

# The Great Lakes Coastal Flood Study

## THE LETTER OF MAP REVISION PROCESS

The new flood maps produced by the recent Great Lakes Coastal Flood Study provide a powerful tool to help communities make more informed decisions to increase safety and resiliency against flood damage. Although Flood Insurance Rate Maps (FIRMs) are based on the most accurate information available at the time they are produced, FEMA readily welcomes new information that would make the mapped flood hazards even more accurate.

This resource is intended to assist community officials with understanding how mapped information may be revised once the FIRM is effective. Communities should understand that the Letter of Map Revision (LOMR) process is used to revise effective (or final) FIRMs and not preliminary flood maps. While the new flood study maps are still draft or preliminary, communities are encouraged to share feedback and technical data with FEMA during the designated comment and appeal periods.

### What is a LOMR?

A LOMR is FEMA's official modification to an effective FIRM. LOMRs can result in physical changes to the flood zone designations, the effective Base Flood Elevations (BFEs), and/or the Special Flood Hazard Area (SFHA).

Requests for changes to effective maps, other than those initiated by FEMA, must be made in writing by the Chief Executive Officer (CEO) of the community

or an official designated by the CEO (typically the floodplain administrator). Because a LOMR officially revises the effective flood map, it is a public record that the community must maintain. Any LOMR should be noted on the community's master flood map and filed by panel number in an accessible location.

### What part of the Great Lakes Coastal Flood Study could a LOMR typically revise?

Flooding on the Great Lakes is a product of combined offshore, nearshore, and shoreline processes that affect lake levels and waves. The interrelationships of these processes are complex, and their relative effects on flood hazards vary significantly from one lake to another and even from one stretch of shoreline to another.

In summary, the Great Lakes Coastal Flood Study is a two-phase modeling effort:

- **Phase 1** includes two-dimensional (2D) lake wide storm surge and wave modeling. Total stillwater elevations and offshore wave information are produced from this modeling.
- **Phase 2** includes one-dimensional (1D) transect-based onshore wave hazard analysis to evaluate erosion, wave runup and overtopping, and overland wave propagation, where appropriate.

For additional details on the study approach and methods used for the Great Lakes Coastal Flood Study analysis and mapping, see the included table and FEMA's Great Lakes Coastal Guidelines, Appendix D.3 Update (January 2014).

Typically, LOMR requests for properties located in the mapped coastal floodplain will revise the Phase 2 analysis by providing more detailed site-specific data, analysis, and mapping. Revisions are often based on better topographic and bathymetric data, information about shore protection structures, and other refinements for specific areas or properties.





### How do I obtain study data for use in my LOMR?

Since LOMRs typically seek to replicate the effective study methods while incorporating new technical data, applicants will need to obtain the study data for their area. The following is a general list of information that would be useful to request in order to conduct a LOMR that updates components of the transect-based onshore wave hazard analysis of the Great Lakes Coastal Flood Study:

- Coastal Summary Report (documentation of study methods)
- Surge and wave model results to be used as input for the transect modeling
- Transect information (locations and profiles)
- Coastal transect analysis (Phase 2) data
- Topographic/bathymetric data
- Floodplain mapping

Effective modeling data can be requested from the FEMA Engineering Library using the FIS Data Request Form, available [online](#).



### Can an individual or organization in a community submit a map revision request?

Map revisions must be requested by or through the Chief Executive Officer (CEO) of the community. This requirement is in place because the community is responsible for adoption of the revised flood hazard information into their floodplain management ordinances and regulations. For LOMRs, this requirement is met through completion of the Overview and Concurrence Form.



### What forms are needed to apply for a LOMR within a coastal area?

Application forms for the LOMR process are available on the FEMA website at <https://www.fema.gov/media-library/assets/documents/1343>.

The following forms are included with a LOMR application.

- Form 1: Overview and Concurrence Form — This required form covers basic information on the revision requests being submitted. This form must be submitted with each request.
- Form 4: Coastal Analysis Form — This required form documents the steps taken by the requester during the process to prepare the revised models or analyses and the resulting revised Flood Insurance Study (FIS) information.
- Form 5: Coastal Structures Form — This form, required when applicable, is used when the revision request involves a coastal structure such as a levee, seawall, or revetment and the revision seeks to demonstrate that the structure is built to withstand the forces associated with the base flood.
- Payment Information Form — All information about required fees can be viewed at <https://www.fema.gov/flood-map-related-fees>. Although some requests may be fee exempt, requests for LOMRs that are based on the accreditation of a shore protection structure are subject to processing fees.
- Additional information required as part of the LOMR process includes, but is not limited to:
  - Local topographic/bathymetric data
  - Site-specific modeling
  - Revised mapping based on new site-specific modeling
  - Certification by a Registered Professional Engineer and/or Land Surveyor



## How should LOMR documentation and data be submitted?

To assist community officials in submitting map revision requests, FEMA has established the Online Letter of Map Change (LOMC) process. [Online LOMC](#) is a web-based tool that allows applicants to easily request a revision to a FIRM. It is a convenient way for applicants to upload all information and supporting documentation and check the status of their application online. Users can submit LOMC requests and pay any associated fees through this tool instead of filing the required paper forms from the [MT-2 application forms package](#).

Communities in Illinois that choose to submit the paper forms should mail the forms, required supporting data, and fees to:

**Illinois State Water Survey**  
2204 Griffith Drive  
Champaign, IL 61820  
Attn: Chris Hanstad

Communities in other states should mail the forms, required supporting data, and fees to:

**LOMC Clearinghouse**  
3601 Eisenhower Avenue,  
Suite 500  
Alexandria, VA 22304-6426

## ADDITIONAL TIPS

You may also contact the FEMA Map Information eXchange (FMIX) by telephone, toll-free, at (877) 336-2627, option 1, or by chat at [http://www.floodmaps.fema.gov/fhm/fmx\\_main.html](http://www.floodmaps.fema.gov/fhm/fmx_main.html).

## KEY TERMS

*Key terms associated with map revisions in coastal study areas are defined below.*

**ADCIRC** (ADvanced CIRCulation Model) is a two-dimensional hydrodynamic model used to simulate changes in water levels due to storm surge.

**Bathymetry** is submarine topography in lakes and oceans that shows the depth and shapes of the underwater terrain.

**BFE:** Base Flood Elevation

**Coastal Base Flood Elevations** are the 1-percent-annual-chance flood elevations shown on a FIRM within the coastal floodplain. Coastal BFEs include the effects of waves in areas where waves are a component of the flood hazard.

**Coastal Floodplain:** Portion of the Special Flood Hazard Area where the base flood is from a coastal flooding source. Coastal flooding sources include large lakes such as the Great Lakes that are big enough to have large waves or that can be affected by storm surge.

**Coastal High Hazard Area** (CHHA) is identified as Zone V or Zone VE on the flood map. It is a portion of the special flood hazard area extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high-velocity wave actions from storms or seismic sources.

**CSHORE Model** is a one-dimensional nearshore profile model for predictions of wave action and profile evolution used in FEMA flood studies for wave transformation, wave runup, and shoreline erosion analyses.

**FIRM:** Flood Insurance Rate Map

**LOMR:** Letter of Map Revision

**Special Flood Hazard Area** (SFHA) is the area that would be affected by a 1-percent-annual-chance flood (or base flood). Properties within the SFHA are at a high risk of flooding, with at least a 26-percent chance of flooding over the course of a 30-year mortgage.

**Simulating WAVes Nearshore** (SWAN) Model is a model used for the simulation of wind-generated waves.

**Stillwater Elevation** (SWEL) is the elevated water level observed during a flood event that includes factors such as long-term and seasonal lake level changes as well as storm surge. The SWEL does not include the additional height of the waves that ride on top of the water's surface.

**Storm Surge** is the rise in water level from strong winds pushing water towards land. Storm surge causes water levels to rise above normal levels and can cause flooding inland.

**Topography** is information about the elevation of the surface of the Earth.

**Transects** are cross sections that are used in the overland wave hazard analyses. Transects are strategically placed to represent segments of the coast with similar characteristics.

**Wave Height** is a measurement of the size of a wave, taken as the vertical distance between the highest part of a wave (wave crest) and the lowest part of a wave (wave trough).

**Wave Height Analysis for Flood Insurance Studies** (WHAFIS) is a computer program that uses representative transects to analyze overland wave propagation hazards including wave heights and wave crest elevations

**Wave Runup** is the rush of water up a slope or structure.