

# Fall 2022 Guidance and Standards Summary of Policy Changes

FEMA maintains guidelines and standards (G&S) to support the Risk Mapping, Assessment and Planning (Risk MAP) program. These specifically define how to apply the statutory and regulatory requirements for the National Flood Insurance Program (NFIP). They also outline how to perform Flood Risk Projects, how to process Letters of Map Change (LOMCs), and related Risk MAP activities. More information is available at: [www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping](http://www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping).

FEMA has a maintenance plan for these guidelines and standards and issues updates annually. This summary relates to the 2022 update. If you, or those in your organization, want to receive updates like this, please follow this link: [Signup for FEMA Email Updates \(govdelivery.com\)](https://govdelivery.com)

The summary of planned changes for this cycle was published on July 7, 2022 and can be found [here](#). Those changes are:

## Significant Change Topics

Topic	Description
Prioritization / Evaluation of Areas to Study	Updated the requirements for regional prioritization of areas to study, Flood Risk Project planning, and Key Decision Point (KDP) 0 documentation using the Flood Mapping Needs Explorer information.
HEC-RAS Archive Tool	Updated data capture documentation to allow the use of the archive capability for studies using HEC-RAS software, including for 2D models.
Vertical/Horizontal Scale of Flood Profiles (Standard Identification Numbers (SIDs) 232 and 274)	Updated Flood Insurance Study (FIS) graphic / production requirements to simplify profile scale selection.

The standard changes are as follows:

Item #	Doc. Type	SID	Standard Change Description
1	Standard	40	Updated to clarify that the latest version of the United States Geological Survey (USGS) Lidar Base Specification can be used.
2	Standard	41	Based on public comments, the language was revised to use conterminous rather than continental. In addition, the standard was clarified to require use of the National Spatial Reference System (NSRS) in other areas where it



# FEMA

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Item #	Doc. Type	SID	Standard Change Description
			is practical. This is mainly clarification and does not have significant additional impacts.
3	Standard	43	Corrected Figure 1 in Appendix C to match embedded table in standard. Embedded table updated for improved resolution and to have consistent headers and footnotes between the standard and Elevation guidance. The data within the table did not change.
4	Standard	139	Updated to align with current terminology.
5	Standards	153, 213, 214, 227	Minor updates to improve consistency or clarity in language, and / or correct minor errors (e.g. typos).
6	Standard	232	Rescinded to combine with SID 274 to clarify language about profile development.
7	Standard	274	Updated to allow flexibility when selecting vertical or horizontal scale on flood profiles for better consistency along streams that cross jurisdictions.
8	Standard	315	Updated to align with the current technical reference as well as recent Automated Map Production (AMP) updates.
9	Standard	363	Updated to reduce confusion that occurs when an adjacent study is also being revised and if that should be used instead of the National Flood Hazard Layer (NFHL) since the data may not be available in the NFHL for edge matching depending on the schedules.
10	Standard	375	Updated to include only levees that are found in the S_Levee table and to align the definition of a levee per SID 450.
11	Standard	377	Updated to clarify data needed for Flood Insurance Study (FIS) production on a countywide level. This change includes FIS production as well as the attributes needed for Flood Insurance Rate Map (FIRM) panel production via AMP. This update aligns with edits to the Physical Map Revision (PMR) guidance made during an earlier maintenance cycle.

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Item #	Doc. Type	SID	Standard Change Description
12	Standard	447	Updated to align with current terminology in the Levee guidance.
13	Standard	448	Updated to better align with the Levee guidance terminology, specifically pertaining to which levees are Provisionally Accredited Levee (PAL) eligible. This also expands eligibility from accredited levees to those that provide a base flood hazard reduction on the effective FIRM.
14	Standards	517, 520, 522	Updated to align with current practice.
15	Standard	538	Updated to clarify how Risk MAP funding may be used for levee analysis, specifically providing clarification about interior drainage systems.
16	Standard	542	Updated to clarify the statement regarding “multiple systems that overlap” that need to be analyzed independently.
17	Standard	544	Updated to clarify the landside of a levee is covered under interior drainage and should be removed from SID.
18	Standard	600	Updated to clarify language regarding appeal period requirements.
19	Standard	602	Updated to clarify the starting points for levee data should be the United States Army Corps of Engineers (USACE) National Levee Database (NLD), though the NLD can be supplemented with existing FEMA data, terrain data, and community data if deemed more aligned to existing conditions.
20	Standard	642	Updated to clarify that levee seclusion is not a recommended option and can only be used in rare cases. Added context to better explain potential eligibility.
21	Standard	646	New standard requiring coordination with other federal agencies when FEMA is updating the flood hazards associated with a levee system based on that agency’s recommendation or data.
22	Standard	647	New standard outlining requirements for regional prioritization of areas to study, Flood Risk Project planning, and Key Decision Point

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Item #	Doc. Type	SID	Standard Change Description
			(KDP) 0 documentation using the Flood Mapping Needs Explorer information.

## Standards

The table below lists new standards and edits to existing standards made during the 2022 annual update to the Policy for Flood Risk Analysis and Mapping.

The updates are listed in the table below, with their Standard Identification Number (SID #), implementation date, primary key word(s) and current version of the standard (if applicable). The approach for implementing these standards was chosen to avoid any cost impacts on work underway.

The current standards and a list of acronyms are available on the [FEMA website](#).

SID	Implementation Description	Primary Keyword	Original Standard	Revised Standard
40	Effective Immediately	Elevation Data	New elevation data purchased by FEMA must comply with the current USGS National Geospatial Program Base Lidar Specification Version 1.2, except hydro-flattening is not required and a classified point cloud and a bare earth DEM deliverable are not required.	New elevation data purchased by FEMA must comply with the USGS National Geospatial Program Lidar Base Specification 2022 rev. A or more current, except hydro-flattening is not required and a classified point cloud and a bare earth DEM deliverable are not required.
41	Effective Immediately	Elevation Data	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.	Field surveys and aerial data acquisition must be reportable and referenceable in the National Spatial Reference System (NSRS) for all areas in the United States where the NSRS is defined and accessible. Within the conterminous U.S. the geometric North American Datum of 1983 (NAD 83 (2011) epoch 2010.0), and the orthometric North American Vertical Datum of 1988 (NAVD 88) are required.

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43	Effective Immediately	Elevation Data	<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"> <caption>Vertical Accuracy Requirements based on Flood Risk and Terrain Slope within the Floodplain being Mapped</caption> <thead> <tr> <th>Level of Flood Risk</th><th>Typical Slopes</th><th>Specification Level</th><th>Vertical Accuracy: 95% Confidence Level (PVA or NVA) (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. (Refer to Figure 1 in Appendix C on page 65).</p>	Level of Flood Risk	Typical Slopes	Specification Level	Vertical Accuracy: 95% Confidence Level (PVA or NVA) (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	<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"> <caption>Vertical Accuracy Requirements based on Flood Risk and Terrain Slope within the Floodplain being Mapped</caption> <thead> <tr> <th>Level of Flood Risk</th><th>Typical Slopes</th><th>Specification Level</th><th>Vertical Accuracy: 95% Confidence Level (PVA or NVA) (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. (Refer to Figure 1 in Appendix C).</p>	Level of Flood Risk	Typical Slopes	Specification Level	Vertical Accuracy: 95% Confidence Level (PVA or NVA) (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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139	Effective Immediately	Coastal - General	<p>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 anticipated natural conditions nor have long-standing vegetative cover as per 44 C.F.R. § 65.11, the data shall be adjusted to be representative of anticipated natural conditions prior to conducting the storm-induced erosion and onshore wave hazard analyses.</p>	<p>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 anticipated natural conditions nor have long-standing vegetative cover, the data shall be adjusted to be representative of anticipated natural conditions prior to conducting the storm-induced erosion and onshore wave hazard analyses.</p>																																																																																
153	Effective Immediately	GDC	<p>Details of cost, leverage, and project scope must be reported to FEMA's geospatial data tracking systems.</p>	<p>Details of cost, leverage, and project scope for new elevation data purchases must be reported to FEMA's geospatial data tracking systems.</p>																																																																																

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SID	Implementation Description	Primary Keyword	Original Standard	Revised Standard
213	Effective Immediately	Notice-to-User	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.	During the Notice-to-User Corrections process, approval of the action taken shall be obtained from the FEMA HQ Due Process Lead and the decision must be documented in writing.
214	Effective Immediately	Notice-to-User	During the Notice-to-User revision process: <ul style="list-style-type: none"> <li>• the FIS, FIRM panel(s), FIRM database, and NFHL must be corrected as appropriate;</li> <li>• the corrected components must indicate the appropriate date;</li> <li>• the corrected components must be distributed to the communities affected by the correction; and</li> <li>• the corrected components must be updated on the MSC site.</li> </ul>	During the Notice-to-User Corrections process: <ul style="list-style-type: none"> <li>• the FIS, FIRM panel(s), FIRM Database, and NFHL must be corrected as appropriate;</li> <li>• the corrected components must indicate the appropriate date;</li> <li>• the corrected components must be distributed to the communities affected by the correction; and</li> <li>• the corrected components must be updated on the MSC site.</li> </ul>
227	Effective Immediately	Notice-to-User	The Notice-to-Users process shall only be used for corrections of errors or omissions in the FIS Report, FIRM Database, NFHL, or on the FIRM that do not require administrative appeal. The Notice-to-Users revision process shall not change the accreditation status of a levee or the effective date of the FIRM and FIS.	The Notice-to-User Corrections process shall only be used for corrections of errors or omissions in the FIS Report, FIRM Database, NFHL, or on the FIRM that do not require administrative appeal. The Notice-to-User Corrections process shall not change the accreditation status of a levee or the effective date of the FIRM and FIS.
232	Effective Immediately	Flood Profiles	Unless it can be demonstrated that the vertical and horizontal scale of the effective Flood Profiles are inadequate, re-analyzed or redelineated streams must be produced using the same horizontal and vertical scales that were used in the effective Flood Profiles.	<b>Rescinded</b>

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274	Effective Immediately	Flood Profiles	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.	The horizontal and vertical scales of the Flood Profiles shall be chosen and developed consistently for each flooding source, such that the Flood Profile slopes are reasonable and can be easily interpreted by the user.
315	Effective Immediately	Levee	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.	All levees stored in the FIRM Database shall be symbolized on the FIRM panel as outlined in the FIRM Panel Technical Reference, with the appropriate accreditation status noted.
363	Effective Immediately	National Flood Hazard Layer (NFHL)	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.	Unless the adjacent study area is being revised or unmodernized, 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. If the adjacent area is being studied, the study data must be used as appropriate.
375	Effective Immediately	Levee	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.	The S_Levee table is required for any Preliminary or Final FIRM Database that includes levees, floodwalls, embankments, or structures that have been designed, operated, and maintained as levees, whether or not they have been demonstrated to meet the NFIP requirements per Code of Federal Regulations Title 44 CFR § 65.10.



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377	Effective Immediately	National Flood Hazard Layer (NFHL)	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.	For PMRs, once the NFHL for a community is converted to the latest FIRM database schema, all database submissions are required to conform to this schema. For non-FEMA funded external data studies or portions of a study where the engineering is unrevised, attribute data associated with the schema may be excluded if not needed for FIRM or FIS production and approved by the FEMA Project Officer. Exclusions for data needed to produce FIRM panels with AMP are not allowed. Each exclusion must be documented in the FIRM Database metadata file that accompanies the submittal.
447	Effective Immediately	Levee	If the levee system does not continue to meet the criteria within Code of Federal Regulations Title 44 C.F.R. § 65.10, FEMA shall initiate the levee de-accreditation process.	If the levee system does not continue to meet the criteria within Code of Federal Regulations Title 44 CFR § 65.10, FEMA shall initiate the analysis and mapping procedure for non-accredited levee systems.
448	Effective Immediately	Levee	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 Code of Federal Regulations Title 44 C.F.R. § 65.10. The opportunity for a PAL designation is only offered one time for any given system.	A levee system shall only be designated by FEMA as a Provisionally Accredited Levee (PAL) if the levee system is shown as providing base flood hazard reduction on the effective FIRM, has a formally adopted Operation and Maintenance Plan, and, the owner of the levee system or the community is attempting to compile and certify levee documentation to demonstrate continuation of compliance per Code of Federal Regulations Title 44 CFR § 65.10. The opportunity for a PAL designation is only offered one time for any given system.



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517	Effective Immediately	Post-Preliminary Deliverables	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.	The FIRM Database (including metadata) and the 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.
520	Effective Immediately	Post-Preliminary Deliverables	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.	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 must be consolidated and sent to FEMA HQ for approval.
522	Effective Immediately	LFD	As part of the LFD Docket MIP task, the LFD Verification Summary and LFD Questionnaire, LFD Letters and Final SOMA must be submitted, concurrent with Quality Reviews 5 and 7.	As part of the LFD Docket MIP task, the LFD Verification Summary, LFD Letters and Final SOMA must be submitted, concurrent with Quality Reviews 5 and 7.
538	Effective Immediately	Levee	FEMA will not fund any efforts solely related to certifying data for levee accreditation or making determinations of the levee's structural conditions.	FEMA will not fund any efforts related to developing and/or certifying data for levee accreditation or making determinations on the levee's structural conditions. This includes performing the required analyses on the performance of interior drainage systems within the levee impacted area.
542	Effective Immediately	Levee	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.	For levee systems located on both sides of a flooding source, in series, or for multiple systems that have overlapping levee impacted areas, 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.

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544	Effective Immediately	Levee	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.	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 and any interior drainage flooding of the system.
600	Effective Immediately	Appeals Process	<p>An administrative appeal period must be offered for any FIRM updates including letters of map revision where Flood Hazard Data updates are made. Flood Hazard Data changes include:</p> <ul style="list-style-type: none"> <li>• New BFEs or base flood depths are proposed or currently effective BFEs or base flood depths have been modified;</li> <li>• New SFHAs are proposed or the boundaries of currently effective SFHAs have been modified;</li> <li>• New SFHA zone designations are proposed or currently effective SFHA zone designations have been modified; or</li> <li>• New regulatory floodways are proposed or the boundaries of currently effective floodways that have been modified.</li> </ul> <p>In order to qualify as an appeal, scientific and/or technical data demonstrating these changes are incorrect must be provided.</p>	<p>An administrative appeal period must be offered for any FIRM updates including letters of map revision where Flood Hazard Data updates are made. Flood Hazard Data changes include:</p> <ul style="list-style-type: none"> <li>• New BFEs or base flood depths are proposed or currently effective BFEs or base flood depths have been modified;</li> <li>• New SFHAs are proposed or the boundaries of currently effective SFHAs have been modified;</li> <li>• New zone designations are proposed or currently effective SFHA zone designations have been modified; or</li> <li>• New regulatory floodways are proposed or the boundaries of currently effective floodways that have been modified.</li> </ul> <p>In order to qualify as an appeal, scientific and/or technical data demonstrating these changes are incorrect must be provided.</p>

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602	Effective for all FY23 studies and beyond	Levee	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 or state agencies should be leveraged.	For the analysis and mapping of flood hazards associated with levee systems, data and documentation from the USACE National Levee Database (NLD) must be leveraged as a starting point. Effective FEMA data and supplemental data from local communities, tribal entities or other federal or state agencies, including terrain data, should be evaluated, and the most accurate data shall be used. FEMA shall provide USACE with updated levee data for incorporation into the NLD as appropriate.
642	Effective Immediately	Levee	Justification to use Seclusion mapping on the FIRM panel must be approved by the FEMA Region and FEMA Headquarters.	Levee Seclusion is not a viable mapping option unless approved by the FEMA Region and FEMA Headquarters. Seclusion mapping may only be considered for studies placed on hold during the development of the analysis and mapping procedures for non-accredited levees.
646	Effective for all FY23 studies and beyond	Levee	New Standard	If data, documentation, or recommendations provided by other federal agencies leads to a reduction in mapped flood hazard areas impacted by a levee system, FEMA will coordinate with the agency of record and document the data or recommendation are still valid for future updates to the flood hazard area associated with the levee system.

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647	Effective for all FY23 studies and beyond	Project Planning	New Standard	The FEMA Flood Mapping Needs Explorer information must be used as one of the factors for evaluation and prioritization of study areas. Regions need to leverage the data and any other elective factors and resources to plan Flood Risk Projects. A KDP O submission shall have documentation of the selection based on the information from FEMA's Flood Mapping Needs Explorer among other decision criteria. Please refer to Section 2.1 of the Project Planning guidance document for information on using the Mapping Needs Explorer.

## Responses to Public Comments Received in July 2022

Several comments were received during the comment period. The comments and FEMA's response are listed by their SIDs below:

### SID 41

- **Public Comment:** The standard states "continental" but the associated elevation guidance document uses "conterminous" making this standard inconsistent with the guidance. NGS review finds that use of either term is not fully descriptive of areas where field surveys and aerial data acquisition may reasonably be connected to the NSRS.

Additionally, correct notation of the NSRS abbreviations includes a space between the letters and numbers, and users are increasingly encouraged to provide epoch information in preparation for the temporal features of the modernized NSRS. NGS therefore suggests the following replacement language: "Field surveys and aerial data acquisition must be reportable and referenceable in the National Spatial Reference System (NSRS) for all areas in the United States where the NSRS is defined and accessible. The geometric North American Datum of 1983 (NAD 83 (2011) epoch 2010.0), and the orthometric North American Vertical Datum of 1988 (NAVD 88) are the National Geodetic Survey's contemporary datums."

- **Response:** The language was revised to use conterminous rather than continental. In addition, the standard was clarified to require use of NSRS in other areas where it is practical.

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### SID 41

- **Public Comment:** Since the NAVD88 and NAD83 abbreviations are defined within this standard, should NSRS also be spelled out as “National Spatial Reference System (NSRS)”?
- **Response:** The language was revised to spell out the NSRS abbreviation.

### SID 274

- **Public Comment:** This does not read well. An alternative wording could be “The horizontal and vertical scales of the Flood Profiles shall be chosen such that the Flood Profile slopes are reasonable and can be easily interpreted by the user and developed consistently for each flooding source.”
- **Response:** We accept the proposed change.

### SID 274

- **Public Comment:** SID Lang: The horizontal and vertical scales of the Flood Profiles shall be chosen so that Flood Profile such that slopes are reasonable for the user and can be easily interpreted by the user developed consistently for each flooding source.  
Suggest moving this phrase to directly follow "chosen." Recommended wording below:  
... shall be chosen and developed consistently for each flooding source so that ...
- **Response:** We accept the proposed change.

### SID 363

- **Public Comment:** We suggest adding “when available” regarding the NFHL. Non-modernized counties will not have NFHL available to use as the source either when starting a Risk MAP study nor for edge matching if the adjacent county is non-modernized.
- **Response:** We added “Unless the adjacent study area is being revised or the study area is unmodernized, ...” to incorporate this comment, but also eliminate potential concerns that may arise if the NFHL service is temporarily unavailable.

### SID 363

- **Public Comment:** SID Lang: Unless an adjacent area is being revised, the NFHL must be used as the source for effective FIRM data when starting a Risk MAP study and for mandatory edge matching at county/community boundaries. If the adjacent area is being actively studied, that data must be used as appropriate

Is this referred as the best available data?

This description is not clear, esp. lacking definition for the status of “area is being actively studied” which is deemed appropriate data.

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What is the definition of "actively being studied"? (PMR underway? Does this include local studies?) Or is the intent to leave the definition vague to allow flexibility in application, as appropriate?

**Response:** The intent of this proposed change is not to define study data (or insert the term best available data) as those are defined and explained in FEMA Policy #104-008-2: Guidance on the Use of Available Flood Hazard Information which is available at this link: [https://www.fema.gov/sites/default/files/2020-04/Available\\_Flood\\_Hazard\\_Information\\_Policy\\_104-008-2.pdf](https://www.fema.gov/sites/default/files/2020-04/Available_Flood_Hazard_Information_Policy_104-008-2.pdf). No change is being made.

### SID 375

- **Public Comment:**
  - We suggest adding one more comma "operated, and maintained as levees". Perhaps add semi colon just before "whether or not".
  - In SIDs 447, 448, "Code of Federal Regulations Title" is added prior to 44 CFR 65.10, but is not here. Please review for consistency to avoid a future revision.
- **Response:** We accept the proposed change except for the addition of the semi colon.

### SID 448

- **Public Comment:** Should PAL be spelled out - Provisionally Accredited Levee (PAL)?
- **Response:** We accept the proposed change.

### SID 538

- **Public Comment:** Unclear if FEMA will fund the study of upland streams from watershed headwaters down to a levee area. Data from such a study would be a necessary input for an interior drainage analysis; but is primarily riverine analysis for potentially miles of stream.
- **Response:** FEMA can fund the evaluation of the upland stream from the watershed headwaters but the evaluation of the interior drainage systems within the levee impacted area is the responsibility of the certifying engineer. Additional clarification will be provided in the FEMA Levee Guidance. No change to proposed standard.

### SID 542

- **Public Comment:** We suggest that SID 542 is more appropriate as part of technical guidance than as a strict program standard. Given the potential complexities of levee analysis, levee regulation and the wide range of situations which may be faced, we suggest that greater flexibility and nuance may be provided through technical guidance which would allow for the appropriate analysis.

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Both in the original and revised form this standard may result in a conflict with Standard 108 and other floodway standards and may be nearly impossible to achieve especially on large river systems. The analysis of large river systems may encompass hundreds of river miles, many dozens of levee systems, hundreds of levee reaches, and multiple tributaries which also interact with these levees. For example, in one 200-mile large river reach we note more than 30 named NLD levees comprised of over 250 levee reaches. This is by no means an extreme example. The number of required scenarios alone for such an example is unfeasible to manage through the mapping quality control process and would create a regulatory nightmare.

Even for a simple 1D steady-state analysis a levee-by-levee accurate floodway analysis is impossible because there is no continuity from scenario to scenario. Consider just one likely issue: a levee-by-levee approach to the natural valley analysis may open new flow paths in one scenario which are not available in other levee-by-levee scenarios, but which would be available in a natural valley analysis of the entire reach without consideration of any levee. As a result, the floodway determined in the global natural valley analysis should be expected to be more extensive than a composite of floodways based on a natural valley analyses of each levee individually because it considers all potential conveyance paths. The global natural valley analysis restores the floodway which should be maintained landward of unaccredited but hydraulically significant levees. Anything less “grandfathers” a permissive floodway based on the potentially poor decisions of the past.

We suggest that two basic scenarios are needed to establish an upper and lower bound in a 1D steady environment. Floodway encroachments initially set through the global natural valley scenario should be tested and adjusted for the “with levee” analysis (all levees constricting) to ensure that the encroachments comply with federal, state, or local floodway requirements for all scenarios. If a levee-by-levee approach is taken this would also need to be done for all the levee-by-levee scenarios adding to the model version complexity. The variety of competing scenarios required for a levee-by-levee analysis is just mind numbing, even in a 1D steady state environment. Thus, we maintain that a global natural valley analysis forms a better and hydraulically rational basis for a floodway analysis of the reach. When combined with the “with levee” analysis these two scenarios provide reasonable upper and lower bounds of expected water surface elevations.

How might these upper and lower bounds be utilized? We recognize that a levee-by-levee approach in a 1D steady environment may establish a higher BFE landward of a levee than the global natural valley analysis. We suggest that, in sparsely populated areas, floodway based on a global natural valley analysis is appropriate to determine floodplain fringe and floodplain islands, areas of acceptable fill. Lowest habitable floor elevations however may be more reliably established based on the higher bounding elevations of the “with levee” analysis. For areas of greater population an un-steady 1D model should be considered which allows accurate volumetric modeling that accounts for potential overtopping of levees and floodplain storage that may be induced by constricted reaches. In the un-steady environment again, floodway should be initially determined in a global natural valley analysis but tested and adjusted in the “with levee” analysis. Whether based on cross-sections or storage areas, these two analyses can be compared with relative ease and conceptual clarity and the higher elevation selected. Un-steady 1D analysis performed in this manner results in a reasonable floodway and reasonable BFE’s landside of non-accredited levees.

Even with these proposed revisions to this standard the resulting DIFRM database is complex, drawing on multiple sources along individual cross-sections or storage areas and between return periods. This



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complexity is unavoidable. The over-complexity of many dozens of model sources however is avoidable, and we humbly suggest, should be seriously considered.

- **Response:** FEMA understands the complexities that large scale riverine studies may present in regards to levee analysis and mapping. The existing and proposed revisions to this standard is clarifying that other levee systems in the vicinity to the system being evaluated, either in parallel or in series, may impact the base flood elevations. As your comment appears to focus mainly on the floodway aspects of the levee analysis, FEMA has included guidance under section 6.18.4 regarding the procedure for analysis for hydraulically significant levees that does take into consideration some of the items pointed out in your comments. Large scale projects that involve multiple levee systems may involve additional coordination with FEMA to determine the proper approach. However, the scale of the modeling project should not diminish the risk associated with the levee system. No change will be made to the proposed standard.

### SID 600

- **Public Comment:** SID Lang: An administrative appeal period must be offered for any FIRM updates including letters of map revision where Flood Hazard Data updates are made.  
Flood Hazard Data changes include:
  - 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 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.
  - In order to qualify as an appeal, scientific and/or technical data demonstrating these changes are incorrect must be provided.

Confirm that the intent is for this to apply to any new zones, not just SFHA.

- **Response:** 'SID 600 doesn't apply only to SFHA, it applies to Zone X as well. Our only edit was the 3rd bullet, everything else is not changing. Due Process isn't a one way street, for instance we all can agree that revising zone X to Zone A needs due process. It also applies to revising Zone A to Zone X (SID 645), that's where due process clarification was needed so it's not overlooked.

### SID 602

- **Public Comment:** When during a Risk MAP project is the NLD updated by the USACE based on information provided by FEMA and its Partners? Will a mapping partner fail a KDP or QR based on lag time for necessary updates?
- **Response:** The NLD is updated periodically by USACE based on input from FEMA and other stakeholders. Discrepancies between the NLD and supplemental data would be provided to USACE by FEMA or its designees when discovered. If there is a lag, it may be noted during project milestones if the NLD has not

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been updated, but this discrepancy should not cause a failed KDP or QR check. No change to the proposed standard.

### SID 642

- **Public Comment:** The description of change on page 3 of the 2022 Guidance and Standards Maintenance Cycle and Standards Public Review Announcement specifically notes “meeting state eligibility requirements”, but no such language is included in the original or revised standard. Is the standard or the description out of date?
- **Response:** The language regarding “meeting state eligibility requirements” was inadvertently added to the Standards Maintenance Cycle and Standards Public Review Announcement. Please disregard.

### SID 646

- **Public Comment:** When during a Risk MAP project will this coordination take place? Will a mapping project be put on hold if there is a lag time for verification?
- **Response:** The identification of levee systems, available data and interagency coordination should take place as early as possible for a mapping project. If there is a lag in data verification, the mapping project may be delayed pending verification. No change to proposed standard.

### SID 647

- **Public Comment:** Can CTPs access the FEMA Flood Mapping Needs Explorer?
- **Response:** Yes, all CTPs and Mapping Partners will be provided access to the Mapping Needs Explorer.

### SID 647

- **Public Comment:** The FEMA Flood Mapping Needs Explorer information must be used for evaluation and prioritization of study areas. Regions need to leverage the data and any other elective factors and resources to plan Flood Risk Projects. A KDP O submission shall have documentation of the selection based on the information from FEMA’s Flood Mapping Needs Explorer. Please refer to Section 2.1 of the Project Planning guidance document for information on using the Mapping Needs Explorer

This appears to be a new platform (different than the CNMS Viewer). Will a link be shared? We'd like to access the platform before it is formalized as a standard.

- **Response:** Yes, all CTPs and Mapping Partners will be provided access to the Mapping Needs Explorer.