

# Guidelines and Standards for Flood Risk Analysis and Mapping

## Appendix I: Discovery

June 2, 2011



**FEMA**

All policy and standards in this document have been superseded by the FEMA Policy for Flood Risk Analysis and Mapping.  
However, the document contains useful guidance to support implementation of the new standards.

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## Table of Standards

The Table of Standards is an overview of all mandatory elements within this Appendix. For details regarding these standards, refer to the body of this document where standards are shown in **bold** text.

Section Number	Short description
2	Discovery is mandatory for all new and updated flood risk projects.
2	Discovery is completed prior to the development of a flood risk project.
2	A flood risk project is defined as any combination of the following activities: flood hazard mapping (such as the formation of new Flood Insurance Rate Maps and Flood Insurance Studies); flood risk assessments (such as Hazus runs or refined Hazus analysis); and/or mitigation planning technical assistance (such as training, outreach, assistance in understanding risk data, and improving mitigation plans, especially risk assessments and mitigation strategies).
2	Except for coastal projects, Discovery must occur on a watershed basis in accordance with the watershed approach.
3	Discovery is flexible and scalable to the watershed under review.
4.1	For long-term coastal studies or for large coastal areas where storm surge studies may take several years, Discovery efforts will be realigned.
4.1	For long-term coastal projects, stakeholder contact must be included before a storm surge study is initiated and continued throughout the storm surge study period.
4.1	For long-term coastal projects, the results of the storm surge study will be shared with the affected communities to set expectations for the final project results.
4.2	The FEMA Regional Office must be consulted as to whether or not Tribal Nations should be included in the overall Discovery efforts and in the Discovery Meeting or if there should be a separate meeting with the Tribe(s).
4.2	Tribal land boundaries must be acquired during Discovery.
4.2	Only FEMA Regional Office staff can work directly with Federally-recognized Tribes, unless specific arrangements and coordination have been made to allow mapping partners or other contractors to directly contact a Tribe.
5	Watershed stakeholder contact prior to the Discovery Meeting must occur.
5.1	Coordination with National Flood Insurance Program Coordinators, State Hazard Mitigation Officers, and Other Federal Agencies is vital to Discovery and coordination must be continuous and ongoing.
5.2	A wide array of community, county, and regional stakeholders must be engaged for flood risk projects.
5.2	At least one representative from every community and area of influence must be contacted.

Section Number	Short description
5.3	The types of data and information obtained during Discovery should demonstrate a holistic picture of flooding issues, flood risk, and flood mitigation capabilities within a watershed.
5.3	Project teams must communicate to watershed stakeholders which data and information can be used for flood risk projects, including the appropriate formats and specifications.
5.3	This section contains a list of data and information that, at a minimum, must be collected.
5.3	Project teams must evaluate local Hazard Mitigation Plans.
5.3	When appropriate, data not provided in geospatial format by communities must be converted to a geospatial format for visualization on the Discovery Map.
6	A robust, thoughtful analysis of the data and information obtained during stakeholder coordination is required in order to prepare for and conduct the Discovery Meeting.
6.1	A draft Discovery Map will be created using the data and information collected during Discovery, and a final Discovery Map will be created to illustrate the decisions that were made at the Discovery Meeting. The draft Discovery Map will be provided to the communities and Tribes prior to the Discovery Meeting and presented at the Discovery Meeting as a facilitation tool. A final Discovery Map will be provided to the communities and Tribes after the Discovery Meeting.
6.1.1	Mandatory elements of the Discovery Map are listed here.
6.2	A Discovery Report must be completed and will include a section listing the data and information collected including what data and information were received, when they were received, data sources, and an analysis of the data and information. A draft Discovery Report will be shared with communities and Tribes prior to/in preparation for the Discovery Meeting. The final version of the Discovery Report will include meeting documents such as meeting notes, attendee list, etc. and will be provided to communities and Tribes after the Discovery Meeting.
7	All watershed stakeholders are invited to the Discovery Meeting.
9	If it is determined after the Discovery Meeting that a flood risk project is not appropriate, the final Discovery Report will be updated to reflect that decision.

Section Number	Short description
9	At the time the decision is made whether to move forward with a flood risk project in the watershed, the project team must update CNMS, NDEP, NDOP, and the MIP.
10	If it has been determined that a flood risk project including a flood hazard mapping element is appropriate for the watershed, FEMA will review pertinent data and information in coordination with communities to determine the expectations of the results.
10	If it has been determined that a flood risk project including a flood hazard mapping element is appropriate for the watershed, the post-Discovery meeting coordination must occur prior to initiating a flood risk project. The discussions must include an explanation of the expected impacts of potential study results (i.e. increase/decrease in flood hazard area delineations, flood elevations, etc.).
11	If it is determined that a flood risk project is appropriate, the scope of work must be developed in coordination with communities, Tribes, and state partners.
12.1	If a flood risk project is appropriate for the watershed, a project charter will be used to document the regulatory and non-regulatory products that the community will receive, specify the mitigation technical assistance to be provided, identify roles and responsibilities for all parties involved, list the data to be provided with associated deadlines and expectations of the study results, and provide a projected timeline and an explanation of what is expected from FEMA or Cooperating Technical Partners and communities or Tribes at each major milestone. If a flood risk project will include flood hazard mapping, the charter must document the expected changes to the flood hazard boundaries and flood elevations, and the impact these changes will have on the communities or Tribes. The project charter must be created in coordination with communities and Tribes in the watershed (sent for their review, collectively revised, finalized, and signed).

## 1. Introduction

This Appendix, *Discovery*, describes the activities involved in the “Discovery” of flood hazards and associated flood risk in Regionally-prioritized areas. The activities include data collection; state, Tribal, Other Federal Agency (OFA), non-profit, and other stakeholder (hereinafter referred to as “watershed stakeholders”) engagement; a Discovery Meeting; and post-meeting activities. This is entirely new guidance that completely replaces the previous version of Appendix I.

Discovery occurs after the Federal Emergency Management Agency’s (FEMA’s) planning and budgeting cycle, when watersheds of interest have been selected for further examination in coordination with state-level stakeholders. This guidance does not describe the activities that occur as part of the planning and budgeting cycle, as these are part of national planning activities that may be revised each fiscal year. This guidance outlines the Discovery activities that occur once a watershed has been selected for further examination.

Discovery is essential to successful flood risk projects. It provides for the exchange of information among the various stakeholders involved and includes meeting with stakeholders to better understand the watershed, deciding whether a flood risk project is appropriate and, if so, collaborating on the project planning in detail.

This document provides guidance for conducting Discovery activities; describes required elements and the additional elements that may be desirable depending on state, regional, or community preferences or requirements; and summarizes the interim and final outputs of Discovery, which include a Discovery Map, a Discovery Report, and a project charter.

## 2. Timing and Geographical Extent of Discovery

**Discovery is required for all new and updated flood risk projects.** It will be used for determining whether a flood risk project is appropriate and will provide visibility to stakeholders as FEMA and Cooperating Technical Partners (CTPs) initiate flood risk and mitigation discussions and deliver flood risk information. **Discovery is completed prior to the development of a flood risk project.** Flood risk projects will not be appropriate in all watersheds in which Discovery occurs. **A flood risk project includes any combination of the following activities: flood hazard mapping (such as the formation of new Flood Insurance Rate Maps [FIRMs] and Flood Insurance Studies [FISs]); flood risk assessments (such as Hazus runs or refined Hazus analysis); and/or mitigation planning technical assistance (such as training, outreach, assistance in understanding risk data, and improving mitigation plans, especially risk assessments and mitigation strategies).**

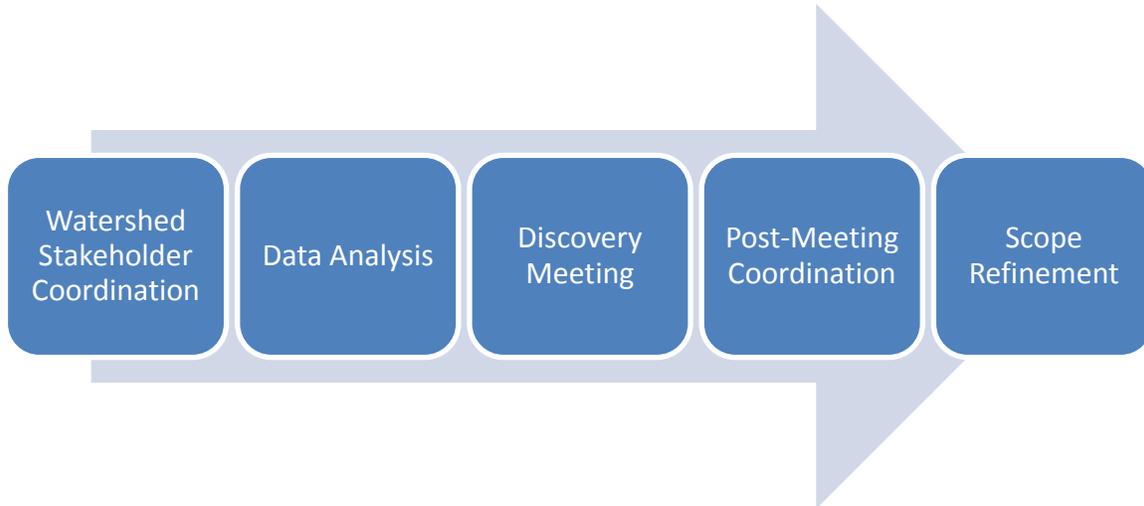
**Discovery must occur on a watershed basis in accordance with the watershed approach.** Discovery at a watershed level means that all stakeholders (described in Section 5.2) within the watershed are involved. The guidance presented herein shall be applied at an appropriate geographic extent for coastal projects, which are not performed on a watershed basis. See Section 4.1 for other coastal considerations.

### 3. Scalability

**Discovery is flexible and scalable to the watershed under review.** In watersheds with multiple urban areas, Discovery may be completed differently than in rural watersheds. The watershed stakeholders involved will vary based on state, region, and community type. The data collected will reflect the types of data that are appropriate to the watershed and will vary by project area. The watershed stakeholders listed in Section 5.2 and data types listed in Section 6.1.2 are examples of potential stakeholders and data: they do not comprise an all-inclusive listing of stakeholders and data to be coordinated with or collected during Discovery.

The implementation of the Discovery process is likewise flexible to accommodate the varied political and physical landscapes across the nation and within the project area. The objectives and outcomes of Discovery are provided in this document, and flexibility is granted in the implementation as long as the intent of the objectives and outcomes are met.

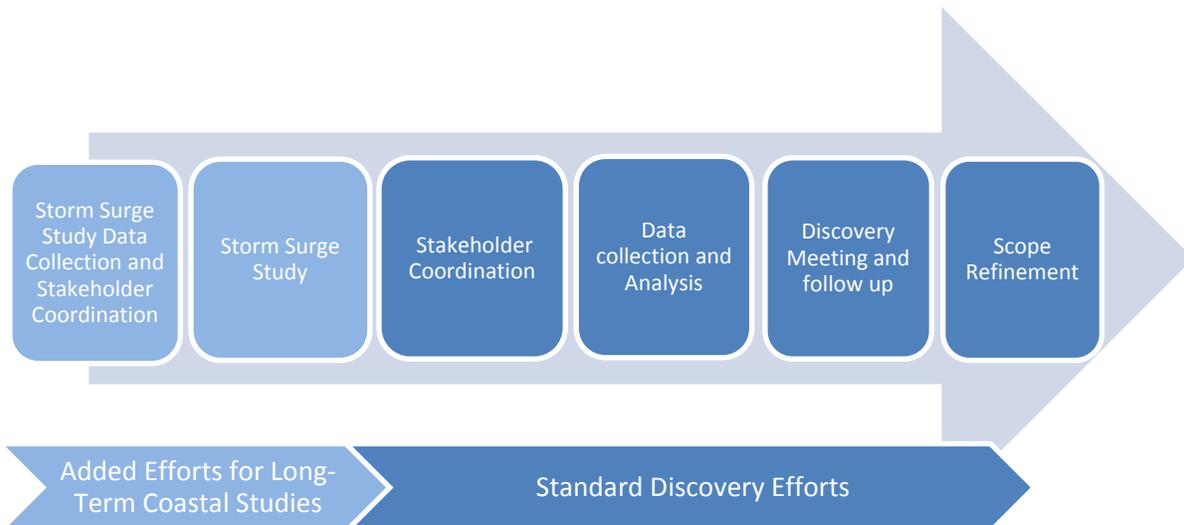
## 4. Discovery Process Overview



Discovery is the process that allows FEMA and watershed stakeholders a more comprehensive and holistic understanding of the flood risk and flood mitigation capabilities within a watershed. Data gathered during Discovery includes information that influences flood risk decision-making, historical flooding information, existing flood hazard data and information, and mitigation activities. Among other data and information, state, local, and Tribal Hazard Mitigation Plans must be obtained and reviewed in order to document existing flood risk; mitigation capabilities; hazard risk assessments; and mitigation strategies that are planned, underway, or completed within the watershed. Data and information collected must also include information about projects, programs, and data that may support flood risk communications, outreach, and flood mitigation actions.

A Discovery Meeting will be held after an analysis of the collected information is completed. This analysis will be summarized in the Discovery Report (see Section 6.2). During the meeting, the project team will work with watershed stakeholders to determine if a flood risk project is appropriate, and a final Discovery Report documenting that decision will be provided to all watershed stakeholders after the Discovery Meeting. If a flood risk project is appropriate and flood hazard mapping will be included, data and information collected during Discovery will be used to evaluate the potential effects of the study. This evaluation must be discussed with the watershed stakeholders to set expectations about the outcomes of the flood risk project. The final project scope and project charter must be coordinated with the watershed stakeholders (see Section 12.1). The project charter describes the project scope, summarizes the expected results, sets the roles and responsibilities of all parties involved, identifies mitigation opportunities including mitigation planning technical assistance to be provided, and describes other assistance (outreach, communications, etc.) that are needed.

## 4.1. Coastal Considerations



**For long-term coastal studies or for large coastal areas where storm surge studies may take several years, Discovery efforts will be realigned** in order to maintain continued stakeholder engagement and to ensure that Discovery efforts occur in closer proximity to the eventual flood risk project start than if the surge studies were started after the Discovery Meeting.

**Stakeholder contact must be included before a storm surge study is initiated and continued throughout the storm surge study period** (e.g., via quarterly reports or newsletters to affected communities during the storm surge study period); however, full Discovery efforts will be delayed in these cases. For long-term coastal studies, the Discovery Meeting will occur after the initial storm surge study has been completed and preliminary stillwater elevations are available. This information will inform the Discovery Meeting in a much greater and more appropriate manner than if the Discovery Meeting were held before the analysis was completed. The preliminary storm surge study results will be shown on the Discovery Map as a comparison with the effective information. **The results will be shared with the affected communities to set expectations for the final project results.** This allows a more focused discussion about the areas where risk assessments, mitigation planning technical assistance, communications, outreach assistance, and other flood risk project elements can be planned.

## 4.2. Tribal Considerations

When Tribal lands are included in a watershed under evaluation, special considerations will apply. Consultation with Tribal Nations must be coordinated with the FEMA Regional Office to ensure that an effort is made during the Discovery process to determine

if the Tribal Nation has the land-use authority necessary to participate in the National Flood Insurance Program (NFIP), among other issues.

**The FEMA Regional Office must be consulted as to whether or not Tribal Nations should be included in the overall Discovery efforts and in the Discovery Meeting or if there should be a separate meeting with the Tribe(s).** This will depend on established working relationships between the Regional Offices and the Tribes within that Region.

**Tribal land boundaries must be acquired during Discovery.** Tribal and surrounding territorial boundaries are difficult to determine and Regional Offices must use the best information that is available, with the understanding that some Tribal lands will inadvertently be shown in unincorporated areas of counties or vice versa. Counties and Tribal Nations must be given an opportunity to make any corrections necessary to their territorial boundaries.

**Only FEMA Regional Office staff can work directly with Federally-recognized Tribes, unless specific arrangements and coordination have been made to allow mapping partners or other contractors to directly contact a Tribe.**

## 5. Watershed Stakeholder Coordination



The Discovery Meeting will likely be the first in-person discussion between watershed stakeholders, FEMA, and/or the CTP. However, **stakeholder contact prior to the Discovery Meeting must occur** in order to collect flood risk and mitigation data and other community information that will help streamline and facilitate the Discovery Meeting. This up-front coordination may take the form of conference calls, web meetings, or other means of two-way communication.

### 5.1. State and Other Federal Agency Coordination

Coordination with Federal and state-level partners, such as the U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (EPA), U.S. Geologic Survey (USGS), NFIP Coordinators, State Hazard Mitigation Officers (SHMOs), state dam safety officials, state transportation departments, National Weather Service (NWS), Natural Resources Conservation Service (NRCS), and others, will occur on a state or regional level and informs project prioritization and sequencing. **These entities are FEMA partners; therefore, the coordination must be continuous and ongoing.**

### 5.2. Watershed Stakeholders

The types of stakeholders engaged in a flood risk project may vary for different watersheds or regions. Floodplain management stakeholders and Chief Executive Officers (elected officials) that have traditionally been engaged for flood hazard mapping projects will continue to be included in flood risk project engagement. However, **a much wider array of community, county, and regional stakeholders must also be engaged for flood risk projects**, including, but not limited to:

- State or regional groups with a vested interest in water resources (e.g., levee boards, regional partners, conservation districts, watershed/river basin commissions, etc.);
- Geographic Information System (GIS) managers and specialists, community and regional planners, local and state water authorities, levee and dam owners, county land use departments, etc.;
- Community and state emergency management officials such as county offices of emergency management, fire districts, fire departments, fire chiefs, etc.;
- Building officials, local floodplain administrators, county and local engineering departments, highway departments, etc.;
- Members of Tribal Communities, as defined through consultation and coordination with Tribal Officials (see Section 4.2);
- Representatives of any other appropriate Non-Government Organizations (NGOs) (environmental groups, recreational groups, etc.);
- Economic development and commerce representatives; and
- Other key stakeholders as appropriate (e.g., developers, realtors, bankers, etc.).

**At least one representative from every community and area of influence must be contacted.** Community officials contacted must represent a holistic view of flood risk management and mitigation of flood risk within the community.

### 5.3. Data Collection

**The types of data and information obtained during Discovery should demonstrate a holistic picture of flooding issues, flood risk, and flood mitigation capabilities within a watershed.** This information must be both sufficient and firmly understood before suggesting possible elements of flood risk projects including flood hazard mapping, communication and outreach, mitigation planning technical assistance, and flood risk assessments.

**Project teams must communicate to watershed stakeholders which data and information can be used for flood risk projects, including the appropriate formats and specifications.** The data and information obtained during this process will be used to make the draft Discovery Map (described in 6.1), and will contribute to regulatory products (FIRMs and FISs) and non-regulatory flood risk products (Flood Risk Reports, Flood Risk Maps, and Flood Risk Databases). Non-regulatory products and datasets are further described in Appendices N and O of these Guidelines.

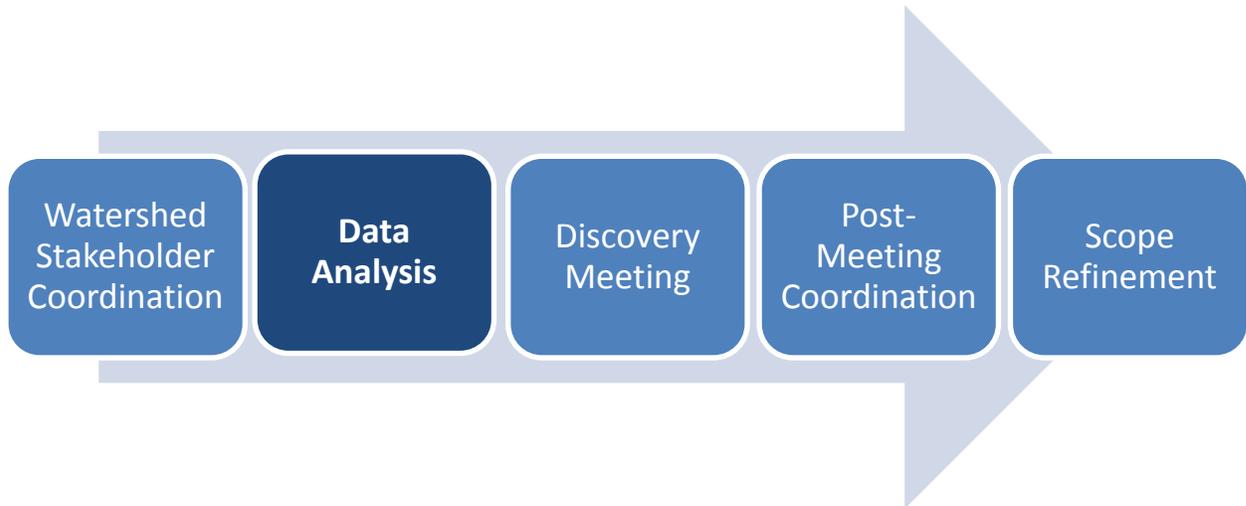
**The types of information that must be collected include information about:**

- **The community or Tribe’s planning capabilities, and the timing and level of any needed technical assistance for mitigation planning;**
- **The status of a local or Tribal Hazard Mitigation Plan;**
- **Current stormwater activities such as culvert or ditch cleaning;**
- **Current outreach programs to residents about stormwater issues;**
- **Stormwater Best Management Practices, programs for reducing flows, etc.;**
- **Risk and flood study needs;**
- **Flooding issues, historical flooding, and declared flood disasters;**
- **Information regarding participation in the Community Rating System (CRS);**
- **Actionable projects identified in the Hazard Mitigation Plan;**
- **Community development plans and comprehensive plans;**
- **Prior proactive mitigation actions and planning efforts resulting in reduced losses;**
- **Interest in providing elevation data or pursuing partnership opportunities;**
- **Information about community priorities in order to focus mitigation discussions through knowledge of what is important to the public;**
- **Community-identified mitigation opportunities;**
- **Regional or state information about communities and flooding within a watershed, such as information from Community Assistance Visits (CAVs);**
- **Community correspondence, and other data that the FEMA Regional Office, State NFIP Coordinator, or SHMO possesses;**
- **Information from OFAs, NGOs, and other watershed stakeholders; and**
- **Data from the Mapping Information Platform (MIP), the FEMA library, etc.**

**Project teams must also evaluate local Hazard Mitigation Plans** and prior local mitigation projects for insight into the stakeholder’s proclivity towards proactive mitigation initiatives, and information on a community’s or Tribe’s capability and/or desire to implement mitigation actions and to communicate flood risk to citizens. If a data-sharing agreement is required for use of the community or Tribal data, this should be discussed during this time.

Geospatial data that is collected will be used in the Discovery Map. **When appropriate, data not provided in geospatial format by communities must be converted to a geospatial format for visualization on the Discovery Map.** For example, the status of a community or Tribe’s mitigation plan is not geospatial data; however, the area covered by the plan can be shown on a map, and highlighted appropriately to show the plan status. Information that cannot be displayed on a map (such as information about stormwater ordinances) will be compiled into a Discovery Report, along with a listing of all of the data collected, the stakeholders involved, and other information. The draft Discovery Map will be used as a reference and as a discussion starter during the Discovery Meeting. One objective of the Discovery Meeting is to validate the information collected and determine whether a flood risk project is appropriate for the watershed under consideration.

## 6. Data Analysis



**A robust, thoughtful analysis of the data and information obtained during stakeholder coordination is required in order to prepare for and conduct the Discovery Meeting.** This will facilitate meeting attendees to focus on discussions about the watershed characteristics, flood risk, flood hazard communications, hazard mitigation, and outreach. While additional data and information may become known at the meeting, and there will be some data collection post-meeting as a result of meeting discussions, the Discovery Meeting will not be solely a data-collection meeting. There is no mandatory format or guidance for analyzing the data as the data collected will differ based on several factors and is dependent on the watershed.

## 6.1. Discovery Map

### Discovery Map: Sample Watershed

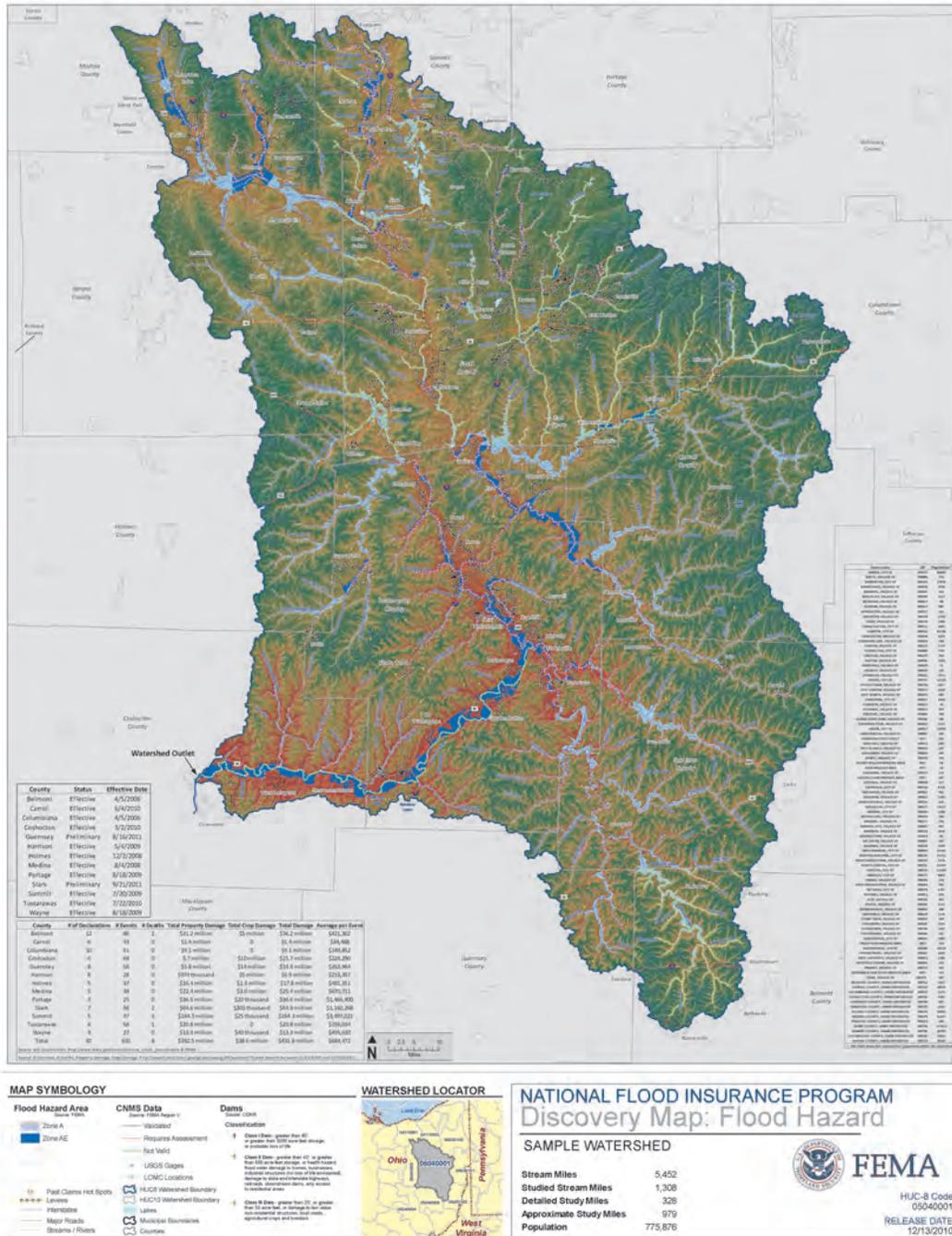


Figure 1. Discovery Map Example showing flood hazard information

# Discovery Map: Sample Watershed

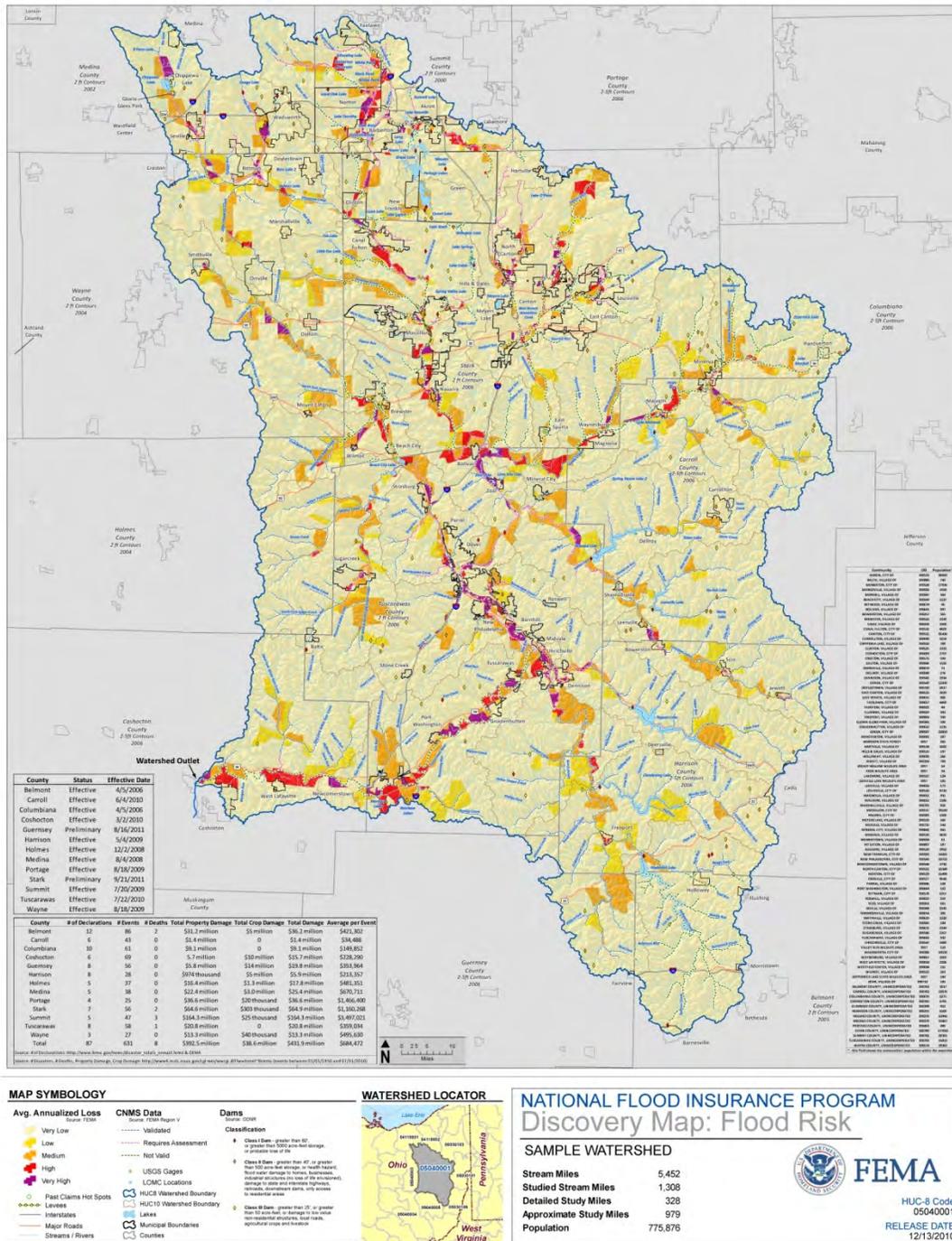


Figure 2. Discovery Map example showing flood risk information.

**A draft Discovery Map will be created using the data and information collected during Discovery, and a final Discovery Map will be created to illustrate the decisions that were made at the Discovery Meeting. The draft Discovery Map will be provided to the communities and Tribes prior to the Discovery Meeting and presented at the Discovery Meeting as a facilitation tool.** The data and information may be presented either electronically or as a printed map or set of maps. A list of the minimum required data and information to show on the draft Discovery Map is listed below. Other data and information collected may be shown on the map at Regional or CTP discretion that would benefit the discussion within the watershed. The amount of data and information collected may not reasonably be shown on one map. This would require map layers, which can be manipulated and depicted electronically. Multiple maps at various scales may be developed and brought to the Discovery Meeting to facilitate the meeting discussion and for readability. **A final Discovery Map will be provided to the communities and Tribes after the Discovery Meeting.**

See Appendix M of these Guidelines for a description of the data capture standards (e.g., description, naming, format, and content) for Discovery.

#### 6.1.1. Required Discovery Map Information

**The information required to be shown on the draft Discovery Map includes:**

- **Base data reflecting watershed boundaries, jurisdictional boundaries, Tribal land boundaries, State lands, Federal lands, major roads, and stream lines;**
- **Coastal Barrier Resource Areas and Otherwise Protected Areas from U.S. Fish and Wildlife Service (USFWS);**
- **Mapping needs from Coordinated Needs Management System (CNMS);**
- **Topographic and bathymetry data status and availability, locations of future topographic and/or bathymetric data acquisition;**
- **Hazus-based annualized loss estimates from the Average Annualized Loss study;**
- **The coverage areas of known community or Tribal risk assessment data;**
- **Status of local, state, and Tribal Hazard Mitigation Plans (status of plan in mitigation cycle);**
- **Flood control structure location data from national or regional inventories (e.g., the National Inventory of Dams, levee inventories, etc.) and accreditation status information, including information from dam Emergency Action Plans, if available;**
- **Locations of stream gauges;**
- **Location of past flood claims and repetitive loss properties;**

- **Location of clusters of Letters of Map Change;**
- **Known flooding issues not represented on effective FIRMs or listed in CNMS;**
- **Areas of ongoing or planned development and areas of high growth or other natural land changes (e.g., wildfires, landslides, or subsidence);**
- **Locations of other ongoing studies or projects and studied stream reaches that have been modified since the effective map and require an updated study (e.g., highway improvements);**
- **For coastal areas, the locations of wave and tide gauges;**
- **For coastal areas, the locations of wind stations;**
- **For coastal areas, the proposed inland limit of the Primary Frontal Dune, if present;**
- **For coastal areas, the location of any beach nourishment or dune restoration projects;**
- **For coastal areas, a comparison of preliminary stillwater elevations with effective stillwater elevations;**
- **Available effective study data;**
- **Available orthophotography; and**
- **Proposed discussion areas, problem areas, areas of proposed mitigation projects, and other areas of interest to discuss based on regional knowledge and analysis of the data collected during Discovery.**

### 6.1.2. Other Data

Information that may be shown on the draft Discovery Map at Regional or CTP discretion may include, but is not limited to:

- Land use and soil information (such as information from the Urban Change Land Use Map, existing or future land use maps, zoning maps, or other sources);
- Reference points to locate areas with flooding issues;
- Hydraulic structures such as bridges or culverts, with inspection status, if available;
- Coastal structures, including flood protection structures (e.g., levees), shoreline structures (e.g., jetties, groins, seawalls, etc.), man-made embankments (e.g., elevated roads, railroads, etc.), surge conveyance pathways, and shoreline change data;
- Local structure and topographic data from the existing hazard mitigation plans, if applicable. The data that may be available for use in risk assessment products and enhanced Hazus analysis include GIS-formatted building stock/inventory information,

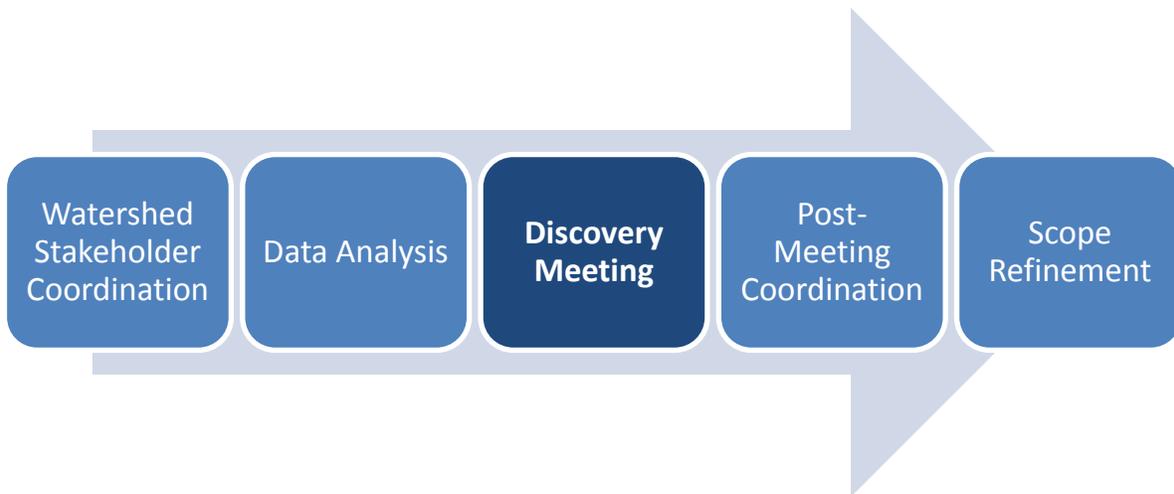
tax assessor records, high-quality terrain data, local building footprint or parcel data, essential facility data, number of stories, usage, assessed value, etc.;

- Inundation areas of historic major flood events and declared disasters and high water marks;
- Clusters or locations of Individual Assistance/Public Assistance grants and locations of grant projects completed, planned, or underway; locations of projects and structures completed or planned for FEMA Hazard Mitigation Assistance (HMA) grant programs or mitigation funds from other agencies or entities, such as the Small Business Administration;
- Whether the community or Tribe has received, is currently using, or intends to apply for Federal grants to achieve mitigation planning or mitigation projects, including whether applications for mitigation planning or project grants are under review. If using Federal funds, whether the community or Tribe hires a contractor to assist with the development of mitigation plans or whether they need FEMA or CTP assistance;
- Whether the previously-approved hazard mitigation plan indicated any data deficiencies for flood hazards that could be addressed through a flood study;
- Information from FloodSmart on market penetration;
- The locations and outcomes of recent CAVs or Community Assistance Contacts, especially noted violations;
- CRS class information;
- Information from OFAs (such as USFWS, National Oceanic and Atmospheric Administration, USGS, NRCS, EPA, USACE, U.S. Forest Service, Bureau of Land Management, Federal Highway Administration, military bases, etc.);
- Information from state agencies (such as Departments of Transportation or Natural Resources, etc.), information obtained from non-profit organizations (including grass-roots watershed groups, Association of State Floodplain Managers, American Water Resources Association, American Society of Civil Engineers, etc.), universities, etc.;
- Current community plans, ordinances, or programs to alleviate flooding or manage stormwater;
- Other known hazards with geographical boundaries (i.e., earthquake faults, landslide hazard areas, storm surge inundation zones, wildfire hazard areas, etc.), in order to review hazard risk assessments and mitigation strategies that have already been completed within the watershed, slosh zones, wildland-urban interface areas, etc.;
- Whether there is an active disaster in the watershed;
- Campgrounds/ recreational areas, emergency access routes, etc.; and
- Any other data that may be appropriate.

## 6.2. Discovery Report

**A Discovery Report must be completed and will include a section listing the data and information collected including what data and information were received, when they were received, data sources, and an analysis of the data and information. A draft Discovery Report will be shared with communities and Tribes prior to/in preparation for the Discovery Meeting. The final version of the Discovery Report will include meeting documents such as meeting notes, attendee list, etc. and will be provided to communities and Tribes after the Discovery Meeting.** A template Discovery Report can be obtained from the FEMA Regional Offices and may be refined for use by project teams and Regional requirements.

## 7. Discovery Meeting



The Discovery Meeting is likely the first face-to-face meeting that the project team will have with watershed stakeholders. **All watershed stakeholders are invited to the Discovery Meeting.** For watersheds with many communities or encompassing a large area, it may be necessary to hold multiple Discovery Meetings. The data and information collected during Discovery will be analyzed and summarized prior to the Discovery Meeting in the draft Discovery Report. The draft Discovery Map and Report will be used to aid discussions of the data and provide meeting attendees an overview of flood risk in the watershed.

### 7.1. Meeting Objectives

The objectives of the Discovery Meeting are to:

- Introduce the project team to the communities, Tribes, and other officials with areas of influence within the watershed.
- Review what the available data suggest about a watershed's flood risk, confirm whether the information is accurate, and get watershed stakeholders' perspectives about their flood risk. This will help determine whether a flood risk project is necessary and appropriate for the watershed.
- Bring community and Tribal officials and other stakeholders in the watershed together to promote a better understanding of flood risk in the watershed so that informed risk management decisions can be made and so that a conversation on a watershed vision can be initiated with communities.
- Introduce concepts/tools/techniques related to hazard identification, flood risk assessment, and mitigation planning.

- Emphasize the importance of the community's or Tribe's responsibility in keeping the public informed of flood risks and the relevance of those risks, identifying the public as a stakeholder in the process.
- Discuss and emphasize the importance of having a Hazard Mitigation Plan; how to prepare, maintain, and implement mitigation plans; and the importance of having an actionable mitigation strategy.
- Discuss the tools FEMA can offer to help communities and Tribes communicate flood risk to the public, support communities and Tribes in their outreach efforts, and discuss the best way to communicate with community and Tribal officials, citizens, and other stakeholders.
- Discuss possible flood risk project scope based on the draft Discovery Map, draft Discovery Report, and data and information collected.

### 7.2. Meeting Invitees

Discovery Meeting invitees include, but are not limited to:

- FEMA and contractor staff, including representation or expertise from mapping, floodplain management, and planning;
- Regional Tribal Liaison, if Tribal Nations are impacted;
- State NFIP Coordinator, SHMO, state contractors, and other appropriately designated representatives;
- All stakeholders listed in 5.2; and
- Other stakeholders, as appropriate.

## 8. Finalizing Discovery

For the watershed stakeholders, the Discovery process is complete once the final, post-Discovery Meeting version of the Discovery Map and Discovery Report have been received. Working with communities and Tribes to refine the scope for a flood risk project and formalizing that scope into a project charter may be completed some time after the Discovery meeting and the final Discovery Map and Discovery Report are delivered.

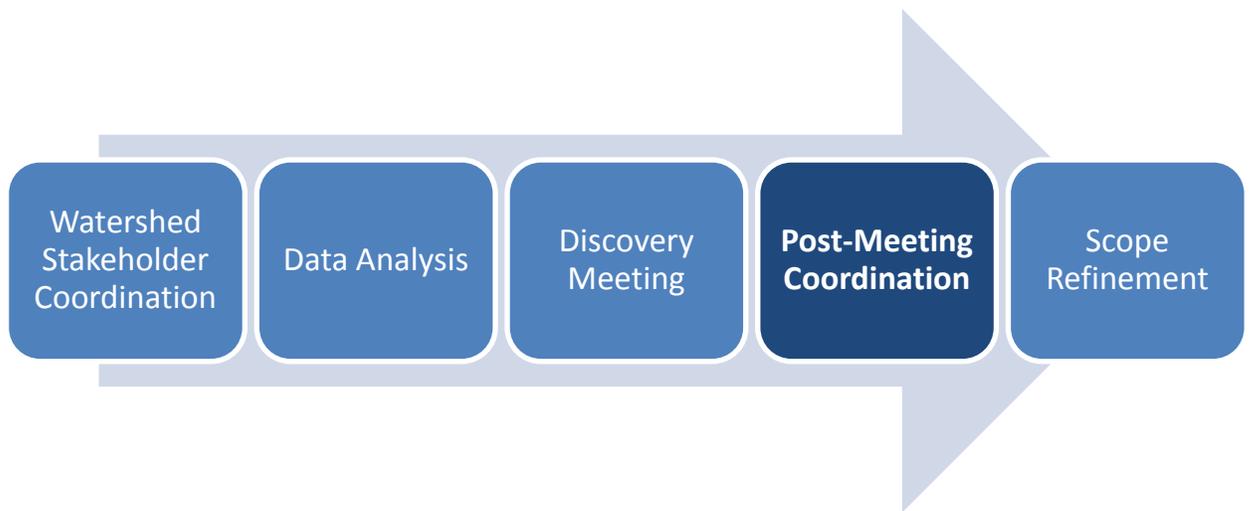
## 9. Project Determination

**If it is determined after the Discovery Meeting that a flood risk project is not appropriate, the final Discovery Report will be updated to reflect that decision.** If a flood risk project is appropriate for the watershed and the project involves a flood engineering analysis, additional coordination is required with impacted communities to discuss anticipated changes to the flood risk identification depicted on the FIRM and in the FIS. The impact of the changes and the expectations for contending with those impacts will be discussed prior to the initiation of any flood risk project.

**At the time the decision is made whether to move forward with a flood risk project in the watershed, the following actions must also take place:**

- **Update or populate CNMS.**
- **Populate or update National Digital Elevation Program information.**
- **Populate or update National Digital Orthophoto Programs information.**
- **Update and upload data (final Discovery Map, Discovery Report, etc.) to the MIP.**

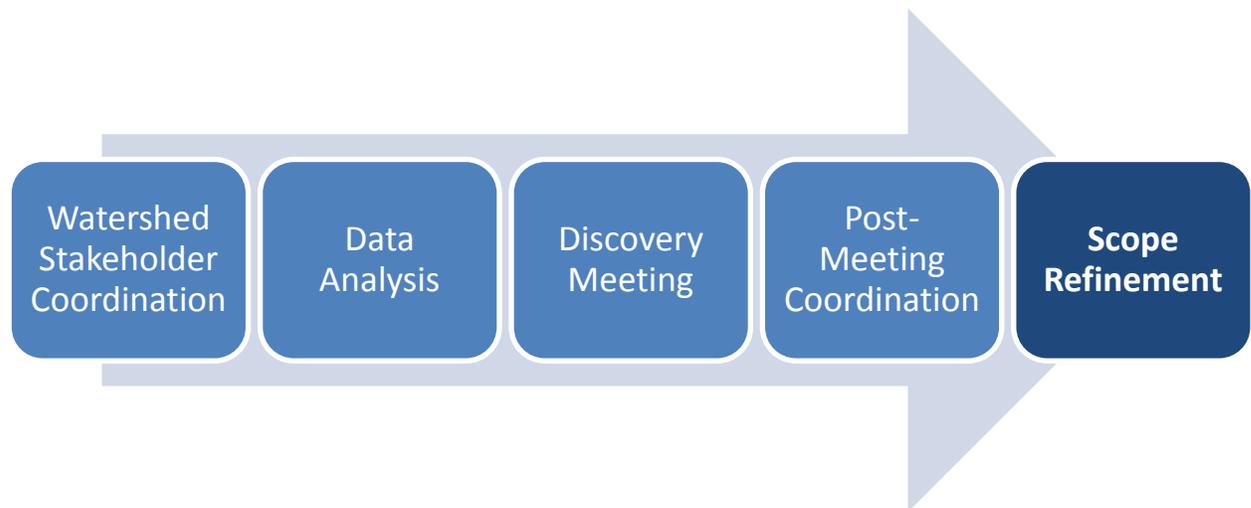
## 10. Post-Discovery Meeting Coordination



**If it has been determined that a flood risk project including a flood hazard mapping element is appropriate for the watershed, FEMA will review pertinent data and information in coordination with communities to determine the expectations of the results.** For example, if the information collected during Discovery and discussed at the Discovery Meeting reveals that significant development has occurred since the original flood study that has increased discharges, then the discussion should elaborate on areas where the flood elevations are likely to increase if a new study was initiated. **The post-Discovery meeting coordination must occur prior to initiating a flood risk project.** The discussions **must** include an explanation of the expected impacts of potential study results (i.e. increase/decrease in flood hazard area delineations, flood elevations, etc.). Those expectations will also be documented in the project charter. The project scope and project charter should be developed concurrently through coordination with communities and Tribes.

In coastal areas where an updated surge model is available, data from the model should be used to foster discussions with communities as described in Section 4.1. As described in Section 4.1, the surge study occurs in advance of the Discovery effort and this information is reviewed and discussed at the Discovery Meeting.

## 11. Scope Refinement



After the discussions on study expectations, **a scope of work must be developed in coordination with communities, Tribes, and state partners.**

In coordination with watershed stakeholders, the scope of the flood risk project will be refined, including a decision about the regulatory and/or non-regulatory products to be provided, the mitigation planning technical assistance that may be offered, and the communications and outreach assistance to be provided. This information will be documented in a project charter (see Section 12.1) to be developed in coordination with watershed stakeholders. Charters should be signed by the communities.

## 12. Final Outputs

The final outputs of Discovery in a watershed that will receive a flood risk project are a project charter and a project scope.

### 12.1. Project Charter and Project Scope

**If a flood risk project is appropriate for the watershed, a project charter will be used to document the regulatory and non-regulatory products that the community will receive, specify the mitigation technical assistance to be provided, identify roles and responsibilities for all parties involved, list the data to be provided with associated deadlines and expectations of the study results, and provide a projected timeline and an explanation of what is expected from FEMA or CTPs and communities or Tribes at each major milestone.**

A charter provides documentation of FEMA's commitment to the watershed and the commitments of the communities and Tribes at each major milestone of a flood risk project. If communities or Tribes express interest in natural hazard data in addition to flood data, appropriate sources of such data will be identified. In addition, if funding is needed to generate such data, leverage opportunities should also be identified.

**If a flood risk project will include flood hazard mapping, the charter must document the expected changes to the flood hazard boundaries and flood elevations, and the impact these changes will have on the communities or Tribes.** This explanation can support the need for a community outreach plan early in the process to ensure that the final product delivered meets the community expectations.

**The project charter must be created in coordination with communities and Tribes in the watershed (sent for their review, collectively revised, finalized, and signed).** The project charter may have to be drafted after the scope of work has been completed and the project scope has been decided.

The project scope will be finalized in conjunction with the project charter.