

State and Local Authorities to Manage Michigan's Great Lakes Shorelands

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Overview

- Public Trust Doctrine
- What makes the Great Lakes unique?
- Coastal hazards, and planning for them.
- Legal authorities/doctrines in Michigan



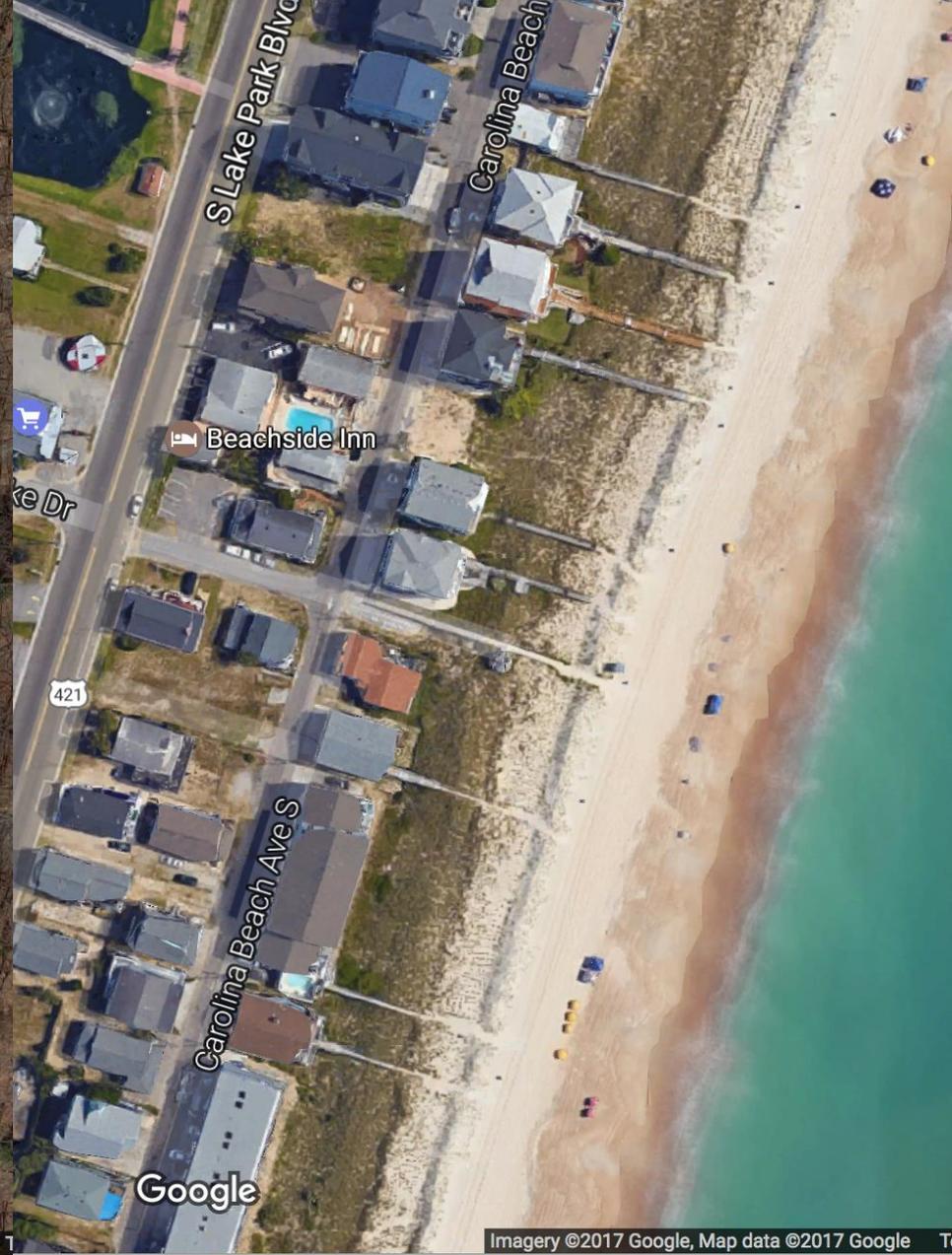
1989 Storm
Grand Haven, MI

Public Trust Doctrine and Great Lakes Shores

- Roman law (?)
- *Arnold v. Mundy* – New Jersey 1821
 - Lands subject to tides or submerged by navigable waters = PT
- Michigan becomes a state – 1837
- *Le Plaisance Bay Harbor Co. v. Monroe* – MI 1843
 - Michigan owns submerged lands along its “large lakes”
- *Illinois Central R.R. v. Illinois* – U.S. 1892
 - PT → GL / U.S. law / duty that cannot be abrogated (as a rule)
- Prof. Joseph Sax
- *Mathews v. Bay Head Improvement Ass’n* – New Jersey 1984
 - Dry sand shorelands
- *Lucas v. S.C. Coastal Council* – U.S. 1992
 - Background principles of state nuisance and property law
- *Glass v. Goekel* – MI 2005



Grand Haven, MI, Lake Michigan



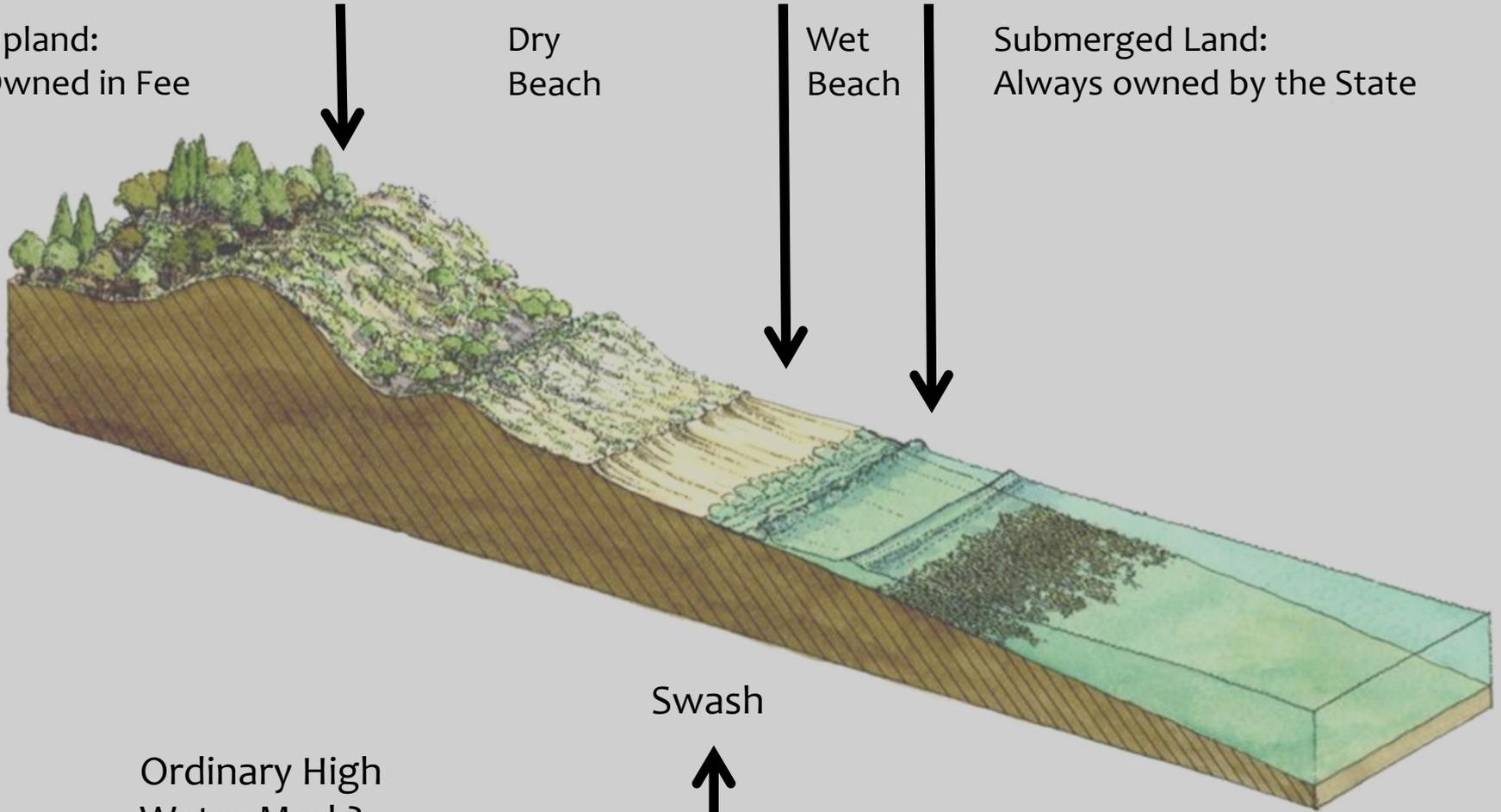
Carolina Beach, NC, Atlantic Ocean

Upland:
Owned in Fee

Dry
Beach

Wet
Beach

Submerged Land:
Always owned by the State



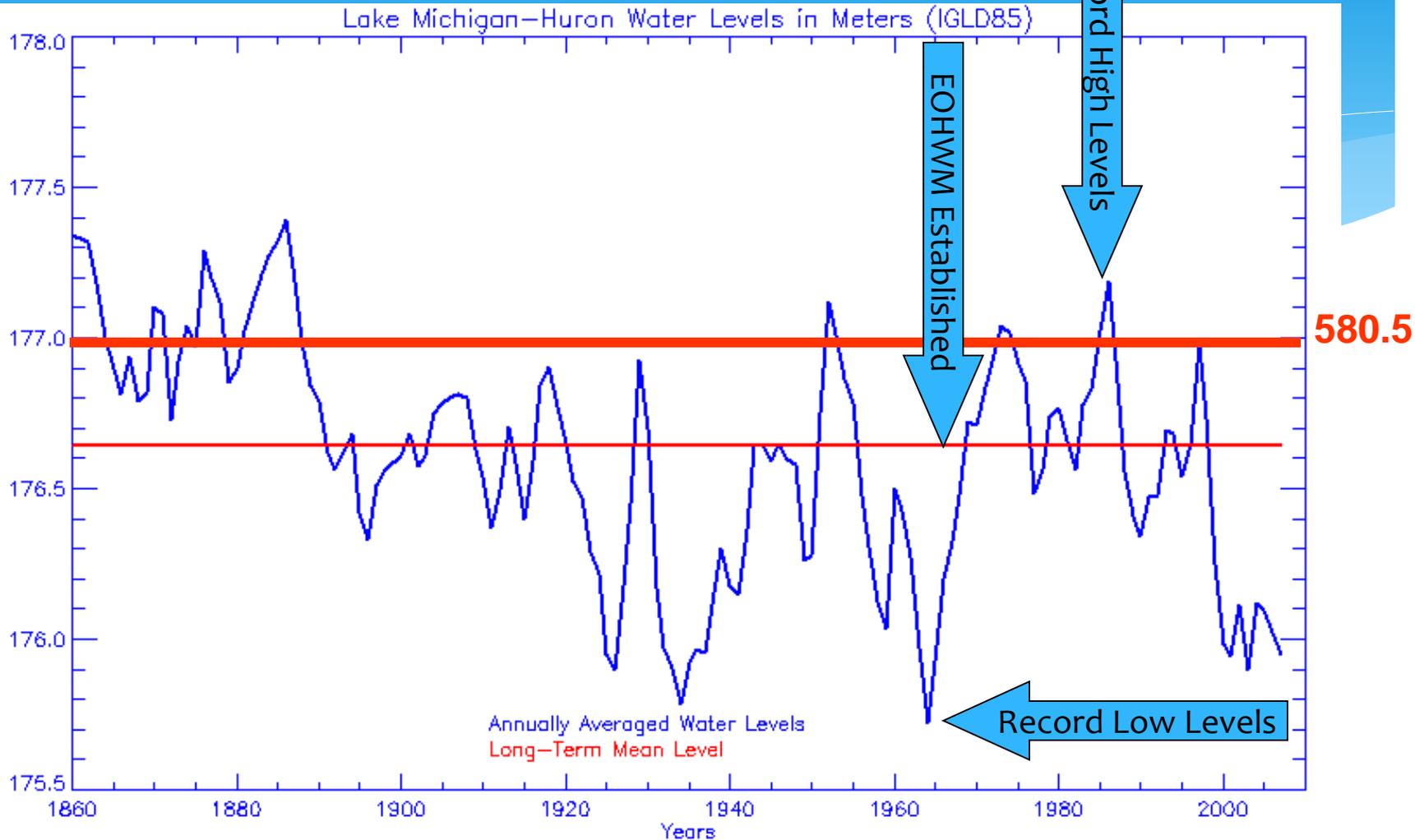
Ordinary High
Water Mark?

Swash

“Public Trust Beach”
-- Right of public use
-- Duty to not impair

Non-Tidal Great Lakes Beach

Great Lakes Water Levels



Marking OHW on the Great Lakes (in Theory)

Strong Public Ownership

	Fastland	Dry Sand	Wet Sand	Lake
Indiana New York Wisconsin	Private Ownership →			
				← Public Trust

Overlapping Ownership

	Fastland	Dry Sand	Wet Sand	Lake
<i>Michigan</i> Illinois Minnesota Pennsylvania	Private Ownership →			
				← Public Trust

Strong Private Ownership

	Fastland	Dry Sand	Wet Sand	Lake
Ohio	Private Ownership →			
				← Public Trust

Ordinary High Water Mark(s) in MI

▶ MI GLSLA (1955): **OWH Elevation:**

- Elevation-based mark set by statute for Lakes Michigan and Huron at 580.5 ft (IGLD 1985).

▶ *Glass v Goeckel* (MI S Ct 2005): **Natural OHWM:**

- “The point on the bank or shore up to which the presence and action of the water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation, or other easily recognized characteristic.”

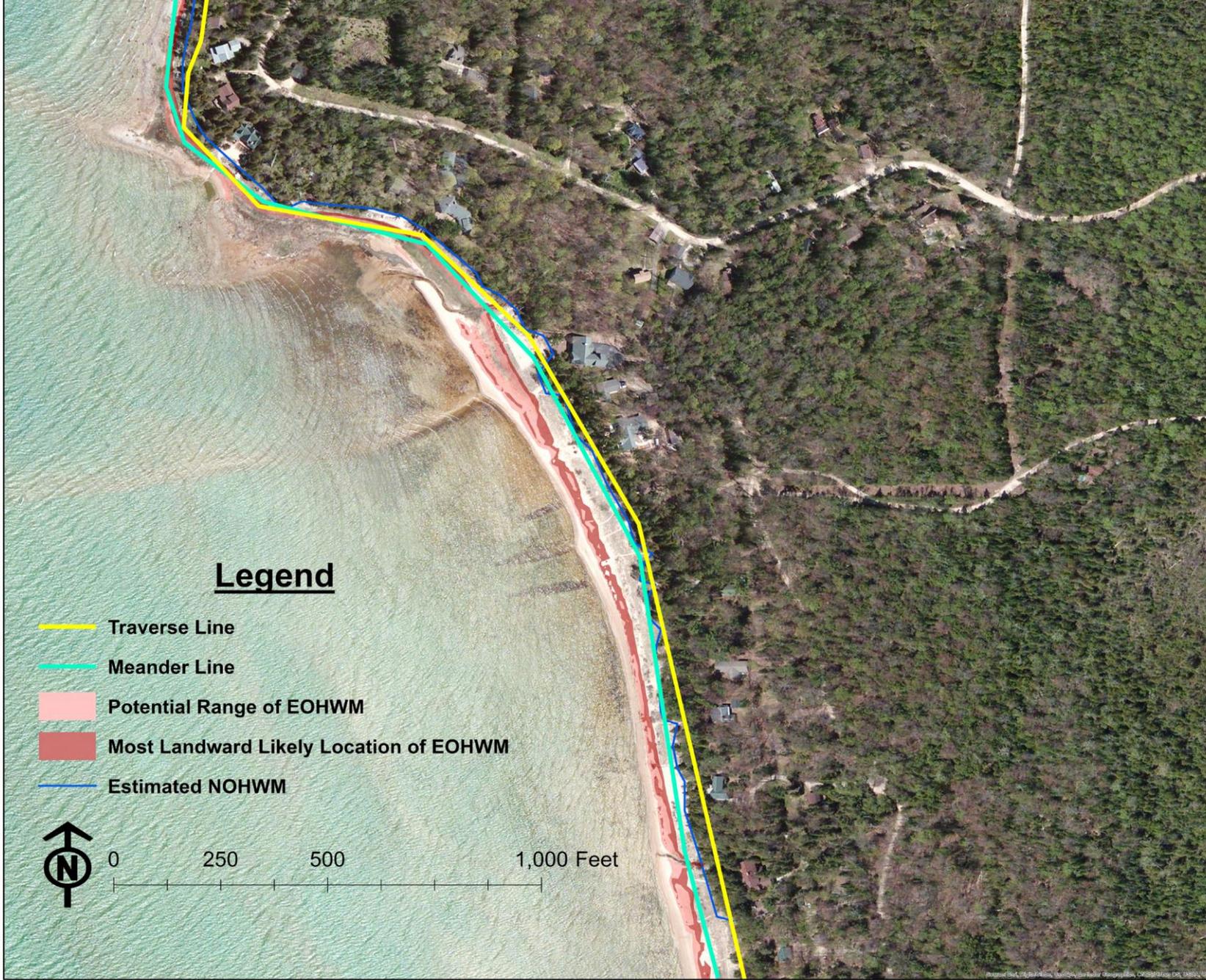
→ “PUBLIC TRUST BEACH”

Average Standing Water Conditions

September, 2014 (Rising Water)

EOHWM - 580.5 ft

Standing Water Level - 579.1 ft



Note: Only the Michigan Department of Environmental Quality (MDEQ) can make an official delineation of the EOHWM for regulatory purposes. These images present an estimated location of the EOHWM and NOHWM using methods consistent with MDEQ methods, but they do not present an official delineation made by MDEQ.

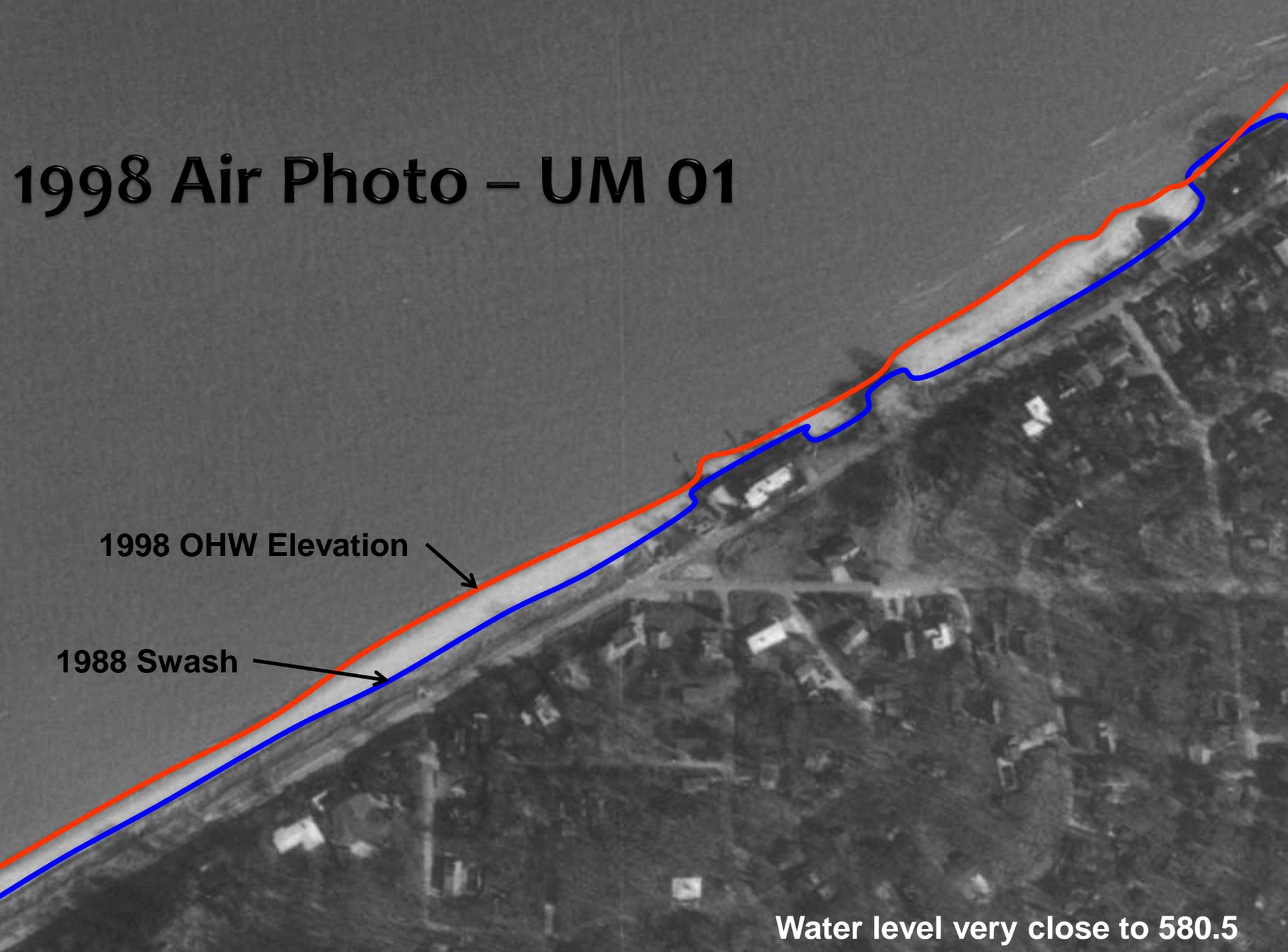
UM 01 - 1988 Beach



UM 01 – 2008 Beach



1998 Air Photo - UM 01



1998 OHW Elevation



1988 Swash



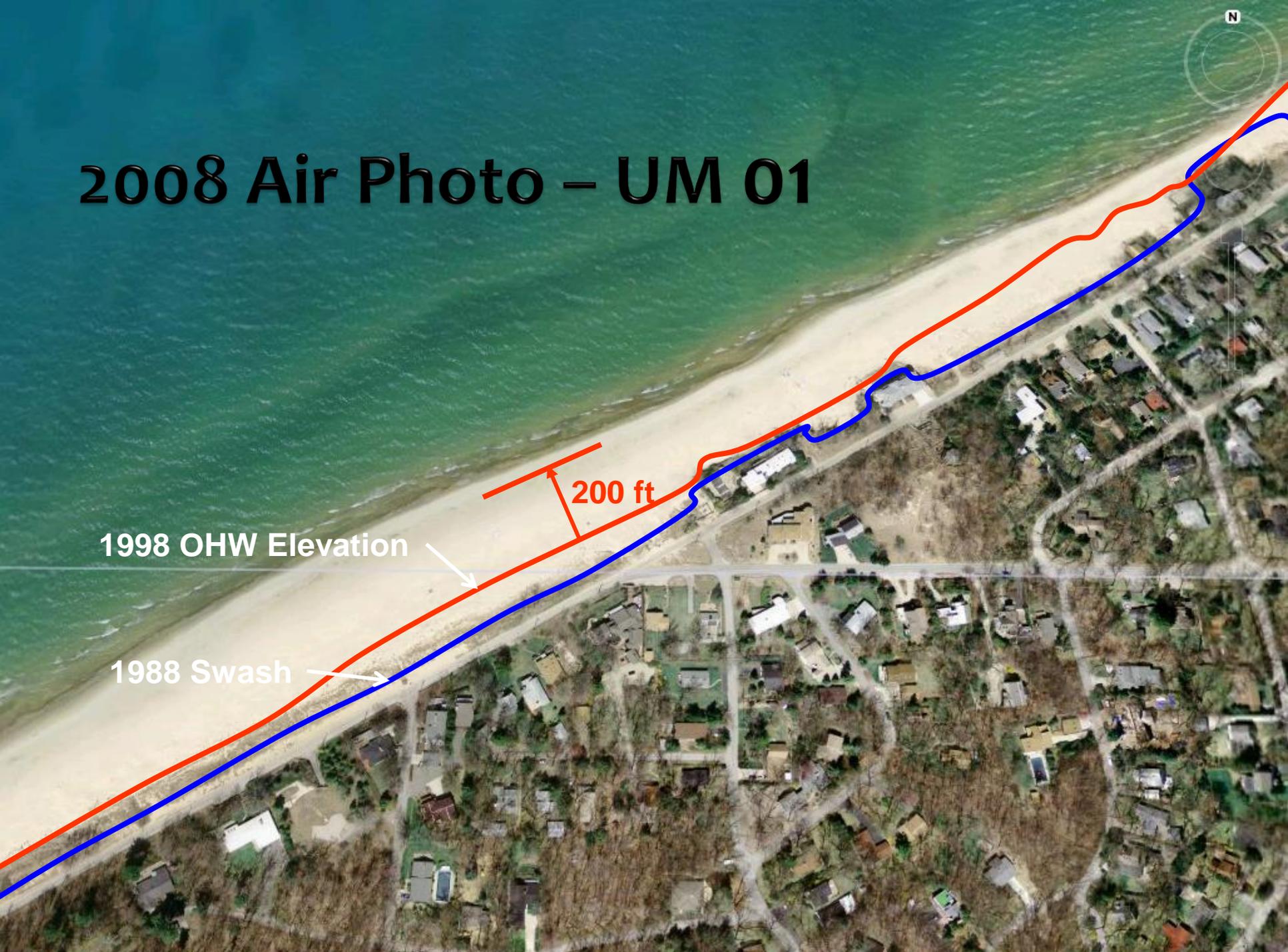
Water level very close to 580.5

2008 Air Photo - UM 01

1998 OHW Elevation

1988 Swash

200 ft





Berrien County, MI Shoreline Protection



About 44% of Berrien County's shoreline has been hardened

* Interpreted from U.S. Army Corps of Engineers Oblique Photography taken in April 2014

Berrien County
Michigan/Indiana Stateline
New Buffalo Township
LWMD File # 70-11-0169-P

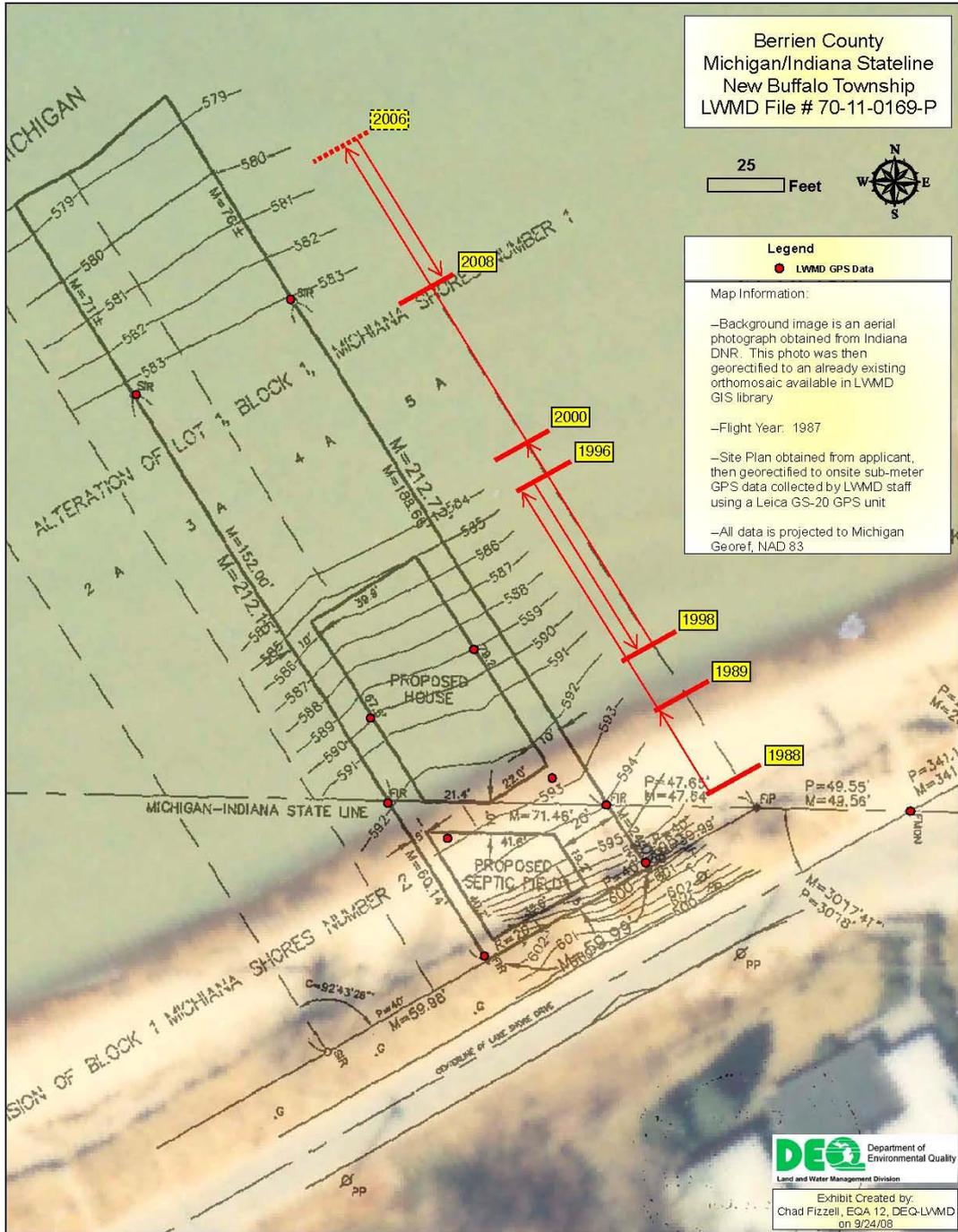


Legend

- LWMD GPS Data

Map Information:

- Background image is an aerial photograph obtained from Indiana DNR. This photo was then georectified to an already existing orthomosaic available in LWMD GIS library
- Flight Year: 1987
- Site Plan obtained from applicant, then georectified to onsite sub-meter GPS data collected by LWMD staff using a Leica GS-20 GPS unit
- All data is projected to Michigan Georef, NAD 83



St Joseph
03



1996

April 1985
May 1960
June 1938

**future scenario:
under past conditions**





Climate Change?

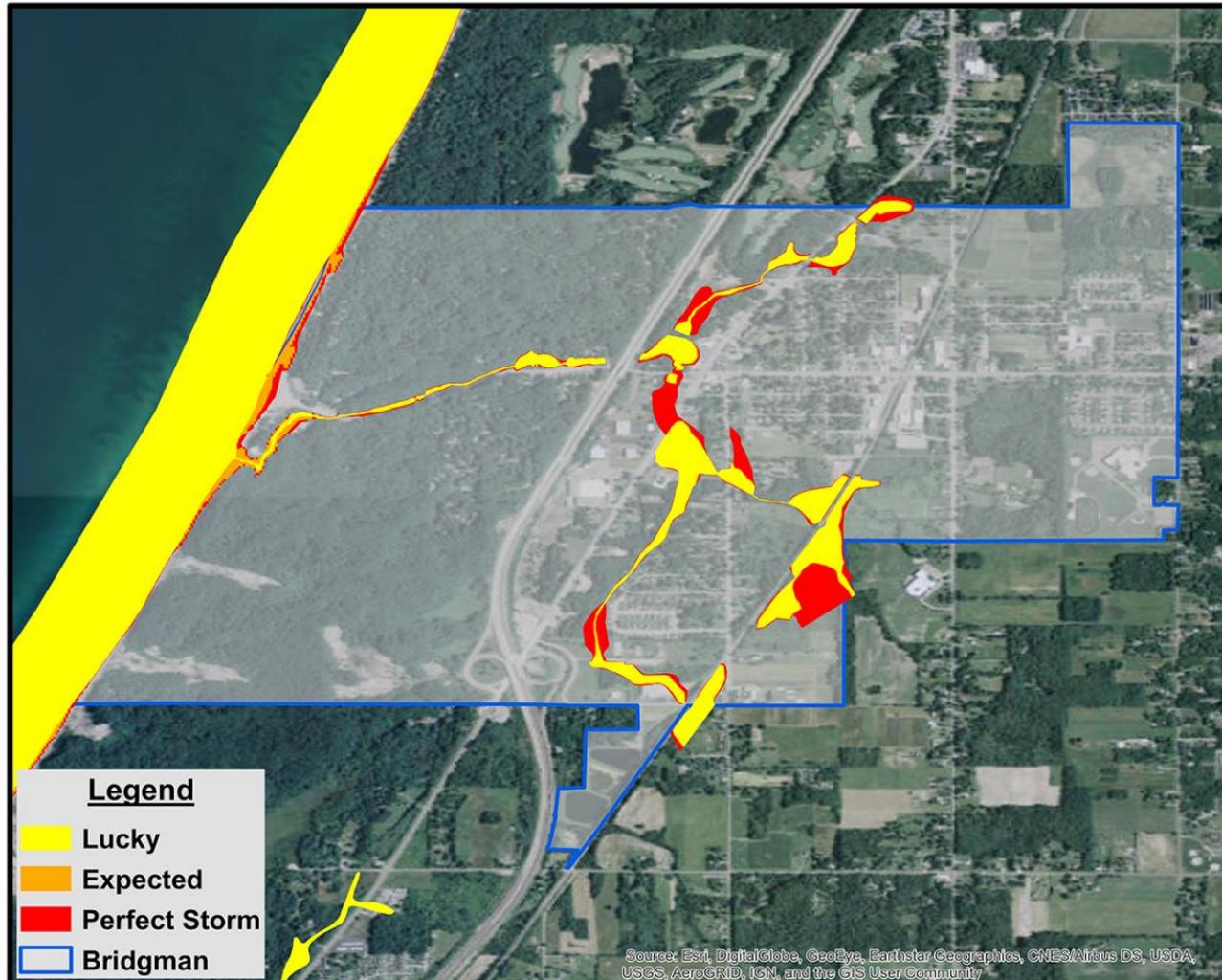


Scenario-Based Planning

	Climate Futures		
Management Options	Lucky	Expected	Perfect Storm
Current Conditions	Scenario 1A	Scenario 1B	Scenario 1C
Full Build-Out (Currently Allowed)	Scenario 2A	Scenario 2B	Scenario 2C
BMP Build-Out (Spatial BMPs)	Scenario 3A	Scenario 3B	Scenario 3C

Coastal Nearshore Flood Hazards

Bridgman, MI High Risk Flood Areas



0 0.150.3 0.6 Miles

On the Great Lakes (Michigan)

Mgt Options:

- No build
- Moveable build
- Build/soft armor
- Build/hard armor

On the Great Lakes (Michigan)

Public Trust Interests

- Promote public benefit (access)
- Minimize harm (loss of beach)

Mgt Options:

- No build
- Moveable build
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- Build/hard armor

Private Property Rights

- Autonomy / Enjoyment
- Investment return

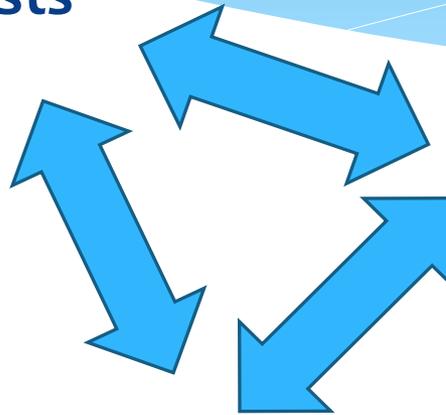
Police Power Prerogatives

- Minimize harm (PHS, fiscal, ecological)
- Promote public benefit (Q of Life)

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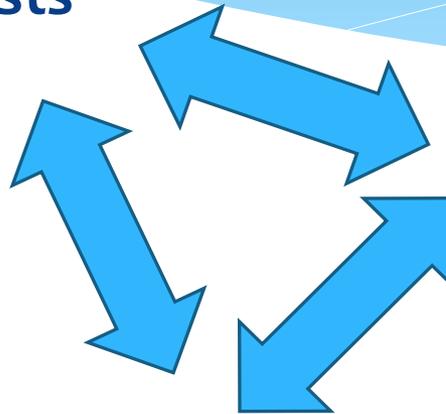
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(Nuisance)

DANGER

**SEVERE
EROSION**

**ENTER AT
OWN RISK**