

# **Shoreline Management Plan Update 2018**

Open House – Zurich

August 18, 2018





#### **Outline**

- 01 Study Overview
- **02** Review of ABCA Recession Rate Analyses
- O3 Shoreline Management Plan Update
- 04 Next Steps

# Study Overview

#### Project Background

SHORELINE MANAGEMENT PLAN

Considerations for Shore Protection Structures



- Public Consultation
- ABCA BOD resolution
- BOD continues to endorse the policies in the 2000 SMP and re-engage public



#### 2018 ABCA PUBLIC ENGAGEMENT PROCESS

Review of Recession Rate Analyses

SMP Update 2018



SHORELINE MANAGEMENT PLAN

2000

Update to reflect the wording of the Provincial Policy Statement on Natural Hazards



#### 2017 ABCA PUBLIC ENGAGEMENT PROCESS

- Update to 1994
   Considerations for Shore Protection
   Structures
- Recommendations for ABCA permitting process for shore protection structures



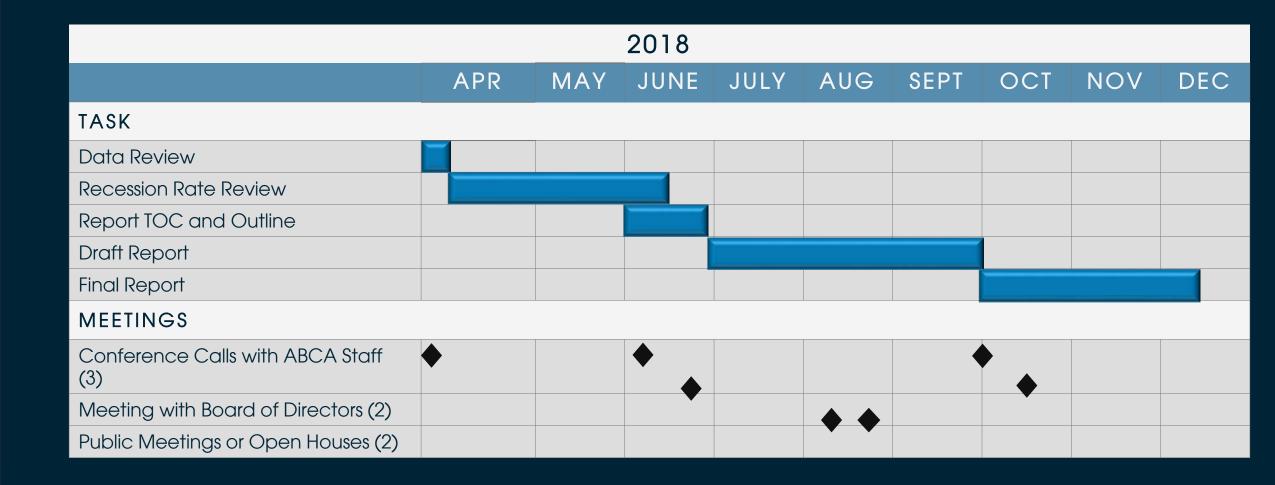




- Develop updated ABCA Shoreline Management Plan 2018
- Review and provide recommendations for calculating AARR
- Update Development Guidelines (ABCA)
- Public Open Houses to receive feedback and input from the Public



## Project Scope and Schedule



## Review of ABCA Recession Rate Analyses

#### Review of ABCA Recession Rate Analyses

- Technical review of datasets and methodologies used to determine shoreline recession rates
  - Recession rates are used to calculate the Average Annual Recession Rate (AARR), which in turn is used to map the hazard limits
- Provide recommendations on data sets and methodologies to be used
- Make recommendations for a defensible methodology that can be used by property owners who wish to undertake a site-specific assessment





- Methodology used to estimate recession rates at ABCA has evolved over time:
  - Shoreline Management Plan 2000
    - comparison of 1935 survey to 1988 mapping
  - 2016 Consultant Recommendation Report
    - update based on comparison of 1973 Shoreline Atlas to 2007 Imagery
  - 2016 ABCA Updates
    - comparison 1973 Imagery to 2007 Imagery



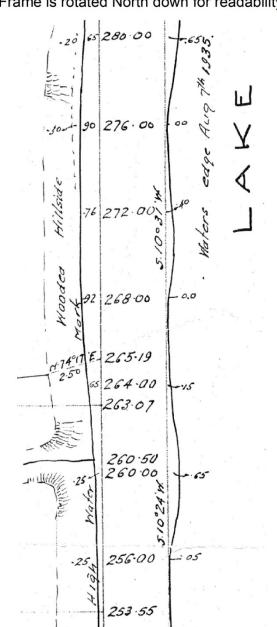


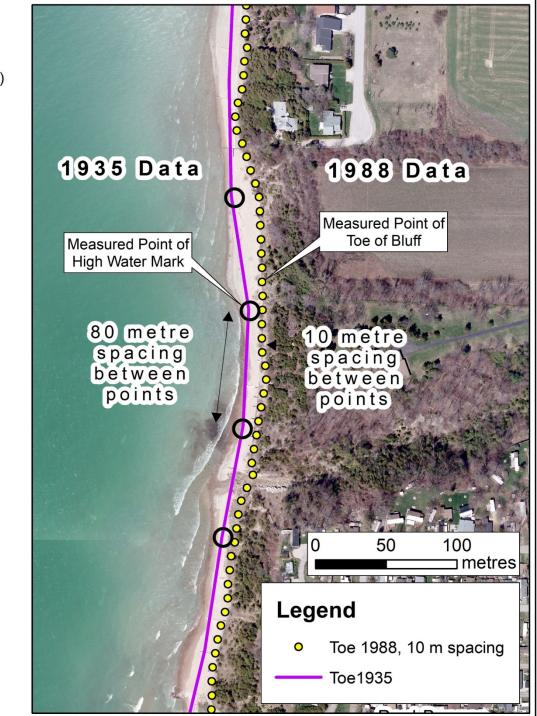
- 1935-1988 (55 years)
- Comparison of toe of bluff; top of bluff introduces less errors
- High Water Mark used to delineate toe; HWM is not always consistent with toe
- Survey used 80 m transect spacing; this is coarser than spacing typically used today

#### **Excerpt from 1935 Survey**

All dimensions are in Chains.

1 Chain = 20.1168 metres
(Frame is rotated North down for readability.)

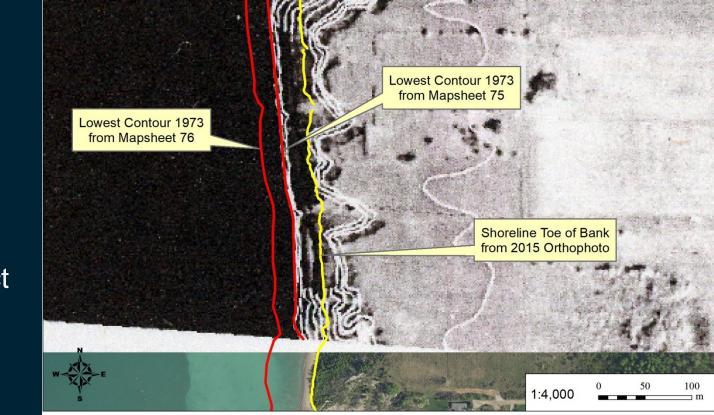






# 2016 Consultants Report Update

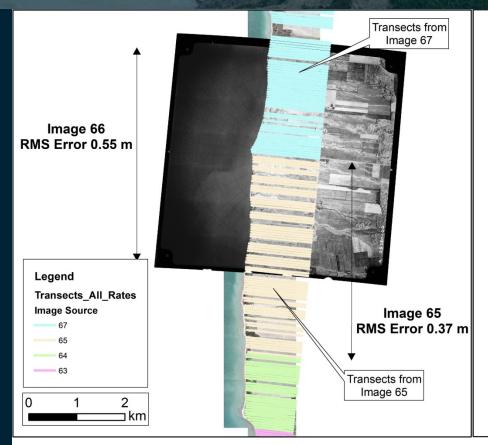
- 1973-2007 (34 year comparison)
- Comparison of toe of bluff; top of bluff introduces less errors
- Geo-registration resulted in misalignment of features; 1973 Atlas not suitable
- Image quality made it difficult to extract features; Use of original 1973 imagery would provide better results

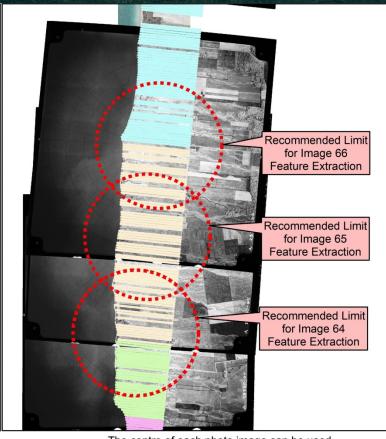




#### 2016 ABCA Updates

- 1973-2007 (34 years)
- Georegistering original 1973 imagery gives improved results
- Use of top of bluff feature provides improved results
- Selection of photos for comparison







The centre of each photo image can be used because the RMS Error values are all sufficiently low.

01

In general, for Best Practice use earliest available historic photos considering scale and quality.

02

Use top of bank comparison of 1973 and 2007 imagery to estimate AARR.

03

These new rates supersede the previous rates from the 1935 to 1988 comparisons.

04

The LHSEM ground surveys can be used for validation.



05

Reduce image distortion in the 1973 imagery by cropping photos to utilize the central, less distorted section of each image.

06

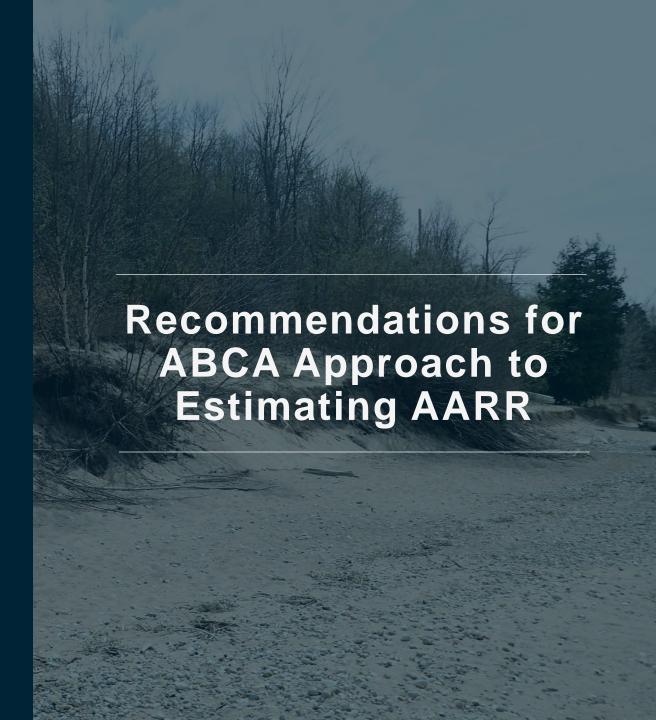
When budget permits, extend the period of comparison by utilizing the 1955 imagery.

07

When new imagery becomes available, review the quality to determine if it would be worthwhile to extend the period of comparison.

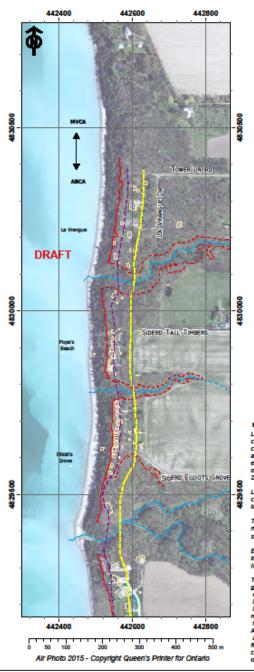
08

Undertake a comparison of the smoothing function used in calculating the AARR, with results for other approaches such as S.D.



# Recommendations for Site Specific Assessment of AARR by Property Owner

- Analysis must provide additional data that improves the temporal range of the analysis.
- Analysis must maintain or exceed the level of accuracy of the ABCA analysis.



#### Ausable Bayfield CA Lake Huron Shoreline Hazards DRAFT DRAFT

SUBCELL 2
Cohesive bluffs

#### Lakeshore features

Top of bluff - May 2015

---- Lakeshore Area 1

Lakeshore Area 2

#### Other features

---- Top of slope

Surface watercourse

Subsurface (tile) waterflow

Building

Lakeshore Area 2

#### od Hazzed A was of the shoreline landward (or inland) the water's edge, including the 100-year and level plus wave upouts and Other Water

e absence of a site specific study). This is also nown as the Regulatory Flood Standard. celon Hazard

at area of the shoreline landward (or inland on the water's edge, including the stable slo

#### DRAFT

Indiany motor Laterstone west a state coing stock to the greater of a 100 year-roution setback (based on the 100 year-leverage Annual Recess Rabe) or 200 np plus an additional 15-metre allowance.\*\*\* Often measured distance of 45 me from the top of the unaltered liab bluff. "The additional 15-metre of the unaltered liab bluff." "The additional 15-metre provision for any recent existence of 6 mp plus provision for any recent existen changes.

#### k Beach Hazard

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sech" and is also part of the active back zone
ad portion of the dune complex which would be
feed by were action during the 1000-year plus
were upward event (or historical storms went
souring dans ediffinger erection).

#### Mapping Note

Lakeshore Area 1 in the cohesive bluffs calculated from 2007 vector data and contours aquired from First Base Solution and a 0.26 m DEM created by the ABCA, except in areas where toe enosion has occured, in these areas data from the 2016 SWOOD prolect was used.

Lakeshore Area 1 in the dynamic bear calculated from the 1986 horizontal location of the 100 year lake flood leve

Top of Bank - 2015 was collected in a 3mapping environment using SWOOP 201

Every reasonable effort has been made by the ABCA and the consulting team (agents) to ensure the accuracy of this r

The map is provided has is authout any guarantee, representation, condition or warranty of any kind, either expressed, implied or statutory, including but not limited to the implied warrandies and representations of merchantability and filters for a particular purpose. The ABCA, its directors, employees and ageare not liable to the user of the map for any direct, indirect, special, consequential or exemplary damages, or damages of any nature.









Duration of comparison extends the temporal range of comparison



AARR represents unprotected shoreline



Imagery or data must be georegistered; a geomatics or surveying professional must be retained to complete the analysis and provide a report outlining QA/QC procedures



Scale of aerial photography used should 1:20,000 or better; scale of survey should be 1:1,000 or better



Regional erosion rates are considered. It is not acceptable to measure the rate at an individual property in isolation. The bluff retreats at a consistent rate, though failures may occur at different times.

# SMP 2018 Update





- 2000 Shoreline Management Plan
- 2016 Consultant's Recommendations Report
- 2017 Considerations for Shoreline Protection Structures
- Updated Development Guidelines



Consistent with Provincial Policy (2014) and Technical Guide (2001)



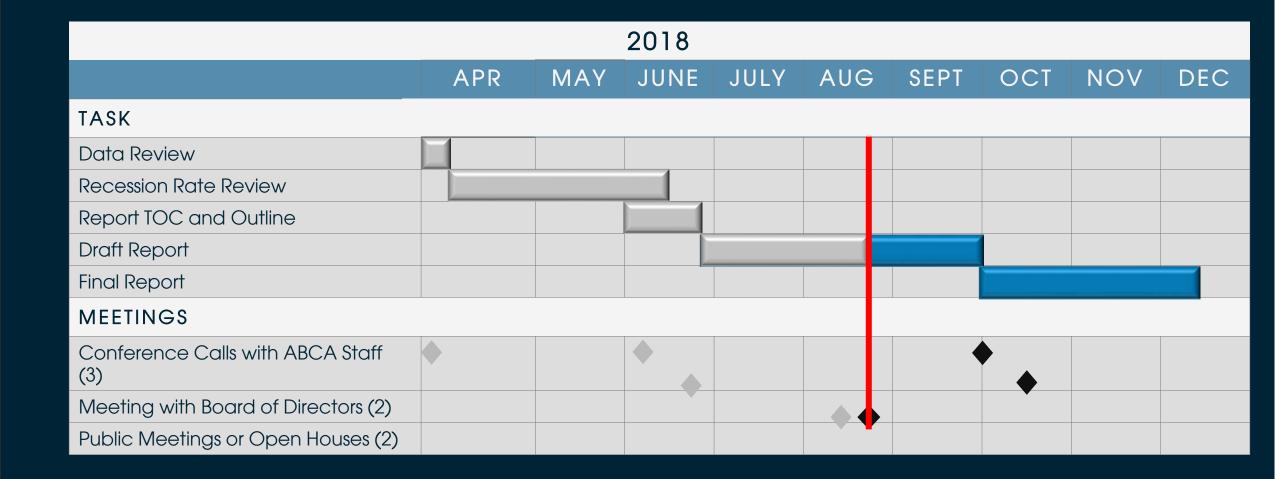
2018 Shoreline Management Plan



- Introduction and Background
- Legislative Authority, Policy and Technical Direction
- Goals, Objectives and Principles
- Shoreline Description
- Understanding the Shoreline Hazards
- Managing the Shoreline Hazards
- Recommendations
- References and Resources

# **Next Steps**

# Next Steps



# Thank you

Questions?

# Baird.