

INSTRUCTIONS FOR COMPLETING THE APPLICATION FORMS FOR CONDITIONAL LETTERS OF MAP REVISION AND LETTERS OF MAP REVISION

GENERAL

In 1968, the U.S. Congress passed the National Flood Insurance Act, which created the National Flood Insurance Program (NFIP). The NFIP was designed to reduce future flood losses through local floodplain management and to provide protection for property owners against potential losses through flood insurance.

As part of the agreement for making flood insurance available in a community, the NFIP requires the participating community to adopt floodplain management ordinances containing certain minimum requirements intended to reduce future flood losses. The NFIP regulations for floodplain management are the minimum criteria a community must adopt for participation in the NFIP. The community is responsible for approving all proposed floodplain development and for ensuring that permits required by Federal or State law have been received. State and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction or may limit development in floodplain areas. If the State or Community has adopted more restrictive or comprehensive floodplain management criteria, those criteria take precedence over the minimum NFIP requirements.

The community is also responsible for submitting data to the U.S. Department of Homeland Security - Federal Emergency Management Agency (DHS-FEMA) reflecting revised flood hazard information so that NFIP maps can be revised as appropriate. This will allow risk premium rates and floodplain management requirements to be based on current data.

Submissions to DHS-FEMA for revisions to effective Flood Insurance Studies (FISs), Flood Insurance Rate Maps (FIRMs), or Flood Boundary Floodway Maps (FBFMs) by individual and community requesters will require the signing of application forms. These forms will provide DHS-FEMA with assurance that all pertinent data relating to the revision are included in the submittal. They will also ensure that: (a) the data and methodology are based on current conditions; (b) qualified professionals have assembled data and performed all necessary computations; and (c) all individuals and organizations affected by proposed changes are aware of the changes and will have an opportunity to comment on them.

If the submission involves revisions to multiple flooding sources, then separate forms should be completed for each flooding source.

NFIP regulations can be accessed at http://www.access.gpo.gov/nara/cfr/waisidx_02/44cfrv1_02.html or can be obtained by calling DHS-FEMA's Map Information eXchange (FMIX) at 1-877-FEMA MAP (1-877-336-2627). DHS-FEMA's Internet site at http://www.fema.gov/plan/prevent/fhm/dl_mt-2.shtm provides access to the forms and latest fees and revision procedures. DHS-FEMA is preparing online tutorials to assist users of the NFIP maps. The tutorials for revisions to the NFIP maps are currently being prepared and will be available soon. Other online tutorials are available at http://www.fema.gov/plan/prevent/fhm/ot_main.shtm.

WHEN TO USE THESE FORMS

This package is applicable for requests of the following:

Conditional Letter of Map
Revision (CLOMR)

A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would meet minimum NFIP standards or proposed hydrology changes [see 44 Code of Federal Regulations (CFR) Ch. 1, Parts 60, 65, and 72].

Letter of Map Revision (LOMR)

A letter from DHS-FEMA officially revising the current NFIP map to show changes to floodplains, floodways, or flood elevations (see 44 CFR Ch. 1, Parts 60, 65, and 72).

WHEN NOT TO USE THESE FORMS

This package is not applicable for requests of the following:

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| Letter of Map Amendment (LOMA) | A letter from DHS-FEMA stating that an existing structure or parcel of land that has not been elevated by fill (natural ground) would not be inundated by the base flood. |
| Conditional Letter of Map Amendment (CLOMA) | A letter from DHS-FEMA stating that a proposed structure that is not to be elevated by fill (natural ground) would not be inundated by the base flood if built as proposed. |
| Letter of Map Revision Based on Fill (LOMR-F) | A letter from DHS-FEMA stating that an existing structure or parcel of land that has been elevated by fill would not be inundated by the base flood. |
| Conditional Letter of Map Revision Based on Fill (CLOMR-F) | A letter from DHS-FEMA stating that a parcel of land or proposed structure that will be elevated by fill would not be inundated by the base flood if fill is placed on the parcel as proposed or the structure is built as proposed. |

For these requests, either the MT-EZ form package titled *Amendments to National Flood Insurance Program Maps, Application Form for Single Residential Lot or Structures*, or the MT-1 form package titled *Amendments and Revisions to National Flood Insurance Program Maps, Application Forms and Instructions for Letters of Map Amendment, Conditional Letters of Map Amendment, Letters of Map Revision Based on Fill, and Conditional Letters of Map Revision Based on Fill* are appropriate. The MT-EZ forms are used for single structure or lot requests that do not involve the placement of fill. The MT-1 forms are used for requests involving multiple structures or lots. The MT-EZ form package may be downloaded from DHS-FEMA's Internet site at http://www.fema.gov/plan/prevent/fhm/dl_mt-ez.shtm, and the MT-1 form package may be downloaded from DHS-FEMA's Internet site at http://www.fema.gov/plan/prevent/fhm/dl_mt-1.shtm. Either form package may also be obtained by calling DHS-FEMA's Map Information eXchange (FMIX) at 1-877-FEMA MAP (1-877-336-2627).

SUMMARY OF FORMS

Application forms for requesting a revision from DHS-FEMA are included in the back of this package. There are six forms, a payment form, plus information about Endangered Species Act (ESA) compliance documentation in this package, which cover various situations for revisions. When submitting a request only the forms applicable to the request need to be submitted. The following is a list of the forms and a brief summary of when each is applicable.

- Form 1 - Overview & Concurrence Form provides the basic information regarding the revision request and requires the signatures of the requester, community official, and engineer. This form is required for all revision requests.
- Form 2 - Riverine Hydrology & Hydraulics Form provides the basic information on the scope and methodology of hydrologic and/or hydraulic analyses that are prepared in support of the revision request. This form should be used for revision requests that involve new or revised hydrologic and/or hydraulic analyses of rivers, streams, ponds, or small lakes.
- Form 3 - Riverine Structures Form provides the basic information regarding hydraulic structures constructed in the stream channel or floodplain. This form should be used for revision requests that involve new or proposed channelization, bridges/culverts, dams/basins, and/or levees/floodwalls. Requires the signature of the P.E. in charge of complete submittal for Levees.
- Form 4 - Coastal Analysis Form provides the basic information on the scope and methodology of coastal analyses that are prepared in support of the revision request. This form should be used for any revision requests that involve new or revised coastal analyses.

Form 5 - Coastal Structures Form provides the basic information regarding hydraulic structures constructed along the coast. This form should be used for revision requests that involve new or proposed levees/dikes, breakwaters, bulkheads, seawalls, and/or revetments located along the coast.

Form 6 - Alluvial Fan Flooding Form provides the basic information for analyses of alluvial fans. This form should be used for revision requests involving alluvial fans.

Payment Information Form - Provides the basic information regarding any fees paid for a CLOMR, LOMR, or External Data Request.

ESA Compliance Documentation – Documented ESA compliance must be submitted for CLOMRs only. Appropriate documentation includes a copy of an Incidental Take Permit, an Incidental Take Statement, a “not likely to adversely affect” determination from NMFS or USFWS, or an official letter from NMFS or USFWS concurring that the project has “No Effect” on proposed or listed species or designated critical habitat. Additional information about these requirements is available on Page 27 of this instruction packet.

FEES

DHS-FEMA has implemented a procedure to recover costs associated with reviewing and processing requests for modifications to published flood information and maps. The current fees for review and processing of CLOMR and LOMR requests may be obtained from DHS-FEMA’s Internet site at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm or by calling DHS-FEMA’s Map Information eXchange (FMIX) at 1-877-FEMA MAP (1-877-336-2627).

Some requests for revisions may be exempt from the fees. NFIP Regulation, 44 CFR Ch. 1, Section 72.5, describes the circumstances for requests to be exempt from paying the fees. The exemptions are also described on DHS-FEMA’s Internet site at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm.

Payment must be made by credit card, check or money order. Checks and money orders should be made payable in U.S. funds to the National Flood Insurance Program. Please note that the fee is to be sent to the same address as the request package. See page 4 for where to submit the request package and fees.

WHAT TO SUBMIT

A CLOMR or LOMR request should include the application forms along with the appropriate supporting information. A notebook-style format is preferred. The submittal should include the following:

1. Completed application forms.
2. Narrative on project and submittal (optional but very helpful). Knowing the project and purpose of the request better ensures the needs of the requester are met.
3. Hydrologic Computations (if applicable) along with digital files of computer models used.
4. Hydraulic Computations (if applicable) along with digital files of computer models used.
5. Certified topographic map with floodplain and floodway (if applicable) delineations.
6. Annotated DHS-FEMA FIRM and/or FBFM to reflect changes due to project (FIRMs and /or FBFMs can be ordered on-line at <http://store.msc.fema.gov/>).
7. Items required to satisfy any DHS-FEMA NFIP regulatory requirements.
8. Review fee payment if applicable.
9. ESA compliance documentation required for CLOMRs only.

Before DHS-FEMA will replace the effective FIS information with the revised, the requester must: (a) provide all of the data used in determining the revised floodplain boundaries, flood profiles, floodway boundaries, etc.; (b) provide all data necessary to demonstrate that the physical modifications to the floodplain meet NFIP regulations, as well as ESA regulations (for CLOMRs only), have been adequately designed to withstand the impacts of the 1% annual chance flood event, and will be adequately maintained; and (c) demonstrate that the revised information (e.g., hydrologic and hydraulic analyses and the resulting floodplain and floodway boundaries) is consistent with the effective FIS information.

Where to Submit

The completed package should be submitted to the appropriate address indicated below.

Where to mail your request and fees to...

Under CTP agreements with DHS-FEMA, State of North Carolina, Mecklenburg County, North Carolina, State of Alabama, State of Illinois, and Denver Urban Drainage and Flood Control District have begun reviewing and processing LOMCs for their jurisdictions. The North Carolina State will receive all MT-2 LOMC requests within the state, except for sites within Mecklenburg County. The Mecklenburg County Flood Mitigation Program will receive and review requests for locations within City of Charlotte and Mecklenburg County. The Urban Drainage and Flood Control District will receive and review requests for locations within the Denver metropolitan area.

All requests for CLOMRs and LOMRs for locations within the most of the country except for areas within State of North Carolina, and Denver Metropolitan Area (Urban Drainage and Flood Control District) should be mailed to:

**LOMC CLEARINGHOUSE
6730 SANTA BARBARA COURT
ELKRIDGE, MD 21075
Attn.: LOMC Manager**

All requests for CLOMRs and LOMRs in **Alabama** www.adeca.alabama.gov/floods should be mailed to:

**ALABAMA OFFICE OF WATER RESOURCES
ATTN: MT-2 LOMC COORDINATOR
401 ADAMS AVENUE
MONTGOMERY, AL 36104**

All requests for CLOMRs and LOMRs in **Illinois** <http://www.isws.illinois.edu/> should be mailed to:

**ILLINOIS STATE WATER SURVEY
2204 GRIFFITH DRIVE
CHAMPAIGN, IL 61820
ATTN: CHRIS HANSTAD
MT2@isws.illinois.edu**

All requests for CLOMRs and LOMRs in **North Carolina (outside of Mecklenburg County)** http://www.ncfloodmaps.com/top_about.htm should be mailed to:

**NORTH CAROLINA MT-2 LOMC DEPOT
P.O. BOX 300025
RALEIGH, NC 27622-0025**

All requests for CLOMRs and LOMRs within **City of Charlotte and Mecklenburg County, North Carolina** (<http://www.charmeck.org/Departments/StormWater/Storm+Water+Professionals/home.htm>) should be mailed to:

**CHARLOTTE-MECKLENBURG COUNTY STORM WATER SERVICES
700 N. TRYON STREET
CHARLOTTE, NC 28202
ATTN: DAVID GOODE, P.E., CFM, PROJECT MANAGER**

All requests for CLOMRs and LOMRs within the **Denver, Colorado metropolitan area (Urban Drainage and Flood Control District)**, <http://www.udfcd.org/index.html> should be mailed to:

**URBAN DRAINAGE AND FLOOD CONTROL DISTRICT
2480 WEST 26TH AVENUE, SUITE 156-B
DENVER, CO 80211
ATTN: BILL DEGROOT, P.E.**

**INSTRUCTIONS FOR COMPLETING THE
OVERVIEW & CONCURRENCE FORM
(FORM 1)**

This form provides the basic information regarding revision requests and must be submitted with each request. It contains much of the material needed for the U.S. Department of Homeland Security - Federal Emergency Management Agency (DHS-FEMA) to assess the nature and complexity of the proposed revision. It will identify: (a) the type of response expected from DHS-FEMA; (b) those elements that will require supporting data and analyses; and (c) items needing concurrence of others. This form will also ensure that the community is aware of the impacts of the request and has notified affected property owners, if required. All items must be completed accurately. If the revision request is being submitted by an individual, firm, or other non-community official, contact should be made with appropriate community officials. National Flood Insurance Program (NFIP) regulation Title 44 CFR Ch. 1, Section 65.4, requires that revisions based on new technical data be submitted through the Chief Executive Officer (CEO) of the community or a designated official. Should the CEO refuse to submit such a request on behalf of another party, DHS-FEMA will agree to review it only if written evidence is provided indicating that the CEO or designee has been requested to do so.

Section A: Requested Response from DHS-FEMA

Indicate the type of response being requested. Brief descriptions of possible responses are provided in the introduction; more detail regarding these responses and the data required to obtain each response are provided in the NFIP regulations, Title 44 CFR Ch. 1.

Section B: Overview

1. The Community Number, Community Name, State, Map Number, Panel Number, and Effective Date can be obtained from the Flood Insurance Rate Map (FIRM) title block. The sample FIRM panels (Figures 1 and 2) provide a convenient example of information to complete item 1. The effective FIRMs can be obtained from the community's map repository or from FEMA's Map Information eXchange (FMIX) website at <http://msc.fema.gov>.
2. a. Flooding source refers to a specific lake, stream, ocean, etc. This should match the flooding source name shown on the FIRM, if it has been labeled. (Examples: Lake Michigan, Duck Pond, or Big Hollow Creek).

b. Indicate the types of flooding associated with the revision request.
3. Project Name/Identifier can be the name of a flood control project or other pertinent structure having an impact on the effective FIS, the name of a subdivision or area, or some other identifying phrase.
4. The zone designations affected can be obtained from the FIRM.
5. a. Indicate the basis for the revision request.
 - Physical Changes include watershed development, flood control structures, etc. Note that fees will be assessed for DHS-FEMA's review of proposed and "as-built" projects, as outlined in NFIP regulations 44 CFR Ch. 1, Part 72.
 - Improved Methodology/Data may be a different technique (model) or adjustments to models used in the effective FIS.
 - Regulatory Floodway Revisions involve any shift in the DHS-FEMA-designated floodway boundaries, regardless of whether the shift is mappable.
 - Other involves any basis for the request not including the above items.
b. Indicate the types of structure(s) associated with the revision request.
6. Please submit documents relating to Endangered Species Act (ESA) for CLOMR requests. Please note that CLOMR requests will not be reviewed until ESA documents are received by FEMA. Please refer to Page 27 of this MT-2 instruction Package for more details.

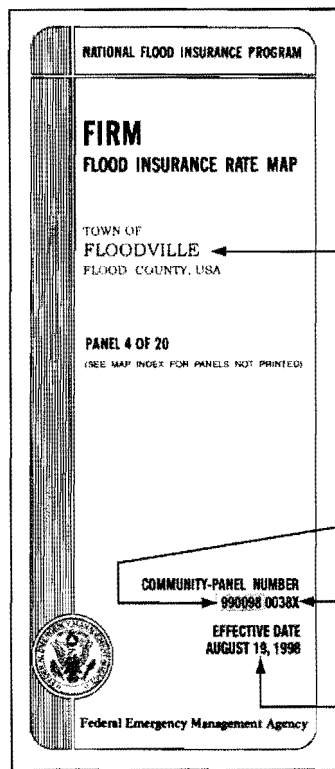


Figure 1. Sample FIRM Panel (Single Community)

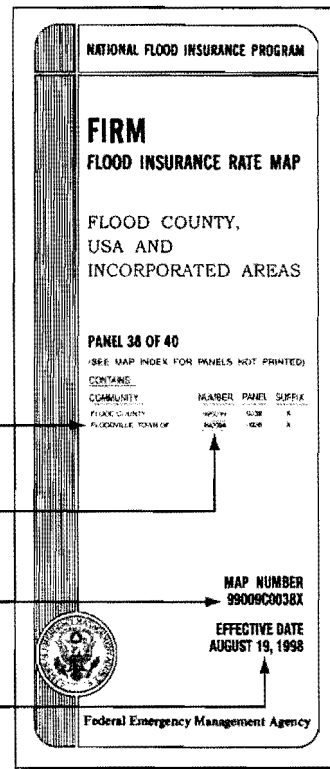


Figure 2. Sample FIRM Panel (Countywide)

Section C: Review Fee

Enter the fee amount associated with the request, or attach an explanation as to why the revision meets the requirements for a fee exemption. The current fees for review and processing of Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) requests may be obtained from DHS-FEMA's Internet site at http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm.

Section D: Signature

Signature and Title of Revision Requester

The person signing this certification should own the property involved in the request or have legal authority to represent a group/firm/organization or other entity in legal actions pertaining to the NFIP.

The requester is responsible for obtaining all necessary Federal, State, and local permits as a condition of obtaining a LOMR or CLOMR. The community is required to make sure that all necessary permits have been obtained prior to issuing a floodplain development permit. The most commonly required Federal permits are wetlands permits under Section 404 of the Clean Water Act of 1972 and incidental take permits under Section 10 of the Endangered Species Act of 1972. Necessary State permits vary depending on the State. If the requester needs a wetlands permit or is not sure if one is required, he should contact the U.S. Army Corps of Engineers District Office. If the requester's proposed development impacts threatened or endangered species or if he is unsure if it does, he should consult with the nearest U.S. Fish and Wildlife Service field office.

Signature and Title of Community Official

The person signing this certification should be the CEO for the community involved in this revision request or an official legally designated by the CEO. If more than one community is affected by the change, the community official from the community that is most affected should sign the form, and letters from the other affected communities should be enclosed. If the community or communities disagree with the proposed revision, a signed statement should be attached to the request explaining the reasons or basis for disagreement.

Under 44 CFR 60.3(a)(2), the community is required to ensure, prior to issuing a floodplain development permit that an applicant has obtained all necessary Federal and State permits related to development. The most commonly required Federal permits are wetlands permits under Section 404 of the Clean Water Act of 1972 and incidental take permits under Section 10 of the Endangered Species Act of 1972. Necessary State permits vary depending on the State. If the community is not sure if a wetlands permit is required, refer the applicant to the U.S. Army Corps of Engineers District Office. If the proposed development impacts on threatened or endangered species or the community is unsure if it does, have the applicant consult with the nearest U.S. Fish and Wildlife Service field office.

Certification by Registered Professional Engineer and/or Land Surveyor

The person certifying this submittal must provide a valid license number and expiration date for their license. If this information is provided, affixing a seal is optional. If a seal is available, however, it may be affixed in the seal box provided on this form. The licensed professional engineer and/or land surveyor should have a current license in the State where the affected communities are located. While the individual signing this form is not required to have obtained the supporting data or performed the analyses, he or she must have supervised and reviewed the work.

A certification by a registered professional engineer or other party does not constitute a warranty or guarantee of performance, expressed or implied. Certification of data is a statement that the data is accurate to the best of the certifier's knowledge. Certification of analyses is a statement that the analyses have been performed correctly and in accordance with sound engineering practices. Certification of structural works is a statement that the works are designed in accordance with sound engineering practices to provide protection from the 1% annual chance flood. Certification of "as-built" conditions is a statement that the structure(s) has been built according to the plans being certified, is in place, and is fully functioning.

If the requester is a Federal agency who is responsible for the design and construction of flood control facilities, a letter stating that, "the analyses submitted have been performed correctly and in accordance with sound engineering practices" may be submitted in lieu of certification by a registered professional engineer. Regarding the certification of completion of flood control facilities, a letter from the Federal agency certifying its completion and the flood frequency event to which the project protects may be submitted in lieu of this form.

Forms Submitted

Indicate which forms are submitted with the revision request.

INSTRUCTIONS FOR COMPLETING THE RIVERINE HYDROLOGY & HYDRAULICS FORM (FORM 2)

This form should be used for revision requests that involve new or revised hydrologic and/or hydraulic analyses of rivers, streams, ponds, or small lakes. A separate form should be used for each flooding source.

Section A: Hydrology

This section is to be completed when discharges other than those used in the effective Flood Insurance Study (FIS) are proposed.

1. Indicate the reason for the new or revised hydrologic analysis. For revisions based on alternative methodologies or improved data, an explanation as to why the alternative methodology or improved data provides better results over the FIS must be presented and supported throughout the form. The revised hydrology should result in a statistically significant difference when compared to the effective discharges.
2. Compare the effective 1% annual chance (100-year) discharges to the revised 1% annual chance discharges at three representative locations.

In accordance with National Flood Insurance Program (NFIP) regulations, if only a portion of a detailed study stream is revised, transition to the unrevised portion must be ensured to maintain the continuity of the study. Attach an explanation of how the proposed discharge in the revised portion of the stream transitions to the effective discharge in the unrevised portion of the stream, and vice versa.

3. Specify the method used for the new analysis. Attach any additional backup computations and supporting data such as a drainage area map, soils map, soil group names, time of concentration computations, curve numbers, etc. Disks with the digital models should also be included. Models submitted in support of a revision request must meet the requirements of Subparagraph 65.6(a)(6) of the NFIP regulations. A list of accepted DHS-FEMA hydrologic models can be found at http://www.fema.gov/plan/prevent/fhm/en_hydro.shtm.
4. If approval of the new hydrologic analysis is required by a local, State, or Federal agency, indicate if the analysis and resulting peak discharge value(s), have been approved by the appropriate local, State, or Federal agency and attach evidence of the approval.
5. In locations where sediment transport affects hydrology, the effects of sediment transport should be considered in the hydrology and Section F of Form 3 should be submitted.

Section B: Hydraulics

This section is to be completed when the request involves a hydraulic analysis for riverine flooding that differs from that used to develop the Flood Insurance Rate Map (FIRM).

1. Indicate the reach of stream to be revised. The area of the revision is defined by an effective tie-in at the upstream and downstream limits. For streams that have a detailed study, an effective tie-in is obtained when the revised base flood and floodway elevations are within 0.5 feet of the effective elevations, and the revised floodway encroachment stations match the effective floodway stations at both the upstream and downstream limits. For streams that do not have a detailed study, an effective tie-in is obtained when the revised base flood elevations are within 0.5 feet of the pre-project conditions model at both the upstream and downstream limits. Please note that the area of revision and the project area are not necessarily the same. If the revised model does not tie-in to the effective study at the project limits, the model must be extended upstream and downstream until it ties-in to the effective study.
2. Indicate the Hydraulic Method used for the revision. A list of Hydraulic models accepted by DHS-FEMA can be found at http://www.fema.gov/plan/prevent/fhm/en_hydra.shtm. If using a hydraulic model that does not appear on the list of accepted models, please provide documentation showing that the model meets the requirements of NFIP regulation 65.6(a)(6).

3. Indicate if the CHECK-2 or CHECK-RAS programs were used to verify that the hydraulic estimates and assumptions in the model are comparable to the assumptions and limitations of HEC-2 or HEC-RAS. CHECK-2 and CHECK-RAS are review tools that identify areas of potential error or concern. These tools do not replace engineering judgment. CHECK-2 and CHECK-RAS can be downloaded from DHS-FEMA's Internet site at http://www.fema.gov/plan/prevent/fhm/firm_soft.shtm. We recommend that you review your HEC-2 and HEC-RAS models with CHECK-2 and CHECK-RAS. If you disagree with the comment messages, please attach an explanation of why the messages are not valid in each case. To reduce processing time, review your hydraulic model and resolve valid modeling discrepancies, before submitting it for review.
4. Indicate the hydraulic models submitted. Provide name of plans used, if HEC-RAS models are submitted. Also, indicate vertical datum used for each of the submitted hydraulic models.

Submittal requirements for areas that have detailed flooding: Printouts of input and output listings along with files on diskette or CD for each of the models and supporting data (e.g., description of vegetation and land use map) for the source of input parameters used in the models listed below must be provided. The summary must include a description of any changes made from model to model (e.g., Duplicate Effective Model to Corrected Effective Model). At a minimum, the Duplicate Effective Model and the Revised or Post-Project Conditions Model must be submitted. The hydraulic analyses shall be performed for all flood frequencies and the floodway published in the effective FIS.

Submittal requirements for areas that do not have detailed flooding: Only the 1% annual chance (Base) flood computations are required. A hydraulic model is not required for areas that do not have detailed flooding; however, Base Flood Elevations (BFEs) may not be added to the revised FIRM. If a hydraulic model is developed for the area, the Existing or Pre-project Model and the Revised or Post-Project Conditions Model, if applicable, described below must be submitted.

Duplicate Effective Model

The duplicate effective model is a copy of the hydraulic analysis used in the effective FIS, referred to as the effective model. The effective model should be obtained and then reproduced on the requester's equipment to produce the duplicate effective model. This is required to ensure that the effective model's input data has been transferred correctly to the requester's equipment and to ensure that the revised data will be integrated into the effective data to provide a continuous FIS model upstream and downstream of the revised reach.

For information on how to obtain copies of the effective FIS models, see DHS-FEMA's Internet site at http://www.fema.gov/plan/prevent/fhm/st_order.shtm. If data from the effective model is available and the same modeling program is being used, the requester must generate models that duplicate the FIS profiles and the elevations shown in the Floodway Data Table in the FIS report to within 0.1 foot. The appropriate DHS-FEMA Regional Office should be contacted if this model cannot be produced. See Appendix C for the addresses and telephone numbers of DHS-FEMA's Regional Offices. If the effective model is not available, the new model must be calibrated to reproduce the FIS profiles within 0.5 foot. If an alternative hydraulic model is used, it must be shown that the use of the original model is inappropriate and the new model must be calibrated to reproduce the FIS profiles within 0.5 foot.

Corrected Effective Model

The Corrected Effective Model is the model that corrects any errors that occur in the Duplicate Effective Model, adds any additional cross sections to the Duplicate Effective Model, or incorporates more detailed topographic information than that used in the current effective model. The Corrected Effective Model must not reflect any man-made physical changes since the date of the effective model. An error could be a technical error in the modeling procedures, or any construction in the floodplain that occurred prior to the date of the effective model but was not incorporated into the effective model.

Existing or Pre-Project Conditions Model

The Duplicate Effective Model or Corrected Effective Model is modified to produce the Existing or Pre-Project Conditions Model to reflect any modifications that have occurred within the floodplain since the date of the Effective model but prior to the construction of the project for which the revision is being requested. If no modification has occurred since the date of the effective model, then this model would be identical to the Corrected Effective Model or Duplicate Effective Model. The existing or pre-project model may be required to support conclusions about the actual impacts of the project associated with the revised or post-project model or to establish more up-to-date models on which to base the revised or post-project conditions model.

Revised or Post-Project Conditions Model

The Existing or Pre-Project Conditions Model (or Duplicate Effective Model or Corrected Effective Model, as appropriate) is modified to reflect revised or post-project conditions. This model must incorporate any physical changes to the floodplain since the effective model was produced as well as the effects of the project. When the request is for a proposed project, this model must reflect proposed conditions.

The information requested on the Riverine Hydrology & Hydraulics Form is intended to document the steps taken by the requester in the process of preparing the revised or post-project conditions hydraulic model and the resulting revised FIS information. The following guidelines should be followed when completing the form:

- All changes to the duplicate and subsequent models must be supported by certified topographic information, bridge plans, construction plans, survey notes, etc.
- Changes to the hydraulic models should be limited to the stream reach for which the revision is being requested. Cross sections upstream and downstream of the revised reach should be identical to those in the effective model. If this is done, water surface elevations and topwidths computed by the revised models should match those in the effective models upstream and downstream of the revised reach as required.
- There must be consistency between the revised hydraulic models, the revised floodplain and floodway delineations, the revised flood profiles, topographic work map, annotated FIRMs and/or Flood Boundary Floodway Maps (FBFMs), construction plans, bridge plans, etc.

Section C: Mapping Requirements

A certified topographic map of suitable scale, contour interval, and planimetric definition must be submitted showing the applicable items indicated on the form. If a digital version of the map is available, it may be submitted so that the FIRM may be more easily revised.

Attach an annotated FIRM panel showing the revised 1% and 0.2% annual chance floodplains and floodway boundaries. The revised boundaries must tie into the effective boundaries. The annotated FIRM ensures that DHS-FEMA is aware of how the requester anticipates the FIRM will be revised.

Indicate if annotated FIRM and/or FBFM and digital mapping data (GIS or CADD) submitted. If digital data is submitted, please include any supporting documentation or metadata with the data submission including relevant projection information. Current mapping standards utilize the Universal Transverse Mercator (UTM) projection and State Plane Coordinate System in accordance with FEMA mapping specifications. Data not submitted in ESRI mapping format can be submitted in any supported data format, which includes AutoCAD, Microstation, and MapInfo.

Section D: Common Regulatory Requirements

1. a. Indicate "yes" for the following situations:
 - Projects that will have construction within the floodway, which cause the BFEs to increase (more than 0.00 feet), or
 - Projects that will have construction within the floodplain of streams that have a detailed effective study, but for which a floodway has not been established, which

cause the BFEs to increase more than 1.0 foot (or any other more stringent requirement set by the community or State).

If either of the two situations occurs, then the conditions in NFIP Regulation 44 CFR Ch. 1, Section 65.12 must be met. The conditions of NFIP Regulation 44 CFR Ch. 1, Section 65.12 include:

- An evaluation of alternatives, which would not result in a BFE increase above that permitted demonstrating why these alternatives are not feasible;
 - Documentation of individual legal notice to all affected property owners within and outside of the community, explaining the impact of the proposed action on their property;
 - Concurrence of the Chief Executive Officer (CEO) and any other communities affected by the proposed actions; and
 - Certification that no structures are located in areas that would be impacted by the increased base flood elevation.
- b. Indicate if the LOMR request causes increases in the BFEs and or SFHA compared with the effective information shown on the effective FIRM due to a project or updated modeling. If the revision causes increases in the BFEs and/or SFHA, property owner notifications to the adversely affected property owners are required. The acceptance of the increases in the BFEs and SFHA by the adversely impacted property owners is optional. DHS-FEMA must provide a statutory 90-day appeal period for all map revisions entailing Base (1% annual chance [100-year]) Flood Elevation (BFE) changes. LOMRs with decreasing flood hazards (1% annual chance water-surface elevations, floodplains, or floodways) typically are effective the day of issuance, with any necessary appeal period provided afterwards. LOMRs with increasing flood hazards typically are not effective until after any required appeal period has expired and any necessary ordinance changes have been made by the community (3 to 6 months). However, a LOMR that reflects increasing flood hazards may be effective on the day of issuance if all property owners affected by these increases are notified and approve of the increases, and the community concurs with the revision.
2. Indicate if the placement of fill is involved with the revision request. Fill is defined as material from any source placed to raise the ground to or above the BFE. If fill has been placed to remove an area or structure from the Special Flood Hazard Area (SFHA), the community must sign the appropriate section of Form 1 certifying that the area to be removed from the special flood hazard area, to include any structures or proposed structures, (will) meets all of the standards of the local floodplain ordinances, and is reasonably safe from flooding in accordance with NFIP Regulation 44 CFR 65.2(c). “Reasonably safe from flooding” means that the base flood waters will not inundate the land or damage the structures to be removed from the SFHA and that any subsurface waters related to the base flood will not damage existing or proposed buildings. Information on ensuring that structures built on fill in or near the SFHA are reasonably safe from flooding may be obtained from DHS-FEMA’s Technical Bulletin 10-01, “Ensuring That Structures Built on Fill In or Near Special Flood Hazard Areas Are Reasonably Safe from Flooding,” which is available on DHS-FEMA’s Internet site at <http://www.fema.gov/plan/prevent/floodplain/techbul.shtm>.
 3. Indicate if the request involves a floodway revision. If the floodway is being revised, the requirements of NFIP Regulation 44 CFR Ch. 1, Section 65.7 must be met. These requirements include submitting a copy of a public notice distributed by the community stating the community's intent to revise the floodway or a statement by the community that it has notified all affected property owners and affected adjacent jurisdictions. Samples of a public notice and of an individual notification for a floodway revision are shown in Figures 3 and 4, respectively.
 4. Indicate if the revision request has the potential to impact an endangered species. Section 9 of the Endangered Species Act (ESA) prohibits anyone from “taking” or harming endangered species. If an action might harm an endangered species, provide necessary documentation for the compliance of Section 9 and/or Section 7(a)(2) of ESA.

Samples of individual notifications for various increases in the SFHAs, BFEs, and floodways are shown on Figures 4 through 8.

The {insert community name} {insert appropriate community department for floodplain management}, in accordance with National Flood Insurance Program regulation 65.7(b)(1), hereby gives notice of the {insert community designation Township's / Village's/ Borough's / County's} intent to revise the floodway, generally located between {insert general location of floodway revision}. Specifically, the floodway shall be revised from a point {describe downstream limit of floodway revision} to a point {describe upstream limit of floodway revision}. As a result of the floodway revision, the floodway shall {widen and/or narrow} with a maximum widening of {insert maximum widening} feet at a point approximately {insert location of widening} and/or a maximum narrowing of {insert maximum narrowing} feet at a point approximately {insert location of narrowing}.

Maps and detailed analysis of the floodway revision can be reviewed at the {insert location} at {insert location address}. Interested persons may call {insert community contact name or position} at {insert contact phone number} for additional information from ... to ... {insert dates during which community contact person can be contacted}.

Figure 3.
SAMPLE PUBLIC NOTIFICATION FOR FLOODWAY REVISION
(to be used by community when placing a notice in a newspaper)

{Date}

{Affected property owner name}

{Affected property owner mailing address}

Re: Notification of Floodway Revision for {flooding source}

Dear Mr./Ms./Mr. & Mrs. {Affected property owner}

The Flood Insurance Rate Map (FIRM) for a community depicts the floodplain, the area which has been determined to be subject to a 1% (100-year) or greater chance of flooding in any given year. The floodway is the portion of the floodplain that includes the channel of a river or other watercourse and the adjacent land area that must be reserved in order to discharge the base flood without cumulatively increasing the water-surface elevation by more than a designated height.

The {insert community name} {insert appropriate community department for floodplain management}, in accordance with National Flood Insurance Program regulation 65.7(b)(1), hereby gives notice of the {insert community designation Township's / Village's/ Borough's / County's} intent to revise the 1% annual chance (100-year) floodway, generally located between {insert general location of floodway revision}. Specifically, the floodway shall be revised from a point {describe downstream limit of floodway revision} to a point {describe upstream limit of floodway revision}. As a result of the floodway revision the floodway shall {widen and/or narrow} with a maximum widening of {insert maximum widening} feet at a point approximately {insert location of widening} and a maximum narrowing of {insert maximum narrowing} feet at a point approximately {insert location of narrowing}.

Maps and detailed analysis of the floodway revision can be reviewed at the {insert location} at {insert location address}. If you have any questions or concerns about the proposed project or its affect on your property, you may contact {name of appropriate community official} of {name of community} at {community official contact information} from ... to ... {insert dates during which community contact person can be contacted}.

Sincerely,

{Community official name}

{Community official position}

{Community official contact information}

Figure 4.
SAMPLE LETTER FOR FLOODWAY REVISION NOTIFICATION
(to be used by community if notifying property owners individually by letter)

{Date}

{Affected property owner name}

{Affected property owner mailing address}

Re: Notification of increases in 1% (100-year) annual chance water-surface elevations

Dear Mr./Ms./Mr. & Mrs. {Affected property owner}

The Flood Insurance Rate Map (FIRM) for a community depicts land which has been determined to be subject to a 1% (100-year) or greater chance of flooding in any given year. The FIRM is used to determine flood insurance rates and to help the community with floodplain management.

{Revision Requester} is applying for a Conditional Letter of Map Revision from the Federal Emergency Management Agency (DHS-FEMA) on behalf of {Revision requester's client} to revise FIRM {insert FIRM #, panel #, and suffix} for {insert community name, state} along {insert name of flooding source}. {Revision requester's client} is proposing {describe project} as part of {explain project purpose}.

The proposed project will result in increases {and decreases} in the 1% annual chance water-surface elevations for {insert flooding source} with a maximum increase of {enter maximum increase} feet at a point approximately {location of maximum increase} and a maximum decrease in the 1% annual chance water-surface elevation of {enter maximum decrease} feet at a point approximately {location of maximum decrease}.

This letter is to inform you of the proposed increases in the 1% annual chance water-surface elevations on your property at {insert physical address}.

If you have any questions or concerns about the proposed project or its affect on your property, you may contact {name of appropriate community official} of {name of community} at {community official contact information} from ... to ... {insert dates during which community contact person would like to be contacted}.

Sincerely,

{Revision requester name}

Figure 5.
SAMPLE LETTER FOR CLOMR NOTIFICATION OF INCREASES IN BFEs

{Date}

{Affected property owner name}

{Affected property owner mailing address}

Re: Notification of {widening and/or narrowing} of 1% (100-year) annual chance floodplain

Dear Mr./Ms./Mr. & Mrs. {Affected property owner}

The Flood Insurance Rate Map (FIRM) for a community depicts land which has been determined to be subject to a 1% (100-year) or greater chance of flooding in any given year. The FIRM is used to determine flood insurance rates and to help the community with floodplain management.

{Revision Requester} is applying for a Letter of Map Revision (LOMR) from the Federal Emergency Management Agency (DHS-FEMA) on behalf of {Revision requester's client} to revise FIRM {insert FIRM #, panel #, suffix} for {insert community name, state} along {insert name of flooding source}. {Revision requester} is proposing to revise the FIRM to reflect {describe project}.

The revision to the FIRM will result in widening {and narrowing} of the 1% annual chance (Zone A) floodplain for {insert name of flooding source}. The maximum widening of {enter maximum increase} feet occurs at a point approximately {location of maximum widening} while the maximum narrowing of {enter maximum narrowing} feet occurs at a point approximately {location of maximum narrowing}.

{Choose one of the following two paragraphs}

This letter is to inform you of the revision of the 1% annual chance (Zone A) floodplain on your property at {insert physical address}.

{or}

We would like to obtain your acceptance of revision of the 1% annual chance (Zone A) floodplain on your property at {insert physical address}. Please sign and date the provided copy of this letter to signify your acceptance and return it to {Revision Requester's address} by {insert date to return acceptance by}.

If you have any questions or concerns about the proposed changes to the FIRM or its effects on your property, you may contact me at {Revision requester contact phone number}.

Sincerely,

{Revision requester name}

{Insert the following if asking for property owner acceptance}

I, {insert property owner name}, accept the redelineation of the 1% annual chance floodplain as described above.

{insert property owner name}

Date

Figure 6.

SAMPLE LETTER FOR LOMR NOTIFICATION & ACCEPTANCE IN ZONE A THAT WILL WIDEN AND NARROW THE FLOODPLAIN BUT NOT ESTABLISH BFES

{Date}

{Affected property owner name and address}

Re: Notification of 1% (100-year) annual chance water-surface elevation increases {and widening of the 1% annual chance floodplain}

Dear Mr./Ms./Mr. & Mrs. {Affected property owner}

The Flood Insurance Rate Map (FIRM) for a community depicts land which has been determined to be subject to a 1% (100-year) or greater annual chance of flooding in any given year. The FIRM is used to determine flood insurance rates and to help the community with floodplain management.

{Revision Requester} is applying for a Letter of Map Revision (LOMR) from the Federal Emergency Management Agency (DHS-FEMA) on behalf of {Revision requester's client} to revise FIRM {insert FIRM #, panel #, suffix} for {insert community name, state} along {insert name of flooding source}. {Revision requester's client} is proposing {describe project} as part of {explain project purpose}.

The Letter of Map Revision will result in:

1. Increases {and decreases} in the 1% annual chance water-surface elevations with a maximum increase of {enter maximum increase} feet at a point approximately {location of maximum increase} and a maximum decrease in the 1% annual chance water-surface elevation of {enter maximum decrease} feet at a point approximately {location of maximum decrease}.
2. Widening {and narrowing} of the 1% annual chance floodplain with the maximum widening of {enter maximum increase} feet at a point approximately {location of maximum widening} and the maximum narrowing of {enter maximum narrowing} feet at a point approximately {location of maximum narrowing}.

{Choose one of the following two paragraphs}

This letter is to inform you of revision of the 1% annual chance water-surface elevation and 1% annual chance floodplain on your property at {insert physical address}.

{or}

We would like to obtain your acceptance of revision of the 1% annual chance water-surface elevation and 1% annual chance floodplain on your property at {insert physical address}. Please sign and date the provided copy of this letter to signify your acceptance and return it to {Revision Requester's address} by {insert date to return acceptance by}.

If you have any questions or concerns about the proposed changes to the FIRM or its effect on your property, you may contact me at {Revision requester contact phone number}.

Sincerely,

{Revision requester name}

{Insert the following if asking for property owner acceptance}

I, {insert property owner name}, accept increases in the 1% annual chance water-surface elevations and redelineation of the 1% annual chance floodplain as described above.

{insert property owner name} _____ Date _____

Figure 8.
SAMPLE LETTER FOR LOMR NOTIFICATION & ACCEPTANCE THAT WILL RESULT IN
INCREASES IN ZONE AE OF BFEs & WIDENING OF THE FLOODPLAIN

INSTRUCTIONS FOR COMPLETING THE RIVERINE STRUCTURES FORM (FORM 3)

This form should be used for revision requests that involve new or proposed channelization, bridges/culverts, dams/detention basins, and/or levees/floodwalls. Only complete the sections of this form that are applicable to the revision request. A separate form should be used for each flooding source that has structures involved in the revision request.

Section A: General

Provide the name of the structure (e.g., Main Street Bridge or Flood Creek channelization), the type of structure, the location of the structure (e.g., 1000 feet upstream of Main Street or River Mile 10.4), and the appropriate cross section labels for the structures that are part of the revision request. Attach additional pages if the revision request involves more than 3 structures. This form is not required for existing structures that are included in the hydraulic model for the effective Flood Insurance Rate Map (FIRM).

Section B: Channelization

This section is to be completed when any portion of the stream channel is altered or relocated. The purpose of the Channelization section and the information to be submitted, is to ensure that the channel will function properly as designed and pass the 1% annual chance flood as determined by the hydraulic analysis. When the Channelization section is submitted, a Riverine Hydrologic & Hydraulic Form (Form 2) must also be submitted.

1. Indicate the hydraulic considerations for the design of the channel such as flow carrying capacity of the channel and the flow regime over which channel elevation was designed. Also indicate if there is a potential for a hydraulic jump.
2. Attach engineering drawings of the channelization certified by a registered professional engineer. The drawings should include a plan view of the channelization that shows pre-construction topography and post-construction grading, channel cross section, channel lining, channel inlet and outlet, and details for any accessory structures included with the channelization.

Typically, channelization increases the channel velocity above the natural channel velocity. Provide information that supports the conclusion that the channel lining will withstand the velocities associated with the 1% annual chance flood. The type of channel lining should be indicated on the design plans.

3. Indicate all accessory structures included with the channelization. The accessory structures should be shown on the submitted plans.
4. In locations where sediment transport will affect the Base Flood Elevations (BFEs), the effects of sediment transport should be considered in the design of channel and Section F of Form 3 should be submitted. Please provide justifications if sediment transport analysis is not considered for the channel design.

Section C: Bridge/Culvert

This section is to be completed when the request involves a new bridge or culvert or a new or revised analysis of an existing bridge or culvert.

1. Indicate the reason for the new or revised bridge/culvert modeling.
2. Indicate the model used to analyze the hydraulics at the bridge/culvert. If this model is different than the model used to analyze the flooding on the stream, then include an explanation of why a different model was used to analyze the bridge/culvert.
3. Attach plans of the structure certified by a registered professional engineer. The bridge/culvert plans should include the information listed on the form. Indicate the items included on the plans, and attach an explanation of why any information is not included.

4. In locations where sediment transport will affect the Base Flood Elevations (BFEs), the effects of sediment transport should be considered for the design bridge/culvert and Section F of Form 3 should be submitted. Please provide justifications if sediment transport analysis is not considered for the bridge/culvert design.

Section D: Dam/Basin

This section is to be filled out when there is an existing, proposed, or modified dam or detention basin along a stream studied in detail. Provide a complete engineering analysis and engineering drawings of the dam/basin. The drawings should indicate the dam dimensions (height, top width, side slopes), the crest elevation of the top of the dam/basin, the type of spillway, the spillway dimensions, the crest elevation of the spillway, the type of outlet, the outlet dimensions, and the invert elevation of the outlet.

1. Indicate the reason for the revision request involving a dam/basin.
2. Indicate the agency or organization that designed the dam/basin.
3.
 - a. Indicate name of the agency or organization responsible for permitting the dam along with the appropriate permit or identification number for the dam.
 - b. If it is a local dam or a private dam, provide related "as-built" or "proposed" drawings, specifications and supporting design information.
4. Indicate if the hydrologic analysis is revised as a result of the dam/basin. Any storage upstream of the dam/basin, considered in the hydrologic analysis to reduce the peak base flood discharge, should be totally dedicated to flood control. If the outflow of the dam is regulated, submit an explanation of the flow regulation plan. Complete Form 2, Riverine Hydrology & Hydraulics Form, if the hydrology changes.

Provide documentation that the dam/basin was designed using the critical storm duration that would yield the maximum reservoir stage or maximum volume of runoff during the design storm.

5. In locations where sediment transport will affect the Base Flood Elevations (BFEs), the effects of sediment transport should be considered in the design of dam/basin and Section F of Form 3 should be submitted. Please provide justifications if sediment transport analysis is not considered for the dam/basin design.
6. Indicate if the Base Flood Elevations change as a result of the dam/basin. If impacted, list the elevations. Indicate the stillwater elevations behind the dam/basin.
7. Attach a copy of the Operation and Maintenance Plan for the dam/basin with the revision request.

Section E: Levee/Floodwall

This section is to be completed when the revision request involves a new or modified levee and/or floodwall system. A levee is a man-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water so as to provide protection from temporary flooding. The purpose of this section is to ensure that the levee or floodwall is designed and/or constructed to provide protection from the 1% annual chance flood, in full compliance with National Flood Insurance Program (NFIP) Regulation 44 CFR Ch. 1, Section 65.10, before reflecting its effects on an NFIP map.

In addition, a vicinity map along with a complete set of flood profile sheets, plan sheets, and layout detail sheets must be submitted. These sheets must be numbered, and an index must be provided that clearly identifies those sheets specifically relating to the levee or floodwall in question.

While the overall submittal for levee accreditation must be certified by a registered Professional Engineer (P.E.) who submits the completed package, the submittal may include several subsets of engineering data, dealing with separate portions of 44 CFR Section 65.10, certified by different P.E.s or engineering firms. Certifications are subject to the definition provided in 44 CFR Section 65.2. In such cases, the P.E. who certifies the completed package will be considered the engineer responsible for the accreditation submittal and will be contacted if additional information is needed. The Form 3 signature block should also be signed by the P. E. who signs the complete package.

1. Indicate all the applicable levee/floodwall system elements, including their locations and types, and provide engineering drawings certified by a registered professional engineer. The drawings should show the items indicated.
2. Indicate the amount of freeboard that the levee has above the base flood elevation. Riverine levees must provide a minimum freeboard of three feet above the BFE. An additional one-half foot above the minimum must be provided at the upstream end of the levee, tapering to not less than the minimum at the downstream end of the levee. An additional one-foot above the minimum freeboard is required on both sides of the river or stream for a distance of 100 feet upstream of structures (such as bridges) riverward of the levee or wherever the flow is constricted. If exceptions to the minimum freeboard requirements are requested, attach documentation addressing NFIP Regulation 44 CFR Ch. 1, Subparagraph 65.10(b)(1)(ii).

Ice-jams can increase the flood elevations on a stream. Indicate if the stream has a history of ice-jams, and, if so, provide evidence that the minimum freeboard still exists with the ice-jam effects.

3. List the closure devices for all openings through the levee system. All openings must be provided with closure devices that are structural parts of the system during operation and design.
4. Complete the information to show where embankment protection is required, and submit supporting embankment protection analysis. The embankment protection analysis must demonstrate that no appreciable erosion of the levee embankment can be expected during the 1% annual chance flood, as a result of either current or waves, and that anticipated erosion will not result in failure of the levee embankment or foundation directly or indirectly through reduction of the seepage path and subsequent instability. Factors to be addressed include, but are not limited to: expected flow velocities, expected wind and wave action, ice loading, impact of debris, slope protection techniques, duration of flooding at various stages and velocities, embankment and foundation materials, levee alignment, bends, transitions, and levee side slopes. The table provide in the form is for riprap protection. If another method of embankment protection is used, then a table with similar information should be prepared and submitted with the forms.
5. Complete the information to summarize the analysis of the levee and foundation. This analysis must evaluate both stability and seepage during the loading conditions associated with the base flood. The seepage analysis shall demonstrate that seepage into or through the levee embankment and foundation will not result in seepage and piping that will jeopardize the embankment and foundation stability. The slope stability analysis shall demonstrate that the levee cross section is stable under all loading and unloading conditions for the base flood. The analysis should include the river or channel slopes. Guidance on seepage and stability analyses is outlined in the U.S. Army Corps of Engineers (USACE) manual "Design and Construction of Levees," EM 1110-2-1913. This manual may be obtained at <http://140.194.76.129/publications/eng-manuals/em1110-2-1913/toc.htm>.

Additional information on acceptable factors of safety for underseepage was previously provided by the USACE in Engineer Technical Letter ETL 1110-2-555, Engineering and Design: Design Guidance for Levees. In May 2005, the USACE issued ETL-1110-2-569, "Engineering and Design: Design Guidance for Levee Underseepage," to replace ETL 1110-2-555. The USACE is in the process of updating Engineer Manual (EM) 1110-2-1913, Engineering and Design: Design and Construction of Levees, to incorporate information from ETL-1110-2-569 among other required changes. Once the USACE issues the updated version of EM 1110-2-1913, it will supersede ETL-1110-2-569.

USACE ETLs, Ems and other USACE documents may be viewed on, or downloaded from, the USACE Website through the following link: <http://140.194.76.129/publications/>. To obtain printed copies of USACE documents you can email Hector Hunt at Hector.N.Hunt@usace.army.mil The factors that must be addressed in these analyses include: depth of flooding, duration of flooding, foundation conditions at the site, embankment and cut slope geometry and length of seepage path at the critical locations, internal drainage in the levee, seepage and/or stability berms and management of trees and vegetation. All backup material for these analyses should be submitted.

6. See above embankment and foundation stability discussion. In addition, waterstops and joint materials should be incorporated into the floodwall design as outlined in USACE manual "Waterstops and Other Prefformed Joint Materials for Civil Works Structures," EM 1110-2-2102 to prevent passage of water through the wall. This manual may be obtained at <http://140.194.76.129/publications/eng-manuals/em1110-2-2102/toc.htm>.

7. Complete the information to summarize the results from an analysis of potential settling of the levee. The settlement analysis must assess the potential and magnitude of future losses of freeboard and must demonstrate that the minimum freeboard requirements will be maintained. The analysis must address embankment loads, compressibility of embankment soils, compressibility of foundation soils, age of the levee system, and construction compaction methods. In addition, a detailed settlement analysis and determination of the appropriate amount of overbuild using procedures such as those described in USACE manuals "Settlement Analysis," EM 1110-2-1904 and "Design and Construction of Levees," EM 1110-2-1913, Chapter 6, must be submitted. Submit all backup information used in the analysis.
8. Complete the information to summarize an analysis of potential flooding from interior drainage. In accordance with NFIP Regulation 44 CFR Ch. 1, Subparagraph 65.10(b)(6), the interior drainage analysis must be based on the joint probability of interior and exterior flooding and the capacity of facilities for evacuating interior floodwaters. The analysis must identify the extent of the flooded area, and the water-surface elevation(s) of the 1% annual chance flood if the average depth is greater than one foot. This information is to show on a certified topographic work map. Submit the calculation and back-up information for the analysis of flooding potential from interior drainage.
9. Complete the information and attach any supporting documentation regarding the design criteria indicated. In locations where sediment transport will affect the design of the levee, the effects of sediment transport should be considered and Section F of Form 3 should be submitted. Please provide justifications if sediment transport analysis is not considered for the levee design.
10. Complete the information to summarize the operational plan and criteria. For a levee system to be recognized by the Federal Emergency Management Agency (DHS-FEMA), the operational criteria must be as described in NFIP Regulation 44 CFR Ch. 1, Subparagraph 65.10(c).
11. Indicate if the maintenance plan for the levee is in compliance with NFIP Regulation 44 CFR Ch. 1, Subparagraph 65.10(d).
12. Submit a copy of the Operation and Maintenance Plan with the revision request. This plan should address maintenance standards, intervals and procedures. It should also include requirements for management of vegetation similar to what is outlined in USACE manual "Landscape Planting and Vegetation Management for Floodwalls, Levees and Embankment Dams," EM 1110-2-301. This manual can be obtained from the USACE Internet site at <http://140.194.76.129/publications/eng-manuals/em1110-2-301/toc.htm> This plan should also include the design and construction requirements and inspection procedures for future utility crossings. The Operation and Maintenance Plan may not have to be submitted when requesting a Conditional Letter of Map Revision (CLOMR) for a proposed levee. However, it will be required after the levee is constructed and a revision to the FIRM is requested.

Section F: Sediment Transport

Complete the information to summarize an analysis of sediment transport (including scour and deposition) if there is any indication from historical records that sediment transport can affect the BFE, or if based on the stream morphology, vegetative cover, development of the watershed and bank conditions, there is a potential for debris and sediment transport to affect the BFE or a structure. If sediment transport will not affect the BFE or a structure, then indicate that this section is not applicable and include an explanation as to why a sediment analysis was not performed. Please note that bulked flows are used to evaluate the performance of a structure during the base flood, but DHS-FEMA does not map BFEs based on bulked flows.

INSTRUCTIONS FOR COMPLETING THE COASTAL ANALYSIS FORM (FORM 4)

The information requested on the Coastal Analysis Form is intended to document the steps taken by the requester in the process of preparing the revised models or analyses and the resulting revised Flood Insurance Study (FIS) information. Refer to the *Consolidated Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix D: Guidance for Coastal Flooding Analyses and Mapping*, which can be obtained from the Federal Emergency Management Agency's (DHS-FEMA's) Internet site at http://www.fema.gov/plan/prevent/fhm/dl_cgs.shtm, for the wave height analyses and mapping procedures used by DHS-FEMA for coastal areas. Wave height, wave run-up, and storm induced erosion may be analyzed using the program, CHAMP 1.1, which was developed for DHS-FEMA. CHAMP 1.1 may be obtained from DHS-FEMA's Internet site at http://www.fema.gov/plan/prevent/fhm/frm_soft.shtm. A list of accepted DHS-FEMA coastal models can be found on DHS-FEMA's Internet site at http://www.fema.gov/plan/prevent/fhm/en_coast.shtm. The following guidelines should be followed when completing the form:

Section A: Coastline to be Revised

Describe the limits of the restudied area. Road names and/or landmarks in the vicinity of the restudied area or transects used in the effective FIS may be used as reference points.

Section B: Effective FIS

The type of analyses (approximate or detailed wave parameter computations) used for the effective FIS for the community being restudied must be provided. This information is available in the hydrologic and hydraulic sections of the FIS report.

Section C: Revised Analysis

All changes to effective models must be supported by certified topographic information, structure plans, survey notes, storm surge data, meteorological data, etc. All equations or models used must be referenced. Descriptions and/or sketches of transect profiles should be attached for revised erosion, wave height, wave runup, and wave overtopping analyses. Wave runup and wave overtopping should be considered when the wave heights approach the crest of the shore protection structure or natural land forms. If DHS-FEMA procedures are not used in the revised analyses, provide an explanation.

Section D: Results

Information must be provided to determine the impact of the analysis on the mapping of the coastal high hazard areas, including the location of the coastal high hazard area boundaries, maximum wave height elevation, and the maximum wave runup elevation. Mapping resulting from the re-analysis of the effective study must tie-in with areas not re-studied. The mapped inland limit of the coastal high hazard areas (V Zones) as a result of the re-analysis must be in compliance with National Flood Insurance Program (NFIP) Regulation 44 CFR Ch. 1, Section 65.11 in areas where primary frontal dunes are present.

Section E: Mapping Requirements

With the revision request, submit a certified topographic map showing the information indicated in the Mapping Requirements Section of the Coastal Analysis Form. Also submit a copy of the current FIRM annotated to show the revised 1% annual chance floodplain boundaries.

INSTRUCTIONS FOR COMPLETING THE COASTAL STRUCTURES FORM (FORM 5)

The Coastal Structures Form is to be completed when a revision to coastal flood hazard elevations and/or areas is requested based on coastal structures being credited as providing protection from the base flood. The purpose of the Coastal Structures Form is to ensure that the structure is designed and constructed to provide protection from the base flood without failing or causing an increase in flood hazards to adjacent areas. Refer to the *Consolidated Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix D: Guidance for Coastal Flooding Analyses and Mapping* which can be obtained from the Federal Emergency Management Agency's (DHS-FEMA's) Internet site at http://www.fema.gov/plan/prevent/fhm/dl_cgs.shtm, for the criteria for evaluating flood protection structures.

If the coastal structure is a levee/floodwall, complete the Levee/Floodwall System section of the Riverine Structure Form (Form 3), in addition to this form. When the Coastal Structures Form is submitted, the Coastal Analysis Form (Form 4) should also be submitted.

Section A: Background

Information about the type of structure, the location, the material being used, and the age of the structure must be provided. Certified "as built" plans must also be provided. If these plans are not available, an explanation must be given with sketches of the general structure dimensions as described. If the structure design has been certified by a Federal agency to provide flood protection and withstand forces from the 1% annual chance (base) flood, the dates of the project completion and certification of the structure should be provided, and the remainder of the form does not need to be completed.

Section B: Design Criteria

Documentation must be provided that ensures a coastal structure is designed and constructed to withstand the wind and wave forces associated with the base flood. The minimum freeboard of the structure must be in compliance with National Flood Insurance Program (NFIP) Regulation 44 CFR Ch. 1, Section 65.10. Additional concerns include the impact to areas directly landward of the structure that may be subjected to overtopping and erosion along with possible failure of the structure due to undermining from the backside and the possible increase in erosion to unprotected properties at the ends of the structure. The evaluation of protection provided by sand dunes must follow the criteria outlined in NFIP Regulation 44 CFR Ch. 1, Section 65.11.

Section C: Adverse Impact Evaluation

If the structure is new, proposed, or modified, and will impact flooding and erosion for the areas adjacent to the structure, provide an explanation and documentation to support your conclusions.

Section D: Community and/or State Review

Provide documentation of Community and/or State review of the revision.

Section E: Certification

The licensed professional engineer and/or land surveyor should have a current license in the State where the affected communities are located. While the individual signing this form is not required to have obtained the supporting data or performed the analyses, he or she must have supervised and reviewed the work.

If the requester is a Federal agency who is responsible for the design and construction of flood control facilities, a letter stating that "the analyses submitted have been performed correctly and in accordance with sound engineering practices" may be submitted in lieu of certification by a registered professional engineer. Regarding the certification of completion of flood control facilities, a letter from the Federal agency certifying its completion and the flood frequency event to which the project protects may be submitted in lieu of this form.

INSTRUCTIONS FOR COMPLETING THE ALLUVIAL FAN FLOODING FORM (FORM 6)

This form should be used for revision requests involving alluvial fans. The purpose of this form is to ensure that a structural flood control measure in areas subject to alluvial fan flooding is designed and/or constructed to provide protection from the 1% annual chance flood, in compliance with National Flood Insurance Program (NFIP) Regulation 44 CFR Ch. 1, Section 65.13, before it is recognized on an NFIP map. Elevating a parcel of land or a structure by fill or other means will not serve as a basis for removing areas subject to alluvial fan flooding from an area of special flood hazards. See NFIP Regulation 44 CFR Ch. 1, Section 65.13. Complete engineering analyses must be submitted in support of each section of this form. In addition, it may be necessary to complete other forms relating to specific flood control measures, such as levees/floodwalls, channelization, or dams.

Section A: Three-Stage Analysis

The three-stage analysis of alluvial fans is described in the Federal Emergency Management Agency's (DHS-FEMA's) *Consolidated Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix G: Guidance for Alluvial Fan Flooding Analyses and Mapping*, which can be obtained from the Federal Emergency Management Agency's (DHS-FEMA's) Internet site at http://www.fema.gov/plan/prevent/fhm/dl_cgs.shtm.

1. Complete the information regarding the characterization of the alluvial fan landform.
2. Complete the information regarding the definition of active and inactive areas.
3. Complete the information regarding the determination of the 100-year floodplain boundaries.

Section B: Structural Flood Control Measures

Complete the information regarding any flood control structures. Submit Form 3, Riverine Structure Form, and an Operation and Maintenance Plan with the revision request. The Operation and Maintenance Plan may be submitted when requesting a Conditional Letter of Map Revision (CLOMR), but is not required. However, it will be required after construction is complete and a revision to the Flood Insurance rate Map (FIRM) is requested.

Section C: Mapping Requirements

With the revision request, submit a certified topographic map showing the information indicated in the Mapping Requirements section of the Alluvial Fan Flooding Form. Also submit a copy of the current FIRM annotated to show the revised 1% annual chance floodplain boundaries.

INSTRUCTIONS FOR COMPLETING THE PAYMENT INFORMATION FORM

The Payment Information Form must be completed for all requests requiring a fee. The current fee schedule for the reviewing and processing of Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) requests may be obtained from the Federal Emergency Management Agency's (DHS-FEMA's) Internet site at http://www.fema.gov/plan/prevent/flm/frn_fees.shtm or by calling DHS-FEMA's Map Information eXchange (FMIX) at 1-877-FEMA MAP (1-877-336-2627).

Indicate the name of the community and a project identifier (e.g., Floodville Estates Subdivision or Small Creek Channel Improvements). The fees are sent to a different location from the revision request package. It is important to have the name of the community and a project identifier on the fee form, so that fees can be matched to the revision requests.

Indicate whether the fee is being submitted for an MT-1 application, an MT-2 application, or an External Data Request. This form is used for several types of requests. The type of request should be indicated so that the fees can be matched to the revision requests.

The request or case number should be indicated if it is known. Generally, this number is not known when a revision is initially requested. However, the case number should be indicated in any subsequent correspondence with DHS-FEMA.

Indicate the amount and method of payment being used to pay the fee.

INSTRUCTIONS FOR COMPLETING ESA COMPLIANCE DOCUMENTATION

CLOMR applicants are responsible for documenting to FEMA that Endangered Species Act (ESA) compliance has been achieved prior to FEMA's review of a CLOMR application. For LOMR requests, ESA compliance is required independently of FEMA's process. The community must ensure that appropriate ESA permits are obtained per requirement under Section 60.3(a)(2) of FEMA's regulations. ESA compliance may be documented by submitting to FEMA a copy of an Incidental Take Permit, an Incidental Take Statement, a "not likely to adversely affect" determination from the National Marine Fisheries Service (NMFS) or the U.S. Fish and Wildlife Service (USFWS), or an official letter from NMFS or USFWS concurring that the project has "No Effect" on proposed or listed species or designated critical habitat. The applicant may begin by contacting a NMFS or USFWS office, State wildlife agency office, or independent biologist to identify whether threatened or endangered species exist on the subject property and whether the project associated with the CLOMR request would adversely affect species or designated critical habitat. These entities are also available to discuss questions pertaining to listed species and ESA compliance. If potential adverse impacts could occur, then NMFS or USFWS may require changes to the proposed activity and/or mitigation.

Additional information about the ESA and these requirements is available on [POST WEB ADDRESS](#) [FM AND GUIDANCE](#) or by requesting a copy from the DHS-FEMA Map Information eXchange (FMIX) toll free at 1-877-FEMA MAP (1-877-336-2627). Although FEMA's staff is not available to assist with this process, NMFS and the USFWS both have staff available around the country to answer questions about threatened and endangered species and ESA compliance.

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|----------|---|
| BF E | Base (1% annual chance) Flood Elevation. It is the height of the base flood, usually in feet, in relation to the datum used, or the depth of the base flood usually in feet, above the ground surface. The base flood is the flood that has a 1% probability of being equaled or exceeded in any given year (also referred to as the 100-year flood or the 1% annual chance flood). |
| CFR | Code of Federal Regulations. |
| CHHA | Coastal High Hazard Area. An area of special flood hazard 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 action from storms or seismic sources. CHHAs are indicated as V or VE Zones on the Flood Insurance Rate Maps. |
| CLOMR | Conditional Letter of Map Revision. A letter from DHS-FEMA commenting on whether a proposed project, if built as proposed, would meet the minimum standards of the National Flood Insurance Program. |
| FBFM | The Flood Boundary and Floodway Map. The floodplain management map issued by DHS-FEMA that depicts, on the basis of detailed analyses, the boundaries of the 100- and 500-year floodplain and the regulatory floodway. |
| DHS-FEMA | U.S. Department of Homeland Security - Federal Emergency Management Agency. |
| FHBM | The Flood Hazard Boundary Map. The initial flood insurance map issued by FEMA that identified on the basis of approximate analyses, the areas of 100-year flood hazard in a community. |
| FIRM | Flood Insurance Rate Map. An official map of a community, on which the Administrator has delineated both the special hazard areas and the risk premium zones applicable to the community. |
| FIS | Flood Insurance Study. An engineering study performed under contract to FEMA to identify flood-prone areas and to determine BFEs, flood insurance rate zones, and other flood risk data for a community. |
| LOMR | Letter of Map Revision. A letter from FEMA officially revising the current NFIP map to show changes to floodplains, floodways, or flood elevations. |
| NFIP | National Flood Insurance Program. |
| PMR | Physical Map Revision. A reprinted NFIP map incorporating changes to floodplains, floodways, or flood elevations. Because of the time and cost involved to change, reprint, and redistribute an NFIP map, a PMR is usually processed when a revision reflects large scope changes. |
| SFHA | Special Flood Hazard Area. Areas inundated by a flood having a 1% probability of being equaled or exceeded in any given year (also referred to as the 100-year flood). |
| USACE | U.S. Army Corps of Engineers. |
| WSEL | Water Surface Elevation. |

APPENDIX B - USEFUL INTERNET SITES

Public Information:

<http://www.fema.gov> - DHS-FEMA's Internet site.

http://www.fema.gov/plan/prevent/fhm/en_main.shtm - DHS-FEMA's Internet site for engineers and surveyors.

http://www.fema.gov/plan/prevent/fhm/ot_main.shtm - DHS-FEMA's Internet site for online tutorials.

<http://www.fema.gov/fema/csb.shtm> - National Flood Insurance Program Community Status Book.

<http://store.msc.fema.gov/> - Internet site for ordering NFIP maps.

http://www.access.gpo.gov/nara/cfr/waisidx_02/44cfrv1_02.html - NFIP regulations.

Amendment/Revision Forms and Information:

http://www.fema.gov/plan/prevent/fhm/dl_mt-ez.shtm - MT-EZ form package, *Amendments to National Flood Insurance Program Maps, Application Form for Single Residential Lot or Structure.*

http://www.fema.gov/plan/prevent/fhm/dl_mt-1.shtm - MT-1 form package, *Revisions to National Flood Insurance Program Maps, Application Forms for Conditional and Final Letters of Map Amendment and Letters of Map Revision Based on Fill.*

http://www.fema.gov/plan/prevent/fhm/dl_mt-2.shtm - MT-2 form package, *Revisions to National Flood Insurance Program Maps, Application Forms and Instructions for Conditional Letters of Map Revision and Letters of Map Revision.*

http://www.fema.gov/plan/prevent/fhm/frm_fees.shtm - Fee schedule for review and processing of CLOMR and LOMR requests.

http://www.fema.gov/plan/prevent/fhm/st_order.shtm - Internet site for ordering backup information for an existing Flood Insurance Study.

Documents, Guidelines and Manuals:

<http://www.fema.gov/plan/prevent/floodplain/techbul.shtm> - DHS-FEMA's Technical Bulletin 10-01, "Ensuring That Structures Built on Fill In or Near Special Flood Hazard Areas Are Reasonably Safe from Flooding."

http://www.fema.gov/plan/prevent/fhm/dl_zonea.shtm - DHS-FEMA's manual, "Managing Floodplain Development in Approximate Zone A Areas, A Guide for obtaining and developing Base (100-year) Flood Elevations."

http://www.fema.gov/plan/prevent/fhm/dl_cgs.shtm - DHS-FEMA's *Consolidated Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix G: Guidance for Alluvial Fan Flooding Analyses and Mapping.*

http://www.fema.gov/plan/prevent/fhm/dl_cgs.shtm - DHS-FEMA's *Consolidated Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix D: Guidance for Coastal Flooding Analyses and Mapping.*

<http://140.194.76.129/publications/eng-manuals/em1110-2-1913/toc.htm> - USACE manual "Design and Construction of Levees," EM 1110-2-1913.

<http://140.194.76.129/publications/eng-manuals/em1110-2-2102/toc.htm> - USACE manual "Waterstops and Other Prefomed Joint Materials for Civil Works Structures," EM 1110-2-2102.

<http://140.194.76.129/publications/eng-manuals/em1110-2-301/toc.htm> - USACE manual "Landscape Planting and Vegetation Management for Floodwalls, Levees and Embankment Dams," EM 1110-2-301.

Software:

http://www.fema.gov/plan/prevent/fhm/en_modl.shtm - List of numerical models accepted by DHS-FEMA for the NFIP usage.

http://www.fema.gov/plan/prevent/fhm/fm_soft.shtm - Engineering software developed by DHS-FEMA. The site also includes additional information, such as tutorials, user's manuals and guidance documentation for certain programs.

Federal Agencies:

<http://www.epa.gov/> - Environmental Protection Agency

<http://www.nasa.gov/> - National Aeronautics and Space Administration (NASA)

<http://www.noaa.gov/> - National Oceanic and Atmospheric Administration (NOAA)

<http://www.nws.noaa.gov/> - National Weather Service (NWS)

<http://www.nrcs.usda.gov/> - Natural Resources Conservation Service (NRCS)

<http://www.usace.army.mil/> - U.S. Army Corps of Engineers (USACE)

<http://www.hec.usace.army.mil/> - USACE Hydrologic Engineering Center (HEC)

<http://www.usda.gov/> - U.S. Department of Agriculture (USDA)

<http://www.fws.gov/index.html> - U.S. Fish & Wildlife Service

<http://www.nmfs.noaa.gov/> - National Marine Fisheries Service

APPENDIX C - DHS-FEMA OFFICES

REGION I

(Connecticut, Maine, Massachusetts,
New Hampshire, Rhode Island, Vermont)

FEMA, Federal Insurance and Mitigation Division
99 High Street, Sixth Floor
Boston, MA 02110
(617) 832-4761

REGION II

(New York, Puerto Rico, New Jersey)

FEMA, Federal Insurance and Mitigation Division
26 Federal Plaza, Room 1337
New York, New York 10278-0001
(212) 680-3620

REGION III

(Delaware, D.C., Maryland,
Pennsylvania, Virginia, West Virginia)

FEMA, Federal Insurance and Mitigation Division
One Independence Mall, Sixth Floor
615 Chestnut Street
Philadelphia, Pennsylvania 19106-4404
(215) 931-5508

REGION IV

(Alabama, Florida, Georgia, Kentucky,
Mississippi, N. Carolina, S. Carolina, Tenn.)

FEMA, Federal Insurance and Mitigation Division
Koger Center - Rutgers Building
3003 Chamblee Tucker Road
Atlanta, Georgia 30341-4112
(770) 220-5400

REGION V

(Illinois, Indiana, Michigan
Minnesota, Ohio, Wisconsin)

FEMA, Federal Insurance and Mitigation Division
536 South Clark Street, Sixth Floor
Chicago, Illinois 60605-1509
(312) 408-5500

REGION VI

(Arkansas, Louisiana, New Mexico, Oklahoma, Texas)

FEMA, Federal Insurance and Mitigation Division
Federal Regional Center
800 North Loop 288
Denton, Texas 76209-3698
(940) 898-5399

REGION VII

(Iowa, Kansas, Missouri, Nebraska)

FEMA, Federal Insurance and Mitigation Division
9221 Ward Parkway, Suite 300
Kansas City, MO 64114-3372
(816) 283-7002

REGION VIII

(Colorado, Montana, N. Dakota, S. Dakota, Utah,
Wyoming)

FEMA, Federal Insurance and Mitigation Division
Denver Federal Center
Building 710, Box 25267
Denver, Colorado 80225-0267
(303) 235-4800

REGION IX

(Arizona, California, Hawaii, Nevada)

FEMA, Federal Insurance and Mitigation Division
1111 Broadway, Suite 1200
Oakland, California 94607-4052
(510) 627-7100

REGION X

(Alaska, Idaho, Oregon, Washington)

FEMA, Federal Insurance and Mitigation Division
Federal Regional Center
130 228th Street, S.W.
Bothell, Washington, 98021-8627
(206) 487-4600

HEADQUARTERS

U.S. Department of Homeland Security
Federal Emergency Management Agency
Mitigation Division
Risk Analysis Branch
500 C Street, SW
Washington, DC 20472
1-877-FEMA MAP (1-877-336-2627)