



FEMA POLICY Standards for Flood Risk Analysis and Mapping FEMA Policy #FP 204-078-1 (Rev 5)

BACKGROUND

This policy is applicable to Federal Emergency Management Agency (FEMA) staff delivering Risk MAP, all mapping partners (contractors, cooperating technical partners, and other federal agencies) who perform flood risk projects on behalf of FEMA, and the NFIP. Additionally, this policy may be pertinent to states, tribes, communities, homeowners and their consultants who are interested in the flood insurance rate map process.

This policy updates and supersedes the **Standards for Flood Risk Analysis and Mapping – FP 204-078-1 (Rev 4)** approved November 30, 2015.

The changes with this revision are:

SID #	Change	Description
620	New	Requires notification to community officials and 30 day response period regarding models to be used for a flood risk project.
621	New	Requires provision of draft data to community officials, 30 day response period, and incorporation of appropriate data provided by community.
622	New	Requires coordination with local radio and TV stations to help inform the public about FEMA map revision and appeals process.
43	Revised	Revises FEMA's elevation requirements to specify most accurate elevation data available be used.
17	Revised	Modifies FEMA standard specifying project size for watershed based projects to add more flexibility.
214	Revised	Updated to reflect current requirements for Notice to Users corrections and to include the National Flood Hazard Layer as one of the products included in the standard.



SID #	Change	Description
507	Revised	Updated to include the FIRM Database and National Flood Hazard Layer as products included in the standard. Also specifies that agreement across products includes matching decimal point precision.
417	Revised	Removes the requirement that the legacy Average Annualized Loss data be used in the Flood Risk Assessment products.
438	Rescinded	Removes the requirement to use the older version of Hazus and census data for Flood Risk Assessment products.
57, 180, 181, 425, 429, 433	Revised	Updated to use the term “non-regulatory flood risk products” or “flood risk products” instead of “non-regulatory products.”
423, 431, 441	Rescinded	Removed certain technical requirements already covered in the Flood Risk Database Technical Reference.

PURPOSE

1. The purpose of this policy is to enable consistent performance by identifying the standards that must be followed in the delivery of the Risk MAP program.

PRINCIPLES

- 1) Ensure consistency in the deliverables of all flood risk projects so that they can support the NFIP and all of its stakeholders.
- 2) Ensure a standard level of quality is met for all deliverables of a flood risk project.
- 3) Provide appropriate flexibility to FEMA Regional Offices and Mapping Partners to accommodate regional and local variability across the country.
- 4) Enhance the credibility of the NFIP and all flood risk mapping efforts.

REQUIREMENTS

Flood risk projects, regulatory National Flood Insurance Program (NFIP) map changes and other Risk Mapping Analysis and Planning (Risk MAP) activities shall be performed in a consistent manner resulting in quality data and deliverables. The attached set of standards shall be followed in the delivery of Risk MAP.

Standards must be implemented based on the effective date and implementation description. New standards may be implemented sooner in coordination with the FEMA Project Officer and Contracting Officer’s Representative.



FEMA

FEMA publishes substantial additional guidance to support implementation of and compliance with these standards. Users of these standards should also reference this guidance published on FEMA's web site.

A handwritten signature in black ink, appearing to read "Angela R. Gladwell".

Angela R. Gladwell
Deputy Assistant Administrator
Risk Management Directorate

June 6, 2016

Date



ADDITIONAL INFORMATION

REVIEW CYCLE

FEMA POLICY Standards for Flood Risk Analysis and Mapping #FP 204-078-1 (Rev 5) will be reviewed, reissued, revised, or rescinded every six months.

AUTHORITIES

The mapping program for the NFIP, implemented through Risk MAP, is established through The National Flood Insurance Act of 1968, as amended and the Biggert-Waters Flood Insurance Reform Act of 2012, as amended (42 U.S.C. 4001 *et seq.*). The mapping program is governed by the implementing regulations at 44 CFR parts 59-72. The statutes and regulations establish the core requirements for the mapping program.

This policy represents FEMA's interpretation of these statutory and regulatory requirements and/or sets forth standard operating procedures. The policy itself does not impose legally enforceable rights and obligations, but sets forth a standard operating procedure or agency practice that FEMA employees and contractors follow to be consistent, fair, and equitable in the implementation of the Agency's authorities.

These standards are to be applied in addition to the legal requirements set out in the applicable statutes and regulations. For the most part, the applicable statutory and regulatory requirements are not repeated in this policy. Readers must refer to the statutes and regulations in addition to these standards.

DEFINITIONS

Flood risk projects are projects implemented under the Risk MAP program to engage with communities and provide flood risk information.

Guidance is a recommended method to meet the standard. Guidance assumes a working knowledge of common industry terminology and methodologies. Accepted approaches are not limited to this recommended approach; mapping partners may use other methods to meet or exceed the standard.

Guidelines and Standards Steering Committee is a team of FEMA headquarters and regional employees and contractors responsible for maintenance and coordination of Risk MAP standards and guidance.

Mapping Partners are FEMA Production and Technical Services Contractors, Cooperating Technical Partners, and other Federal Agencies performing tasks on a flood risk project.



FEMA

Program standards are a required element that supports the vision, goals and objectives of the Program. Exceptions must be obtained through coordination with FEMA headquarters Risk Analysis Division leadership.

Risk MAP is the FEMA program that maintains flood maps for the NFIP and engages with local governments to increase awareness of flood risk and provide flood risk information that leads to actions to reduce risk.

Standards exceptions are project-specific variances to Risk MAP standards, approved by appropriate Risk MAP officials.

Working standards are required elements of a project that are typically applied by specialists (such as engineers, planners, GIS specialists, etc.). A complete list of acronyms and abbreviations is attached as Appendix B.

MONITORING AND EVALUATION

Compliance will be monitored through the Risk MAP Quality Assurance Management Plan.

QUESTIONS

Direct questions to paul.rooney@fema.dhs.gov



Appendix A
Standards for Flood Risk Analysis and Mapping

SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
1	4/1/2003	Existing standard. Already implemented.	Project Initiation	Program Standard	All Flood Risk Projects and LOMCs must be tracked in the MIP.
2	4/1/2003	Existing standard. Already implemented.	Project Initiation	Working Standard	A Project Management Team shall be formed as soon as a Flood Risk Project is initiated, and this team shall manage the project for its entire lifecycle.
3	4/1/2003	Existing standard. Already implemented.	Project Initiation	Program Standard	When a community is initially considered for a Flood Risk Project involving a new or revised flood hazard analysis, FEMA must establish and maintain a community case file per 44 CFR 66.3.
4	10/1/2009	Existing standard. Already implemented.	Project Initiation	Program Standard	All newly initiated Flood Risk Projects must be watershed-based, with the exception of coastal and small-scale Flood Risk Projects related to levee accreditation status.
5	7/13/2010	Existing standard. Already implemented.	Project Planning	Working Standard	No flooding source will receive a lower level of regulatory flood map product than what currently exists on effective maps.
6	11/30/2015	Effective Immediately.	CNMS	Working Standard	Both flood hazard validation and needs assessment processes must follow the CNMS Technical Reference and the results must be stored within the national CNMS database.
7	6/17/2011	Existing standard. Already implemented.	CNMS	Working Standard	Community-specific requests to update the FIRM outside of the NVUE validation process and LOMR process must be documented in the CNMS database as mapping requests for FEMA Regional review and consideration.
8	6/17/2011	Existing standard. Already implemented.	CNMS	Working Standard	The CNMS database shall be updated for engineering reference information, validation status, and map issues throughout all pertinent phases of the Flood Risk Project.
9	6/17/2011	Existing standard. Already implemented.	CNMS	Program Standard	The CNMS database shall be the sole authority for reporting flood map update needs.
10	6/17/2011	Existing standard. Already implemented.	CNMS	Working Standard	For a studied flooding source to go from 'UNVERIFIED' to "VALID" status within the CNMS database, the flooding source must be re-analyzed.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
11	6/17/2011	Existing standard. Already implemented.	CNMS	Working Standard	When the last assessment date of the Modernized or Paper Inventory exceeds 5 years, the Validation Status shall be changed by FEMA HQ or its designee to 'Unknown' and shall require reassessment.
12	6/17/2011	Existing standard. Already implemented.	Project Planning	Program Standard	Each fiscal year, the Regions shall have a plan to evaluate all CNMS flooding sources within a 5-year period.
13	6/17/2011	Existing standard. Already implemented.	CNMS	Working Standard	NVUE status must be reported by each FEMA Region to FEMA HQ at least quarterly.
14	6/17/2011	Existing standard. Already implemented.	Project Planning	Working Standard	Regional decisions to prioritize, assess, and perform engineering analyses along various flooding sources must be supported by the data contained in CNMS.
15	4/1/2003	Existing standard. Already implemented.	Coordination	Working Standard	FEMA shall provide technical and programmatic assistance and prepare responses to inquiries received from Mapping Partners, NFIP constituents and other interested project stakeholders.
16	6/11/2011	Existing standard. Already implemented.	Project Planning	Program Standard	Each flooding source must be evaluated in CNMS at least once within a 5-year period.
17	6/6/2016	Effective immediately	Project Planning	Program Standard	Discovery is a mandatory element of all Flood Risk Projects, and must be conducted on the same scale at which the Flood Risk Project is initiated. All watershed-based Discovery must be initiated at a geographic footprint that encompasses the hydrologic characteristics of the area of interest.
18	7/1/2011	Existing standard. Already implemented.	Stakeholder Engagement	Working Standard	All communities and tribes must be given an opportunity to review and make corrections to any data and information collected during Discovery prior to distribution of final Discovery products.
19	7/1/2011	Existing standard. Already implemented.	Stakeholder Engagement	Working Standard	Flood Risk Project stakeholders must be contacted prior to the Discovery Meeting.
20	7/1/2011	Existing standard. Already implemented.	Stakeholder Engagement	Working Standard	Discovery must engage all communities and stakeholder organizations within the project area and must engage practitioners across relevant disciplines.
21	7/1/2011	Existing standard. Already implemented.	Discovery	Working Standard	The types of data and information obtained during Discovery must demonstrate a holistic picture of flooding issues, flood risk, and flood mitigation priorities, opportunities, efforts and capabilities.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
22	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	Project Planning	Program Standard	Decisions to perform additional analyses, data development activities, and/or community engagement within the Flood Risk Project area must be supported by the outcomes from Discovery. These decisions shall be communicated to project stakeholders prior to executing those activities.
23	7/1/2011	Existing standard. Already implemented.	Discovery	Working Standard	A pre-meeting Discovery Map and Report that incorporates appropriate background research must be provided to the communities and Tribes prior to the Discovery Meeting and presented at the Discovery Meeting to facilitate discussions.
24	7/1/2011	Existing standard. Already implemented.	Discovery	Working Standard	A post-meeting Discovery Map and Report will be provided to the communities and Tribes after the Discovery Meeting.
26	7/1/2011	Existing standard. Already implemented.	Discovery	Working Standard	A Discovery Report must include a section listing the data and information collected, when they were received, data sources, and an analysis of the data and information. The Post-Meeting Report must include the outcomes and decisions made at the Discovery Meeting.
27	7/1/2011	Existing standard. Already implemented.	Discovery	Program Standard	A Discovery Meeting with project stakeholders is a required activity of Discovery.
29	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	Stakeholder Engagement	Program Standard	During Discovery, data must be identified that illustrates potential changes in flood elevation and mapping that may result from the proposed project scope. If available data does not clearly illustrate the likely changes, an analysis is required that estimates the likely changes. This data and any associated analyses must be shared and results must be discussed with stakeholders.
30	7/1/2011	Existing standard. Already implemented.	Stakeholder Engagement	Working Standard	The Flood Risk Project scope of work must be developed in coordination with project stakeholders. The purchased Flood Risk Project scope of work must be shared with project stakeholders.
31	7/1/2011	Existing standard. Already implemented.	Stakeholder Engagement	Working Standard	Discovery must include a discussion with stakeholders regarding risk identification, mitigation capabilities and actions, planning, and risk communication.
33	7/1/2011	Existing standard. Already implemented.	Stakeholder Engagement	Working Standard	For coastal Flood Risk Projects that will begin with a storm surge analysis, stakeholder coordination must occur by the end of the storm surge study effort and continue throughout the remainder of the coastal Flood Risk Project.



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34	7/1/2011	Existing standard. Already implemented.	Stakeholder Engagement	Working Standard	When storm surge analyses are included in a Flood Risk Project, Discovery efforts must include a discussion of how storm surge estimates have changed since the effective Flood Risk Project.
35	7/1/2011	Existing standard. Already implemented.	Stakeholder Engagement	Working Standard	The FEMA Regional Office must be consulted as to how Tribal Nations should be included in the overall Discovery efforts.
36	1/1/2013	Existing standard. Already implemented.	CNMS	Program Standard	A CNMS database that is compliant with the CNMS Technical Reference must be updated and submitted at the completion of Discovery or Project Initiation, at Preliminary, and at Revised Preliminary if applicable, based on the information and data collected.
40	11/30/2015	All FY16 task orders that include new lidar collection.	Elevation Data	Program Standard	New elevation data purchased by FEMA must comply with the current USGS National Geospatial Program Base Lidar Specification Version 1.2, except hydroflattening is not required and a classified point cloud and a bare earth DEM deliverable are not required.
41	4/1/2003	Existing standard. Already implemented.	Elevation Data	Working Standard	For areas within the Continental United States field surveys and aerial data acquisition must be referenced to the North American Vertical Datum of 1988 (NAVD88) and the North American Datum 1983 (NAD83) and connected to the NSRS.
42	4/1/2003	Existing standard. Already implemented.	Elevation Data	Working Standard	All ground and structure surveys must be certified by a registered professional engineer or a licensed land surveyor.



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43	6/6/2016	Implemented for all projects that have not yet begun data development	Elevation Data	Working Standard	<p>All updated flood hazard data shown on the Flood Insurance Rate Map (FIRM), in the FIRM Database and Flood Insurance Study (FIS) must be based on the most accurate existing topographic data available to FEMA before the start of data development and the data must have documentation that it meets the following vertical accuracy requirements:</p> <table border="1"> <thead> <tr> <th colspan="5">Vertical Accuracy Requirements based on Flood Risk and Terrain Slope within the Floodplain being Mapped</th> </tr> <tr> <th>Level of Flood Risk</th> <th>Typical Slopes</th> <th>Specification Level</th> <th>Vertical Accuracy: 95% Confidence Level (FVA or MVA) / (CVA or VVA)</th> <th>LiDAR Nominal Pulse Spacing (NPS)</th> </tr> </thead> <tbody> <tr> <td>High (Deciles 1,2,3)</td> <td>Flattest</td> <td>Highest</td> <td>24.5 cm / 36.3 cm</td> <td>≤ 2 meters</td> </tr> <tr> <td>High (Deciles 1,2,3)</td> <td>Rolling or Hilly</td> <td>High</td> <td>49.0 cm / 72.6 cm</td> <td>≤ 2 meters</td> </tr> <tr> <td>High (Deciles 2,3,4,5)</td> <td>Hilly</td> <td>Medium</td> <td>98.0 cm / 145 cm</td> <td>≤ 3.5 meters</td> </tr> <tr> <td>Medium (Deciles 3,4,5,6,7)</td> <td>Flattest</td> <td>High</td> <td>49.0 cm / 72.6 cm</td> <td>≤ 2 meters</td> </tr> <tr> <td>Medium (Deciles 3,4,5,6,7)</td> <td>Rolling</td> <td>Medium</td> <td>98.0 cm / 145 cm</td> <td>≤ 3.5 meters</td> </tr> <tr> <td>Medium (Deciles 3,4,5,6,7)</td> <td>Hilly</td> <td>Low</td> <td>147 cm / 218 cm</td> <td>≤ 5 meters</td> </tr> <tr> <td>Low (Deciles 7,8,9,10)</td> <td>All</td> <td>Low</td> <td>147 cm / 218 cm</td> <td>≤ 5 meters</td> </tr> </tbody> </table> <p>If data is not available that meets these requirements, new elevation data must be obtained.</p>	Vertical Accuracy Requirements based on Flood Risk and Terrain Slope within the Floodplain being Mapped					Level of Flood Risk	Typical Slopes	Specification Level	Vertical Accuracy: 95% Confidence Level (FVA or MVA) / (CVA or VVA)	LiDAR Nominal Pulse Spacing (NPS)	High (Deciles 1,2,3)	Flattest	Highest	24.5 cm / 36.3 cm	≤ 2 meters	High (Deciles 1,2,3)	Rolling or Hilly	High	49.0 cm / 72.6 cm	≤ 2 meters	High (Deciles 2,3,4,5)	Hilly	Medium	98.0 cm / 145 cm	≤ 3.5 meters	Medium (Deciles 3,4,5,6,7)	Flattest	High	49.0 cm / 72.6 cm	≤ 2 meters	Medium (Deciles 3,4,5,6,7)	Rolling	Medium	98.0 cm / 145 cm	≤ 3.5 meters	Medium (Deciles 3,4,5,6,7)	Hilly	Low	147 cm / 218 cm	≤ 5 meters	Low (Deciles 7,8,9,10)	All	Low	147 cm / 218 cm	≤ 5 meters
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44	1/1/2013	Existing standard. Already implemented.	Elevation Data	Working Standard	FEMA requires all elevation data to be processed to the bare earth terrain in the vicinity of floodplains that will require hydraulic modeling.																																													
45	9/27/2010	Existing standard. Already implemented.	Elevation Data	Working Standard	FEMA does not require the elevation data to be hydro-flattened, as specified in USGS Lidar Specification.																																													
46	11/30/2015	All FY16 task orders that include new lidar collection.	Elevation Data	Working Standard	When a classified point cloud and a Digital Elevation Model (DEM) deliverable are included in a new elevation data collection, checkpoints for Vegetated Vertical Accuracy (VVA) must fall within the DEM footprint.																																													
49	1/1/2013	Existing standard. Already implemented.	Elevation Data	Working Standard	All FEMA funded aerial mapping must be certified by a licensed professional or certified photogrammetrist.																																													



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50	11/1/2009	Existing standard. Already implemented.	2D Models	Working Standard	The digital terrain model input for a two-dimensional model must cover the entire 2D study area and the derivation or development of the grid must be clearly documented.
54	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	H&H Analyses	Working Standard	Where flood elevations are produced from a hydraulic model, they can be published as BFEs unless the responsible engineer documents why they should not be issued.
56	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	Alluvial Fan	Program Standard	Written approval from the FEMA Regional Risk Analysis Branch Chief regarding the alluvial fan methodology must be obtained before the commencement of full analysis. To inform this decision, sufficient field data and analysis and records of community engagement relative to the scope and methodology must be provided.
57	6/6/2016	Existing standard. Already implemented.	Engineering	Program Standard	<p>The regulatory products and non-regulatory flood risk products must be based on H&H or coastal analyses using existing ground conditions in the watershed and floodplain. The multiple profile and floodway runs must have the same physical characteristics in common for existing ground conditions.</p> <p>However, a community may choose to include flood hazard information that is based on future conditions on a FIRM (shown as shaded Zone X); in an FIS Report; or non-regulatory flood risk products in addition to the existing-conditions.</p>
59	11/1/2009	Existing standard. Already implemented.	H&H Analyses	Working Standard	Hydrologic and hydraulic analyses must be calibrated using data from well-documented flood events, if available.
61	11/1/2009	Existing standard. Already implemented.	Engineering	Program Standard	Engineering analyses must be documented and easily reproducible and must include study methods, reasoning for method selection, input data and parameters, sources of data results, and justifications for major changes in computed flood hazard parameters.
62	1/1/2013	Existing standard. Already implemented.	H&H Analyses	Program Standard	New or updated flood hazard data used for the regulatory products must be supported by modeling or sound engineering judgment and all regulatory products must be in agreement.
65	11/1/2009	Existing standard. Already implemented.	BFEs	Working Standard	BFEs must agree with those of other contiguous studies of the same flooding source within 0.5 foot, unless it is demonstrated that it would not be appropriate. Please see 44 CFR 65.6a(2).



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
66	11/1/2009	Existing standard. Already implemented.	Flood Profiles	Working Standard	Each modeled split or diverted flow path must be plotted with individual Flood Profiles.
67	11/1/2009	Existing standard. Already implemented.	2D Models	Working Standard	Grids or cells must not be artificially removed when two- or three-dimensional models are used.
69	11/1/2009	Existing standard. Already implemented.	Floodway	Program Standard	Floodway surcharge values must be between zero and 1.0 ft. If the State (or other jurisdiction) has established more stringent regulations, these regulations take precedence over the NFIP regulatory standard. Further reduction of maximum allowable surcharge limits can be used if required or requested and approved by the communities impacted.
70	11/1/2009	Existing standard. Already implemented.	Floodway	Working Standard	If a stream forms the boundary between two or more States and/or tribes, either the 1.0-foot maximum allowable rise criterion or existing floodway agreements between the parties shall be used.
71	11/1/2009	Existing standard. Already implemented.	Floodway	Working Standard	Revised floodway data must match any effective floodways at the limits of the Flood Risk Project.
72	11/1/2009	Existing standard. Already implemented.	Floodway	Working Standard	An equal conveyance reduction method must be used to establish the minimal regulatory floodway.
73	11/1/2009	Existing standard. Already implemented.	Floodway	Working Standard	To calculate floodways using methodologies other than steady-state, one-dimensional models, pre-approval must be received from the FEMA Project Officer and impacted communities and states with floodway authorities.
74	7/31/2013	For all ongoing and newly initiated projects.	H&H Analyses	Program Standard	The hydrologic, hydraulic, and coastal analyses and the final regulatory products must be certified by a registered professional engineer.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
75	11/1/2009	Existing standard. Already implemented.	FIS Tables	Working Standard	<p>For each stream with cross sections where a floodway was determined under the scope of work, a Floodway Data Table compliant with the FIS Report Technical Reference must be prepared as part of the hydraulic analysis. The Floodway Data Table must contain an entry for each lettered, mapped cross section that includes the following information:</p> <ul style="list-style-type: none"> • Cross-section identification shown in a georeferenced spatial file; • Stream or profile baseline station of the cross section; • Width of the floodway at the cross section; • Wetted area of the cross section under encroached conditions; • Average velocity of the floodwaters at the cross section under encroached conditions; • The greater of BFEs from all flooding sources, including from backwater, affecting the cross section (regulatory elevation); • The BFE from the existing conditions model (without-floodway elevation); • The BFE from the encroached existing conditions model (with-floodway elevation); and • Difference between with- and without-floodway elevations (surcharge).
76	11/1/2009	Existing standard. Already implemented.	H&H Analyses	Working Standard	If previously-modeled storage areas are removed or filled, the models must be updated to reflect the loss in storage.
77	11/1/2009	Existing standard. Already implemented.	Floodway	Working Standard	Floodway computations for tributaries must be developed without consideration of backwater from confluences.
78	11/1/2009	Existing standard. Already implemented.	Flood Profiles	Working Standard	The water-surface profiles of different flood frequencies must not cross one another.
79	11/1/2009	Existing standard. Already implemented.	Flood Profiles	Working Standard	Water-surface elevations shown on the Flood Profiles shall not rise from an upstream to downstream direction.
80	11/1/2009	Existing standard. Already implemented.	Profile Baseline	Working Standard	If a flow path other than the stream centerline is more representative of the direction of flow, the case must be documented and the flow path shown and labeled on the FIRM as the "Profile Baseline". Flow distances in one-dimensional models must be referenced to the profile baseline.



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81	11/1/2009	Existing standard. Already implemented.	H&H Analyses	Working Standard	Ineffective and non-conveyance areas must be designated to reflect the actual conditions (such as topography and surface roughness) as closely as practical.
82	9/28/2010	Existing standard. Already implemented.	Project Management	Program Standard	Final invoices shall not be paid until a TSDN is submitted, and certification is provided that contract or grant requirements are met.
83	9/28/2010	Existing standard. Already implemented.	Project Planning	Program Standard	The FEMA Regional staff initiating a Flood Risk Project shall first engage all stakeholders in order to fully understand the impacted communities, leverage other FEMA activities in the area, and thereby avoid duplication of benefits through funding to CTPs.
84	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	H&H Analyses	Program Standard	<p>All riverine engineering Flood Risk Projects shall consist of a hydraulic model with multiple frequencies: 0.2 percent, 1-percent, 2-percent, 4-percent, and 10-percent-annual-chance exceedance events.</p> <p>In addition, the “1-percent plus” flood elevation shall be modeled for all riverine analyses. The 1% plus flood elevation is defined as a flood elevation derived by using discharges that include the average predictive error for the regression equation discharge calculation for the Flood Risk Project. This error is then added to the 1% annual chance discharge to calculate the new 1% plus discharge. The upper 84-percent confidence limit is calculated for Gage and rainfall-runoff models for the 1% annual chance event.</p> <p>The “1-percent plus” flood elevation must be shown on the Flood Profile in the FIS Report to best understand and communicate the uncertainty of the flood elevation.</p> <p>The mapping of the “1-percent plus” floodplain is optional and will only be produced when it is determined to be appropriate.</p>
85	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	Project Planning	Working Standard	Deviations from standards must be approved by FEMA, tracked for exception reporting, and documented.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
86	2/1/2007	Existing standard. Already implemented.	Coastal	Working Standard	For coastal Flood Risk Projects, wave runup analyses shall compute the wave runup elevation as the value exceeded by 2 percent of the runup events.
87	5/1/2012	Existing standard. Already implemented.	Coastal	Working Standard	For coastal Flood Risk Projects, intermediate data submissions to FEMA are required at key milestones during the coastal analysis process.
88	5/1/2012	Existing standard. Already implemented.	Coastal	Working Standard	All coastal processes and flooding sources that contribute to the 1-percent-annual-chance flood condition both at a regional and local scale must be considered.
89	2/1/2007	Existing standard. Already implemented.	Coastal	Working Standard	For coastal Flood Risk Projects, non-levee coastal structures must be evaluated and the profile adjusted as necessary to reflect expected storm impacts on the structure for the purpose of establishing appropriate risk zone determinations for NFIP maps.
90	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	Engineering	Program Standard	Methods and models used to evaluate the flood hazard must be technically reliable, must be appropriate for flood conditions and produce reasonable results. All computer models must adhere to 44 CFR 65.6 a(6).
91	11/1/2004	Existing standard. Already implemented.	Coastal	Program Standard	For Pacific coastal Flood Risk Projects, VE Zones are identified using one or more of the following criteria for the 1% flood conditions: <ol style="list-style-type: none"> 1. The wave runup zone occurs where the (eroded) ground profile is 3.0 feet or more below the TWL. 2. The wave overtopping splash zone is the area landward of the crest of an overtopped barrier, in cases where the potential wave runup exceeds the barrier crest elevation by 3.0 feet or more. 3. The high-velocity flow zone is landward of the overtopping splash zone (or area on a sloping beach or other shore type), where the product of depth of flow times the flood velocity squared is greater than or equal to 200 ft³/sec². 4. The breaking wave height zone occurs where 3-foot or greater wave heights could occur (this is the area where the wave crest profile is 2.1 feet or more above the static water elevation). 5. The primary frontal dune zone, as defined in 44 CFR 59.1 of the NFIP regulations.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
92	5/1/2012	Existing standard. Already implemented.	Coastal	Working Standard	For coastal Flood Risk Projects, regional surge and wave model performance shall be successfully validated for the Flood Risk Project area.
93	11/1/2004	Existing standard. Already implemented.	Engineering	Program Standard	Flood Risk Projects shall use the best available, quality-assured data that meets the needs of the study methodology.
96	5/1/2012	Existing standard. Already implemented.	Coastal	Working Standard	Coastal analyses shall not account for future impacts due to long term erosion. Episodic, storm-induced erosion must be included in the flood hazard analysis.
98	2/1/2007	Existing standard. Already implemented.	Coastal	Program Standard	For Atlantic and Gulf of Mexico Flood Risk Projects, VE zones shall be mapped when one or more of the following criteria for the base flood conditions exist: <ul style="list-style-type: none"> • The wave runup zone occurs where the (eroded) ground profile is 3.0 feet or more below the 2-percent wave runup elevation; • The wave overtopping splash zone is the area landward of the crest of an overtopped barrier, in cases where the overtopping rate exceeds 1 cfs/ft; • The breaking wave height zone occurs where 3-foot or greater wave heights could occur; • The primary frontal dune zone, as defined in 44 CFR 59.1 of the NFIP regulations under <i>Coastal High Hazard Area and Primary Frontal Dune</i>.
99	4/1/2003	Existing standard. Already implemented.	Shallow Flooding	Working Standard	Areas of shallow flooding shall not have modeled/computed floodways due to the inherent uncertainties associated with their flow patterns. However, communities can choose to have administrative floodways for such areas.
100	4/1/2003	Existing standard. Already implemented.	Shallow Flooding	Working Standard	Ponding areas with depths between 1 and 3 feet shall be designated and delineated as Zone AH.
101	4/1/2003	Existing standard. Already implemented.	Shallow Flooding	Working Standard	Sheet runoff areas shall be delineated as Zone AO with average flooding depths above the ground surface, rounded to the nearest whole foot, indicated on the work map or digital GIS data.
103	4/1/2003	Existing standard. Already implemented.	PMR	Working Standard	For areas where new regulatory maps are being issued, flood hazard information on the effective NFIP map (i.e., FIRM, FBFM, FHBM) that is not being updated through a separate flood hazard analysis or floodplain boundary redelineation shall be “carried over” to the new or updated FIRM.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
104	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	Redelineation	Working Standard	Redelineation shall only be used when the terrain source data is better than effective and the stream reach is classified as VALID in the CNMS database.
105	4/1/2003	Existing standard. Already implemented.	BFEs	Working Standard	BFE placement standard exceptions may be made where BFEs are expressed in metric increments, such as in Puerto Rico.
106	11/30/2014	Implemented for all projects beginning data development after effective date	BFEs	Working Standard	BFEs for ponding and lacustrine areas must be expressed to the 10th of a foot if they have been calculated to that level of precision; otherwise they should be shown as whole-foot rounded elevations. Unrevised lake and ponding elevations may be converted to 10th foot elevations if supported by technical data on a project-by project basis in coordination with the FEMA Project Officer. BFEs for coastal flood zones must be shown as whole foot elevations.
107	4/1/2003	Existing standard. Already implemented.	BFEs	Working Standard	BFEs must be shown within 1% annual chance floodplains; the exception shall be for Zone A, Zone V, Zone AO and Zone A99.
108	4/1/2003	Existing standard. Already implemented.	Floodway	Working Standard	Regulatory floodways must be mapped within the 1-percent-annual-chance floodplain and must meet the minimum standards outlined in Paragraph 60.3(d)(3) of the NFIP regulations.
109	4/1/2003	Existing standard. Already implemented.	Floodplain Boundaries	Working Standard	Stream channel boundaries or centerlines must be shown within the identified 1-percent-annual-chance floodplain; if a regulatory floodway is developed, the stream must be shown within the regulatory floodway boundaries.
110	4/1/2003	Existing standard. Already implemented.	Project Planning	Program Standard	Flooding sources with contributing drainage area less than 1 square mile and/or with an average flood depth of less than one foot shall not be included in the Flood Risk Project scope of work, unless they have been analyzed on the effective FIRM or a justified need is identified during Discovery.
111	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	Project Planning	Program Standard	At the conclusion of a flood risk project, all SFHA designations—existing, revised, and new—in the project area must be supported by documentation or agreed to by the community.
112	1/10/2010	Existing standard. Already implemented.	FBS	Working Standard	For all Flood Risk Projects contracted in 2006 and beyond, all floodplain boundaries for new or revised flooding sources within the PMR footprint shall pass the Floodplain Boundary Standard.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard																										
113	1/10/2010	Existing standard. Already implemented.	FBS	Working Standard	<p>The flood risk class must be determined for each flooding source to identify what Floodplain Boundary Standard must be met and what level of analysis is required.</p> <table border="1"> <thead> <tr> <th rowspan="2">Risk Class</th> <th rowspan="2">Characteristics</th> <th colspan="2">Delineation Reliability of the floodplain boundary per study methodology¹</th> </tr> <tr> <th>Zone A</th> <th>All Other Zones</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>High population and densities within the floodplain and/or high anticipated growth</td> <td>+/- 1/2 contour 95%</td> <td>+/- 1.0 foot / 95%</td> </tr> <tr> <td>B</td> <td>Medium population and densities within the floodplain and/or modest anticipated growth</td> <td>+/- 1/2 contour 90%</td> <td>+/- 1.0 foot / 90%</td> </tr> <tr> <td>C</td> <td>Low population and densities within the floodplain, small or no anticipated growth</td> <td>+/- 1/2 contour 85%</td> <td>+/- 1.0 foot / 85%</td> </tr> <tr> <td>D</td> <td>Undetermined Risk, likely subject to flooding</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>E</td> <td>Minimal risk of flooding; area not studied</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table> <p>¹The difference between the ground elevation (defined from topographic data) and the computed flood elevation</p>	Risk Class	Characteristics	Delineation Reliability of the floodplain boundary per study methodology ¹		Zone A	All Other Zones	A	High population and densities within the floodplain and/or high anticipated growth	+/- 1/2 contour 95%	+/- 1.0 foot / 95%	B	Medium population and densities within the floodplain and/or modest anticipated growth	+/- 1/2 contour 90%	+/- 1.0 foot / 90%	C	Low population and densities within the floodplain, small or no anticipated growth	+/- 1/2 contour 85%	+/- 1.0 foot / 85%	D	Undetermined Risk, likely subject to flooding	N/A	N/A	E	Minimal risk of flooding; area not studied	N/A	N/A
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114	1/10/2010	Existing standard. Already implemented.	FBS	Working Standard	A horizontal tolerance of +/- 38 feet will be used to determine the compliance with the vertical tolerances defined for each risk class. This horizontal tolerance will address varying floodplain delineation techniques (automated versus non-automated) and map scale limitations.																										
115	1/10/2010	Existing standard. Already implemented.	FBS	Working Standard	For the FBS audit, the terrain data source that was used to create the flood hazard boundary must be used to conduct the audit.																										
118	3/1/2006	Existing standard. Already implemented.	Vertical Datum	Program Standard	For areas within the continental United States, all new flood maps and updates must be referenced to NAVD88.																										
119	4/1/2003	Existing standard. Already implemented.	Vertical Datum	Working Standard	If the final average countywide or flooding source-based datum conversion value is less than +/- 0.1 foot, the datum conversion shall be considered to be executed and the flood elevations for those flooding sources on the FIRM, Flood Profiles, and in the FIS Report tables shall not be adjusted.																										



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
120	4/1/2003	Existing standard. Already implemented.	Vertical Datum	Working Standard	The published flood elevations for all flooding sources within a community must be referenced to a single vertical datum.
121	4/1/2003	Existing standard. Already implemented.	Vertical Datum	Working Standard	<p>The vertical datum conversion factors shall be applied to flood elevations reported on the FIRM, Flood Profiles shown in the FIS Report, and all data tables in the FIS Report that report flood elevations.</p> <p>All unrevised hydraulic models and supporting backup information shall also be clearly labeled in the Technical Support Data Notebook (TSDN) to indicate that the FIRM and FIS Report reflect a datum conversion, and document the process used to determine the applied conversion factor.</p>
122	7/31/2013	Implemented for all projects beginning data development in FY13.	Vertical Datum	Working Standard	Either a single countywide vertical datum conversion factor or an average flooding source-based conversion factor must be used for a grouping of flooding sources, for individual flooding sources, or for flooding source segments.
123	1/1/2013	Existing standard. Already implemented.	Vertical Datum	Working Standard	A single countywide vertical datum conversion factor shall be applied when the maximum offset from the average conversion factor does not exceed 0.25 foot.
124	7/31/2013	Implemented for all projects beginning data development in FY13.	Vertical Datum	Working Standard	When calculating a single countywide vertical datum conversion, USGS topographic Quadrangle corners falling within the land area of the county must be used to calculate the vertical datum conversion factor.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
125	7/31/2013	Implemented for all projects beginning data development in FY13.	Vertical Datum	Working Standard	<p>When a single countywide conversion is not possible, an average vertical datum conversion factor shall be calculated using a flooding source-based method for a grouping of flooding sources, an individual flooding source, or segments of a flooding source.</p> <p>When a flooding source-based conversion is executed, 3 evenly distributed points along each flooding source (or segment of a flooding source) shall be selected to be included the datum conversion calculation.</p> <p>The maximum offset from the average conversion factor determined for the flooding source, grouping of flooding sources or flooding source segment may not exceed 0.25 foot.</p>
126	1/1/2013	Existing standard. Already implemented.	Vertical Datum	Working Standard	All flood elevations must be tied in when performing datum conversions.
127	1/1/2013	Existing standard. Already implemented.	FIS Tables	Working Standard	The datum conversion factors (countywide or stream-based) must be clearly documented in the FIS Report tables.
128	11/1/2009	Existing standard. Already implemented.	2D Models	Working Standard	For floodplains mapped from 2-D models, separate Flood Profiles for significant flow paths must be created.
131	11/1/2009	Existing standard. Already implemented.	2D Models	Working Standard	All non-conveyance areas considered in the model must be mapped.
132	11/1/2009	Existing standard. Already implemented.	Floodway	Working Standard	The regulatory floodway must be terminated at the boundary of the VE or V Zone, or where the mean high tide exceeds the 1-percent-annual-chance riverine flood elevation, whichever occurs further upstream.
133	11/1/2009	Existing standard. Already implemented.	Floodplain Boundaries	Program Standard	Floodplain boundaries of the 1-percent-annual-chance flood must be delineated. If it is calculated, the 0.2-percent-annual-chance flood must be delineated.
134	6/17/2011	Existing standard. Already implemented.	Redelineation	Working Standard	If the re-delineation topographic data indicates that the effective hydraulic analyses are no longer valid, further actions must be coordinated with the FEMA Project Officer and the CNMS database must be updated.



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136	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	National Flood Hazard Layer (NFHL)	Program Standard	RFHL to NFHL submissions must pass NFHL QC checks at submission and study data must be submitted before the study effective date.
137	2/1/2007	Existing standard. Already implemented.	Coastal	Working Standard	Redelineation of coastal flood hazard areas requires the revision of the 1-percent-annual-chance SFHA boundary, the 0.2%-annual-chance floodplain boundary, and the primary frontal dune delineation.
138	1/1/2013	Existing standard. Already implemented.	Coastal	Working Standard	Coastal Flood Risk Projects shall produce, at a minimum, a 1%-annual-chance and 0.2%-annual-chance floodplain and base flood elevations that include the contribution of wave effects.
139	11/30/2015	Effective Immediately.	Coastal	Program Standard	For coastal Flood Risk Projects, where topographic data reflects a temporary disturbance due to recent beach nourishment and/or dune construction projects, and beach berm or dune geometry are not representative of natural conditions nor have long-standing vegetative cover as per 44CFR 65.11, the data shall be adjusted to be representative of natural conditions prior to conducting the storm-induced erosion and onshore wave hazard analyses.
140	4/1/2003	Existing standard. Already implemented.	Shallow Flooding	Working Standard	Shallow flooding areas shall not contain non-SFHA islands based on small scale topographic variations.
141	4/1/2003	Existing standard. Already implemented.	Ice Jam	Working Standard	In regions of the United States where ice jams are typical, the project shall include investigation of historical floods for evidence of ice-jam contribution and coordination of the methodology with the impacted communities and State as part of the Discovery process.
142	4/1/2003	Existing standard. Already implemented.	Ice Jam	Working Standard	Where ice jams occur, backwater effects must be taken into account.
143	4/1/2003	Existing standard. Already implemented.	Ice Jam	Working Standard	The appropriate methodology for the floodway designation in areas mapped with an ice-jam analysis shall be determined in coordination with the community.
145	1/1/2013	Existing standard. Already implemented.	FIS Report	Working Standard	A transect location map must be provided in the FIS Report narrative if transects are not shown on the FIRM.



FEMA

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146	2/17/2000	Existing standard. Already implemented.	Coordination	Working Standard	FEMA must be notified of any potential floodplain management violations identified through the submittal of new or revised flood hazard data. Pending mapping changes affected by the potential violation will be suspended until the issue is resolved.
147	4/1/2003	Existing standard. Already implemented.	Base Map	Working Standard	The minimum resolution requirement for raster data files (ortho-imagery) is 1-meter ground distance.
148	4/1/2003	Existing standard. Already implemented.	Base Map	Working Standard	The minimum horizontal positional accuracy for new FIRM base map hydrographic and transportation features is the NSSDA radial accuracy of 38 feet.
149	4/1/2003	Existing standard. Already implemented.	Base Map	Working Standard	The base map used for the Flood Insurance Rate Map must clearly show sufficient current ground features to enable clear interpretation of the flood hazard data displayed on the base map.
150	4/1/2003	Existing standard. Already implemented.	Map Format and Layout	Working Standard	The FIRM paneling scheme shall follow that used by the USGS for the 7.5-minute-series quadrangle, or subdivisions thereof.
151	4/1/2003	Existing standard. Already implemented.	Map Format and Layout	Working Standard	All digital FIRMs must be oriented so that grid north points to the top of the map sheet.
152	8/23/2005	Existing standard. Already implemented.	GDC	Program Standard	Geospatial data for use in Flood Risk Projects must be coordinated, collected, documented and reported with standardized, complete and current information in compliance with Federal geospatial data reporting standards.
153	1/1/2013	Existing standard. Already implemented.	GDC	Working Standard	Details of cost, leverage, and project scope must be reported to FEMA's geospatial data tracking systems.
154	8/23/2005	Existing standard. Already implemented.	GDC	Program Standard	All unnecessary duplication of Federal, State or local mapping efforts must be avoided.
155	1/1/2011	Existing standard. Already implemented.	GDC	Working Standard	State Geospatial Data Coordination Procedures and Points of Contact must be reported to FEMA as new sources of Federal or State data are identified.
157	1/1/2011	Existing standard. Already implemented.	Project Planning	Program Standard	FEMA will not provide funding for new base map data collection as part of a specific Flood Risk Project.



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158	8/23/2005	Existing standard. Already implemented.	Elevation Data	Program Standard	Elevation data created using FEMA funding must allow unlimited free distribution by FEMA and partners.
161	1/1/2013	Existing standard. Already implemented.	Data Capture	Program Standard	All deliverables and supporting data must be uploaded to the MIP as each workflow step is completed for each project task. If any of these data are modified subsequently, the revised data must be uploaded to the MIP before the effective date of the FIRMs or the completion of the project, if no regulatory products are produced.
163	4/1/2003	Existing standard. Already implemented.	Prelim Distribution	Working Standard	The Preliminary digital FIRM Database shall be distributed for review with the Preliminary FIRM and FIS Report.
164	4/1/2003	Existing standard. Already implemented.	Prelim Distribution	Program Standard	The FEMA Regional office must approve distribution of preliminary and revised preliminary products.
165	4/1/2003	Existing standard. Already implemented.	Prelim Distribution	Program Standard	Preliminary/Revised Preliminary copies of the FIRM, FIS Report, SOMAs (if modified during Revised Preliminary), and Letters shall be distributed to the community CEO and floodplain administrator; State NFIP Coordinator; and other identified stakeholders as appropriate.
166	4/1/2003	Existing standard. Already implemented.	Prelim Distribution	Working Standard	Following issuance of the Preliminary copies of the FIRM and FIS Report, FEMA shall provide a period (usually 30 days) for community officials, community residents, and other interested parties / stakeholders to review the Preliminary copies of the FIRM and FIS Report.



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168	4/1/2003	Existing standard. Already implemented.	SOMA	Program Standard	<p>All effective LOMCs located on affected FIRM panel(s) shall be reviewed and categorized:</p> <ol style="list-style-type: none"> 1. through a draft SOMA before the Preliminary copies of the affected FIRM panel(s) are prepared and sent to the community for review and comment; 2. through a revised draft SOMA before Revised Preliminary copies of the affected FIRM panel(s) are prepared and sent to the community for review and comment; 3. through a Final SOMA before the LFD letter is sent to the community; and 4. through a revalidation letter before the effective date of the new or revised FIRM panels.
169	4/1/2003	Existing standard. Already implemented.	LOMR Incorporation	Program Standard	All LOMRs issued during post-preliminary prior to the LOMC cutoff date (which is 60 days before the project's LFD date) must be incorporated into the new FIS Report and FIRM. LOMRs that are issued after this time must be re-issued after the revised FIRM date.
170	8/17/2007	Existing standard. Already implemented.	Coastal Barrier Resources System	Program Standard	CBRS units shown on all new and revised FIRMs must be provided by the U.S. Fish and Wildlife Service.
172	10/1/2011	Existing standard. Already implemented.	Prelim Distribution	Working Standard	All Preliminary Title Blocks shall be stamped "Preliminary" or "Revised Preliminary" as appropriate.
173	10/1/2011	Existing standard. Already implemented.	Prelim Distribution	Working Standard	No effective date or map revised date shall be shown on the preliminary or revised preliminary title blocks.
174	7/31/2013	For all ongoing and newly initiated projects.	Data Capture	Program Standard	Certification of completeness of all submitted data for FEMA-funded Flood Risk Projects must be provided when work on a project is complete. (via the certification forms provided in http://www.fema.gov/library/viewRecord.do?id=7577)



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175	1/1/2013	Existing standard. Already implemented.	Data Capture	Working Standard	The preliminary FIS Report must be submitted with the other required submittals at the completion of the Floodplain Mapping task.
176	1/1/2013	Existing standard. Already implemented.	Data Capture	Working Standard	All spatial data must be georeferenced, have a standard coordinate system and projection defined and documented, and specify the horizontal and vertical datums used.
178	1/1/2013	Existing standard. Already implemented.	Data Capture	Working Standard	For each data development task prior to Develop [D]FIRM Database, the data for flooding sources receiving new or revised flood hazard analyses must be submitted in accordance with the FIRM Database Submittal Table, and following the schema of the FIRM Database Technical Reference. Non-FEMA funded external data studies are excluded from this requirement. Data submittals for all new, revised, and existing analyses must include the S_Submittal_Info table compliant with the schema in the FIRM Database Technical Reference.
180	6/6/2016	Existing standard. Already implemented.	Data Capture	Working Standard	All regulatory product deliverables, non-regulatory flood risk product deliverables, and relevant supporting data must be submitted in one of the acceptable file format(s) and in the directory structure outlined in the Data Capture Technical Reference. If data are collected that are not specifically mentioned in the Data Capture Technical Reference but are relevant to the project, or data is obtained from existing flood hazard analyses, those data must be submitted, but do not have to follow the file format and directory structure requirements.
181	6/6/2016	Existing standard. Already implemented.	Data Capture	Working Standard	Metadata files in XML format must be submitted to comply with the Metadata Profiles Technical Reference for each applicable task for regulatory product deliverables, non-regulatory flood risk product deliverables, or relevant supporting data submittals.
182	1/1/2013	Existing standard. Already implemented.	Data Capture	Working Standard	Copies of all project-related data must be retained for a period of three years.
183	1/1/2013	Existing standard. Already implemented.	Data Capture	Working Standard	A file that compiles general correspondence must be submitted for each project task.



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184	1/1/2013	Existing standard. Already implemented.	Data Capture	Working Standard	Any supporting data that are tiled must have an accompanying index spatial file. Tiles must be topologically correct and have only one part, and cannot self-intersect (must be simple). Adjacent tiles must not overlap or have gaps between them.
185	1/1/2013	Existing standard. Already implemented.	Data Capture	Working Standard	PDF files must be created using the source file (e.g., MS Word file). Created PDF files must allow text to be copied and pasted to another document.
186	1/1/2013	Existing standard. Already implemented.	Data Capture	Working Standard	A narrative must be submitted that summarizes the work performed (streams analyzed, type of Flood Risk Project, etc.), direction from FEMA, assumptions and issues, and any information that may be useful for the other mapping partners working on the project or subsequent users of the Flood Risk Project backup data for each task.
187	1/1/2013	Existing standard. Already implemented.	Data Capture	Program Standard	All relevant data must be submitted that fully documents the flood risk project including the engineering analyses, input and output files for the models used; a report that documents the methodology, assumptions, and data used in the engineering analyses; applicable draft FIS Report text sections, tables, graphics, Flood Profiles; quality records in the form of (at a minimum) QR3 Self-Certification Forms, and QR3, QR5, QR7, & QR8 Checklists; input and output files associated with the flood risk assessments; the Flood Risk Report; the Flood Risk Map; the MXD(s) for the Flood Risk Map; and any other backup data. These data comprise the TSDN.
188	4/1/2003	Existing standard. Already implemented.	Base Map	Working Standard	FEMA must be able to distribute the base map data and floodplain information freely to the public in hardcopy and digital formats.
189	4/1/2003	Existing standard. Already implemented.	CNMS	Working Standard	Effective and revised flood hazard data must be tied in with no discontinuities. Where discontinuities cannot be resolved, they must be documented in the CNMS database, but not until the discontinuity is accepted by the FEMA Project Officer.
190	4/1/2003	Existing standard. Already implemented.	Quality Management	Program Standard	All technical review comments associated with the FIS Report, FIRM, or FIRM database must be fully addressed and resolutions must be fully documented.
191	4/1/2003	Existing standard. Already implemented.	Correspondence	Working Standard	All standard correspondence, letters, and enclosures distributed during the life of a Flood Risk Project must be prepared in accordance with the templates located at http://www.fema.gov/library/viewRecord.do?id=7577 .



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192	5/13/2002	Existing standard. Already implemented.	Project Initiation	Working Standard	Unique FEMA Case Numbers (e.g., 01-05-1234R) shall be assigned for all initiated LOMCs and Flood Risk Projects.
193	3/5/2007	Existing standard. Already implemented.	Post-Preliminary Deliverables	Program Standard	The Flood Hazard Determinations-on-the-Web tool is the authoritative source for creating and publishing Flood Hazard Determination Notices for Flood Risk Projects and LOMRs that result in new or modified flood hazard information.
195	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Working Standard	LOMC requestors shall submit requests, including the required review and processing fee if applicable, to the appropriate processing address. The address is provided in the application forms package that must be used in preparing a LOMC request for submittal.
196	4/1/2003	Existing standard. Already implemented.	Letter of Map Revision (LOMR)	Program Standard	If required by state law, State concurrence with the LOMR or CLOMR shall be required.
197	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Working Standard	<p>Upon receipt of a LOMC, the following shall be done:</p> <ul style="list-style-type: none"> • Make an initial determination as to the expected processing procedure • Assign a case number • Create a case file • Enter the request into the MIP • Record the date of receipt
198	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Working Standard	When processing a LOMC, any ongoing, past, or future map actions affecting the case shall be taken into consideration.
199	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Program Standard	LOMC submittals must include certifications by a licensed professional authorized to certify the data under state law.
200	4/1/2003	Existing standard. Already implemented.	Letter of Map Revision (LOMR)	Working Standard	A LOMR or CLOMR must be supported by a topographic map or digital data that includes all relevant information required by FEMA.
201	4/1/2003	Existing standard. Already implemented.	Letter of Map Revision (LOMR)	Working Standard	A LOMR or CLOMR must include proposed floodplain and/or floodway boundary delineations shown on an annotated FIRM.



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202	4/1/2003	Existing standard. Already implemented.	Letter of Map Revision (LOMR)	Working Standard	All LOMRs including new grading or structures must include certified as-built construction plans, grading plans, or survey data.
203	4/1/2003	Existing standard. Already implemented.	Letter of Map Revision (LOMR)	Working Standard	If the discharges in the effective FIS Report are not used in the LOMR or CLOMR submittal, the revision requester shall provide sufficient data to support the use of the new discharges for the 1-percent-annual-chance flood and other published flood frequencies.
204	4/1/2003	Existing standard. Already implemented.	Letter of Map Revision (LOMR)	Working Standard	A LOMR or CLOMR in riverine areas must submit a model duplicating the effective hydraulic model (multiple profile and floodway if appropriate). The revision requester shall use it to establish the baseline condition unless an existing conditions hydraulic model is required.
205	4/1/2003	Existing standard. Already implemented.	Letter of Map Revision (LOMR)	Working Standard	For a LOMR or CLOMR, an existing conditions hydraulic model is required if the duplicate effective model does not reflect the floodplain conditions prior to the start of the project.
206	4/1/2003	Existing standard. Already implemented.	Letter of Map Revision (LOMR)	Working Standard	If the revision is submitted as the result of a project, a post-project revised hydraulic model reflecting as-built conditions must be submitted.
207	4/1/2003	Existing standard. Already implemented.	Letter of Map Revision (LOMR)	Working Standard	At a minimum, the analyses and other supporting data provided in support of a revision request must be equivalent to or better than the scientific and technical data employed by FEMA for the preparation of the effective analyses.
210	4/1/2003	Existing standard. Already implemented.	Letter of Map Revision (LOMR)	Working Standard	For floodplain boundary revisions based on new or more detailed topographic information, the revision requester will not be required to submit revised hydraulic analyses unless the changes in ground contours have significantly affected the geometry of cross sections used for the effective FIS Report and FIRM or have altered effective-flow areas.
213	4/1/2003	Existing standard. Already implemented.	Notice-to-User	Program Standard	During the Notice-to User revision process, approval of the action taken shall be obtained from the FEMA HQ due process lead and the decision must be documented in writing.



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214	6/6/2016	Effective immediately	Notice-to-User	Program Standard	<p>During the Notice-to-User revision process:</p> <ul style="list-style-type: none"> • the FIS, FIRM panel(s), FIRM database, and NFHL must be corrected as appropriate; • the corrected components must indicate the appropriate date; • the corrected components must be distributed to the communities affected by the correction; and • the corrected components must be updated on the MSC site.
215	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Program Standard	<p>Conditional LOMCs are subject to the same standards of a LOMA, LOMR-F, or LOMR except:</p> <ul style="list-style-type: none"> • Because Conditional LOMCs are based on proposed construction, as-built information is not required. • The Conditional Comment Documents that are issued by FEMA do not amend the effective FHBM or FIRM. • Conditional LOMRs and CLOMR-Fs must demonstrate compliance with the Endangered Species Act.
216	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Working Standard	A letter shall be mailed to the requester acknowledging receipt of the LOMC request within business three days of receiving the data.
217	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Program Standard	If all information is not received within 90-days from the date of the request for additional data, the processing of the LOMC shall be suspended.
218	7/31/2015	Effective immediately	Letter of Map Change (LOMC)	Program Standard	LOMA, CLOMA, LOMR-F, CLOMR-F, LOMR and CLOMR determinations must be issued based on the effective FIRM and FIS for a community and may not be issued based on preliminary data for a FEMA-contracted Flood Risk Project or community-initiated map revision. Except, a one percent water surface elevation may be calculated during an LOMA, CLOMA, LOMR-F, or CLOMR-F review using data from these sources if the effective SFHA does not have BFEs or flood depths established and the preliminary data is the best available.



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219	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Working Standard	Following the preparation of the LOMC determination document, the LOMC shall be included in the list of determinations that is to be sent to FEMA for official approval. Following approval, the requester shall be provided with FEMA's final determination. A copy of the LOMC determination document shall also be sent to the community CEO and floodplain administrator and to the requester when applicable.
220	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Program Standard	The reviews of LOMC requests shall be processed in accordance with Parts 65, 67, 70, and 72 of the NFIP regulations.
222	7/31/2013	Applicable to all ongoing and future Flood Risk Projects.	Letter of Map Revision (LOMR)	Working Standard	When processing a LOMR for a FIRM that has been modernized (i.e., has a FIRM database), the map (FIRM and/or FBFM panels), Flood Profile, and data tables (i.e., Floodway Data and Summary of Discharges) enclosures shall be prepared in accordance with the FIRM Panel Technical Reference and the FIS Report Technical Reference. If the FIRM that is having a LOMR issued for it has not been modernized, either the current standards may be used (as indicated in the FIRM panel and FIS Report Technical References), or the standards in effect when the effective map and attachments were created.
223	7/31/2013	Implemented for LOMCs processed after the effective date.	Letter of Map Revision (LOMR)	Working Standard	If a LOMR changes stillwater elevations, transect data, flood elevations, discharges, and/or floodway information, the supporting information in the FIS Report and FIRM Database shall be revised as necessary.
224	4/1/2003	Existing standard. Already implemented.	Special Conversions	Working Standard	For all Special Conversions, coordination and documentation activities shall be performed to convert the community to the Regular Phase of the NFIP.
225	4/1/2003	Existing standard. Already implemented.	Special Conversions	Working Standard	FEMA management system databases shall be maintained for Special Conversions.
226	7/16/2004	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Working Standard	LOMC requests involving below-grade crawlspaces constructed within the SFHA shall follow guidance provided in FEMA Technical Bulletin 11-01.
227	1/1/2013	Existing standard. Already implemented.	Notice-to-User	Program Standard	The Notice-to-Users revision only shall be used to correct errors or omissions in the FIS Report, FIRM Database, or on the FIRM that do not affect due process. A Notice-to-Users revision shall not change the effective date.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
228	11/1/2009	Existing standard. Already implemented.	Stakeholder Engagement	Working Standard	All regulatory floodway changes must be coordinated with affected community officials and other stakeholders as early as possible.
229	7/31/2015	Effective immediately	Flood Profiles	Working Standard	<p>Profiles shall be plotted as the projection of the stream invert and the flood surface(s) onto the flow path. The plots should show the locations of and clearly label:</p> <ul style="list-style-type: none"> • Each lettered mapped cross section; • Splits and diversions; • Confluences with tributaries splits, and diversions; • Each stream crossing with symbology depicting the top of road and low chord elevations of modeled bridges and culverts along with the name of the bridge/culvert (e.g., Pine Street); • Extents of modeled hydraulic structures adjacent to the flooding source; • Upstream and downstream study limits of the flooding source; • Extent of backwater or flooding controlling the receiving stream and depiction of the backwater elevation along the Profile.
230	12/8/2011	Existing standard. Already implemented.	FIS/FIRM	Working Standard	The FIRM panels must be derived directly from the FIRM database and must be in agreement with the information shown in the FIS Report.
232	4/1/2003	Existing standard. Already implemented.	Flood Profiles	Working Standard	Unless it can be demonstrated that the vertical and horizontal scale of the effective Flood Profiles are inadequate, re-analyzed streams must be produced using the same horizontal and vertical scales that were used in the effective Flood Profiles.
234	4/1/2003	Existing standard. Already implemented.	FIS Report	Working Standard	FIS Reports exceeding 150 pages in length shall be subdivided into two or more volumes.
235	4/1/2003	Existing standard. Already implemented.	FIS Report	Working Standard	If an FIS Report is published in 2 or more volumes, no volume shall exceed 100 pages.
236	4/1/2003	Existing standard. Already implemented.	FIS Report	Working Standard	For multi-volume FIS Reports, a single Table of Contents shall be produced for the entire report, and shall be included in all volumes.



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237	4/1/2003	Existing standard. Already implemented.	FIS Report	Working Standard	Preliminary FIS Reports must include a stamp on the cover to indicate the Preliminary status and the date of the Preliminary issuance.
238	12/8/2011	Existing standard. Already implemented.	FIS Report	Working Standard	As outlined in the FIS Report Technical Reference, all numbered sections, tables and figures are required for every FIS Report prepared in compliance with the FIS Report Technical Reference, regardless of whether the topic addressed by that element is applicable to the Flood Risk Project.
239	12/8/2011	Existing standard. Already implemented.	FIS/FIRM	Working Standard	Table columns and names in the FIS Report must comply with the most current FIS Report Technical Reference unless FEMA Regional approval has been given to retain the prior FIS Report format.
240	12/8/2011	Existing standard. Already implemented.	FIS Report	Working Standard	When revising the FIS Report in compliance with the current FIS Report Technical Reference (as opposed to appending information to the former FIS report format), the FIS Report template at http://www.fema.gov/library/viewRecord.do?id=7577 must be used.
241	12/8/2011	Existing standard. Already implemented.	FIS Report	Working Standard	References used within the FIS Report text must match the citation listed in the Bibliography and References table.
242	12/8/2011	Existing standard. Already implemented.	FIS Report	Working Standard	FIS Reports created in compliance with the FIS Report Technical Reference must use an "(Author Year)" format for inline citations.
243	12/8/2011	Existing standard. Already implemented.	FIS/FIRM	Working Standard	If a future conditions analysis is incorporated into the Flood Risk Project, the results shall be included in the FIRM database, FIRM, and FIS Report.
245	12/8/2011	Existing standard. Already implemented.	FIS Tables	Working Standard	The "Listing of NFIP Jurisdictions" and "Community Map History" tables in the FIS Report shall include all communities that fall within the county or jurisdiction whose FIS Report is being produced.
246	12/8/2011	Existing standard. Already implemented.	FIS Tables	Working Standard	Communities that have no Special Flood Hazard Areas identified shall be noted in the "Listing of NFIP Jurisdictions" and "Community Map History" FIS Report tables with a footnote.
247	12/8/2011	Existing standard. Already implemented.	FIS Tables	Working Standard	For FIS Reports produced in compliance with the FIS Report Technical Reference, all accredited levees, PALs, and non-accredited levees must be included in the "Levees" table of the FIS Report.



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248	12/8/2011	Existing standard. Already implemented.	FIS Tables	Working Standard	All lettered or numbered cross sections must be shown on the Flood Profiles and, if a floodway was computed, must also be shown in the Floodway Data Table. Unlettered cross sections shown on the FIRM are not to be included on the Floodway Data Table or Flood Profiles.
249	12/8/2011	Existing standard. Already implemented.	FIS Tables	Working Standard	In the "Community Map History" table for FIS Reports produced in compliance with the FIS Report Technical Reference, the "FIRM Revisions Date(s)" column shall include all FHBM and FIRM revisions, and must be updated during each revision to reflect the new PMR effective date. All PMR effective dates must be included for the communities that received updated FIRM panels, even if the PMR did not revise all the panels within that community.
250	12/8/2011	Existing standard. Already implemented.	FIRM Index	Working Standard	The FIRM Index shall be included in the FIS Report at a size of 11" x 17" for FIS Reports produced in compliance with the FIS Report Technical Reference.
251	12/8/2011	Existing standard. Already implemented.	FIRM Index	Working Standard	For FIRM Indexes which require more than 1 page, the page number shall be indicated in the title block in the following manner: FLOOD INSURANCE RATE MAP INDEX (Sheet 1 of 2). A county locator map shall be added with a rectangle showing the extent of the current FIRM Index sheet.
252	12/8/2011	Existing standard. Already implemented.	FIRM Index	Working Standard	For FIRM Indexes produced in compliance with the FIS Report Technical Reference, base map features that must be shown and labeled on the FIRM Index are HUC-8 watersheds and political jurisdictions. Community labels must also include the CID.
253	12/8/2011	Existing standard. Already implemented.	FIRM Index	Working Standard	For FIRM Indexes produced in compliance with the current FIS Report Technical Reference, FIRM panels shown on the FIRM Index shall be labeled only with the four-digit panel number and suffix. The effective date must also be included and shall be placed directly beneath the FIRM panel number in "mm/dd/yyyy" format.
254	12/8/2011	Existing standard. Already implemented.	FIRM Index	Working Standard	The FIRM Index shall identify unprinted panels with asterisks and footnotes that define the reason(s) for the panel(s) not being printed.
255	12/8/2011	Existing standard. Already implemented.	FIS Report	Working Standard	For FIS Reports produced in compliance with the FIS Report Technical Reference, every note that is shown on the Notes to Users on one or more FIRM panels must be included once in the Notes to Users section in the FIS Report.



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256	12/8/2011	Existing standard. Already implemented.	Flood Profiles	Working Standard	Flood Profiles for Zone AE must show data for each of the 5 standard (10%-, 4%-, 2%-, 1%-, and 0.2%-annual-chance) flood events if they were calculated as part of the Flood Risk Project.
257	12/8/2011	Existing standard. Already implemented.	FIS Report	Working Standard	The FIS Report deliverable to the MSC must be an unsecured PDF file, with as much searchable text as possible, and must be bookmarked in accordance with the direction outlined in the FIS Report Technical Reference. Embedded graphics, where necessary, must have a resolution of 400 dpi.
259	4/1/2003	Existing standard. Already implemented.	FIS Report	Working Standard	A description of all dams and other non-levee flood protection measures affecting the communities represented in the project area shall be included in the FIS Report.
260	4/1/2003	Existing standard. Already implemented.	FIS Report	Working Standard	A description of any unusual floodway procedures that deviate from national policy, such as State-imposed or locally imposed surcharge limits of less than 1.0 foot for regulatory floodway, must be listed in the "Floodways" section of the FIS Report.
261	12/8/2011	Existing standard. Already implemented.	FIS Report	Working Standard	Counties that have an effective countywide FIS Report must remain countywide, regardless of whether they are updated to comply with the FIS Report Technical Reference or not.
264	4/1/2003	Existing standard. Already implemented.	FIS Tables	Working Standard	For cross-sections shown in areas of backwater flooding, elevations in the "Without Floodway" column of the Floodway Data Table shall not include backwater effects. The "Without Floodway" values must include a footnote stating, "Elevation Computed Without Consideration of Backwater Effects From (Source of Flooding)". The words "Backwater Effects" are to be replaced with "Tidal Effects," "Overflow Effects," "Ice Jam Effects," or "Storm Surge Effects," as needed, to reference the appropriate flooding situation.
265	4/1/2003	Existing standard. Already implemented.	FIS Tables	Working Standard	When a part of a regulatory floodway lies outside the jurisdiction, both the total floodway width, and the width within the jurisdiction, shall be listed in the FIRM database and Floodway Data Table.
267	4/1/2003	Existing standard. Already implemented.	Flood Profiles	Working Standard	Only one stream shall be shown on any given Flood Profile panel.
268	12/8/2011	Existing standard. Already implemented.	FIS Report	Working Standard	All communities whose FIS Report is being updated to comply with the FIS Report Technical Reference must receive a copy of the new FIS Report, regardless of whether they are affected by the new Flood Risk Project or are outside the project area.



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270	4/1/2003	Existing standard. Already implemented.	Flood Profiles	Working Standard	On the Flood Profiles for tributary streams, the 1-percent-annual-chance flood backwater from the main watercourse or water body shall be labeled as "Backwater From (Main Stream Name)."
272	4/1/2003	Existing standard. Already implemented.	Flood Profiles	Working Standard	A vertical elevation scale of 1 inch equals 1, 2, 5, 10, or 20 feet is to be used for the Flood Profiles. Elevations shall be shown on the left side of the grid at 1-inch intervals within the profile elevation range.
273	4/1/2003	Existing standard. Already implemented.	Flood Profiles	Working Standard	The 1%-annual-chance Flood Profile plots shall agree with the distances and elevations shown in the Floodway Data Table, with a maximum tolerance of 1/20 inch on the printed Flood Profile panel. Other features shown on the Profiles, such as cross-section labels and hydraulic structures, shall also be accurately plotted to within the 1/20 inch tolerance.
274	4/1/2003	Existing standard. Already implemented.	Flood Profiles	Working Standard	The horizontal and vertical scales of the Flood Profiles shall be chosen so that Flood Profile slopes are reasonable and can be easily interpreted by the user.
275	4/1/2003	Existing standard. Already implemented.	Flood Profiles	Working Standard	The horizontal scale of the Flood Profile shall be labeled at 1-inch intervals along the bottom edge of the grid and legend box.
277	12/8/2011	Existing standard. Already implemented.	FIS Report	Working Standard	For FIS Reports prepared in compliance with the FIS Report Technical Reference, any information that was included in Section 10 of a previous FIS Report using an approach known as "Revisions by Addendum" shall be incorporated into the relevant sections and tables of the current FIS Report.
278	4/1/2003	Existing standard. Already implemented.	Flood Profiles	Working Standard	River stationing is to be referenced from a physical location such as a confluence or structure.
279	4/1/2003	Existing standard. Already implemented.	Flood Profiles	Working Standard	Downstream flood elevations are to begin on the left edge of the Flood Profile.
280	4/1/2003	Existing standard. Already implemented.	Flood Profiles	Working Standard	Stream distances reported in the Floodway Data Tables, Profiles, and FIRM database must be measured along the profile baseline.
281	4/1/2003	Existing standard. Already implemented.	Flood Profiles	Working Standard	Distance and elevation units used on a Flood Profile must be consistent with the units used in the Floodway Data Table.



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282	1/1/2013	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	All FIRM panel symbology and labels must be clear and readable and clearly communicate the flood hazard information needed for insurance and mitigation purposes.
283	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	The FIRM panel "Notes to Users" section must contain notes referring the user to the FIS Report for a detailed legend and FIRM Index, to the MSC website for other digital products providing the NFIP contact information, and to the base map data source.
284	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	The LiMWA note in the FIRM panel "Notes to Users" section shall include a legend.
285	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	All elements of the FIRM title block must be present and must adhere to the specifications in the FIRM Panel Technical Reference.
286	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	The jurisdiction names in the FIRM panel title block must include, at a minimum, the jurisdiction prefix (e.g., city, town, or village), jurisdiction name, and full State name. FIRM panels for individual jurisdictions shall also include the name of the county, except for jurisdictions that are officially classified as "Independent."
287	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	When each new edition of a FIRM panel is prepared, the suffix for each revised FIRM panel shall be changed to the next alphabetical letter while skipping the letters "I" and "O". For first time countywide or partial countywide FIRMs, the map suffix should be one letter higher than the highest suffix of all jurisdictions included.
288	4/18/2002	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	FIRM panels, FIRM Indexes, and FIS Reports shall follow the ID numbering schemes outlined in the FIRM Panel and FIS Report Technical References.
289	10/1/2011	Existing standard. Already implemented.	Map Format and Layout	Working Standard	The FIRM panel map collar must include a North Arrow, Scale Bar, and map projection and datum information.
290	10/1/2011	Existing standard. Already implemented.	Map Format and Layout	Working Standard	First-time modernized FIRM panels must be in countywide format unless the FIRM is for a multi-county jurisdiction that will retain its community-based FIRM format.



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291	10/1/2011	Existing standard. Already implemented.	Map Format and Layout	Program Standard	A determination to use Partial-Countywide FIRM panel and FIRM Database format must be coordinated with and approved by the FEMA Region and FEMA Headquarters.
292	10/1/2011	Existing standard. Already implemented.	Map Format and Layout	Working Standard	If partial countywide FIRM panel mapping is pursued, the FIRM title block will list all of the jurisdictions on the FIRM panel, but the ones not included in the partial countywide mapping will be noted as having their FIRMs and FIS Reports published separately.
294	10/1/2011	Existing standard. Already implemented.	Map Format and Layout	Working Standard	For partial countywide FIRM panel mapping, panel numbers must be assigned for the entire county, just as for a full countywide panel layout. Numbering of countywide FIRM panels must consider the numbering of the existing panels so as not to create two panels with the same number (e.g. 0250). If there would be two panels with the same number, start countywide numbering by going up to the first even thousand above the highest existing FIRM panel number.
295	10/1/2011	Existing standard. Already implemented.	Map Format and Layout	Working Standard	When partial countywide mapping is processed, any existing community-based FIRM panels that overlap the partial countywide must be reissued with the overlapping area blanked out and the blanked out area must include a note referring the users to the partial countywide FIRM.
296	10/1/2011	Existing standard. Already implemented.	Map Format and Layout	Working Standard	If a FIRM revision is being processed when there is a separate FBFM, the two maps should be combined into the new format FIRM using the new flood zone designations and the FBFM shall no longer exist as a separate map.
297	1/1/2013	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	On FIRM panels, symbolization and labeling of all base map, hydraulic, and flood theme features must be standardized as shown in the FIRM Panel Technical Reference.
300	10/1/2011	Existing standard. Already implemented.	Map Format and Layout	Working Standard	All FIRM panels shall be printed to full page, portrait orientation, ARCH D map frames with a trimmed paper size of: Height 36" x Width 24. The title block must appear in the bottom right corner and be 5.3 inches wide by 9 inches in height.
301	10/1/2011	Existing standard. Already implemented.	Map Format and Layout	Working Standard	FIRM panels must include a white border on all sides and must contain a title block on the bottom right corner, a legend, a Notes to Users section, and a Panel Locator section across the bottom of the panel, as outlined in the FIRM Panel Technical Reference.
304	10/1/2011	Existing standard. Already implemented.	Base Map	Working Standard	All raster base maps used for FIRM panel preparation must be georeferenced and orthorectified.



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305	10/1/2011	Existing standard. Already implemented.	Map Format and Layout	Working Standard	A countywide FIRM must provide seamless spatial base map and flood hazard coverage within the county area for all jurisdictions shown on the FIRM.
306	10/1/2011	Existing standard. Already implemented.	Floodplain Boundaries	Working Standard	Any existing mismatches in floodplains and flood hazard information between communities and counties must be resolved as part of a FIS Report/FIRM update.
307	10/1/2011	Existing standard. Already implemented.	Base Map	Working Standard	Raster base map image(s) used for FIRM panel preparation shall cover the entire jurisdiction being analyzed except in the cases of open water areas and/or areas that may be restricted due to security concerns.
308	10/1/2011	Existing standard. Already implemented.	Base Map	Working Standard	<p>The FIRM base map is the horizontal reference data shown on the FIRM to assist in interpreting the areas impacted by the flood risk information shown. The term base map does not include topographic or elevation data.</p> <p>The following types of base map features must be depicted on the FIRM panel if they occur within the community:</p> <ul style="list-style-type: none"> • transportation features, including roads and railroads, hydrographic features, hydraulic structures • boundaries that identify county and State boundaries, corporate limits, ETJ areas, military lands, and tribal lands, and • U.S. PLSS features.
309	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	Any transportation feature shown and labeled on a Flood Profile shall be labeled on the FIRM panel.
310	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	Primary roads, as defined by the MAF/TIGER data, shall be shown and labeled on the FIRM panel.
311	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	On FIRM panels, all hydrographic features (streams, lakes, ponds, bays, and oceans) that have an identified flood hazard associated with them shall be labeled.



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312	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	Profile Baseline	Working Standard	A profile baseline must be shown on FIRM panels for all flooding sources with profiles or otherwise established riverine BFEs (static elevations excluded), and for modeled riverine Zone A areas.
313	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	In areas of riverine flooding where no profile baseline is available but a flood hazard has been identified, the bank or centerline representation of the hydrographic feature must be shown on vector-based FIRM panels.
314	10/1/2011	Existing standard. Already implemented.	Profile Baseline	Working Standard	Hydrographic feature lines represented on FIRM panels must not obscure the Profile Baseline symbology.
315	10/1/2011	Existing standard. Already implemented.	Levee	Working Standard	All levees stored in the FIRM Database shall be labeled and symbolized on the FIRM panel as outlined in the FIRM Panel Technical Reference, with the appropriate accreditation status noted.
316	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	Hydraulic structures other than levees shall be labeled on the FIRM panel only if shown on the Flood Profile of the FIS Report. The label name must match what is shown on the Flood Profile. If 1%, 0.2%-annual-chance-flood discharge, and/or floodway are contained in the structure, a note must be placed on the FIRM panel near the feature to refer to the highest contained discharge.
317	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	All political entities (including Extra-Territorial Jurisdictions) shall be depicted and labeled on the FIRM panel with the appropriate jurisdiction names and CIDs or area designator.
319	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	Any area shown on the FIRM panel as an Area Not Included shall be labeled with the entity's name and the notation "Area Not Included".
320	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	Vector base map features are not required on the FIRM in Areas Not Included.
322	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	On FIRM panels, when boundaries of different types are coincident with each other or with base map features, only the highest priority feature shall be shown.
323	10/1/2011	Existing standard. Already implemented.	Projections and Coordinate Systems	Working Standard	FIRM panels must show horizontal reference grids and corner coordinates selected, displayed and labeled as directed in the FIRM Panel Technical Reference.



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332	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	If a printed FIRM panel falls within the area of a smaller-scale panel that is also printed, the smaller-scale panel shall show a breakout note in the blank area represented by the larger-scale panel (the breakout panel area). This note is placed in the center of the breakout panel area and specifies the larger-scale panel's map number and scale. The suffixes shall not be used in breakout panel notes (to avoid unnecessary updates in PMRs).
334	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	Each flood hazard zone shall be bounded by a SFHA/FLOOD ZONE BOUNDARY line type when adjacent to another flood hazard area of a different type or elevation.
335	10/1/2011	Existing standard. Already implemented.	Floodway	Working Standard	Regulatory floodways shall be shown on the FIRM panel within the SFHA and, at lettered or numbered cross-section locations, floodway widths must agree with the values shown on the FDT in the FIS Report and the FIRM Database tables, within a maximum tolerance of 5 percent of the map scale or 5 percent of the distance, whichever is greater.
338	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	Special Flood Hazard Areas shall be labeled at least once with the flood zone on a FIRM panel and, if appropriate, with the static elevation, velocity, or depth.
339	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	Zone X areas that represent future conditions or areas protected by accredited levees shall be labeled on the FIRM panel in accordance with the FIRM Panel Technical Reference.
340	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	SFHAs with assigned static elevations, depths, or velocities shall have their static BFE, depth, or velocity value labeled on the FIRM panels in accordance with the FIRM Panel Technical Reference.
341	10/1/2011	Existing standard. Already implemented.	BFEs	Working Standard	All BFE lines stored in the FIRM Database must be shown on FIRM panels.
342	10/1/2011	Existing standard. Already implemented.	Cross-Sections	Working Standard	Cross sections stored in the FIRM Database must be shown on the FIRM panels if they are attributed as one of the following line types: LETTERED, MAPPED and NOT LETTERED, MAPPED.
343	10/1/2011	Existing standard. Already implemented.	Cross-Sections	Working Standard	On FIRM panels and in FIRM Databases, lettered or numbered cross sections for each stream analyzed by detailed methods shall be labeled alphabetically or numerically from downstream to upstream.



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345	10/1/2011	Existing standard. Already implemented.	Cross-Sections	Working Standard	On FIRM panels, lettered or numbered cross sections shall be symbolized and labeled as outlined in the FIRM Panel Technical Reference.
346	10/1/2011	Existing standard. Already implemented.	Cross-Sections	Working Standard	On FIRM panels, all LETTERED, MAPPED and NOT LETTERED, MAPPED cross sections must be labeled with the regulatory WSEL value, rounded to the nearest tenth of a foot. All lettered or numbered cross section WSEL values must match the FDT in the FIS Report.
347	10/1/2011	Existing standard. Already implemented.	Cross-Sections	Working Standard	If unlettered cross sections and BFEs cannot be shown on the FIRM panel because of crowding due to steep terrain, a note shall be placed referring the user to the Flood Profiles in the FIS Report.
348	10/1/2011	Existing standard. Already implemented.	Cross-Sections	Working Standard	In the event that a cross section contains multiple water surface elevations the cross section shall be segmented and each segment labeled on the FIRM panel with its corresponding WSEL value and a hexagon.
349	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	On the FIRM panels and in the FIRM Database, LIMIT LINES shall be placed at the beginning and at the end of flow in every area analyzed by detailed methods and shall be depicted as specified in the FIRM Panel Technical Reference.
351	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	If transect lines are shown in the FIRM database they must be delineated and labeled on the FIRM panels.
352	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	The LiMWA must be included in the FIRM Database if it has been calculated as part of a coastal Flood Risk Project, and shall normally be shown on FIRM panels. All community requests to have the LiMWA removed from the FIRM must be received at least 2 months prior to the issuance of the LFD.
356	10/1/2011	Existing standard. Already implemented.	Coastal Barrier Resources System	Working Standard	All FIRM panel notes, labels, and symbolization associated with CBRS and Otherwise Protected Areas shall conform to the specifications outlined in the FIRM Panel Technical Reference.
357	10/1/2011	Existing standard. Already implemented.	FIRM Graphic Standards	Working Standard	Each FIRM panel must have a map legend that includes all the required elements and complies with the symbology as outlined in the FIRM Panel Technical Reference.
359	10/1/2011	Existing standard. Already implemented.	FIRM Database	Working Standard	Data sources in the FIRM Database must be documented with Source Citations in the database and the metadata.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
361	10/1/2011	Existing standard. Already implemented.	FIRM Database	Working Standard	The FIRM Database digital data must be submitted in a series of layers that cover the entire geographic area being mapped and not in individual small tiles that cover limited geographic areas.
363	10/1/2011	Existing standard. Already implemented.	National Flood Hazard Layer (NFHL)	Working Standard	The NFHL must be used as the source for effective digital FIRM Database data when starting FIRM updates, and used for mandatory edge matching at county/community boundaries.
364	10/1/2011	Existing standard. Already implemented.	FIRM Database	Working Standard	The FIRM Database must not contain duplicate spatial features.
365	10/1/2011	Existing standard. Already implemented.	FIRM Database	Working Standard	All included tables of the FIRM Database shall be documented in the metadata in accordance with the Metadata Profiles Technical Reference, and the software release of the personal geodatabase submitted shall also be documented.
366	10/1/2011	Existing standard. Already implemented.	Projections and Coordinate Systems	Working Standard	FIRM Database tables must comply with the following database schema properties defined in the FIRM Database Technical Reference: <ul style="list-style-type: none"> • Tables and Feature Classes • Spatial Reference Systems • Topology Rules • Domains
367	10/1/2011	Existing standard. Already implemented.	FIRM Database	Working Standard	In the FIRM Database, all final revised FIRM panels shall get new FIRM panel Map Number suffixes and effective dates in the S_FIRM_Pan feature class.
368	10/1/2011	Existing standard. Already implemented.	LOMR Incorporation	Program Standard	All LOMRs that are located within the PMR panel footprint and are effective prior to the LOMC cutoff date (which is 60 days before the project's LFD date) must be incorporated into the FIRM Database.
369	10/1/2011	Existing standard. Already implemented.	FIRM Database	Working Standard	Floodplain boundary lines in the FIRM Database must be generalized to no more than an average of one vertex every 10 feet while still meeting FBS standards.
370	10/1/2011	Existing standard. Already implemented.	FIRM Database	Working Standard	FIRM Database Flood Theme and Base Map features shall not have disconnects, jogs, or missing features during edge matching and at community boundaries.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
371	11/30/2014	Existing standard. Already implemented.	Data Capture	Working Standard	<p>The following Regulatory deliverables must be submitted using the file formats and directory structure specified in the Data Capture Technical Reference.</p> <ul style="list-style-type: none"> • Transmittal Form • FIRM Database • Orthophotos (if applicable) • FIRM Scans • World Files • FIS Report • Transmittal to Community CEO • Community Map Action List • Inventory Worksheet for Each Community
372	10/1/2011	Existing standard. Already implemented.	FIRM Database	Working Standard	Coincident features must share the same geometry, vertex for vertex, within the FIRM database files.
373	1/1/2013	Existing standard. Already implemented.	FIRM Database	Program Standard	The FIRM Database must be submitted using the schema found in the FIRM Database Technical Reference.
374	11/30/2014	Existing standard. Already implemented.	BFEs	Working Standard	BFEs (i.e., cross-section values supplemented with BFE lines where needed) must be shown at appropriate locations to allow map users to accurately interpolate flood elevations both horizontally and vertically.
375	10/1/2011	Existing standard. Already implemented.	Levee	Working Standard	The S_Levee table is required for any Preliminary or Final FIRM Database that includes levees, floodwalls, closure structures, berms, embankments, or dikes that have been designed for flood control, whether or not they have been demonstrated to meet the NFIP requirements in 44 CFR 65.10.
377	7/31/2013	Implemented for all projects where the FIRM Database has not yet been submitted to the NFHL	National Flood Hazard Layer (NFHL)	Working Standard	For PMRs, once the NFHL for a community is converted to the latest FIRM Database schema, all database submissions will also be required to conform to this schema. For non-FEMA funded external data studies and for portions of a study where the engineering is unrevised, attribute data associated with the schema that is not needed for FIRM production may be excluded from the study submittal with permission from the FEMA Regional Office. Each exclusion should be documented in the FIRM Database metadata file that accompanies the FIRM Database.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
378	7/31/2013	Implemented for any project not yet at preliminary.	PMR	Working Standard	For PMRs where updated political boundaries are available for the entire extent of the FIRM database, the S_PoL_AR feature class shall be incorporated into the RFHL and shown on the FIRM Index.
379	6/1/2012	Existing standard. Already implemented.	National Flood Hazard Layer (NFHL)	Working Standard	For PMRs, the revised FIRM database layers within the PMR panel footprint shall be incorporated into the RFHL. Certain layers such as watershed boundaries, nodes, and political areas may extend outside of the PMR footprint.
383	4/1/2003	Existing standard. Already implemented.	Coordination	Working Standard	After preliminary issuance of the FIS Report and FIRM, any major changes must be coordinated with the FEMA Regional office.
384	4/1/2003	Existing standard. Already implemented.	Correspondence	Working Standard	In the absence of a final CCO meeting a letter shall be sent to the community and interested stakeholders to document the decision to forego the meeting.
385	4/1/2003	Existing standard. Already implemented.	Fed Register	Program Standard	Per 44 CFR 67.4, the News Release and Federal Register Proposed Flood Hazard Determination Notice shall include all communities affected by new or modified flood hazard information. The newspaper notice shall be published twice within the 10-days of notification of the community CEO, after publication of the Federal Register Proposed Flood Hazard Determination Notice.
386	4/1/2003	Existing standard. Already implemented.	Fed Register	Program Standard	The community and other affected stakeholders must be notified when corrections to the News Release or Federal Register are required, including timelines for publishing corrections.
387	5/30/2014	Implemented for all projects where the Federal Register Flood Hazard Determinations Notice has not yet been published.	Fed Register	Program Standard	<p>The appropriate Federal Register Flood Hazard Determinations Notice proposing changes to flood hazard information shall be compiled for all communities affected by the addition or modification of flood hazards (i.e., the Proposed Notice for flood risk studies and the Interim Notice for LOMRs). The Notice shall include a hyperlink for the official FEMA website through which stakeholders can access the products depicting the proposed flood hazard changes. The Notice shall be submitted to the designated FEMA coordinator to route for concurrence and signature.</p> <p>FEMA shall coordinate with Office of Federal Register to ensure timely publication of the Notice in the Federal Register. The published Notice must be reviewed to ensure accuracy; if needed, corrections must be made, and other Project Team members must be notified of the correction.</p>



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
388	12/1/2011	Existing standard. Already implemented.	Appeals	Program Standard	The statutory 90-day administrative appeal period cannot be extended; no appeals will be accepted after the 90-day appeal period.
389	12/1/2011	Existing standard. Already implemented.	Appeals	Program Standard	Written acknowledgement of all data submitted during the statutory appeal period shall be provided to the affected community.
390	12/1/2011	Existing standard. Already implemented.	Appeals	Working Standard	When performing new analyses and developing revised flooding information, appellants must tie the new BFEs, base flood depths, SFHA boundaries, SFHA zone designations, and/or regulatory floodway boundaries into those shown on the FIRM and in the FIS Report for areas not affected by the appeal.
391	1/1/2013	Existing standard. Already implemented.	Appeals	Program Standard	FEMA shall evaluate appeal submittals, and prior to LFD, FEMA or its designee must provide the community with a resolution letter and must provide a copy of the revised FIRM if changes were made as a result of the appeal.
392	11/1/2010	Existing standard. Already implemented.	Appeals	Program Standard	The Scientific Resolution Panel must be made available to communities that submit qualifying scientific and/or technical data during the 90-day administrative appeal period.
393	1/1/2013	Existing standard. Already implemented.	Post-Preliminary Deliverables	Program Standard	A copy of the final FIRM must be delivered to affected communities 90 days before the effective date.
394	4/1/2003	Existing standard. Already implemented.	Post-Preliminary Deliverables	Working Standard	The Engineering Library shall be the official repository for all technical engineering data including any LOMCs, TSDN and related Flood Risk Project documentation. Information shall be archived and maintained in accordance with FEMA records management standards.
395	1/1/2013	Existing standard. Already implemented.	Post-Preliminary Deliverables	Working Standard	FEDD files must be submitted to FEMA for review 60 days before the LFD is scheduled to be issued.
396	1/1/2013	Existing standard. Already implemented.	Post-Preliminary Deliverables	Working Standard	During post-preliminary processing the FEDD and all associated correspondence must be compiled for each affected community in accordance with all relevant regulations. When more than one entity is responsible for post-preliminary activities, each entity must ensure the FEDD and all related documentation is complete at the time the responsibility is transferred to the next entity.



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397	1/1/2013	Existing standard. Already implemented.	Post-Preliminary Deliverables	Working Standard	<p>The following data must be submitted at the end of each mapping project:</p> <ul style="list-style-type: none"> • FBS Self-Certification Document (submitted within 30 days after issuance of preliminary maps); • QA report stating compliance with the FBS standard. • Revised Floodplain Boundary Standard Self-Certification Document (submitted within 30 days after issuance of the LFD if floodplain boundaries were revised during the post-preliminary phase); • Correspondence file including any documentation not previously submitted during earlier tasks or as part of the FEDD file related to coordination and processing decisions made during the course of the Flood Risk Project. • FEDD for each affected community • FEDD Checklist for each FEDD file • TSDN Checklist and Certification form
398	1/1/2013	Existing standard. Already implemented.	Post-Preliminary Deliverables	Working Standard	The FEDD files must be separate for each community.
400	6/1/2010	Existing standard. Already implemented.	Post-Preliminary Deliverables	Working Standard	Map Service Center deliverables must be uploaded through the MIP for all Flood Risk Projects.
401	4/1/2003	Existing standard. Already implemented.	LFD	Program Standard	The LFD date must be no sooner than 60 days after the end of the 90-day administrative appeal period or following resolution of all appeals, whichever is later.
402	4/1/2003	Existing standard. Already implemented.	LFD	Program Standard	The LFD package shall be submitted to FEMA HQ for review and approval prior to issuing LFDs to affected communities.
403	4/1/2003	Existing standard. Already implemented.	LFD	Program Standard	FEMA shall publish a final FHD notice in the Federal Register no later than three (3) months following issuance of the LFD.
404	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Working Standard	The Compendium of Flood Map Changes shall be published every 6 months. Publication shall occur within 15 days of the close of the 6-month reporting period.



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405	4/1/2003	Existing standard. Already implemented.	Revalidation	Program Standard	2-4 weeks before the effective date of the revised map, the revalidation package shall be submitted to FEMA for review and approval prior to issuing the revalidation letters.
406	4/1/2003	Existing standard. Already implemented.	Revalidation	Program Standard	The LOMC-VALID letter shall be provided to the community CEO and floodplain administrator and the LOMC Subscription Service Coordinator before the effective date of the revised FIRM(s).
407	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Program Standard	FEMA will widely distribute the following at regular intervals: <ul style="list-style-type: none"> • final LOMCs with attachments • final SOMAs • revalidation letters.
408	4/1/2003	Existing standard. Already implemented.	Letter of Map Change (LOMC)	Working Standard	Requests for Letters of Determination Review (LODRs) shall be processed.
409	4/1/2003	Existing standard. Already implemented.	Due Process	Program Standard	Suspension notification letters shall be distributed to communities that have not yet adopted NFIP compliant ordinances within 90 and 30 days prior to the FIRM effective date.
410	4/1/2003	Existing standard. Already implemented.	Correspondence	Working Standard	Over the life of a Flood Risk Project, NFIP eligibility shall be reviewed and related correspondence shall be prepared for newly-eligible communities.
411	1/1/2013	Existing standard. Already implemented.	Fed Register	Program Standard	FEMA will publish a notice of community eligibility in the Federal Register.
412	12/3/2008	Existing standard. Already implemented.	Coastal	Working Standard	For coastal Flood Risk Projects, the LiMWA must be calculated, where appropriate.
413	1/1/2013	Existing standard. Already implemented.	Non-Regulatory Datasets	Working Standard	Locally-provided, -sourced, or -validated building footprint, location, and/or population data shall be the only acceptable data sources to be used to populate structure and population count attributes within the CSLF dataset.
414	1/1/2013	Existing standard. Already implemented.	Non-Regulatory Datasets	Working Standard	Flood risk datasets derived from new or updated data must reflect the regulatory elevations as shown on the preliminary FIRM, if applicable. If floodplain delineations are altered as a result of appeals or other changes during the post-preliminary process, the Changes Since Last FIRM dataset shall be updated to reflect those changes.



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415	1/1/2013	Existing standard. Already implemented.	Non-Regulatory Datasets	Working Standard	Flood risk datasets derived from effective data must reflect the effective regulatory elevations as shown on the FIRM.																																			
416	1/1/2013	Existing standard. Already implemented.	Non-Regulatory Datasets	Working Standard	Depth and Analysis Grids must share the same terrain and bathymetry source datasets as the engineering models.																																			
417	6/6/2016	Implemented with all new flood risk projects initiated in FY16.	Non-Regulatory Datasets	Program Standard	<p>The minimum datasets associated with the Flood Risk Project are defined as follows:</p> <table border="1"> <thead> <tr> <th colspan="2">Flood Risk Product/Dataset</th> <th>New Flood Hazard Analysis¹ Conducted</th> <th>No New Flood Hazard Analysis¹ Conducted</th> </tr> </thead> <tbody> <tr> <td colspan="2">Flood Risk Database</td> <td>Required</td> <td>Required</td> </tr> <tr> <td rowspan="6">Flood Risk Dataset</td> <td>Changes Since Last FIRM (CSLF)</td> <td>Required²</td> <td>N/A</td> </tr> <tr> <td>Water Surface Elevation Grids</td> <td>Required²</td> <td>Optional⁴</td> </tr> <tr> <td>Flood Depth Grids</td> <td>Required²</td> <td>Optional⁴</td> </tr> <tr> <td>Percent Annual Chance & Percent 30-year Chance Grids</td> <td>Required²</td> <td>Optional⁴</td> </tr> <tr> <td>Flood Risk Assessment</td> <td>Required^{6,7}</td> <td>Required^{7,8}</td> </tr> <tr> <td>Areas of Mitigation Interest (AoMI)</td> <td>Required</td> <td>Required</td> </tr> <tr> <td colspan="2">Flood Risk Map</td> <td>Required</td> <td>Required</td> </tr> <tr> <td colspan="2">Flood Risk Report</td> <td>Required</td> <td>Required</td> </tr> </tbody> </table> <p>¹ "New Flood Hazard Analysis" = flooding sources receiving regulatory-level analyses ² CSLF is optional in areas where digital modernized floodplain boundaries are not available for the effective FIRM. ³ Riverine studies: 10%, 4%, 2%, 1%, "1%+", and 0.2% annual-chance floods Coastal studies: only the 1% annual chance flood Levee studies: Riverward/Seaward side - same as Riverine or Coastal Landward side - only the scenario(s) used to delineate SFHA boundary ⁴ Can be produced for flooding sources not receiving new analyses if based on effective data ⁵ Riverine only ⁶ Riverine studies: 10%, 4%, 2%, 1%, and 0.2% annual-chance floods, and Annualized Coastal studies: only the 1% annual chance flood Levee studies: Riverward/Seaward side - same as Riverine or Coastal Landward side - only based on the landward depth grid ⁷ Assessments are performed for the flood events with available depth grids. See Flood Risk Database Technical Reference for more information. ⁸ Analysis can be conducted at census block or user-defined facility level.</p>	Flood Risk Product/Dataset		New Flood Hazard Analysis ¹ Conducted	No New Flood Hazard Analysis ¹ Conducted	Flood Risk Database		Required	Required	Flood Risk Dataset	Changes Since Last FIRM (CSLF)	Required ²	N/A	Water Surface Elevation Grids	Required ²	Optional ⁴	Flood Depth Grids	Required ²	Optional ⁴	Percent Annual Chance & Percent 30-year Chance Grids	Required ²	Optional ⁴	Flood Risk Assessment	Required ^{6,7}	Required ^{7,8}	Areas of Mitigation Interest (AoMI)	Required	Required	Flood Risk Map		Required	Required	Flood Risk Report		Required	Required
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Flood Risk Report		Required	Required																																					
418	1/1/2013	Existing standard. Already implemented.	Non-Regulatory Datasets	Working Standard	Depth grids for open water shall reflect the depth of flooding above normal pool.																																			



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419	1/1/2013	Existing standard. Already implemented.	Non-Regulatory Datasets	Working Standard	The extent of water surface elevation change grids shall, at a minimum, reflect those areas that were both SFHA before and after the revision.
420	1/1/2013	Existing standard. Already implemented.	Flood Risk Report	Working Standard	The Flood Risk Report will only report on the extent of the flood risk data that lies within the Flood Risk Project area.
421	1/1/2013	Existing standard. Already implemented.	Non-Regulatory Datasets	Program Standard	To ensure privacy, sensitive claims data will be aggregated and/or generalized at the centroid of the census block and represented as a point.
424	1/1/2013	Existing standard. Already implemented.	Flood Risk Database	Working Standard	As an outcome of Discovery, a tiling structure must be defined for products.
425	6/6/2016	Existing standard. Already implemented.	Non-Regulatory Datasets	Working Standard	The National Flood Hazard Layer (or other comparable dataset with all effective FIRMs and LOMRs incorporated) shall be the source for the effective flood hazard area data used to develop non-regulatory flood risk products.
426	1/1/2013	Existing standard. Already implemented.	Flood Risk Report	Working Standard	Each Flood Risk Report shall include the following sections: i. Preface ii. Table of Contents 1. Introduction 2. Risk Analysis 3. Flood Risk Analysis Results 4. Actions to Mitigate Flood Risk 5. Acronyms and Definitions 6. Additional Resources 7. Data Used to Develop Flood Risk Products



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427	1/1/2013	Existing standard. Already implemented.	Flood Risk Report	Working Standard	<p>The Flood Risk Report must include the following tables:</p> <p>Project Specific Tables:</p> <ul style="list-style-type: none"> List of all the communities in the project area; CSLF summary; Risk Assessment summary; <p>Community Specific Tables:</p> <ul style="list-style-type: none"> Community overview; CSLF summary; Risk Assessment summary; AoMI summary
428	1/1/2013	Existing standard. Already implemented.	Flood Risk Map	Working Standard	<p>The Flood Risk Map must illustrate flood risk in the project area, potential mitigation opportunities, and include the following elements:</p> <ul style="list-style-type: none"> Map body Title block Map legend Project locator North arrow Map scale
429	6/6/2016	Existing standard. Already implemented.	Data Capture	Working Standard	<p>The following non-regulatory flood risk product deliverables must be submitted using the file formats and directory structure specified in the Data Capture Technical Reference.</p> <ul style="list-style-type: none"> * Flood Risk Database * Depth and Analysis Grids * Metadata file * Full text of the Flood Risk Report with bookmarks, a hyperlinked table of contents and section headings. * Flood Risk Map
432	1/1/2013	Existing standard. Already implemented.	Flood Risk Database	Working Standard	<p>Datasets in the FRD must be delivered in their entirety even if a portion of the dataset lies outside the define project footprint.</p>



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433	6/6/2016	Existing standard. Already implemented.	Flood Risk Database	Working Standard	Non-regulatory flood risk datasets must be delivered within the Flood Risk Database and must not be tiled or subdivided.
440	1/1/2013	Existing standard. Already implemented.	Flood Risk Database	Working Standard	The Flood Risk Map must be derived directly from the Flood Risk Database. The Flood Risk Database must be in agreement with the information shown in the Flood Risk Report.
442	1/1/2013	Existing standard. Already implemented.	Flood Risk Database	Program Standard	<p>Non-regulatory flood risk datasets must comply with the following database schema properties defined in the Flood Risk Database Technical Reference:</p> <ul style="list-style-type: none"> • Tables and Feature Classes • Raster Datasets • Spatial Reference Systems • Topology Rules • Relationship Classes • Domains
443	1/1/2013	Existing standard. Already implemented.	Flood Risk Database	Program Standard	In order to maintain privacy, the L_Claims table, if there are less than five (5) claims, five (5) repetitive loss claims, or five (5) severe repetitive loss claims in a community, then the relevant value field shall be set to null.
444	4/1/2003	Existing standard. Already implemented.	Levee	Program Standard	Levee systems can only be accredited in their entirety when compliance with 44 CFR Part 65.10 is demonstrated.
445	4/1/2009	Existing standard. Already implemented.	Levee	Program Standard	FEMA will not grant extensions to the 24-month PAL period.
446	4/1/2009	Existing standard. Already implemented.	Levee	Program Standard	Levee accreditation must be based upon detailed H&H analyses.
447	4/1/2009	Existing standard. Already implemented.	Levee	Program Standard	If the levee system does not continue to meet the criteria within 44 CFR Section 65.10, FEMA shall initiate the levee de-accreditation process.



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448	9/1/2006	Existing standard. Already implemented.	Levee	Program Standard	A levee system shall only be designated by FEMA as a PAL if the levee system is already accredited on the effective FIRM and, the owner of the levee system or the community is attempting to compile levee accreditation documentation to demonstrate continuation of compliance with 44 CFR 65.10. The opportunity for a PAL designation is only offered one time for any given system.
449	9/1/2006	Existing standard. Already implemented.	Levee	Program Standard	If a levee system qualifies for the PAL designation, the affected communities will be given an opportunity to sign a PAL agreement.
450	2/1/2009	Existing standard. Already implemented.	Levee	Program Standard	A structure shall only be considered a levee when it can be demonstrated that the structure was designed and has been operated and maintained as a levee. Structures that cannot meet these requirements cannot be considered for accreditation under 44 CFR 65.10.
452	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	Floodway	Working Standard	Floodway boundaries shall be placed on the riverside of a levee unless the community specifically requests otherwise, or where hydraulic calculations demonstrate a floodway is warranted elsewhere.
501	7/31/2013	Implemented for all projects once the NFHL for a community is converted to the latest FIRM Database schema	FIS Report	Working Standard	For Flood Risk Projects that have at least one FIRM panel produced in compliance with the current FIRM Panel Technical Reference, but whose FIS Report is not produced in compliance with the current FIS Report Technical Reference (i.e., the FIS Report is retaining its legacy format) the FIRM Legend and Notes to Users must be included as an appendix to the FIS Report per the current FIS Report Technical Reference.
502	12/8/2011	Existing standard. Already implemented.	FIRM Index	Working Standard	For FIRM Indexes produced in compliance with the current FIS Report Technical Reference, all required elements of the FIRM Index title block and Index collar shall be present and symbolized as outlined in the Technical Reference.
503	12/8/2011	Existing standard. Already implemented.	FIRM Index	Working Standard	For FIRM Indexes produced in compliance with the current FIS Report Technical Reference, the symbology and labeling of all features depicted on the FIRM Index shall adhere to the specifications outlined in the Technical Reference.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
504	7/31/2013	Implemented for all projects once the NFHL for a community is converted to the latest FIRM Database schema	FIS Tables	Working Standard	For FIS Reports produced in compliance with the FIS Report Technical Reference, map repositories for all communities must be present and correct in the "Map Repositories" FIS Report table. Flood Risk Projects whose FIS Reports are not produced in compliance with the current FIS Report Technical Reference (i.e., the FIS Report is retaining its legacy format per FEMA Regional approval), but whose FIRM Index is produced in compliance with the FIS Report Technical Reference, must include a correctly populated "Map Repositories" table in the FIS Report. FIRM Indexes that are not produced in compliance with the FIS Report Technical Reference must include the map repository information on the Index.
505	7/31/2013	Implemented for all projects once the NFHL for a community is converted to the latest FIRM Database schema	FIS Tables	Working Standard	FIS Reports not produced in compliance with the FIS Report Technical Reference (per FEMA Regional approval), but whose FIRM Index is produced in compliance with the Technical Reference, must include a correctly populated "Listing of NFIP Jurisdictions" table in the FIS Report. FIRM Indexes that are not produced in compliance with the FIS Report Technical Reference must include the Listing of Communities table on the FIRM Index.
506	2/1/2002	Existing standard. Already implemented.	Flood Profiles	Working Standard	Flood Profile notes and labels must be correct and agree with the FIRM and Floodway Data Table (if applicable).
507	6/6/2016	Effective for all projects that have not started QR5	FIS/FIRM	Working Standard	The FIRM, FIRM database, NFHL, Flood Profiles and Floodway Data Tables must all be in agreement with each other, including decimal point precision, as it relates to the depiction of flood hazards and hydraulic structures.
508	7/31/2013	Implemented with all projects not yet final	Quality Management	Program Standard	<p>Quality Reviews 1 through 8 must be conducted. Associated requirements for each review are as follows:</p> <ul style="list-style-type: none"> - QR1: The draft FIRM database shall be uploaded to the MIP for auto-validation and must pass before QR2 is conducted. - QR2: The preliminary FIRM database shall be uploaded to the MIP for auto-validation and must pass before QR3 is conducted. - QR3: The preliminary FIS Report, FIRM, and SOMA shall be reviewed using standardized checklists located at http://www.fema.gov/library/viewRecord.do?id=7577 after the work has been



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					<p>self-certified as meeting FEMA standards. The FIS Report, SOMA, FIRM and FIRM database shall not be issued at preliminary until written certification is provided indicating that all issues cited at this review were properly addressed and resolved.</p> <ul style="list-style-type: none"> - QR4: This review validates the Proposed FHD Notice, Appeal Period Docket, and 90-day Start Letter(s). If a 90-day appeal period is required, the proposed flood hazard determination notice information must be entered into the FHD Notices on the Web tool. An approved docket must be received from FEMA prior to the issuance of the 90-day Start Letter(s) - QR5: The FIRM database shall be auto-validated in the MIP and a visual review shall be conducted using standardized checklists located at http://www.fema.gov/library/viewRecord.do?id=7577 to compare the FIRM database to the printed FIRM and all cited issues must be resolved before the LFD will be distributed. - QR6: This review validates the LFD prior to the distribution of the final products. As part of the "Prepare LFD Docket" MIP task, the LFD Summary Sheet/Docket, FEDD Files, and LFD Questionnaire must be prepared and submitted, concurrent with QR5 and QR7. All cited issues must be resolved before the LFD will be distributed. - QR7: The final FIS Report, FIRM and associated paperwork shall be reviewed using standardized checklists located at http://www.fema.gov/library/viewRecord.do?id=7577 before delivery to the MSC and all cited issues must be resolved before the LFD will be distributed. - QR8: A review of the FIS Report, FIRM, MSC paperwork, and delivery manifest shall be conducted by the FEMA Map Service Center using standardized checklists located at http://www.fema.gov/library/viewRecord.do?id=7577 and all cited issues must be resolved before delivery of the final products to the end users.
509	7/31/2013	Implemented with all projects not yet final	Quality Management	Program Standard	All Quality Compliance Check issues noted during the QR1 through QR8 process must be fully addressed, documented and resolved.
510	7/31/2013	Implemented with all projects not yet final	Quality Management	Program Standard	Standardized checklists must be used at FEMA-designated Quality Reviews. Those checklists, which are located at http://www.fema.gov/library/viewRecord.do?id=7577 must be retained as quality records, and delivered as part of the TSDN.



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512	7/31/2013	Implemented with all projects not yet final	Quality Management	Program Standard	Self-Certification of compliance with FEMA standards must be provided before a QR3 review may be executed. A template for this requirement is available here (http://www.fema.gov/library/viewRecord.do?id=7577).
513	7/31/2013	Implemented with all projects not yet final	Quality Management	Program Standard	Written certification must be provided, documenting that all QR3 non-compliance citations were properly addressed and resolved, in order to complete the QR3 process. A template for this requirement is available at http://www.fema.gov/library/viewRecord.do?id=7577 .
514	12/1/2008	Existing standard. Already implemented.	Quality Management	Program Standard	Following the QR4 review, any identified errors must be corrected prior to the 90-day Start letter distribution.
515	12/1/2008	Existing standard. Already implemented.	Due Process	Program Standard	The 90-day comment period for the Federal Register Proposed FHD Notice and the 90-day statutory appeal period must overlap by at least one day. If the 90-day appeal period does not begin prior to the end of the Federal Register 90-day comment period, in coordination with FEMA, the Federal Register publication must be withdrawn and the FHD notice must be republished.
516	12/1/2008	Existing standard. Already implemented.	Due Process	Working Standard	The standard FHD Notice must be posted with the correct newspaper publication dates and appeal period start and end dates on FEMA's website prior to issuing the 90-day start letters.
517	12/1/2008	Existing standard. Already implemented.	Post-Preliminary Deliverables	Working Standard	The FIRM Database (including metadata) and the georeferenced FIRM image files must be submitted to the MIP and FEMA (or their designee) must be notified at least 60 days prior to the anticipated LFD date.
518	12/1/2008	Existing standard. Already implemented.	Quality Management	Program Standard	All outstanding map changes must be incorporated into the FIRM before proceeding with the QR5 database and visual review.
519	12/1/2008	Existing standard. Already implemented.	LFD	Program Standard	The FIS Report, FIRM, and FIRM database must pass QR5, QR6, and QR7 before the LFD may be distributed.
520	12/1/2008	Existing standard. Already implemented.	Post-Preliminary Deliverables	Program Standard	At least 45-days before the projected LFD date the final LFD letters, Part 67 Final Notice, and Final SOMAs must be submitted. No less than 4-weeks before the LFD the final LFD Summary Sheet/Dockets and LFD Questionnaires must be consolidated and sent to FEMA HQ for approval.
521	12/1/2008	Existing standard. Already implemented.	Quality Management	Program Standard	At least 60-days prior to the projected LFD date after receiving a passing QR5 auto-validation report for the FIRM database, the QR5 visual, QR6, and QR7 reviews at the "Produce Final Map Products" MIP task must be conducted.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
522	12/1/2008	Existing standard. Already implemented.	LFD	Working Standard	As part of the "Prepare LFD Docket" MIP task, the LFD Summary Sheet/Docket, FEDD Files, and LFD Questionnaire must be submitted, concurrent with Quality Reviews 5 and 7.
523	4/1/2003	Existing standard. Already implemented.	SOMA	Working Standard	On the SOMA, structure removals must not be included in Category 1; LOMRs must not be included in Category 2; and LOMRs and single-determination LOMCs must not be included in Category 4.
524	4/1/2003	Existing standard. Already implemented.	SOMA	Working Standard	When multiple determination LOMAs and LOMR-Fs include both removal and non-removal determinations, and all determinations remain the same based on the new or revised mapping, the case must be included in Category 2 and the new zone must be listed as 'X' in the MIP SOMA Tool; on the Revalidation Letter the new zone must be changed to 'Multiple' if it was formerly shown as "X".
525	4/1/2003	Existing standard. Already implemented.	SOMA	Working Standard	On the SOMA, the map number and map suffix must be listed in the new map panel field for each LOMC and the old map panel must be listed for the old panel field.
526	4/1/2003	Existing standard. Already implemented.	SOMA	Working Standard	All cases included on the SOMA in Category 2 must be listed with the new zone listed as 'X' in the MIP SOMA Tool.
527	4/1/2003	Existing standard. Already implemented.	SOMA	Working Standard	Any LOMCs issued prior to the effective date of the current respective FIRM panel must be included on the SOMA if they are listed on a current revalidation letter for the community.
528	4/1/2003	Existing standard. Already implemented.	SOMA	Working Standard	The SOMA must include the community name, CID, case number, date issued and project identifier for each LOMC listed.
529	4/1/2003	Existing standard. Already implemented.	SOMA	Working Standard	The FIRM Effective date must be listed on the Final SOMA.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
530	7/31/2013	Applicable for LOMCs initiated after the effective date, but not retroactively for ongoing or completed LOMCs.	Coastal	Working Standard	All requests for flood map revisions based upon new or modified flood control structures shall include an analysis of the potential adverse impacts of the structure on flooding within, and adjacent to, the area protected by the structure. For coastal structures, this analysis must also evaluate the impacts of the structure on erosion within, and adjacent to, the protected area.
531	1/1/2013	Existing standard. Already implemented.	Non-Regulatory Datasets	Program Standard	Metadata for non-regulatory flood risk datasets must comply with the Metadata Technical Reference.
532	1/1/2013	Existing standard. Already implemented.	Non-Regulatory Datasets	Program Standard	Attribute domains for non-regulatory flood risk datasets must comply with the Domain Tables Technical Reference.
533	10/1/2011	Existing standard. Already implemented.	FIRM Database	Program Standard	Metadata for FIRM databases must comply with the Metadata Profiles Technical Reference.
534	10/1/2011	Existing standard. Already implemented.	FIRM Database	Program Standard	Attribute domains for FIRM databases must comply with the Domain Tables Technical Reference.
535	7/31/2013	Implemented for all projects once the NFHL for a community is converted to the latest FIRM Database schema	LOMR Incorporation	Working Standard	When a PMR is processed that will only partially include an effective LOMR, all FIS Report components of the LOMR (including Flood Profiles and Floodway Data Tables) must be included in the revised FIS Report that is issued with the PMR. When the partially-included LOMR is re-issued, it must not include any FIS Report components and it will only include revisions for the FIRM panel(s) not revised with the PMR. The LOMR must be re-issued within three days of the FIS Report / FIRM effective date.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
536	7/31/2013	Applicable for all coastal Flood Risk Projects in the data development stage where the erosion analyses have not been completed yet.	Coastal	Working Standard	For Atlantic Ocean and Gulf of Mexico coastal Flood Risk Projects, the 1-percent-annual-chance water level datum, above which the dune reservoir volume will be calculated for erosion analyses, will include storm surge, tidal effects, and wave setup components.
537	7/31/2013	Applicable for LOMCs initiated after the effective date, but not retroactively for ongoing or completed LOMCs.	Coastal	Working Standard	LOMRs for Atlantic Ocean and Gulf of Mexico study areas where wave setup was evaluated as part of the effective coastal analysis shall use the effective still water elevations (including wave setup) for the calculation of dune reservoir volume in the dune erosion analysis. LOMRs where wave setup was not evaluated as part of the effective coastal analysis shall use the effective still water elevations (without wave setup) from the FIS Report for calculating dune reservoir volumes, unless the revision request includes new analyses of still water elevations and wave setup, in which case the reference water level shall include the wave setup component.
538	7/31/2013	For all non-accredited levee projects that were previously on-hold and for newly initiated flood risk projects after the effective date, or after Congressional LAMP briefing. (whichever is later)	Levee	Program Standard	FEMA will not fund any efforts solely related to certifying data for levee accreditation or making determinations of the levee's structural conditions.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
539	7/31/2013	For all non-accredited levee projects that were previously on-hold and for newly initiated flood risk projects after the effective date, or after Congressional LAMP briefing. (whichever is later)	Levee	Program Standard	The natural valley floodplain behind non-accredited levee systems shall be modeled and depicted as an SFHA, except when additional analysis indicates an alternate treatment. The natural valley floodplain behind non-accredited levee systems shall only be depicted as Zone D when freeboard deficient, sound reach, overtopping, and structural-based inundation procedures are implemented.
540	7/31/2013	For all non-accredited levee projects that were previously on-hold and for newly initiated flood risk projects after the effective date, or after Congressional LAMP briefing. (whichever is later)	Levee	Working Standard	Levee systems must be hydraulically independent whereby if one system fails, the area behind another system is not inundated.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
541	7/31/2013	For all non-accredited levee projects that were previously on-hold and for newly initiated flood risk projects after the effective date, or after Congressional LAMP briefing. (whichever is later)	Levee	Working Standard	A Local Levee Partnership Team (LLPT) must be established with participation of diverse stakeholders based on the complexity and scope of the levee system under evaluation. The options discussed by the LLPT members and FEMA's decisions regarding the appropriate analysis and mapping procedures to be used, must be documented and made available to stakeholders.
542	7/31/2013	For all non-accredited levee projects that were previously on-hold and for newly initiated flood risk projects after the effective date, or after Congressional LAMP briefing. (whichever is later)	Levee	Working Standard	If there are levee systems on both sides of a flooding source, or multiple systems that overlap, the extents of the natural valley area and reach specific SFHAs for each system will be analyzed independently assuming the other systems remain in place.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard																																																																		
543	7/31/2013	For all non-accredited levee projects that were previously on-hold and for newly initiated flood risk projects after the effective date, or after Congressional LAMP briefing. (whichever is later)	Levee	Working Standard	The following reach analysis approaches and corresponding data requirements shall be utilized when analyzing non-accredited levee systems:																																																																		
					<table border="1"> <thead> <tr> <th rowspan="2">Data Element</th> <th rowspan="2">Link to CFR</th> <th colspan="5">Reach Analysis Procedures</th> </tr> <tr> <th>Sound Reach</th> <th>Freeboard Deficient</th> <th>Overtopping</th> <th>Structural-Based Inundation</th> <th>Natural Valley</th> </tr> </thead> <tbody> <tr> <td>Elevation Information for the Levee Crest and Toe</td> <td>N/A</td> <td>Required</td> <td>Required</td> <td>Required</td> <td>Required</td> <td>NA</td> </tr> <tr> <td>BFE + Freeboard Less than Levee Crest</td> <td>44 CFR 65.10 (b)(1)</td> <td>Required</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>NA</td> </tr> <tr> <td>BFE Less than Levee Crest</td> <td>N/A</td> <td>Required</td> <td>Required</td> <td>N/A</td> <td>N/A</td> <td>NA</td> </tr> <tr> <td>Operations and Maintenance Plan</td> <td>44 CFR 65.10 (c)</td> <td>Required</td> <td>Required</td> <td>Required</td> <td>Recommended</td> <td>NA</td> </tr> <tr> <td>Structural Design Requirements</td> <td>44 CFR 65.10 (b)(2) 44 CFR 65.10 (b)(4) 44 CFR 65.10 (b)(5) 44 CFR 65.10 (b)(6) 44 CFR 65.10 (b)(7)</td> <td>Required</td> <td>Required</td> <td>Required</td> <td>N/A</td> <td>NA</td> </tr> <tr> <td>Inspection Reports</td> <td>44 CFR 65.10 (c)(2)(V)</td> <td>Required</td> <td>Required</td> <td>Required</td> <td>Recommended</td> <td>NA</td> </tr> <tr> <td>Evaluation of Overtopping Erosion Potential</td> <td>N/A</td> <td>NA</td> <td>N/A</td> <td>Required</td> <td>N/A</td> <td>NA</td> </tr> </tbody> </table>						Data Element	Link to CFR	Reach Analysis Procedures					Sound Reach	Freeboard Deficient	Overtopping	Structural-Based Inundation	Natural Valley	Elevation Information for the Levee Crest and Toe	N/A	Required	Required	Required	Required	NA	BFE + Freeboard Less than Levee Crest	44 CFR 65.10 (b)(1)	Required	N/A	N/A	N/A	NA	BFE Less than Levee Crest	N/A	Required	Required	N/A	N/A	NA	Operations and Maintenance Plan	44 CFR 65.10 (c)	Required	Required	Required	Recommended	NA	Structural Design Requirements	44 CFR 65.10 (b)(2) 44 CFR 65.10 (b)(4) 44 CFR 65.10 (b)(5) 44 CFR 65.10 (b)(6) 44 CFR 65.10 (b)(7)	Required	Required	Required	N/A	NA	Inspection Reports	44 CFR 65.10 (c)(2)(V)	Required	Required	Required	Recommended	NA	Evaluation of Overtopping Erosion Potential	N/A	NA	N/A	Required	N/A	NA
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544	7/31/2013	For all non-accredited levee projects that were previously on-hold and for newly initiated flood risk projects after the effective date, or after Congressional LAMP briefing. (whichever is later)	Levee	Working Standard	The final SFHA delineation shown on the FIRM landward of the non-accredited levee system shall be based on a composite of flooding results from each independently analyzed reach, any interior drainage flooding of the system, and ponding against the landward side of the levee.																																																																		



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545	7/31/2013	For all non-accredited levee projects that were previously on-hold and for newly initiated flood risk projects after the effective date, or after Congressional LAMP briefing. (whichever is later)	Levee	Working Standard	The resulting floodplain from the analysis of a Structural Based Inundation reach must reflect the fact that a breach could occur at any location along the reach.
546	7/31/2013	For all non-accredited levee projects that were previously on-hold and for newly initiated flood risk projects after the effective date, or after Congressional LAMP briefing. (whichever is later)	Levee	Working Standard	If BFEs are to be shown on the FIRM landward of non-accredited levee systems, they shall be based on the highest elevation of the composite analysis and mapping.
547	11/30/2014	Existing standard. Already implemented.	Elevation Data	Working Standard	If topographic breaklines are produced and submitted, the Topographic Breakline Topology Rules outlined in the Data Capture Technical Reference must be followed.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
549	11/30/2014	Existing standard. Already implemented.	Metadata	Working Standard	<p>The metadata files submitted for each applicable task must comply with the Metadata Profiles Technical Reference and must document the data being submitted and include the following elements:</p> <ul style="list-style-type: none"> • Identification Information • Data Quality Information • Spatial Reference Information • Entity and Attribute Information • Distribution Information • Metadata Reference Information
550	4/1/2003	Existing standard. Already implemented.	Letter of Map Revision (LOMR)	Program Standard	If a LOMR results in a new or increased BFE or a new or increased SFHA, the requester must notify the property owner(s) of the impact of the LOMR on their property.
551	1/1/2013	Existing standard. Already implemented.	PMR	Working Standard	For PMRs, the footprint shall be defined as the boundary of the FIRM panel(s) affected by the PMR's study area.
552	12/1/2008	Existing standard. Already implemented.	Quality Management	Program Standard	A Quality Management Plan that prescribes protocols for ensuring consistent compliance with FEMA Standards must be in place.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
553	4/1/2003	Existing standard. Already implemented.	SOMA	Program Standard	<p>LOMCs shall be categorized on the SOMA as follows:</p> <p>Category 1 (LOMCs Incorporated) - Includes those LOMRs (and some LOMAs and LOMR-Fs) whose results are unaffected by new or revised flood hazard data, and whose results can and will be incorporated into the revised FIRM panel(s). Large metes-and-bounds or multi-lot property removal LOMR-Fs are sometimes incorporated through Category 1 when scale limitations do not prohibit it; although typically, these LOMAs and LOMR-Fs will be revalidated through Category 2. Structure removal (both single and multiple determination) LOMCs cannot be incorporated due to scale limitations and therefore shall not be included in Category 1.</p> <p>Category 2 (LOMCs Not Incorporated) - Includes those LOMAs and LOMR-Fs whose results are unaffected by new or revised flood hazard data but could not be incorporated into the revised FIRM panel because of map scale limitations, or because the property or structure was determined to be outside the SFHA as shown on the effective FIRM panel and remains outside the SFHA on the revised FIRM panel(s). These LOMCs are included on the Revalidation Letter that becomes effective one (1) day after the revised FIRM panels become effective. Multiple-determination LOMCs that include denials may be included in this category if all determinations in the LOMC are unaffected by the new or revised flood hazard data.</p> <p>Category 3 (LOMCs Superseded) - Includes those LOMCs whose results will not be reflected on the revised FIRM panel because the flood hazard data on which the determinations are based are being superseded by new detailed flood hazard data, or the information available was not sufficient to make a determination.</p> <p>Category 4 (LOMCs To Be Redetermined) - Includes those LOMAs and LOMR-Fs issued for multiple lots or structures for which new determinations must be made because the determination for one or more properties or structures has changed as a result of the new or revised flood hazard information, and therefore cannot be revalidated.</p>



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
555	10/1/2011	Existing standard. Already implemented.	National Flood Hazard Layer (NFHL)	Working Standard	RFHL to NFHL submissions must include all up-to-date revisions and study data inclusive in a DFIRM ID.
556	7/31/2013	Implemented with all new flood risk projects initiated in FY13.	Stakeholder Engagement	Program Standard	All Flood Risk Projects must have a communications plan designed to keep project stakeholders informed of all key decisions, draft findings and finished outputs. The plan shall also be designed to regularly engage key stakeholders in dialog about local risks and potential actions to manage and reduce those risks.
600	11/1/2010	Existing standard. Already implemented.	Appeals	Program Standard	<p>An administrative appeal period must be offered for physical map revisions and letters of map revision where:</p> <ul style="list-style-type: none"> • New BFEs or base flood depths are proposed or currently effective BFEs or base flood depths have been modified; • New SFHAs are proposed or the boundaries of currently effective SFHAs have been modified; • New SFHA zone designations are proposed or currently effective SFHA zone designations have been modified; or • New regulatory floodways are proposed or the boundaries of currently effective floodways that have been modified. <p>In order to qualify as an appeal, scientific and/or technical data demonstrating these changes are incorrect must be provided.</p>
601	5/30/2014	Implemented for all projects where the 90 day statutory appeals period has not yet begun.	FIS/FIRM	Program Standard	The Community Map Repository address for each community listed in the Federal Register Flood Hazard Determination notice must be a physical address (i.e., not a P.O. Box) confirmed by the community. Additionally, the repository address must be consistent among all related products (FIS, FIRM Index, FIRM Database, FHD Web tool, and Federal Register), both hard copy and online versions, before starting the statutory 90-day appeal period.
602	5/30/2014	Implemented for any project not yet at preliminary.	Levee	Program Standard	For the analysis and mapping of flood hazards associated with levee systems, if available, data and documentation in the USACE National Levee Database (NLD) or from local communities, tribal entities or other Federal/State agencies should be leveraged.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
603	11/30/2014	Implemented for any new community request received after March 21, 2014	Levee	Program Standard	Requests for a determination of adequate progress toward completion of flood protection systems must meet the data and documentation requirements outlined in 44 CFR 61.12, except where superseded by Section 19, Part a, of the Homeowner Flood Insurance Affordability Act, 42 U.S.C. § 4014(e). Zone A99 requests may be submitted for projects constructing or reconstructing flood protection systems. Requests will not be limited to projects with Federal funding, and the present value of the system can be used to meet the requirements of 44 CFR 61.12.b.
604	11/30/2014	Implemented for any new community request received after March 21, 2014	Levee	Program Standard	Map revision requests to reflect flood control system restoration projects with a Zone AR designation must meet the data and documentation requirements outlined in 44 CFR 65.14, except where superseded by Section 19, Part b, of the Homeowner Flood Insurance Affordability Act, 42 U.S.C. § 4014(f). Zone AR requests may be submitted for levees in riverine and coastal areas, except when the landward flood zone of the existing structure would be defined as a Coastal High Hazard Area. Requests will be reviewed without regard to Federal funding or participation, and restoration projects must be complete or meet the requirements of 44 CFR 61.12 within a specified timeframe, not to exceed 10 years, from the date the community submits the request for a Zone AR determination by FEMA.
605	11/30/2014	Effective immediately	National Flood Hazard Layer (NFHL)	Program Standard	Flood Insurance Rate Maps, FIRMettes, and NFHL Databases are the official FEMA digital products. The official FEMA digital products and printed versions produced from the official digital products are all equivalent to each other and represent official FEMA designations of the areas of special flood hazard, base flood elevations, insurance risk zones and other regulatory information, provided that all other geospatial data shown on the printed product meets or exceeds any accuracy standard promulgated by FEMA. Products using FEMA's regulatory data must include a statement that they conform to this standard in order to be used in place of the official FEMA digital products.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
606	11/30/2014	Existing standard. Already implemented.	National Flood Hazard Layer (NFHL)	Program Standard	When a coordinate grid is shown on the FIRM or when the FIRM or NFHL Database version is available, the horizontal location of the flood hazard information is defined with respect to the primary coordinate system shown on the FIRM or stored in the FIRM or NFHL Database product. The horizontal location of the flood hazard information is not defined by its relationship to the base map features such as streets. If there are conflicting interpretations of the precise horizontal location of the areas of special flood hazard, the conflict shall be resolved using the grid coordinates shown on the printed FIRM or stored in the FIRM or NFHL Database products rather than the base map features.
607	11/30/2014	For all projects where the FIRM database has not yet been submitted to the NFHL	National Flood Hazard Layer (NFHL)	Working Standard	NFHL submittals must not contain a single dataset (i.e. DFIRM_ID) which includes future-effective LOMRs with effective dates separated by more than one business day.
608	11/30/2014	For all projects where the FIRM database has not yet been submitted to the NFHL	National Flood Hazard Layer (NFHL)	Working Standard	rFHL submittals must be submitted in a geodatabase format that matches the current NFHL schema in the FIRM Database Technical Reference.
609	11/30/2014	For all projects where the FIRM database has not yet been submitted to the NFHL	National Flood Hazard Layer (NFHL)	Working Standard	DFIRM study data incorporated into the NFHL must be obtained from the FINAL_DFIRM_DB task MIP folder for the associated Risk MAP project case number.
610	11/30/2014	For all projects where the FIRM database has not yet been submitted to the NFHL	National Flood Hazard Layer (NFHL)	Working Standard	All NFHL data superseded by a Risk MAP or LOMR project must be removed from the rFHL prior to submission, and the NFHL must replace all data for a submitted dataset (i.e. DFIRM_ID) in its entirety.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
611	11/30/2014	For all projects where the FIRM database has not yet been submitted to the NFHL	National Flood Hazard Layer (NFHL)	Working Standard	NFHL submittals must contain a unique identifier within the primary key fields for all records within a dataset (i.e. DFIRM_ID) and maintain all primary and foreign key relationships as defined in the FIRM Database Technical Reference.
612	5/31/2015	Effective immediately	Project Management	Program Standard	<p>Flood Risk Projects must follow the Key Decision Points (KDPs) process and each KDP must be documented. A Flood Risk Project shall not advance in its project lifecycle beyond a KDP without Regional and HQ approval. The 6 distinct KDPs:</p> <ul style="list-style-type: none"> - KDP 0: decision to initiate a Flood Risk Project or group of Flood Risk Projects. - KDP 1: decision to move forward with a Flood Risk Project through data development, risk awareness, and/or outreach tasks - KDP 2: decision to develop Preliminary FIRM products - KDP 3: decision to distribute Preliminary FIRM products to communities - KDP 4: decision to initiate the Appeal Period - KDP 5: decision to issue the LFD
613	5/31/2015	Effective immediately	Coastal	Program Standard	FEMA does not issue CLOMA or LOMA determinations in V zones where the primary frontal dunes (PFDs) define the inland limits of V zones.
614	7/31/2015	Effective immediately	Coastal	Program Standard	FEMA will only use whole foot BFEs for LOMA or CLOMA determinations where effective flood hazard areas are the result of coastal flood hazard analysis.
615	7/31/2015	Effective immediately	Appeals	Program Standard	The Scientific Resolution Panel must issue a report detailing the panel findings in writing to the community and FEMA no later than 90 days after being formed. The Panel Sponsor must publicly identify the date that an SRP was formed on the SRP website.



SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
616	7/31/2015	Effective immediately	Letter of Map Revision (LOMR)	Program Standard	A LOMR or CLOMR requester shall be exempt from submitting a review or processing fee for a request that is based on a project where: (1) the primary purpose is habitat restoration; and (2) where the habitat restoration project is funded in whole or in part with Federal or State-funds. For the purposes of this fee exemption, "habitat restoration" will have the same meaning as the term "habitat restoration" in the Partners for Fish and Wildlife Act, 16 U.S.C. § 3772(5). This exemption includes projects for dam removal, culvert redesign or installation, or the installation of fish passage if the primary purpose is habitat restoration.
617	7/31/2015	Effective immediately	Prelim Distribution	Program Standard	Congressional notifications required under 42 USC 4101b (d)(1)(G) and (H) related to issuance of preliminary maps shall be provided in the monthly "Notice to Congress: Monthly Update on Flood Mapping" report. Issuance of initial preliminary maps and revised preliminary maps must be included.
618	11/30/2015	Effective immediately	Letter of Map Revision (LOMR)	Working Standard	All LOMRs issued shall have all revised FIRM Database items prepared in accordance with the FIRM Database Technical Reference and incorporated into the National Flood Hazard Layer (NFHL) with a polygon showing a LOMR area of revision.
619	11/30/2015	Effective Immediately	Coastal	Program Standard	When revising the dune feature identified as the Primary Frontal Dune in an effective FIS, the revised feature must be as continuous or more continuous than the effective PFD. This is especially important in areas with multiple ridges throughout a dune field, areas with man-made dunes, and property-specific revisions, including requests that the PFD designation be removed altogether. Community coordination may be required to make this assessment.
620	6/6/2016	Effective for all new work funded in FY16	Coordination	Program Standard	Before commencing the analysis and mapping activities that take place during the Data and Product Development Phase of a flood risk study, FEMA shall provide a written notification to community Chief Executive Officers and Floodplain Administrators that explains the selected modeling, explains why the selected modeling is appropriate, and provide a 30-day period for communities to consult on the appropriateness of the modeling.



FEMA

SID #	Effective Date	Implementation Description	Category	Standard Type	Standard
621	6/6/2016	Effective for all new work funded in FY16	Coordination	Program Standard	Prior to completion of Quality Review 1, FEMA shall transmit a copy of the draft FIRM database and other contributing data as requested to the affected community Chief Executive Officers and Floodplain Administrators, provide a 30-day period during which the affected communities may provide data to FEMA that can be used to supplement or modify the existing data, and incorporate any data that are consistent with prevailing engineering principles.
622	6/6/2016	Effective for all new work funded in FY16	Stakeholder Engagement	Program Standard	During the Preliminary NFIP Map Release and Due Process phases of the lifecycle for a flood risk study, the Project Team shall work with the FEMA Regional Office of External Affairs, other FEMA staff, community officials, and local radio and television outlets to further educate property owners about flood map revisions and appeals processes.



Appendix B
Acronyms and Abbreviations Used in the Risk MAP Standards

Item	Full Translation
2D	Two-Dimensional
AoMI	Areas of Mitigation Interest
BFE	Base Flood Elevation
BW-12	Biggert-Waters Flood Insurance Reform Act of 2012
CBRS	Coastal Barrier Resources System
CCO	Consultation Coordination Officer
CDS	Customer and Data Services
CEO	Chief Executive Officer
CFR	Code of Federal Regulations
CID	Community Identifier
CIS	Community Information System
CLOMA	Conditional Letter of Map Amendment
CLOMR	Conditional Letter of Map Revision
CLOMR-F	Conditional Letter of Map Revision based on Fill
CNMS	Coordinated Needs Management Strategy
CRS	Community Rating System
CSLF	Changes Since Last FIRM
CTP	Cooperating Technical Partner
CVA	Consolidated Vertical Accuracy
DBF	Database File
DEM	Digital Elevation Model
DFIRM	Digital Flood Insurance Rate Map
ESRI	Environmental Systems Research Institute
ETJ	Extraterritorial Jurisdiction
FBFM	Flood Boundary and Floodway Map
FBS	Floodplain Boundary Standard



Item	Full Translation
FDT	Floodway Data Table
FEDD	Flood Elevation Determination Docket
FEMA	Federal Emergency Management Agency
FHBM	Flood Hazard Boundary Map
FHD	Flood Hazard Determination
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FRD	Flood Risk Database
FRM	Flood Risk Map
FRR	Flood Risk Report
FVA	Fundamental Vertical Accuracy
GCS	Geographic Coordinate System
GIS	Geographic Information System
H&H	Hydrologic & Hydraulic
HFIAA	Homeowner Flood Insurance Affordability Act of 2014
HQ	Headquarters
HUC	Hydrologic Unit Code
KDP	Key Decision Point
LFD	Letter of Final Determination
LIDAR	Light Detection and Ranging or Laser Imaging Detection and Ranging
LiMWA	Limit of Moderate Wave Action
LLPT	Local Levee Partnership Team
LODR	Letter of Determination Review
LOMA	Letter of Map Amendment
LOMC	Letter of Map Change
LOMR	Letter of Map Revision
LOMR-F	Letter of Map Revision based on Fill
MAF/TIGER	Master Address File/Topologically Integrated Geographic Encoding and Referencing



Item	Full Translation
MIP	Mapping Information Platform
MSC	Map Service Center
MXD	ArcMap Document (file extension)
NAD83	North American Datum 1983
NAVD88	North American Vertical Datum 1988
NFHL	National Flood Hazard Layer
NFIP	National Flood Insurance Program
NGO	Non-Governmental Organization
NPS	Nominal Pulse Spacing
NSRS	National Spatial Reference System
NSSDA	National Standard for Spatial Data Accuracy
NVA	Non-vegetated Vertical Accuracy
NVUE	New, Validated, or Updated Engineering
OFA	Other Federal Agency
PAL	Provisionally Accredited Levee
PDF	Portable Document Format
PFD	Primary Frontal Dune
PLSS	Public Land Survey System
PMR	Physical Map Revision
QA	Quality Assurance
QA/QC	Quality Assurance / Quality Control
QR	Quality Review
RFHL	Regional Flood Hazard Layer
RPO	Regional Project Officer
SFHA	Special Flood Hazard Area
SHMO	State Hazard Mitigation Officer
SHP	Shapefile (file extension)
SOMA	Summary of Map Actions



Item	Full Translation
SRP	Scientific Resolution Panel
SVA	Supplemental Vertical Accuracy
TIN	Triangulated Irregular Network
TSDN	Technical Support Data Notebook
TWL	Total Water Level
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VVA	Vegetated Vertical Accuracy
WSEL	Water Surface Elevation
XML	Extensible Markup Language (file extension)
XS	Cross Section