APPENDIX F
Kewaunee, Door, and Brown County, Wisconsin
Discovery Report

Discovery Report

Great Lakes Coastal Flood Study
Lake Michigan
Kewaunee County, Door County, and Brown County, Wisconsin
Individual Discovery Report
Report Number 01
February 2013

FEMA

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Project Area Community List

This list includes all 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.

Brown County*	Door County*	Kewaunee County*
Allouez, Village of	Door County (unincorporated areas)*	Algoma, City of
Bellevue, Village of	Egg Harbor, Village of	Kewaunee, City of
Brown County (unincorporated areas)*	Ephraim, Village of	Kewaunee County (unincorporated areas)*
Green Bay, City of	Sister Bay, Village of	
Howard, Village of	Sturgeon Bay, City of	
Suamico, Village of		

*In Wisconsin, only those jurisdictions known to be responsible for administering floodplain ordinances and potentially affected by the upcoming Lake Michigan coastal flood study were included in this Discovery process. However, all coastal communities are encouraged to participate in the future Lake Michigan coastal flood study process and may request to be included in future correspondence regarding the Lake Michigan coastal flood study.

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Acronyms and Abbreviations

AAL	Average Annualized Loss
CAV	Community Assistance Visit
CBRS	Coastal Barrier Resources System
CID	Community Identification Number
CIS	Community Information System
CMAG	Coastal Management Assistance Grant
CNMS	Coordinated Needs Management Strategy
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
GLCRG	Great Lakes Coastal Restoration Grant
Hazus-MH	Multi-Hazard Risk Assessment and Loss Estimation Software Program
HWM	High Water Mark
HUC8	Hydrologic Unit Code 8
LiMWA	Limit of Moderate Wave Action
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
NDBC	National Data Buoy Center
NFIP	National Flood Insurance Program
NGDC	National Geophysical Data Center
NID	National Inventory of Dams
NOAA	National Oceanic and Atmospheric Administration
NWS	National Weather Service
Risk MAP	Risk Mapping, Assessment, and Planning
SFHA	Special Flood Hazard Area
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

I. 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

The Discovery process involves coordination with Great Lakes stakeholders, data collection and analysis, community interviews, a Discovery Meeting with stakeholders affected by the study, and development of recommendations based on an analysis of data and information gathered throughout the process.

i. Great Lakes Coastal Flood Study

FEMA has initiated a coastal analysis and mapping study that may result in 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).

The Great Lakes Coastal Flood Study (GLCFS) will incorporate modern analysis of historic storm and high water events and provide for updated flood risk information serving United States communities having shoreline along the Great Lakes. The storm surge study is one of the most extensive coastal storm surge analyses to date, encompassing coastal floodplains in the eight States with coastlines on the Great Lakes.

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 due to 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 date of many flood insurance studies in the area, creating the need for an update that will reflect a more detailed and complete hazard determination.

The GLCFS 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, Association of State Floodplain Managers (ASFPM), State partners, and FEMA contractors will collaborate in updating the coastal methodology and flood maps, and create new flood risk products. FEMA manages the NFIP, which is the cornerstone of the national strategy for preparing communities for flood-related disasters.

ii. Purpose of Great Lakes Discovery

The Great Lakes Discovery process included data collection, information exchange between all governmental levels of stakeholders, spatial data presentation, cooperative discussion with stakeholders to better understand the Great Lakes area, and a collaborative approach on the project planning. The process allowed FEMA to continue to vet the Great Lakes coastal study methodologies with a large stakeholder group, to discuss local priorities and data, to discuss mitigation strategies and coastal issues, and to move towards a project that will successfully identify the risks associated with Great Lakes flooding.

This Discovery Report discusses the communities potentially affected by coastal flooding in Kewaunee, Door, and Brown County, Wisconsin. The Discovery process also helped FEMA to better identify the types of datasets or products that will be useful at the local level, especially as it relates to identifying new mitigation strategies and actions, and for use in local planning efforts. Products that may be available to communities as a result of this Great Lakes flood study include updated FIRMs and FISs, coastal flood risk products,

calibrated models for storm surge and wave analysis on each of the lakes, and accurate depictions of water level and wave response on each lake occurring during hundreds of actual events. The type of product a community receives is dependent not only on the coastal flood study analysis results and future congressional funding, but also on the type of datasets, local and national, that are available.

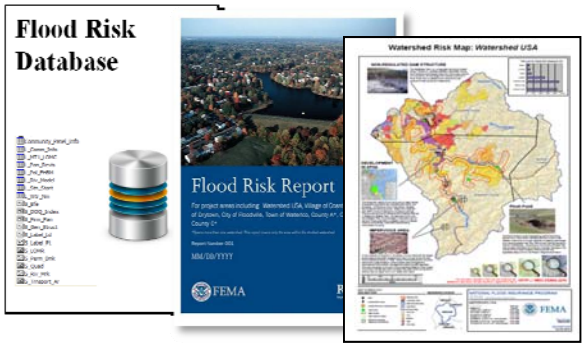
The following section describes the coastal flood risk products that a community may receive, as well as some products that are under development for the Great Lakes study areas.

iii. Coastal Flood Risk Products

As part of a Risk MAP project, FEMA will seek to 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 move forward with informed mitigation actions to reduce identified risk. Delivery of the products discussed below will depend on available data, results of coastal analysis, local partnerships, and fiscal year funding.

The three products are:

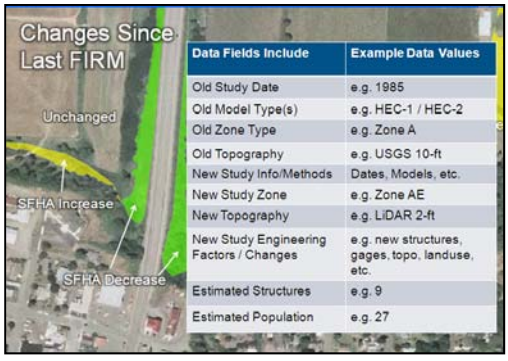
- Flood Risk Database
- Flood Risk Report
- Flood Risk Map



These products will summarize information captured in flood risk datasets that may be generated during a Risk MAP, or flood risk, study. The flood risk datasets could include regular and enhanced products. Standard flood risk datasets, also termed products, are listed below.

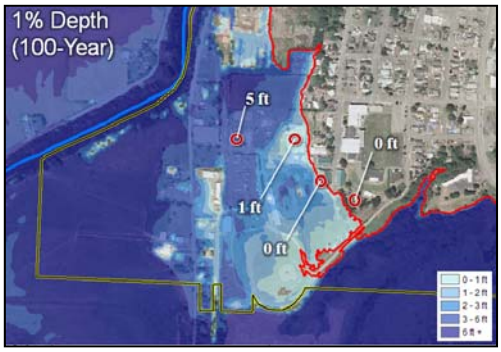
- **Changes Since Last FIRM (CSLF)**
  The CSLFs serve the following purposes:
  Identify Areas and Types of Flood Zone Change:
  - Compares current effective (previous) with proposed (new) flood hazard mapping; and
  - Flood zone changes are categorized and quantified.

  Provide Study/Reach Level Rationale for Changes Including:
  - Methodology and assumptions; and



- Changes of model inputs or parameters (also known as Contributing Engineering Factors).

- **Flood Depth and Analysis Grids (1-percent-annual-chance event only)**
  - Reflect total depth (i.e. stillwater and waves). Will be created for the 1-percent frequency event of the engineering studies performed and as appropriate for the data. Wave runup areas may not be applicable.
  - Created using the regulatory mapping and associated zone breaks as input



- **Flood Risk Assessment (Hazus-MH)**
  - Hazus-MH combines science, engineering and mathematical modeling with GIS technology to estimate losses of life and property, and shows those losses on a map.
  - HAZUS-MH estimates impacts to the physical, social, and economic vitality of a community from earthquakes, hurricane, winds, and floods.
  - Coastal flood risk assessments will be similar to riverine, but will use coastal depth grids as input for refined analysis.
  - Hazus-MH analysis and data can support adoption of high regulatory standards for structures in high loss areas.
  - Hazus-MH results can help to provide justification to find mitigation projects to protect citizens and properties from losses during future coastal flood events.

HAZUS MH
EARTHQUAKE • WIND • FLOOD

For more information about Hazus and data inputs, visit http://www.fema.gov/hazus or enter keywords "fema hazus" into an internet search engine.

In addition, FEMA is looking into the possibility of developing some unique Great Lakes coastal flood risk products that utilize datasets that have recently been collected or will be collected as part of the GLCFS:

- Storm Response Erosion Data: Dataset is expected to contain the results from erosion analysis in response to the 1-percent-annual chance flood event
- Shoreline Feature Data: Dataset was developed by the USACE in 2012 and contains primary and secondary land use tables, as well as coastline type, materials, and vegetation. The current dataset contains data at one-mile spacing. The dataset does not include field-based reconnaissance or sediment/subsurface soil collection.

The delivery of these standard flood risk products and the Great Lakes coastal flood risk datasets will be dependent on the location of the Risk MAP study and coastal analysis, data availability, fiscal year funding, and partnerships with local communities. Therefore, all communities may not receive flood risk products.

II. Stakeholder Communication and Coordination

Communication and coordination with Federal, State and local stakeholders is key to the success of the GLCFS. A large emphasis has been placed on identifying stakeholders early and often and working with those stakeholders continually throughout the study process, from Discovery all the way through flood map and flood risk product development. Through outreach, the goal is to increase understanding of the new coastal study methodologies and the tools and processes that will be available for risk-based community planning, and to increase flood hazard awareness within the Great Lakes coastal region.

i. Lake Michigan Discovery Stakeholder Coordination

Meetings, emails, telephone calls, and letters are essential to communicate effectively throughout the life of this Lake Michigan Coastal Flood Study project, which has begun with this Discovery process.

To kick-off this Discovery process, FEMA formed a group of core stakeholders, which included representatives from FEMA Region V, STARR (mapping partner to FEMA), USACE, NOAA, ASFPM, the State NFIP Coordinators, the State Hazard Mitigation Officers (SHMOs), and State Engineers. The core stakeholders reviewed the Discovery plan, objectives, and key outcomes for Lake Michigan Discovery with FEMA, provided suggestions for outreach and communication, and raised any concerns as it related to Lake Michigan and the coastal flood study process. Following this kick-off process, outreach, communication, and coordination with local stakeholders was initiated.

Discovery Meeting letter invitations were sent to local community and county stakeholders within the Brown, Door, and Kewaunee County portions of the Lake Michigan Coastal Flood Study project. In addition, an email invitation was sent to a larger list of stakeholders including, but not limited to, the core stakeholders, other federal agencies, universities, watershed groups, Great Lakes associations, technical stakeholders, and emergency management agencies. Representatives from the local governments, including cities, townships, and villages were considered fundamental stakeholders in this process because they have been elected or appointed to represent the interests of the residents of this project area.

The Discovery Meeting invitations also included a Coastal Data Request Form (Attachment A). Communities were asked to provide information on data that they had available at the local level that may be of use during the flood study update and during the development of the coastal flood risk products discussed earlier in this report. The Coastal Data Request Form included data requests for:

- Base Map Data
- Coastal Data
- Historic Flood Data
- Risk Assessment
- Flood Mitigation Information
- Community Plans and Projects
- Other comments/concerns based on local knowledge

Brown County, City of Green Bay (Brown County), Village of Suamico (Brown County), Door County Planning Department, Village of Egg Harbor (Door County), and Village of Sister Bay (Door County) returned information through use of the Coastal Data Request Form or via email and phone calls. A compilation of the responses to the Coastal Data Request Form can be found in Section IV, Summary of Data Analysis, of this report.

In addition to the hard copy letter invitations, and in order to improve the communication and data sharing leading up to the Discovery Meeting, FEMA offered local communities an opportunity to attend a pre-Discovery Meeting conference call, also termed an "Information Exchange Session". The conference call information was included in the Discovery Invitation letters mailed to local community officials, and an email reminder was sent out as well. The session's intent was to begin the process of learning about local data availability and what the critical issues are for the Great Lakes communities. Representatives from Door County Planning, Brown County, Sister Bay Zoning, Suamico Zoning, and Wisconsin Department of Natural Resources (DNR) were in attendance. Stakeholders discussed their current data availability, as well as questions they had regarding the GLCFS, areas of concern, and the Coastal Data Request Form.

The core stakeholder documents, "Information Exchange Session" documents, stakeholder contact list, and Discovery Meeting invitations can be found in Attachment B, Brown, Door, and Kewaunee County Pre-Meeting Correspondence.

III. Brown, Door, and Kewaunee County Discovery Meeting

The Discovery Meeting for Brown, Door, and Kewaunee County was held on August 15, 2012 in Green Bay, Wisconsin. Communities and stakeholders affected by coastal flooding in Brown, Door, and Kewaunee County were invited to the Discovery 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.

The objectives of the Discovery Meeting included:

- Continuation and expansion upon stakeholder engagement
- Discussion of data inputs from Federal, state and local stakeholders
- Identification of local coastal flood hazard needs and areas of concern
- Identification of flood risk products and datasets that best advance coastal mitigation action
- NFIP regulatory updates
- Discovery schedule and deliverables

The Discovery Meeting presentations included the following information:

- An overview of the GLCFS and schedule
- Review of the Discovery process and outcomes
- Discussion of coastal mapping and flood risk topics to be aware of
- Discussion of how the study may affect the communities, including compliance requirements
- Review of hazard mitigation opportunities and grant funding
- Encouragement and facilitated discussion regarding coastal study needs, mitigation project needs, desired compliance support, and local flood risk awareness efforts

Draft Discovery Maps for Brown, Door, and Kewaunee County (Attachment C) were displayed and utilized during the meeting to encourage the discussion regarding areas of coastal flood risk concern and areas of hazard mitigation interest. The draft Discovery Maps shown at the meeting included geospatial and tabular data that had been collected prior to the meeting.

Geospatial Data:

- Average Annualized Loss (AAL) data
- Coastal Barrier Resources System (CBRS)[1]
- Coordinated Needs Management Strategy (CNMS)[2] Data- riverine only
- Proposed Transects
- Effective Special Flood Hazard Areas (SFHAs)
- Jurisdictional Boundaries
- Letters of Map Change (LOMCs)
- Levees
- Shoreline

[1] CBRS consists of the undeveloped coastal barriers and other areas located on the coasts of the United States that are identified and generally depicted on a series of maps. CBRS areas are ineligible for most new Federal expenditures and financial assistance.

[2] CNMS is FEMA's strategy for coordinating the management of mapping needs using modern geospatial technologies and current policies, requirements, and procedures. CNMS makes information related to mapping needs readily accessible and more usable. CNMS is only for riverine studies at this time. It is expected coastal needs will be captured in this system in the future.

- Streams
- USGS Gages
- Watershed Boundaries

Tabular Data:

- Declared Disasters
- Flood Insurance Data
- Potential Mitigation Actions (from local Hazard Mitigation Plans)
- Summary of Shoreline Data (Type and Coverage)

Participants at the Discovery Meeting were asked to cooperatively identify Areas of Concern and Areas of Mitigation Interest (AoMIs) within the Brown, Door, and Kewaunee County Lake Michigan study area using the draft Discovery Maps and through general discussion during the meeting.

In addition to the draft Discovery Maps, figures showing the location of initially proposed draft transects around Brown, Door, and Kewaunee County were available for review and comment immediately following the meetings. Stakeholders were encouraged to review the proposed draft transects and provide comments related to the location of the transects. The proposed draft transect maps that were available at the Discovery Meeting for Brown, Door, and Kewaunee County can be found in Attachment D. A sample map is shown as Figure 1.

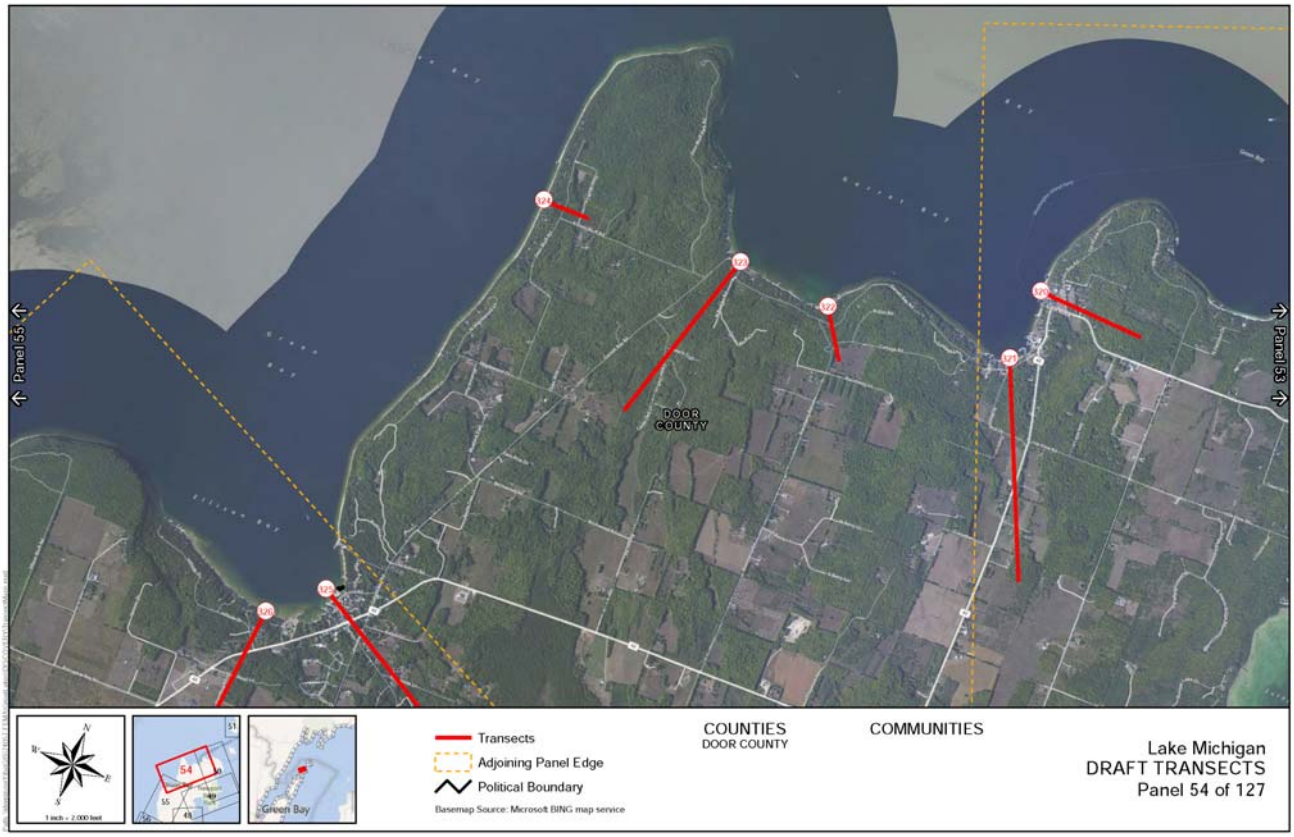


Figure 1: Sample Proposed Draft Transect Figure

All comments that were provided during the Brown, Door, and Kewaunee County Discovery Meeting on the draft Discovery Maps and draft transect figures, as well as comments provided following the meeting, have been compiled into geospatial layers and associated tables. The GIS layers, titled "Stakeholder General Comments" and "Stakeholder Transect Comments", are shown on the Final Discovery Map in Appendix R of the basin-wide Lake Michigan Discovery Report (Federal Emergency Managment Agency, 2013). Each comment has a unique map identification number (if one exists) that correlates to its location on the Final Discovery Map. The identification of a comment (ID) categorized as a "Stakeholder General Comment" is represented by using the first three letters of the county name followed by a unique number (i.e. DOO – 1, DOO - 2). The identification of a comment (ID) categorized as a "Stakeholder Transect Comment" is represented by using the first three letters of the county name, followed by "TR", followed by a unique number (i.e. DOO-TR-1, DOO-TR-2).

A summary of the transect comments collected and the resulting revisions to the draft transect layout can be found in this report in Section IV, Summary of Data Analysis, under the "Proposed Draft Transects" subsection.

Discovery meeting minutes, sign in sheets, PowerPoint presentation, marked up draft Discovery Maps, and correspondence documentation have been included in Attachment F, Brown, Door, and Kewaunee County Discovery Meeting Documents.

IV. Summary of Data Analysis

During this Discovery portion of the Lake Michigan Coastal Flood Study project, a massive collection of tabular and spatial data was conducted for all the coastal communities from Federal and State sources, as well as information collected through phone conversation, information exchange session conference calls, the Discovery Meeting, and the Discovery Coastal Data Request Forms sent to each coastal community. This section lists the types of data and their sources that were collected for the Brown, Door, and Kewaunee County study area, including information collected during and after the Discovery Meeting. The data analysis that follows Table 1 is divided into two sections: one section listing the data that can be used for Risk MAP product development and the other section listing the information that helped the study team to form a better understanding of the Door, Brown, and Kewaunee County Lake Michigan Project Area prior to moving forward with the coastal flood study.

Table 1: Data Collected for Door, Brown, and Kewaunee County

Data Types	Deliverable/Product	Source	Date of Data Collection	Level
Average Annualized Loss Data (AAL)	Discovery Map	Federal Emergency Management Agency (FEMA)	June 2012	Nationwide
Bathymetry and Topography	Discovery Report	USACE	2012/2013	Lakewide
Census Blocks	Discovery Map	U.S. Census Bureau	June 2012	Countywide
Coastal Data Request Form	Discovery Report	Community and County Stakeholders	July 2012	Countywide
Contacts	Discovery Report	Local Community Websites, State/FEMA updates	June 2012	Countywide
Community Assistance Visits (CAVs)	Discovery Report	FEMA Community Information System (CIS)	July 2012	Countywide
Community Rating System (CRS)	Discovery Report	FEMA's "Community Rating System Communities and Their Classes"	July 2012	Nationwide
Comprehensive Plans	Discovery Report	Local Community Websites	July 2012	Countywide
Coastal Barrier Resources System (CBRS)	Discovery Map	U.S. Fish and Wildlife Service	July 2012	Nationwide

Table 1: Data Collected for Door, Brown, and Kewaunee County

Data Types	Deliverable/Product	Source	Date of Data Collection	Level
Coastal Structures	Discovery Map/Tabular Data	U.S. Army Corps of Engineers (USACE)	August 2012	Nationwide
Coordinated Needs Management Strategy (CNMS)	Discovery Map	FEMA	July 2012	Countywide
Critically Eroded Beach Areas	Discovery Report	Local Stakeholders	August 2012	Statewide
Critical Facilities	Discovery Report	Local Mitigation Plan	July 2012	Countywide
Dams	Discovery Report	USACE, National Inventory of Dams, Flood Insurance Rate Map (FIRM) Database	July 2012	Countywide
Declared Disasters	Discovery Report	FEMA's "Disaster Declarations Summary"	June 2012	Nationwide
Demographics, Industry	Discovery Report	U.S. Census Bureau, Local Mitigation Plans	June 2012	Countywide
Effective Floodplains	Discovery Map	FEMA Map Service Center and Mapping Information Platform	June 2012	Countywide
Flood Insurance Policies	Discovery Report	FEMA CIS	July 2012	Nationwide
Hazard Mitigation Plans and Status	Discovery Report	Local Mitigation Plans	July 2012	Countywide
Hazard Mitigation Assistance Program Grants Received	Discovery Report	FEMA's "Hazard Mitigation Program Summary" Community Input	June 2012	Nationwide
Hazard Mitigation Projects	Discovery Report	Local Mitigation Plans	July 2012	Countywide
High Water Marks	Discovery Report	Effective Flood Insurance Study (FIS)	August 2012	Countywide

Table 1: Data Collected for Door, Brown, and Kewaunee County

Data Types	Deliverable/Product	Source	Date of Data Collection	Level
Historical Flooding	Discovery Report	Effective Flood Insurance Study (FIS), Local Mitigation Plans	July 2012	Countywide
Historical Storm Events	Discovery Report	Effective FIS, Local Mitigation Plans	July 2012	Countywide
Individual/Public Assistance	Discovery Report	FEMA's "Public Assistance Subgrantee Summary"	June 2012	Nationwide
Local Data	Discovery Report	Coastal Data Request Form completed by communities	August 2012	Countywide
Letters of Map Change (LOMCs)	Discovery Map	FEMA's Mapping Information Platform	July 2012	Countywide
Meteorological Gages	Discovery Map	National Oceanic and Atmospheric Administration (NOAA) Great Lakes Environmental Research Laboratory	July 2012	Regionwide
Oblique Imagery	Discovery Report	USACE	2012	Lakewide
Ordinance	Discovery Report	Local Community Websites	July 2012	Countywide
Proposed Draft Transects	Discovery Map	FEMA	February 2013	Lakewide
Repetitive Loss	Discovery Report	FEMA CIS	July 2012	Countywide
Shoreline Classification	Discovery Map	USACE	July 2012	Regionwide
Stream Gages	Discovery Map	USGS	July 2012	Countywide
Water Level Gages	Discovery Map	NOAA Department of Fisheries and Oceans	July 2012	Regionwide
Wave Gages	Discovery Map	NOAA	July 2012	Regionwide

i. 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) websites 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. The subsections below provide details on the data determined to be available within the project area.

I.IV.i.1 Average Annualized Loss (AAL) Data

Average Annualized Loss (AAL) data provides a general understanding of the dollar losses associated with a certain frequency of flood events within a county and is 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.

Hazus, a free risk assessment software application from FEMA, is the most widely used flood risk assessment tool available. Hazus can run different scenario floods (riverine and coastal) to determine how much damage might occur as a result. Hazus can also be used by community officials to evaluate flood damage that can occur based on new or proposed mitigation projects or future development patterns and practices, and it can run specialized risk assessments, such as what happens when a dam or levee fails.

Hazus-MH includes national datasets that can be supplemented with local data. If local detailed data are available, users may consider using this data to perform more refined Hazus analyses. Hazus-MH is flexible and allows users to update Hazus-MH with local data or use a combination of both local and national. Augmenting the Hazus-MH provided data with local data can improve the accuracy and resolution of analysis results. Additional information about the Hazus-MH process and tool can be found at http://www.fema.gov/protecting-our-communities/hazus.

The Hazus-MH analysis used in this report is based on approximate flood boundaries and national datasets. The calculation is based on flood elevation estimates using the 10-meter Digital Elevation Model (DEM) on streams with drainage areas of at least 10 square miles.

The results shown in Table 2 include data for the entire county, as opposed to only the coastal project area. Information can also be obtained from the report titled FEMA *Hazus AAL Usability Analysis*, dated April 13, 2011 (Federal Emergency Managment Agency, 2011). AAL data summarized at the census block level are shown on the draft Discovery Maps (Attachment C).

Table 2: Hazus AAL Data for Brown, Door, and Kewaunee Counties, WI

FIPS Code	County	Total Losses for Building and Content (in thousands of $)
55009	Brown County, WI	$1,367,939
55029	Door County, WI	$72,051
55061	Kewaunee County, WI	$29,196

Source: FEMA
FIPS = Federal Information Processing Standards

I.IV.i.2 Coastal Recession

Coastal erosion is the recession of land and the removal of beach or dune sediments. It affects all of the beaches and coasts in the world, including those of Lake Michigan. Important factors in coastal erosion are the types of rock or soil being eroded, the presence or absence of beaches or human-made structures, and how the shore is oriented with respect to prevailing winds and waves, water levels, climatology, and groundwater and surface drainage.

Coastal erosion and recession along the Great Lakes shoreline is a significant issue in coastal communities in Wisconsin. According to the Wisconsin Coastal Management Program 2011-2016 Needs Assessment and Strategy, all fifteen of Wisconsin's coastal counties experience erosion. Wisconsin's Lake Michigan shoreline is generally vulnerable to shore erosion from the Illinois State line to the Sturgeon Bay Canal, a distance of 185 miles. From the Sturgeon Bay Canal around the northern tip of Door County to Green Bay, shore erosion is largely limited to bays and clay banks. Erosion rates are particularly high along sand plains and high bluffs composed of till. Short-term erosion rates of 3 to 15 feet per year have been recorded along sand plains and 2 to 6 feet per year along high bluff lines (Wisconsin Department of Administration, 2010).

Erosion impacts along Wisconsin's Great Lakes coasts are varied in severity and geology. The sandy bluffs of the mid Lake Michigan are more susceptible to continual slope failures than the gradual shoreline of southern Lake Michigan or the rocky shoreline of Door County. The State of Wisconsin Hazard Mitigation Plan identifies coastal erosion as one of thirteen hazards that have the highest probability of affecting the state and the greatest potential for mitigation. Flooding is listed as having a high probability and high potential for mitigation (Wisconsin Department of Administration, 2010).

Studies and reports relevant to Wisconsin's coastal hazards, and in particular erosion, were pulled from the Wisconsin Coastal Management Needs Assessment and Strategy and are listed below:

- SEH/Baker, 1997. "Lake Michigan Recession Rate Study Final Report". (Report prepared for the Wisconsin Coastal Management Council, Wisconsin Department of Administration).

- Wisconsin Coastal Management Program (WCMP), October 2007. "A Strategic Vision for the Great Lakes". (http://www.doa.state.wi.us/docview.asp?docid=7039)
- Springman, R. and S. M. Born, 1979. "Wisconsin's Shore Erosion Plan: An Appraisal of Options and Strategies" (http://wisconsingeologicalsurvey.org/wofrs/WOFR1979-03.pdf)
- State of Wisconsin Hazard Mitigation Plan (updated 2008) (http://emergencymanagement.wi.gov/mitigation/planning.asp)
- Bay Lake Regional Planning Commission (BLRPC) study, "Coastal Bluff Stability Study, Inventory & Description", September 1995. (http://www.baylakerpc.org/about/publications)
- Southeastern Wisconsin Regional Planning Commission (SEWRPC) study (1997), Technical Report No. 36, "Lake Michigan Shoreline Recession and Bluff Stability in Southeastern Wisconsin", 1995 (http://maps.sewrpc.org/Publications/search.asp)
- Coastal Processes Manual (1998) (http://aqua.wisc.edu/publications/ProductDetails.aspx?productID=356)
- Lake Michigan Potential Damages Study (1999) (http://www.lre.usace.army.mil/greatlakes/hh/greatlakestudies/lakemichiganpotentialdamagesstudy/)

Some additional historic studies and reports also include:

- Southeastern Wisconsin:
  Shoreline Recession and Bluff Stability - 1977 to 1995 – Southeastern Wisconsin Regional Planning Commission (SEWRPC) 1997 reports changes in bluff recession and bluff stability on selected bluff slopes between two specific measurement dates, two decades apart, in Kenosha, Racine, Milwaukee and Ozaukee counties shoreline.
- Northeastern Wisconsin:
  Recession and Slope Stability - 1977–1995 - Bay Lake Regional Planning Commission (BLRPC) (1996) reports changes in bluff recession and bluff stability on selected bluff slopes between four specific measurement dates 1977, 1980, 1988 and 1995 conducted by Bay Lakes Regional Planning Commission. The report covers nearly two decades of erosion studies in 23 shoreline reaches along 77 miles of the Lake Michigan coast in Sheboygan, Manitowoc, Kewaunee, and Door counties.

There are 11 Lake Michigan counties in Wisconsin that have maps depicting erosion rates. These counties include Marinette, Oconto, Brown, Door, Kewaunee, Manitowoc, Sheboygan, Ozaukee, Milwaukee, Racine, and Kenosha. These erosion maps were not obtained during this Discovery process. It was noted by stakeholders that the maps may be over 25 years old.

Wisconsin Coastal Management Needs Assessment and Strategy report also talks about methodologies used to determine setback requirements. The report noted that since the last Needs Assessment, members of the Coastal Hazard Work Group have led

developments in determining setbacks. In particular, work group members have coordinated with Bayfield County zoning staff to develop a new setback ordinance for the counties. The outcome is currently a voluntary standard that will provide better protection of the county's shoreline (Wisconsin Department of Administration, 2010).

In addition, the Wisconsin Coastal Management Program (WCMP) funded a report titled "Managing Coastal Hazards in Wisconsin's Changing Climate." The report details coastal hazards and risk management on Wisconsin's shores and also provides recommendations. One recommendation is to restrict shore protection structures and encourage non-structural options. WCMP also funded the University of Wisconsin-Madison efforts to investigate lakebed down cutting in Lake Michigan. The work resulted in a better understanding of erosion of the near shore lakebed and increased public awareness of bluff recession (Wisconsin Department of Administration, 2010).

Additional information on erosion affecting Wisconsin can be found in the Wisconsin State Hazard Mitigation Plan.

I.IV.i.3 Federal Land

Federal lands data were obtained from the National Atlas at http://nationalatlas.gov/mld/fedlanp.html . This data is also available from the National Discovery Data Repository located on FEMA's Mapping Information Platform (MIP) at https://hazards.fema.gov. The map layer shows those 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, and other agencies. Only areas of 640 acres or more are included.

For Door and Kewaunee Counties, no federal lands over 640 acres were identified along the coastal areas. Brown County includes portions of the Oneida Indian Reservation.

I.IV.i.4 Jurisdictional Boundaries

Jurisdictional boundaries can be obtained from a derived set of TIGER line files available through the U.S. Census Bureau geography division. TIGER line files were last derived from the TIGER database in 1997. To find out more about TIGER line files and other Census TIGER database derived data sets visit http://www.census.gov/geo/www/tiger .

Brown County jurisdictional boundaries were also obtained from the Brown County and Incorporated Areas FIRM database, dated August 18, 2009. Door County jurisdictional boundaries were obtained from the Door County and Incorporated Areas FIRM database, dated March 2, 2009.

I.IV.i.5 Local Data

As part of this Discovery process, communities were asked to fill out a Coastal Data Request Form and provide information on data that they had available at the local level that may be of use during the coastal flood study update, and during the development of the coastal flood risk products discussed earlier in this report. The Coastal Data Request Form (Attachment A) included data requests for base map data, coastal data, historic flood data, risk assessment information, mitigation information, and community plans and projects.

The table in Attachment G compiles all the information collected for Brown and Door County from the completed Coastal Data Request Forms or through email. No information was provided via the Coastal Data Request Form from Kewaunee County or the communities at the time this report was generated.

In summary, both Door and Brown County noted they have digital data available, including LiDAR, aerial photographs, and property information. Brown County provided a geodatabase (GIS data) that included, but was not limited to, hydro lines, street centerlines, and parcels. Door County also noted they have digital data showing dunes and escarpment, and also have digital shoreline change data. Village of Egg Harbor (Door County) noted they have a coastal structure inventory.

The datasets noted above were not all provided or collected as part of this Discovery process. Those that were provided have been included on FEMA's Mapping Information Platform (MIP) Discovery Data Repository at J:\FEMA\DISCOVERY_DATA_REPOSITORY\R05_DATA\ and can be accessed by FEMA authorized users. The MIP can be accessed from https://hazards.fema.gov/.

I.IV.i.6 Publicly Owned Land

Door County has five State parks and numerous other county and local parks, several of which are located along the Lake Michigan shoreline (Federal Emergency Management Agency, 2011). Brown and Kewaunee County also have several county and local parks, however no public lands with significant land area were identified along the Lake Michigan shoreline.

No statewide geospatial coverage dataset for publicly owned lands was identified during this Discovery process.

I.IV.i.7 Shoreline Information

A shoreline feature dataset was generated by USACE Detroit District (U.S. Army Corps of Engineers, 2012) using 2012 oblique photographs (see "Topography, Bathymetry, and Oblique Imagery" subsection in this report). The dataset captures shoreline types, land uses, coverage, and vegetation types along the entire Great Lakes shoreline, including Lake Michigan. The dataset includes identification of "artificial" shoreline, which may be indicative of local coastal flood protection structures. This dataset does not identify the level of protection of any coastal structures, and it does not validate whether or not a

coastal structure exists. The current dataset contains data at one-mile spacing. The dataset does not include field-based reconnaissance or sediment/subsurface soil collection. The dataset can be downloaded from http://www.greatlakescoast.org/ under the "Technical Resources" section.

From the USACE shoreline feature dataset, the approximate shoreline along Brown, Door, and Kewaunee County that is covered by this Great Lakes Coastal Flood Study totals 348 miles. The shoreline classification information for Brown, Door, and Kewaunee County is summarized in Tables 3 through 6, including shoreline types, land uses, coverage, and vegetation types, respectively.

Table 3: Summary of Shoreline Types

County	Total Shoreline (mile)	Artificial Shoreline (mile)	Boulders, Bedrock (mile)	Cohesive Clays and Silts (mile)	Sand (mile)	Shingles, Pebbles, Cobbles (Mile)
Brown county	47.3	18.9	--	--	26.6	1.9
Door county	268.0	42.9	167.8	0.6	39.3	17.4
Kewaunee county	32.7	7.3	1.2	--	9.8	14.3

Source: USACE 2012, Lake Michigan Shoreline Classification

Table 4: Summary of Shoreline by Land Use

County	Total Shoreline (mile)	Commercial/Industrial (mile)	Forested (mile)	High Density Residential (mile)	Low Density Residential (mile)	Moderate Density Residential (mile)	Park Land (mile)	Other (mile)
Brown county	47.3	6.2	3.6	--	20.7	3.7	12.4	0.6
Door county	268.0	16.9	11.3	2.5	164.4	27.4	45.7	--
Kewaunee county	32.7	5.6	--	1.2	24.6	1.2	--	--

Source: USACE 2012, Lake Michigan Shoreline Classification

Table 5: Summary of Shoreline Coverage

County	Total Shoreline (mile)	Bluff 2'-10' (mile)	Coastal Wetland	Dune 2'-10' (mile)	Flat Coast (mile)	High Bluff 10'+ (mile)	High Dune 10'+ (mile)
Brown county	47.3	11.8	--	3.1	32.4	--	--
Door county	268.0	88.9	--	68.8	101.0	9.3	--
Kewaunee county	32.7	11.3	--	0.6	4.7	16.0	--

Source: USACE 2012, Lake Michigan Shoreline Classification

Table 6: Summary of Shoreline Vegetation Types

County	Total Shoreline (mile)	High Density Shrubs/ Trees (mile)	Low Density Shrubs/ Trees (mile)	Manicured Lawn (mile)	Moderate Density Shrubs/ Trees (mile)	None (mile)	Unmaintained Non-Woody Vegetation (mile)
Brown county	47.3	3.1	0.2	13.0	6.2		24.7
Door county	268.0	167.5	3.1	31.8	29.3	3.7	32.6
Kewaunee county	32.7		1.0	26.0	5.0		0.6

Source: USACE 2012, Lake Michigan Shoreline Classification

I.IV.i.8 Stream Lines/Hydrograph

Brown County stream lines were obtained from the Brown County and Incorporated Areas FIRM database, dated August 18, 2009. Door County stream lines were obtained from the Door County and Incorporated Areas FIRM database, dated March 2, 2009.

Stream lines for all counties, including Kewaunee County, are available from USGS's National Hydrography Dataset (NHD). The NHD is a digital vector dataset used by Geographic Information Systems (GIS). It contains features such as lakes, ponds, streams, rivers, canals, dams and stream gages. The datasets are designed to be used in general mapping and in the analysis of surface-water systems. Data can be downloaded from http://nhd.usgs.gov/data.html.

The Wisconsin Department of Natural Resources (DNR) also maintains Wisconsin Rivers & Shorelines dataset, available by contacting the Wisconsin DNR Bureau of Technology Services or by visiting http://dnr.wi.gov/maps/gis/appwebview.html.

I.IV.i.9 Topography, Bathymetry, and Oblique Imagery

New Data Collected for Great Lakes Coastal Flood Study

As part of the GLCFS, Light Detection and Ranging (LiDAR) was collected to develop topographic and bathymetric data along the Lake Michigan shoreline. Topography is the configuration of natural and man-made features of a surface area and their relative position and elevations. Bathymetry is the underwater equivalent to topography.

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LiDAR is an optical remote sensing technology that can measure the distance to, or other properties of, a target by illuminating the target with light, often using pulses from a laser. A narrow laser beam can be used to map physical features with very high resolution. Downward-looking LIDAR instruments fitted to aircraft and satellites are used for surveying and mapping. LiDAR can be used to create DTM (Digital Terrain Models) and DEM (Digital Elevation Models), which is a digital model or 3-dimensional representation of the terrain's surface.

The LIDAR data for this study was collected within a 1500 meter buffer (500 meters inland and 1000 meters seaward of the land/water interface). Where water clarity permitted, data was collected to cover all federal navigation projects. Flight lines were flown along the channel alignment to ensure the best possible coverage of inlets and structures.

For quality control purposes, one cross line was used every 25 miles along shore or more frequently to ensure 90 percent of all planned lines within the area were crossed by a cross line. In areas of the coast where natural or artificial barriers prevent aircraft operations, the cross line(s) were collected at the nearest possible location to the required interval, but no closer than five (5) miles to an adjacent planned cross line. Overlapping lines and datasets were compared to each other and to cross lines and the differences calculated.

At the time this report was generated, the quality control process was not yet completed on the LiDAR dataset. However, as part of that process, the vertical difference between the LiDAR and ground truth data will be calculated. Ground truth refers to a process in which a pixel on a satellite image is compared to what is there in reality. This is especially important in order to relate LiDAR data to real features and materials on the ground. The collection of ground truth data enables calibration of the LiDAR data, and aids in the interpretation and analysis of what is being sensed. Using this process, all systematic errors will be identified and eliminated and remaining errors should have a normal distribution. Differences between a DEM created from the LiDAR data representing bare ground and the ground truth data will be unbiased and within +/-15 cm (RMSE[3]) in flat terrain and within +/-30 cm (RMSE[3]) in hilly terrain. Horizontal positions will be accurate to +/- 1.5m (RMSE[3]). Data will be processed to 2ft contours.

The processing of the bathymetric data for this study will be performed based on the strongest return of each LiDAR pulse, assuming this depth represents the bottom. Data will be processed to produce bottom reflectance data from the LiDAR data.

As of the date of this report, the LiDAR data is expected to become available in the spring of 2013 for this study area. There is a delay in the schedule to collect new bathymetric data; therefore, existing bathymetric data may be used for the transect-based coastal flood hazard analysis. Existing high-resolution bathymetric and topographic data is currently available at http://csc.noaa.gov .

As part of the GLCFS, USACE collected oblique imagery for the entire Great Lakes coastline in 2012. Oblique imagery is captured at an angle, as compared to an overhead view provided by orthophotos, and allows users a 3-dimensional view of landscape, buildings, and other features. This dataset may be useful to communities during emergency response, planning, and identification of shoreline types and obstructions; and management

[3] Root-mean-square-error is a measure of the differences between values predicted by a model or an estimator and the values actually observed.

of assets, critical facilities, and public properties along the Lake Michigan shoreline. The oblique imagery is current available via a web-based browser at http://greatlakes.usace.army.mil/.

Other Data Available:
The NOAA Coastal Services Center, Digital Coast, hosts a variety of digital coastal data, including bathymetric and topographic data, and is located at http://www.csc.noaa.gov/digitalcoast .

During the Information Exchange Session process, several communities and counties in Wisconsin noted there are aerial photographs, oblique photographs, and inland LiDAR available.

I.IV.i.10 Transportation

The Bing Map service has been used as a basemap layer on the Discovery Map, and includes a transportation layer. For more information on Bing Map services and how they can be used in GIS, please visit http://www.arcgis.com/home and search for "Bing Maps".

In addition, transportation data was obtained from Brown County and Incorporated Areas FIRM database, dated August 18, 2009. Door County transportation data was obtained from the Door County and Incorporated Areas FIRM database, dated March 2, 2009.

I.IV.i.11 Watershed Boundaries

U.S. Geological Survey (USGS) Hydrologic Unit Code 8 (HUC8) watershed boundaries were obtained from the National Atlas 2011 "Raw Data Download" (http://nationalatlas.gov/atlasftp.html).

Brown County contains portions of four HUC-8 watersheds: Manitowoc-Sheboygan (04030101), Door-Kewaunee (04030102), Duck-Pensaukee (04030103), and Lower Fox (04030204).

Door County includes HUC-8 basin Door-Kewaunee (04030102).

Kewaunee County contains portions of two HUC-8 watersheds: Manitowoc-Sheboygan (04030101) and Door-Kewaunee (04030102).

ii. Other Data and Information

Brown County is located in eastern Wisconsin. According to the 2010 U.S. Census Bureau, the population of Brown County is 248,007. This was an increase from the 2000 population of 226,778. The County has a total area of 615 square miles, of which 529 square miles is land and 87 square miles is water (U.S. Census Bureau, 2010).
The county seat is Green Bay. Additional information on Brown County can be found at the county website located at http://www.co.brown.wi.us/

Door County is also located in eastern Wisconsin. According to the U.S. Census Bureau, the 2010 population was 27,785. This was a slight decrease from the 2000 population of 27,961. The county has a total area of 2,370 square miles, of which 483 square miles of it is land and 1,887 square miles of it is water. The county also has 298 miles of shoreline. Limestone outcroppings of the Niagara Escarpment are visible on both shores of the peninsula, but are larger and more prominent on the Green Bay side. Dunes create much of the rest of the shoreline, especially on the easterly side. The middle of the peninsula is mostly flat or rolling cultivated land. Beyond the northern tip of the peninsula, there is a partially submerged ridge that forms a number of islands (U.S. Census Bureau, 2010). Additional information on Door County can be found at the county website located at http://www.co.door.wi.gov/ .

Kewaunee County stretches from the western shore of Lake Michigan to the eastern shore of Green Bay. According to the U.S. Census Bureau, the 2010 population was 20,574. This was a slight increase from the 2000 population of 20,187. The county has a total area of 1,085 square miles, of which 343 square miles is land and 742 square miles is water (U.S. Census Bureau, 2010). Additional information on Kewaunee County can be found at the county website located at http://www.kewauneeco.org/ .

I.IV.ii.1 Coastal Barrier Resources Systems

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 http://www.fws.gov/CBRA/Maps/Data_Disclaimer_Shapefiles.html and are dated June 15, 2010.

Brown County has one designated unit of the coastal barrier along Lake Michigan Shoreline. Door and Kewaunee Counties do not have any coastal barrier units identified in the project area.

I.IV.ii.2 Coastal Flood Protection Measures

Coastal structures along Lake Michigan will be reviewed in more detail during the engineering analysis portion of the Lake Michigan study and were not analyzed as part of this Discovery process. A summary of information collected regarding existing coastal structures and flood protection measures is described below.

FEMA's 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 flood). For this Discovery process, the November 2011 MLI Status Report published by FEMA was reviewed. The MLI Levee database shows no

levee segments in Brown, Door, and Kewaunee County study areas that provide protection from the 1-percent-annual-chance flood, however, as discussed below, other flood protection measures do exist.

In Brown County, following the disastrous storm and subsequent flooding in April 1973, a temporary dike, approximately 2.25 miles in length, was constructed along the City of Green Bay's northeast shore. The dike, which protects the low-lying shore from wave runup, was constructed as part of the USACE Operation Foresight, an emergency flood protection program. Several industries near the bay and along the Fox and East Rivers have also constructed their own dikes to minimize flood damages (Milwaukee Journal, December 16, 1973).

In Door County, breakwaters and forms of shoreline protection against wave action are scattered throughout the county on Lake Michigan. The breakwaters are particularly constructed for the Sturgeon Bay shipping canal.

The USACE Coastal & Hydraulics Laboratory (CHL), a member of the Engineer Research & Development Center (ERDC), has compiled an inventory of coastal structures called the Enterprise Coastal Inventory Database (ECID). The ECID application and database houses information on more than 900 coastal structures in the U.S. and uses a Google Earth interface for users to access information on the structures including project reports, aerial photographs, wave and water level and bathymetric data. The database and application are available at http://chl.erdc.usace.army.mil/chl.aspx?p=s&a=Projects;246 . These maintained coastal structures protect harbors and shore-based infrastructure, provide beach and shoreline stability control, provide flood protection to varying degrees, and protect coastal communities, roadways and bridges, etc. These structures include seawalls, bulkheads, revetments, dikes and levees, breakwaters, groins, sills/perched beaches, and jetties and piers.

The USACE coastal structures along Lake Michigan found within Brown, Door, and Kewaunee County are compiled in Table 7. It is important to note that these coastal structures do not necessarily protect areas from the 1-percent-annual-chance flood event.

Many of these USACE coastal structures were built between 1860 and 1940. Low lake levels since the 1990's have accelerated deterioration of these navigation structures and USACE Detroit District launched an investigation to assess the effects of changes in Lake Michigan water levels on the performance and stability of these structures. An inventory of critical infrastructure protected by federally maintained navigation structures was conducted along with a condition assessment of the structures including an estimation of the risk associated with structure failure. Structures were rated on the following scale:

A – Failure Unlikely
B – Low Risk of Failure
C – Medium Risk of Failure

D – High Risk of Failure
F – Failed

Table 7 also provides the condition assessment for each of the structures listed.

Table 7: USACE Coastal Structure Inventory

State	Location	Coastal Structure Name	USACE Condition Assessment	Structure Length (feet)
WI	Algoma Harbor	North Pier	B	1102
		South Pier		1530
		North Pier		1077
		South Pier		1175
WI	Kewaunee Harbor	North Breakwater	B	2980
		North Pier		782
		South Pier		1850
		North Stub Pier		125
		South Breakwater		1006
WI	Sturgeon Bay Canal	North Breakwater	B	1344
		North Revetment		6210
		South Breakwater		1344
		South Revetment		6210

I.IV.ii.3 Community Assisted Visits

Statewide Community Assistance Visits (CAVs) are part of the evaluation and review process used by FEMA and local officials 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 the community's floodplain management regulations (ordinance), community administration and enforcement procedures, engineering or other issues within the FIRMs, other problems in the community's floodplain management, and problems with the biennial report data. 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. The summary of CAV visits were extracted from FEMA's Community Information System (CIS) at https://portal.fema.gov in December 2012. Table 8 shows the most recent CAV date by community within this study area. Not all communities within the project area were

identified as having a CAV, therefore, those communities are not included in the table. No CAV dates were found within the coastal jurisdictions of Kewaunee County.

Table 8: Summary of Community Assisted Visits in Brown and Door County

County	Community	CID	CAV Date	FIRM Date
Brown	Suamico, Village of	550660	11/15/2006	8/18/2009
Brown	Green Bay, City of	550022	9/6/2012	8/18/2009
Brown	Brown County (unincorporated areas)	550020	8/24/2010	8/18/2009
Door	Door County (unincorporated areas)	550109	9/21/1989	3/2/2009

CID= Community Identification Number
CAV = Community Assisted Visit

I.IV.ii.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 Website site at http://www.fema.gov/library/viewRecord.do?id=3629, which was accessed in July 2012.

No coastal communities in Door or Kewaunee Counties participate in the CRS program. In Brown County, within this study area, the communities of Suamico, Green Bay, and Allouez participate in the CRS program.

I.IV.ii.5 Comprehensive Plans

A comprehensive plan is a land use document providing 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.

The Village of Egg Harbor (Door County) noted in their Coastal Data Request Form that a Comprehensive Plan is available for the community. The plan is available through the Bay-Lake Regional Planning Commission website.

Sister Bay (Door County) noted they have a completed Stormwater Master Plan (entitled "Comprehensive Utilities Plan, Village of Sister Bay, Wisconsin, April 2008) that identifies flooding areas and structures at risk. The Plan was provided along with Coastal Data Request Form for the Village of Sister Bay. The Comprehensive Plan for the community was completed before their Comprehensive Utilities Plan.

City of Green Bay (Brown County) noted in their Coastal Data Request Form that the City does have a comprehensive plan, and it incorporates special consideration for floodplain areas, including:

- Protect banks and floodplain areas with current floodplain regulations
- Consideration with greenway design
- Protect floodplain areas with available land use controls

Door County has a Comprehensive Plan as well and it is located at http://map.co.door.wi.us/planning/comp_planning.htm.

Comprehensive Plans for Brown, Door, and Kewaunee County communities are available through the Bay-Lakes Regional Planning Commission website at http://www.baylakerpc.org/community-assistance/comprehensive-planning.

I.IV.ii.6 Coordinated Needs Management Strategy (CNMS) and NFIP Mapping Needs

During FEMA's Flood Map Modernization program from 2003 to 2008, FEMA adhered to Procedure Memorandum No. 56 which states that, "Section 575 of the National Flood Insurance Program Reform Act of 1994 mandates that at least once every five years FEMA assess the need to review and update all floodplain areas and flood risk zones identified, delineated, or established under Section 1360 of the National Flood Insurance Act, as amended." This requirement was fulfilled through the Mapping Needs Assessment process. Other mechanisms such as the Mapping Needs Update Support System (MNUSS) and scoping reports were used to capture information describing conditions on the FIRMs and the potential for a map update.

FEMA's Coordinated Needs Management Strategy (CNMS) was initiated through FEMA's Risk MAP program in 2009 to update the way FEMA organizes, stores, and analyzes flood hazard mapping needs information for communities. CNMS defines an approach and structure for the identification and management of flood hazard mapping needs that provides support to data-driven planning and the flood map update investment process in a geospatial environment. The goal is to identify areas where existing flood maps are not up to FEMA's mapping standards. More information about the CNMS can be found at http://www.fema.gov/library/viewRecord.do?id=4628 .

There are three classifications within the CNMS: "Valid," "Unverified," and "Unknown." New and updated studies (those with new hydrologic and hydraulic models) performed during FEMA's 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. Validation elements apply physical, climatological, and environmental factors to stream studies to determine validity. A stream study has to pass all of the critical elements and at least seven secondary elements to be classified as

"Valid." The remaining streams are classified as "Unverified" or "Unknown". Studies for which flood hazard data are identified as having critical or significant secondary change characteristics 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" (Federal Emergency Managment Agency, 2010).

Table 9 summarizes the draft results of the county-wide validation analysis obtained from CNMS in June 2012. CNMS only captures riverine studies at this time.

Table 9: CNMS Status for Brown, Door, and Kewaunee County

County	FIPS	Unknown (stream miles)	Unverified (stream miles)	Valid (stream miles)	Total (stream miles)
Brown, WI	55009	0	4	358	361
Door, WI	55029	60	0	15	75
Kewaunee, WI	55061	96	0	0	96

FIPS = Federal Information Processing Standard

I.IV.ii.7 Critical Facilities

Critical facilities are the facilities that can impact the delivery of vital services, cause greater damages to other sectors of a community, or put special populations at risk. Hospitals, roads, schools, and shelters are all examples of critical facilities that play a central role in disaster response and recovery. Understanding which facilities are exposed, and the degree of that exposure, can help reduce or eliminate service interruptions and costly redevelopment. Incorporating this information into development planning helps communities get back on their feet faster.

Location of critical facilities with a county or community can be viewed from the NOAA Coastal Services Center, Critical Facilities Flood Exposure Tool at http://www.csc.noaa.gov/criticalfacilities/ . Each county was found to have critical facilities located within the effective floodplain.

Additional information on critical features can be found in the Brown and Kewaunee Hazard Mitigation Plans, but were not compiled as part of this draft report. Door County does not have a Hazard Mitigation Plan currently.

I.IV.ii.8 Critically Eroded Beaches and Beach Nourishment/Dune Replacement Projects

As part of this Discovery effort, Door County Planning Department provided information related to ongoing mitigation projects, including beach projects which involve coarse sand nourishment, dunes, dune grass, and stormwater treatment Best Management Practices

(BMPs) to reduce ecoli beach closing caused by stormwater, water fowl, and stagnant or poor draining sands. These projects include:

- Sunset Beach, City of Sturgeon Bay
- Ellison Bay Beach, Town of Liberty Grove
- Egg Harbor Beach, Town of Egg Harbor
- Ridges Beach, Town of Baileys Harbor
- Otumba, City of Sturgeon Bay
- Anclam, Town of Baileys Harbor

Critically eroded beaches and beach nourishment/dune replacement projects were not identified in Brown or Kewaunee County at the time this report was issued, although it should be noted that all counties experience shore erosion.

I.IV.ii.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 the 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 dams' locations, sizes, purposes, types, last inspections, 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 Website https://nid.usace.army.mil/.

The Brown County and Incorporated Areas FIRM database, effective August 18, 2009, and Door County and Incorporated Areas FIRM database, effective March 2, 2009, also contains the location of dams within their counties.

Three dams were found to be located in Door County, one of which is in the coastal study area. One dam was identified in Brown County, but is not within the coastal study area. No dams were identified in Kewaunee County.

Wisconsin Department of Natural Resources (DNR) inventory may also be consulted when developing future information on dams, however a listing of that information was not compiled during this Discovery process. The DNR Dam Safety program's mapping application allows the public to view the Wisconsin Dams database through http://dnr.wi.gov/topic/Dams/data.html.

I.IV.ii.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 data not available before 1964; fire management records are considered partial because of the historical nature of the dataset).

The list of FEMA's disaster declarations is available on the FEMA Website at http://www.fema.gov/data-feeds. Table 10 lists the major disaster declarations that have been declared in Brown, Door, and Kewaunee Counties.

Table 10: Declared Disasters in Brown, Door, and Kewaunee County

Declared County/Area	Disaster Number	Declaration Date	Incident Type	Description	Incident Begin Date	Incident End Date
Brown (County)	376	4/27/1973	Flood	SEVERE STORMS & FLOODING	4/27/1973	4/27/1973
Brown (County)	3014	6/17/1976	Drought	DROUGHT	6/17/1976	6/17/1976
Brown (County)	874	7/13/1990	Severe Storm(s)	SEVERE STORMS, TORNADOES & FLOODING	6/22/1990	7/19/1990
Brown (County)	994	7/2/1993	Severe Storm(s)	SEVERE STORMS, TORNADOES & FLOODING	6/7/1993	8/25/1993
Brown (County)	1526	6/18/2004	Severe Storm(s)	SEVERE STORMS AND FLOODING	5/7/2004	7/3/2004
Brown (County)	3249	9/13/2005	Hurricane	HURRICANE KATRINA EVACUATION	8/29/2005	10/1/2005
Door (County)	376	4/27/1973	Flood	SEVERE STORMS & FLOODING	4/27/1973	4/27/1973
Door (County)	3014	6/17/1976	Drought	DROUGHT	6/17/1976	6/17/1976
Door (County)	3163	1/24/2001	Snow	SNOW	12/11/2000	12/31/2000
Door (County)	3249	9/13/2005	Hurricane	HURRICANE KATRINA EVACUATION	8/29/2005	10/1/2005
Kewaunee (County)	376	4/27/1973	Flood	SEVERE STORMS & FLOODING	4/27/1973	4/27/1973
Kewaunee (County)	3014	6/17/1976	Drought	DROUGHT	6/17/1976	6/17/1976
Kewaunee (County)	874	7/13/1990	Severe Storm(s)	SEVERE STORMS, TORNADOES & FLOODING	6/22/1990	7/19/1990
Kewaunee (County)	3163	1/24/2001	Snow	SNOW	12/11/2000	12/31/2000
Kewaunee (County)	3249	9/13/2005	Hurricane	HURRICANE KATRINA EVACUATION*	8/29/2005	10/1/2005

*Refers to the federal disaster aid that was made available to Michigan to supplement its efforts to assist evacuees from areas struck by Hurricane Katrina.

Additional information on disaster history can be found in the State of Wisconsin Hazard Mitigation Plan, Appendix A. This plan can be found at http://emergencymanagement.wi.gov/mitigation/planning.asp.

I.IV.ii.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 also gathered.

Table 11 summarizes the numbers and premiums of insurance policies, the total coverage, and the numbers and dollar amounts of paid losses in the communities of Brown, Door, and Kewaunee Counties. The data is based on Community Summary Reports that were extracted from FEMA's CIS website (https://portal.fema.gov/famsVuWeb/home) in July 2012.

Table 11: Summary of Flood Insurance Policies and Claims for Brown, Door, and Kewaunee Counties

County	Community	CID	No. Policies	Total Premium	Total Coverage	Number of claims since 1978	Dollar ($) paid for claims since 1978
Brown	Allouez, Village of	550612	116	$73,199	$19,908,100	1	$0
Brown	Bellevue, Village of	550627	20	$14,632	$5,624,100	0	$0
Brown	Brown County (unincorporated areas)	550020	241	$180,077	$50,149,200	59	$125,295
Brown	Green Bay, City of	550022	1060	$764,910	$138,993,000	167	$551,466
Brown	Howard, Village of	550023	80	$61,693	$10,814,700	13	$40,939
Brown	Suamico, Village of	550660	35	$22,537	$6,255,600	0	$0
Door	Door County (unincorporated areas)	550109	138	$91,408	$26,750,600	26	$102,246
Door	Egg Harbor, Village of	550029	--	--	--	--	--
Door	Ephraim, Village of	550611	4	$3,670	$1,100,000	0	$0
Door	Sister Bay, Village of*	550030	--	--	--	--	--
Door	Sturgeon Bay, City of	550111	96	$38,112	$15,377,500	8	$77,785
Kewaunee	Kewaunee County (unincorporated areas)	550212	11	$6,317	$1,956,400	2	$10,486
Kewaunee	Kewaunee, City of	550215	1	$940	$100,000	1	$55,322
Kewaunee	Algoma, City of	550213	27	$17,434	$3,363,600	7	$5,241

*Community not currently participating in the NFIP
CID = Community Identification
Source: FEMA's CIS Summary Report "Insurance Reports"

I.IV.ii.12 Gage Data

The NOAA Coastal Services Center, Digital Coast, hosts a variety of digital coastal data, including gage data, and is located at http://www.csc.noaa.gov/digitalcoast.

Meteorological Stations:

The National Data Buoy Center (NDBC) is a part of the NOAA National Weather Service (NWS). 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 to help meet these needs. All stations 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 website http://www.ndbc.noaa.gov/ .

Table 12 shows the meteorological station identification number and location for the gages in Lake Michigan's Brown, Door, and Kewaunee County Coastal Flood Study area.

Table 12: NOAA Meteorological Stations in Lake Michigan's Brown, Door, and Kewaunee County

County	Station ID	Location	Owner	Data	Years of Historical Data
Brown County	GBLW3	Green Bay Entrance Light, WI	National Weather Service Central Region	Meteorological Observation	None found/No recent data
Door County	NPDW3	NORTHPORT Pier at Death's Door, WI	National Weather Service Central Region	Meteorological Observation	2005-Present
Door County	SYWW3	Yacht Works Sister Bay, WI	National Weather Service Central Region	Meteorological Observation	2005-Present
Door County	CBRW3	Chambers Island, WI	National Weather Service Central Region	Meteorological Observation	2008-Present
Door County	0Y2W3	Sturgeon Bay CG Station	United States Coast Guard	Meteorological Observation	N/A
Kewaunee County	AGMW3	Algoma City Marina, WI	United States Coast Guard	Meteorological Observation	2005-Present
Kewaunee County	KWNW3	Kewaunee, WI	NOAA's National Ocean Service	Meteorological Observation	2006-Present

In addition, the Great Lakes Environmental Research Laboratory is a part of NOAA focused on the Great Lakes. It maintains multiple datasets, including a collection of meteorological data for both the United States and Canada. The datasets can be found online at http://www.glerl.noaa.gov .

Stream Gages

The USGS National Water Information System Web Interface (http://waterdata.usgs.gov/nwis, provides real-time data for any given stream gage location. Table 13 shows the gage identification numbers and locations for the gages in the study areas of Brown and Kewaunee Counties. No gages were found in Door County. USGS stream gage locations are shown on the draft Discovery Map.

Table 13: Stream Gage Stations in Brown and Kewaunee Counties, WI near study area only

County	Gage ID	Begin Date	End Date	Gage Location
Brown County	040851385	10/01/1988	9/30/2000	Fox River at Oil Tank Depot at Green Bay, WI
Brown County	04072000	6/30/1951	7/31/1952	Suamico River at Suamico, WI
Kewaunee County	04085200	9/01/1964	9/30/2000	Kewaunee River Near Kewaunee, WI

Water Level Station:

NOAA's Center for Operational Oceanographic Products and Services (CO-OPS) maintains several water level stations along Lake Michigan. CO-OPS' primary motivation is the collection and dissemination of high quality and accurate measurements of lake level for scientific studies.

Great Lakes water levels constitute one of the longest high quality hydrometeorological data sets in North America with reference gage records beginning about 1860 with sporadic records back to the early 1800's. The station information and water level data are available at NOAA CO-OPS Website: http://tidesandcurrents.noaa.gov/station_retrieve.shtml?type=Great Lakes Water Level Data&state=LakeMichigan . The monthly high and low water level data from the year 1918 to 2011 at Lake Michigan are available at the USACE Website: http://www.lre.usace.army.mil/greatlakes/hh/greatlakeswaterlevels/.

Figure 2 depicts Historic Great Lakes Water Levels from 1918 to 2011 (U.S. Army Corps of Engineers, 2012).

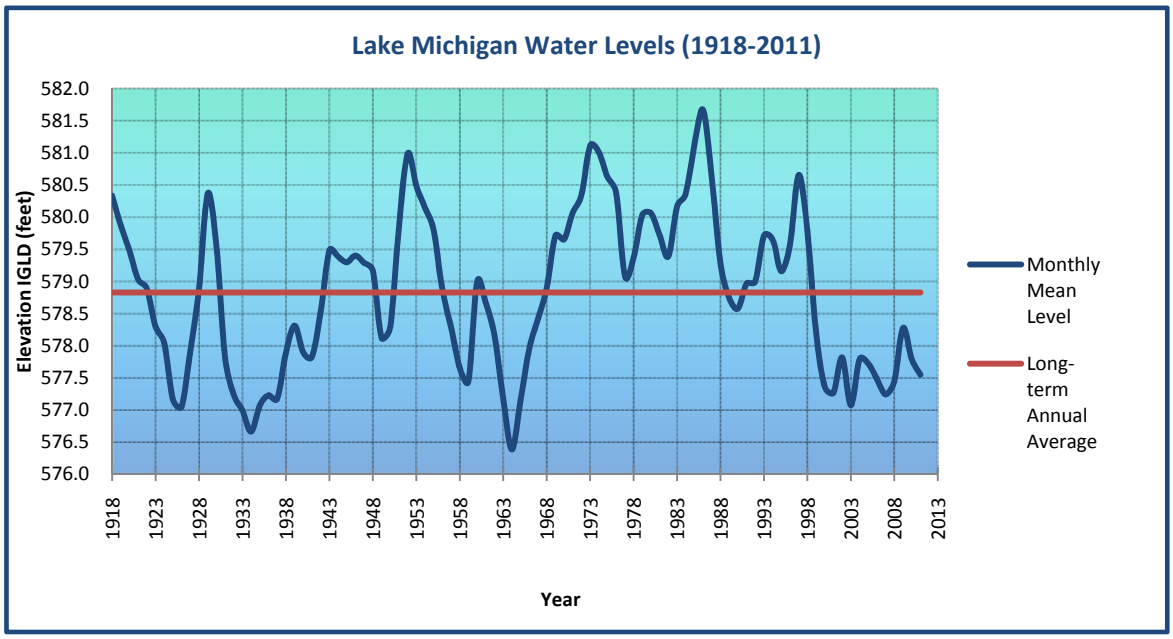

Figure 2: USACE Historic Great Lakes Water Level Data (1918-2011)

The Great Lakes Water Levels Report provides daily mean water levels of Lake Michigan for the past three months. The data are available at the USACE website: http://www.lre.usace.army.mil/greatlakes/hh/greatlakeswaterlevels/currentconditions/great lakes waterlevels/.

Wave Gage/Buoy Stations:

The NDBC is a part of the NOAA National Weather Service (NWS). 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 C-MAN stations to help meet these needs. 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 data are available at NDBC website http://www.ndbc.noaa.gov/ .

I.IV.ii.13 Great Lakes Coastal Restoration Grants

The Great Lakes Restoration Initiative (GLRI) is a federal program that provides unprecedented funding for protection and restoration efforts on the five Great Lakes. State and local governments and non–profit organizations are eligible to receive grants from the U.S. Environmental Protection Agency (EPA) for projects addressing toxic substances, invasive species, non–point source pollution, habitat protection and restoration or accountability, monitoring, evaluation, communication and partnership building. The EPA has awarded nearly $39 million in GLRI funds to more than 60 protection and restoration projects in Wisconsin (Information obtained from http://dnr.wi.gov/topic/greatlakes/restore.html).

In 2011, eight organizations in Wisconsin were awarded $3,754,554 in grants by the EPA under the GLRI. A list of the projects funded in 2011 can be found at the Wisconsin Department of Natural Resources link http://dnr.wi.gov/topic/greatlakes/restore.html . Additional information can be found at the Great Lakes Restoration Initiative website at http://www.glri.us/

I.IV.ii.14 Hazard Mitigation Plans

Hazard Mitigation Plans are prepared to assist communities to reduce their risk to natural hazard events. The plans are used to develop strategies for risk reduction and to serve as a guide for all mitigation activities in the given county or community.

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 (HMA) grant programs. The status of current hazard mitigation plans is shown in Table 14. The data was obtained from FEMA's Plan Approval Status Report based on Regional reports for the end of June 2012. Door County does not have a hazard mitigation plan at this time.

Table 14: Hazard Mitigation Plan Status for Brown, Door, and Kewaunee County

Jurisdiction	Approval date	Expiration date
Brown County	2/29/2008	2/28/2013
Door County	No plan developed	No plan developed
Kewaunee County	5/21/2007	5/21/2012

Wisconsin Emergency Management has coordinated in the past with communities in developing and revising their Hazard Mitigation Plans and updated the State of Wisconsin Hazard Mitigation Plan. Wisconsin Coastal Management Program (WCMP) participated in some of those efforts. In addition, Bay-Lake Regional Planning Commission produced a report titled "A Guide to Hazard Mitigation Planning for Coastal Communities in Wisconsin," which was funded by WCMP. The guide assists communities with addressing coastal hazards issues within their hazard mitigation plans.

The State of Wisconsin Hazard Mitigation Plan, as well as various local hazard mitigation plans, can be accessed by visiting http://emergencymanagement.wi.gov/mitigation/planning.asp#state .

I.IV.ii.15 Hazard Mitigation Grant Program

After a major disaster declaration, the Hazard Mitigation Grant Program (HMGP) provides grants to states and local governments to implement long-term hazard mitigation measures. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a disaster.

A variety of hazard mitigation projects have been submitted for FEMA's HMGP. A summary of HMGP projects can be downloaded from https://explore.data.gov/catalog/raw.

I.IV.ii.16 Historical Flooding & High Water Marks

Coastal hazards are a serious threat to Wisconsin's shoreline communities and have historically been an area of high priority for Wisconsin. Over the years, coastal erosion and flooding have caused millions of dollars in property damages in Wisconsin (Wisconsin Department of Administration, 2010).

As part of this Discovery process, effective Flood Insurance Studies (FISs) were reviewed for information on historical flooding and high water mark data. An FIS was not found for Kewaunee County. In addition, local stakeholders were asked to provide information regarding historical flooding and high water marks throughout the Discovery process.

In Brown County, the worst flooding in recent history occurred in April 1973 as high levels on Lake Michigan and northeasterly winds created hazardous conditions on Green Bay. Considerable damage was incurred by shoreline property, especially along the western shore of Green Bay. This area included residents along Lake Michigan and the Fox and Suamico Rivers. Damages in the county were estimated at $6 million. Major flooding also occurred during a storm in April 1952, resulting in approximately $1 million in flood damages. Although flood levels were reached in 1986, no major flood occurred (Federal Emergency Management Agency, 2009).

In Door County, most water damage is associated with storms and occurs along the shoreline of Lake Michigan. Damage to shore property is caused by wave action and currents. Low-lying areas are also inundated by high water stages. Flooding in many cases is entirely due to temporary local rises in lake levels and waves caused by storms. Throughout the years, damage and destruction of piers, wharves, boat houses, and boats have been reported routinely. Also breakwaters, retaining walls, and sidewalks have been washed out. Erosion and flooding of shore property along the east shore of Green Bay is not considered a major problem, even during periods of high lake stages. The vast majority of the shoreline has rock bluffs or protected bays, and is not subject to damage. However, there are some isolated reaches of shore that are subject to significant erosion and flooding

damage when extreme high lake stages are accompanied by strong north and northeast winds (Federal Emergency Management Agency, 2009).

The State of Wisconsin HMP also discusses historical flooding, flooding concerns, and potential mitigation actions. The plan can be downloaded at http://emergencymanagement.wi.gov/mitigation/planning.asp.

No additional information specific to Lake Michigan flooding or high water marks was identified during this Discovery process. If local stakeholders have additional available high water mark data, historical flooding information, or historic flooding photographs they are encouraged to submit them to FEMA Region V Mitigation Division.

I.IV.ii.17 Land Use

Door County Planning Department noted in their Coastal Data Request Form that property is continually being developed and re-developed.

The Village of Sister Bay (Door County) noted areas along bluffs and ridges have had proposed for development in the past. In addition, there is a proposed beach expansion in downtown Sister Bay area.

Brown County noted during the information exchange session and during the Discovery Meeting that there is extensive redevelopment on Cat Island and this area should be looked at closely as this flood study progresses.

In addition, Brown County noted that they developed a Land Records Modernization/Land Information 5-year Strategic Plan back in 2010. The intent was to update the Brown County's Plan for Land Records Modernization and GIS. Its goal is to compile and update land information and GIS. More information on the plan can be found at http://www.co.brown.wi.us/departments/?department=85713eda4cdc .

I.IV.ii.18 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 the FEMA Mapping Information Platform Website (https://hazards.fema.gov/femaportal/wps/portal) in June 2012.

Table 15 lists the number of LOMCs in the project area per 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 15: Summary of LOMC cases in Brown, Door, and Kewaunee Counties, WI

County	Number of Letters of Map Amendments	Number of Letters of Map Revisions – Based on Fill	Number of Letters of Map Revisions – Floodway Removal	Number of Letters of Map Revisions
Brown County	419	56	17	0
Door County	180	27	1	0
Kewaunee County	9	1	4	0

I.IV.ii.19 Locally Identified Mitigation Actions

Table 16 lists the potential mitigation actions and strategies as pulled from the Brown County Hazard Mitigation Plan. Door County does not have a past or present Hazard Mitigation Plan as of the time this report was created, and Kewaunee County's Hazard Mitigation Plan (expired May 21, 2012) was not digitally available at the time this report was created. Note that actions listed may not be specific to coastal flooding.

Table 16. Hazard Mitigation Actions for Brown County

Name of Plan	County	Plan Expiration Date	Hazard Mitigation Action
Brown County Wisconsin 2007 All Hazards Mitigation Plan	Brown County	2/28/2013	Monitor natural features along Green Bay for deterioration that would allow for flooding or mudslides to impact properties along the shore
Brown County Wisconsin 2007 All Hazards Mitigation Plan	Brown County	2/28/2013	Maintain maps indicating past incidences and areas most susceptible to future hazards
Brown County Wisconsin 2007 All Hazards Mitigation Plan	Brown County	2/28/2013	Maintain a stormwater management plan that accounts for the large amount of water flowing into Fox River that could cause localized flooding or possible backup of stormwater into homes and businesses
Brown County Wisconsin 2007 All Hazards Mitigation Plan	Brown County	2/28/2013	Maintain current land use regulations that permit building of structures within vulnerable coastal locations
Brown County Wisconsin 2007 All Hazards Mitigation Plan	Brown County	2/28/2013	Work with the Coast Guard to monitor conditions where drifting ice can damage shore structures and destroy vegetation, move sand or stones from beaches, or dump sand, rock, or other debris on beaches
Brown County Wisconsin 2007 All Hazards Mitigation Plan	Brown County	2/28/2013	Construction of riprap to manage bluff erosion shifts due to the eroding force of the water where coastal areas lack bluff reinforcement.

Name of Plan	County	Plan Expiration Date	Hazard Mitigation Action
Brown County Wisconsin 2007 All Hazards Mitigation Plan	Brown County	2/28/2013	Prepare, adopt, and maintain proper land use planning methods through the county's comprehensive plan and stated implementation tools such as land use regulations (codes and ordinances) and stormwater management plans
Brown County Wisconsin 2007 All Hazards Mitigation Plan	Brown County	2/28/2013	Enforce land use regulations that preserve natural resources adjacent to and in defined floodplains
Brown County Wisconsin 2007 All Hazards Mitigation Plan	Brown County	2/28/2013	Inventory and assess areas throughout both the rural and urban areas of the county that have repeated flash flooding problems and identify activities to remediate or rectify those locations.
Brown County Wisconsin 2007 All Hazards Mitigation Plan	Brown County	2/28/2013	Implement a rural drainage improvement program that would include ditch, bridge and culvert maintenance and improvements
Brown County Wisconsin 2007 All Hazards Mitigation Plan	Brown County	2/28/2013	Implement floodproofing techniques such as elevation, relocation, barrier construction, and wet floodproofing for residents, businesses, and critical facilities

Although there is no hazard mitigation plan currently developed for Door County, the Door County Planning Department noted in their Coastal Data Request Form that through enforcement of the floodplain ordinance, many non-conforming structures eventually get removed and/or replaced with structures that comply with floodplain regulations, thus a reduction in potential loss is achieved.

In addition, the Wisconsin State Hazard Mitigation Plan, Appendix C, identifies Hazard Mitigation projects implemented in the state through the FEMA mitigation programs, Community Development Block Grants (CDBGs), and the Department of Natural Resources (DNR) Municipal Flood Control Program. The plan, including Appendix C, can be downloaded by visiting http://emergencymanagement.wi.gov/mitigation/planning.asp .

I.IV.ii.20 Ordinances

County and community 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 also 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.

Local 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 SFHAs, but also 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) describes the NFIP floodplain ordinance levels and provides 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. Ordinance levels are shown in the table below:

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 is shown in Table 17 for each community in the project area.

Table 17: Program Status and Ordinance Level for Brown, Door, and Kewaunee County

County	Community	CID	Program Status	Ordinance Level
Brown	Allouez, Village of	550612	Participating	D
Brown	Bellevue, Village of	550627	Participating	D
Brown	Brown County (unincorporated areas)	550020	Participating	D
Brown	Green Bay, City of	550022	Participating	D
Brown	Howard, Village of	550023	Participating	D
Door	Sturgeon Bay, City of	550111	Participating	D
Brown	Suamico, Village of	550660	Participating	D
Door	Door County (unincorporated areas)	550109	Participating	D
Door	Egg Harbor, Village of	550029	Participating	D
Door	Ephraim, Village of	550611	Participating	D
Door	Sister Bay, Village of	550030	Not Participating	N/A

Table 17: Program Status and Ordinance Level for Brown, Door, and Kewaunee County

County	Community	CID	Program Status	Ordinance Level
Kewaunee	Algoma, City of	550213	Participating	D
Kewaunee	Kewaunee County (unincorporated areas)	550212	Participating	D
Kewaunee	Kewaunee, City of	550215	Participating	D

CID = Community Identification Number

I.IV.ii.21 Proposed Draft Transects

Transects are profiles along which coastal flooding analysis is performed. Transects are used to transform offshore conditions to the shoreline and are used to define coastal flood risks inland of the shoreline. They are placed to define representative profiles for a shoreline reach. 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. The base maps listed earlier in this section (i.e. LiDAR, bathymetry) were reviewed, or will be reviewed once available, to determine revisions to the draft placement for hazard modeling transects along the Lake Michigan shoreline.

The originally proposed draft transect layout is shown on the draft Discovery Map for Brown, Door, and Kewaunee County (Attachment C) and includes an identification number per transect. Note that these identification numbers will change as the draft transects are revised in the future.

Stakeholders were provided with the proposed draft transect shapefiles (GIS digital data) upon request, and the proposed draft transects (Attachment D) were also reviewed by stakeholders during and after the Discovery Meeting. Input from local officials was requested regarding the placement and the number of transects. The detailed comments collected can be found in Attachment E, Stakeholder Comments from Discovery Meeting. The ID numbers in this table correspond to the location of the comment, which is shown on the Final Discovery Maps in Appendix R of the basin-wide Lake Michigan Discovery Report and is not an attachment within this report (Federal Emergency Managment Agency, 2013). Each comment has a unique map identification number (if one exists) that correlates to its location on the Final Discovery Map. The identification of a comment (ID) categorized as a "Stakeholder General Comment" is represented by using the first three letters of the county name followed by a unique number (i.e. DOO – 1, DOO - 2). The identification of a comment (ID) categorized as a "Stakeholder Transect Comment" is represented by using the first three letters of the county name, followed by "TR", followed by a unique number (i.e. DOO-TR-1, DOO-TR-2).

Below is a summary of the comments received during the Discovery Meeting and their impact on revisions to the proposed draft transects along the Lake Michigan shoreline in Brown, Door, and Kewaunee County:

- Brown County: Stakeholders requested the proposed draft transects capture the location of the existing effective transects in Brown County. Stakeholders also noted a few locations where they felt transects were not necessary due to the similar shoreline type and topography. Draft proposed transects were updated to reflect effective transects, and some transects that were located in addition to the effective transects were removed. This resulted in an overall reduction in the number of proposed draft transects, while still maintaining the count and location of the effective transects.
- Door County: Stakeholders requested the removal of just under half the transects from the initially proposed draft transects. In addition, stakeholders provided suggested relocation and adjustment in orientation of several additional transects. Proposed draft transects were revised to remove a significant amount of transects as requested, in addition to meeting the relocation and orientation requests in most cases. This resulted in an overall reduction in the number of draft proposed transects (from 144 transects to 115 transects). Door County has requested that ongoing consideration be given to remove an additional 21 transects as requested in their initial review of the draft transects.
- Kewaunee County: Stakeholders requested the number of transects be reduced along three areas of the county shoreline, stating those areas were fairly uniform. These comments were incorporated and resulted in a reduction in the number of total proposed draft transects. Stakeholders also noted that there are several areas of high bluff along the shoreline (specifically from City of Kewaunee to portions within the City of Algoma) and thus there need not be numerous transects. It was requested that the total number of transects along the shoreline be further reduced.

All comments were reviewed and incorporated where possible and a revised proposed draft transect layout was created. This revised transect layout can be found on the Final Discovery Maps in Appendix R of the Lake Michigan basin-wide report (Federal Emergency Managment Agency, 2013). It should be noted that these transects remain subject to change pending future coastal analysis and additional discussions with stakeholders regarding further reduction in the number of transects.

I.IV.ii.22 Pre-Disaster Mitigation Grant Program

The Pre-Disaster Mitigation (PDM) program is a nation-wide competitive grant program that was created to assist State and local governments, including Indian Tribe governments, with the funding to implement cost-effective hazard mitigation activities prior to disasters. The intent of this program is to reduce overall risk to people and property, while also minimizing the cost of disaster recovery. Grants awarded during past fiscal years can be downloaded from the Pre-Disaster Mitigation Archives at http://www.fema.gov/pre-disaster-mitigation-grant-program/pre-disaster-mitigation-archives .

Under PDM, Kewaunee County received a grant of $36,000 for their initial Hazard Mitigation Plan, and another grant of $23,038 for their Hazard Mitigation Plan update. Brown County received $99,268 for their initial Hazard Mitigation Plan, and $75,096 for their plan update.

I.IV.ii.23 Public Assistance (PA) Grant Program

The mission FEMA's Public Assistance (PA) Grant Program is to provide assistance to State, Tribal and local governments, and certain types of Private Nonprofit organizations so that communities can quickly respond to and recover from declared disasters or emergencies.

Through the PA Program, FEMA provides supplemental Federal disaster grant assistance for debris removal, emergency protective measures, and the repair, replacement, or restoration of disaster-damaged, publicly owned facilities and the facilities of certain Private Non-Profit (PNP) organizations. The PA Program also encourages protection of these damaged facilities from future events by providing assistance for hazard mitigation measures during the recovery process.

Detailed project descriptions for completed PA projects can be downloaded from https://explore.data.gov/catalog/raw .

I.IV.ii.24 Regulatory Mapping

The effective mapping status for communities in the Brown, Door, and Kewaunee Counties project area is listed in Table 18.

Table 18: Effective Mapping Status of Brown, Door, and Kewaunee County

County	Community	CID	FIRM Date	Program Status
Brown	Allouez, Village of	550612	8/18/2009	Participating
Brown	Bellevue, Village of	550627	8/18/2009	Participating
Brown	Brown County (unincorporated areas)	550020	8/18/2009	Participating
Brown	Green Bay, City of	550022	8/18/2009	Participating
Brown	Howard, Village of	550023	8/18/2009	Participating
Brown	Suamico, Village of	550660	8/18/2009	Participating
Door	Door County (unincorporated areas)	550109	3/2/2009	Participating
Door	Egg Harbor, Village of	550029	3/2/2009	Participating
Door	Ephraim, Village of	550611	3/2/2009	Participating
Door	Sister Bay, Village of	550030	3/2/2009	Not Participating
Door	Sturgeon Bay, City of	550111	3/2/2009	Participating

County	Community	CID	FIRM Date	Program Status
Kewaunee	Algoma, City of	550213	6/15/1979	Participating
Kewaunee	Kewaunee County (unincorporated areas)	550212	9/3/1980	Participating
Kewaunee	Kewaunee, City of	550215	2/15/1980	Participating

CID = community identification
FIRM = Flood Insurance Rate Map

Effective FIRMs and FISs can be downloaded from FEMA's Map Service Center (MSC) at https://msc.fema.gov .

I.IV.ii.25 Repetitive Loss

A Repetitive Loss (RL) property is any insurable building for which two or more claims of more than $1,000 were paid by the NFIP within any rolling ten-year period, since 1978. A RL property may or may not be currently insured by the NFIP. There are currently over 122,000 repetitive loss properties nationwide.

Structures that flood frequently strain the National Flood Insurance Fund. In fact, the RL properties are the biggest draw on the Fund. FEMA has paid almost $3.5 billion dollars in claims for RL properties. RL properties not only increase the NFIPs annual losses and the need for borrowing funds from Congress, they drain funds needed to prepare for catastrophic events. Community leaders and residents are also concerned with the RL problem because residents' lives are disrupted and may be threatened by the continual flooding.

Over the years, there have been a number of efforts aimed at addressing repetitive losses. Depending on individual circumstances, appropriate mitigation measures commonly include elevating buildings above the level of the base flood, demolishing buildings, and removing buildings from the SFHA as part of a flood control project. Sometimes, mitigation takes the form of a local drainage-improvement project that meets NFIP standards and removes a property or properties from RL or Repetitive Loss Target Group (RLTG) status.

The Repetitive Flood Claims (RFC) grant program was authorized by the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 (P.L. 108–264), which amended the National Flood Insurance Act (NFIA) of 1968 (42 U.S.C. 4001, et al). Up to $10 million is available annually for FEMA to provide RFC funds to assist states and communities reduce flood damages to insured properties that have had one or more claims to the NFIP. Additional information on this program and other related programs is available at http://www.fema.gov/hazard-mitigation-assistance.

Repetitive losses were reviewed in FEMA's CIS "Community Disaster Detail – Flood Insurance" report. Table 19 details the total number of repetitive loss structures and total

amount of repetitive loss payments in Kewaunee, Door, and Brown County project area communities.

Table 19. Repetitive Loss

County	Community	CID	Total Repetitive Loss Structures	Total Repetitive Loss Payment
Brown	Allouez, Village of	550612	0	$0
Brown	Bellevue, Village of	550627	0	$0
Brown	Brown County (unincorporated areas)	550020	1	$4,864
Brown	Green Bay, City of	550022	2	$29,912
Brown	Howard, Village of	550023	2	$22,961
Brown	Suamico, Village of	550660	0	$0
Door	Door County (unincorporated areas)	550109	0	$0
Door	Egg Harbor, Village of	550029	0	$0
Door	Ephraim, Village of	550611	0	$0
Door	Sister Bay, Village of	550030	0	$0
Door	Sturgeon Bay, City of	550111	1	$42,285
Kewaunee	Algoma, City of	550213	0	$0
Kewaunee	Kewaunee County (unincorporated areas)	550212	0	$0
Kewaunee	Kewaunee, City of	550215	0	$0

CID = community identification

I.IV.ii.26 Socio-Economic Analysis

In Brown County, the economy is primarily manufacturing oriented. In 2009, lake-related businesses provided 3.4 percent of the total jobs in Brown County. This accounted for just under 5,000 jobs, $73 million in wages, and $150 million in goods & services. This represents a 12 percent decrease in lake jobs since 2005 (National Oceanic & Atmospheric Administration, 2009).

Door County is primarily sales and service oriented. In 2009, lake-related businesses provided 24.5 percent of the total jobs in Door County. This accounted for 3,200 jobs, $74 million in wages, and $140 million in goods & services. This represents a 3 percent increase in lake jobs since 2005 (National Oceanic & Atmospheric Administration, 2009).

Kewaunee County is primarily production, transportation, and material moving, as well as sales and service oriented. In 2009, lake-related businesses provided 5.4 percent of the total jobs in Kewaunee County. This accounted for just below 400 jobs, $2 million in

wages, and $6 million in goods & services. This represents a 13 percent decrease in lake jobs since 2005 (National Oceanic & Atmospheric Administration, 2009).

The more homes and people located in a floodplain, the greater the potential for harm from flooding. Impacts are likely to be even greater when additional risk factors (age, income, capabilities) are involved, since people at greatest flood risk may have difficulty evacuating or taking action to reduce potential damage. Approximately 11 percent of the population in Brown County is inside a FEMA floodplain. Door County and Kewaunee County each have 6 percent inside the floodplain (National Oceanic & Atmospheric Administration, 2009).

I.IV.ii.27 State-level Datasets, Programs, and Information

Needs Assessment and Strategy:
As part of this Discovery process, information related to Great Lakes datasets, reports, programs, and grants was extracted from the Wisconsin Coastal Management Program (WCMP) 2011-2016 Needs Assessment and Strategy, completed November 2010 (Wisconsin 2011-2016 Needs Assessment and Strategy, 2010).

Studies and reports relevant to Wisconsin's Coastal Hazards include:

- SEH/Baker, 1997. "Lake Michigan Recession Rate Study Final Report". (Report prepared for the Wisconsin Coastal Management Council, Wisconsin Department of Administration).
- Wisconsin Coastal Management Program (WCMP), October 2007. "A Strategic Vision for the Great Lakes". (http://www.doa.state.wi.us/docview.asp?docid=7039)
- Springman, R. and S. M. Born, 1979. "Wisconsin's Shore Erosion Plan: An Appraisal of Options and Strategies" (http://wisconsingeologicalsurvey.org/wofrs/WOFR1979-03.pdf)
- State of Wisconsin Hazard Mitigation Plan (updated 2008) (http://emergencymanagement.wi.gov/mitigation/planning.asp)
- Bay Lake Regional Planning Commission (BLRPC) study, "Coastal Bluff Stability Study, Inventory & Description", September 1995. (http://www.baylakerpc.org/about/publications)
- Southeastern Wisconsin Regional Planning Commission (SEWRPC) study (1997), Technical Report No. 36, "Lake Michigan Shoreline Recession and Bluff Stability in Southeastern Wisconsin", 1995 (http://maps.sewrpc.org/Publications/search.asp)
- Coastal Processes Manual (1998) (http://aqua.wisc.edu/publications/ProductDetails.aspx?productID=356)
- Lake Michigan Potential Damages Study (1999) (http://www.lre.usace.army.mil/greatlakes/hh/greatlakestudies/lakemichiganpotentialdamagesstudy/)

Hazards Research and Monitoring:
WCMP funded the University of Wisconsin-Madison efforts to investigate lakebed down cutting in Lake Michigan. The work resulted in a much clearer understanding of erosion of the near shore lakebed and increased public awareness of bluff recession.

The WCMP also funded projects that resulted in oblique photographs or Wisconsin's coasts. The photographs were geolocated. Older oblique photos were digitized and geolocated, and a GIS database built to allow comparison between the sets. The work resulted in a database that allows users to analyze change to the state's shoreline.

Wisconsin Great Lakes Strategy: Restoring and Protecting Our Great Lakes:
This guidance document, developed by the Wisconsin Department of Natural Resources Office of the Great Lakes, was updated in 2009 and reflects changes in priorities and actions since last updated in 2006. The Wisconsin Great Lakes Strategy addresses eight of the nine priorities identified by the Council of Great Lakes Governors for the restoration and protection of the Great Lakes. The goals of the Strategy are to:

- translate the recommendations from the Great Lakes Regional Collaboration into Wisconsin specific actions,
- be a vehicle for coordinating efforts and developing shared priorities,
- serve as a menu for securing and allocating resources, and
- promote developing projects for implementation and position Wisconsin to compete for federal restoration and protection funding.

The Strategy focuses on resources and ecosystems impacted by the Great Lakes. This includes tributary and groundwater connections, species dependent on the Great Lakes and their tributaries, and land use influences on water quality and quantity.

Wisconsin's Great Lakes Beach Monitoring and Notification Program:
This program is coordinated through the Wisconsin Department of Natural Resources Bureau of Watershed Management. With funding from the U.S. Environmental Protection Agency (EPA) under the authority of the BEACH Act, the Wisconsin Department of Natural Resources implements the program with assistance from other federal, state, and local government partners. The program goal is to monitor Great Lakes beaches to improve public notification of advisories and reduce beach visitors' risk of exposure to disease-causing microorganisms. As of 2008, 123 of Wisconsin's 192 Great Lakes beaches are now being monitored. Since the introduction of the sanitary survey by the U.S. EPA, the state has increasingly utilized sanitary surveys, local, and nonprofit partners since 2007. Sanitary surveys may provide valuable information about potential pollution sources and assist stakeholders with implementing remediation measures.

Additional information on the Wisconsin Great Lakes areas can be found from the below resources:

- Wisconsin Initiative on Climate Change Impacts: http://www.wicci.wisc.edu/report/Coastal-Communities.pdf
- International Joint Commission:
  - A series of publications are available on the Great Lakes, including Groundwater in the Great Lakes Basin, the Impact of Urban Areas on Great Lakes Water Quality, Great Lakes Priority Issues, Emerging Issues of the Great Lakes, and Lake Levels. This information can be downloaded from http://ijc.org/en/activities/main_princ.htm
- Great Lakes Water Institute – Wisconsin Aquatic Technology and Environmental Research: http://www.glwi.uwm.edu/

V. Risk MAP Projects and Needs

This section provides information about the planned next steps for the Lake Michigan GLCFS, including information about the upcoming coastal analysis, potential for mitigation technical assistance within the project area, potential for changes in compliance as a result of the coastal flood study, future communications, and how unmet needs will be addressed.

i. Future Coastal Study

Information and data collected as part of this Discovery effort and provided in this report will be utilized in the upcoming coastal flood study for Lake Michigan.

A summary of the GLCFS project, as well as project updates, can be found at http://www.greatlakescoast.org/ under the "Great Lakes Coastal Analysis & Mapping" section.

The following work is expected to be performed for Lake Michigan as part of the GLCFS, pending congressional funding. The scope of work described in this section is therefore subject to change and may not be performed within all Lake Michigan communities.

All engineering and mapping analysis performed as part of this study will follow guidance provided within FEMA's Draft *Guidelines and Specifications for Coastal Studies Along the Great Lakes*, issued on May 8, 2012 (Federal Emergency Management Agency, 2012). 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 assessment product development. A summary is provided below and additional detail may be found in FEMA's basin-wide Lake Michigan Discovery Report (Federal Emergency Managment Agency, 2013).

Engineering & Mapping:

Coastal flood hazard analyses for the coastal communities of the United States located along the Lake Michigan shoreline will be performed. This analysis will include the creation of bathymetric and topographic map data inventory, base map acquisition, and coastal flood hazard analysis.

Draft coastal flood maps (or workmaps) will be produced for the study area. The workmaps will include the 1-percent- and 0.2-percent-annual chance flood hazard areas, Coastal High Hazard (VE Zone) and Coastal A Zone (AE Zone), Base Flood Elevations (BFEs), and Limit of Moderate Wave Action (LiMWA) boundary. The LiMWA boundary identifies the 1.5-foot wave height line and alerts property owners that although their property is in a Zone AE area, it may also be affected by waves 1.5 feet or higher. Communities will be provided with an opportunity to review the workmaps after the coastal analysis is complete and prior to FIRM production.

National Flood Insurance Program Integration

Regulatory FIRM files may be updated through the FEMA's Physical Map Revision (PMR) process using the results from the work performed in the Engineering and Mapping task described above.

The final production and distribution of updated FIRMs will be dependent on the results of the coastal analysis, discussions with the communities, and congressional funding. Therefore, it cannot be identified at this time the exact communities that will receive updated FIRMs that may require adoption. The risk assessment products and their distribution, discussed below, are also dependent on the results of the coastal analysis and further community discussions and are subject to change.

Risk Assessment Products

Depending on available data, results of coastal analysis, local needs identified, local partnerships, and fiscal year funding, the coastal flood risk products such as Flood Risk Map, Flood Risk Report, Changes Since Last FIRM (CSLF), Flood Depth and Analysis Grids, and Hazus-MH analyses may be generated for identified coastal communities. Optional Flood Risk Assessment products such as coastal wave height grids, erosion risk determination, and wave hazard severity area datasets have not yet been funded. Table 20 summarizes the products projected for the coastal communities in this project area.

Table 20: Potential Flood Risk Products

County	State	Flood Risk Map and Flood Risk Report	Changes Since Last FIRM	Flood Depth and Analysis Grids	Optional Flood Risk Assessment Products
Brown	WI	✓	✓	✓	TBD
Door	WI	✓	✓	✓	TBD
Kewaunee	WI	✓	-	✓	TBD

ii. Potential for Mitigation Assistance

As part of a Risk MAP project, Mitigation Planning Technical Assistance (MPTA) may be available to help communities plan for and reduce risks by providing communities with specialized assistance. MPTA includes risk assessment, mitigation planning, and traditional hazard identification (flood mapping) activities. Technical assistance through MTPA can be performed at any time during the hazard mitigation planning process.

Determining which communities receive MPTA is dependent on identification of a need, the willingness of a community to partner with FEMA, local resources and data availability, and federal funding availability. Unfortunately, not every community will be able to receive MPTA as part of a Risk MAP project. Forming a partnership between FEMA and a local community is an essential part of initiating a MPTA project. Assistance will be prioritized after all data and information is collected and assessed by FEMA in coordination with the local communities to determine where MPTA resources would be beneficial. Communities should alert FEMA of any resources that are available at the local level, and of actions they are interested in implementing in partnership with FEMA. Technical assistance activities should be based on the needs of the community and assist with already established capabilities.

Some technical assistance activities could include (but are not limited to):

- Advising in the creation of initial Hazard Mitigation Plans
- Advising in the update of existing Hazard Mitigation Plans
- Training to improve a community's capabilities for reducing risk
- Assistance in incorporating flood risk datasets and products into potential and effective community legislation, guidance, regulations, procedures, etc.
- Assistance with the creation, acquisition and incorporation of GIS data into potential and effective maps, planning mechanisms, emergency management procedures, etc.
- Facilitating the identification of data gaps and interpret technical data to identify risk reduction definiencies that should be corrected.

While the need for technical assistance did not specifically come up during the Discovery process for Brown, Door, and Kewaunee County coastal areas, the need for assistance

through MPTA may exist. It is recommended additional discussion occur between FEMA and these stakeholders as this coastal flood study moves forward to see if MPTA would be an appropriate and beneficial option.

Continued discussion regarding FEMA partnership with local communities to assist in developing new mitigation actions and moving those actions forward will be essential as this coastal project moves forwards.

iii. Compliance

FEMA uses a number of tools to determine a community's compliance with the minimum regulations of the NFIP. Among them are Community Assisted Contacts (CACs), Community Assistance Visits (CAVs), the Letter of Map Change (LOMC) process, and Submit-for-Rates. These tools help assess a community's implementation of their flood damage reduction regulations and identify any floodplain management deficiencies and violations.

If administrative problems or potential violations are identified, the community will be notified and given the opportunity to correct those administrative procedures and remedy the violations to the maximum extent possible within established deadlines. FEMA or the state will work with the community to help them bring their program into compliance with NFIP requirements. In extreme cases where the community does not take action to bring itself into compliance, FEMA may initiate an enforcement action against the community.

After coastal analysis is completed for this study, communities may be faced with adopting new regulations related to coastal high hazard areas. An understanding of regulations associated with coastal areas will be important so that communities remain compliant. During this Discovery process, stakeholders were provided with information regarding NFIP requirements that are associated with coastal hazard zones, as well as information about new FEMA guidance related to moderate wave action.

These compliance topics, including coastal Special Flood Hazard Areas (SFHAs), building requirements in VE Zones, and Limit of Moderate Wave Action (LiMWA), are discussed in detail at http://www.greatlakescoast.org and in the basin-wide Lake Michigan Discovery Report (Federal Emergency Managment Agency, 2013).

iv. Communication

Throughout this Discovery process, community representatives and local stakeholders indicated the need to be kept informed about the results of Discovery, the upcoming coastal flood study, and opportunities for public input throughout the study process.

Throughout this study process, Federal, State, and local stakeholders will be kept informed via email, phone calls, letters, newsletters, and meetings as appropriate. A dedicated email

account was created (GreatLakesFloodStudy@STARR-Team.com) to distribute project information, meeting reminders, and summaries.

Stakeholder involvement will continue to be important through the remainder of the project. The GLCFS website 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 flood study projects, data collection, upcoming meetings, new technical reports, the latest methodologies, factsheets, and additional information.

FEMA encourages stakeholders to remain involved throughout the study process and will seek to identify partnership opportunities during the study process.

v. Unmet Needs

During this Discovery process, stakeholders provided FEMA with a wide variety of information. Some of the information, while valuable, may not be able to be utilized in the upcoming coastal study. In addition, some questions may be unresolved as of the end of this Discovery process. This section seeks to summarize those unmet needs and to provide the steps that may be taken to address them in the future.

During the Discovery Meetings and throughout the Discovery process, Lake Michigan stakeholders were concerned about what to expect in terms of extent of new SFHA boundaries, the possible introduction of VE Zones, the number of property owners who would be affected, and the additional NFIP requirements and flood insurance costs that may go along with a flood map revision. FEMA acknowledged this concern, adding that upcoming engineering and mapping tasks include the distribution of workmaps and other flood risk products designed to give local stakeholders an opportunity to review and comment on flood risk data before the data is carried into NFIP FIRM maps.

In addition, comments related to the proposed transects were raised during the Discovery Meeting by State and county representatives. It was suggested the effective transects along Lake Michigan be used where available. In addition, all counties commented that several transects should be removed due to the similar shoreline characteristics and/or high bluffs. Transects were updated to incorporate comments where possible, however it should be noted that the transects proposed in this report remain subject to change pending future coastal analysis and discussions regarding overall transect reduction. Stakeholders will be made aware of revised transect locations via the future workmaps that will be provided to local communities for review as the study moves forward.

VI. Close

Federal, State, and local stakeholders that were involved in this Discovery process contributed valuable information about Lake Michigan, including information and data that may be utilized in the upcoming Lake Michigan coastal flood study. The data and

opportunities presented in this report will be considered as the study process moves forward and will assist the project team as the Lake Michigan coastal flood study proceeds. FEMA encourages continued participation and engagement from stakeholders throughout this coastal flood study.

The ultimate goal of this Discovery process and the future coastal flood study is to provide updated flood risk information to local stakeholders and to increase awareness of those flood risks, which in turn leads to actions that reduce risk.

VII. References

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VIII. Attachments

Discovery data and information, as well as this report and appendices, have been stored digitally on FEMA's Mapping Information Platform (MIP) Discovery Data Repository at J:\FEMA\DISCOVERY_DATA_REPOSITORY\R05_DATA\ and can be accessed by FEMA authorized users. The MIP can be accessed from https://hazards.fema.gov/. A username and password is required to access certain data within the MIP.

The final Discovery Report and appendices are also available for download from http://www.greatlakescoast.org/.

Attachments in this report include:

Attachment A: Coastal Data Request Form (sample)
Attachment B: Brown, Door, and Kewaunee County Pre-Meeting Correspondence
Attachment C: Draft Discovery Maps
Attachment D: Proposed Draft Transect Figures
Attachment E: Stakeholder Comments from Discovery Process
Attachment F: Brown, Door, and Kewaunee County Discovery Meeting Documents
Attachment G: Coastal Data Request Form Compilation

ATTACHMENT A

COASTAL DATA REQUEST FORM

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: GreatLakesFloodStudy@starr-team.com
By mail: Scott Banjavcic
CDM Smith/STARR
125 S. Wacker Drive, Suite 600
Chicago, IL 60606

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

Laura Keating, Laura.Keating@starr-team.com, 925-296-8048

Contact Information	
Community/Organization	
Name:	
Title:	
Address:	
E-mail:	
Phone:	
Contact Preference	☐ Email ☐ Phone ☐ Mail

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

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

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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:	☐ yes ☐ 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?	☐ yes ☐ no	If yes, please describe:
Does your community have other risk assessment data?	☐ yes ☐ no	If yes, please describe:

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FEMA

Flood Mitigation Information		
Does your community have a hazard mitigation plan?	☐ yes ☐ no	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:

Any specific coastal mitigation projects?	☐ yes ☐ no	If yes, please explain:
Does your community have experience with coastal flood disasters and flood disaster recovery?	☐ yes ☐ no	If yes, please explain:
Does your community coordinate floodplain management programs with programs for the management and planning of open space? If possible, any coastal specific?	☐ yes ☐ no	If yes, please explain:

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FEMA

Have you had any prior proactive mitigation actions and planning efforts that resulted in reduced losses? If possible, any coastal specific?	☐ yes ☐ no	If yes, please describe:
Has your community applied and granted Individual Assistance/Public Assistance grants for declared disasters?	☐ yes ☐ no	If yes, please describe and provide the locations of these grants projects:
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?	☐ yes ☐ no	If yes, please describe and provide the locations of on-going/planned/finished grants projects/structures:

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How would you rank the community's ability to implement mitigation actions and to communicate flood risk to citizens?		☐ high ☐ medium ☐ low
Community Plans and Projects		
Does your community have a comprehensive plan?	☐ yes ☐ no	If you answered yes and you have a hazard mitigation plan, was your hazard mitigation plan coordinated with the comprehensive plan? ☐ yes ☐ no
Does your community's comprehensive plan have a special consideration for coastal areas?	☐ yes ☐ no	If yes, please explain elements/regulations that affect coastal area development.
Does your community have a coastal zone management plan?	☐ yes ☐ 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?	☐ yes ☐ no	If yes, please explain this group's role in floodplain management and provide examples of the types of programs in place:

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Chicago, IL 60605
FEMA

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):	☐ yes ☐ no	If yes, please describe:
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.)	☐ yes ☐ no	If yes, please describe:
Any other comments/concerns based on local knowledge:		

ATTACHMENT B

BROWN, DOOR, AND KEWAUNEE COUNTY

PRE-MEETING CORRESPONDENCE

Core Stakeholder Pre-Meeting Documents

Information Exchange Session Documents

CEO/FPA Mailing List

Hard Copy Discovery Meeting Invitations

Email Discovery Meeting Invitation

Keating, Laura

From: Keating, Laura [KeatingLE@cdmsmith.com]
Sent: Thursday, June 21, 2012 3:26 PM
To: 'Alan Lulloff'; Caufield, Brian A.; 'Eric Kuklewski'; 'Gregory Mausolf'; 'Heather Stirratt'; Hillier, Timothy; 'Holly Davis'; 'Jennifer Day'; 'Julia McCarthy'; 'Julie Tochor'; 'Kate Barrett'; 'Kathleen Angel'; 'Katie McMahan'; 'Laura Keating'; 'Lee Traeger'; 'Mary Weldel'; 'Meg Galloway (WDNR)'; 'Megan Hart'; 'Michelle Hase (WDNR)'; 'Miles Winkler (WDNR)'; Randhawa, Jaspreet; 'Ronald Wencl'; 'Roxanne Gray'; 'Tambrete Phillps'; 'Tanya Lourigan (WDNR)'; 'Tom Smith'; 'Wayne Lasch'; 'Ken Hinterlong'; 'michael.friis@wisconsin.gov'; 'Christopher.Olds@Wisconsin.gov'; 'Susan.Boldt@Wisconsin.gov'; 'Gary.Heinrichs@Wisconsin.gov'; 'Roberts, Stacey'; Luce, Janet K
Cc: Hinterlong, Ken
Subject: RE: FEMA Invitation to Lake Michigan Discovery Kickoff Meeting WebEx for Wisconsin Core Stakeholders
Attachments: CEO_FPA_Discovery_Invitation_List_Great_Lakes_Study_WI.xlsx; GLCFS_ LiMWA Fact Sheet.pdf; Draft_Transects_LakeMichigan_WISCONSIN_JUNE2012.zip; Email_Invitations_Lake_MI Stakeholder_List_modified 6-18.xls

Good Afternoon,

Thank you for attending the Wisconsin Core Stakeholder Lake Michigan pre-Discovery Kickoff meeting last week.

If you were unable to attend, but would like to learn more about the Great Lakes Coastal Discovery process, please feel free to contact myself or Ken Hinterlong of FEMA Region V directly (Ken.Hinterlong@fema.dhs.gov).

Please find below and attached some information that we discussed during the call:

1. Contact List with local official (CEO/FPA) information for the Wisconsin coastal communities and counties along Lake Michigan coastline. This is the list of local stakeholders who will receive a hard copy coastal Discovery Invitation, and will be invited to attend the Information Exchange Sessions. They will also be encouraged to identify and invite other local stakeholders who would benefit from the Discovery Meeting. **If you have specific contacts you would like us to add, please let me know.**

2. Great Lakes Coastal Flood Study Contact List. This is a comprehensive list of various Lake Michigan stakeholders, including technical resources, other federal agencies, associations, universities, etc. Utilizing this list as a basis, we will be providing an email invitation to the Discovery Meetings. Invitees may then forward on the invite to others in the Great Lakes region. Please note, this list is being continually updated throughout the Great Lakes study process.

3. Limit of Moderate Wave Action (LiMWA) Fact Sheet

4. Draft transects (.shp) for Wisconsin portion of Lake Michigan.

These additional items will follow:

1. Meeting Minutes

2. Draft Data Request Form, which includes requests for coastal flood risk data and information from local officials. The collection of this information in advance of the Discovery Meetings will help us to cater our message during the meeting to local flood risk concerns and local flood risk reduction opportunities.

Thank you again for your participation in the process. We look forward to working closely with you in the upcoming months.

Laura

Laura Keating, CFM
STARR

direct/fax: 925-296-8048
cell: 617-319-2472

-----Original Appointment-----
From: Keating, Laura
Sent: Wednesday, June 06, 2012 4:21 PM
To: Keating, Laura; 'Alan Lulloff'; Caufield, Brian A.; 'Eric Kuklewski'; 'Gregory Mausolf'; 'Heather Stirratt'; Hillier, Timothy; 'Holly Davis'; 'Jennifer Day'; 'Julia McCarthy'; 'Julie Tochor'; 'Kate Barrett'; 'Kathleen Angel'; 'Katie McMahan'; 'Laura Keating'; 'Lee Traeger'; 'Mary Weldel'; 'Meg Galloway (WDNR)'; 'Megan Hart'; 'Michelle Hase (WDNR)'; 'Miles Winkler (WDNR)'; Randhawa, Jaspreet; 'Ronald Wencl'; 'Roxanne Gray'; 'Tambrete Phillps'; 'Tanya Lourigan (WDNR)'; 'Tom Smith'; 'Wayne Lasch'; 'Ken Hinterlong'; michael.friis@wisconsin.gov; Christopher.Olds@Wisconsin.gov; Susan.Boldt@Wisconsin.gov; Gary.Heinrichs@Wisconsin.gov; 'Roberts, Stacey'
Cc: Luce, Janet K
Subject: FEMA Invitation to Lake Michigan Discovery Kickoff Meeting WebEx for Wisconsin Core Stakeholders
When: Friday, June 15, 2012 7:00 AM-8:30 AM (GMT-08:00) Pacific Time (US & Canada).
Where: Call-in: 866-710-4609 Passcode: 9577577 and WebEx

Good Afternoon,

As you may know, the Federal Emergency Management Agency (FEMA), in cooperation with the U.S Army Corps of Engineers (USACE), the Association of State Floodplain Managers (ASFPM), and other partners, is conducting a comprehensive study of flood hazards for Lake Michigan coastal communities and along the United States shoreline in other areas of the Great Lakes system. Data from this study will eventually be used to revise Flood Insurance Rate Maps (FIRMs) for coastal communities throughout the region.

As part of the Great Lakes Coastal Flood Mapping and Outreach initiative, STARR (which stands for Strategic Alliance for Risk Reduction) has been contracted by FEMA to perform Discovery for all Lake Michigan coastal communities within Wisconsin, Illinois, Indiana, and Michigan. In addition, STARR will perform Discovery for St. Clair, Macomb and Wayne Counties along Lake St. Clair in Michigan. The Discovery process allows us to engage the communities and other local stakeholders to initiate risk discussions and increase visibility of flood risk information.

You have been identified as a Core Stakeholder for the Lake Michigan Discovery Project in the State of Wisconsin. FEMA and STARR would like to hold a one-hour Kickoff Meeting via WebEx/conference call to introduce you to the Discovery process, including identifying Discovery goals and objectives for the Lake Michigan coastal communities in the State of Wisconsin. We will also review the Lake Michigan Discovery Meeting Plan and discuss State-specific requirements.

In the past few months, STARR may have already contacted you to participate in a Lake Michigan Technical Workshops. Discovery is another part of the project, and we require your input and feedback to ensure study success. The community-based Discovery Meetings are held following Technical Workshops. Below are the tentative Lake Michigan Discovery Meeting dates for the State of Wisconsin:

Counties	Venue	Address	Date, Time
Marinette	Oconto County Courthouse,	301 Washington Street, Oconto,	Wednesday

Oconto	Conference Room 1003 & 1004	WI 54153	08/15/2012; 9.30 - 11.30 AM
Kewaunee Door Brown	Neville Public Museum	210 Museum Place Green Bay, WI 54303	Wednesday 08/15/2012; 2:00 - 4:00 PM
Sheboygan Manitowoc Ozaukee	Lakeshore Technical College	Wells Fargo Conference Room, 1290 North Avenue, Cleveland, WI 53015	Thursday 08/16/2012; 9.00 - 11:00 AM
Milwaukee Racine Kenosha	MMSD Commission Room	260 W. Seeboth, Milwaukee, WI	Thursday 08/16/2012; 3:00 - 5:00 PM

Please let me know if the proposed time on this meeting invitation **(9am Central)** is acceptable. We are trying to determine the best time for everyone to participate in the Lake Michigan Discovery Kickoff Meeting WebEx for the State of Wisconsin.

I look forward to discussing this project with you during the Discovery Kickoff Meeting. Please do not hesitate to contact me if you have any questions.

Sincerely,

Laura Keating, CFM
STARR

Laura.Keating@starr-team.com
Phone/fax: 925-296-8048

WebEx information:

Participant Join URL: http://e-meetings.verizonbusiness.com/nc/join.php?i=743676568&p=website&t=c

Meeting number: 743676568

Meeting passcode: website

Project Name:	Lake Michigan Discovery Project
Meeting:	Lake Michigan Pre-Discovery Kickoff Meeting for Wisconsin Core Stakeholders
Date and Time:	Friday, June 15, 2012 at 9am CDT
Place:	Call in: 866-710-4609 Passcode: 9577577 Participant Join URL: http://e-meetings.verizonbusiness.com/nc/join.php?i=743676568&p=website&t=c Meeting number: 743676568 Meeting passcode: website
Facilitator:	FEMA, STARR

Core Stakeholder Pre-Discovery Kickoff Meeting Agenda

Great Lakes Coastal Flood Study Overview

- Objectives
- Status
- Schedule

Hazard Mitigation Resources, Strategies, and Actions

- Introduction to Mitigation Action Form

Discovery Process Overview

- Scope and Schedule
- Discovery Meeting Outcomes
- Introduction to Discovery-phase Data Collection Activities
- Final Discovery Products

Coastal Focus – Information to be Aware Of

- Coastal Flood Risk Datasets
- Transects
- Erosion
- LiMWA
- Coastal Zone Mapping

Next Steps

- Community contact lists, draft transects, meeting minutes
- Stakeholder Input

Questions/Comments

Keating, Laura

Subject:	FEMA's Great Lakes Coastal Flood Study: Discovery Information Exchange Session for Brown, Door, and Kewaunee Counties
Location:	Call in number: 1-866-398-2885 Participant Code: 197462 and WebEx
Start:	Mon 7/23/2012 12:00 PM
End:	Mon 7/23/2012 1:00 PM
Show Time As:	Tentative
Recurrence:	(none)
Meeting Status:	Not yet responded
Organizer:	Keating, Laura
Required Attendees:	Keating, Laura; Hinterlong, Ken; Randhawa, Jaspreet; Holly.Davis@atkinsglobal.com
Optional Attendees:	bc_county_executive@co.brown.wi.us; bosiacki_bs@co.brown.wi.us; stevevpresident@villageofallouez.com; cbeyl@villageofbellevue.org; als@villageofbellevue.org; jimsc@greenbaywi.gov; paulne@ci.green-bay.wi.us; bmcintyre@villageofhoward.com; jkorotev@villageofhoward.com; pattipwoman@gmail.com; steve@suamico.org; nfisher@villageofeggharbor.org; jvanlieshout@villageofeggharbor.org; jcox@ephraim-wisconsin.com; bbristol@ephraim-wisconsin.com; sbmayor@sturgeonbaywi.org; mlouallen@sturgeonbaywi.org; denise.bhirdo@sisterbaywi.gov; robert.kufrin@sisterbaywi.gov; weidnerr@kewauneeco.org; selnerg@kewauneeco.org; algoma@algomacity.org; admin@cityofkewaunee.org

Good Afternoon,

You are receiving this meeting invitation because you have been identified as a ***Lake Michigan*** local community stakeholder. You should have recently received an invitation in the mail from the Federal Emergency Management Agency (FEMA), regarding the ***Great Lakes Coastal Flood Study*** effort, inviting you to attend a Discovery Meeting in August, as well as this information exchange session, scheduled for **Monday, July 23rd at 2pm CT**. More information about the ***Great Lakes Coastal Flood Study*** may be found at http://www.greatlakescoast.org.

While the WebEx and call-in information was provided in the letter, I wanted to also provide this information to you via email to serve as a reminder. Below is the call-in and WebEx information:

Date/Time:	Monday, July 23, 2012; 2:00 - 3:00 pm CT
Link to WebEx:	http://e-meetings.verizonbusiness.com/nc/join.php
Meeting Number:	445288484
Call in number:	1-866-398-2885
Participant Code:	197462

This informal session will begin the process of learning about your available local coastal data, hazard mitigation strategies, and what the critical flooding issues are in your community so that we can then work with you to determine how to utilize that information during FEMA's Great Lakes study. A data request form is attached to help facilitate the discussion. We encourage open discussions throughout this meeting and will use the information to better cater our upcoming Discovery Meetings as well. Attendees of this conference call, as well as the Discovery Meetings, may include, but certainly are not limited to, community leaders, emergency managers, GIS specialists, engineers, outreach specialists, and local planners.

We look forward to speaking with you on Monday, and appreciate your participation in this process. If you have any questions, or are not able to attend this session but would like to learn more, please do not hesitate to contact me directly. My information can be found below.

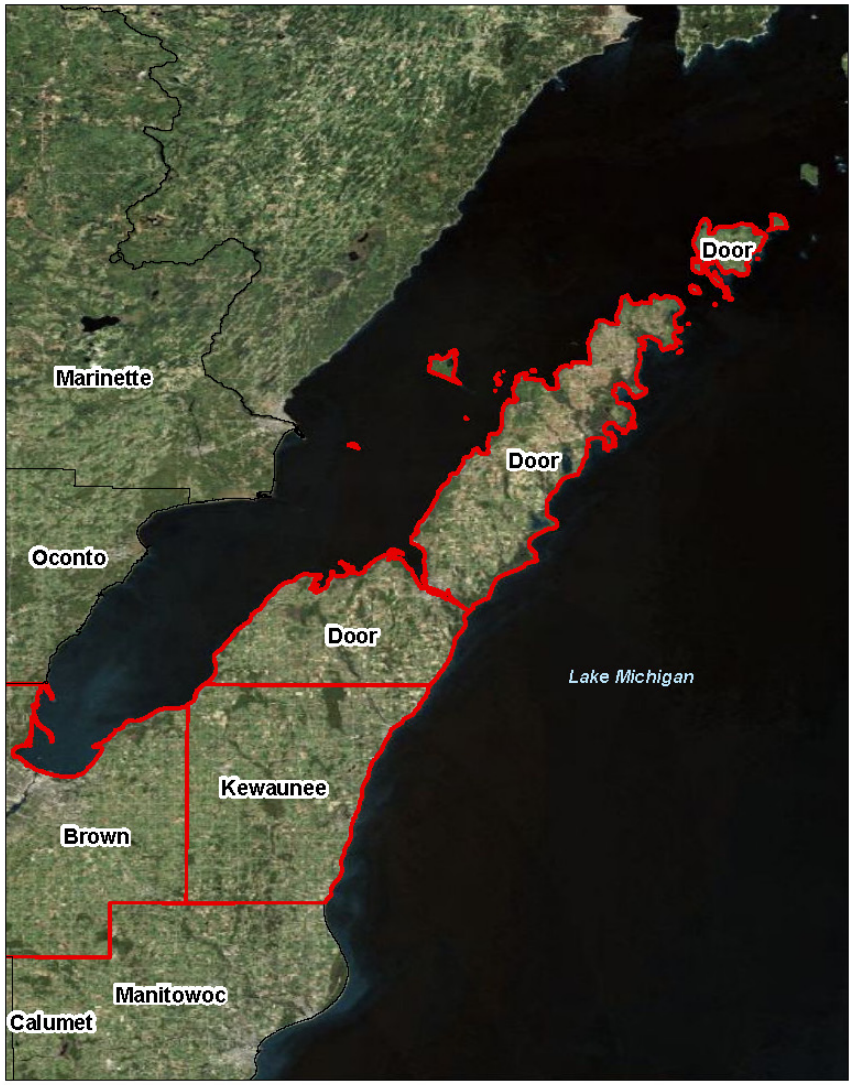
LAKE MICHIGAN
Discovery Coasta...

Thanks,
Laura

Laura Keating, CFM
STARR
direct/fax: 925-296-8048
cell: 617-319-2472

FEMA

Information Exchange Session for Lake Michigan Discovery



Brown, Door, and Kewaunee Counties

July 23, 2012

2pm – 3pm

RiskMAP
Increasing Resilience Together

Great Lakes Coastal Flood Study

Lake Michigan Discovery Report Appendix F - Kewaunee, Door, and Brown

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

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

Overview of Great Lakes Coastal Flood Study

FEMA

- 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

Hazard Mitigation Resources, Strategies & Actions

FEMA

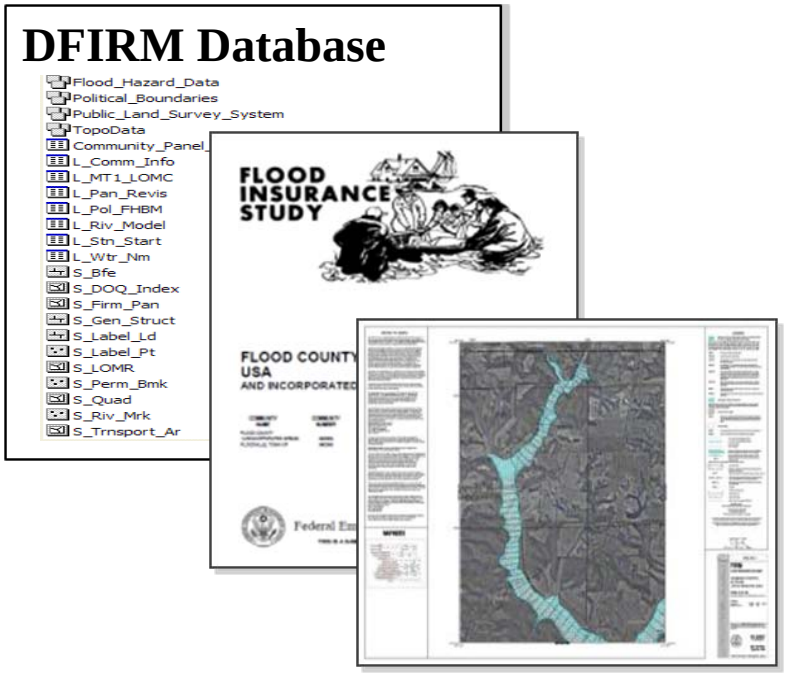
- Recent community hazard mitigation experiences?
  - *Public Works*
  - *Building Standards*
  - *Community Planning and Hazard Mitigation Plan Update*
  - *Communication Processes, GIS, etc.*
- New option to document ideas and actions through the FEMA Mitigation Action Form

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

Products and Datasets: Regulatory and Non-regulatory

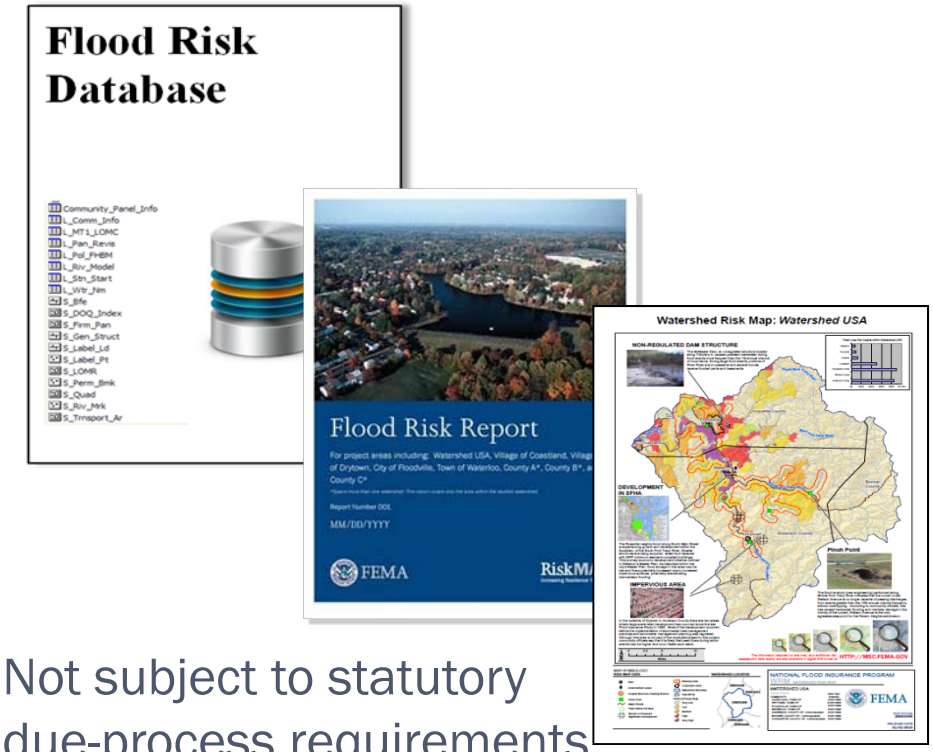
FEMA

Traditional Regulatory Products



Subject to statutory due-process requirements

Non-Regulatory Products



Not subject to statutory due-process requirements

RiskMAP
Increasing Resilience Together

Great Lakes Coastal Flood Study
greatlakescoast.org

Products and Datasets: Coastal Products in Development

Erosion

Red Lantern Restaurant, Lake Michigan, IN

Lake Levels

Lake Michigan Shoreline
Reference

Shoreline Feature Dataset

Upper Peninsula Shoreline
Reference

Risk MAP Overview: Shoreline Features Database

Shoreline Material
Sand
Cohesive
Cobble
Diamicton*
Shingle
Bedrock
Artificial

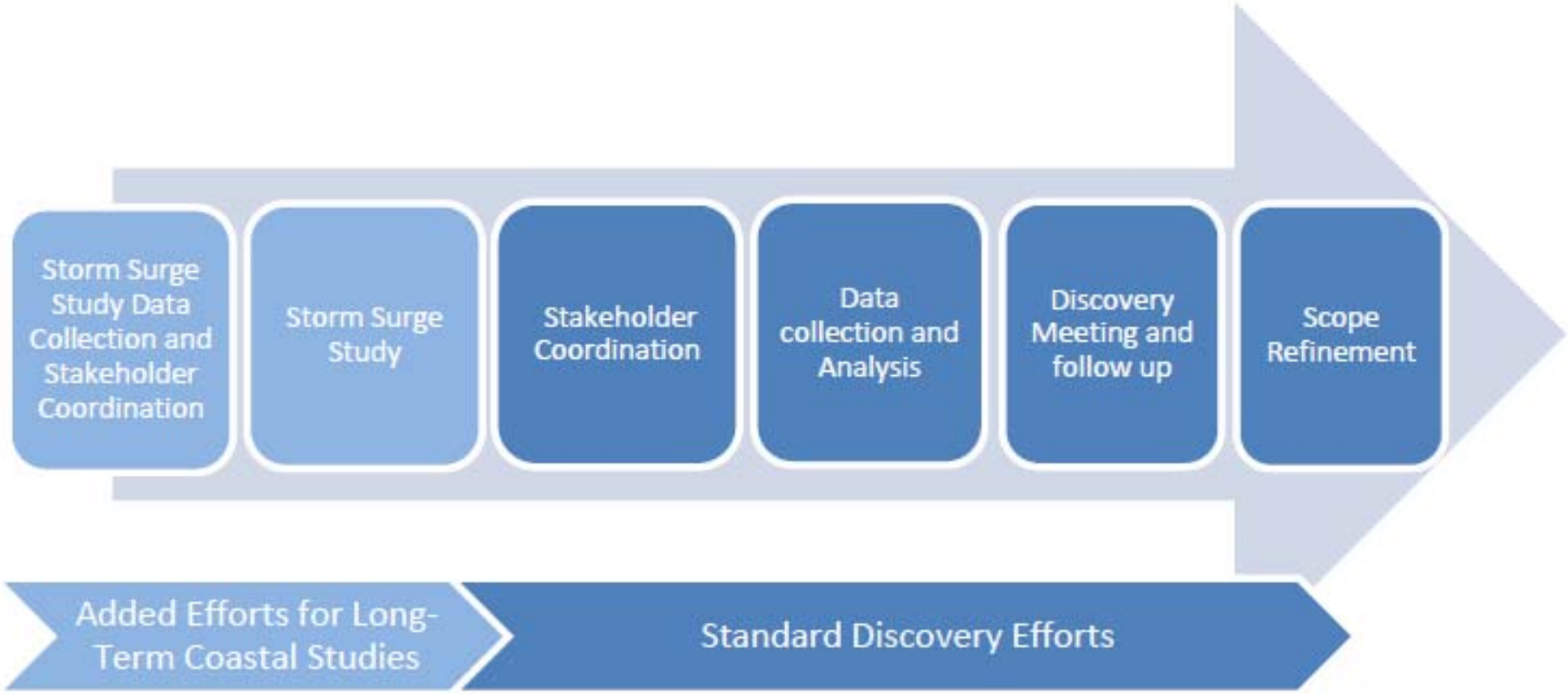
Primary Land Use
High Density Residential
Moderate Density Residential
Low Density Residential
Commercial/Industrial
Park Land
Farm Land
Forested

Primary Coast Type
High Dune, 10'+
Dune, 2' - 10'
High Bluff, 10'+
Bluff, 2' - 10'
Coastal Wetland
Flat Coast

Primary Vegetation
None
High Density Shrubs/Trees
Moderate Density Shrubs/Trees
Low Density Shrubs/Trees
Manicured Lawn
Native Vegetation

- 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
Neville Public Museum	210 Museum Place, Green Bay, WI 54303	Wednesday 08/15/2012; 2:00 - 4:00 PM CT

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 Michigan, with appendices for each coastal community by county
  - 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

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

Great Lakes Coastal Flood Study
Discovery Study Area

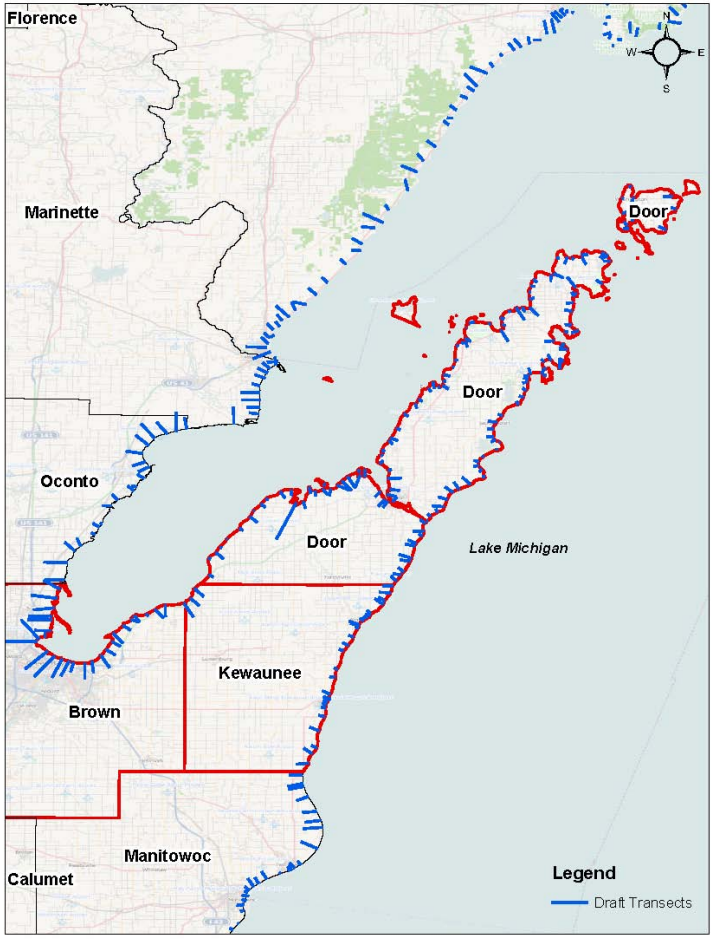
FEMA

<u>Lake Michigan coastal communities in Brown, Door, and Kewaunee Counties:</u>

Brown County
Allouez
Bellevue
Green Bay
Howard
Suamico

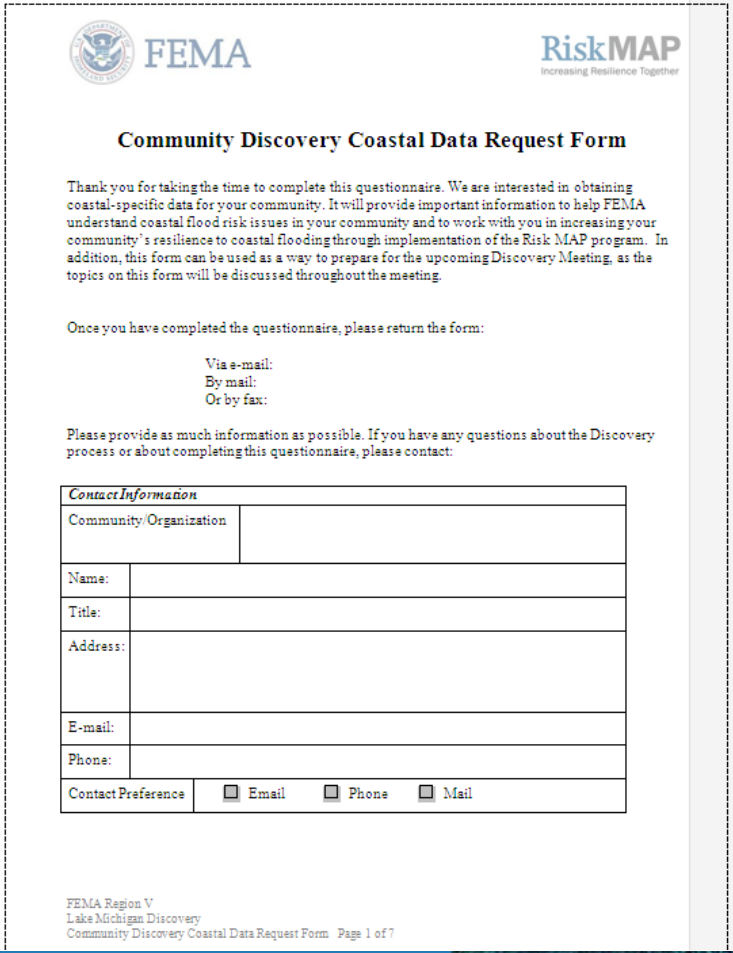
Door County
Egg Harbor
Ephraim
Sister Bay
Sturgeon Bay

Kewaunee County
Algoma
Kewaunee (City)



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



FEMA

RiskMAP
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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:
By mail:
Or by fax:

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

Contact Information	
Community/Organization	
Name:	
Title:	
Address:	
E-mail:	
Phone:	
Contact Preference	☐ Email ☐ Phone ☐ Mail

FEMA Region V
Lake Michigan Discovery
Community Discovery Coastal Data Request Form Page 1 of 7

Review of Data Collected To Date

- Draft Transects
- Shoreline Classification Dataset
- Hazard Mitigation Plans
- Hazard Mitigation Grants Program (HMGP) projects
- Pre-Disaster Mitigation Program projects
- Declared Disasters
- Repetitive loss claims by community

Incident Type	Incident Begin Date	Incident End Date	Disaster Close Out Date	Declared County/Area
Severe Storm(s)	6/22/1990	7/19/1990	9/22/1998	Brown (County)
Severe Storm(s)	6/22/1990	7/19/1990	9/22/1998	Kewaunee (County)
Severe Storm(s)	6/7/1993	8/25/1993	3/7/2006	Brown (County)
Severe Storm(s)	5/7/2004	7/3/2004		Brown (County)
Hurricane	8/29/2005	10/1/2005	3/31/2010	Brown (County)
Hurricane	8/29/2005	10/1/2005	3/31/2010	Door (County)
Hurricane	8/29/2005	10/1/2005	3/31/2010	Kewaunee (County)

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!

Who to Contact

- For more information: http://www.greatlakescoast.org/
- Send completed questionnaires to:
  - GreatLakesFloodStudy@starr-team.com
- FEMA Region V
  - Ken Hinterlong @ ken.hinterlong@fema.dhs.gov
- STARR
  - Laura Keating @ laura.keating@starr-team.com
  - Jaspreet Randhawa @ Jaspreet.Randhawa@starr-team.com

Questions?

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

FEMA

July 12, 2012

Mr. Troy Streckenbach
County Executive, Brown County
300 East Walnut Street, Post Office Box 23600
Green Bay, Wisconsin 54305-3600

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. Streckenbach:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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 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/Time:	Wednesday, August 15, 2012; 2:00 - 4:00 pm CT
Location:	Neville Public Museum
Address:	210 Museum Place Green Bay, Wisconsin 54303

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 contractor (STARR) Scott Banjavcic at (312) 780-7755 or email to GreatLakesFloodStudy@starr-team.com no later than **August 3, 2012.** Please reference the Discovery Meeting date and time in your RSVP.

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, 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/Time:	Monday, July 23, 2012; 2:00 - 3:00 pm CT
Link to WebEx:	http://e-meetings.verizonbusiness.com/nc/join.php
Meeting Number:	445288484
Call in number:	1-866-398-2885
Participant Code:	197462

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 **August 3, 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:	GreatLakesFloodStudy@starr-team.com
By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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 Ken Hinterlong, FEMA Region V Senior Engineer, at (312) 408-5529, or by email at ken.hinterlong@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

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: Bill Bosiacki, Zoning Administrator, Brown County
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

The Honorable James J. Schmitt
Mayor, City of Green Bay
100 North Jefferson Street, Room 200
Green Bay, Wisconsin 54301-5026

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Schmitt:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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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Address:	210 Museum Place Green Bay, Wisconsin 54303

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 contractor (STARR) Scott Banjavcic at (312) 780-7755 or email to GreatLakesFloodStudy@starr-team.com no later than **August 3, 2012.** Please reference the Discovery Meeting date and time in your RSVP.

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, 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/Time:	Monday, July 23, 2012; 2:00 - 3:00 pm CT
Link to WebEx:	http://e-meetings.verizonbusiness.com/nc/join.php
Meeting Number:	445288484
Call in number:	1-866-398-2885
Participant Code:	197462

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Via e-mail:	GreatLakesFloodStudy@starr-team.com
By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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 Ken Hinterlong, FEMA Region V Senior Engineer, at (312) 408-5529, or by email at ken.hinterlong@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

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: Paul Neumeyer, Zoning Administrator, City of Green Bay
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

Mr. Steve Vanden Avond
President, Village of Allouez
1900 Libal Street
Green Bay, Wisconsin 54301

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. Vanden Avond:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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/Time:	Wednesday, August 15, 2012; 2:00 - 4:00 pm CT
Location:	Neville Public Museum
Address:	210 Museum Place Green Bay, Wisconsin 54303

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc:

Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

Mr. Craig Beyl
Village President, Village of Bellevue
2828 Allouez Avenue
Bellevue, Wisconsin 54311

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. Beyl:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: Al Schultz, Zoning Administrator, Village of Bellevue
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

Mr. Burt McIntyre
President, Village of Howard
2456 Glendale Avenue, Post Office Box 12207
Green Bay, Wisconsin 54307-2207

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. McIntyre:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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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Date/Time:	Wednesday, August 15, 2012; 2:00 - 4:00 pm CT
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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: James Korotev, Director of Code Administration, Village of Howard
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

Ms. Patricia Gaura-Jelen
Village President, Village of Suamico
2999 Lakeview Drive
Suamico, Wisconsin 54173

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Ms. Gaura-Jelen:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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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Address:	210 Museum Place Green Bay, Wisconsin 54303

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: Steve Dunks, Zoning Administrator, Building Inspector and Assessor, Village of Suamico
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

The Honorable Thad Birmingham
Mayor, City of Sturgeon Bay
City Hall
421 Michigan Street
Sturgeon Bay, Wisconsin 54235

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Birmingham:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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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Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: Mary Allen, Assistant City Administrator, City of Sturgeon Bay
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

Mr. Leo Zipperer
County Board Chairperson, Door County
421 Nebraska Street
Sturgeon Bay, Wisconsin 54235-0670

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. Zipperer:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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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Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: Mariah Goode, Director of Planning, Door County
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

Ms. Nancy Fisher
President, Village of Egg Harbor
Village Hall
7860 State Highway 72, Post Office Box 175
Egg Harbor, Wisconsin 54209

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Ms. Fisher:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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 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/Time:	Wednesday, August 15, 2012; 2:00 - 4:00 pm CT
Location:	Neville Public Museum
Address:	210 Museum Place Green Bay, Wisconsin 54303

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 contractor (STARR) Scott

Banjavcic at (312) 780-7755 or email to GreatLakesFloodStudy@starr-team.com no later than **August 3, 2012.** Please reference the Discovery Meeting date and time in your RSVP.

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, 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/Time:	Monday, July 23, 2012; 2:00 - 3:00 pm CT
Link to WebEx:	http://e-meetings.verizonbusiness.com/nc/join.php
Meeting Number:	445288484
Call in number:	1-866-398-2885
Participant Code:	197462

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 **August 3, 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:	GreatLakesFloodStudy@starr-team.com
By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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 Ken Hinterlong, FEMA Region V Senior Engineer, at (312) 408-5529, or by email at ken.hinterlong@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

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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Community Discovery Coastal Data Request Form

cc: Josh Van Lieshout, Administrator, Village of Egg Harbor
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

Mr. John Cox
Village President, Village of Ephraim
Village Hall
10005 Norway Street, Post Office Box 138
Ephraim, Wisconsin 54211

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. Cox:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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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By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: Brent Bristol, Zoning Administrator, Village of Ephraim
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

Ms. Denise Bhirdo
Village President, Village of Sister Bay
Village Hall
2383 Maple Drive, Post Office Box 769
Sister Bay, Wisconsin 54234

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Ms. Bhirdo:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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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Location:	Neville Public Museum
Address:	210 Museum Place Green Bay, Wisconsin 54303

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Participant Code:	197462

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By mail:	Scott Banjavcic CDM Smith/STARR 125 S. Wacker Drive, Suite 600 Chicago, Illinois 60606

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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: Robert Kufrin, Administrator, Village of Sister Bay
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

The Honorable Wayne Schmidt
Mayor, City of Algoma
416 Fremont Street
Algoma, Wisconsin 54201

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Schmidt:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: Thomas Reynolds, City Administrator, City of Algoma
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

The Honorable John Blaha, Jr.
Mayor, City of Kewaunee
401 Fifth Street
Kewaunee, Wisconsin 54216

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mayor Blaha, Jr.:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: Brian Kranz, City Administrator, City of Kewaunee
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

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

FEMA

July 12, 2012

Mr. Bob Weidner
County Board Chairperson, Kewaunee County
810 Lincoln Street
Kewaunee, Wisconsin 54216

Re: Invitation to Attend Community Meetings Regarding Lake Michigan Coastal Flood Risk

Dear Mr. Weidner:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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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Sincerely,

Christine Stack

Christine Stack
Division Director
Mitigation Division, FEMA Region V

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

cc: Glenn Selner, Zoning Administrator, Kewaunee County
Gary Heinrichs, Wisconsin Department of Natural Resources
Katie McMahan, Wisconsin Department of Natural Resources
Meg Galloway, Wisconsin Department of Natural Resources

Keating, Laura

From: Banjavcic, Scott
Sent: Tuesday, August 07, 2012 9:13 AM
To: Keating, Laura
Subject: FW: Test Message - Text Format:Invitation to Community Meetings Re: Lake Michigan Coastal Flood Risk

-----Original Message-----
From: Great Lakes Coastal Flood Study [mailto:Great_Lakes_Coastal_Flood_Study@mail.vresp.com]
Sent: Friday, July 27, 2012 11:51 AM
To: Banjavcic, Scott
Subject: Test Message - Text Format:Invitation to Community Meetings Re: Lake Michigan Coastal Flood Risk

Dear State of Wisconsin Lake Michigan Coastal Flood Study
Stakeholders:

The Federal Emergency Management Agency (FEMA) is conducting a comprehensive study of flood hazards for Lake Michigan 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. More information about the Great Lakes Coastal Flood Study may be found at
http://cts.vresp.com/c/?OPP/82c700126e/TEST/325458b8b1 .

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

We would like to invite you to attend one of the following Discovery Meetings being held in Wisconsin for Lake Michigan. Although each Discovery Meeting will give the same overall message, each meeting will be catered to the coastal communities within the counties listed
below:

Marinette County and Oconto County (Discovery Meeting) Wednesday, August 15, 2012 8:30 - 10:30 am CT Oconto County Courthouse Conference Room 1003 & 1004
301 Washington Street
Oconto, WI 54153

Kewaunee County, Door County and Brown County (Discovery Meeting) Wednesday, August 15, 2012 2:00 - 4:00 pm CT Neville Public Museum 210 Museum Place Green Bay, WI 54303

Sheboygan County, Manitowoc County and Ozaukee County (Discovery Meeting)
Thursday, August 16, 2012
8:30 - 10:30 am CT
Lakeshore Technical College
Wells Fargo Conference Room
1290 North Avenue
Cleveland, WI 53015

Milwaukee County, Racine County and Kenosha County (Discovery Meeting)
Thursday, August 16, 2012
2:00 - 4:00 pm CT
Milwaukee Metropolitan Sewerage District (MMSD), Commission Room 260 W. Seeboth Street Milwaukee, WI 53204

Please save this date on your calendar. At the meetings, we will review the coastal flood risk data we have gathered to date and discuss local coastal floodplains, mitigation plan and projects, coastal flood risk concerns, and coastal floodplain management activities. This discussion will allow us to better identify local 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.
Please RSVP to FEMA's study contractor (STARR) Scott Banjavcic at (312) 780-7755 or email to GreatLakesFloodStudy@starr-team.com by August 10, 2012. Please reference the Discovery Meeting date and time in your RSVP.

A Community Coastal Data Request Form was recently mailed to local community officials, along with the Discovery Meeting invitation.
This form is also available online at:
http://cts.vresp.com/c/?OPP/82c700126e/TEST/aa53784db9 .

If you have data or information that you would like to provide to FEMA or discuss with us in advance of the Discovery Meetings, please contact Laura Keating of STARR at (925) 296-8048 or by email at GreatLakesFloodStudy@starr-team.com .

We look forward to working with you to reduce the risks associated with coastal flooding and increase resiliency for the long term. To learn more about Discovery, please visit http://cts.vresp.com/c/?OPP/82c700126e/TEST/644d377ebd and search keywords "Discovery brochure" or contact Ken Hinterlong, FEMA Region V Senior Engineer, at (312) 408-5529, or by email at ken.hinterlong@fema.dhs.gov . We look forward to seeing you at the upcoming Discovery Meeting.

For additional information on the Great Lakes Coastal Flood Study, please visit:
http://cts.vresp.com/c/?OPP/82c700126e/TEST/c4c492e324 .

- http://cts.vresp.com/c/?OPP/82c700126e/TEST/67378908c0
Follow GreatLakesCoast on Twitter | -
http://cts.vresp.com/c/?OPP/82c700126e/TEST/f94889858b
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Click to view this email in a browser
http://hosted.verticalresponse.com/290205/82c700126e/TEST/TEST/

If you want to "Unsubscribe" from this list and no longer receive emails regarding the Great Lakes Coastal Flood Study, please click on the following link:

http://cts.vresp.com/u?82c700126e/TEST/TEST

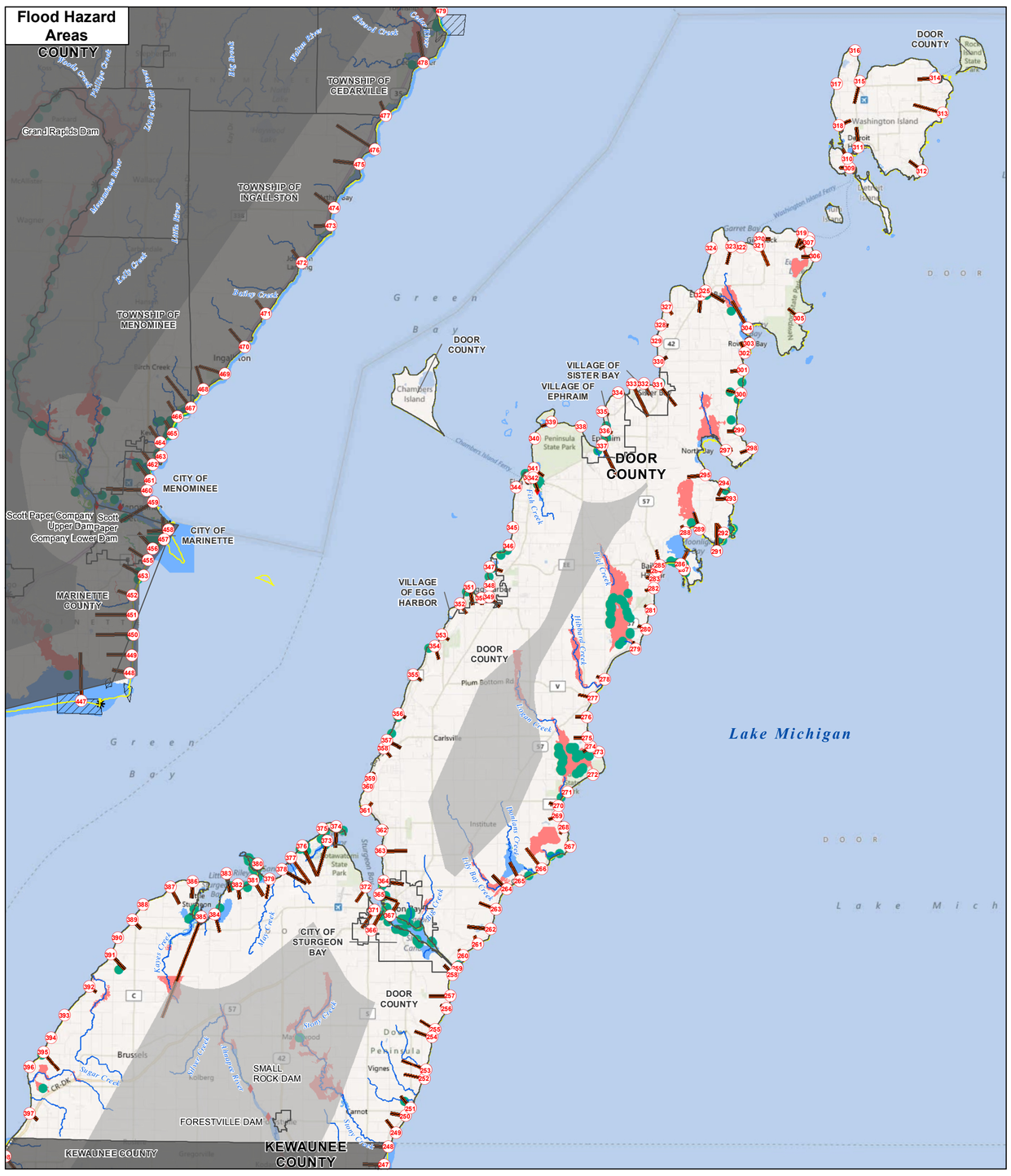
This message was sent by Great Lakes Coastal Flood Study using VerticalResponse

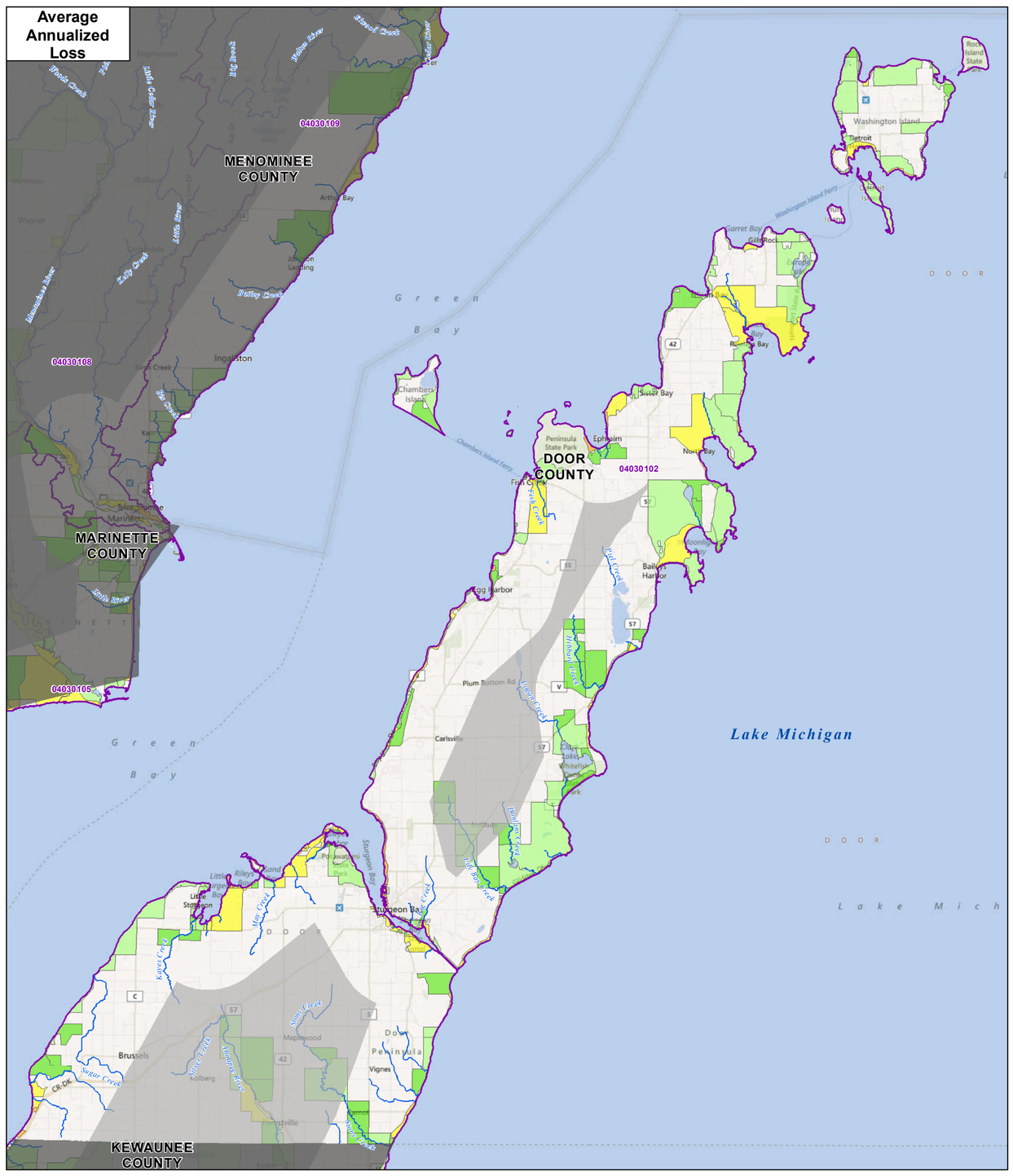
Great Lakes Coastal Flood Study
2809 Fish Hatchery Road, Suite 204
Madison, WI 53713
US

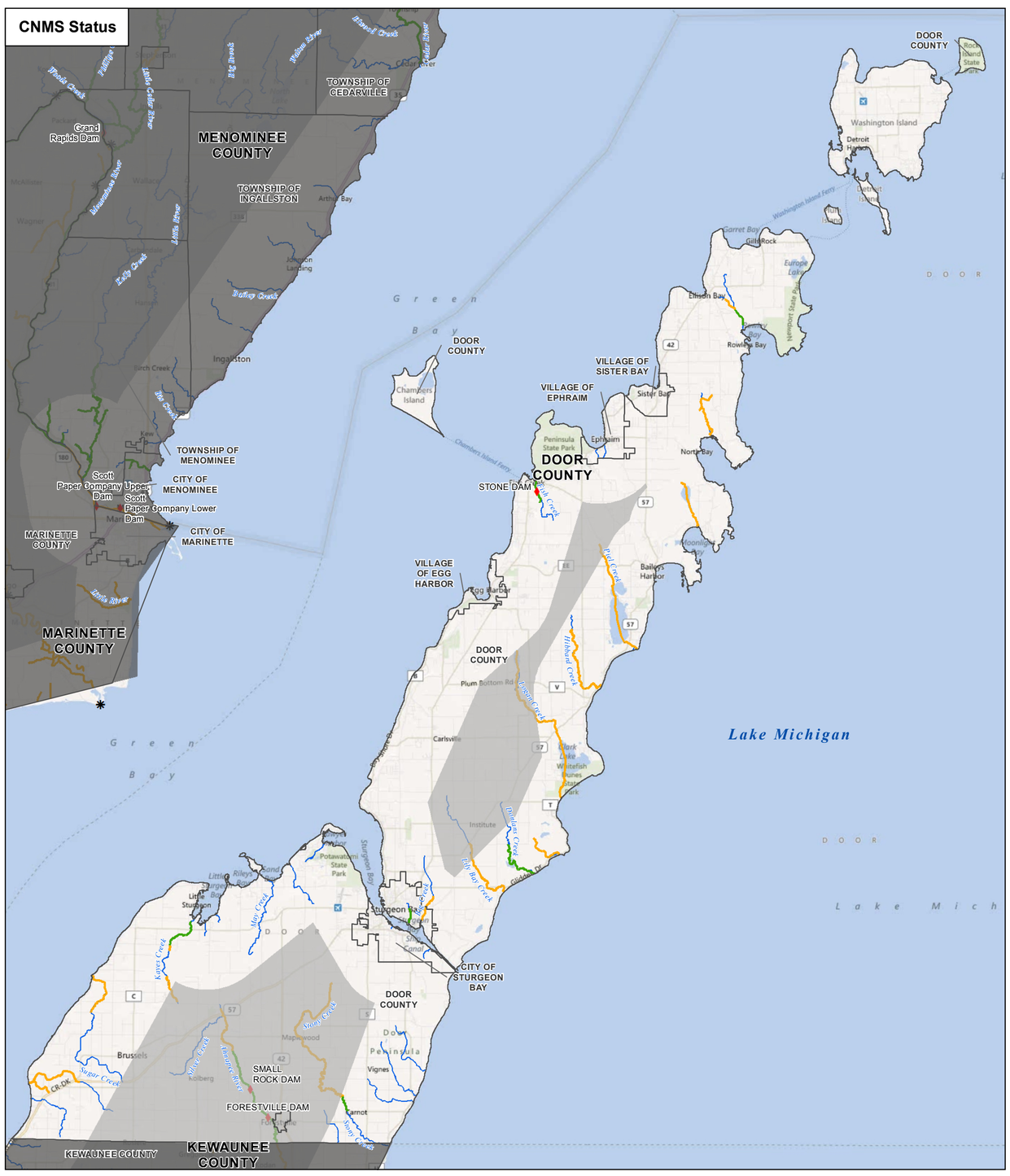
ATTACHMENT C

BROWN, DOOR, AND KEWAUNEE COUNTY

DRAFT DISCOVERY MAPS







Declared Disasters

Lake	State	Declared County/Area	Declaration Date	Disaster Type	Incident Type	Description
Lake Michigan	WI	Door (County)	4/27/1973	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	WI	Door (County)	6/17/1976	EM	Drought	DROUGHT
Lake Michigan	WI	Door (County)	1/24/2001	EM	Snow	SNOW
Lake Michigan	WI	Door (County)	9/13/2005	EM	Hurricane	HURRICANE KATRINA EVACUATION

Summary of Flood Insurance Policies and Claims

Lake Name	State	County	Community	CID	No. Policies	Total Premium	Total Coverage	Number of claims since 1978	Dollar ($) paid for claims since 1978
Lake Michigan	WI	Door	Door County	550109	138	$91,408	$26,750,600	26	$102,246
Lake Michigan	WI	Door	Egg Harbor, Village of	Not Participating					
Lake Michigan	WI	Door	Ephraim, Village of	550611	4	$3,670	$1,100,000	0	$0
Lake Michigan	WI	Door	Sister Bay, Village of	Not Participating					
Lake Michigan	WI	Door	Sturgeon Bay, City of	550111	96	$38,112	$15,377,500	8	$77,785

Mitigation Action

Name of Plan	Plan Expiration Date	Identified Hazard Mitigation Action
Door County	N/A	N/A

Summary of Shoreline Type

Total Shoreline (mile)	Artificial Shoreline (mile)	Boulders, Bedrock (mile)	Cohesive Clays and Silts (mile)	Sand (mile)	Shingles, Pebbles, Cobbles (Mile)	Other (mile)
268.0	42.9	167.8	0.6	39.3	17.4	0.0

Summary of Shoreline Coverage

Total Shoreline (mile)	Bluff 2'-10' (mile)	Coastal Wetland	Dune 2'-10' (mile)	Flat Coast (mile)	High Bluff 10'+ (mile)	High Dune 10'+ (mile)	Other (mile)
268.0	88.9	0.0	68.8	101.0	9.3	0.0	0.0

N

0 5 10 20 Miles

MAP SYMBOLOGY

LEGEND

- Dams
- LOMCs
- USGS Gages
- Transects
- Shoreline
- Streams
- Watersheds (HUC 8)
- Coastal Barrier Resource System
- Coastal Discovery Area
- Surrounding Counties
- Municipal Boundaries

EFFECTIVE SFHA

- A
- AE
- 0.2% PCT ANNUAL CHANCE FLOOD

AAL DATA
Total Average Annualized Losses per Census Block

- Less than $10,000
- $10,001 - $100,000
- $100,001 - $1,000,000
- $1,000,001 - $5,000,000
- Greater than $5,000,000

Coordinated Needs Management Strategy (CNMS)
Validation Status

- Unverified
- Unknown
- Valid

COASTAL STUDY LOCATOR

NATIONAL FLOOD INSURANCE PROGRAM
Discovery Map

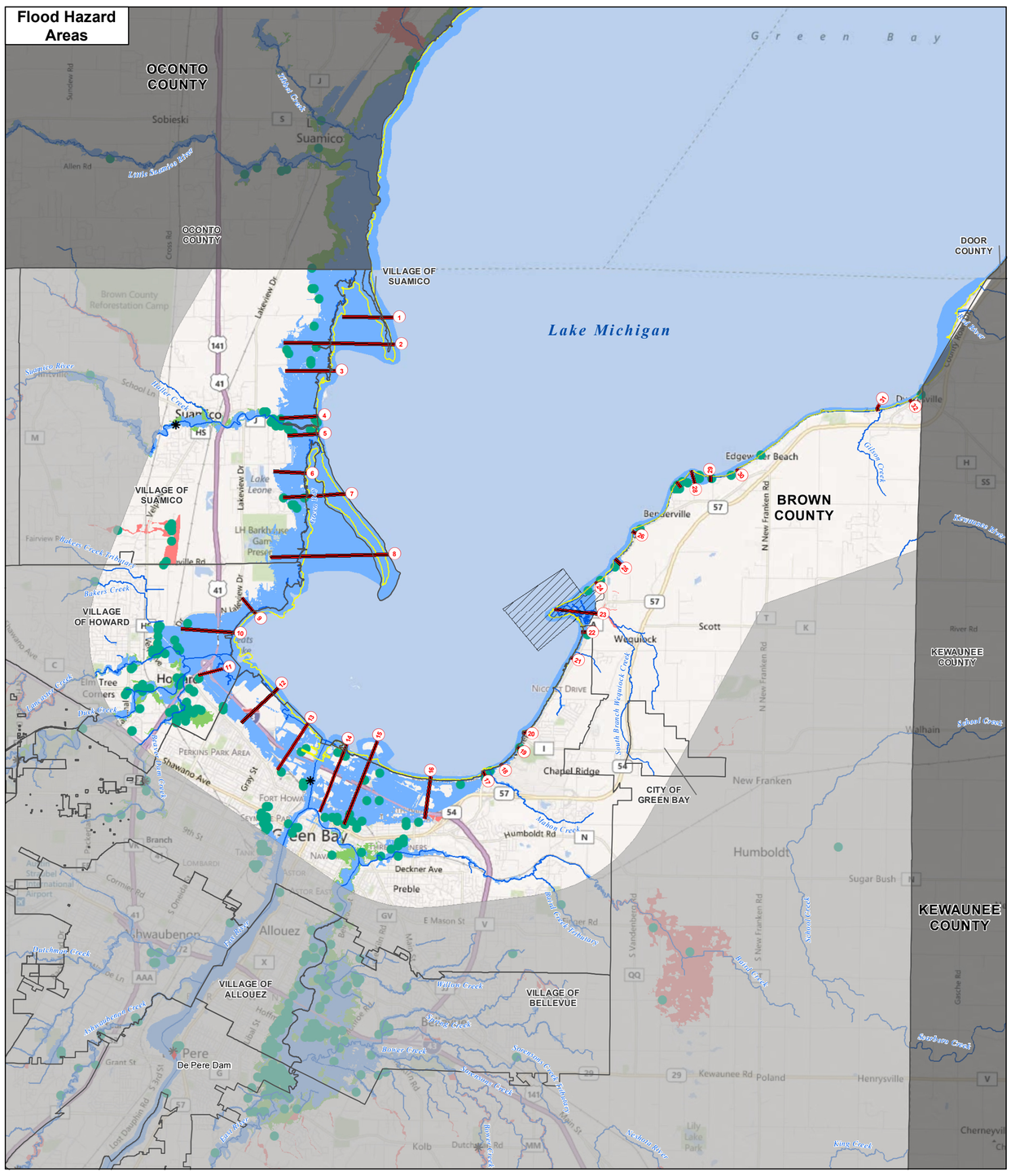
LAKE MICHIGAN COASTAL STUDY

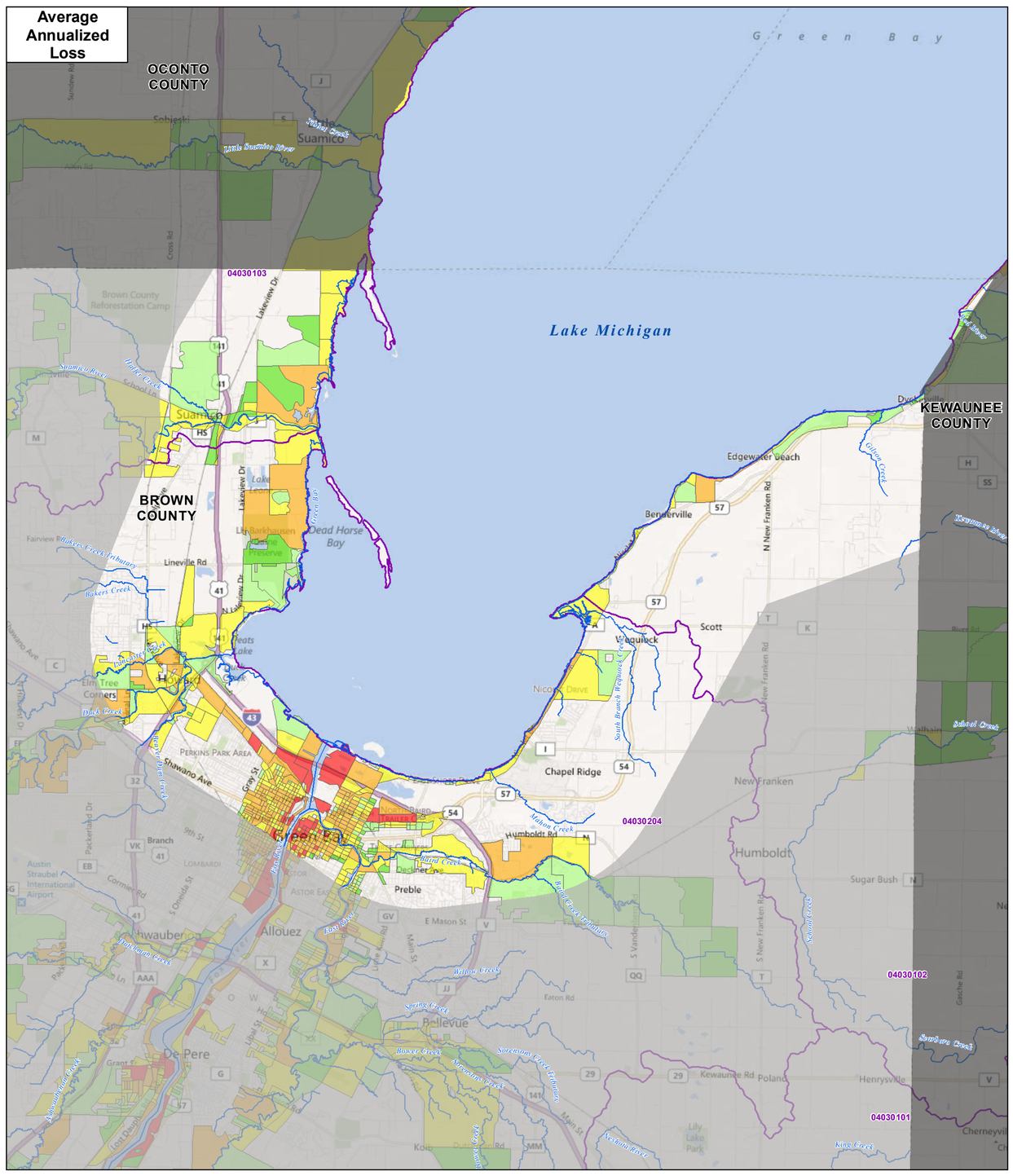
, WISCONSIN COASTAL STUDY COMMUNITIES

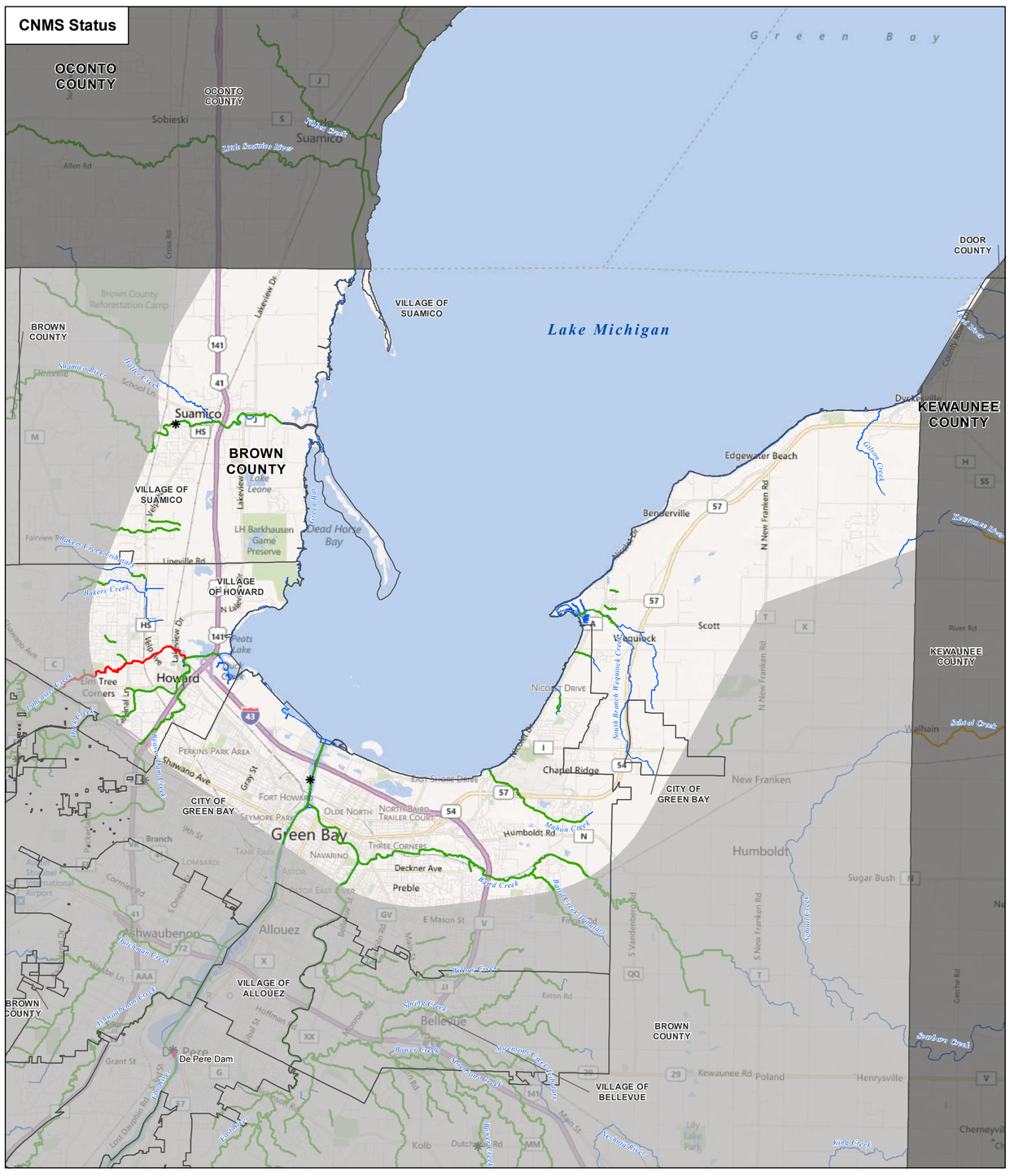
Door County
Egg Harbor, Village of
Ephraim, Village of
Sister Bay, Villate of
Sturgeon Bay, City of

STARR

FEMA







Declared Disasters

Lake	State	Declared County/Area	Declaration Date	Disaster Type	Incident Type	Description
Lake Michigan	WI	Brown (County)	4/27/1973	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	WI	Brown (County)	7/13/1990	DR	Severe Storm(s)	SEVERE STORMS, TORNADOES & FLOODING
Lake Michigan	WI	Brown (County)	7/2/1993	DR	Severe Storm(s)	SEVERE STORMS, TORNADOES & FLOODING
Lake Michigan	WI	Brown (County)	6/18/2004	DR	Severe Storm(s)	SEVERE STORMS AND FLOODING
Lake Michigan	WI	Brown (County)	6/17/1976	EM	Drought	DROUGHT
Lake Michigan	WI	Brown (County)	9/13/2005	EM	Hurricane	HURRICANE KATRINA EVACUATION

Summary of Flood Insurance Policies and Claims

Lake Name	State	County	Community	CID	No. Policies	Total Premium	Total Coverage	Number of claims since 1978	Dollar ($) paid for claims since 1978
Lake Michigan	WI	Brown	Brown County	550020	241	$180,077	$50,149,200	59	$125,295
Lake Michigan	WI	Brown	Allouez, Village of	550612	116	$73,199	$19,908,100	1	$0
Lake Michigan	WI	Brown	Bellevue, Village of	550627	20	14632	5624100	$0	$0
Lake Michigan	WI	Brown	Green Bay, City of	550022	1060	$764,910	$138,993,000	167	$551,466
Lake Michigan	WI	Brown	Howard, Village of	550023	80	$61,693	$10,814,700	13	$40,939
Lake Michigan	WI	Brown	Suamico, Village of	550660	35	$22,537	$6,255,600	0	$0

Mitigation Action

Name of Plan	Plan Expiration Date	Identified Hazard Mitigation Action
Brown County Wisconsin 2007 All Hazards Mitigation Plan	8/28/2013	Monitor natural features along Green Bay for deterioration that would allow for flooding or mudslides to impact properties along the shore
Brown County Wisconsin 2007 All Hazards Mitigation Plan	8/28/2013	Maintain maps indicating past incidences and areas most susceptible to future hazards
Brown County Wisconsin 2007 All Hazards Mitigation Plan	8/28/2013	Maintain a stormwater management plan that accounts for the large amount of water flowing into Fox River that could cause localized flooding or possible backup of stormwater into homes and businesses
Brown County Wisconsin 2007 All Hazards Mitigation Plan	8/28/2013	Maintain current land use regulations that permit building of structures within vulnerable coastal locations
Brown County Wisconsin 2007 All Hazards Mitigation Plan	8/28/2013	Work with the Coast Guard to monitor conditions where drifting ice can damage shore structures and destroy vegetation, move sand or stones from beaches, or dump sand, rock, or other debris on beaches
Brown County Wisconsin 2007 All Hazards Mitigation Plan	8/28/2013	Construction of riprap to manage bluff erosion shifts due to the eroding force of the water where coastal areas lack bluff reinforcement.
Brown County Wisconsin 2007 All Hazards Mitigation Plan	8/28/2013	Implement policies and programs designed to reduce or eliminate the impacts of natural hazards on people and property
Brown County Wisconsin 2007 All Hazards Mitigation Plan	8/28/2013	Collect and utilize data needed to improve policymaking and the identification of appropriate mitigation projects

N

0 2.5 5 10 Miles

MAP SYMBOLOGY

LEGEND

- Dams
- LOMCs
- USGS Gages
- Transects
- Shoreline
- Streams
- Watersheds (HUC 8)
- Coastal Barrier Resource System
- Coastal Discovery Area
- Surrounding Counties
- Municipal Boundaries

EFFECTIVE SFHA

- A
- AE
- 0.2% PCT ANNUAL CHANCE FLOOD

AAL DATA
Total Average Annualized Losses per Census Block

- Less than $10,000
- $10,001 - $100,000
- $100,001 - $1,000,000
- $1,000,001 - $5,000,000
- Greater than $5,000,000

Coordinated Needs Management Strategy (CNMS)
Validation Status

- Unverified
- Unknown
- Valid

COASTAL STUDY LOCATOR

NATIONAL FLOOD INSURANCE PROGRAM
Discovery Map

LAKE MICHIGAN COASTAL STUDY

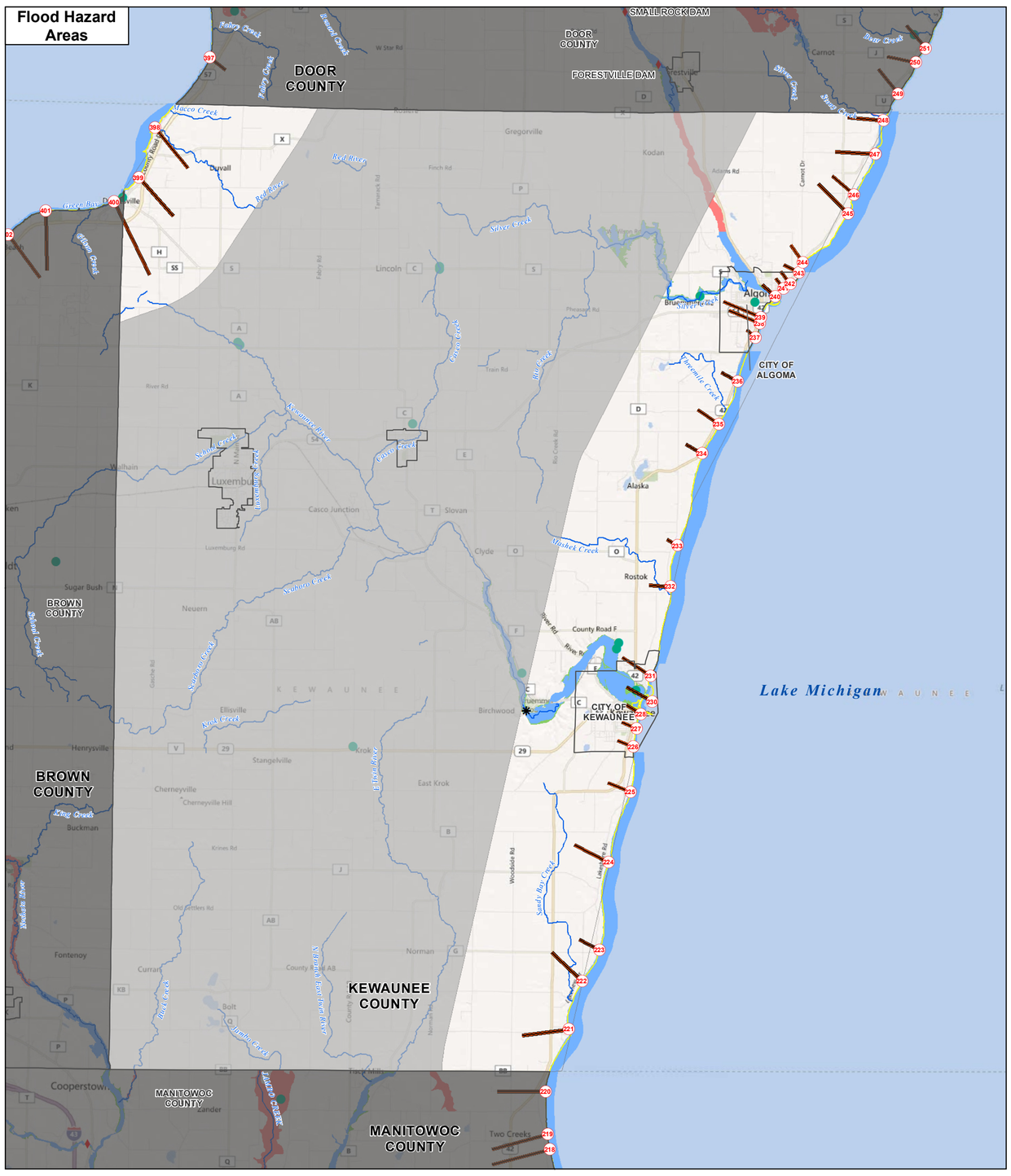
BROWN COUNTY, WISCONSIN COASTAL STUDY COMMUNITIES

Brown County
Allouez, Village of
Bellevue, Village of
Green Bay, City of
Howard, Village of
Suamico, Village of

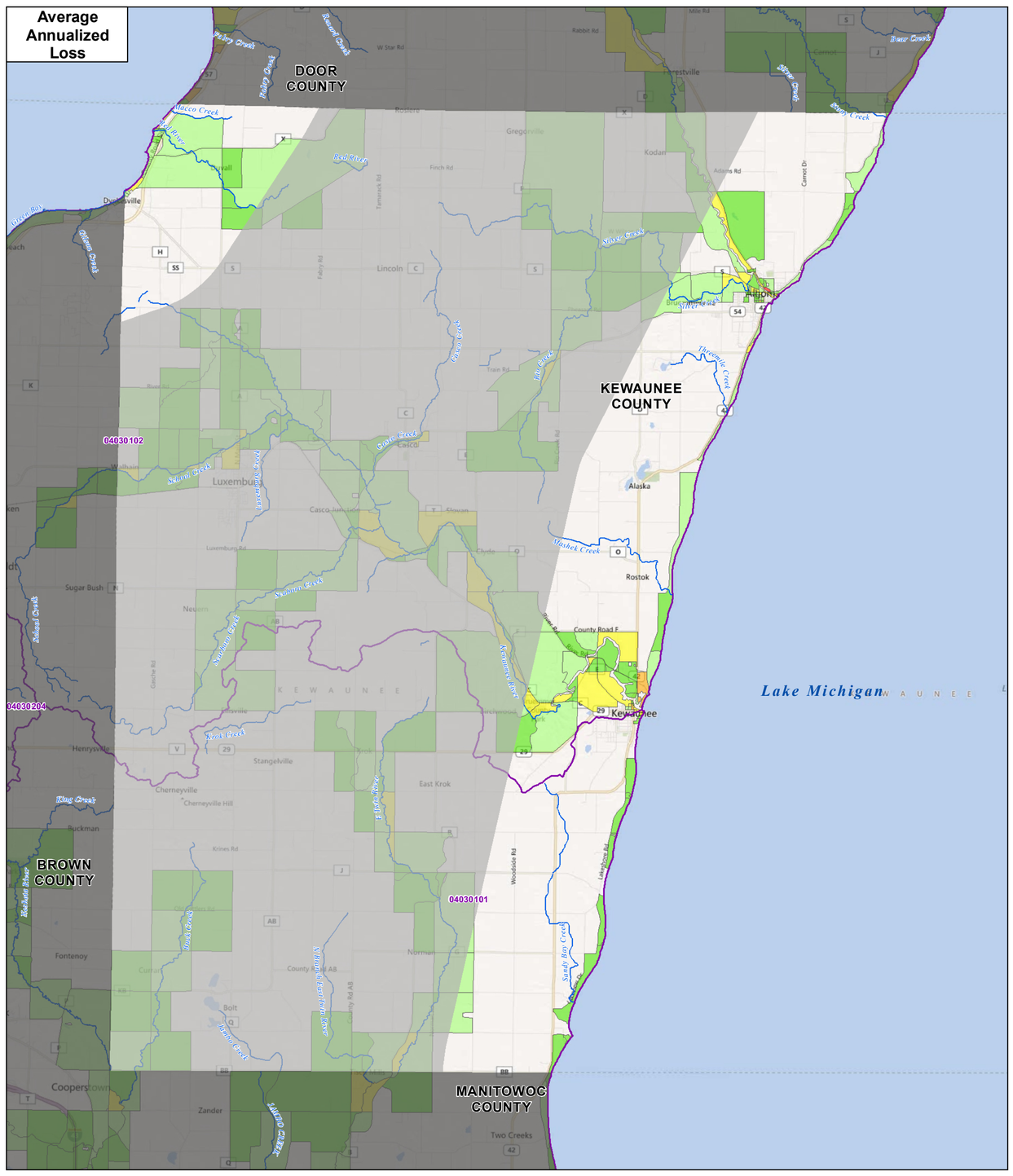
STARR

FEMA

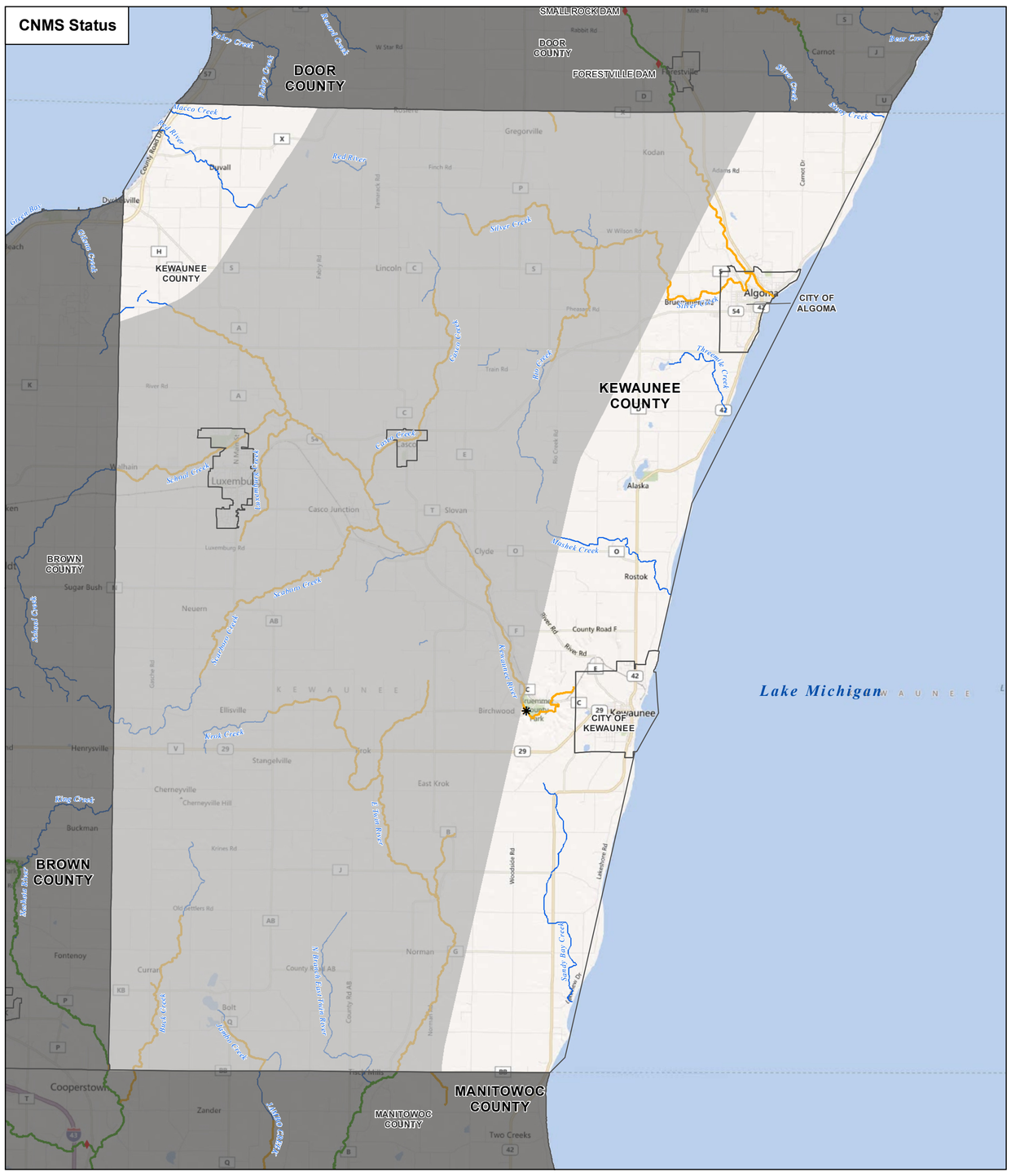
Flood Hazard Areas



Average Annualized Loss



CNMS Status



Declared Disasters

Lake	State	Declared County/Area	Declaration Date	Disaster Type	Incident Type	Description
Lake Michigan	WI	Kewaunee (County)	4/27/1973	DR	Flood	SEVERE STORMS & FLOODING
Lake Michigan	WI	Kewaunee (County)	7/13/1990	DR	Severe Storm(s)	SEVERE STORMS, TORNADOES & FLOODING
Lake Michigan	WI	Kewaunee (County)	6/17/1976	EM	Drought	DROUGHT
Lake Michigan	WI	Kewaunee (County)	1/24/2001	EM	Snow	SNOW
Lake Michigan	WI	Kewaunee (County)	9/13/2005	EM	Hurricane	HURRICANE KATRINA EVACUATION

Summary of Flood Insurance Policies and Claims

Lake Name	State	County	Community	CID	No. Policies	Total Premium	Total Coverage	Number of claims since 1978	Dollar ($) paid for claims since 1978
Lake Michigan	WI	Kewaunee	Kewaunee County	550212	11	$6,317	$1,956,400	2	$10,486
Lake Michigan	WI	Kewaunee	Algoma, City of	550213	27	$17,434	$3,363,600	7	$5,241
Lake Michigan	WI	Kewaunee	Kewaunee, City of	550215	1	$940	$100,000	1	$55,322

Mitigation Action

Name of Plan	Plan Expiration Date	Identified Hazard Mitigation Action
Kewaunee County	21-May-12	N/A
City of Kewaunee	21-May-12	N/A
City of Algoma	21-May-12	N/A

Summary of Shoreline Type

Total Shoreline (mile)	Artificial Shoreline (mile)	Boulders, Bedrock (mile)	Cohesive Clays and Silts (mile)	Sand (mile)	Shingles, Pebbles, Cobbles (Mile)	Other (mile)
15.9	14.0	0.0	0.0	1.9	0.0	0.0

Summary of Shoreline Coverage

Total Shoreline (mile)	Bluff 2'-10' (mile)	Coastal Wetland	Dune 2'-10' (mile)	Flat Coast (mile)	High Bluff 10'+ (mile)	High Dune 10'+ (mile)	Other (mile)
32.7	11.3	0.0	0.6	4.7	16.0	0.0	0.0

N

0 3 6 12 Miles

MAP SYMBOLOGY

LEGEND

- Dams
- LOMCs
- USGS Gages
- Transects
- Shoreline
- Streams
- Watersheds (HUC 8)
- Coastal Barrier Resource System
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- Valid

COASTAL STUDY LOCATOR

NATIONAL FLOOD INSURANCE PROGRAM

Discovery Map

LAKE MICHIGAN COASTAL STUDY

KEWAUNEE COUNTY, WISCONSIN COASTAL STUDY COMMUNITIES

Kewaunee County
Algoma, City of
Kewaunee, City of

STARR

FEMA

ATTACHMENT D

PROPOSED DRAFT TRANSECTS FIGURES

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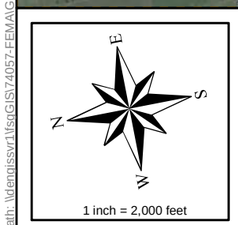
Transect Map Panels

County Boundaries

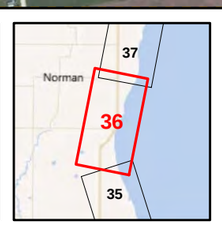
Lake Michigan
DRAFT TRANSECT MAPS
Index - Wisconsin (North)

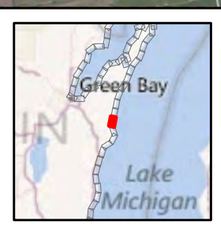
Delta County
Menominee County
Marinette County
Oconto County
Door County
Kewaunee County
Brown County
Manitowoc County
Green Bay | Lake Michigan
Menominee
Marinette
Oconto
Sturgeon Bay
Suamico
Howard
Green Bay
Luxemburg
De Pere
Bellevue
Kewaunee
Denmark
Wrightstown
Brillion
Two Rivers
Algoma
MENOMINEE MARINETTE TWIN CO AIRPORT
CHERRYLAND AIRPORT
288 m
310 m
141
41
57
54
29
43
42

Lake Michigan Discovery Report Appendix F - Kewaunee, Door, and Brown



1 inch = 2,000 feet





Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

KEWAUNEE COUNTY
MANITOWOC COUNTY

COMMUNITIES

Lake Michigan
DRAFT TRANSECTS
Panel 36 of 127

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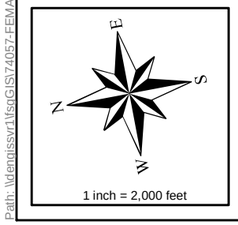
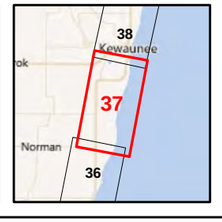




Transects

Adjoining Panel Edge

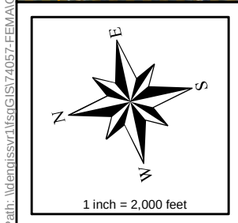
Political Boundary

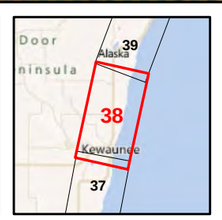
Basemap Source: Microsoft BING map service

COUNTIES
KEWAUNEE COUNTY

COMMUNITIES
KEWAUNEE

Lake Michigan
DRAFT TRANSECTS
Panel 37 of 127





Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
KEWAUNEE COUNTY

COMMUNITIES
KEWAUNEE

Lake Michigan
DRAFT TRANSECTS
Panel 38 of 127

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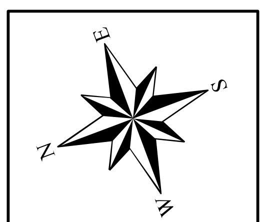

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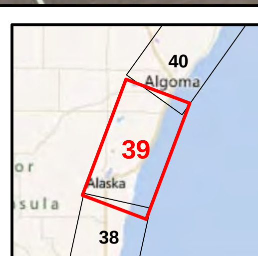

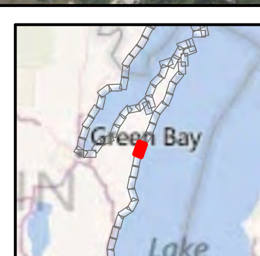

Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
KEWAUNEE COUNTY

COMMUNITIES
ALGOMA

Lake Michigan
DRAFT TRANSECTS
Panel 39 of 127

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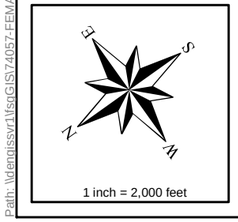

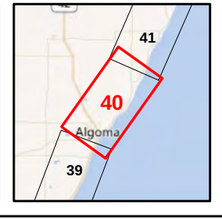

Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
DOOR COUNTY
KEWAUNEE COUNTY

COMMUNITIES
ALGOMA

Lake Michigan
DRAFT TRANSECTS
Panel 40 of 127

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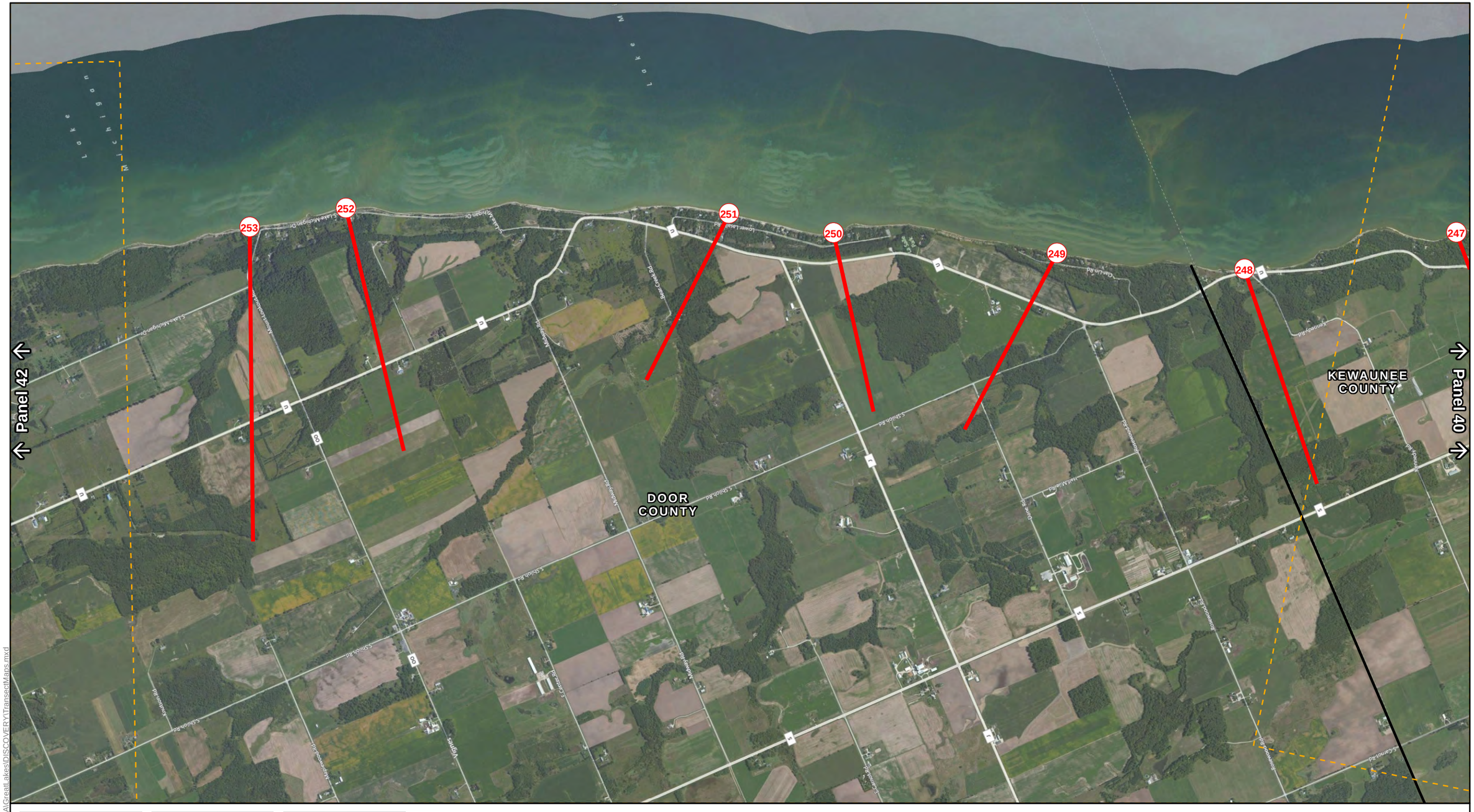

1 inch = 2,000 feet

Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

DOOR COUNTY
KEWAUNEE COUNTY

COMMUNITIES

Lake Michigan
DRAFT TRANSECTS
Panel 41 of 127

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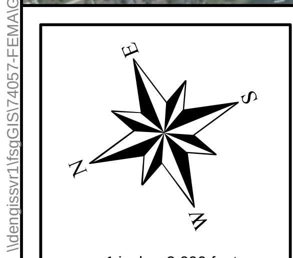
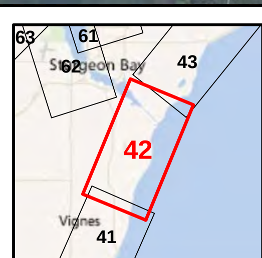
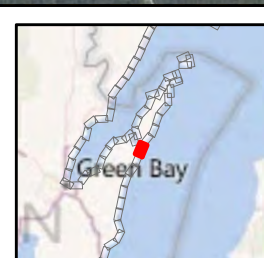






Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
DOOR COUNTY

COMMUNITIES
CITY OF STURGEON BAY

Lake Michigan
DRAFT TRANSECTS
Panel 42 of 127

Path: \\dengissvr1\fsgGIS\74057-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd

Transects

Adjoining Panel Edge

Political Boundary

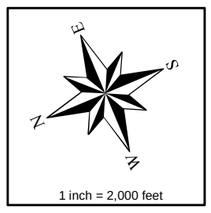
Basemap Source: Microsoft BING map service

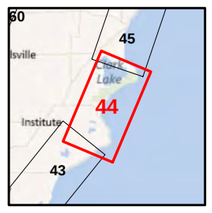
COUNTIES
DOOR COUNTY

COMMUNITIES
CITY OF STURGEON BAY

Lake Michigan
DRAFT TRANSECTS
Panel 43 of 127

Path: \\denqtissvr1\fsq\GIS\74057-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd





Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

DOOR COUNTY

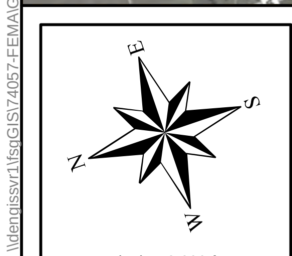
COMMUNITIES

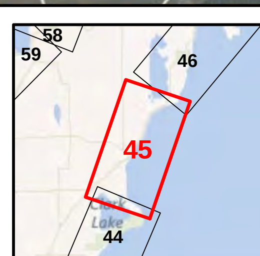
Lake Michigan

DRAFT TRANSECTS

Panel 44 of 127

Path: \\Engissvr1\fsq\GIS\74057-FEMA\Great Lakes\DISCOVERY\Transect\Maps.mxd





Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

DOOR COUNTY

COMMUNITIES

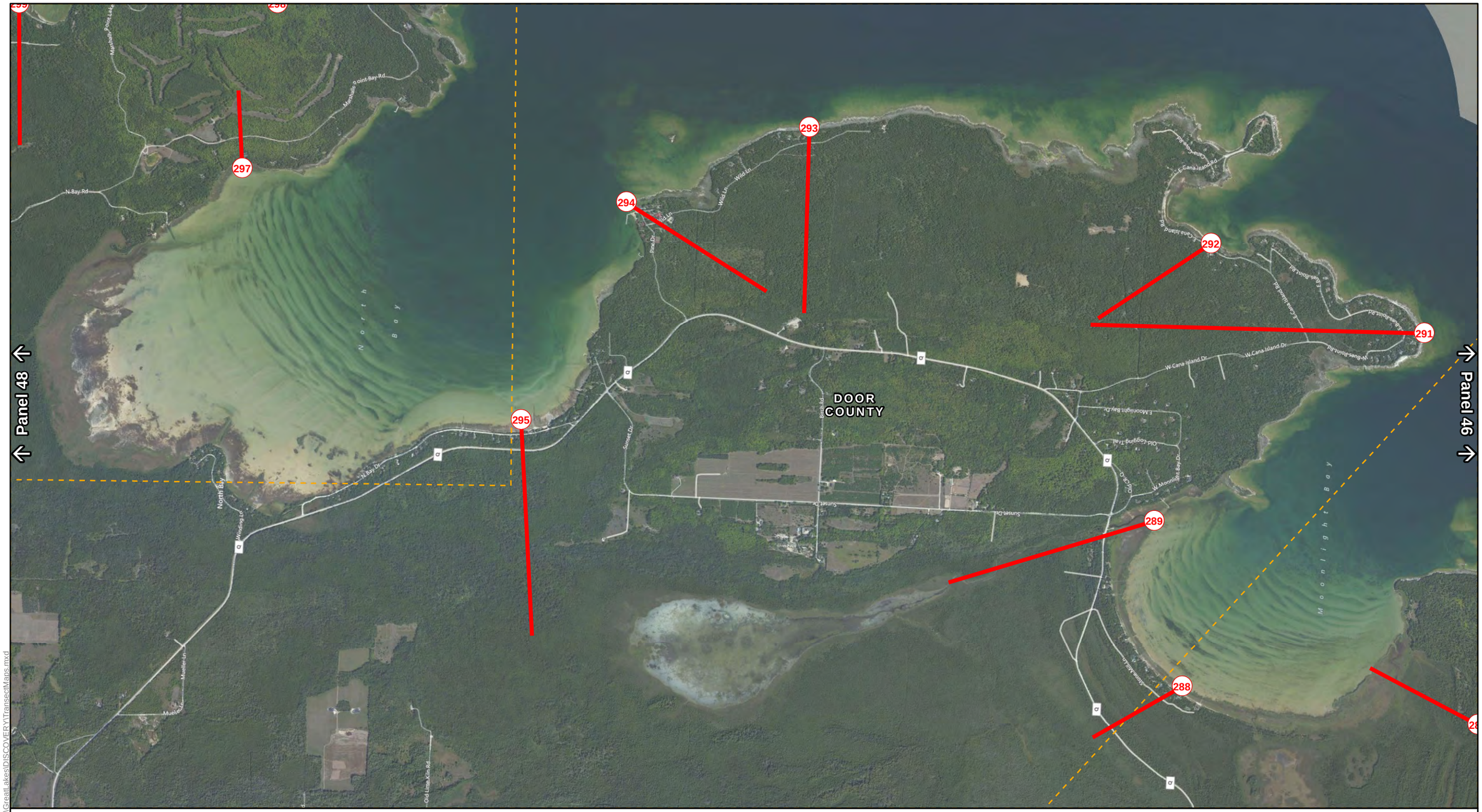
Lake Michigan

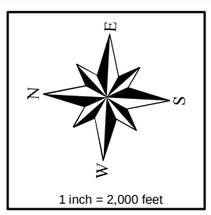
DRAFT TRANSECTS

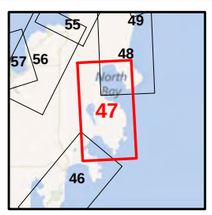
Panel 45 of 127

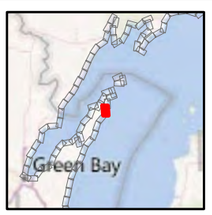
Path: \\dengissvr1\fsgGIS\74057-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd


Panel 47
Panel 45
279
280
281
282
283
284
285
286
287
288
DOOR
COUNTY
Lake Michigan
Baileys Harbor
Moonlight Bay
Path: \\dengisvr1\fs\GIS\74057-FEMA\Great Lakes\DISCOVERY\Transect Maps.mxd
1 inch = 2,000 feet
46
Green Bay
Transects
Adjoining Panel Edge
Political Boundary
Basemap Source: Microsoft BING map service
COUNTIES
DOOR COUNTY
COMMUNITIES
Lake Michigan
DRAFT TRANSECTS
Panel 46 of 127









Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

DOOR COUNTY

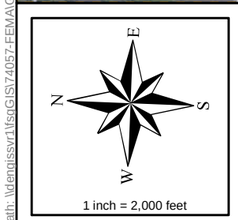
COMMUNITIES

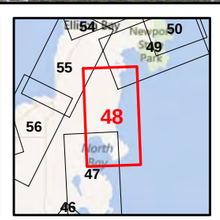
Lake Michigan

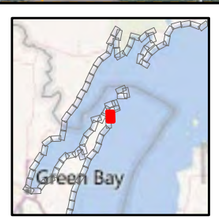
DRAFT TRANSECTS

Panel 47 of 127

Path: \\denissvr1\fsp\GIS\74057-FEMA\Great_Lakes\DISCOVERY\TransectMaps.mxd







Transects

Adjoining Panel Edge

Political Boundary

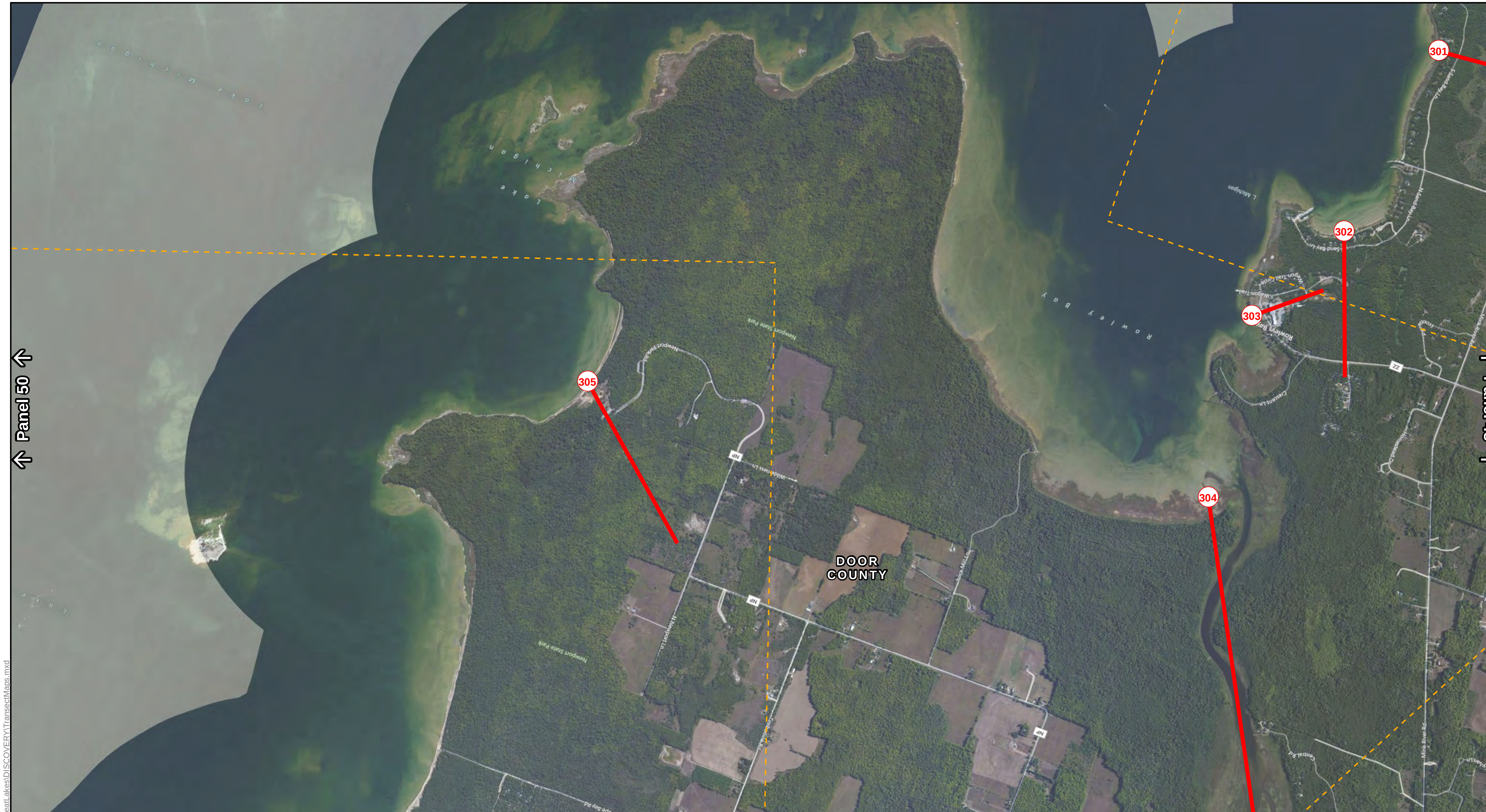
Basemap Source: Microsoft BING map service

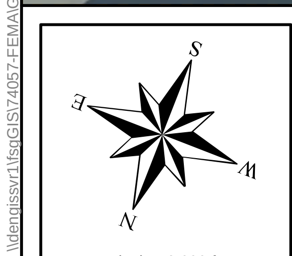
COUNTIES
DOOR COUNTY

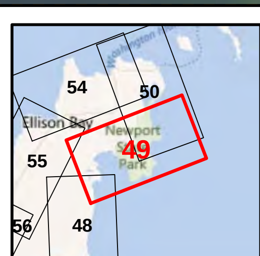
COMMUNITIES

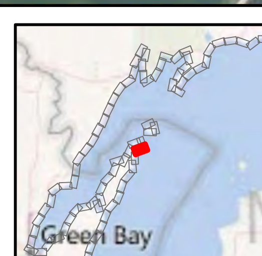
Lake Michigan
DRAFT TRANSECTS
Panel 48 of 127

Path: \\denqtlssvr1\fsrg\ISY\40577-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd


Lake Michigan
Lake Michigan
Panel 50
Panel 48
301
302
303
304
305
L. Michigan
Rowley Bay
Newport State Park
Newport Park Rd
Wilderness Ln
NP
ZZ
S Sand Bay Ln
N Sand Bay Ln
Sand Bay Ln
Wagon Trail Circle
Wagon Trail
Rowleys Bay
Crescent Ln
Homestead Dr
Mink River Rd
Central Rd
Sylvan Ln
N Newport Ln
Juice Mill Ln
Timberline Rd
Europe Bay Rd
DOOR
COUNTY







Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

DOOR COUNTY

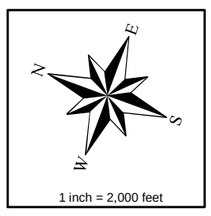
COMMUNITIES

Lake Michigan

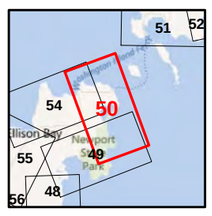
DRAFT TRANSECTS

Panel 49 of 127

Path: \\dengissvr1\fsgGIS\74057-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd



1 inch = 2,000 feet



Transects

Adjoining Panel Edge

Political Boundary

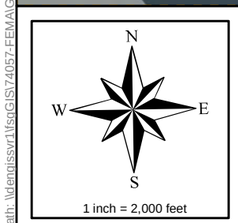
Basemap Source: Microsoft BING map service

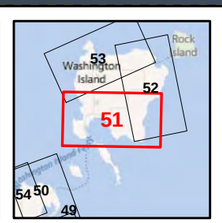
COUNTIES
DOOR COUNTY

COMMUNITIES

Lake Michigan
DRAFT TRANSECTS
Panel 50 of 127

Path: \\dengisvr1\fsp\GIS\74057-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd





Transects
Adjoining Panel Edge
Political Boundary

Basemap Source: Microsoft BING map service

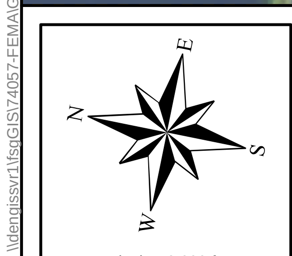
COUNTIES
DOOR COUNTY

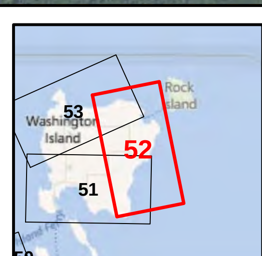
COMMUNITIES

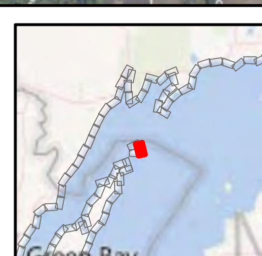
Lake Michigan
DRAFT TRANSECTS
Panel 51 of 127

Path: \\dengisvr1\fsp\GIS\74057-FEMA\Great Lakes\DISCOVERY\TransectMaps.mxd


314
313
312
Panel 53
Panel 51
DOOR COUNTY
Lake Michigan
Old Indian Point Rd
Indian Point Rd
Pedants Ln
Swenson Rd
Jackson Harbor Rd
Ridgewood Dr
Old Camp Rd
Timber Trail
Beech Ct
Forestview Rd
Sunrise Rd
Blue Cloud Ln
Wickman Rd
Wickman Dr
Washington Island
Deer Lane Rd
Little Deer Ln
Magnus Rd
Gunnlaugsson Rd
Dump Rd
Town Line Rd
Michigan Rd
E Side Rd
Hemlock Dr
Lake View Rd
Shellswick Ln
Fawn Ct
Old Mill Rd
Jensen Ct
Johnson Dr
Hagen Dr
Woodland Rd
Njord Heim Dr
W







Transects
Adjoining Panel Edge
Political Boundary

Basemap Source: Microsoft BING map service

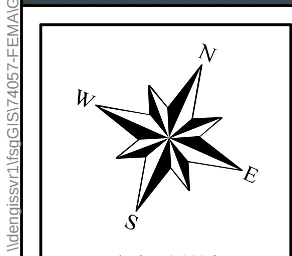
COUNTIES
DOOR COUNTY

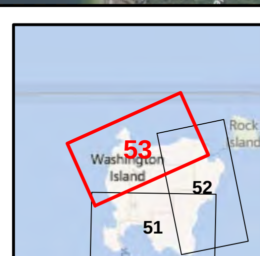
COMMUNITIES

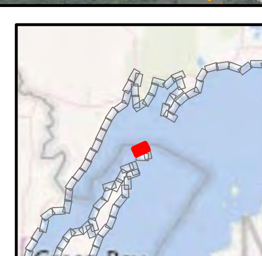
Lake Michigan
DRAFT TRANSECTS
Panel 52 of 127

Path: \\dengissvr1\fsgGIS\74057-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd


Green Bay
Lake Michigan
Panel 54
Panel 52
316
317
315
Boyers Bluff Rd
Little Lake
Jacobsen Ln
Marilyn Ln
Allouez Trail
Main Rd
Gudmundsen Dr
Little Lake Rd
Bay Farm Ln
Washington Harbor
Foss Rd
Washington Harbor Rd
Gasoline Town Rd
White Trillium Trail
McDonald Rd
Jackson Harbor Rd
Washington Island
Wilcox Rd
Old West Harbor Rd
Brownstone Ct
Airport Rd
Washington Island Airport
Range Line Rd
DOOR COUNTY
Green Tree Rd
Pedants Ln
Indian Point Rd
Old Indian Point Rd
Swenson Rd
Town Line Rd
W







Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

DOOR COUNTY

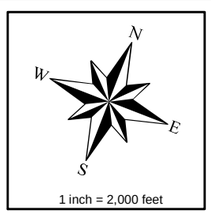
COMMUNITIES

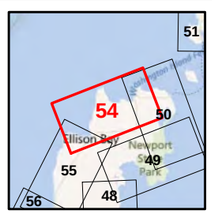
Lake Michigan

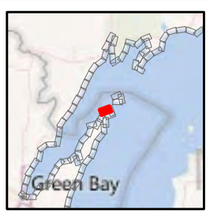
DRAFT TRANSECTS

Panel 53 of 127

Path: \\dengissvr1\fsgGIS\74057-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd







Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

DOOR COUNTY

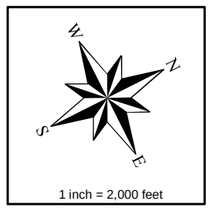
COMMUNITIES

Lake Michigan

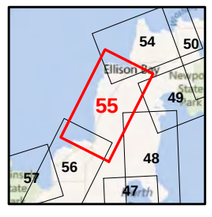
DRAFT TRANSECTS

Panel 54 of 127

Path: \\denissvr1\fsp\GIS\74057-FEMA\Great_lakes\DISCOVERY\TransectMaps.mxd



1 inch = 2,000 feet



Transects

Adjoining Panel Edge

Political Boundary

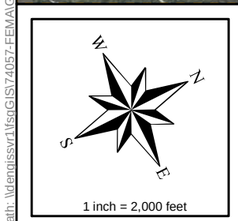
Basemap Source: Microsoft BING map service

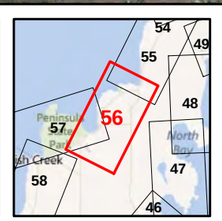
COUNTIES
DOOR COUNTY

COMMUNITIES
VILLAGE OF SISTER BAY

Lake Michigan
DRAFT TRANSECTS
Panel 55 of 127

Path: \\tergisvr1\vsp\GIS\17057-FEMA\Great Lakes\DISCOVERY\TransectMaps.mxd





Transects

Adjoining Panel Edge

Political Boundary

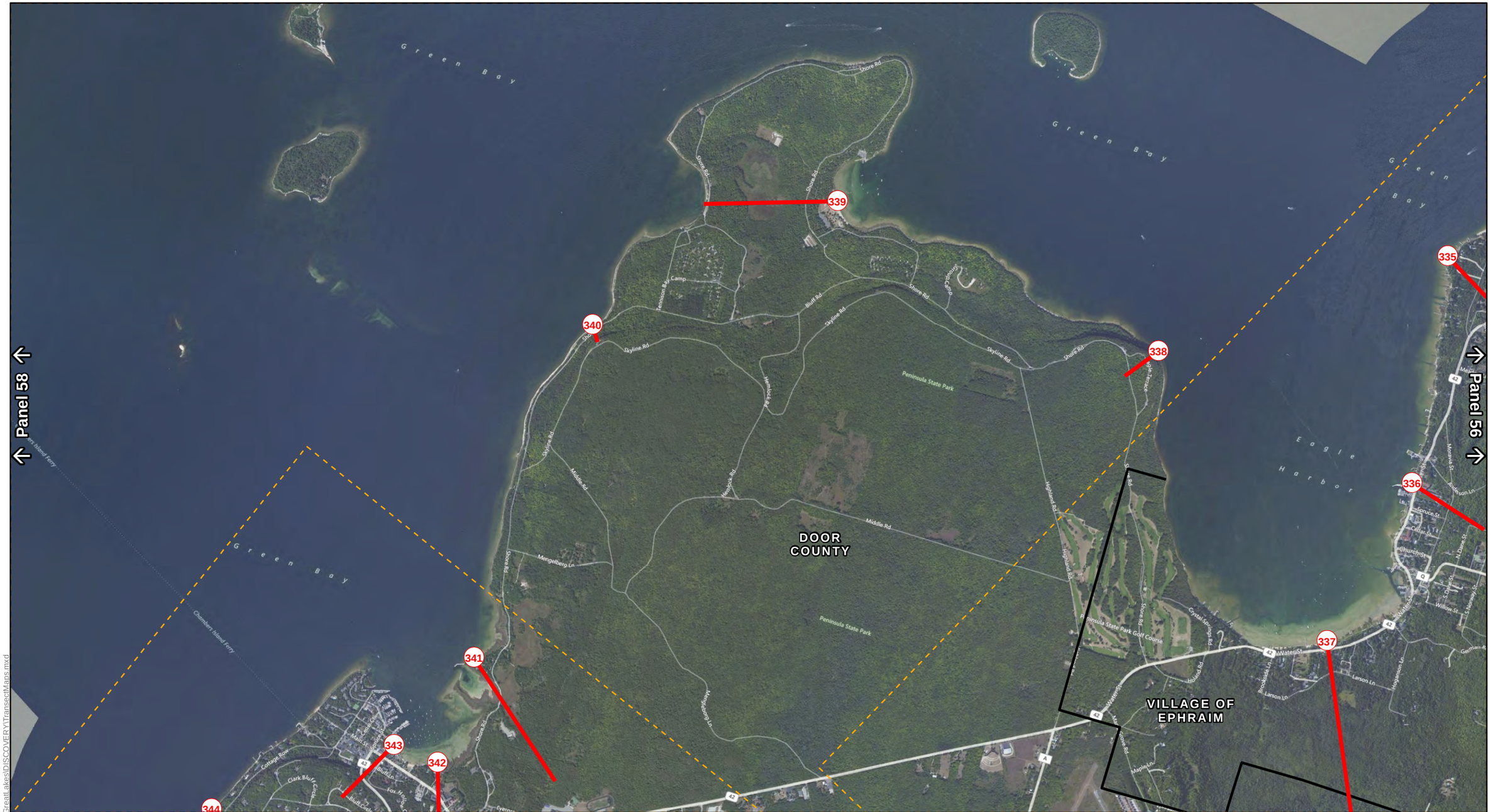
Basemap Source: Microsoft BING map service

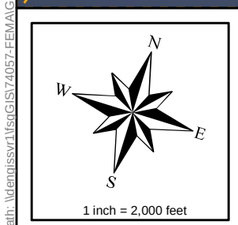
COUNTIES
DOOR COUNTY

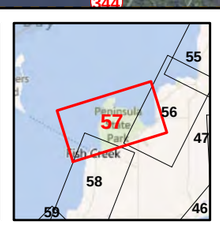
COMMUNITIES
VILLAGE OF EPHRAIM
VILLAGE OF SISTER BAY

Lake Michigan
DRAFT TRANSECTS
Panel 56 of 127

Path: \\tetrgisvr1\fsg\GIS\74057-FEMA\Great Lakes\DISCOVERY\TransectMaps.mxd







Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

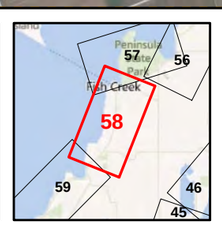
COUNTIES
DOOR COUNTY

COMMUNITIES
VILLAGE OF EPHRAIM

Lake Michigan
DRAFT TRANSECTS
Panel 57 of 127

Path: \\engissvr1\fs\GIS\7405-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd

1 inch = 2,000 feet



Transects

Adjoining Panel Edge

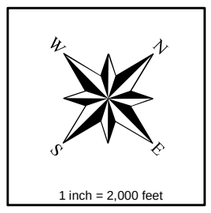
Political Boundary

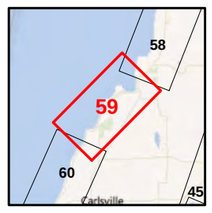
Basemap Source: Microsoft BING map service

COUNTIES
DOOR COUNTY

COMMUNITIES
VILLAGE OF EGG HARBOR

Lake Michigan
DRAFT TRANSECTS
Panel 58 of 127





Transects

Adjoining Panel Edge

Political Boundary

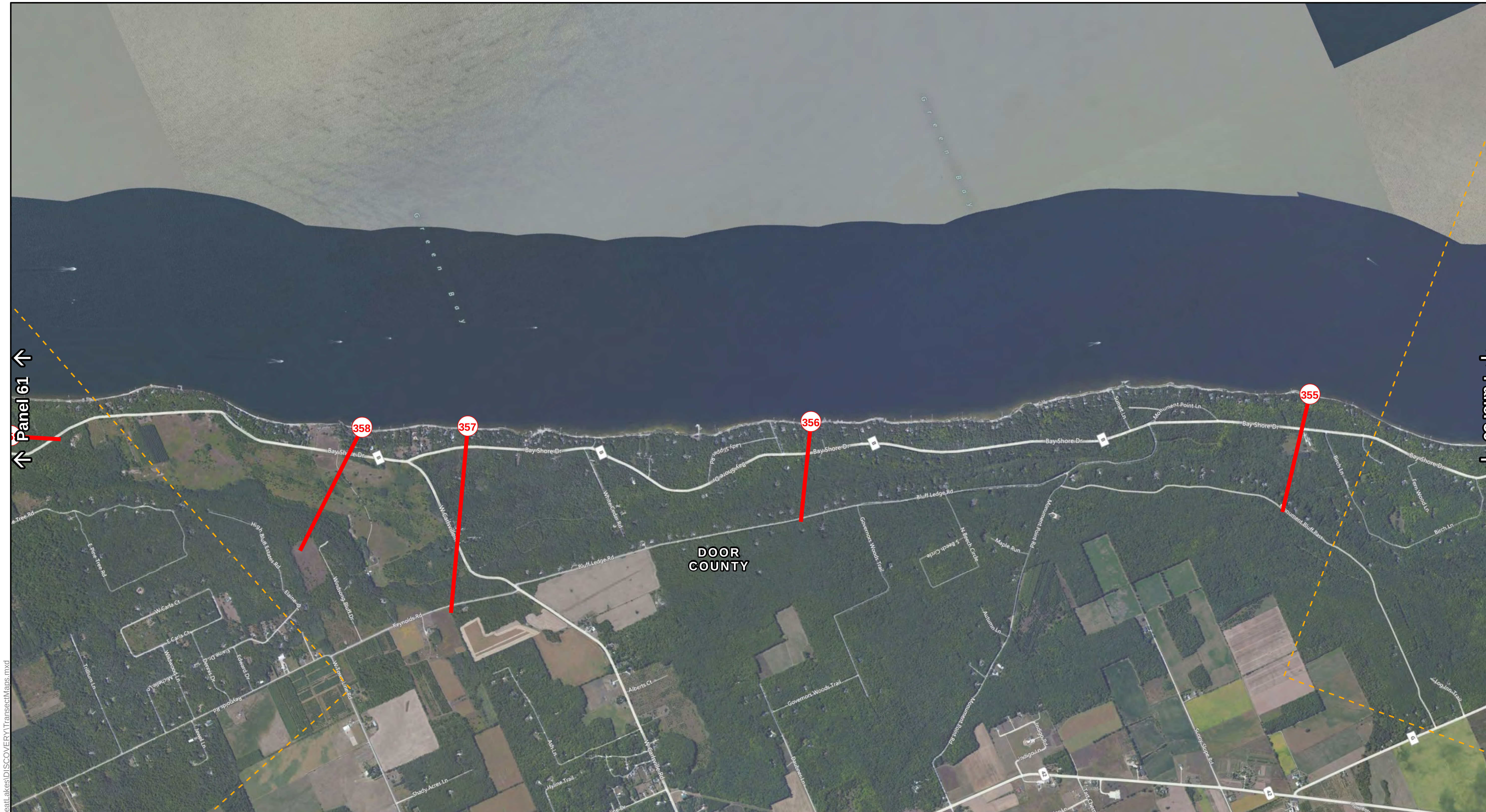
Basemap Source: Microsoft BING map service

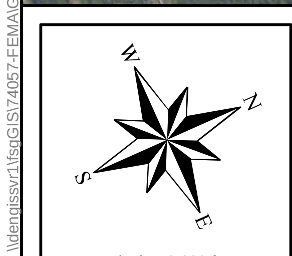
COUNTIES
DOOR COUNTY

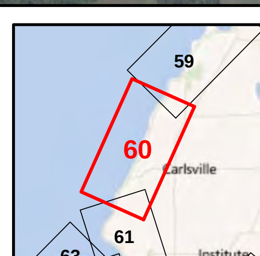
COMMUNITIES
VILLAGE OF EGG HARBOR

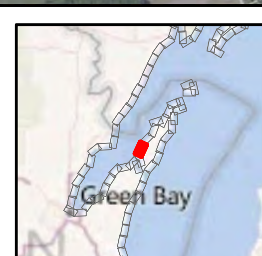
Lake Michigan
DRAFT TRANSECTS
Panel 59 of 127

Path: \\dengisvr1\fsp\GIS\Y2057-FEMA\Great Lakes\DISCOVERY\TransectMaps.mxd


Green Bay
Panel 61
Panel 59
358
357
356
355
DOOR COUNTY
Bay Shore Dr
Bluff Ledge Rd
W Carlsville Rd
White Cedar Rd
Lady Slipper Rd
Governors Woods Trail
N Beech Circle
S Beech Circle
Maple Run
Monument Point Rd
Monument Point Ln
Monument Bluff Pass
Sunset Ln
Birch Ln
Fern Wood Ln
Log Inn Trail
Autumn Ln
Sunny Slope Rd
Indigo Rd
Indigo Ln
Tart Cherry Ln
Taylor Ln
Plum Bottom
Daubner Ln
Alberts Ct
Ash Ln
Hyline Trail
Hyline Dr
Shady Acres Ln
Reynolds Rd
W Townline Rd
Windsong Bluff Dr
High Bluff Estates Rd
Elaine Dr
Edward Dr
Dennis Dr
Wildwood Ln
Michelle Ln
Jewel Ln
Trillium Ln
W Carla Ct
E Carla Ct
E Pine Tree Rd
42
G
B







Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

DOOR COUNTY

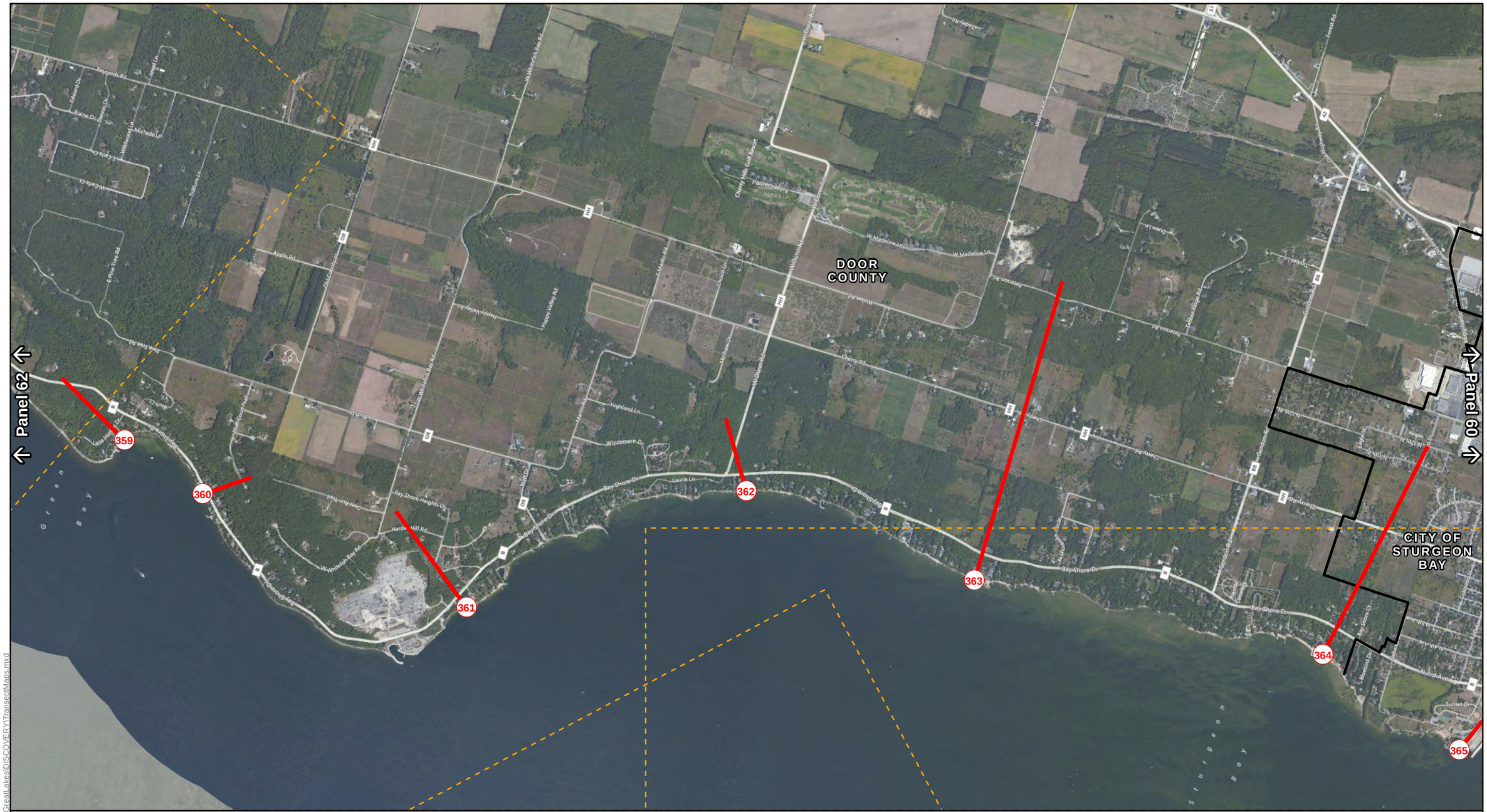
COMMUNITIES

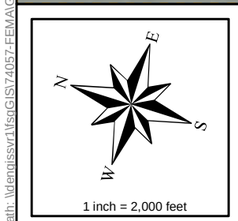
Lake Michigan

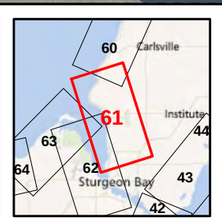
DRAFT TRANSECTS

Panel 60 of 127

Path: \\dengissvr1\fsgGIS\74057-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd







Transects

Adjoining Panel Edge

Political Boundary

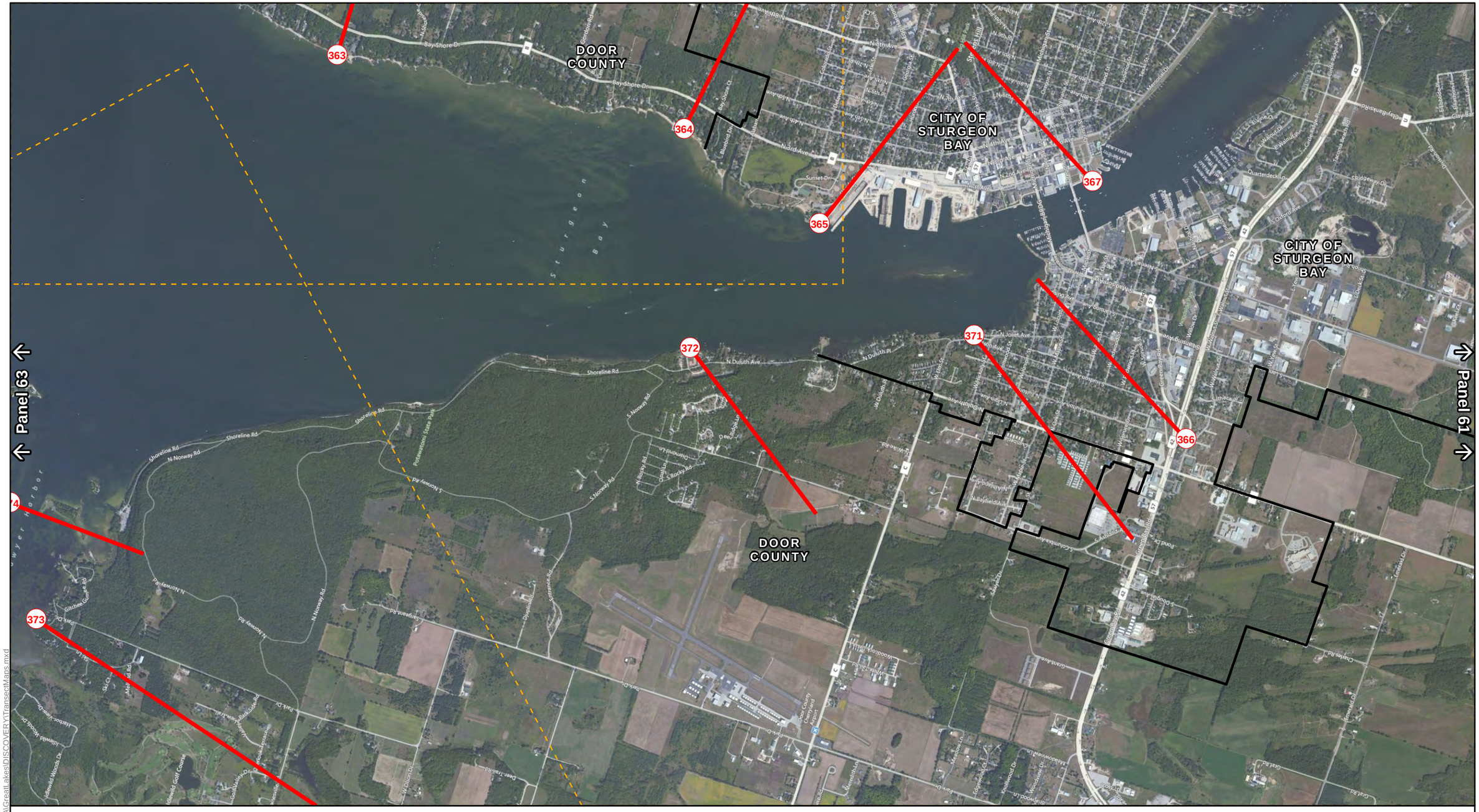
Basemap Source: Microsoft BING map service

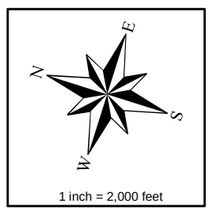
COUNTIES
DOOR COUNTY

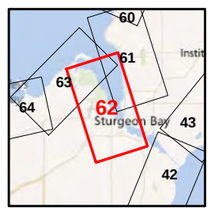
COMMUNITIES
CITY OF STURGEON BAY

Lake Michigan
DRAFT TRANSECTS
Panel 61 of 127

Path: \\dengissvr1\fsn\GIS\T4057-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd







Transects

Adjoining Panel Edge

Political Boundary

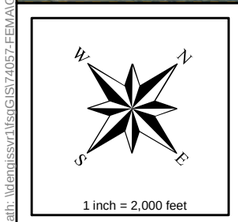
Basemap Source: Microsoft BING map service

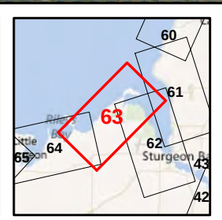
COUNTIES
DOOR COUNTY

COMMUNITIES
CITY OF STURGEON BAY

Lake Michigan
DRAFT TRANSECTS
Panel 62 of 127

Path: \\engissvr1\fsg\GIS\7405-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd





Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

DOOR COUNTY

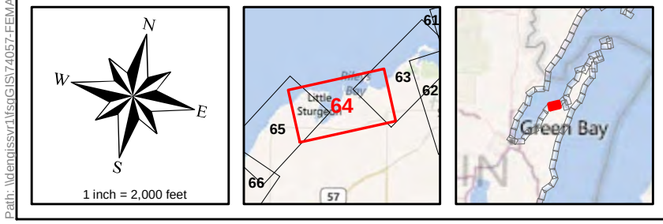
COMMUNITIES

Lake Michigan

DRAFT TRANSECTS

Panel 63 of 127

Path: \\denjissvr1\fsq\GIS\74057-FEMA\Great_lakes\DISCOVERY\TransectMaps.mxd



Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

DOOR COUNTY

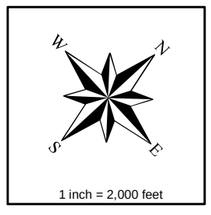
COMMUNITIES

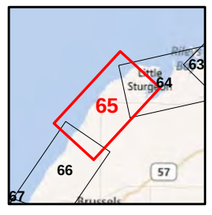
Lake Michigan

DRAFT TRANSECTS

Panel 64 of 127

Path: \\tenqlssvr1\lssGIS\174057-FEMA\Great Lakes\DISCOVERY\TransectMaps.mxd





Transects

Adjoining Panel Edge

Political Boundary

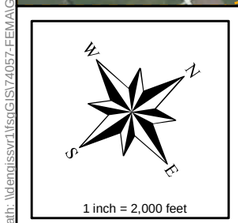
Basemap Source: Microsoft BING map service

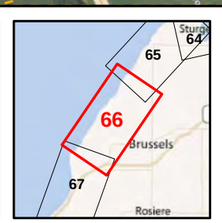
COUNTIES
DOOR COUNTY

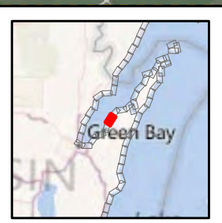
COMMUNITIES

Lake Michigan
DRAFT TRANSECTS
Panel 65 of 127

Path: \\engissvr1\fsp\CIS\74057-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd







Transects

Adjoining Panel Edge

Political Boundary

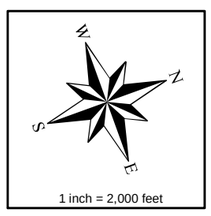
Basemap Source: Microsoft BING map service

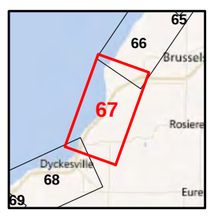
COUNTIES
DOOR COUNTY

COMMUNITIES

Lake Michigan
DRAFT TRANSECTS
Panel 66 of 127

Path: \\dengisvr1\fsp\GIS\Y2057-FEMA\Great Lakes\DISCOVERY\TransectMaps.mxd





Transects
Adjoining Panel Edge
Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
DOOR COUNTY
KEWAUNEE COUNTY

COMMUNITIES

Lake Michigan
DRAFT TRANSECTS
Panel 67 of 127

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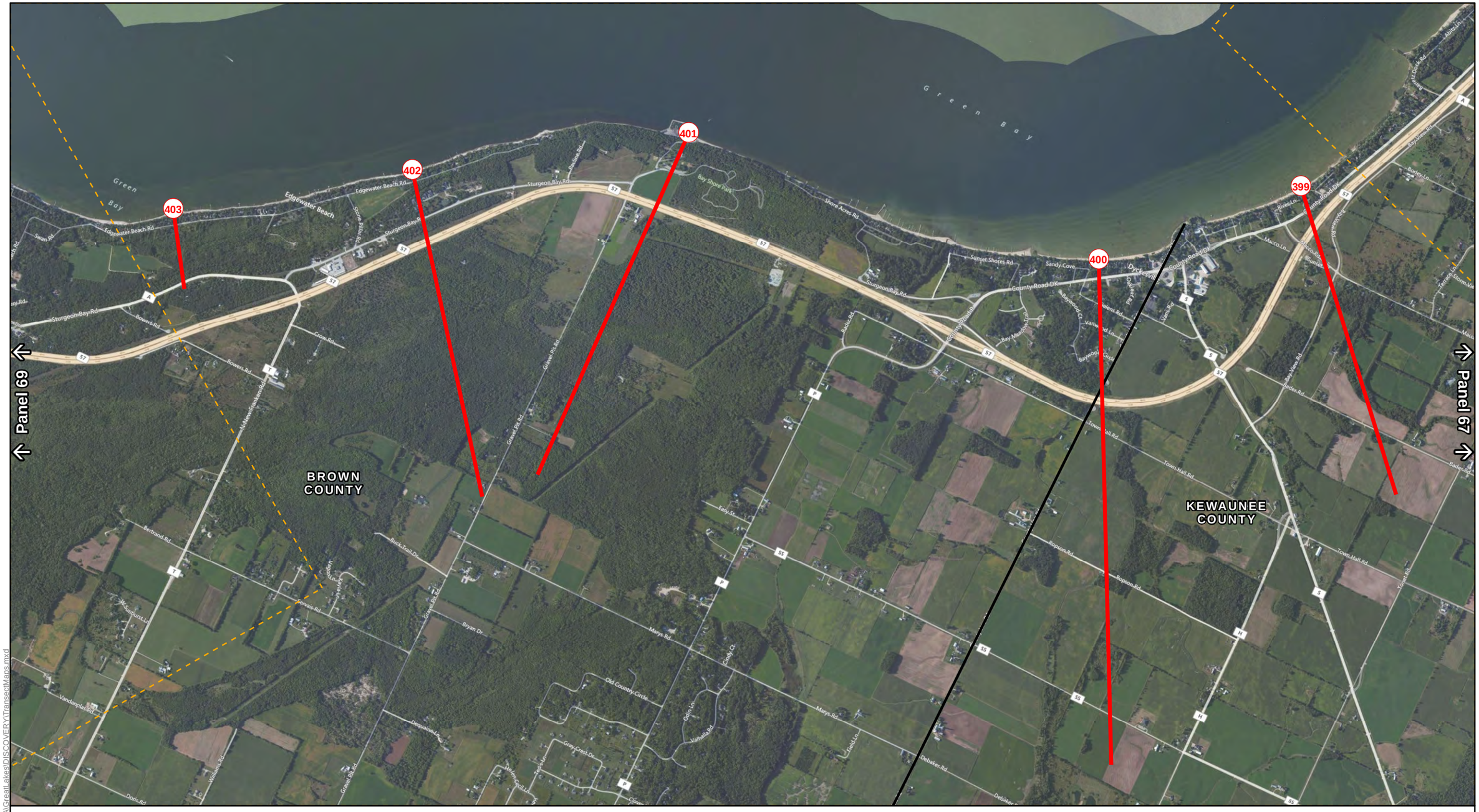
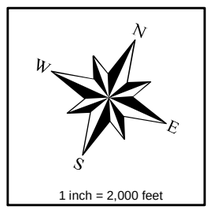
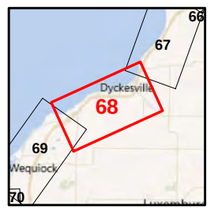




1 inch = 2,000 feet



Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES

BROWN COUNTY

KEWAUNEE COUNTY

COMMUNITIES

Lake Michigan

DRAFT TRANSECTS

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Path: \\Engissvr1\fsp\GIS\74057-FEMA\Great Lakes\DISCOVERY\TransectMaps.mxd

409
408
407
406
405
404
Panel 70
Panel 68
CITY OF GREEN BAY
BROWN COUNTY
CITY OF GREEN BAY
Green Bay
Nicolet Dr
Beach Ln
Bay Settlement Rd
Church Rd
Van Laanen Rd
N Hemlock Rd
S Holland Rd
Van Lieshout Rd
Wequiock Rd
Sturgeon Bay Rd
Edgewater Beach Rd
Point Comfort Rd
Bonnie Rd
Esther Ln
Leanna Ln
Grove Rd
Point Ln
Osprey Ln
Nicolet Drive
Nocyem Ln
Van Egeren Ln
Rock Ln
Jacobs Ln
Edwin Ln
Stuve Rd
Weyl Rd
Bowers Rd
Bertrand Rd
Woodchuck Ln
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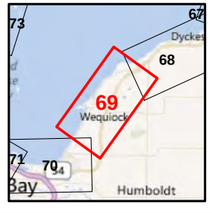
1 inch = 2,000 feet



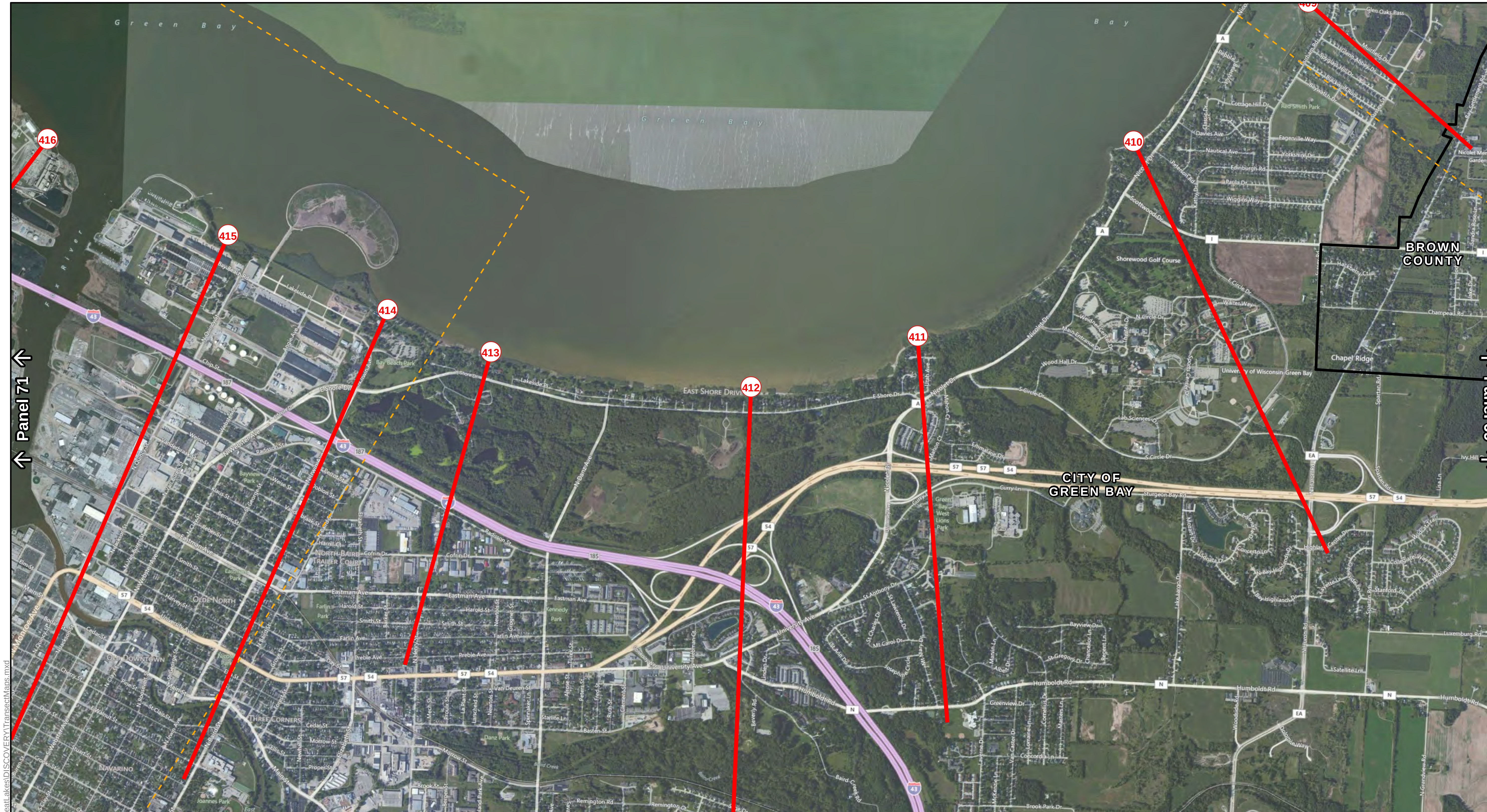
Transects
Adjoining Panel Edge
Political Boundary

Basemap Source: Microsoft BING map service

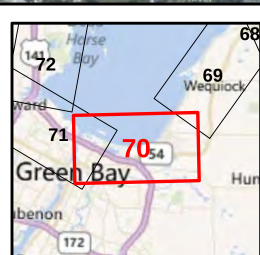
COUNTIES
BROWN COUNTY

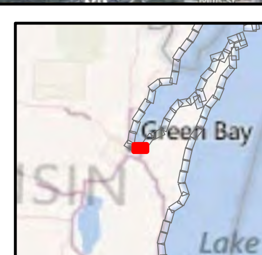
COMMUNITIES
CITY OF GREEN BAY

Lake Michigan
DRAFT TRANSECTS
Panel 69 of 127



1 inch = 2,000 feet





Transects
Adjoining Panel Edge
Political Boundary

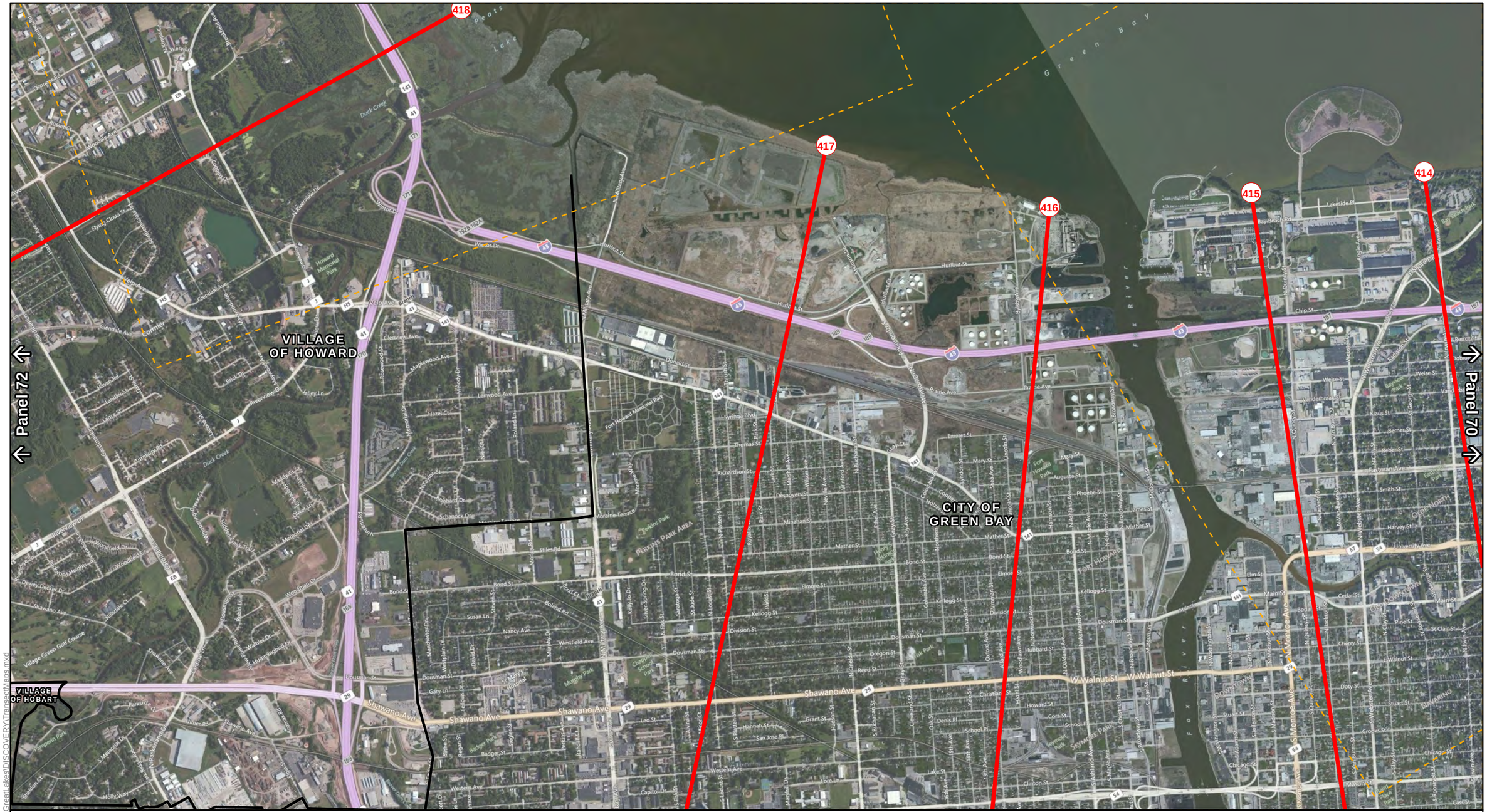
Basemap Source: Microsoft BING map service

COUNTIES
BROWN COUNTY

COMMUNITIES
CITY OF GREEN BAY

Lake Michigan
DRAFT TRANSECTS
Panel 70 of 127

Path: \\dengissvr1\fsgGIS\74057-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd



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1 inch = 2,000 feet

Transects

Adjoining Panel Edge

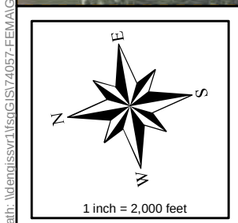
Political Boundary

Basemap Source: Microsoft BING map service

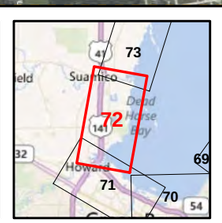
COUNTIES
BROWN COUNTY

COMMUNITIES
CITY OF GREEN BAY
VILLAGE OF HOBART
VILLAGE OF HOWARD

Lake Michigan
DRAFT TRANSECTS
Panel 71 of 127



1 inch = 2,000 feet



Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
BROWN COUNTY

COMMUNITIES
CITY OF GREEN BAY
VILLAGE OF HOWARD
VILLAGE OF SUAMICO

Lake Michigan
DRAFT TRANSECTS
Panel 72 of 127

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VILLAGE OF SUAMICO

OCONTO COUNTY

VILLAGE OF SUAMICO

427

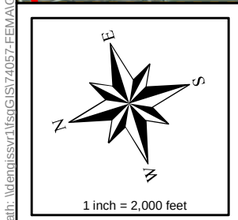
426

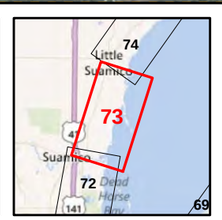
425

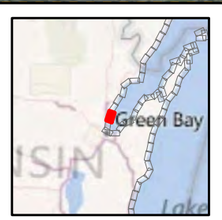
424

Panel 74

Panel 72







Transects

Adjoining Panel Edge

Political Boundary

Basemap Source: Microsoft BING map service

COUNTIES
BROWN COUNTY
OCONTO COUNTY

COMMUNITIES
VILLAGE OF SUAMICO

Lake Michigan
DRAFT TRANSECTS
Panel 73 of 127

Path: \\dengissvr1\fsp\GIS\7405\7-FEMA\GreatLakes\DISCOVERY\TransectMaps.mxd

ATTACHMENT E

STAKEHOLDER COMMENTS FROM DISCOVERY MEETING

Stakeholder Comments from Discovery Meeting

ID (Corresponds to Final Discovery Map)	State	County	Location of Comment	FIPS	CID	Comment (from Discovery Meetings or on draft Discovery Map/transect figures)[i]	Type
BRO-143	Wisconsin	Brown	Brown County Unincorporated	55009	550020	Remove Transect; No change in shoreline	General Comment
BRO-144	Wisconsin	Brown	Brown County Unincorporated	55009	550020	Appears to be too far inland with draft transect number 587 based on 2' contours	General Comment
BRO-145	Wisconsin	Brown	Brown County Unincorporated	55009	550020	Appears inland floodplain does not follow 2' contours	General Comment
BRO-146	Wisconsin	Brown	Brown County Unincorporated	55009	550020	Look at 2' contour for inland floodplain	General Comment
BRO-147	Wisconsin	Brown	Brown County Unincorporated	55009	550020	Possibly remove transect- shoreline does not change	General Comment
BRO-148	Wisconsin	Brown	Brown County Unincorporated	55009	550020	How far does draft transect number 592 carry up shoreline towards draft transect 32?	General Comment
BRO-149	Wisconsin	Brown	Brown County Unincorporated	55009	550020	Transect elevation 589.4 is different from map elevation. Why is this?	General Comment
DOO-39	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 322)	General Comment
DOO-40	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 320)	General Comment
DOO-41	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect;(draft transect number 307)	General Comment
DOO-42	Wisconsin	Door	Door Unincorporated	55029	550109	Relocate Transect; (draft transect number 319); user did not define orientation of transect	General Comment
DOO-43	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 302)	General Comment
DOO-44	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 301)	General Comment
DOO-45	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 299)	General Comment
DOO-46	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 297)	General Comment
DOO-47	Wisconsin	Door	Door Unincorporated	55029	550109	Relocate Transect; (draft transect number 295) ; user did not define orientation of transect	General Comment
DOO-48	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 294)	General Comment
DOO-49	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 292)	General Comment
DOO-50	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 289)	General Comment
DOO-51	Wisconsin	Door	Door Unincorporated	55029	550109	Relocate Transect to center of bay; (draft transect number 286) ; user did not define orientation of transect	General Comment
DOO-52	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 287)	General Comment
DOO-53	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 281-285)	General Comment
DOO-54	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 279)	General Comment

Stakeholder Comments from Discovery Meeting

ID (Corresponds to Final Discovery Map)	State	County	Location of Comment	FIPS	CID	Comment (from Discovery Meetings or on draft Discovery Map/transect figures)[i]	Type
DOO-55	Wisconsin	Door	Door Unincorporated	55029	550109	Relocate Transect North slightly; (draft transect number 278) ; user did not define orientation of transect	General Comment
DOO-56	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 275)	General Comment
DOO-57	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 273)	General Comment
DOO-58	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 270)	General Comment
DOO-59	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 268)	General Comment
DOO-60	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 264 and 265)	General Comment
DOO-61	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 262)	General Comment
DOO-62	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 260)	General Comment
DOO-63	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 257 and 258)	General Comment
DOO-64	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 255)	General Comment
DOO-65	Wisconsin	Door	Door Unincorporated	55029	550109	Relocate Transect, position in middle; (draft transect number 254) ; user did not define orientation of transect	General Comment
DOO-66	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 252 and 253)	General Comment
DOO-67	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 250)	General Comment
DOO-68	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 396)	General Comment
DOO-69	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 394)	General Comment
DOO-70	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 390 and 391)	General Comment
DOO-71	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 388)	General Comment
DOO-72	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 384)	General Comment
DOO-73	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 382)	General Comment
DOO-74	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 378)	General Comment
DOO-75	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 376)	General Comment
DOO-76	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 374)	General Comment
DOO-77	Wisconsin	Door	Sturgeon Bay	55029	550111	Remove Transect; (draft transect number 364)	General Comment
DOO-78	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 361)	General Comment
DOO-79	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 359)	General Comment
DOO-80	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 357)	General Comment
DOO-81	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 355)	General Comment
DOO-82	Wisconsin	Door	Door Unincorporated	55029	550109	Relocate Transect, (draft transect number 356) ; user did not define orientation of transect	General Comment

Stakeholder Comments from Discovery Meeting

ID (Corresponds to Final Discovery Map)	State	County	Location of Comment	FIPS	CID	Comment (from Discovery Meetings or on draft Discovery Map/transect figures)[i]	Type
DOO-83	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 354)	General Comment
DOO-84	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 345)	General Comment
DOO-85	Wisconsin	Door	Door Unincorporated	55029	550109	4 transects in state park; excessive?	General Comment
DOO-86	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 330)	General Comment
DOO-87	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 328)	General Comment
DOO-88	Wisconsin	Door	Door Unincorporated	55029	550109	Remove Transect; (draft transect number 325)	General Comment
DOO-89	Wisconsin	Door	Door Unincorporated	55029	550109	Island OK as is	General Comment
DOO-91	Wisconsin	Door	Door Unincorporated	55029	550109	Sinkholes and stormwater flooding; building new stormwater plant	General Comment
DOO-92	Wisconsin	Door	Door Unincorporated	55029	550109	Wave study available from Sister Bay	General Comment
DOO-93	Wisconsin	Door	Sister Bay	55029	550030	Move transect as recommended	General Comment
DOO-94	Wisconsin	Door	Sister Bay	55029	550030	Remove Transect; (draft transect number 332)	General Comment
DOO-95	Wisconsin	Door	Door Unincorporated	55029	550109	Bathymetric data available; Sister Bay	General Comment
DOO-96	Wisconsin	Door	Door Unincorporated	55029	550109	Transect Change; Brookside Lane, German Road, Anderson Lane; orientation of transect not defined	General Comment
DOO-TR-7	Wisconsin	Door	Sister Bay	55029	550030	Move transect as recommended	Transect Comment
DOO-TR-14	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-15	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-16	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-17	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-18	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-19	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-20	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-21	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-22	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-23	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-24	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-25	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-26	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-27	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-28	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-29	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-30	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-31	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-32	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-33	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment

Stakeholder Comments from Discovery Meeting

ID (Corresponds to Final Discovery Map)	State	County	Location of Comment	FIPS	CID	Comment (from Discovery Meetings or on draft Discovery Map/transect figures)[i]	Type
DOO-TR-34	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-35	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-36	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-37	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-38	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-39	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; located transect	Transect Comment
DOO-TR-40	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; draft transects June 2012 (Door County only)	Transect Comment
DOO-TR-41	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-42	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-43	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-44	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-45	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-46	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-47	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-48	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-49	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-50	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-51	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-52	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-53	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-54	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-55	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-56	Wisconsin	Door	Sturgeon Bay, City of	55029	550111	User indicated transect; keep transect	Transect Comment
DOO-TR-57	Wisconsin	Door	Sturgeon Bay, City of	55029	550111	User indicated transect; keep transect	Transect Comment
DOO-TR-58	Wisconsin	Door	Sturgeon Bay, City of	55029	550111	User indicated transect; keep transect	Transect Comment
DOO-TR-59	Wisconsin	Door	Sturgeon Bay, City of	55029	550111	User indicated transect; keep transect	Transect Comment
DOO-TR-60	Wisconsin	Door	Sturgeon Bay, City of	55029	550111	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-61	Wisconsin	Door	Sturgeon Bay, City of	55029	550111	User indicated transect; delete transect	Transect Comment
DOO-TR-62	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-63	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; located transect	Transect Comment
DOO-TR-64	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-65	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-66	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; draft transects June 2012 (Door County only)	Transect Comment
DOO-TR-67	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-68	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment

Stakeholder Comments from Discovery Meeting

ID (Corresponds to Final Discovery Map)	State	County	Location of Comment	FIPS	CID	Comment (from Discovery Meetings or on draft Discovery Map/transect figures)[i]	Type
DOO-TR-69	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-70	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-71	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-72	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-73	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-74	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-75	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; located transect	Transect Comment
DOO-TR-76	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; draft transects June 2012 (Door County only)	Transect Comment
DOO-TR-77	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-78	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-79	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-80	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-81	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-82	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-83	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-84	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-85	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-86	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-87	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-88	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-89	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-90	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-91	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-92	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-93	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-94	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-95	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-96	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-97	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-98	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-99	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-100	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-101	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-102	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-103	Wisconsin	Door	Ephraim, Village of	55029	550611	User indicated transect; keep transect	Transect Comment

Stakeholder Comments from Discovery Meeting

ID (Corresponds to Final Discovery Map)	State	County	Location of Comment	FIPS	CID	Comment (from Discovery Meetings or on draft Discovery Map/transect figures)[i]	Type
DOO-TR-104	Wisconsin	Door	Ephraim, Village of	55029	550611	User indicated transect; keep transect	Transect Comment
DOO-TR-105	Wisconsin	Door	Ephraim, Village of	55029	550611	User indicated transect; keep transect	Transect Comment
DOO-TR-106	Wisconsin	Door	Ephraim, Village of	55029	550611	User indicated transect; keep transect	Transect Comment
DOO-TR-107	Wisconsin	Door	Sister Bay, Village of	55029	550030	User indicated transect; keep transect	Transect Comment
DOO-TR-108	Wisconsin	Door	Sister Bay, Village of	55029	550030	User indicated transect; keep transect	Transect Comment
DOO-TR-109	Wisconsin	Door	Sister Bay, Village of	55029	550030	User indicated transect; keep transect	Transect Comment
DOO-TR-110	Wisconsin	Door	Sister Bay, Village of	55029	550030	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-111	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-112	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-113	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-115	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-117	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-118	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-119	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-120	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-121	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-122	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-123	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-124	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-125	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-126	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-127	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-128	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-129	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-129	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-130	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-131	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; located transect	Transect Comment
DOO-TR-132	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; draft transects June 2012 (Door County only)	Transect Comment
DOO-TR-133	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-134	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-135	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-136	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-137	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-138	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-139	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment

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ID (Corresponds to Final Discovery Map)	State	County	Location of Comment	FIPS	CID	Comment (from Discovery Meetings or on draft Discovery Map/transect figures)[i]	Type
DOO-TR-140	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-141	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-142	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-143	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-144	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-145	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-146	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-147	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-148	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-149	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-150	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-151	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-152	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-153	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; located transect	Transect Comment
DOO-TR-154	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; draft transects June 2012 (Door County only)	Transect Comment
DOO-TR-155	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-156	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-157	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-158	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-159	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-160	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-161	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-162	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-163	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-164	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; draft transects June 2012 (Door County only)	Transect Comment
DOO-TR-165	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; located transect	Transect Comment
DOO-TR-166	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-167	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-168	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-169	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-170	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-171	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-172	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-173	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-174	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment

Stakeholder Comments from Discovery Meeting

ID (Corresponds to Final Discovery Map)	State	County	Location of Comment	FIPS	CID	Comment (from Discovery Meetings or on draft Discovery Map/transect figures)[i]	Type
DOO-TR-175	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-176	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; located transect	Transect Comment
DOO-TR-177	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; draft transects June 2012 (Door County only)	Transect Comment
DOO-TR-178	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-179	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-180	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-181	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-182	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-183	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-184	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-185	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-186	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-187	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-188	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-189	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-190	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-191	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-192	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-193	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-194	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-195	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-196	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-197	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-198	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-199	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-200	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-201	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-202	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-203	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-204	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-205	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-206	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-207	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-208	Wisconsin	Door	Sturgeon Bay, City of	55029	550111	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-209	Wisconsin	Door	Sturgeon Bay, City of	55029	550111	User indicated transect; delete transect	Transect Comment

Stakeholder Comments from Discovery Meeting

ID (Corresponds to Final Discovery Map)	State	County	Location of Comment	FIPS	CID	Comment (from Discovery Meetings or on draft Discovery Map/transect figures)[i]	Type
DOO-TR-210	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-211	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-212	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-213	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-214	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; draft transects June 2012 (Door County only)	Transect Comment
DOO-TR-215	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; located transect	Transect Comment
DOO-TR-216	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-217	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-218	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-219	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-220	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-221	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-222	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-223	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-224	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; draft transects June 2012 (Door County only)	Transect Comment
DOO-TR-225	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; delete transect	Transect Comment
DOO-TR-225	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-226	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-227	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-228	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-229	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-230	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-231	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-232	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-233	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-234	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-235	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-236	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-237	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-238	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-239	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-240	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment
DOO-TR-241	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; keep transect	Transect Comment
DOO-TR-242	Wisconsin	Door	Door Unincorporated	55029	550109	User indicated transect; suggested transition lines	Transect Comment

Stakeholder Comments from Discovery Meeting

ID (Corresponds to Final Discovery Map)	State	County	Location of Comment	FIPS	CID	Comment (from Discovery Meetings or on draft Discovery Map/transect figures)[i]	Type
KEW-97	Wisconsin	Kewaunee	Kewaunee County Unincorporated	55061	550212	Fairly Uniform; Steep bluff; May not need as many transects	General Comment
KEW-98	Wisconsin	Kewaunee	Kewaunee County Unincorporated	55061	550212	Fairly Uniform; Steep bluff; May not need as many transects	General Comment
KEW-99	Wisconsin	Kewaunee	Kewaunee County Unincorporated	55061	550212	Fairly Uniform; Steep higher bluff; May not need as many transects	General Comment
KEW-100	Wisconsin	Kewaunee	Kewaunee County Unincorporated	55061	550212	Nuclear Plant	General Comment

[i] Due to the various methods used to collect flood risk information and transect comments, including discussions during Discovery Meetings, maps marked up with comments, and emails or letters sent containing comments, the meaning of some comments may not be clear in this table and are subject to interpretation.

ATTACHMENT F

BROWN, DOOR, AND KEWAUNEE COUNTY

DISCOVERY MEETING DOCUMENTS

Discovery Meeting Agenda

Discovery Meeting Sign-In Sheets

Discovery Meeting Minutes

Discovery Meeting Presentation

Meeting schedule: Wednesday, August 15, 2012 2:00 – 4:00 pm (CT)
Meeting Location: Neville Museum, Green Bay, WI
Discovery Area: Coastal communities in Door, Kewaunee and Brown Counties, WI
Attendees: 21 people attended the Lake Michigan Discovery Meeting. Please see attached sign-in sheet for a complete list of attendees

FACILITATORS

FEMA
Lee Traeger

Wisconsin DNR
Gary Heinrichs, NFIP Coordinator
Roxanne Grey, SHMO
Katie McMahan, CTP Lead

STARR Contractor
Jaspreet Randhawa
Scott Banjavcic
Troy Thielen

ASFPM
Alan Lulloff

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 Mitigation Action Tracker

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.*

Project Name:	FEMA Region V Discovery
Meeting:	KEWANUNEE, DOOR, BROWN COUNTIES Great Lakes Coastal Discovery Meeting
Date and Time:	WEDNESDAY, AUGUST 15, 2012; 2:00 – 4:00 PM CT
Place:	NEVILLE PUBLIC MUSEUM
Facilitator:	LEE TRAEGER, FEMA GARY HEINRICHS, WDNR JASPREET RANDHAWA, SCOTT BANJAVCIC, TROY THIELEN, STARR

Discovery Meeting Agenda

1. **Why are we here? (2:00 – 2:15 PM CT)**
   - Great Lakes Coastal Flood Study Overview and Schedule
   - Discovery Process and Outcomes

2. **Coastal mapping and flood risk topics to be aware of (2:15 – 2:40 PM CT)**

3. **How does this apply to my community? (2:40 – 2:50 PM CT)**

4. **Interactive Session A (2:50 – 3:15 PM CT)**
   - View and Discuss Local Coastal Areas of Concern Using the Discovery Map and Community Risk MAP Questionnaire

5. **Hazard mitigation opportunities and grant funding (3:15 – 3:25 PM CT)**

6. **Interactive Session B (3:25 – 3: 50 PM CT)**
   - Discuss Mitigation Action Opportunities
   - Introduce the Mitigation Action Form and Mitigation Action Tracker

7. **Wrap Up (3:50 – 4:00 PM CT)**
   - 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.*

August 15, 2012 BROWN, DOOR, KEWAUNEE, COUNTIES DISCOVERY MEETING SIGN-IN SHEET

Please verify contact information and intial meeting attendance.

No.	Sign Intials	Affiliation	Title	Name First	Name Last	Street Address	Phone	Email Address
1		Door County	Zoning Administrator	Sue	Vanden Langenberg	421 Nebraska Street Sturgeon Bay, WI 54235	(920) 746-2323	svanden@co.door.wi.us
2		Green Bay Planning Department	Senior Planner/Zoning Administrator	Paul	Neumeyer	Green Bay Planning Department 100 North Jefferson St., Room 608 Green Bay, WI 54301	(920) 448-3405	paulne@greenbaywi.gov
3		Kewaunee County	County Board Member	David	Mayor	E1006 County Road F Luxemburg, WI 54217		
4		Kewaunee County	County Board Member	Ron	Paider	N1751 County Road V Denmark, WI 54208	920 863 6913	
5		Kewaunee County	County Board Member	Janice	Swoboda	240 Rueckl Drive Luxemburg, WI 54217		
6		Village of Egg Harbor	Administrator	Joshua	Van Lieshout	P.O. Box 175 Egg Harbor WI 54209-0175	(920) 868-3334	jvanlieshout@villageofegghar bor.org
7		Village of Suamico	Zoning Administrator/ Assessor/ Building Inspector	Steve	Dunks	2999 Lakeview Drive Suamico, WI 54173	(920) 434-2212	Steve@Suamico.org
9		FEMA Region V	Senior Engineer	Lee	Traeger	536 South Clark St., 6th Floor Chicago, IL 60605	(312) 408-5500	lee.traeger@fema.dhs.gov
10		STARR	Engineer	Scott	Banjavcic	125 South Wacker Drive Chicago, IL 60606	(312) 346-5000	banjavcics@cdmsmith.com
11		STARR	Engineer	Jaspreet	Randhawa	125 South Wacker Drive Chicago, IL 60606	(312) 346-5000	randhawajg@cdmsmith.com

August 15, 2012 BROWN, DOOR, KEWAUNEE, COUNTIES DISCOVERY MEETING SIGN-IN SHEET

Please verify contact information and intial meeting attendance.

No.	Sign Intials	Affiliation	Title	Name First	Name Last	Street Address	Phone	Email Address
12		STARR	GIS Specialist	Troy	Thielen	125 South Wacker Drive Chicago, IL 60606	(312) 346-5000	thielentr@cdmsmith.com
13		Wisconsin Department of Natural Resources	Floodplain Planning Program Manager	Gary	Heinrichs	101 S Webster St. Madison, WI 53707	(608) 266-3093	gary.heinrichs@wisconsin.gov
14		SISTER BAY	VILLAGE ADMIN	ROBERT	KUFRIN	2383 MAPLE SISTER BAY WI	920-854-4118	ROBERT.KUFRIN@SISTERBAYWI.GOV
15	MH	Brown Co.	Assistant 2.A.	Matt	Heyroth	—	448-6480	—
16	MW	WDNR	ENGINEER	MILES	WINKLER	2984 SHAWANO AVE, GB, WI	662-5195	MILES.WINKLER@WISCONSIN.GOV
17	BB	Ephraim	Zoning Admin	Brent	Bristol	10005 Norway PO Box 138 Ephraim, WI 54211	920 854 5501	bbristol@ephraim-wisconsin.com
18	KA	WI Coastal Management Program	Coastal Hazards Coordinator	Kate	Angel	101 East Wilson ST 9th Fl Madison, WI 53708	(608) 267-7988	Kathleen.angel@wisconsin.gov
19	TH	Door County GIS/LIO	GIS/LIO Coordinator	Tom	Haight	421 Nebraska St. Sturgeon Bay, WI 54235	920-746-2391	thaight@co.door.wi.us
20	PW	City of Green Bay	Zoning Admin	Paul	Neuwegen	100 N. Jefferson Room 608 Green Bay, WI 54301	920 448-3405	paulne@greenbaywi.gov
21	GS	Kewaunee County	ZA	Glenn	Selner	810 Cedar St 421 Nebraska St	920 388-7192	selnerg@kewauneeco.org
	SV	Door Co	ZA	Sue	VandenLangenberg	Sturgeon Bay WI	920-746-2323	svanden@co.door.wi.us

August 15, 2012 BROWN, DOOR, KEWAUNEE, COUNTIES DISCOVERY MEETING SIGN-IN SHEET

Please verify contact information and intial meeting attendance.

No.	Sign Intials	Affiliation	Title	Name First	Name Last	Street Address	Phone	Email Address
32	BB	Brown Co.	Zoning Adm.	Bill	Bosiacki	———	448-6480	
33								
34								
35								
36								

INTERACTIVE DISCUSSION:

- Cat Island restoration is currently being under taken by Corps in Green Bay area. The flood study should consider the significant reconstruction plans occurring in area.
- Kewaunee LIDAR is being collected, still in processing.
- Brown County LIDAR has been collected.
- *Question:* How do you define deep water wave? *Answer:* USACE has collected data and created a comprehensive grid throughout Lake Michigan and Green Bay where they have modeled the deep water wave heights. They have also used these models to propagate the results to the shoreline at save points where SWEL and wave height can be evaluated.
- *Question:* What is a gutter? *Answer:* A gutter is the separation line between two flood zones on a floodplain map.
- *Question:* Is the elevation same along the transect? *Answer:* The elevation along a transect will change from the open water inland up the transect. The length of the transect depends on the wave setup, and run-up analysis. The elevation between transects is determined by looking at LIDAR data and characterizing elevation differences in the model results.
- *Question:* Will the gutter go through the house? *Answer:* It is possible for cases of abrupt changes in shoreline features for a gutter to pass through a house. However, this situation hopefully is avoided in most cases.
- *Question:* What is an AO Zone? *Answer:* Shallow flooding zones, shows depth and not BFE.
- *Question:* Will houses that have built up out of the floodplain be picked up as X Zones with the LIDAR? *Answer:* If they are mapable areas it will be picked up. Also, existing LOMAs will be categorized appropriately in the Summary of Map Actions (SOMA).
- Alan Lulloff mentioned that USACE is collecting bathymetric data with LIDAR and the green laser.
- *Question:* Can counties or communities send us survey data to prove some locations are out of the floodplain? What size property is big enough to be taken into account by us? *Answer:* Individual property surveys are difficult to incorporate due to map scale and scope limitations. Communities can provide existing survey information they have for study area and study team will evaluate and notify them whether the information provided can be used for refining floodplain limits. This would be a case-by-case decision.
- Kewaunee expects the new study to affect Algoma, Kewaunee, and the county areas along Green Bay. Even though they technically do not have to adopt maps as Kewaunee County is not slated to receive updated DFIRM as yet, Lee encouraged them to use the best available data for floodplain management.
- Brown County asked about adopting the coastal depth grids. WDNR clarified that they will get revised regulatory products because their effective map has been modernized and is in DFIRM format.
- Alan mentions that gutters and transition points between transects are important.
- Gary asks will there be a new flood insurance study along with these maps. Katie agrees that there will be an update to effective FIS to include this coastal study. FIS will be updated with results of coastal study. All communities in county including non-coastal communities will have to reference the updated FIS.
- *Question:* What will be the impact on inland lake? *Answer:* Coastal wave action may impact an inland lake.
- *Question:* Matt Heyroth asked about gutters. How would an engineer go about assigning a BFE to a property? For example there are different ways that surveyors stake the floodway on a property including surveying the elevation or scaling from map. *Answer:* Wherever gutter is placed is where floodplain is located despite new elevation data.
- Alan discusses V zones and the dry land access requirement enforced in Wisconsin.
- *Question:* How is the 1% storm event developed for this study. *Answer:* Scott and Alan explained that the USACE has gone to a response based method evaluating 150 storms. The methodology report was out for public comment in May and is available on the Great Lakes Coastal website. The data may also be in the public domain.
- Matt Heyroth asked about getting a copy of the claims per address. *Answer:* That is covered under the privacy act; however, municipalities can get that information from SHMO/NFIP coordinator.
- STARR demonstrated the use of USACE's online viewer for viewing oblique photos.

FEATURES NOTED ON MAPS:

- Brown County took maps back to the office with them to discuss. We have mapped the current effective transects which they feel has been serving them fine. They will respond with any additional comments.
- Kewaunee County had the following comments:
- Some transects can be eliminated because the shoreline is similar in spots and not very heavily populated (between Transects 222-225, 233-235, 244, 248)
- Comments from Door County communities:
- Village of Ephraim suggested the transects be moved to capture the following locations:
- Brookside Lane
- German Road
- Anderson Lane
- Village of Sister Bay suggested that Transect 333 be eliminated and that a wave study, stormwater plan, and bathymetric data is available.

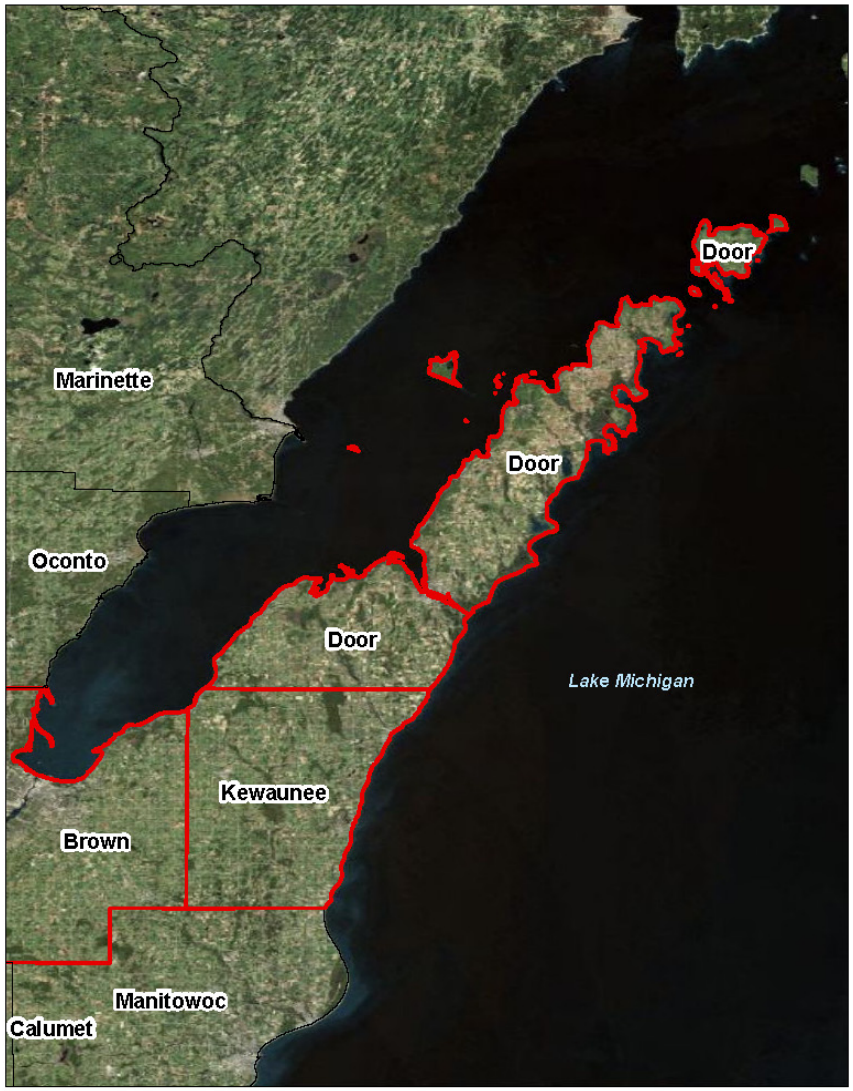
MITIGATION ACTIONS:

- Door County may consider developing a Hazard Mitigation Plan.

FEMA

Lake Michigan Discovery

Brown County, WI
Door County, WI
Kewaunee County, WI



August 15, 2012
2 pm to 4 pm
Neville Public Museum

RiskMAP
Increasing Resilience Together

Great Lakes Coastal Flood Study
greatlakescoast.org

Introductions

Who's here?

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

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?
  - NFIP compliance, local impacts of coastal study, hazard mitigation, and grant funding
- Interactive Sessions
  - View and Discuss Local Coastal Areas of Concern Using the Discovery Map and Community Risk MAP Questionnaire
  - Discuss Mitigation Action Opportunities and Introduce the Mitigation Action Form
- Wrap Up
- Optional Interactive Stations

Risk Mapping, Assessment and Planning
Risk MAP

FEMA

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

Great Lakes Coastal Flood Study

U.S. Army Corps of Engineers, Detroit District

RiskMAP
Increasing Resilience Together

Great Lakes Coastal Flood Study
greatlakescoast.org

Lake Michigan Discovery Report Appendix F - Kewaunee, Door, and Brown

Great Lakes Coastal Flood Study
Overview

- 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 flood risk actions to enhance resiliency along the Great Lakes
- Partners Involved:
  - FEMA
  - USACE
  - ERDC
  - ASFPM
  - States
  - FEMA Contractors

Lake Michigan Discovery

- 34 counties in total
  - 4 counties in UP Michigan
  - 11 counties in Wisconsin
  - 2 counties in Illinois
  - 3 counties in Indiana
  - 14 counties in lower Michigan
- 226 coastal communities

Great Lakes Coastal Flood Study
Discovery Study Area

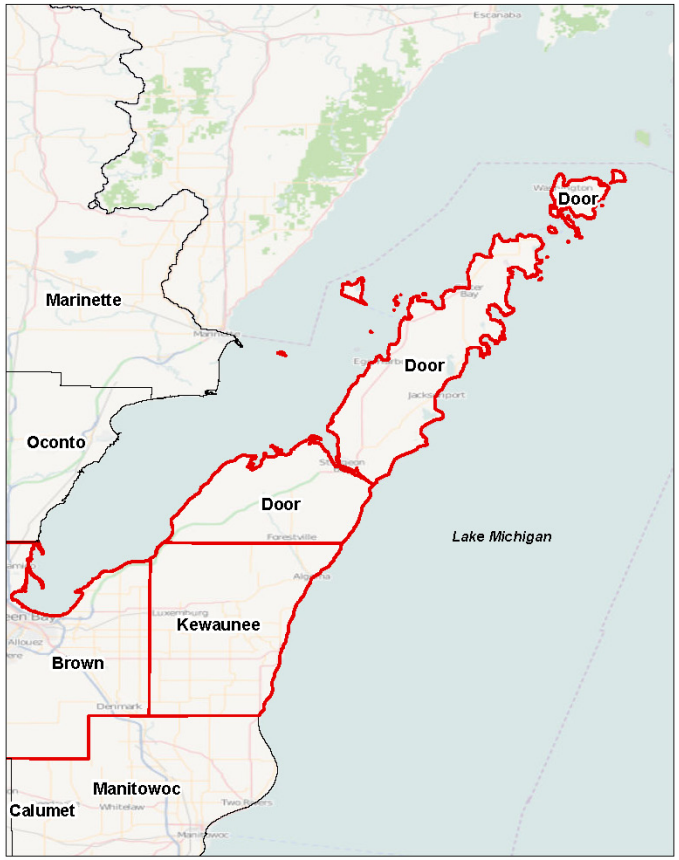
FEMA

<u>Lake Michigan coastal communities in Brown, Door, and Kewaunee Counties:</u>

Brown County
Allouez
Bellevue
Green Bay
Howard
Suamico

Door County
Egg Harbor
Ephraim
Sister Bay
Sturgeon Bay

Kewaunee County
Algoma
Kewaunee (City)



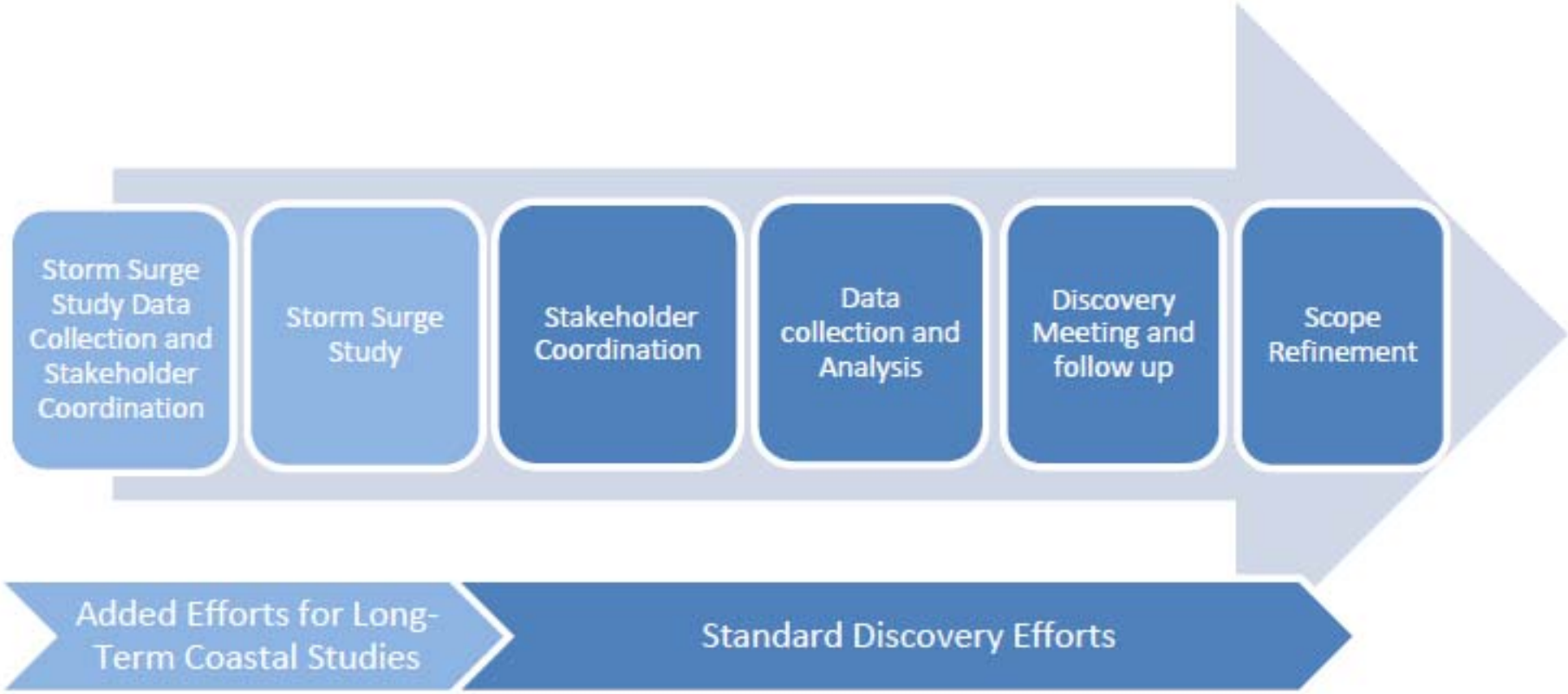
Effective Map Status

- Brown County
  - Countywide study August 18, 2009
- Door County
  - Countywide study, March 2, 2009
- Kewaunee County, September 3, 1980
  - Algoma, June 15, 1979
  - Kewaunee (City), February 15, 1980

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

Discovery Schedule Overview



Lake Michigan 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 – August 2012
- Establish inventory of coastal structures based on oblique imagery – October 2012
- Facilitate Discovery Meetings – August/September 2012
- Final Discovery Report and Maps – November 2012
- Create library of digital data – November 2012

Great Lakes Coastal Flood Study
Discovery Products

- **Final Discovery Report**
  - Single, comprehensive report for all of Lake Michigan, 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

Discovery Outcomes

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

Data Collection in progress

- New high quality USACE Topographic – Light Detection and Ranging (LiDAR) and Bathymetry Data
- Base data – boundaries, streams, census blocks, etc.
- Average Annualized Loss data
- Shoreline classification Dataset
- Dams
- Federal and State disaster information
- Repetitive loss data
- Hazard Mitigation plans
- Hazard Mitigation Grants Program (HMGP) projects
- Stream, wave, and water level gage locations
- Pre-Disaster Mitigation Program projects
- Draft Transects

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

FEMA

Coastal Mapping and Flood Risk Topics

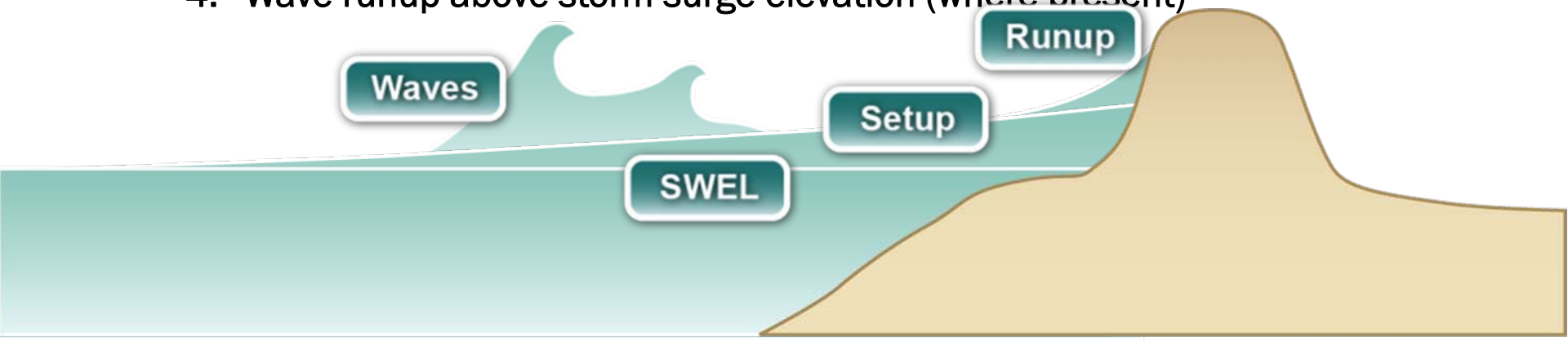
- Draft Transects
- Coastal Guidance Updates
- VE Zone Mapping and LiMWA
- Coastal Flood Risk Products

RiskMAP
Increasing Resilience Together

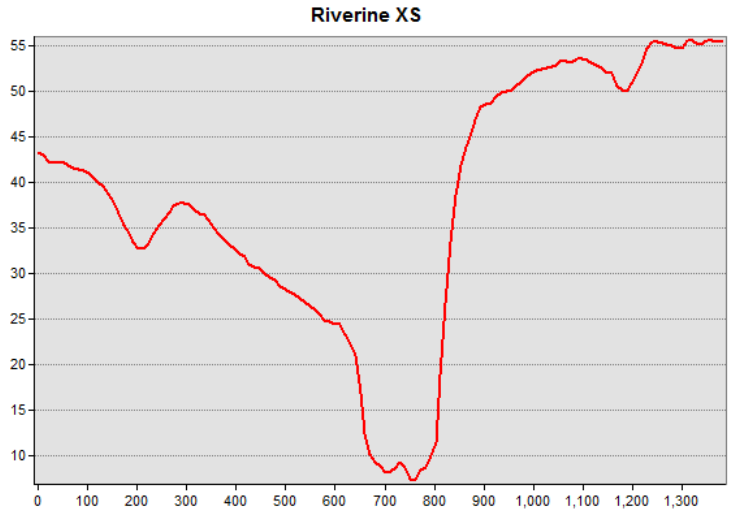
Basic Elements of a Coastal Hazard Analysis

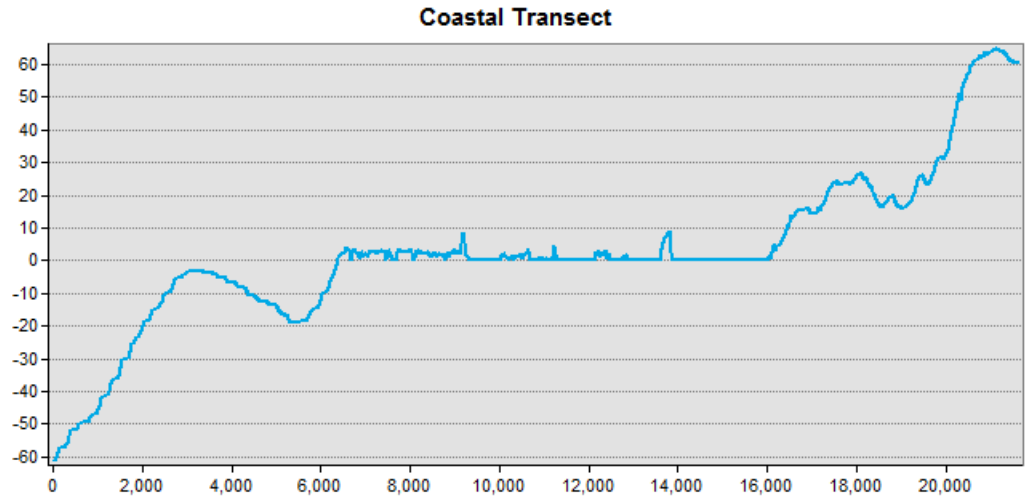
Base Flood Elevation on FIRM includes 4 components:

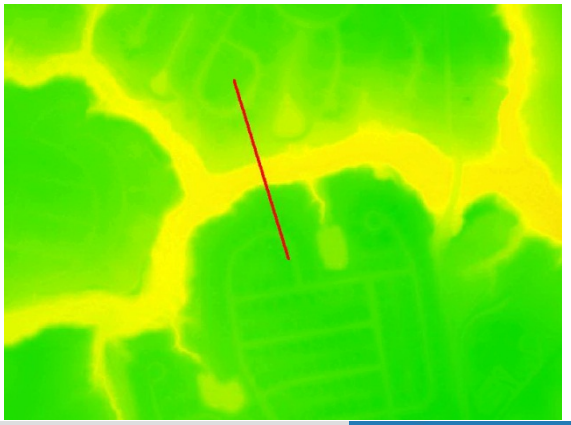
1. Storm surge stillwater elevation (SWEL) – determined from storm surge model
2. Amount of wave setup
3. Wave height above storm surge (stillwater) elevation
4. Wave runup above storm surge elevation (where present)

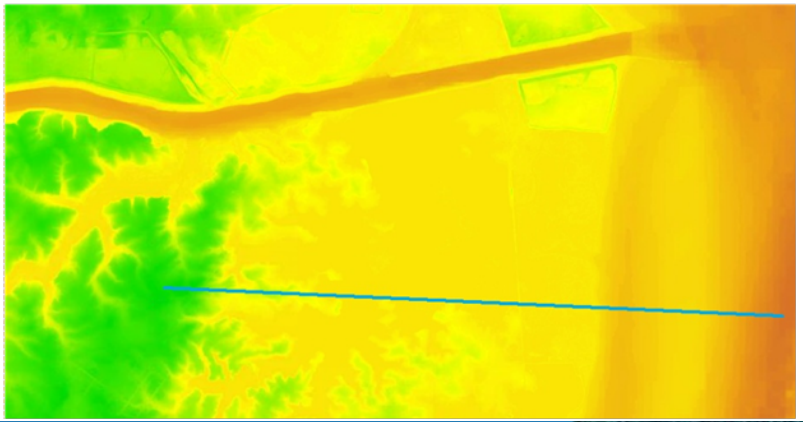


Riverine XS vs Coastal Transect



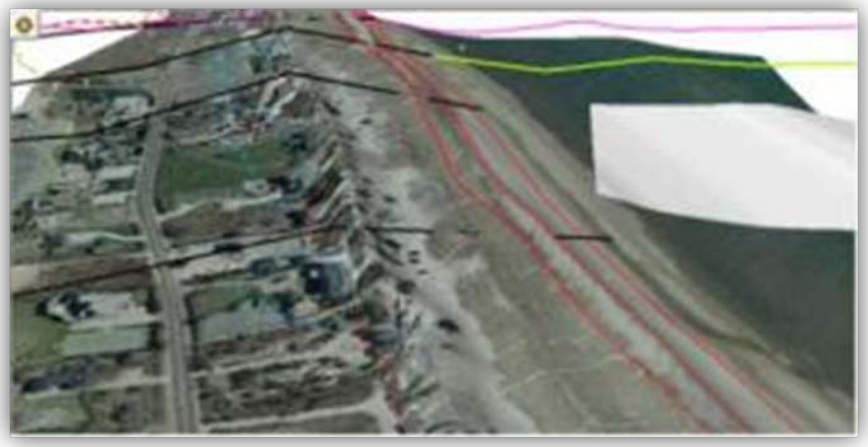






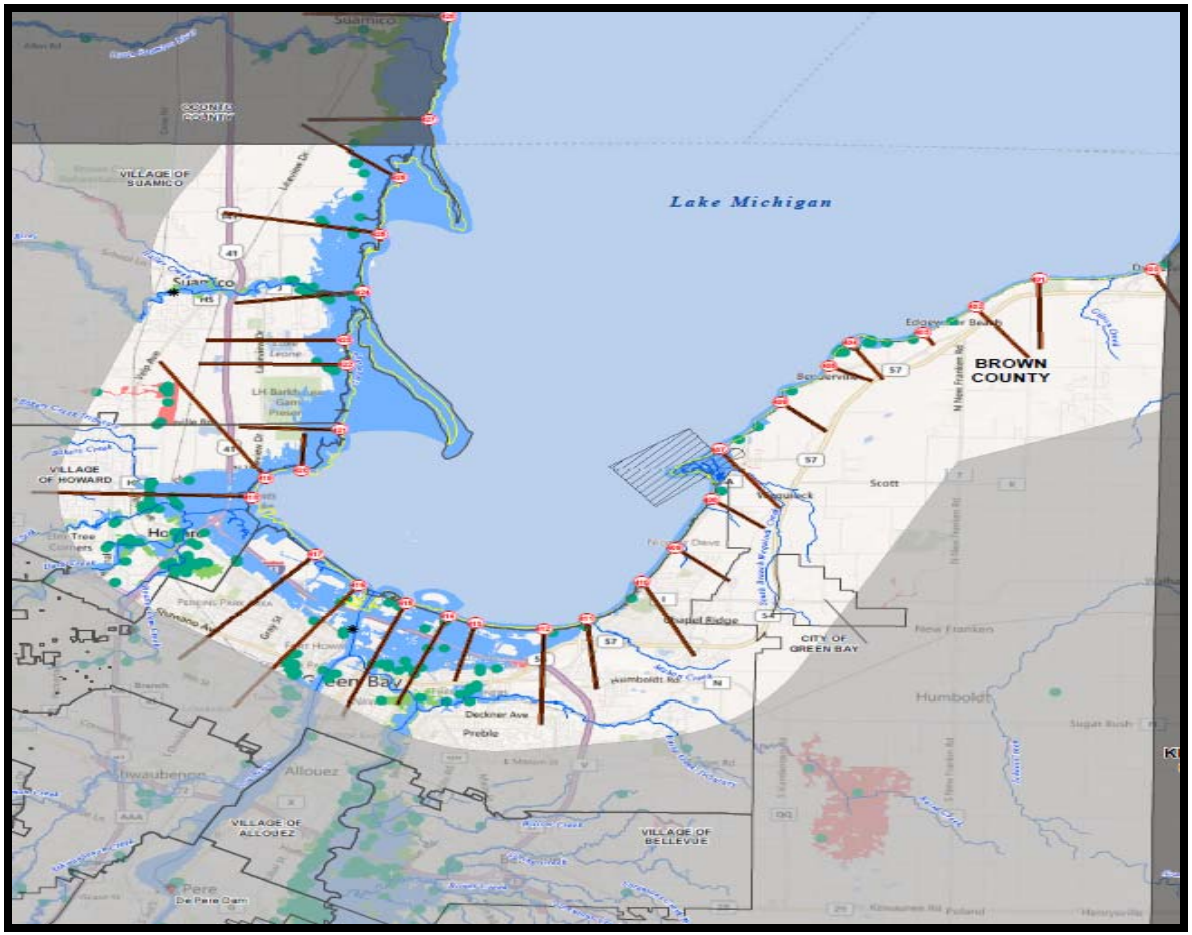
Transect Placement

- 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



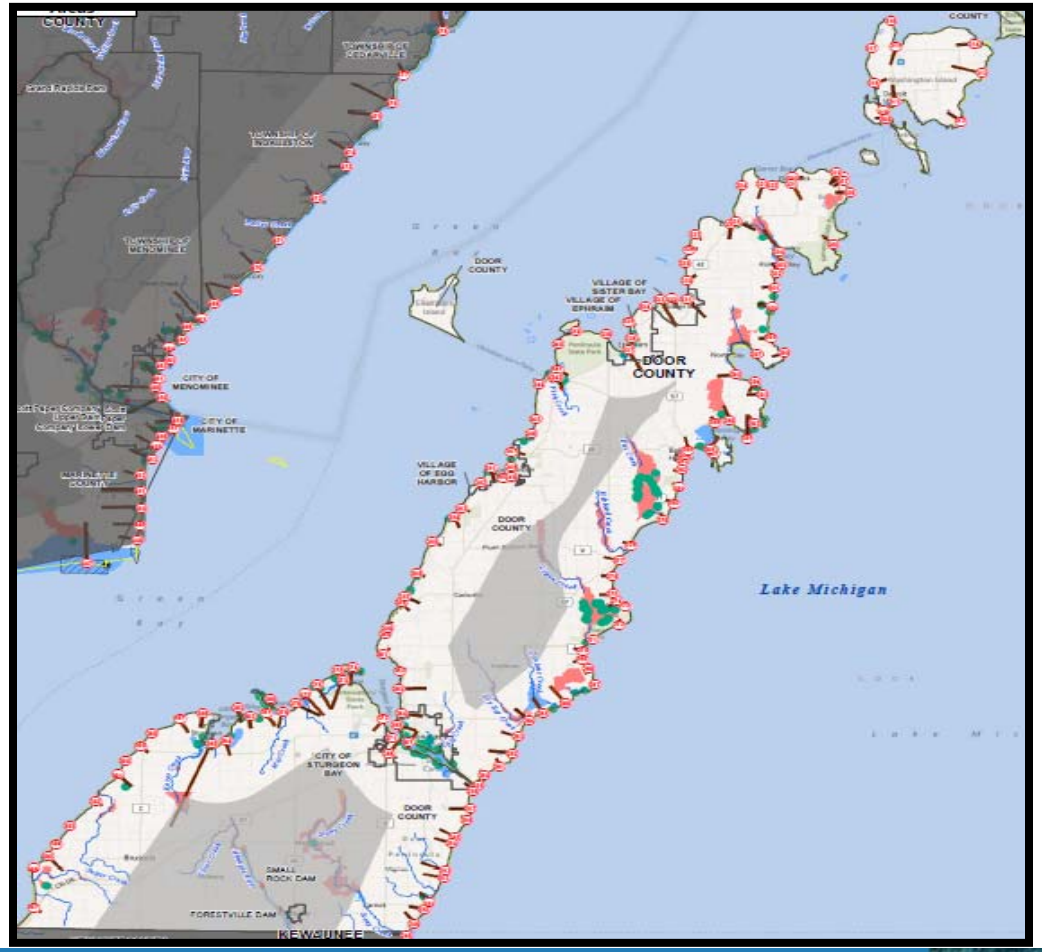
Draft Transect Layout Brown County

- 32 transects
- 38 miles of shoreline along Lake Michigan



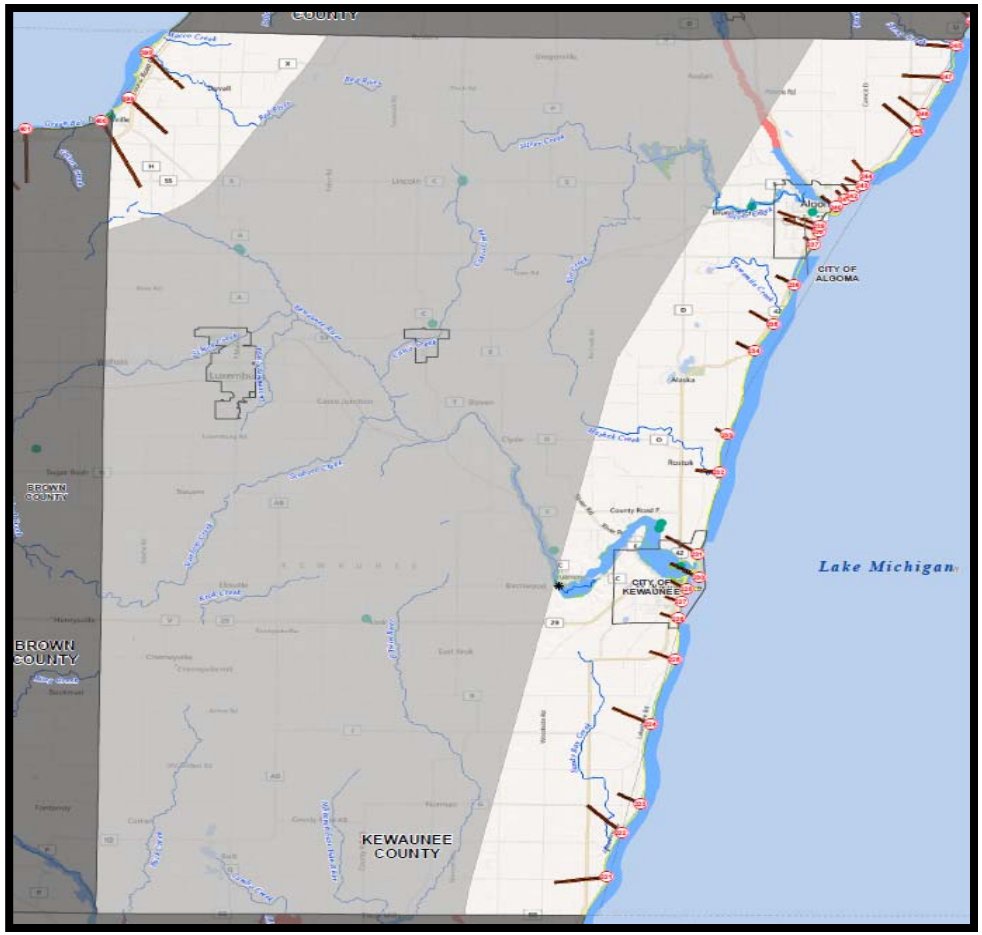
Draft Transect Layout
Door County

- 144 transects
- 204 miles of shoreline along Lake Michigan



Draft Transect Layout Kewaunee County

- 29 transects
- 29 miles of shoreline along Lake Michigan



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

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"

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

Wave Action - Structural Risk

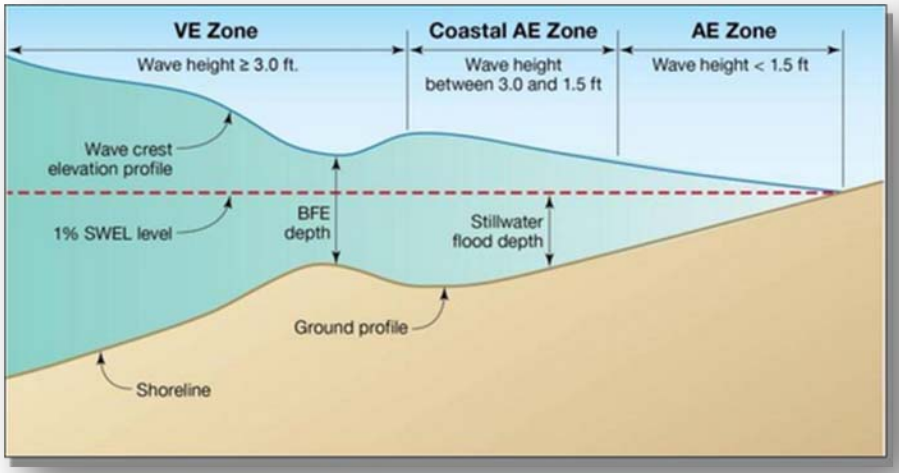
- US Army Corps of Engineers – 1973
  - Breaking wave height of 3 feet
  - “area subject to high velocity waters, including but not limited to hurricane wave wash”
- FEMA – 2000
  - Coastal Construction Manual
  - Additional post-storm damage assessments identified 1.5 wave also can knock a structure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

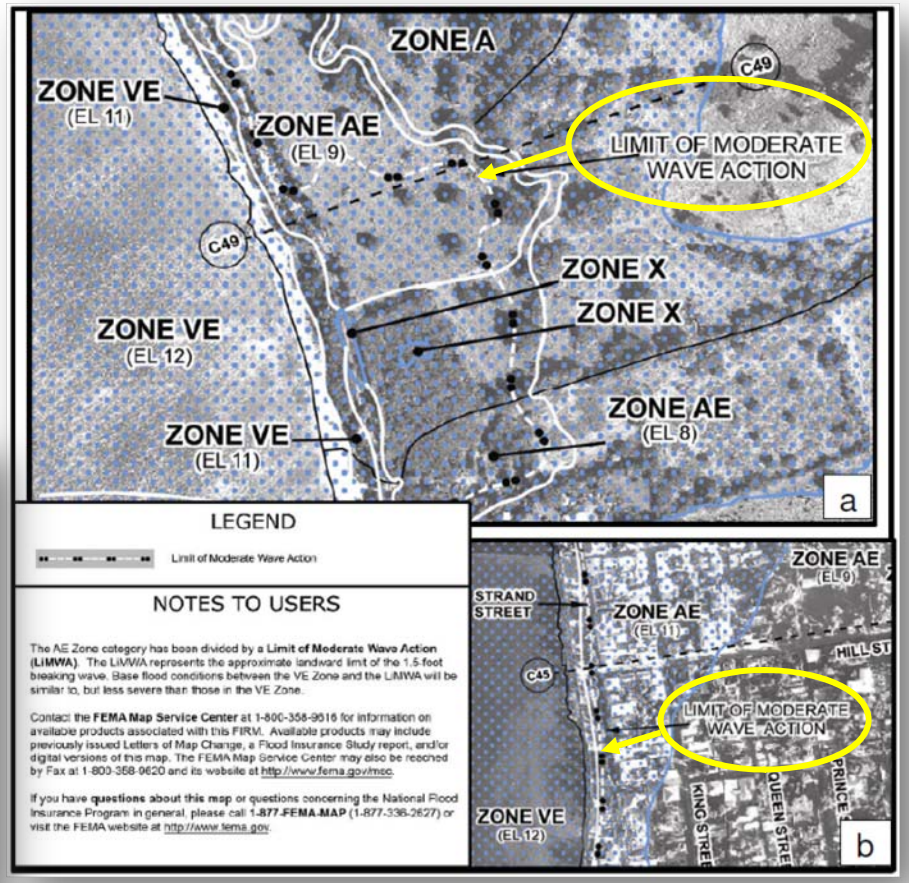
http://www.fema.gov/pdf/rebuild/mat/coastal_a_zones.pdf

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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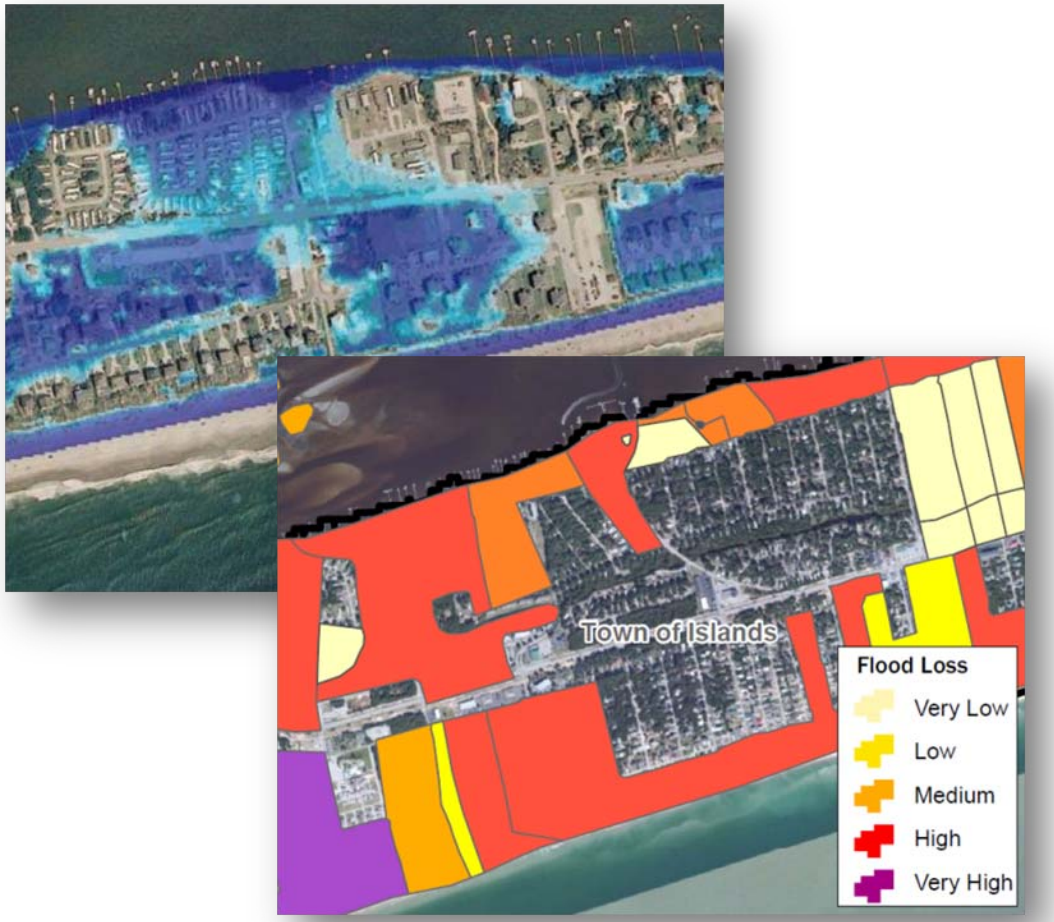
Coastal Flood Risk Products

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

Standard Flood Risk Products

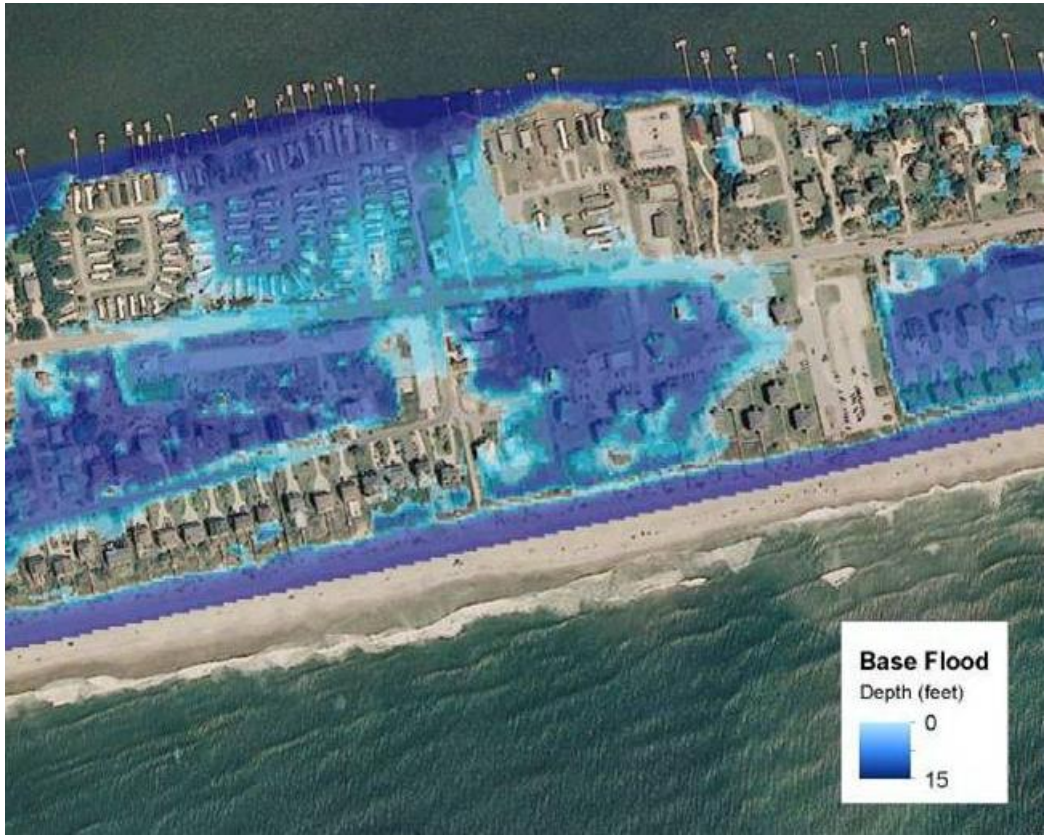
- Coastal Depth Grids
- Flood Risk Assessment (HAZUS)



HAZUS MH
EARTHQUAKE • WIND • FLOOD

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



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

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

Coastal Non-Regulatory Products in Development

Erosion

Red Lantern Restaurant, Lake Michigan, IN

Lake Levels

Lake Michigan Shoreline
Reference

Shoreline Feature Dataset

Upper Peninsula Shoreline
Reference

Shoreline Features Database

Shoreline Material
Sand
Cohesive
Cobble
Diamicton*
Shingle
Bedrock
Artificial

Primary Land Use
High Density Residential
Moderate Density Residential
Low Density Residential
Commercial/Industrial
Park Land
Farm Land
Forested

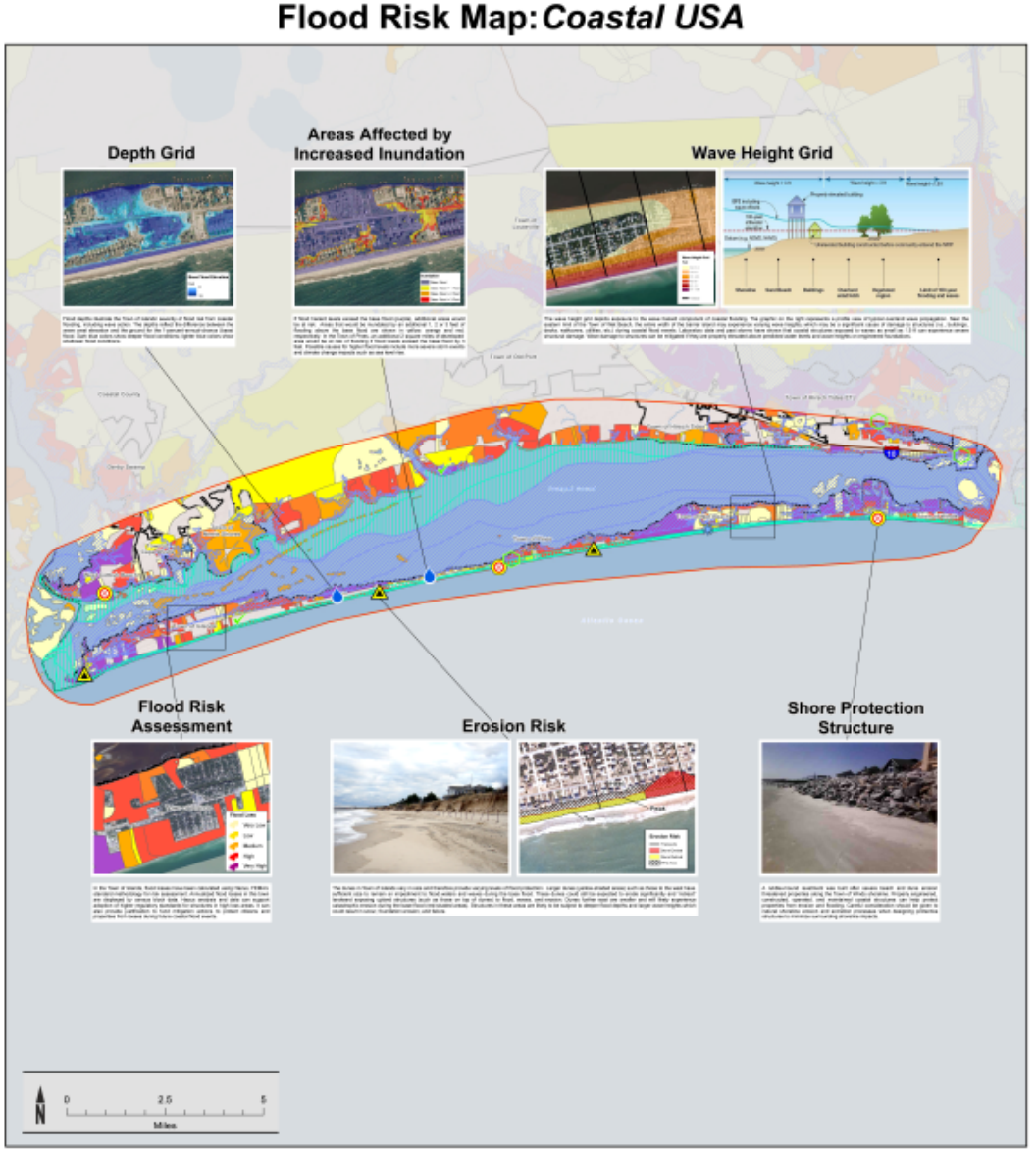
Primary Coast Type
High Dune, 10'+
Dune, 2' - 10'
High Bluff, 10'+
Bluff, 2' - 10'
Coastal Wetland
Flat Coast

Primary Vegetation
None
High Density Shrubs/Trees
Moderate Density Shrubs/Trees
Low Density Shrubs/Trees
Manicured Lawn
Native Vegetation

- 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

Coastal FRM

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



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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 Zone) 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*

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

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

V Zones for Lake Michigan?

- Lake Michigan communities currently do not have V/VE Zones. Majority of the communities have coastal A/AE zones.
- If costal AE and VE Zones are added on maps where they did not exist before, all affected communities must update regulations to include coastal requirements.
  - State will provide regulations assistance and technical support if/when coastal flood zones are added.

Coastal Zones and NFIP Compliance

- Must meet minimum NFIP and community coastal requirements
- V Zones will be treated as floodways for ordinance purposes and construction will be restricted in these areas.
- Recommendations for exceeding the minimum NFIP requirements (Coastal A Zones)
  - Can obtain CRS credits for

    Coastal A Zone Requirements
- Resources Available

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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Hazard Mitigation

- Opportunities
- Grant Funding

Local Hazard Mitigation Plans

Risk MAP
Risk MAP products and Datasets

Hazard Mitigation Plan
- Uses Risk Information
- Identifies Projects/Actions
- Integrated with Other Community Plans

Other Community Plans
- Comprehensive plans
- Land Use Plans
- Capital Improvement
- Stormwater
- Management Plans
- Emergency Operations

Mitigation Actions/Projects

Mitigation Actions

- Address specific existing assets (e.g., elevate critical facility, enlarge a culvert, acquisition of floodplain properties, floodproof floodproone properties)
- 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)

Mitigation Activities

Brown County Wisconsin 2007 All Hazards Mitigation Plan

8/28/2013	Monitor natural features along Green Bay for deterioration that would allow for flooding or mudslides to impact properties along the shore
8/28/2013	Maintain maps indicating past incidences and areas most susceptible to future hazards
8/28/2013	Maintain a stormwater management plan that accounts for the large amount of water flowing into Fox River that could cause localized flooding or possible backup of stormwater into homes and businesses
8/28/2013	Maintain current land use regulations that permit building of structures within vulnerable coastal locations
8/28/2013	Work with the Coast Guard to monitor conditions where drifting ice can damage shore structures and destroy vegetation, move sand or stones from beaches, or dump sand, rock, or other debris on beaches
8/28/2013	Construction of riprap to manage bluff erosion shifts due to the eroding force of the water where coastal areas lack bluff reinforcement.
8/28/2013	Implement policies and programs designed to reduce or eliminate the impacts of natural hazards on people and property
8/28/2013	Collect and utilize data needed to improve policymaking and the identification of appropriate mitigation projects

Mitigation Examples

FEMA Funding Opportunities

- Hazard Mitigation Assistance includes both post-disaster and pre-disaster grants

HMGP is a post-disaster grant program.

PDM, FMA, RFC and SRL are available annually, subject to Congressional appropriations.

- Mitigation Plan Requirement
- Local/State Cost Share
- States Manage Programs and Set Funding Priorities
- State Hazard Mitigation Officer (SHMO) is contact

Mitigation Grants/Programs: OFAs

US Army Corps of Engineers®

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Meet the Action Form

Mitigation Action Form

Contact Information

Please enter the primary contact a

1. **Full Name:**

2. **Title and Organization :**

3. **Jurisdiction Name(s) :**

Mitigation Action Informatio

4. **Mitigation Activity Name**

5. **Describe the natural hazard and mitig**

6. **Hazard Type?**

☐ *Flood* ☐ *Erosion* ☐*Storm Sur*

☐ *Landslide* ☐ *Lighting* ☐ *Seve*

☐ *Wind* ☐ *Multiple Hazards* ☐

7. **What is the Mitigation Category?**

☐ *Local Plans and Regulations*

*Category*_____

8. **How was this action/strategy identi**

☐ *Risk Map Process*

☐ *Comprehensive Land Use Plan*

☐ *Capital Improvement Plan*

9. **Who is the Responsible Agency?**

☐ *Building Code Department*

☐ *Community Development*

☐ *Emergency Management*

9. **Who is the Responsible Agency?**

☐ *Building Code Department* ☐ *Planning* *Other*_____

☐ *Community Development* ☐ *Public Works*

☐ *Emergency Management* ☐ *State DOT*

10. **What is the expected/potential funding source?**

☐ *Community* ☐ *FEMA*

☐ *Private Sector, including Foundations* ☐ *Other Federal Agency*

☐ *Regional Water Management District* ☐ *Property Owner*

☐ *County* ☐ *Other*_____

☐ *State*

11. **What is the commitment for this action?**

☐ *new* ☐ *strengthen existing* ☐ *maintain existing*

12. **What is the status of this action?**

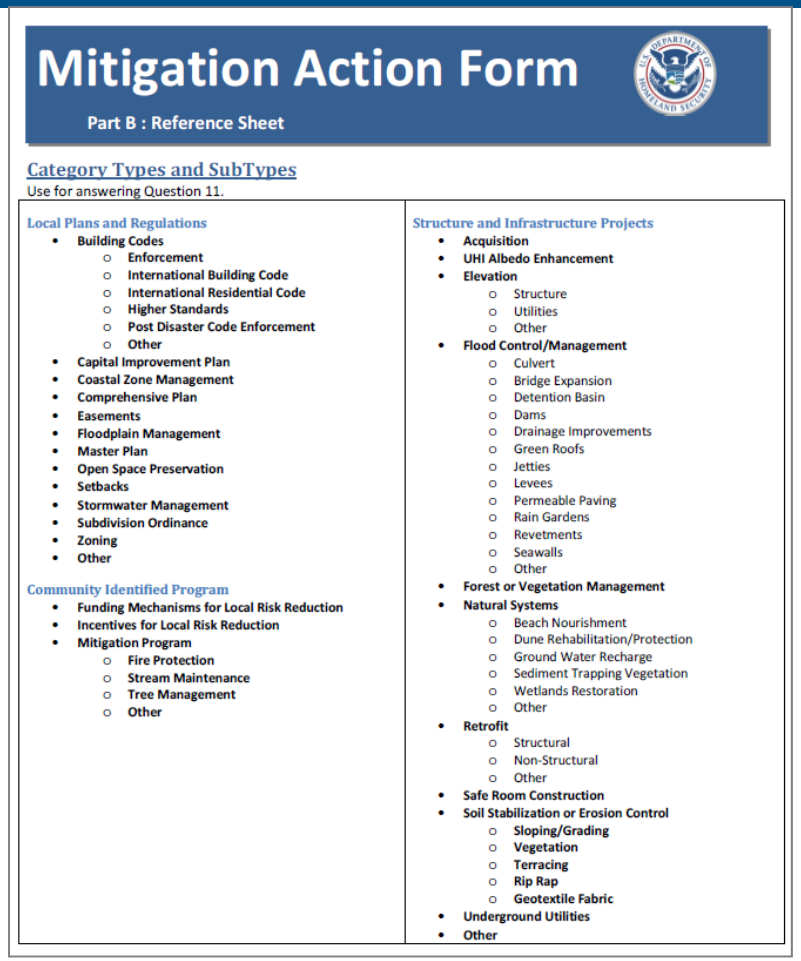
☐ *identified* ☐ *scoped* ☐ *in progress* ☐ *complete*

Identifying Actions

Local Plans and Regulations

Community Identified Programs

Structure and Infrastructure Projects



Mitigation Action Form

Part B : Reference Sheet

Category Types and SubTypes

Use for answering Question 11.

Local Plans and Regulations

- Building Codes
  - Enforcement
  - International Building Code
  - International Residential Code
  - Higher Standards
  - Post Disaster Code Enforcement
  - Other
- Capital Improvement Plan
- Coastal Zone Management
- Comprehensive Plan
- Easements
- Floodplain Management
- Master Plan
- Open Space Preservation
- Setbacks
- Stormwater Management
- Subdivision Ordinance
- Zoning
- Other

Community Identified Program

- Funding Mechanisms for Local Risk Reduction
- Incentives for Local Risk Reduction
- Mitigation Program
  - Fire Protection
  - Stream Maintenance
  - Tree Management
  - Other

Structure and Infrastructure Projects

- Acquisition
- UHI Albedo Enhancement
- Elevation
  - Structure
  - Utilities
  - Other
- Flood Control/Management
  - Culvert
  - Bridge Expansion
  - Detention Basin
  - Dams
  - Drainage Improvements
  - Green Roofs
  - Jetties
  - Levees
  - Permeable Paving
  - Rain Gardens
  - Revetments
  - Seawalls
  - Other
- Forest or Vegetation Management
- Natural Systems
  - Beach Nourishment
  - Dune Rehabilitation/Protection
  - Ground Water Recharge
  - Sediment Trapping Vegetation
  - Wetlands Restoration
  - Other
- Retrofit
  - Structural
  - Non-Structural
  - Other
- Safe Room Construction
- Soil Stabilization or Erosion Control
  - Sloping/Grading
  - Vegetation
  - Terracing
  - Rip Rap
  - Geotextile Fabric
- Underground Utilities
- Other

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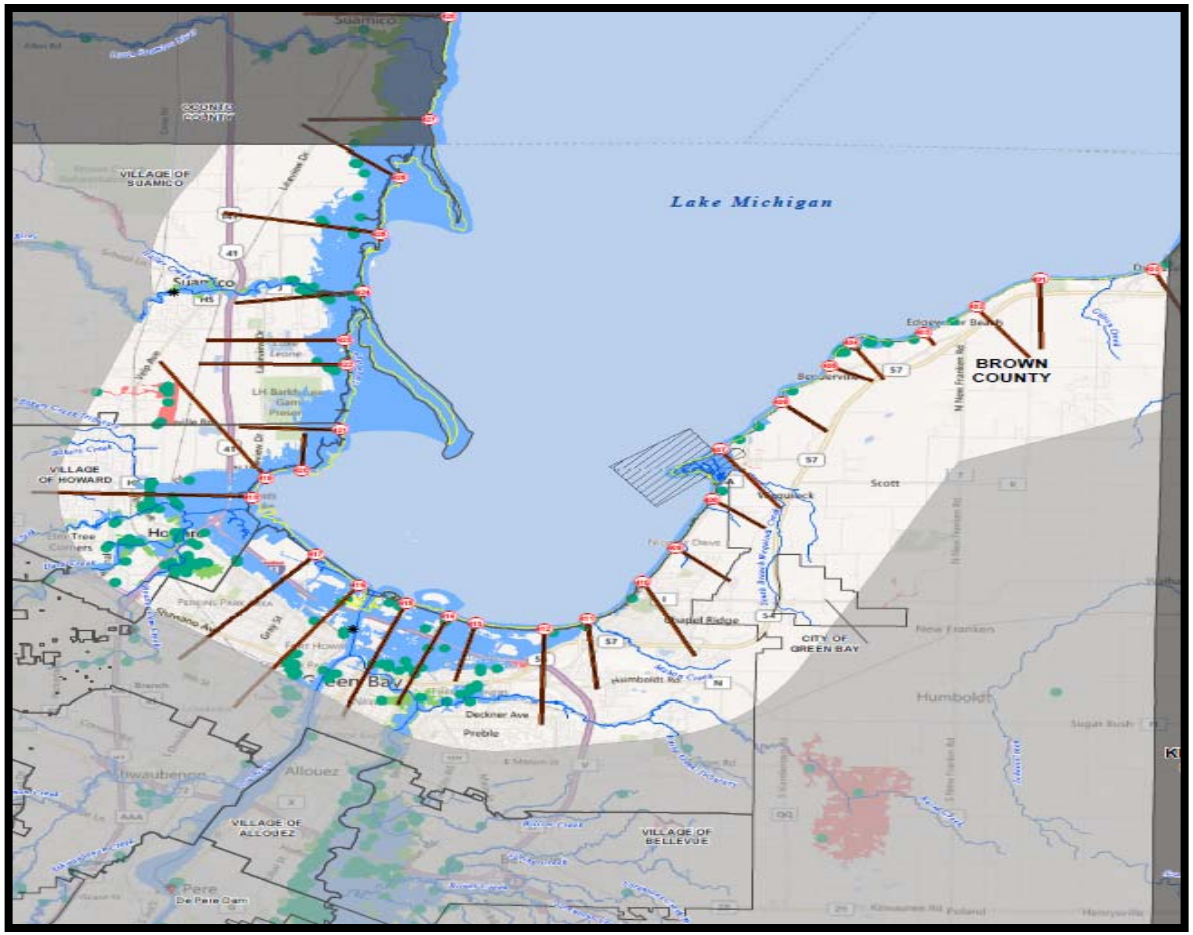
Interactive Session

- View and Discuss Local Coastal Areas of Concern Using the Discovery Map
- Discuss Mitigation Action Opportunities and Introduce the Mitigation Action Form

Brown County, WI
Discovery Map – Flood Hazard Areas



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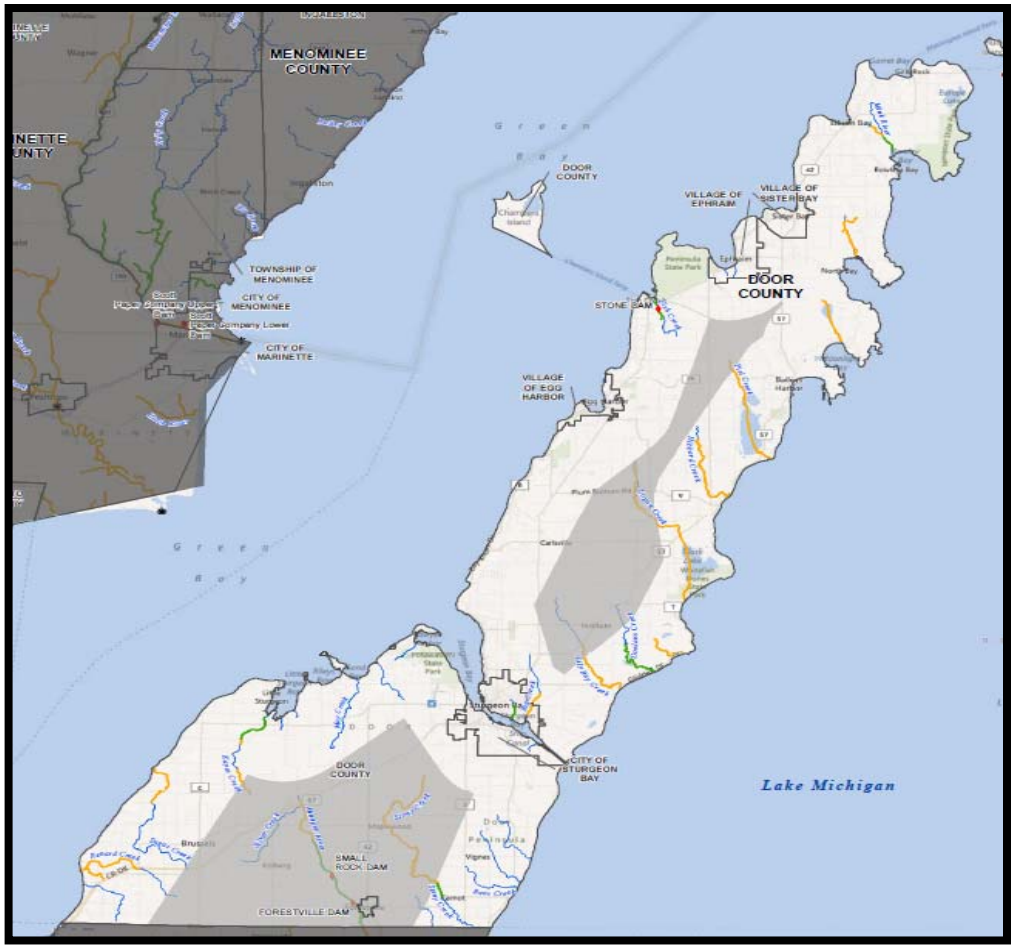
Door County, WI
Discovery Map – CNMS Status



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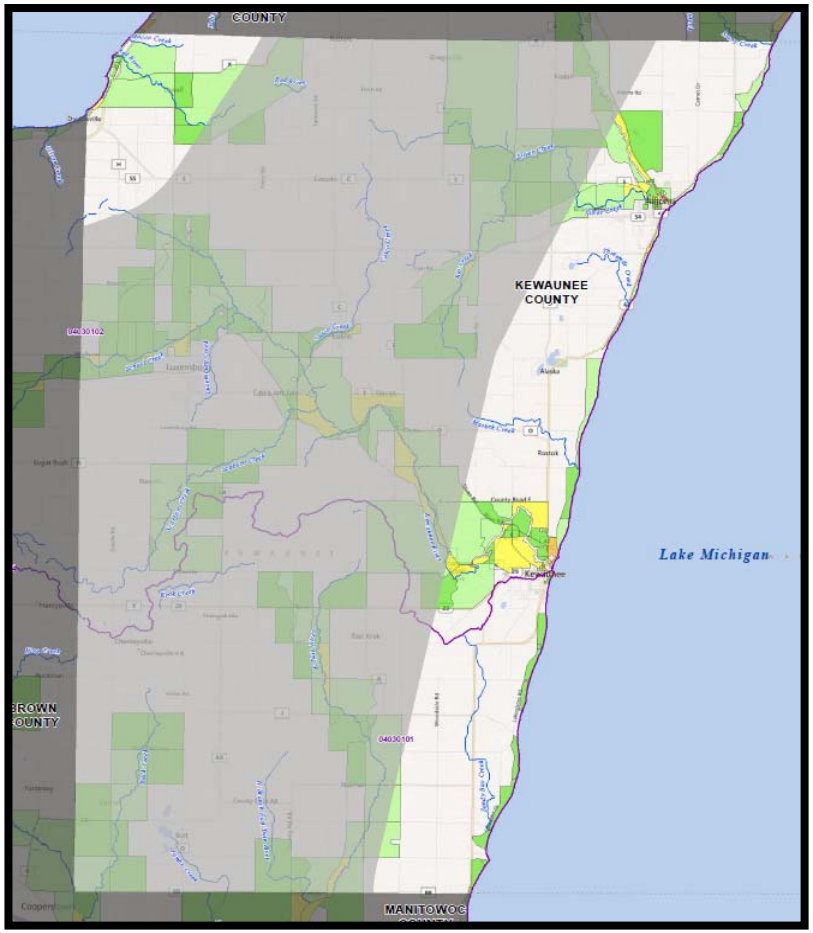
Kewaunee County, WI
Discovery Map – AAL



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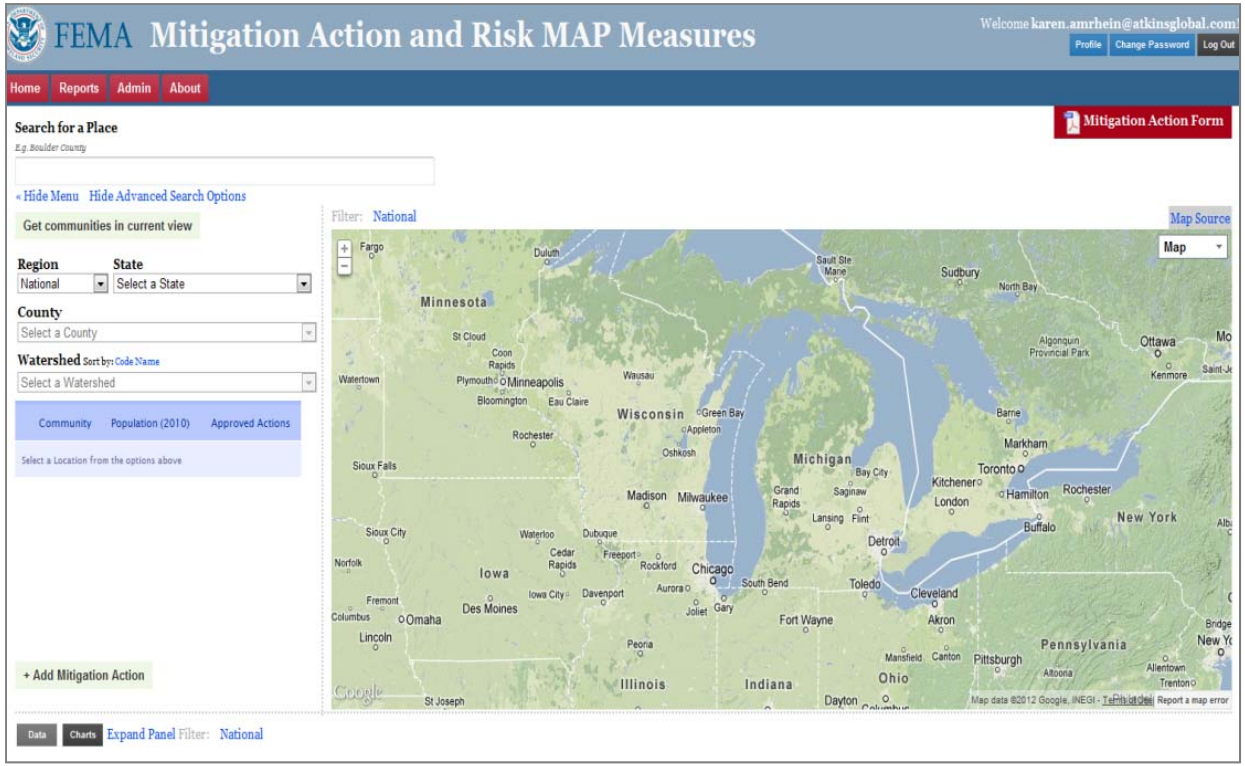
Action Tracker



- New mitigation tool
- Houses community-identified mitigation actions
- Actions can be edited by community officials
- A tool for communities to support future mitigation planning efforts

We will input your community's action into the Action Tracker and send you a report and a link - http://fema.starr-team.com

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Next Steps

- **Communities:**
  - Provide data and Mitigation Action Forms to STARR with a target date of September 14, 2012

- **STARR/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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Questions?

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

Contact

- FEMA Region V
  - Ken Hinterlong @ ken.hinterlong@fema.dhs.gov
  - Lee Traeger @ Lee.traeger@fema.dhs.gov
- Wisconsin Partners
  - Gary Heinrichs @Gary.Heinrichs@Wisconsin.gov
- STARR
  - Brian Caufield (technical) @ caufieldac@cdmsmith.com
  - Jaspreet Randhawa (outreach) @ randhawajg@cdmsmith.com
- Online
  - info@greatlakescoast.org

ATTACHMENT G

COASTAL DATA REQUEST FORM COMPILATION

Lake Michigan Coastal Data Request Form Compilation
Other Data and Historical Flood Data
***Please refer to sample Coastal Data Request Form found in Attachment A**

CONTACT INFORMATION					OTHER DATA					HISTORICAL FLOOD DATA
Community, County or State Organization	**County**	**State**	**Contact Name**	**Contact Title**	**Hydraulic Structures (i.e. bridges, culverts, levees, dams) with inspection status, if available**	**Elevated roads**	**Critical Facilities**	**Other known hazards with geographical boundaries, i.e., landslide hazard areas, storm surge inundation zones, wildfire hazard areas, etc.**	**Other relevant data**	**Are you aware of any coastal flooding issues not represented on effective FIRMs:**
Brown County Planning & Land Services Department	Brown	WI	Jeff DuMez	GIS Coordinator/Land Information Officer					Parcels, hydro, street centerlines are all available in Brown County gdb: BrownCountyWI_20120511_GeoDatabase_v2v3.gdb	
Green Bay, City of	Brown	WI	Paul Naumeyer	Senior Planner/Zoning Administrator						No
Sumamico, Village of	Brown	WI	Steve Dunks	Zoning Administrator						No
Door County Planning Department	Door	WI	Sue Vanden Langenberg	Zoning Administrator II						No
Egg Harbor, Village of	Door	WI	Josh VanLieshout	Administrator						No

Lake Michigan Coastal Data Request Form Compilation
Other Data and Historical Flood Data
***Please refer to sample Coastal Data Request Form found in Attachment A**

CONTACT INFORMATION					OTHER DATA					HISTORICAL FLOOD DATA
Community, County or State Organization	**County**	**State**	**Contact Name**	**Contact Title**	**Hydraulic Structures (i.e. bridges, culverts, levees, dams) with inspection status, if available**	**Elevated roads**	**Critical Facilities**	**Other known hazards with geographical boundaries, i.e., landslide hazard areas, storm surge inundation zones, wildfire hazard areas, etc.**	**Other relevant data**	**Are you aware of any coastal flooding issues not represented on effective FIRMs:**
Sister Bay, Village of	Door	WI	Robert L. Kufrin	Village Administrator						No

Lake Michigan Coastal Data Request Form Compilation
Basemap Data and Coastal Data
***Please refer to sample Coastal Data Request Form found in Attachment A**

CONTACT INFORMATION					BASE MAP DATA		COASTAL DATA						
Community, County or State Organization	**County**	**State**	**Contact Name**	**Contact Title**	**Topography**	**Property Information (Building Footprints, Parcel Data, Tax Assessor's Data)**	**Coastal Structure Inventory (Seawalls, Jetties, etc)**	**Coastal Feature Inventory (dunes, bluffs, etc)**	**Shoreline Change Data**	**Locations of beach nourishment or dune restoration projects**	**Areas of significant beach or dune erosion**	**Mean high water**	**Mean lake level**
Brown County Planning & Land Services Department	Brown	WI	Jeff DuMez	GIS Coordinator/Land Information Officer	Digital data available (2010 LiDAR)	Digital Data available (BrownCountyWI_20120511_GeoDatabase_v2v3.gdb)							
Green Bay, City of	Brown	WI	Paul Naumeyer	Senior Planner/Zoning Administrator	Digital data available	Digital data available							
Sumamico, Village of	Brown	WI	Steve Dunks	Zoning Administrator									
Door County Planning Department	Door	WI	Sue Vanden Langenberg	Zoning Administrator II	Digital - FEMA used our 2' contours (LiDAR) to create the 2009 FIRMs. Delivery can be coordinated.	Digital - Delivery can be coordinated		Digital - Dunes and Escarpment	Hard copy/Digital - can provide either data type				
Egg Harbor, Village of	Door	WI	Josh VanLieshout	Administrator			Digital			Digital			
Sister Bay, Village of	Door	WI	Robert L. Kufrin	Village Administrator									

Lake Michigan Coastal Data Request Form Compilation
Community Plans and Projects and Other GIS Data
***Please refer to sample Coastal Data Request Form found in Attachment A**

CONTACT INFORMATION				COMMUNITY PLANS AND PROJECTS							GIS DATA
Community, County or State Organization	**County**	**Contact Name**	**Contact Title**	**Does your community have a comprehensive plan? If so, was your hazard mitigation plan coordinated with the comprehensive plan?**	**Does your community's comprehensive plan have a special consideration for coastal areas?**	**Does your community have a coastal zone management 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? If so, explain the role in floodplain management and provide examples of programs in place.**	**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):**	**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.)**	**Any other comments/concerns based on local knowledge:**	**Other GIS Data Available - include type of data, date of data, data sources, etc if available**
Brown County Planning & Land Services Department	Brown	Jeff DuMez	GIS Coordinator/Land Information Officer								Brown County Topo and Aerial data also available from the Brown County Planning Department
Green Bay, City of	Brown	Paul Naumeyer	Senior Planner/Zoning Administrator	Yes - Our community has a Comprehensive Plan. No - Our community's Hazard Mitigation Plan was not coordinated with the Comprehensive Plan.	Yes- Our community's comprehensive plan has special consideration for coastal areas. No - Elements/Regulations that affect coastal area development: Protect banks and floodplain areas with current floodplain regulations; Consideration with greenway design; and protect floodplain areas with available land use controls.	No	Yes	No	NO		Basemap and terrain data available
Sumamico, Village of	Brown	Steve Dunks	Zoning Administrator	Yes - Our community has a Comprehensive Plan. No - Our community's Hazard Mitigation Plan was not coordinated with the Comprehensive Plan.	No	No	Yes	No	No		
Door County Planning Department	Door	Sue Vanden Langenberg	Zoning Administrator II	Yes - Our community has a Comprehensive Plan.	No	No	Yes - We administer the Door County Floodplain Zoning Ordinance and FIRMs adopted in 2009 per State and FEMA requirements.	No - Property is continually being developed and re-developed. I am not aware of any natural land changes such as landslides.	No		
Egg Harbor, Village of	Door	Josh VanLieshout	Administrator	Yes	No	No	Yes	No	No		

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CONTACT INFORMATION				COMMUNITY PLANS AND PROJECTS							GIS DATA
Community, County or State Organization	**County**	**Contact Name**	**Contact Title**	**Does your community have a comprehensive plan? If so, was your hazard mitigation plan coordinated with the comprehensive plan?**	**Does your community's comprehensive plan have a special consideration for coastal areas?**	**Does your community have a coastal zone management 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? If so, explain the role in floodplain management and provide examples of programs in place.**	**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):**	**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.)**	**Any other comments/concerns based on local knowledge:**	**Other GIS Data Available - include type of data, date of data, data sources, etc if available**
Sister Bay, Village of	Door	Robert L. Kufrin	Village Administrator	Yes - Our community has a Comprehensive Plan. No - Our community's Hazard Mitigation Plan was not coordinated with the Comprehensive Plan. Stormwater Plan was done after the Comprehensive Plan	No	No	Yes - Planning Commission reviews all development other than single family housing.	Yes - Areas along Bluff and ridges/swales area have proposed development in the past.	Yes - Proposed beach expansion in downtown area.		All topo data available from Door County Planning Dept. Stormwater Master Plan also available/provided.