	0	3	82,703

Declared Disasters					
State	Date	County	Type	Incident Type	Title
OH	07/15/1969	Ottawa	DR	Tornado	Tornadoes, Severe Storms, and Flooding
OH	11/24/1972	Ottawa	DR	Flood	Severe Storms & Flooding
OH	04/27/1973	Ottawa	DR	Flood	Severe Storms & Flooding
OH	05/31/1974	Ottawa	DR	Flood	Severe Storms & Flooding
OH	08/04/1992	Ottawa	DR	Severe Storm	Severe Storms, Flooding, & Tornadoes
OH	06/30/1998	Ottawa	DR	Severe Storm	Severe Storms, Flooding, & Tornadoes
OH	09/19/2004	Ottawa	DR	Severe Storm	Severe Storms & Flooding

Hazard Mitigation Action			
Name of Hazard Mitigation Plan	Plan Approval Date	Plan Expiration Date	Identified Hazard Mitigation Action
Ottawa County - All Natural Hazards Mitigation Plan	02/13/2006	02/13/2011	Continue developing and implementing the advance warning notification system. Implement a higher standard of construction codes for areas susceptible to specific types of hazards. Undertake a hazard assessment analysis of all critical facilities. Promote the increased use of the Erosion Control Loan program administered by ODNR.



MAP SYMBOLOGY

<ul style="list-style-type: none"> Transect Lake Erie Shoreline HUC 8 CBRS* Stream Agricultural Levee Discovery Study Area Surrounding County County Boundary Municipal Boundary 	<ul style="list-style-type: none"> LOMC Wave Gage Port USGS Gage Coastal Structure Power Reactor Unit 	<p>OTTAWA COUNTY AAL DATA Total Average Annualized Loss per Census Block</p> <ul style="list-style-type: none"> \$1 - \$2,500 \$2,501 - \$100,000 \$100,001 - \$250,000 \$250,001 - \$750,000 \$750,001 - \$2,000,000 	<p>CNMS** VALIDATION STATUS</p> <ul style="list-style-type: none"> UNVERIFIED UNKNOWN VALID <p>HAZARD MITIGATION GRANT PROJECTS</p> <ul style="list-style-type: none"> Elevation
--	---	--	--

*Flood Hazard Area information is not currently available for Ottawa County
 **CBRS - Coastal Barrier Resources System
 ***CNMS - Coordinated Needs Management Strategy

COASTAL STUDY LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM

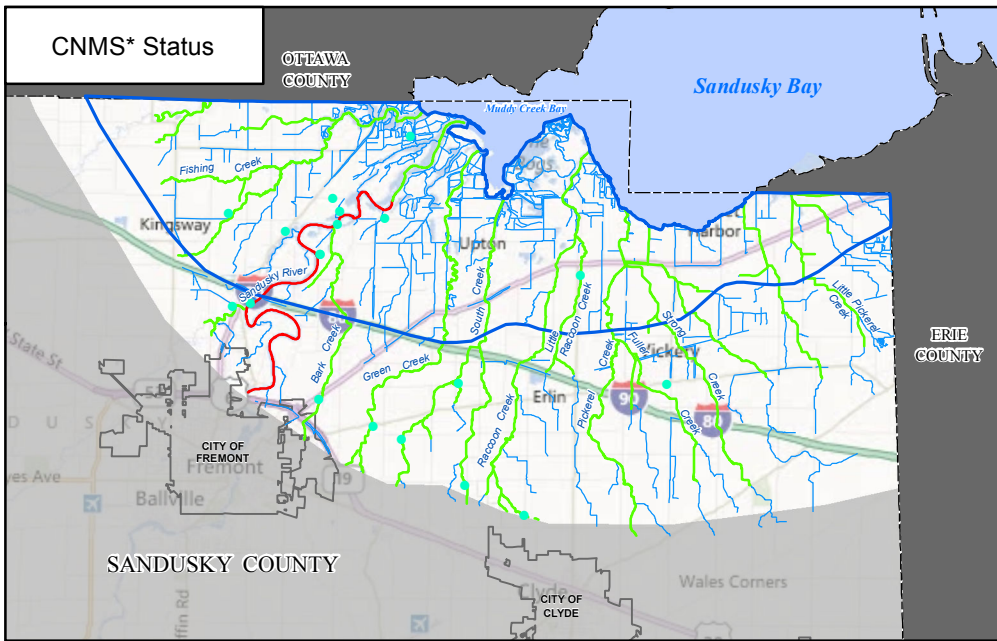
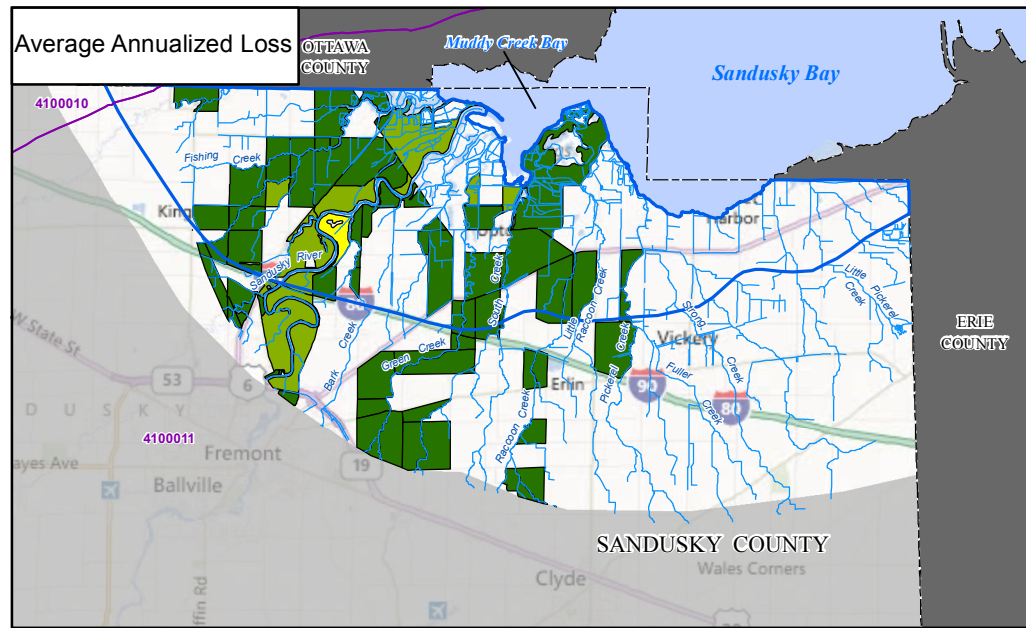
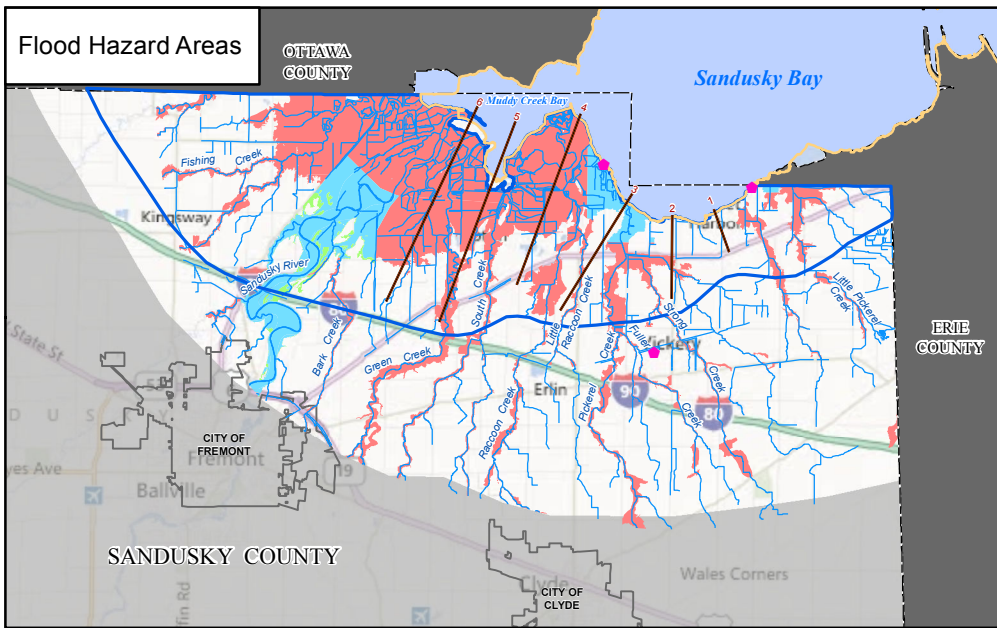
Discovery Map

LAKE ERIE COASTAL STUDY

Ottawa County
 Marblehead, Village of
 Oak Harbor, Village of

Port Clinton, City of
 Put-in-Bay, Village of

Final Discovery Map Date:
 March 29, 2013



NFIP Total Losses					
Community	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments (\$)
Sandusky County	70	53	0	13	299,294

Declared Disasters					
State	Date	County	Type	Incident Type	Title
OH	7/15/1969	Sandusky	DR	Tornado	Tornadoes, Severe Storms & Flooding
OH	04/27/1973	Sandusky	DR	Flood	Severe Storms & Flooding
OH	5/31/1974	Sandusky	DR	Flood	Severe Storms & Flooding
OH	6/30/1998	Sandusky	DR	Severe Storms	Severe Storms, Flooding, and Tornadoes
OH	9/19/2004	Sandusky	DR	Severe Storms	Severe Storms & Flooding
OH	7/2/2006	Sandusky	DR	Severe Storms	Severe Storms, Tornadoes, Straight Line Winds, and Flooding

Hazard Mitigation Action			
Name of Hazard Mitigation Plan	Plan Approval Date	Plan Expiration Date	Identified Hazard Mitigation Action
Sandusky County - Countywide All Natural Hazards Mitigation Plan	01/25/2010	01/25/2015	Install a County-wide communications system that will assist in pre-disaster and post-disaster response efforts before, during, and following natural disasters. Determine specific cause of flooding for each structure (watercourse, inadequate sewer capacity, etc.). Solidify mitigation initiatives for critical facilities (schools, nursing homes, fire departments, law enforcement agencies, and hospitals).



MAP SYMBOLOGY

LEGEND	SPECIAL FLOOD HAZARD AREAS	SANDUSKY COUNTY AAL DATA	CNMS* VALIDATION STATUS
● LOMC	A ZONE	■ \$1 - \$2,500	— UNVERIFIED
● Coastal Structure	AE ZONE	■ \$2,501 - \$100,000	— UNKNOWN
— Transect	0.2 PCT ANNUAL CHANCE FLOOD ZONE	■ \$100,001 - \$250,000	— VALID
— Lake Erie Shoreline		■ \$250,001 - \$750,000	
— HUC 8		■ \$750,001 - \$2,000,000	
— Stream			
— Discovery Study Area			
— Surrounding County			
— County Boundary			
— Municipal Boundary			

* CNMS - Coordinated Needs Management Strategy

COASTAL STUDY LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM

Discovery Map

LAKE ERIE COASTAL STUDY

Sandusky County, Ohio

Sandusky County

Final Discovery Map Date: March 29, 2013

Attachment D: Discovery Meeting

Attachment D-1: Meeting Agenda

Attachment D-2: Presentation

Attachment D-3: Sign-in Sheets

Attachment D-4: Meeting Summary

Attachment D-5: Meeting Evaluation Forms

Attachment D-6: Mitigation Action Form

Attachment D-7: Community Risk MAP Questionnaire Forms

Attachment D-8: Discovery Map Comments from Meeting

Attachment D-1

Meeting Agenda



Project Name:	FEMA Region V Discovery
Meeting:	Ottawa and Sandusky County, OH Great Lakes Coastal Discovery Meeting
Date and Time:	Wednesday August 1, 2012 3 PM to 5 PM
Place:	Oak Harbor Public Library 147 W. Main St., Oak Harbor, OH 43449
Facilitator:	Mike Hanke (FEMA) and Amelia Vincent (RAMPP)

Discovery Meeting Agenda

1. Why are we here? (15 minutes)

- Great Lakes Coastal Flood Study Overview and Schedule
- Discovery Process and Outcomes

2. Coastal mapping and flood risk topics to be aware of (25 minutes)

3. How does this apply to my community? (10 minutes)

4. Interactive Session A (25 minutes)

- View and Discuss Local Coastal Areas of Concern Using the Discovery Map and Community Risk MAP Questionnaire

5. Hazard mitigation opportunities and grant funding (10 minutes)

6. Interactive Session B (25 minutes)

- Discuss Mitigation Action Opportunities
- Introduce the Mitigation Action Form and the State Hazard Analysis Resource and Planning Portal (SHARPP)

7. Wrap Up (10 minutes)

- Review of action items and next steps

Optional Interactive Stations (30 minutes - 1hr following meeting)

- *Draft Transect Map Station: Talk to technical staff about draft transects and view draft transects in GIS*
- *Mitigation Resources, Strategies, and Actions Station: Talk with FEMA and State staff about areas of concern and potential mitigation actions to help reduce risk. Fill out Mitigation Action Form.*

Attachment D-2 Presentation



Lake Erie Discovery

Ottawa and Sandusky County, OH

August 1, 2012
3 pm to 5 pm

Oak Harbor Public Library
Oak Harbor, OH



Cedar Point Amusement Park



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Introductions

Who's here?

- State Representatives
 - ODNR
 - OEMA
- Risk MAP Project Team
 - FEMA
 - RAMPP
- Local Stakeholders
 - CEOs
 - Floodplain Administrators
 - Planners
 - Engineers
 - Emergency Managers
 - Community Leaders
 - Regional Planning Agencies
 - Coastal Organizations



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Discovery Meeting Agenda



- Why are we here?
 - Risk MAP Program, Great Lakes Study, and Discovery
- Coastal mapping and flood risk topics
- How does this apply to my community?
- Interactive Session A
 - View and Discuss Local Coastal Areas of Concern Using the Discovery Map and Community Risk MAP Questionnaire
- Hazard mitigation opportunities and grant funding
- Interactive Session B
 - Discuss Mitigation Action Opportunities and Introduce the Mitigation Action Form/SHARPP
- Wrap Up
- Optional Interactive Stations



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Risk Mapping, Assessment and Planning Risk MAP



Through collaboration with State, Local, and Tribal entities, Risk MAP aims to deliver **quality data** that increases **public awareness** and leads to **action that reduces risk** to life and property



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Great Lakes Coastal Flood Study



U.S. Army Corps of Engineers, 2009



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Great Lakes Coastal Flood Study Overview



- Latest models, data, and technology
 - Includes basin-wide water surface grids and storm sampling built from continuous record of 50 years of meteorological, water level, and ice field data (1960 - 2009)
 - Includes changes to runup computational approach
 - Updated version of Appendix D.3 (FEMA Guidelines and Standards)
 - Latest imagery, LiDAR, and Bathymetry
 - Deliver updated flood maps and flood risk datasets
- Equip Federal Agencies, eight States and hundreds of coastal communities with data and planning tools to facilitate flood risk actions to enhance resiliency along the Great Lakes



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Lake Erie Discovery



13 counties

- Ohio
 - Ashtabula
 - Cuyahoga
 - Erie
 - Lake
 - Lorain
 - Lucas
 - Ottawa
 - Sandusky
- Michigan
 - Monroe
 - Wayne
- New York
 - Chautauqua
 - Erie
- Pennsylvania
 - Erie



132 coastal communities

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Discovery Meeting Objectives



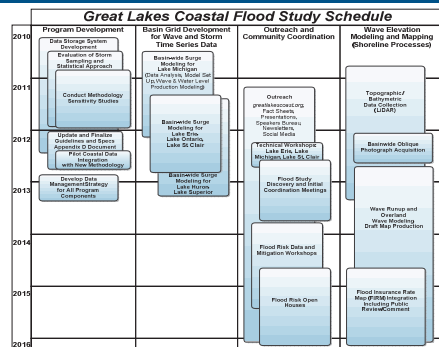
- Continue and expand upon stakeholder engagement
- Discuss data inputs from Federal, state and local
- Identify local coastal flood hazard needs and areas of concern
- Identify products and datasets that best advance coastal mitigation action
- NFIP regulatory updates
- Discovery schedule and deliverables

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Stakeholder Engagement



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Data Inputs



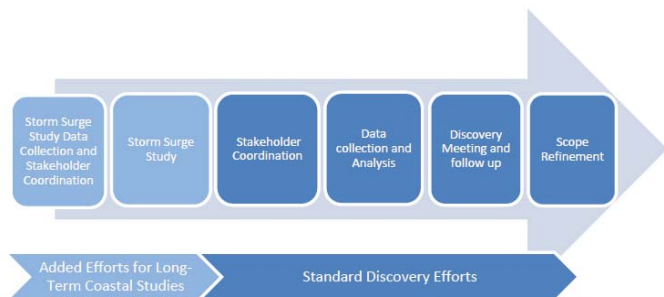
- Updates to analysis and methodology guidance
- Proposed transect locations
- Topographic and Bathymetry data collected
- Bare Earth Imagery collected
- Identify reaches requiring special attention and data
- Document local data sources that will help improve study

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Discovery Schedule Overview



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Lake Erie Discovery



Schedule of Activities

- Identify Draft Transect Locations – Completed
- Research available data – Completed
- Information Exchange with Community Stakeholders – July 2012
- Prepare draft Discovery Maps and Reports – July 2012
- Establish inventory of coastal structures based on oblique imagery – August/September 2012
- Facilitate Discovery Meetings – July/August 2012
- Final Discovery Report and Maps – November 2012
- Create library of digital data – November 2012

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Great Lakes Coastal Flood Study Discovery Products



- **Final Discovery Report**
 - Single, comprehensive report for all of Lake Erie, with appendices for each Discovery meeting
 - Includes pre-discovery data, meeting agenda, sign-in sheets, discussion topics, decisions made, etc.
- **Final Discovery Maps**
 - Including feedback from participants
 - Visual representation of meeting outcomes
 - Delivered in digital format



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Discovery Outcomes



- **Explain the Project**
 - Regulatory and non-regulatory products/datasets
 - Analysis, concepts, and timelines
- **Encourage Community Participation**
 - Transect Locations
 - Areas of concern and need
 - Data to improve upon products and datasets
- **Introduce Mitigation Action**
 - Mitigation Action Form
 - SHARPP
 - Mitigation strategies for coastal flood and erosion

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Data Collected



- Topographic – Light Detection and Ranging (LiDAR) from OSIP
- Bathymetry Data* – NOAA National Geophysical Data Center
- Base data – boundaries, streams, census blocks, etc.
- Average Annualized Loss data
- Shoreline classification
- Federal and State disaster information
- Repetitive loss data
- Mitigation plans
- Stream, wave, and water level gage locations

* New, high-quality USACE bathy/topo will replace existing data

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Data Gaps



- Building footprints
- Critically eroded beach areas
- Coastal construction control line
- Critical Facilities (in GIS format)
- High water marks
- Areas of recent or planned development and high growth
- Recent land changes due to development or erosion
- Known flooding issues not represented on effective FIRMs or listed in CNMS

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Coastal Mapping and Flood Risk Topics

- Draft Transects
- Coastal Guidance Updates
- VE Zone Mapping and LIMWA
- Coastal Flood Risk Products

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Basic Elements of a Coastal Hazard Analysis



Base Flood Elevation on FIRM includes 4 components:

1. Storm surge stillwater elevation (SWEL)
 2. Amount of wave setup
 3. Wave height above storm surge (stillwater) elevation
 4. Wave runup above storm surge elevation (where present)
- } Determined from storm surge model



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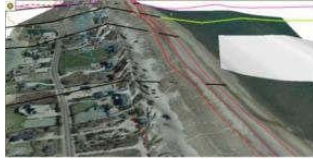
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Transect Placement



- Transects are placed to define representative profiles for a shoreline reach
- Transect spacing depends on upland development
 - Developed areas – As dense as 1,000 ft
 - Rural areas – Spacing can be 1-2 miles
- Transects are:
 - Profiles along which flooding analysis is performed
 - Used to transform offshore conditions to shoreline
 - Use to define coastal flood risks inland of shoreline



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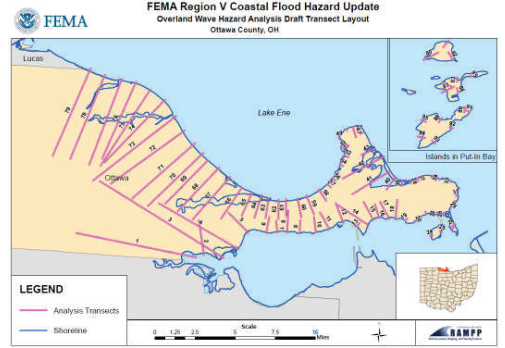
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Draft Transect Layout Ottawa County



- 97 transects
- 62 miles of shoreline along Lake Erie
- 23 miles along Sandusky Bay
- 4 miles along Muddy Creek Bay



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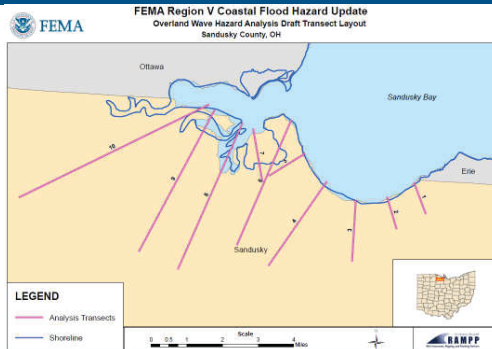
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Draft Transect Layout Sandusky County



- 10 transects
- 6 miles along Sandusky Bay
- 5 miles along Muddy Creek Bay



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Coastal Flood Hazard Zones



- Hazard Zones**
 - Zone VE** – Areas expected to be affected by high velocity wave impact in 100-year event (wave heights or runup depth at or greater than 3 feet)
 - Base Flood Elevation established
 - Zone AE** – Areas expected to be flooded by inundation in 100-year event
 - Base Flood Elevation established (wave heights and runup depth less than 3 feet)
 - Zone X** – Areas not expected to be flooded in 100-year event
 - Shaded X – Areas expected to be flooded in 500-year event
 - Base Flood Elevations not established
 - LiMWA** – Areas subject to wave heights of at least 1.5 feet
 - Non-Regulatory
- Gutters**
 - Internal zone breaks where Base Flood Elevation changes
 - VE/AE Gutter - Location where risk of damage due to wave action diminishes

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VE Zones in the Great Lakes



- From the revised Appendix D.3:
 - “VE zones may also be mapped where the engineering analysis indicates their presence”
 - “The typical study finding is a narrow VE zone, making its usefulness uncertain on maps at usual scales”
 - “Relatively small numbers of existing coastal buildings are likely to be affected by possible VE zone designations along some Great Lakes”
 - “Only with prior approval from the FEMA study representative should the VE zones be mapped”

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How is LiMWA Defined?



- LiMWA is the line mapped to delineate the inland extent of wave heights of at least 1.5 feet
 - Wave heights as small as 1.5 feet can cause significant damage to structures
- LiMWA alerts people that are not in the high wave hazard zone (Zone VE) that they may still be affected by wave action in the Zone
- CRS benefit for communities requiring Zone VE construction standards in areas defined by LiMWA or areas subject to waves greater than 1.5 ft

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Wave Action - Structural Risk



- US Army Corps of Engineers – 1973
 - Breaking wave height of 3 feet
 - “area subject to high velocity waters, including but not limited to hurricane wave wash”
- FEMA – 2000
 - Coastal Construction Manual
 - Additional post-storm damage assessments identified 1.5 wave also can knock a structure off a foundation



http://www.fema.gov/pdf/rebuild/mat/coastal_a_zones.pdf

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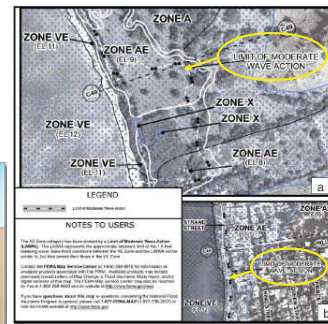
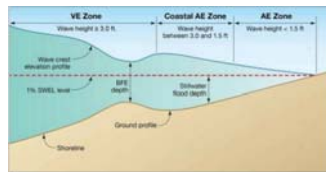


Limit of Moderate Wave Action (LiMWA)



FEMA Procedure Memorandum No. 50, 2008

- Not a regulatory requirement
- No Federal Insurance requirements tied to LiMWA



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Coastal Flood Risk Products

- Coastal Depth Grids and Hazus
- Changes Since Last FIRM
- Coastal Non-Regulatory Products

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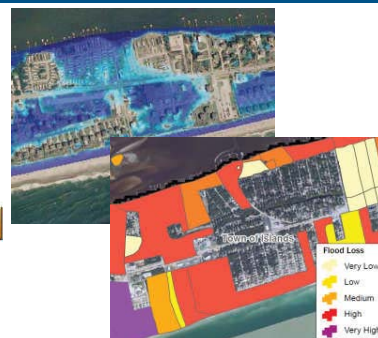


Standard Flood Risk Products



- Coastal Depth Grids
- Flood Risk Assessment (Hazus)

HAZUS
EARTHQUAKE • WIND • FLOOD MH



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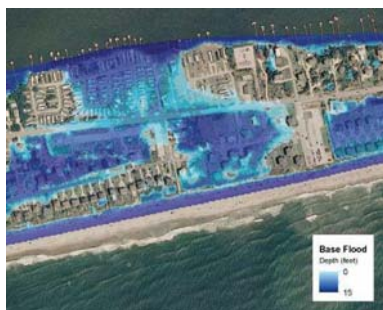
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Coastal Depth Grid



- Should reflect total depth (i.e. stillwater and waves) – typically only produced for the 1% annual chance flood
- Created using the regulatory mapping and associated zone breaks as input
- Depths reflect difference between wave crest elevation and ground for the 1-percent-annual-chance flood



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Coastal Flood Risk Assessments



- Similar to Flood Risk Assessments for riverine, but using the coastal depth grids as input for the refined analysis
- Hazus analysis and data can support adoption of higher regulatory standards for structures in high loss areas
- Provides justification to fund mitigation actions

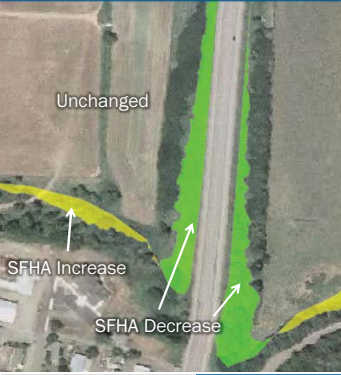


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Changes Since Last FIRM



Data Fields Include	Example Data Values
Old Study Date	e.g. 1985
Old Model Type(s)	e.g. HEC-1 / HEC-2
Old Zone Type	e.g. Zone A
Old Topography	e.g. USGS 10-ft
New Study Info/Methods	Dates, Models, etc.
New Study Zone	e.g. Zone AE
New Topography	e.g. LiDAR 2-ft
New Study Engineering Factors / Changes	e.g. new structures, gages, topo, landuse, etc.
Estimated Structures	e.g. 9
Estimated Population	e.g. 27

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Coastal Non-Regulatory Products



- If and when are products produced?
 - Operating Guidance for the Selection of Enhanced Datasets
 - Availability of coastal analysis modeling information
 - Will the information be beneficial to the communities?
 - Increase risk awareness?
 - Facilitate mitigation actions?
- Products may be produced for the entire coastline or focused areas determined to be the most valuable
 - Discovery process should facilitate these selections
- Additions to Flood Risk Map, Flood Risk Database, & Flood Risk Report
- Datasets will not be recreated from existing data available outside of FEMA. Direction to such information will be provided in the Flood Risk Report.

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Coastal Non-Regulatory Products in Development



Lake Levels



Shoreline Feature Dataset



Source: ODNR Office of Coastal Management

Erosion



Lake Erie Shoreline
Source: ODNR Office of Coastal Management

Lake Erie Erosion
From ODNR website



Flooding

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Shoreline Features Database



Shoreline Material	Primary Land Use	Primary Coast Type	Primary Vegetation
Sand	High Density Residential	High Dune, 10'+	None
Cohesive	Moderate Density Residential	Dune, 2' - 10'	High Density Shrubs/Trees
Cobble	Low Density Residential	High Bluff, 10'+	Moderate Density Shrubs/Trees
Diamicton*	Commercial/Industrial	Bluff, 2' - 10'	Low Density Shrubs/Trees
Shingle	Park Land	Coastal Wetland	Manicured Lawn
Bedrock	Farm Land	Flat Coast	Native Vegetation
Artificial	Forested		

- Contains primary and secondary Land Use tables – same for coast type and vegetation
- Current project collects data at one-mile spacing, for scoping and cost
- Current project does not include field-based reconnaissance or sediment/subsurface soils collection

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Coastal Flood Risk Map

- Similar to riverine map
- Highlights area where datasets were produced
- Use of callout boxes
- Should drive the conversation towards mitigation



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Areas Affected by Increased Coastal Inundation



- Highlights areas that would be inundated if water levels increased by 1, 2, or 3 ft (or other user-defined increase)
- Typically created for the 1% annual chance flood, but could be done for other flood events
- Possible causes for higher flood levels include more severe storm events and climate change impacts such as sea level rise



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Wave Hazard Severity Areas



- Highlights areas where wave hazard are high (V Zone and PFD), moderate (between V Zone and LiMWA where wave heights are between 1.5 – 3ft), and minimal (wave heights less than 1.5ft)
- Dataset can also optionally store number of buildings within each delineated polygon (if local building footprint data is available)



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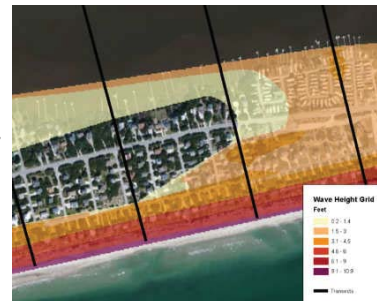
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Coastal Wave Height Grid



- Dataset showing wave height information to greater detail than the Wave Hazard Severity Areas dataset by delivering within a raster dataset
- Represents the full wave height, not just the portion of the wave crest that lies above the stillwater elevation
- Wave damage to structures can be mitigated if they are properly elevated above predicted water levels and wave heights on engineered foundations



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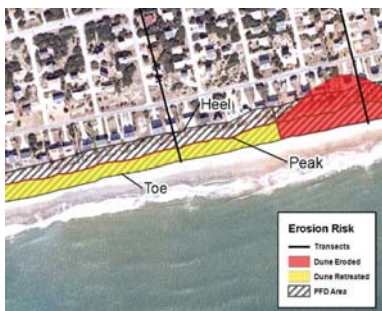
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Erosion Risk Determination



- Polygons depicting the spatial extent of the regulatory Primary Frontal Dune (PFD), based on topography and/or shoreline survey data and augmented with aerial photos as needed
- Polygons can be further subdivided to show the spatial extent of the eroded ground as estimated from the erosion analysis conducted for the 1% annual chance flood



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Coastal Updates to Flood Risk Report



- Explanations of coastal non-regulatory datasets and their use in risk communication and mitigation planning
- References to other publications and resources that provide information on coastal risks
- Captures and reports increases and decreases in Coastal High Hazard Areas (VE & V Zones) within the Changes Since Last FIRM tables in the FRR

Area of Study	Total Area (mi ²)	Increase (mi ²)	Decrease (mi ²)	Net Change (mi ²)
Within SFHA	23.8	1.6	0.4	1.2
Within Floodway	1.4	0.2	0.0	0.2
Within CHHA (VE or V Zone)	7.8	0.9	0.5	0.4

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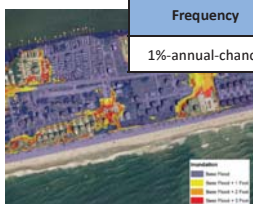


Coastal Updates to Flood Risk Report



- Captures and reports the additional areas that would be inundated, based on 1, 2, or 3 feet of increased inundation

Flood Event Frequency	Area of Additional Inundation (mi ²)				
	1-ft Increase	2-ft Increase		3-ft Increase	
		Newly Inundated	Total	Newly Inundated	Total
1%-annual-chance	0.6	0.8	1.4	1.2	2.6



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Coastal Updates to Flood Risk Report



- Captures and reports the total area and number of structures (if available) within each of the 3 different levels of wave hazard (High, Moderate, and Minimal)

Coastal Wave Hazard Severity	Total Area (mi ²)	# of Structures
High	0.4	15
Moderate	2.6	187
Minimal	3.3	296



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Non-Regulatory Product Usage and Action



- Risk MAP Products and Datasets help communities make good decisions to reduce flood risk:
 - Hazard Mitigation Planning
 - Floodplain Management and Community Rating System
 - Community Comprehensive or General Planning
 - Community Investment - Capital Improvement Planning
 - Public Outreach
 - Hazard Mitigation Assistance Grant Application Prioritization and Support
 - Other Non-FEMA Grants to Reduce Flood Risk
 - Response and Recovery Planning
- Mitigation Action Form

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How does this apply to my community?

- NFIP Compliance
- Local impacts of coastal study

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National Flood Insurance Program



- Allows property owners to purchase flood insurance at reduced rates
- Community responsibilities
 - adopt and enforce compliant regulations
- FOCUS is in building the local floodplain management capability
- In Ohio, approximately 750 communities participate in the NFIP



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V Zones for Ohio?



- Ohio currently does not have V/VE Zones or Coastal A/AE Zones
- All Counties along Lake Erie (except Ottawa County) have recently updated regulations
- If coastal flood zones are added, all affected communities must update regulations to include coastal requirements.
 - ODNR will provide regulations assistance and technical support if/when coastal flood zones are added for Ohio.

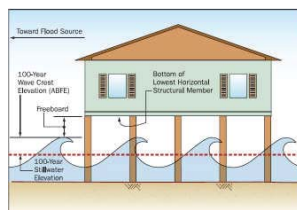
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Coastal Zones and NFIP Compliance



- Must meet minimum NFIP and community coastal requirements
- NFIP design and construction requirements are more stringent in V zones due to wave, debris, and erosion hazards in V zones
- Recommendations for exceeding the minimum NFIP requirements (Coastal A Zones)
 - Can obtain CRS credits for Coastal A Zone Requirements
- Resources Available



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Community Rating System (CRS)



- Flood insurance premium rates discounted to reward community actions that reduce flood losses, facilitate accurate insurance ratings, and promote the awareness of flood insurance
- Class rating system from 1 to 10
- Each Class improvement (500 point increments) results in additional 5% discount, up to 45% in SFHAs for Class 1 communities
- Uniform minimum credits give you points for activities on the state level (state laws) and make achieving a Class 9 relatively easy
- 18 creditable activities organized under four categories:
 - Public Information
 - Mapping and Regulations
 - Flood Damage Reduction
 - Flood Preparation
- <http://training.fema.gov/EMIWeb/CRS/>

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Ohio CRS Communities



In Ohio, there are 14 CRS communities.

- Cities
 - Fairfield, Kettering, New Richmond, Obetz, Shelby, South Euclid & West Carrollton
- Villages
 - Delta, Orange and Ottawa
- Counties
 - Licking, Ottawa, Preble and Medina



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Coastal Resources



- **Coastal Erosion Area Maps**
 - Identify areas of anticipated recession based on historic recession rates
- **Lake Erie Shore Erosion Management Plan**
 - Provides regionally based erosion mitigation recommendations
- **Coastal Design Manual**
 - Provides detailed design guidance for engineers and surveyors (erosion control measures)

For more information visit:
www.ohiodnr.com/coastal

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Interactive Session A

- View and Discuss Local Coastal Areas of Concern Using the Discovery Map and Community Risk MAP Questionnaire

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Ottawa County, OH Discovery Map



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Ottawa County, OH Discovery Map – CNMS Status

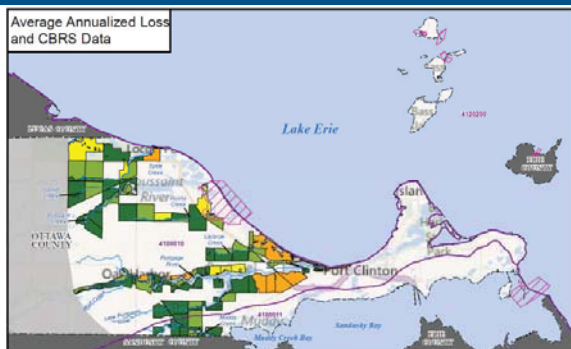


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Ottawa County, OH Discovery Map – AAL and CBRS

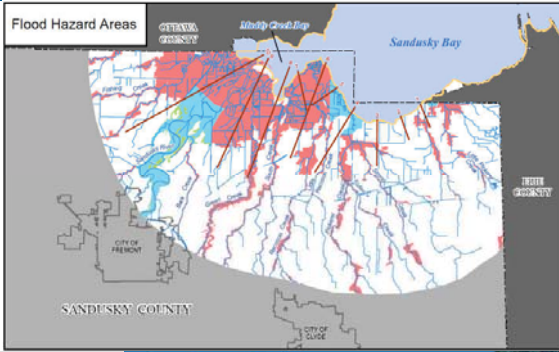


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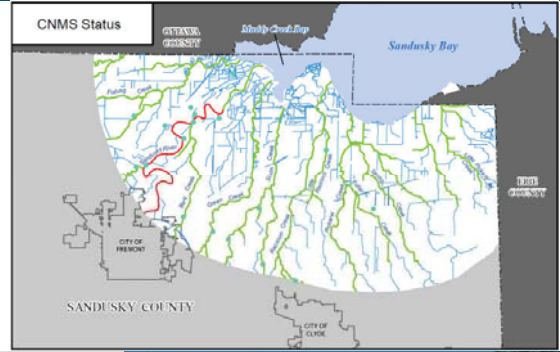
Sandusky County, OH Discovery Map – Flood Hazard Areas



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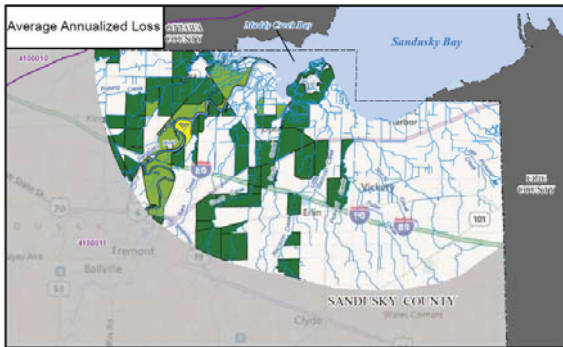
Sandusky County, OH Discovery Map – CNMS Status



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Sandusky County, OH Discovery Map – AAL



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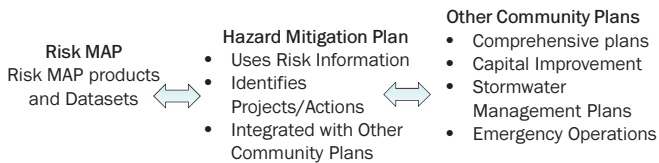
Hazard Mitigation

- Opportunities
- Grant Funding

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Local Hazard Mitigation Plans



Mitigation Actions/Projects

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Mitigation Actions



- Address specific **existing** assets (e.g., elevate critical facility, enlarge a culvert)
- Address **future** risks (e.g., update building codes)
- Based on local capabilities
 - Build on current strengths, ongoing efforts (add-on to stormwater management regulations)
 - Coordinate with Federal programs (e.g., NFIP, CRS)



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Example Mitigation Actions



STRUCTURAL PROJECTS
Acquisition
Elevation
Retrofits
Drainage

PLANNING MECHANISMS
Zoning
Building Codes
Ordinances
Open Space Plan

EDUCATION & OUTREACH
Public Awareness
Outreach
Educational programs

NATURAL RESOURCE PROTECTION
Stream and wetland restoration
Erosion control

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Mitigation Activities



- Ottawa County Mitigation Actions
 - Develop a drainage improvement program with the County Engineer's office that identifies undersized culvert piping and establishes a program for their replacement
- Sandusky County Mitigation Actions
 - Mitigate, as necessary, all repetitive loss structures within Sandusky County
 - Update and revise flood plain regulations and Flood Insurance Rate Maps

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Mitigation Grant Programs and Funding Sources



- **Federal**
 - Hazard Mitigation Grant Program (HMGP)
 - Pre-Disaster Mitigation Grant Program (PDM)
 - Flood Mitigation Assistance (FMA)
 - Repetitive Flood Claims (RFC)
 - Severe Repetitive Loss (SRL)
- **State**
 - Clean Ohio
 - State General Revenue Funds
 - Community Development Block Grants
- **Local**
 - Watershed Conservancy Districts
 - Local taxes
 - Storm water utilities

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Ohio Mitigation Best Practices



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Hazard Mitigation Resources, Strategies & Actions



- The right action (or mix of actions) will be based on recent community experiences and level of complexity in existing infrastructure
 - Public Works
 - Building Standards
 - Community Planning and HM Plan Update / Integration processes
 - Communication Processes, GIS, etc.
- Get the right people to the table: Integrated vs. Discipline-specific
- Document ideas and actions through the FEMA Mitigation Action Form

Land Use Ordinances Zoning, Setbacks, Floodplain Management, etc.	Local Building Codes IBC, IRC, Local Regulations, etc.	Mitigation Projects Acquisition, Elevation, Floodproofing, etc.	Community Identified Mitigation Programs	Management Best Practices Integration of natural hazards into other planning mechanisms
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Interactive Session B

- Discuss Mitigation Action Opportunities and Introduce the Mitigation Action Form/SHARPP

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Capturing and Tracking Mitigation Actions



Mitigation Action Form

Purpose and Help

This form is meant to assist the collection of Mitigation Actions.
 Online Mitigation Action Collection
<https://www.greatlakes.org/sharpp>

State Hazard Mitigation Officers Directory
<https://www.greatlakes.org/sharpp/sharpp-officers>

Your Information

Please enter the primary contact associated with this Mitigation Action.

- 1. Full Name** Required
Please provide your full name, e.g., Michael Scott
- 2. Email Address** Required
Please provide your email address, e.g., michael@domain.com
- 3. Your Title and Organization** Required
Please provide your relevant title and organization as it applies to this form, e.g., Regional Administrator for City of Boston, Canada.

Mitigation Action Information

Before please enter information as it directly applies to the mitigation action you are discussing.

- 4. Jurisdiction Name(s)** Required
Please provide the full name of the jurisdiction where the Mitigation Action applies, e.g., City of Boston, CA
- 5. Mitigation Activity Name** Required
Please provide the appropriate title. The Mitigation Action Source defines the current stage of the action. For example, a "Flooded" status suggests that the problem has been stopped or fixed with respect to those in the "Program" and advance research "Completed".
- 6. Mitigation Action Status** Required
Please check the appropriate box. The Mitigation Action Source defines the current stage of the action. For example, a "Flooded" status suggests that the problem has been stopped or fixed with respect to those in the "Program" and advance research "Completed".
- 7. Mitigation Action Source** Required
Please check the appropriate box. The Mitigation Action Source defines the source/origin that identified or notified the action or changing its status.

If this Mitigation Action was identified during the RiskMAP Process, please indicate the name of the RiskMAP Project.

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SHARPP



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Area Of Mitigation Interest (AOMI) in SHARPP



- Each AOMI point contains data about the area of interest



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AOMI




AOMI



- ### AOMI Information
- [+ Add new AOMI](#)
- Getting Started**
To get started, zoom to the location of the Mitigation Interest. Then, click on "Add new AOMI" to place a point on the specific location.
- [+ Submit AOMI](#)
- How to submit an AOMI:**
- Place a point on the map. Either zoom to where you'd like or enter an address. You can drag your point until you're happy with its location.
 - Click "Submit New AOMI", which will enter the AOMI form.
 - Enter your information and data about the location.
 - Repeat as necessary.

AOMI



Personal Information

First Name
Ex: Michael

Email
Ex: mcar@fema.gov

Last Name
Ex: Black

Organization
Ex: Ohio EMA

AOMI-Specific Information

AOMI Title
Please enter a useful and descriptive title. Ex: Main Street Culvert Under Capacity

Hazard Faced
Select the primary hazard causing the problem.
- Select -

Flood Hazard Classification
Select the class of the mitigation interest.
- Select -

Specific Type of Mitigation Interest
Select the type of the mitigation interest.
- Select -

AOMI Comments or Description
Please give some meaningful information about this area and the problems facing it.



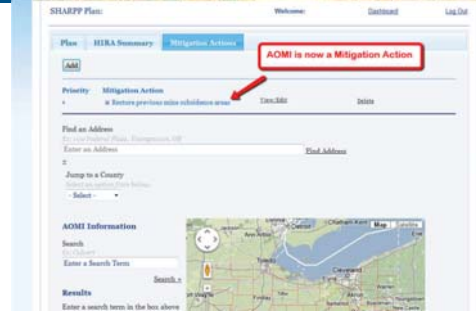
AOMI



RiskMAP



AOMI



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Questions?

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Results from Interactive Sessions



- Review and Clarify Communication, Planning, and Compliance Needs
 - Local coastal areas of concern
 - Existing local coastal data
 - Mitigation Action opportunities
 - Mitigation Action form
 - SHARPP

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Next Steps



- Communities will:
 - Provide all data and Mitigation Action Forms to RAMPP by August 31, 2012
- RAMPP/FEMA will:
 - Assess data and information provided
 - Email summary of today's Discovery Meeting to you within one month
 - Prepare final Discovery Maps and Discovery Report
 - Follow-up regarding Risk MAP Project

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Optional Interactive Stations



- Draft Transect Map Station
 - View draft transect locations and oblique imagery in data viewer
 - Discuss draft transect locations with technical staff
- Mitigation Resources, Strategies, and Actions Station
 - Talk with FEMA and State representatives about areas of concern and potential mitigation actions to help reduce risk
 - Fill out Mitigation Action Form/SHARPP

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Contacts



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RAMPP

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Attachment D-3

Sign-In Sheets



Ottawa and Sandusky County, Ohio Discovery Meeting Sign-In Sheet

August 1, 2012

Please sign in and confirm your contact information, making changes below as needed.

Organization	Name	Address	St, City, ZIP	Phone	Email	Initials
Ottawa County Emergency Management	Fred Petersen	315 Madison Street	Port Clinton, OH 43452	419-734-6901	fpetersen@co.ottawa.oh.us	FP
Sandusky County Emergency Management	Lisa Heyman	2323 Countryside Drive - Suite B	Fremont, OH 43420	419-334-6423	scema@bizwoh.rr.com	LH
Ottawa County Soil and Water District	Mike Libben	240 W. Lake Street	Oak Harbor, OH 43449	419-898-1595	mike.libben@ottawaswcd.com	ML
FEMA	Mike Hauke	536 S. Clark St	Chicago IL	312-408-5364	michael.hauke@emma.dhs.gov	mjh
PORTAGE TWP OTTAWA CO.	DAEW SUROVJAK	2348 E. SAND RD	PORT CLINTON OH 43452	419-732-2286	SUROVJAK@PORTAGE-TOWNSHIP.NET	DS
Piley Twp Trustee	John Antosjes	1063 CR 220 Fremont	43420	419-332-6868		JA
Benton Township Zoning Commission	Dale Kremer	13536 W. Toussaint North Rd	Oak Harbor, OH 43449	419-898-2337	dfkremer@hotmail.com	DK
Danbury Twp.	Kathy Dale	5972 E. Port Clinton Eastern Madriskad, OH	43440	419.734.6120	zoning@danburytownship.com	KAD
Sandusky County Reg. Planning	John Willey	108 Spunk Ave	Fremont 43420	334-6227		OW
Ohio EMA	Steve Ferryman	2555 W. Duplin Frankville Rd	Columbus OH 43235	614 799 3539	sferryman@dep.state.oh	SF

Ottawa and Sandusky County, Ohio Discovery Meeting Sign-In Sheet
August 1, 2012

Please sign in and confirm your contact information, making changes below as needed.

Organization	Name	Address	St, City, ZIP	Phone	Email	Initials
Riley Top Sandusky Co	David Sachs	997 NCR 198	Fremont OH 43420	419 332-4000	dwsachs@gmail.com	
ODNR	Ben Kelly Katherine Skalik	20015 Morse Rd	Columbus Ohio	614 265 6705 " " 6709	Benjamin.kelly@Dnr.state.oh.us Katherine.Skalik@ " " "	BIC
RAMPP	Amelia Vincent	12420 Milestone Center	Germantown MD 20826	301-820-3186	amelia.vincent@urs.com	AV
RAMPP	Ann Terranova	430 National Business Parkway Suite 400	Annapolis Junction, MD 20701	443-737-1300	ann.terranova@urs.com	
RAMPP	Taylor Asher	12420 Milestone Center Dr.	Germantown, MD 20826	301-820-3474	taylor.usher@urs.com	

Attachment D-4

Meeting Summary



Great Lakes Coastal Flood Study (www.greatlakescoast.org)
Ottawa and Sandusky County, OH – Lake Erie Discovery Meeting
August 1, 2012 3 pm to 5 pm
Oak Harbor Public Library
147 W. Main St., Oak Harbor, OH 43449

Discussion Highlights

1. **Introductions and Welcome (see attached sign-in sheet)**
2. **Purpose and Intent of Today's Meeting (see attached slides)**
3. **Coastal Mapping and Flood Risk Topics (see attached slides)**
4. **NFIP Compliance (see attached slides)**
5. **Interactive Session A: Discuss Local Coastal Areas of Concern Using the Discovery Map**
 - A question was asked to explain the term "LOMA".
 - Answer: A LOMA is a Letter of Map Amendment. The LOMA process allows property owners who have reason to believe their flood zone designation is in error to submit property and elevation information to FEMA and request that FEMA officially remove the property and/or structure from the Special Flood Hazard Area. More information on LOMA's can be found at <http://www.floodsmart.gov>.
 - Coastal Structures
 - A question was asked about the types of coastal structures included on the draft Discovery Maps.
 - Answer: The coastal structures shown on the draft Discovery Maps include seawalls, bulkheads, revetments, dikes and levees, breakwaters, groins, sills/perched beaches, and jetties and piers. The coastal structure data were extracted from the Enterprise Coastal Inventory Database from the Engineer Research and Development Center and was provided by the USACE Buffalo District in July 2012. USACE maintains over 900 coastal structures in the United States.
 - A question was asked whether rip-rap would be considered a coastal structure. There are areas in Port Clinton where rip-rap is in place along the shoreline.
 - Answer: Shoreline protected by rip-rap may not be included in the USACE coastal structures database. The person was asked to indicate these areas on the draft Discovery map for further investigation by RAMPP.
 - A comment was made that the flooding impacts experienced in Ottawa County are more associated with riverine flooding and not from Lake Erie.
 - On Sand Road (Ottawa County) there are houses on cliffs, however, some have breaker walls, and there are sandy beaches further down the shoreline.
 - Ms. Kathy Dale with Danbury Township asked what communities in other regions are assuming for freeboard above coastal Base Flood Elevations (BFEs) in V Zones. What is the difference in



BFEs/freeboard for coastal versus riverine settings? Ms. Dale expressed concern during the regulatory stage for construction in VE Zones once the new coastal maps are released.

- Answer: The freeboard, or factor of safety above the coastal BFE, adopted by communities can vary. Currently in Ohio, there are no V Zone standards because there are no V Zones in the state. As an example of freeboard in V Zones in other regions, the state of Mississippi requires V Zone freeboard ranging from 0.5 feet to 5 feet. Ohio is a minimum NFIP state, so any freeboard adoption is a higher standard. In Ohio, Zone A and Zone AE freeboards typically range from 0.5 feet to 2 feet with the most common being 2 feet. For example, Ashtabula and Cuyahoga Counties require a freeboard of 2 feet above the BFE in Zone AE areas.
- A question was asked whether the increase in elevation was going to be significant. There is concern that looking ahead, zoning officials will need to take this into consideration with regard to zoning and elevating structures.
 - Answer: The storm surge part of the Great Lakes Coastal Flood Study is nearing completion. The next phase is to perform the overland wave analysis which will begin in 2013. The magnitude of any increases to the BFE will not be known until the overland wave analysis has been completed.
- Mr. Fred Petersen with Ottawa County Emergency Management suggested that RAMPP contact the Ohio Environmental Protection Agency to what data this organization may have to support the Discovery Project. Mr. Petersen also suggested RAMPP follow up with the Western Lake Erie Area Contingency Planning Commission.
- Mr. John Willey with Sandusky County indicated that they have approximate A-zones for most of the coast and do not have BFEs at this time.
 - BFEs are only shown on the Flood Insurance Rate Map (FIRM) for areas modeled by detailed hydraulic analyses and are not shown on the FIRM within approximate A-zones.
- Mr. John Antesberger with Riley Township asked about wetland mitigation banking within Sandusky County.
 - Mr. David Sachs with Riley Township/Sandusky County commented that the floodplain areas in northern part of Riley Township are diked, which is causing floodplain areas to extend farther south. The wetland was developed for waterfowl and wildlife habitat but is causing flooding issues elsewhere in the Township.
 - Mr. Antesberger noted that the wetland area borders Route 6 and extends to the bay. There has been inconvenience flooding of roadways since wetland mitigation and dikes were put in place. Reportedly the roads become like rivers during rainfalls. Currently, 12-inch tile culverts are required for new driveways but a 30-inch box culvert is needed to handle drainage for the amount of water during rainfall.
 - Mr. Steve Ferryman with the Ohio Emergency Management Agency said that it appears that a complete review of the entire drainage system is needed.
 - Mr. Antesberger said that the Green Creek Watershed is the main problem and extends into Seneca County. He noted that Riley Township has 1,300 residents.



- Mr. Sachs said there are also issues with algal blooms and phosphorus in waterbodies within Riley Township.
- Mr. Willey commented that the actions of one agency within the Ohio Department of Natural Resources are affecting the actions of another agency.

6. Hazard Mitigation (see attached slides)

7. Interactive Session B: Mitigation Action Opportunities

8. Close. The Lake Erie Discovery meeting was adjourned at approximately 5 p.m.

These notes are an interpretation of discussions held. Please provide any additions or corrections to the originator within 5 days of the date signed; otherwise they will be assumed correct as written.

Prepared by: Amelia Vincent and Ann Terranova

Date: September 19, 2012

cc: Distribution/Participants

Attachments:

Discovery Meeting Sign-in Sheet
Slide Presentation

Attachment D-5
Meeting Evaluation Forms

Ottawa and Sandusky County, OH Discovery Meeting Evaluation Form

August 1, 2012

Please check the box that indicates your level of agreement with the following statements. Please provide comments for Strongly Agree, Strongly Disagree, and Not Applicable responses.

Statement	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	Not Applicable
-----------	----------------	----------------	----------------------------	-------------------	-------------------	----------------

As a Result of this Meeting:

I have a better understanding of the Great Lakes Coastal Flood Study and the Risk MAP Program.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

I have a better understanding of the coastal analysis, modeling, and mapping methods used for this project.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

I have a better understanding of my organization's role in the project and future activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

I am better prepared to explain the Great Lakes Coastal Flood Study, including how it impacts my organization or community.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Please provide your thoughts and ideas of ways to improve on future offerings of the Great Lakes Coastal Flood Study Discovery Meeting:

Statement	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	Not Applicable
-----------	----------------	----------------	----------------------------	-------------------	-------------------	----------------

Meeting Logistics:

The location of the meeting was convenient for me.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

The time of the meeting was convenient for me.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

The information presented was easy to understand.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

I preferred this meeting's format to others I've attended.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

The handouts provided at this meeting were helpful (if applicable).	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

Your contact information (Optional):

Name: _____

Organization: _____

City: _____ County: _____ State: _____

E-mail: _____ Phone: _____

Ottawa and Sandusky County, OH Discovery Meeting Evaluation Form

August 1, 2012

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--	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

I have a better understanding of the coastal analysis, modeling, and mapping methods used for this project.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

I have a better understanding of my organization's role in the project and future activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	--------------------------	-------------------------------------	--------------------------

Comments: _____

I am better prepared to explain the Great Lakes Coastal Flood Study, including how it impacts my organization or community.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Please provide your thoughts and ideas of ways to improve on future offerings of the Great Lakes Coastal Flood Study Discovery Meeting:

Our office is more concerned w/ inland and agricultural impacts

Statement	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	Not Applicable
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Meeting Logistics:

The location of the meeting was convenient for me.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

The time of the meeting was convenient for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

The information presented was easy to understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------

Comments: _____

I preferred this meeting's format to others I've attended.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

The handouts provided at this meeting were helpful (if applicable).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

Your contact information (Optional):

Name:		
Organization: Ottawa Soil + Water Conservation District		
City:	County:	State:
E-mail:		Phone:

Ottawa and Sandusky County, OH Discovery Meeting Evaluation Form August 1, 2012

Please check the box that indicates your level of agreement with the following statements. Please provide comments for Strongly Agree, Strongly Disagree, and Not Applicable responses.

Statement	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	Not Applicable
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Comments: _____

I have a better understanding of the coastal analysis, modeling, and mapping methods used for this project.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------

Comments: _____

I have a better understanding of my organization's role in the project and future activities.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

I am better prepared to explain the Great Lakes Coastal Flood Study, including how it impacts my organization or community.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------

Please provide your thoughts and ideas of ways to improve on future offerings of the Great Lakes Coastal Flood Study Discovery Meeting:

Statement	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	Not Applicable
-----------	----------------	----------------	----------------------------	-------------------	-------------------	----------------

Meeting Logistics:

The location of the meeting was convenient for me.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

The time of the meeting was convenient for me.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

The information presented was easy to understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

I preferred this meeting's format to others I've attended.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

The handouts provided at this meeting were helpful (if applicable).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

Your contact information (Optional):

Name: _____

Organization: _____

City: _____ County: _____ State: _____

E-mail: _____ Phone: _____

Ottawa and Sandusky County, OH Discovery Meeting Evaluation Form August 1, 2012

Please check the box that indicates your level of agreement with the following statements. Please provide comments for Strongly Agree, Strongly Disagree, and Not Applicable responses.

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--	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

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---	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

I have a better understanding of my organization's role in the project and future activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

I am better prepared to explain the Great Lakes Coastal Flood Study, including how it impacts my organization or community.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Please provide your thoughts and ideas of ways to improve on future offerings of the Great Lakes Coastal Flood Study Discovery Meeting:

*A lot of material covered was new to me?
 Need time to review & understand acronyms - government depts & how they related to topic at hand.*

Statement	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	Not Applicable
-----------	----------------	----------------	----------------------------	-------------------	-------------------	----------------

Meeting Logistics:

The location of the meeting was convenient for me.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: Excellent facility & location

The time of the meeting was convenient for me.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: Later in day → would be better - such as 7 PM - 9 PM

The information presented was easy to understand.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: Too many acronyms

I preferred this meeting's format to others I've attended.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

The handouts provided at this meeting were helpful (if applicable).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

Your contact information (Optional):

Name: <u>DALE KREMER</u>		
Organization: <u>Benton Township Zoning Commission -</u>		
City: <u>Oak Harbor</u>	County: <u>Ottawa</u>	State: <u>OHIO</u>
E-mail: <u>dfkremer@hotmail.com</u>		Phone: <u>419-898-2337</u>

Ottawa and Sandusky County, OH Discovery Meeting Evaluation Form August 1, 2012

Please check the box that indicates your level of agreement with the following statements. Please provide comments for Strongly Agree, Strongly Disagree, and Not Applicable responses.

Statement	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	Not Applicable
-----------	----------------	----------------	----------------------------	-------------------	-------------------	----------------

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--	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

I have a better understanding of the coastal analysis, modeling, and mapping methods used for this project.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

I have a better understanding of my organization's role in the project and future activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

I am better prepared to explain the Great Lakes Coastal Flood Study, including how it impacts my organization or community.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Please provide your thoughts and ideas of ways to improve on future offerings of the Great Lakes Coastal Flood Study Discovery Meeting:

To Early in the Study to know effects of the study to really provide worthy input. Need to contact each jurisdiction along coast directly to discuss new developments or potential issues

Statement	Strongly Agree	Somewhat Agree	Neither Agree Nor Disagree	Somewhat Disagree	Strongly Disagree	Not Applicable
-----------	----------------	----------------	----------------------------	-------------------	-------------------	----------------

Meeting Logistics:

The location of the meeting was convenient for me.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

The time of the meeting was convenient for me.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

The information presented was easy to understand.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Comments: _____

I preferred this meeting's format to others I've attended.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

The handouts provided at this meeting were helpful (if applicable).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
---	--------------------------	--------------------------	-------------------------------------	--------------------------	--------------------------	--------------------------

Comments: _____

Your contact information (Optional):

Name:		
Organization:		
City:	County:	State:
E-mail:		Phone:

Attachment D-6
Mitigation Action Form

Mitigation Action Form



Purpose and Help

This form is meant to assist the collection of Mitigation Actions.

Online Mitigation Action Collection:

<http://fema.starr-team.com>

State Hazard Mitigation Officers Directory:

<http://www.fema.gov/about/contact/shmo.shtm>

Your Information

Please enter the primary contact associated with this Mitigation Action.

1. Full Name *Required*

Please provide your full name, e.g.: Michael Smith

2. Email Address *Required*

Please provide your email address, e.g.: example@example.com

3. Your Title and Organization *Required*

Please provide your relevant title and organization as it applies to this form, e.g.: Floodplain Administrator for City of Boulder, Colorado.

Mitigation Action Information

Below please enter information as it directly applies to the mitigation action you are discussing.

4. Jurisdiction Name(s) *Required*

Please provide the full name of the jurisdiction where the Mitigation Action applies, e.g.: City of Boulder, CO

5. Mitigation Activity Name *Required*

The Mitigation Activity Name should be concise yet descriptive. For example, flood acquisition projects along south side of Main St.

6. Mitigation Action Status *Required*

Please check the appropriate box. The Mitigation Action Status defines the current stage of the action. For example, a 'Scoped' status suggests that the action has been scoped or funded with intentions to move to 'In Progress' and advance toward 'Completion'.

Identified Scoped In Progress Completed

7. Mitigation Action Source *Required*

Please check the appropriate box. The Mitigation Action Source defines the source/process that identified or refined the action or changing its status.

Risk MAP Process Capital Improvement Plan
 Local Mitigation Plan Comprehensive Plan
 HMA Database Other _____

If this Mitigation Action was identified during the RiskMAP Process, please indicate the name of the RiskMAP Project.

8. Mitigation Plan Name

If known, please provide existing plan name. The Mitigation Plan Name refers to the local Hazard Mitigation Plan adopted by this jurisdiction(s). For example, Winnebago County, IL Multi-Jurisdictional Hazard Mitigation Plan.



← Scan this image with your smartphone to visit the Mitigation Action Collection website. This site is in beta and will change prior to implementation.

9. Hazard Type *Required*

Select the main type of hazard affected by this Mitigation Action. Check/circle only one.

- | | | |
|--|---------------------------------------|---------------------------------------|
| <input type="checkbox"/> Coastal Erosion | <input type="checkbox"/> Hurricane | <input type="checkbox"/> Wildfire |
| <input type="checkbox"/> Dam/Levee Failure | <input type="checkbox"/> Landslide | <input type="checkbox"/> Wind |
| <input type="checkbox"/> Drought | <input type="checkbox"/> Thunderstorm | <input type="checkbox"/> Winter Storm |
| <input type="checkbox"/> Earthquake | <input type="checkbox"/> Tornado | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Flood | <input type="checkbox"/> Tsunami | |

10. Mitigation Category *Required*

Select the type of Mitigation effort being undertaken. Check/circle only one.

- | | |
|---|--|
| <input type="checkbox"/> Building Code | <input type="checkbox"/> Management Best Practices |
| <input type="checkbox"/> Community Identified Program | <input type="checkbox"/> Mitigation Project |
| <input type="checkbox"/> Land Use Ordinance | <input type="checkbox"/> Other _____ |

11. Category Type and Subtype *Required if Applicable. See Part B: Reference Sheet*

Please see Part B, Reference Sheet for applicable Category types and subtypes. Thank you for your patience in filling out this form. More complete and accurate data helps FEMA be more efficient with time and dollars.

Type: _____ Subtype: _____

12. Mitigation Action Commitment *Required*

Please indicate the level of commitment associated with this Mitigation Action. Check/circle only one. The Mitigation Commitment seeks to clarify if the action is a new activity for the community as opposed to maintaining or strengthening something the community is already supporting. For example, a community may seek to "Strengthen Existing" flood ordinances by adopting higher freeboard standards.

- Add New
- Strengthen Existing
- Maintain Existing

13. Responsible Agency *Required*

Please indicate the Agency that will be responsible for this Mitigation Action. Check/circle only one.

- | | |
|--|---------------------------------------|
| <input type="checkbox"/> Building Code | <input type="checkbox"/> Planning |
| <input type="checkbox"/> Community Development | <input type="checkbox"/> Public Works |
| <input type="checkbox"/> Emergency Management | <input type="checkbox"/> State DOT |
| <input type="checkbox"/> First Responders (Fire, Police, etc.) | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> National Guard | |

14. Estimated Project Span

Enter the estimated start and completion of the project. Please use the mm/dd/yyyy format.

Start: _____ Completion: _____

15. Estimated Cost

Enter the estimated cost for the project. The Estimated Cost for the mitigation activity does not have to be precise. Rather it could be used for general planning or budgeting purposes. Results may also allow officials associate actions with Hazard Mitigation Assistance resources where/when available.

\$ _____

16. Funding Source *Required*

Please indicate the expected funding source for the project. Check/circle only one.

- | | |
|---|---|
| <input type="checkbox"/> Community | <input type="checkbox"/> State |
| <input type="checkbox"/> County | <input type="checkbox"/> Other Federal Agency _____ |
| <input type="checkbox"/> FEMA | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Private | |
| <input type="checkbox"/> Property Owner | |

17. Funding Source Type *Required if Applicable. See Part B: Reference Sheet*

Please see Part B, Reference Sheet for applicable funding types.

18. Additional Details

If you would like to enter additional information please fill in the space below.



← Scan this image with your smartphone to visit the Mitigation Action Collection website. This site is in beta and will change prior to implementation.

Mitigation Action Form



Part B : Reference Sheet

Category Types and SubTypes

Use for answering Question 11.

Land Use

- Coastal Zone Management
- Conduct Safe Growth
- Floodplain Management
- Open Space Preservation
- Stormwater Management
- Subdivision Ordinance
- Zoning
- Other

Building Code

- Enforcement
- International Building Code
 - 2009
 - 2012
 - 2015
 - 2018
 - Other
- International Residential Code
 - 2009
 - 2012
 - 2015
 - 2018
 - Other
- Local or Enhanced Building Code
- Post Disaster Code Enforcement
- Other

Management Best Practices

- Integrate Natural Hazards into Planning Mechanisms
- Other

Mitigation Project

- Acquisition
- Elevation
 - Structure
 - Utilities
 - Other
- Flood Risk Management
 - Bridge
 - Culvert
 - Dams
 - Debris
 - Drainage Improvements
 - Jetties
 - Levees
 - Removal
 - Revetments
 - Seawalls
 - Other
- Forest or Vegetation Management
- Natural Systems Restoration
 - Beach
 - Dune Rehabilitation
 - Nourishment
 - Wetlands
 - Other
- Soil Stabilization or Erosion Control
- Retrofit
 - Non-Structural
 - Structural
 - Other
- Safe Room Construction
- Underground Utilities
- Other

Community Identified Program

- CRS
- Firewise
- NFIP
- StormReady
- Other



← Scan this image with your smartphone to visit the Mitigation Action Collection website. This site is in beta and will change prior to implementation.

Funding Types

Use for answering Question 17.

Other Community

- **Bonds**
- **General Funds**
- **Tax Levies**
- **Other**

FEMA

- **FMA-Flood Mitigation Assistance**
- **HMGP-Hazard Mitigation Grant Program**
- **PA-Public Assistance**
- **RFC-Repetitive Flood Claims**
- **SRL-Severe Repetitive Loss**
- **Other**

Other Federal Agency

- **BIA**
- **DOT**
- **EPA**
- **HUD**
- **NOAA**
- **USGS**
- **Other**

Private

Property Owner

State

Other

Attachment D-7
Community Risk MAP Questionnaire
Forms



Ohio Department of Natural Resources
Division of Soil and Water Resources

Community Risk MAP Questionnaire

As a partner, local participation is a primary component of identifying potential Risk MAP (Mapping, Assessment, and Planning) needs. The questions below ask for specific information regarding your community to assist in the development of Risk MAP projects. Please answer as thorough as possible and provide your notes at the Discovery Meeting.

COMMUNITY: BENTON TOWNSHIP CONTACT: DALE KREMER
OTTAWA COUNTY

Does your community have recent topographic data (e.g., LiDAR, DEM, etc.)?

Do you have local parcel or structural footprint data?

Have there been any additional flood studies performed recently, that are not incorporated in the current FIRM?

Are there areas of flooding within your community that are not identified on current FIRM? If so, what and where is the flooding source?

Has there been recent development causing change to flooding within your community (e.g., roads, filling, structural, etc.)?

Are there repetitively flooded properties within your community? If so, where?

*Comments on
back*

Are there areas for potential mitigation projects in your community (e.g., severely flooded areas, properties, etc.)? If so, what and where?

Are there levees or other coastal flood control structures within your community?

A number of levees/dike privately owned/built to protect farm fields and residences.

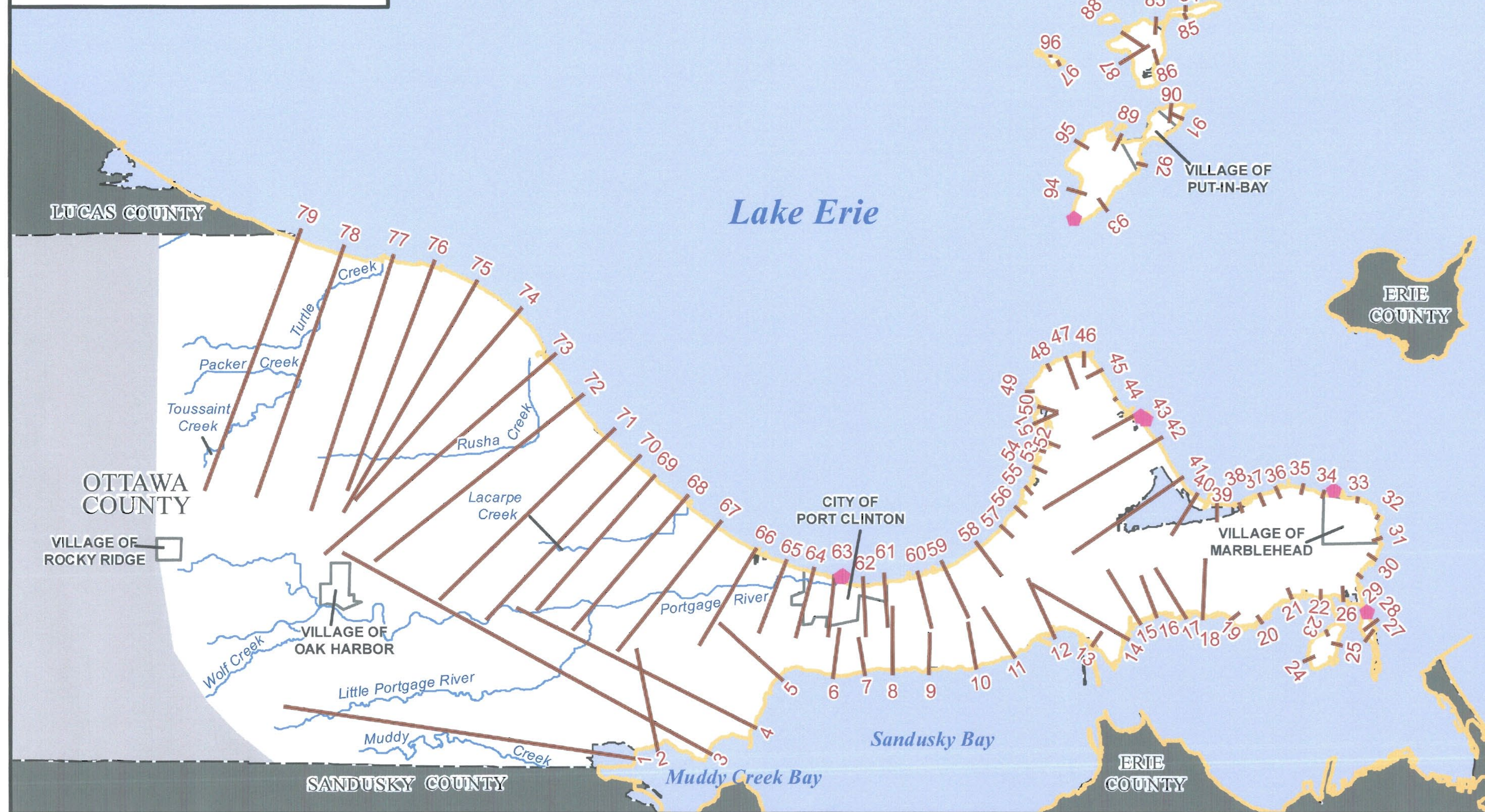
Are there plans in place for flood control projects (e.g., levees, groins, breakwaters, artificial headlands, etc.)? If so, what and where?

Are there any other issues that need to be addressed regarding coastal flooding?

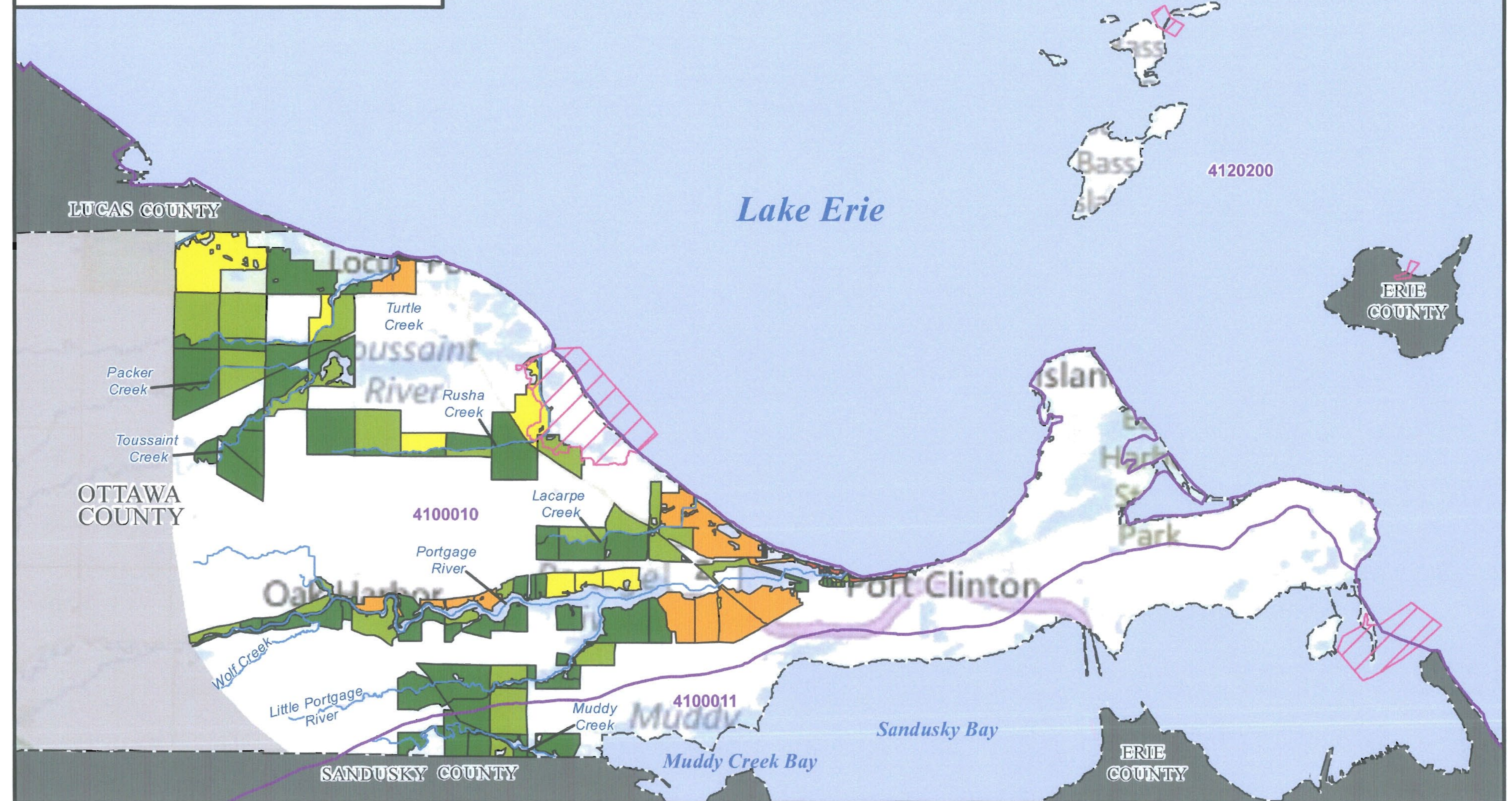
Ottawa National Refuge & State Park located on North end of Benton Township will mitigate much coastal flooding going into Benton Township

Attachment D-8
Discovery Map Comments from
Meeting

Coastal Structures and Transects



Average Annualized Loss and CBRS Data



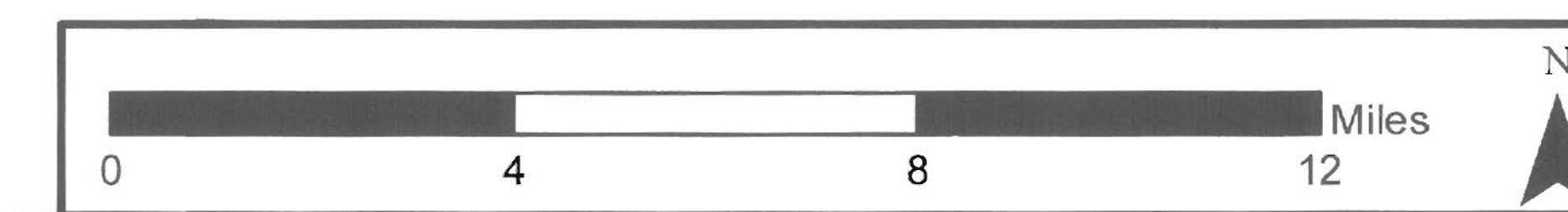
CNMS Status



NFIP Total Losses					
Community	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments (\$)
Ottawa County	1,112	909	0	202	6,037,311
Marblehead, Village of	6	4	0	2	27,982
Oak Harbor, Village of	52	47	0	5	357,558
Port Clinton, City of	185	149	0	34	917,592
Put-In-Bay, Village of	15	12	0	3	82,703

Declared Disasters					
State	Date	County	Type	Incident Type	Title
OH	07/15/1969	Ottawa	DR	Tornado	Tornadoes, Severe Storms, and Flooding
OH	11/24/1972	Ottawa	DR	Flood	Severe Storms & Flooding
OH	04/27/1973	Ottawa	DR	Flood	Severe Storms & Flooding
OH	05/31/1974	Ottawa	DR	Flood	Severe Storms & Flooding
OH	08/04/1992	Ottawa	DR	Severe Storm	Severe Storms, Flooding, & Tornadoes
OH	06/30/1998	Ottawa	DR	Severe Storm	Severe Storms, Flooding, & Tornadoes
OH	09/19/2004	Ottawa	DR	Severe Storm	Severe Storms & Flooding

Hazard Mitigation Action			
Name of Hazard Mitigation Plan	Plan Approval Date	Plan Expiration Date	Identified Hazard Mitigation Action
Ottawa County - All Natural Hazards Mitigation Plan	02/13/2006	02/13/2011	Continue developing and implementing the advance warning notification system. Implement a higher standard of construction codes for areas susceptible to specific types of hazards. Undertake a hazard assessment analysis of all critical facilities. Promote the increased use of the Erosion Control Loan program administered by ODNR.



MAP SYMBOLOLOGY

<ul style="list-style-type: none"> ● LOMCs — Transects — Lake Erie Shoreline — HUC 8 — CBRS — Streams □ Discovery Area ■ Surrounding Counties ■ County Boundary □ Municipal Boundaries 	<ul style="list-style-type: none"> ★ Wave Gages ✚ Ports ✱ USGS Gages ✳ Coastal Structures ▲ Power Reactor Units <p>SPECIAL FLOOD HAZARD AREAS</p> <ul style="list-style-type: none"> ■ A ■ AE ■ 0.2 PCT ANNUAL CHANCE FLOOD 	<p>OTTAWA COUNTY AAL DATA Total Average Annualized Losses per Census Block</p> <ul style="list-style-type: none"> ■ \$1 - \$2,500 ■ \$2,501 - \$100,000 ■ \$100,001 - \$250,000 ■ \$250,001 - \$750,000 ■ \$750,001 - \$2,000,000 	<p>CNMS VALIDATION STATUS</p> <ul style="list-style-type: none"> — UNVERIFIED — UNKNOWN — VALID
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COASTAL STUDY LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM
Discovery Map

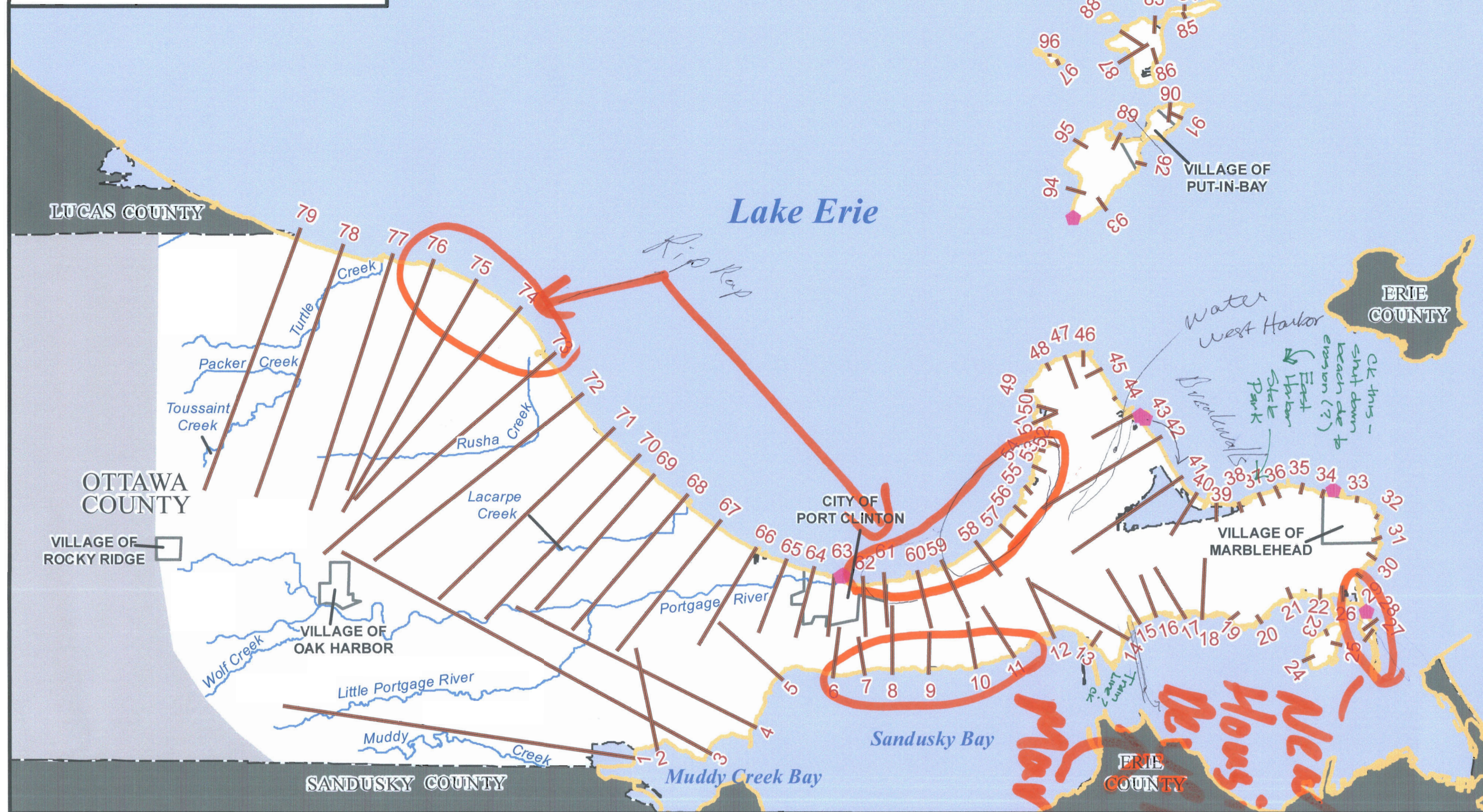
LAKE ERIE COASTAL STUDY
Ottawa County, Ohio

Marblehead, Village of Port Clinton, City of
Oak Harbor, Village of Put-In-Bay, Village of
Ottawa County

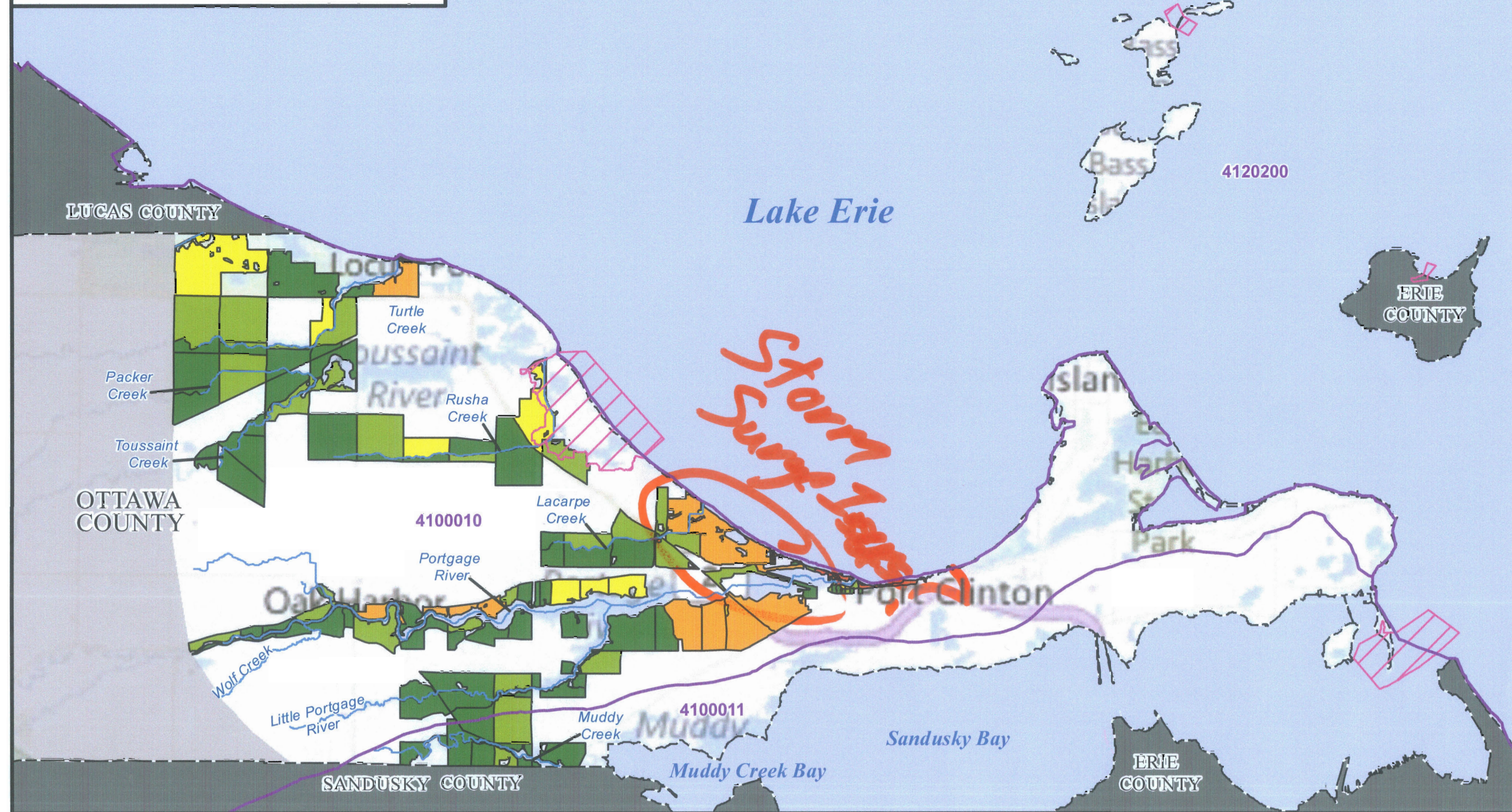
DRAFT MAP

Discovery Meeting Date:
August 1, 2012

Coastal Structures and Transects



Average Annualized Loss and CBRS Data



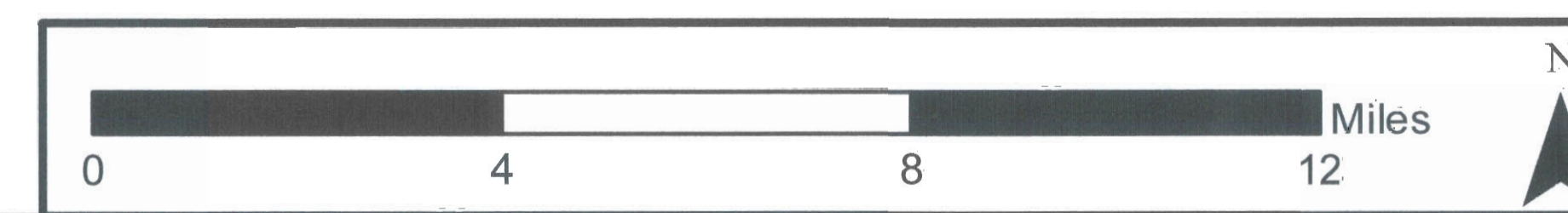
CNMS Status



NFIP Total Losses					
Community	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments (\$)
Ottawa County	1,112	909	0	202	6,037,311
Marblehead, Village of	6	4	0	2	27,982
Oak Harbor, Village of	52	47	0	5	357,558
Port Clinton, City of	185	149	0	34	917,592
Put-In-Bay, Village of	15	12	0	3	82,703

Declared Disasters					
State	Date	County	Type	Incident Type	Title
OH	07/15/1969	Ottawa	DR	Tornado	Tornadoes, Severe Storms, and Flooding
OH	11/24/1972	Ottawa	DR	Flood	Severe Storms & Flooding
OH	04/27/1973	Ottawa	DR	Flood	Severe Storms & Flooding
OH	05/31/1974	Ottawa	DR	Flood	Severe Storms & Flooding
OH	08/04/1992	Ottawa	DR	Severe Storm	Severe Storms, Flooding, & Tornadoes
OH	06/30/1998	Ottawa	DR	Severe Storm	Severe Storms, Flooding, & Tornadoes
OH	09/19/2004	Ottawa	DR	Severe Storm	Severe Storms & Flooding

Hazard Mitigation Action			
Name of Hazard Mitigation Plan	Plan Approval Date	Plan Expiration Date	Identified Hazard Mitigation Action
Ottawa County - All Natural Hazards Mitigation Plan	02/13/2006	02/13/2011	Continue developing and implementing the advance warning notification system. Implement a higher standard of construction codes for areas susceptible to specific types of hazards. Undertake a hazard assessment analysis of all critical facilities. Promote the increased use of the Erosion Control Loan program administered by ODNR.



MAP SYMBOLOLOGY

<ul style="list-style-type: none"> LOMCs Transects Lake Erie Shoreline HUC 8 CBRS Streams Discovery Area Surrounding Counties County Boundary Municipal Boundaries 	<ul style="list-style-type: none"> Wave Gages Ports USGS Gages Coastal Structures Power Reactor Units 	OTTAWA COUNTY AAL DATA Total Average Annualized Losses per Census Block <ul style="list-style-type: none"> \$1 - \$2,500 \$2,501 - \$100,000 \$100,001 - \$250,000 \$250,001 - \$750,000 \$750,001 - \$2,000,000 	CNMS VALIDATION STATUS <ul style="list-style-type: none"> UNVERIFIED UNKNOWN VALID
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SPECIAL FLOOD HAZARD AREAS <ul style="list-style-type: none"> A AE 0.2 PCT ANNUAL CHANCE FLOOD
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COASTAL STUDY LOCATOR



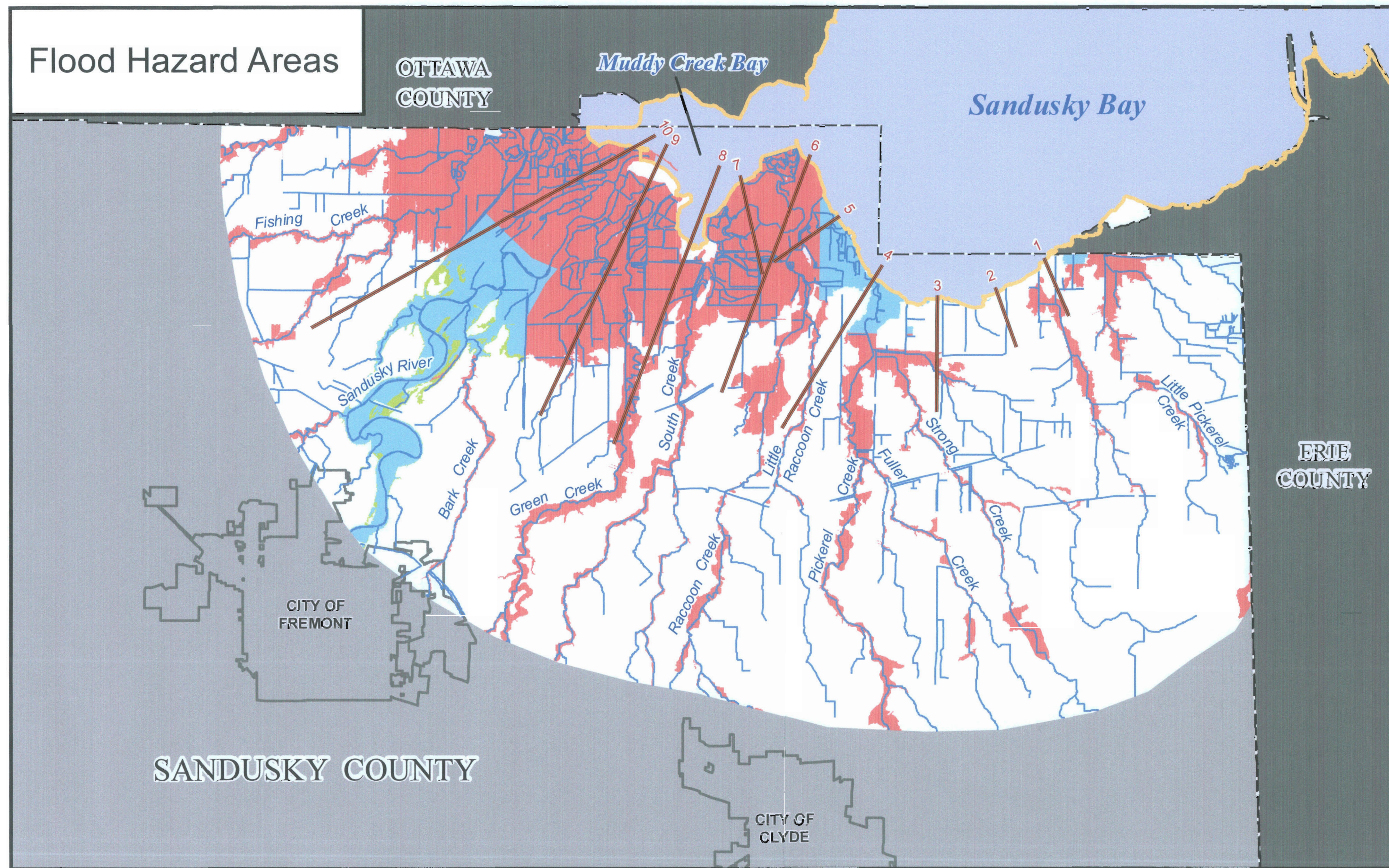
NATIONAL FLOOD INSURANCE PROGRAM
Discovery Map
LAKE ERIE COASTAL STUDY
 Ottawa County, Ohio

Marblehead, Village of | Port Clinton, City of
 Oak Harbor, Village of | Put-In-Bay, Village of
 Ottawa County

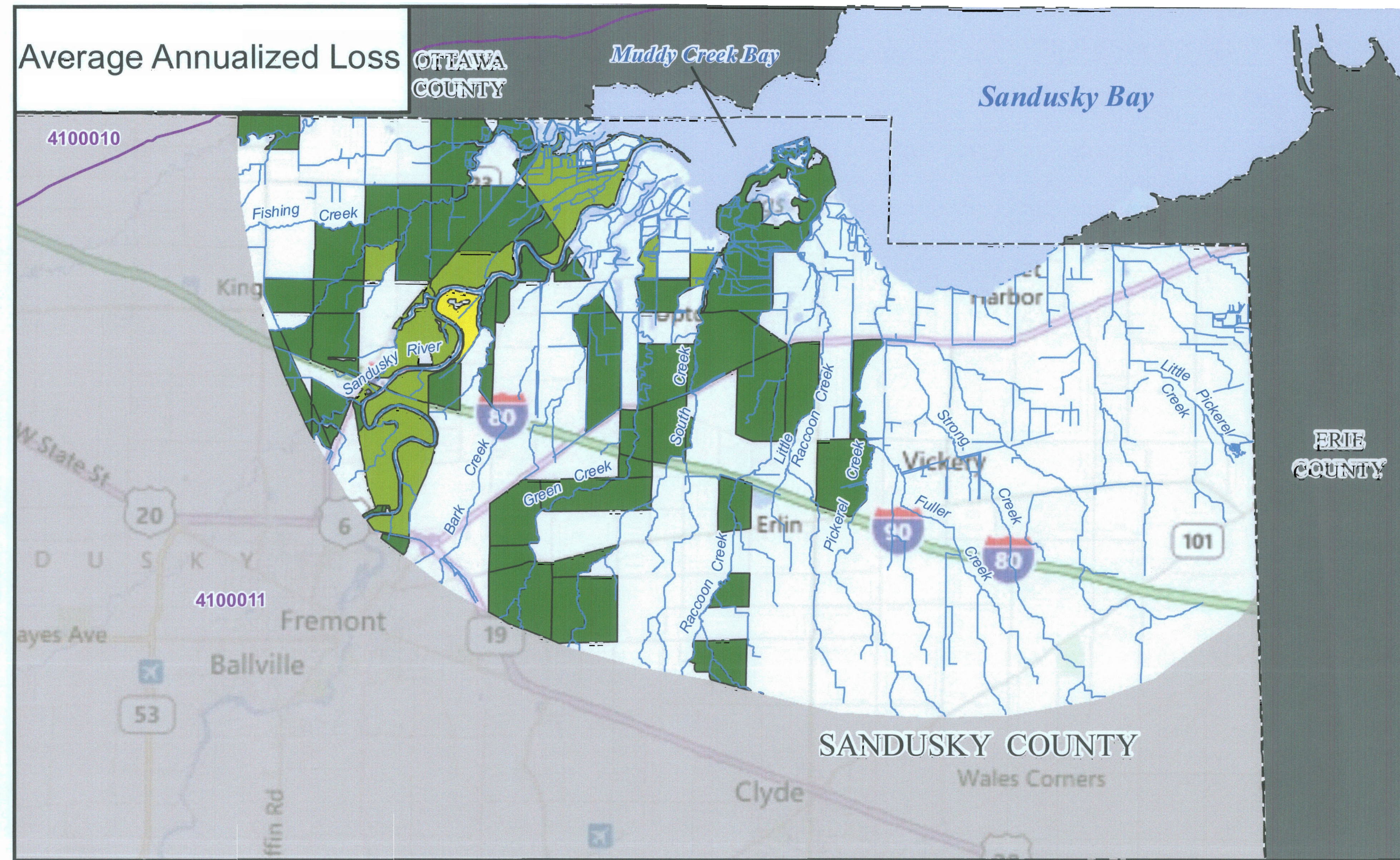
DRAFT MAP

Discovery Meeting Date: August 1, 2012

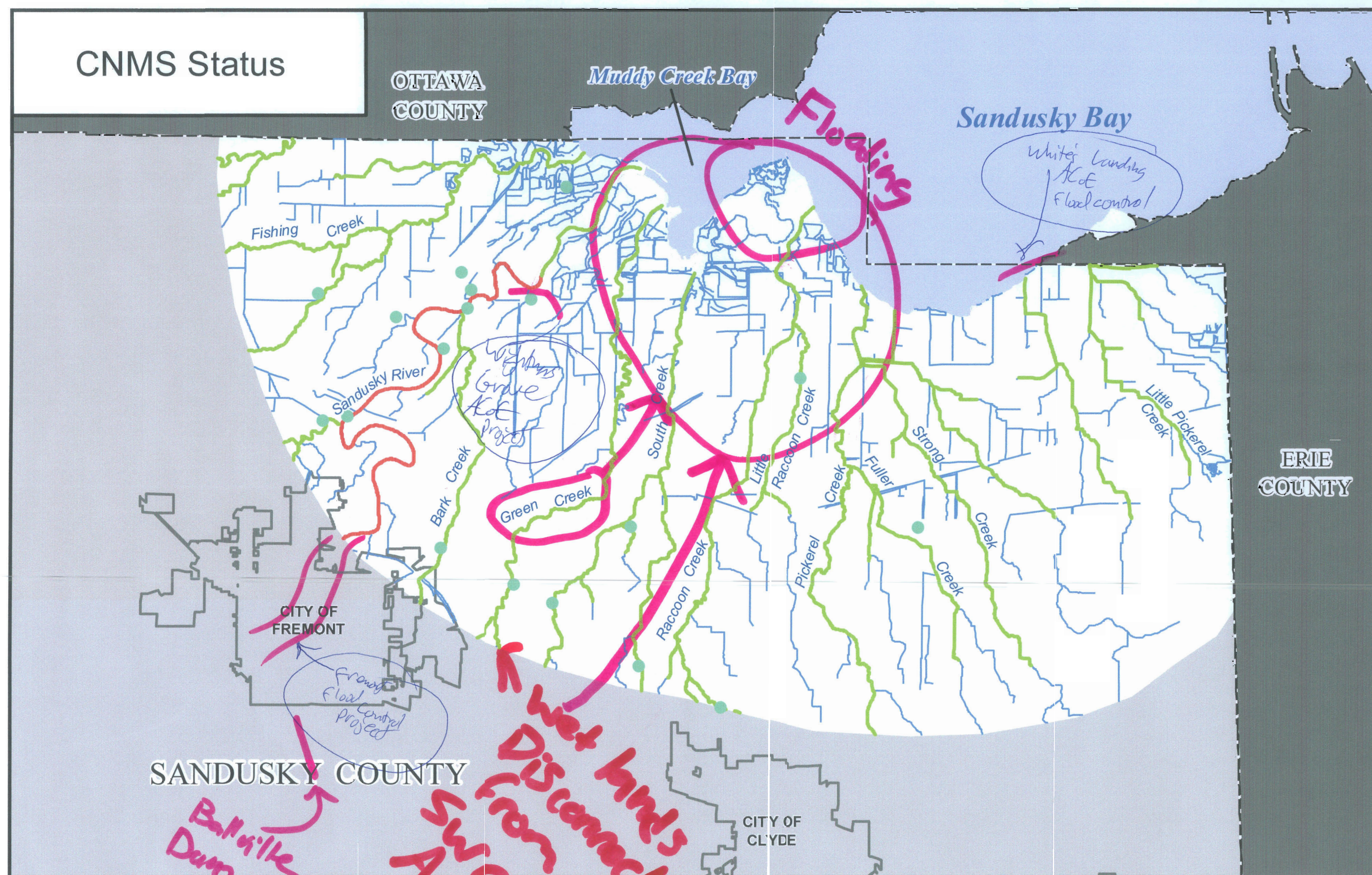
Flood Hazard Areas



Average Annualized Loss



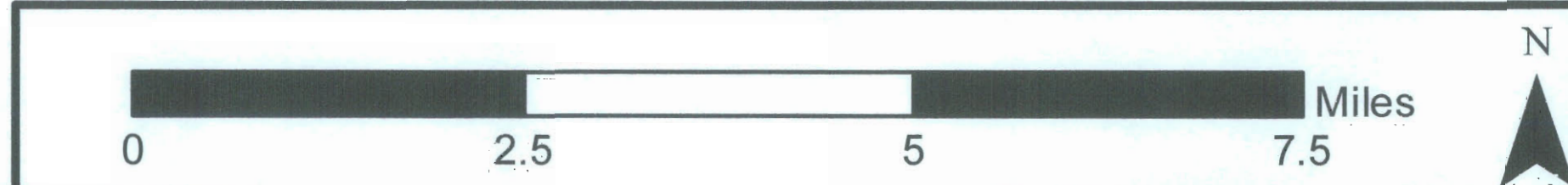
CNMS Status



NFIP Total Losses					
Community	Total Losses	Closed Losses	Open Losses	CWOP Losses	Total Payments (\$)
Sandusky County	70	53	0	13	299,294
Fremont, City of	15	14	0	1	69,277

Declared Disasters					
State	Date	County	Type	Incident Type	Title
OH	7/15/1969	Sandusky	DR	Tornado	Tornadoes, Severe Storms & Flooding
OH	04/27/1973	Sandusky	DR	Flood	Severe Storms & Flooding
OH	5/31/1974	Sandusky	DR	Flood	Severe Storms & Flooding
OH	6/30/1998	Sandusky	DR	Severe Storms	Severe Storms, Flooding, and Tornadoes
OH	9/19/2004	Sandusky	DR	Severe Storms	Severe Storms & Flooding
OH	7/2/2006	Sandusky	DR	Severe Storms	Severe Storms, Tornadoes, Straight Line Winds, and Flooding

Hazard Mitigation Action			
Name of Hazard Mitigation Plan	Plan Approval Date	Plan Expiration Date	Identified Hazard Mitigation Action
Sandusky County - Countywide All Natural Hazards Mitigation Plan	10/19/2004 <i>11/25/10</i>	10/19/2009 <i>1/25/2015</i>	Install a County-wide communications system that will assist in pre-disaster and post-disaster response efforts before, during, and following natural disasters. Determine specific cause of flooding for each structure (watercourse, inadequate sewer capacity, etc.). Solidify mitigation initiatives for critical facilities (schools, nursing homes, fire departments, law enforcement agencies, and hospitals).



MAP SYMBOLOLOGY

<p>LEGEND</p> <ul style="list-style-type: none"> ● LOMCs — Transects — Lake Erie Shoreline □ HUC 8 — Lake Erie — Streams □ Discovery Area □ Surrounding Counties □ County Boundary □ Municipal Boundaries 	<p>SPECIAL FLOOD HAZARD AREAS</p> <ul style="list-style-type: none"> ■ A ■ AE ■ 0.2 PCT ANNUAL CHANCE FLOOD 	<p>SANDUSKY COUNTY AAL DATA Total Average Annualized Losses per Census Block</p> <ul style="list-style-type: none"> ■ \$1 - \$2,500 ■ \$2,501 - \$100,000 ■ \$100,001 - \$250,000 ■ \$250,001 - \$750,000 ■ \$750,001 - \$2,000,000 	<p>CNMS VALIDATION STATUS</p> <ul style="list-style-type: none"> — UNVERIFIED — UNKNOWN — VALID
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COASTAL STUDY LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM
Discovery Map

LAKE ERIE COASTAL STUDY
Sandusky County, Ohio
Sandusky County
Fremont, City of

DRAFT MAP

Discovery Meeting Date:
August 1, 2012