

Discovery Report

Pemigewasset Watershed, HUC-8 01070001 Belknap, Carroll, Grafton, Merrimack and Sullivan Counties, New Hampshire Communities listed inside cover Report Number 01

02/24/2020



Project Area Community List

Community Name
State of New Hampshire
Belknap County, NH
Town of Center Harbor, NH
Town of Meredith, NH
Town of New Hampton, NH
Town of Sanbornton, NH
Carroll County, NH
Town of Moultonborough, NH
Town of Sandwich, NH
Grafton County, NH
Town of Alexandria, NH
Town of Ashland, NH
Town of Benton, NH
Town of Bethlehem, NH
Town of Bridgewater, NH
Town of Bristol, NH
Town of Campton, NH
Town of Dorchester, NH
Town of Ellsworth, NH
Town of Franconia, NH
Town of Grafton, NH
Town of Groton, NH
Town of Hebron, NH
Town of Holderness, NH

	Community Name
State of I	New Hampshire continued
Grafton	County, NH continued
Town of	Lincoln, NH
Town of	Orange, NH
Town of	Orford, NH
Town of	Piermont, NH
Town of	Plymouth, NH
Town of	Rumney, NH
Town of	Thornton, NH
Town of	Warren, NH
Town of	Waterville Valley, NH
Town of	Wentworth, NH
White Mo	ountain National Forest, NH
Town of	Woodstock, NH
Merrima	ack County, NH
Town of	Andover, NH
Town of	Danbury, NH
City of F	ranklin, NH
Town of	Hill, NH
Town of	Salisbury, NH
Town of	Wilmot, NH
Culli-ro-	County NH
	County, NH
rown of	Springfield, NH

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Acronym List

AEP **Annual Exceedance Probability**

BFE Base Flood Elevation BLE Base Level Engineering

CID Community Identification number

CNMS Coordinated Needs Management Strategy

CRS Community Rating System

Digital Flood Insurance Rate Map DFIRM

٥F Degrees Fahrenheit

FEMA Federal Emergency Management Agency

FIRM Flood Insurance Rate Map Flood Insurance Study FIS FOA First Order Approximation Geographic Information Systems GIS

Hydrologic Engineering Center's River Analysis System **HEC-RAS**

LFD Letter of Final Determination Light Detection and Ranging LiDAR

LOMC Letter of Map Change

MAP Mapping, Assessment and Planning National Flood Insurance Program NFIP NHD National Hydrography Dataset National Levee Database

NLD

Natural Resources Conservation Service NRCS

SOMA Summary of Map Actions

USGS United States Geological Survey

Preface

Through Risk Mapping Assessment and Planning, or Risk MAP, the Federal Emergency Management Agency (FEMA) is collaborating with States, Tribes, and local stakeholders to help make communities safer and stronger by working with them to identify real hazards, actions that can reduce their impact, and available resources and solutions. This report captures the first step in this process—Discovery.

During the Discovery phase, FEMA and the collaborators work to gather community knowledge, apply the best scientific modeling, and begin to look at where the safety of residents and security of communities may be at risk. This report can be used as the community moves forward in identifying and taking risk reducing actions, and FEMA will continue to coordinate and communicate with the Pemigewasset Watershed communities to identify potential partnership opportunities in the process of building resilience.

This Discovery Report documents the data that has been collected, as well as information on community needs and priorities obtained as a part of Discovery Meetings. It includes a summary of the findings of the first step of the Discovery process, including flood mapping options.

I. Discovery Overview

The Discovery process, which identifies the priorities and areas of concern for communities within a watershed, helps FEMA and the communities better understand the projects that may help reduce their risk from natural disasters. Through the Discovery process, FEMA can determine which areas of a watershed may be funded for further flood risk identification and assessment. These can be big decisions for a community, and the Discovery process helps to ensure that FEMA works in a collaborative manner, taking into consideration the information collected from local communities.

During Discovery, FEMA and the State reach out to local communities to:

- Gather information about local flood hazards and risk
- Document needs related to flood hazard mapping and the National Flood Insurance Program (NFIP)
- Involve multidisciplinary staff from within communities to participate and assist in the identification and mitigation of risk

The result of the Discovery process is the data and community knowledge captured in this Discovery Report, which was used in the Risk MAP project scope of work.

II. General Information

General Watershed Information

The Pemigewasset HUC8 Watershed covers approximately 654,500 acres (1,023 square miles) and drains central New Hampshire south of the White Mountains National Forest. Most of the watershed (87%) is forested land with few large centers of population. It largely covers a hilly, mountainous terrain with the Sandwich Range and Squam Mountains to the east and the Blue Ridge Mountains in the northwest as well as the foothills of the White Mountains National Forest to the north. A portion of the Appalachian Trail is located within the watershed in the northwest from Lyme to Franconia (NH Department of Environmental Services). The topography within the watershed is generally characterized by numerous hills and valleys with a mean elevation of 1,504 feet NAVD88, a maximum elevation of 5,241 feet NAVD88, and a mean slope of 12.07 degrees. The Pemigewasset Watershed drains 1,023 square miles through 766 catalogued river miles. The major rivers draining the watershed include Pemigewasset River, Baker River, Smith River, and Beebe River. The Pemigewasset Watershed is located at a centroid latitude of 44 degrees. The typical climate is an average January temperature of 18 degrees Fahrenheit (°F), an average of 69 °F in July and an average annual precipitation total of 45.66 inches (www.weatherforyou.com).

There are 42 communities in five counties and one state that are within the study area in the Pemigewasset Watershed. Five of these communities (Canaan, NH, Hart's Location, NH, Lyme, NH, Salisbury, NH, and Wilmot, NH) have small areas within the Pemigewasset Watershed and no flooding sources from the Pemigewasset Watershed. These communities were not included in the Discovery Process and are not referenced in this report. Refer to the report cover and Project Area Community List for the communities included in the Discovery Process. According to the 2010 census (U.S. Census, 2010), the watershed has a total population of 66,911. The Pemigewasset Watershed study area has an average population density of 46.28 people per square mile in the watershed. Many of the communities and flooding sources in the Pemigewasset Watershed have not received new or updated detailed studies since the original town-wide Flood Insurance Studies due to the low population density of the study area.

FEMA's Discovery effort in the Pemigewasset Watershed study area involves data collection, cursory analysis, and community outreach for the purpose of prioritizing work for new engineering analysis (surveying, hydrology, and hydraulics) and floodplain mapping within a limited financial budget.

CNMS Overview

The NFIP Reform Act of 1994 requires FEMA to assess each participating community's flood hazard information on a regular basis. The Coordinated Needs Management Strategy, or CNMS, provides a way for FEMA to track and inventory flood study needs, by community, in a spatial format. Through completing annual State business plans and 5-year map needs assessments, and validating its effective flood risk studies, FEMA is able to maintain a record of stakeholder mapping needs for reference during Discovery, project scoping, and project kickoff. The most recent CNMS validation of effective Zones AE in FEMA Region 1 (New England) was completed in October 2016.

CNMS can show watershed stakeholders where flood hazard information exists that has been "verified" by looking at factors such as the amount of development and physical and hydrological

changes in the drainage. Flood mapping needs indicated by CNMS will be verified and adjusted based on input received during the Discovery process, as documented in this report.

Based on previous studies, the rivers and streams within the Pemigeqasset Watershed are currently mapped as Zone A (approximate), AE (detailed), and X. According to CNMS (FEMA, 2016), portions of large river and most small rivers totaling 291 miles are currently mapped as Zone A with approximate levels of detail in available flooding information. Approximately 92 stream miles have had detailed studied complete and are mapped as Zones AE.

Table 1 summarizes the results of the validation status obtained from the CNMS.

Table 1. CNMS Validation Status (Distance in stream miles)

	Total
AE Valid	42
AE Unverified	50
A Unverified	291
Unmapped	391
Total	774

Figure 1 shows the current CNMS overview of flood study needs within the Pemigewasset Watershed.

Bean's Grant Ryegate Lyman Lisbon Bethlehem Sugar Caledonia Waits Cutt's County Grant Watershed Coos Jackson Bath County Landaff Easton Vermont Lincoln White Mountain Bartlett **National Forest Orange County** Saco Upper Watershed Connecticut-Mascoma Watershed Woodstock Albany Waterville Fairlee Valley Orford Carroll Tamworth County Grafton County Lyme Sandwich Moultonborough Groton Dorcheste Winnipesaukee River Watershed Tuftonboro Black-Ottauquechee Watershed Meredith Bristol Enfield Laconia Gilford Hampton Belknap Danbury County Alton Grantham Springfield Sullivan County Belmont Tilton Watershed **New Hampshire** Andover Croydor Contoocook Merrimack Merrimack River Watershed County Northfield Miles Watershed Salisbury Canterbury MAP SYMBOLOGY WATERSHED LOCATOR NATIONAL FLOOD INSURANCE PROGRAM Watershed Boundary Average Annualized Loss HUC10 Watershed Boundary Very Low Discovery Map Neighboring Watersheds

Figure 1. CNMS Overview of Flood Study Needs

66,911

FEMA

PEMIGEWASSET WATERSHED

Total Stream Miles:

AE Valid: AE Unverified: A Unverified: Unmapped:

New

Water Bodies

Communities

State Boundary

County Boundary

Valid Study Lines Unverified AE Study Lines Unverified A Study Lines

- Unmapped Study Lines

State Boundary

High

Very High

III. Watershed Community and Stakeholder Coordination

As part of the Discovery process, FEMA reached out to community officials and stakeholders. These stakeholders represent organizations such as government agencies and other associations that are involved with the Pemigewasset Watershed. Stakeholders included representatives of community emergency officials (police and fire departments), community land use departments, selectmen, and building inspectors. In addition to representatives of the 37 communities within the Pemigewasset Watershed, the State of New Hampshire was identified as a stakeholder. A list of community and stakeholder contacts was prepared and kept current throughout the Discovery process.

Several community contacts were elected officials whose terms may have expired during the Discovery process. Up-to-date contact information was maintained via telephone conversations, so that information reached the proper community officials and stakeholder contacts. See **Appendix A** for the most current list of community and stakeholder contacts at the time of this report. The list of communities is shown on the inside cover at the front of this report.

The communities and stakeholders were contacted by letter, email, and telephone in the first and second weeks of November 2018 and were invited to participate in data collection questionnaires to be conducted at the Discovery Meetings held on December 11, 2018.

Data collection questionnaires were available as an attachment via email and a hardcopy paper form available at the meeting. Community maps were also available for annotation by community representatives. Of the 37 communities within the watershed, 15 furnished data applicable to Discovery. The remaining 22 communities provided no response. Meetings were held in Lincoln, New Hampshire and Holderness, New Hampshire on December 11, 2018. The attendance list, as well as information presented during the meeting (PowerPoint presentation and meeting handouts), are included in **Appendix B**.

IV. Discovery Meeting

To communicate the Discovery process and include the expertise of key local stakeholders, Discovery Meetings for the Pemigewasset Watershed were held at the Lincoln Town Hall at 148 Main Street, Lincoln, New Hampshire, and at the Holderness Town Hall at 1089 US Route 3, Holderness, New Hampshire, on December 11, 2018. Fourteen of the 37 invited communities were represented at these meetings. Five additional organizations/stakeholders who were not initially invited to the Discovery meeting also attended. Those stakeholders included the National Weather Service, New Hampshire DOT, Homeland Security & Emergency Management, New Hampshire Office of Strategic Initiatives and Plymouth State University. See **Appendix B** for the attendance list from each meeting.

Identical information was presented at each Discovery Meeting. The community and stakeholder representatives were first introduced to their local FEMA Region I contacts, State partners, and Compass, FEMA's Consultant Team. The information provided during the meeting included an overview of Risk MAP, a description of the outreach that will occur over the course of the study, the scope of work for the Pemigewasset Watershed project, and the status of each community's mitigation plan. The communities were informed of the best available data, including the following:

- LiDAR (Light Detection and Ranging) elevation data
- U.S. Geological Survey (USGS) data for peak flows
- Orthophotography data
- Natural Resources Conservation Service (NRCS) Dam Rehabilitation Program data
- USGS streamgage data
- Existing Digital Flood Insurance Rate Maps (DFIRMs)

To help the attendees understand the components of the potential flood hazard study for this watershed, the presenters described the three different levels of study that may be used. Each level of study has a different methodology. These methodologies are summarized in Section VI – Next Step: Prioritization of Study Area, which discusses the scope of the Pemigewasset Watershed study. To further illustrate these study types, each community was given a map showing the Preliminary study designations for the streams in their municipality. **Figure 2** shows the map for the Town of Ashland, New Hampshire as an example.

The community representatives in attendance received a community map to review and indicate their areas of interest. This information was discussed in detail during the Discovery meeting. Communities were encouraged to participate in the outreach meetings that would take place throughout the life of the Risk MAP study and to communicate with FEMA and their local officials, because enhanced communication is one of the primary goals of Risk MAP.

A question and answer session followed the presentation, and attendees broke into groups to review and discuss any areas of interest they wanted to flag for potential study. See **Appendix C** for the Discovery Meeting synopses.

MAP SYMBOLOGY WATERSHED LOCATOR NATIONAL FLOOD INSURANCE PROGRAM Future Redelineation Study

Draft Base Level Engineers Discovery Map PEMIGEWASSET WATERSHED Effective 0.2% Zones Town of Ashland, New Hampshire 330042 **FEMA** Effective 1% Floodway Draft Base Level Engineering

Draft Shaded X Zones

Figure 2. Sample Areas of Interest for Potential Study (Ashland, NH)

V. Data Collection

Introduction

Data collected by Compass for the Discovery meeting planning process, both during and after completion of the Discovery Meetings, are summarized below. Data are broken into two categories: (1) data that can be used for flood risk projects and (2) other data. Other data include data that provide information that assists in the selection during Discovery of high priority reaches for study in a potential flood risk project but that are likely not useful to the analysis in any other way.

Data That Can Be Used for Flood Risk Projects

Information Provided by Communities

Fourteen communities provided data and/or information during the Discovery process. This was received in several different formats: paper and digital copies of the Discovery Map with written notes, emails, memorandums, verbal feedback, and completed online questionnaires. The questionnaires completed by communities are provided in **Appendix D**. Information gathered as of January 25, 2019, was included in this report.

Annotated Maps

The comments and areas of concern collected from the communities at the two Discovery Meetings and other feedback mechanisms were digitized and categorized. There were 9 areas of development or other concern recorded, 3 comments indicating the existence of community models or data, 21 areas with flooding issues, 16 areas of importance, and 13 areas where hydraulic or hydrologic changes have occurred (such as bridge replacements or significantly developed areas).

Of the 68 comments logged, 29 were for the Pemigewasset River from multiple communities in New Hampshire. The comments for the Pemigewasset River included areas of development, flooding issues, and hydraulic or hydraulic changes.

All of the comments will be entered into the CNMS database as requests that will be tracked and updated as new studies are initiated or additional information becomes available.

Community Profiles

Each community profile, a one-sheet document with information about the community, included the following: Community Identification Number (CID); NFIP status; current map date; NFIP regulation level (based on its flood map); number of Letters of Map Change (LOMCs); participation in the NFIP Community Rating System (CRS); dates of Community Assistance Contacts and Community Assistance Visits; demographics and industry information according to the U.S. Census; presidentially declared disasters; NFIP policy data; levees and flood-control structures; environmentally sensitive, Tribal, and coastal areas; and hazard mitigation plans and grants. See **Appendix E** for Hazard Mitigation Plan status and **Appendix F** for the community profiles.

Letters of Map Change (LOMC)

Many of the existing Letters of Map Change (LOMC) in the Pemigewasset Watershed are clustered near rivers including Baker River and Pemigewasset River. There are 44 LOMCs along Baker River in communities such as Plymouth and 55 LOMCs along the Pemigewasset River in the same area. This correlates to the comments received from the communities, which indicate that there are

flooding and development concerns near these bodies of water, as well as requests for new or updated detailed studies.

If a study is initiated in a community, all LOMCs in the study area will be assessed, and communities will be informed if the LOMCs are anticipated to remain in effect or be superseded, first by the Preliminary Summary of Map Actions (SOMA) at a study's preliminary release, and then by the Final SOMA, when the Letter of Final Determination (LFD) is issued. When a new study becomes effective, the communities receive a Revalidation Letter that officially indicates which LOMCs are still effective.

Levee Information

The U.S. Army Corps of Engineers' National Levee Database (NLD) indicates that there are two levees in the Pemigewasset Watershed. Other flood-control structures exist within the Pemigewasset Watershed, including 42 mapped dams. These levees and dams may be assessed in more detail if it is determined that the associated flood sources require further study or restudy.

Topographic Data

Light Detection and Ranging (LiDAR) elevation data are available for the entire Pemigewasset Watershed study area and were used in First Order Approximation (FOA) (see below). The New Hampshire GRANIT Geographic Information System (GIS) Clearinghouse is the source for the LiDAR data for the Pemigewassett Watershed. LiDAR data was collected from 2011, 2012, 2014 and 2016. A mosaicked LiDAR dataset for the entire watershed was created and will be available for floodplain mapping and analysis in a Flood Risk Project.

Basemap Data

Transportation, hydrography, and political boundary features shown on the Discovery and Community Information Maps were obtained from the online state Geographical Information System (GIS) depot for New Hampshire

(http://www.granit.unh.edu/data/downloadfreedata/category/databycategory.html). The hydrography features are sourced from the U.S. Geological Survey's National Hydrography Dataset (NHD). All basemap features will be useful in the FIRM database for a potential flood risk project.

Base Level Engineering

Base Level Engineering (BLE) is a FEMA initiative that involves performing an approximate engineering analysis and updated floodplain mapping for all Zone A in the Pemigewasset Watershed. Discovery Maps shared with Pemigewasset Watershed communities at the Discovery Meetings showed the Zone A that were developed using BLE. Current results include water surfaces for the 10, 4, 2, 1, and 0.2 percent Annual Exceedance Probability (AEP) floods for all analyzed reaches. The results of the analysis and mapping is being used in the ongoing Pemigewasset Watershed study which has been funded through regulatory mapping (e.g., FIRM panels) and Preliminary issuance. In addition to the regulatory products, the water surfaces and depth grids can be used directly in nonregulatory products to assist with planning. Water surfaces can also be used in the validation of LOMCs that FEMA receives regarding properties that are mapped in Zone A. Currently, it is difficult to determine if a property or structure is actually above the flood level because no numerical water surface is available for Zone A. With the creation of

these new water surfaces, a numerical value for the flood height will be available for comparison with the property and structure elevations to determine the validity of LOMCs.

Other Data and information

Effective Flood Insurance Study/Flood Insurance Rate Map Data

Hydrology

Effective discharges were obtained from the the County of Grafton FIS Report (Federal Emergency Management Agency 2008). Flood discharges along the Baker River were developed using an SCS TR-20 study of the Baker River Watershed, while the discharge on the Pemigewasset River was developed by gage analysis. Although the countywide FIS report is dated 2008, the effective flows reported were calculated from earlier studies between 1981 and 1998.

Hydraulics

The County of Grafton FIS report (Federal Emergency Management Agency 2008) indicates several notable flooding events for the study reaches in the watershed including the Baker River and the Pemigewasset River from 1785 to 1973. The report noted that peak flows of 11,700 cubic feet per second (cfs) was recorded at USGS gage 01076000 (Baker River near Rumney, NH). Similarly, the same FIS report also noted the greatest recorded flood on the Pemigewasset River occurred in March 1936 from heavy rainfall. A peak discharge of 655,400 cfs and a stage of 29 feet were recorded in Plymouth (USGS gages 01075000 and 01076500).

In more recent years, Tropical Storm Irene in September 2011 caused major erosion and damage to properties in the Pemigewasset Watershed.

National Flood Insurance Program Claims Data

FEMA furnished a dataset of all claims made against the NFIP since its inception in the 1970s until December 31, 2015. In the 35 communities touching the Pemigewasset Watershed study area, the data pull returned 252 NFIP claims in that period, totaling \$2,584,695 with an average reimbursement of \$10,256.73 per claim filed.

Often, a successful NFIP claim occurs when a property is flooded that, according to the effective FIRM, is at risk of flooding during the base flood. (The exceptions are claims against "discount" policies for properties that are located outside the SFHA. The percentage of claims in this category could not be ascertained with the data provided, but is assumed to be small.) Therefore, NFIP claims data cannot be used to draw any conclusions for Discovery about reaches that may be high priorities for restudy because of outdated hydrology, hydraulics, topography, or structure inventories. However, high concentrations of NFIP claims (especially expensive ones) may draw attention to hotspots where population, structure inventories, and flood hazard are all unusually high, highlighting the highest-priority opportunities for mitigation.

NFIP claims hotspots were determined by a point density analysis calculating the cumulative dollar value of claims within a one-kilometer radius. Note that this analysis does not take the timing of claims into account, so mitigation efforts may have already been undertaken on some or all of these reaches in response to flood events early in the history of the NFIP.

Reach Selection

By synthesizing the results of all analyses presented above, as well as study age, map age, and risk (how many structures and people are in the effective floodplain), a final list of reaches was selected

for updated engineering and mapping. **Appendix G** includes figures showing areas of interest for potential study as identified by communities, a community feedback table with numbered comments corresponding to those figures, and a list of the 17 miles of prioritized streams that will be studied in the Pemigewasset Watershed.

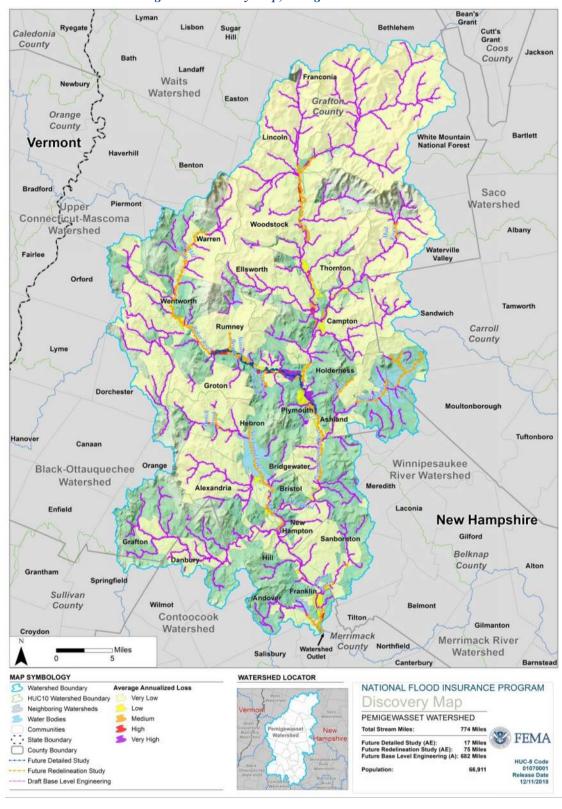


Figure 3. Discovery Map, Pemigewasset Watershed

VI. Next Step: Prioritization of Study Areas

As discussed during the Discovery Meeting, three levels of study may be used during the study of the Pemigewasset Watershed: (1) detailed study, (2) approximate study/base level engineering, and (3) redelineation. **Figure 3** shows the type of studies that will be conducted on the streams within the Pemigewasset Watershed.

Each level of study uses a different methodology, as summarized below:

- (1) Riverine Zone AE (Detailed Study)
 - Most detailed and most expensive riverine study
 - Structures and cross-sections are field surveyed
 - Streamgage data or regression equations used for hydrology, and Hydrologic Engineering Center's River Analysis System (HEC-RAS) modeling used for hydraulics
 - Flood way data table and flood profiles are included in the FIS
 - Mapping:
 - o Base Flood Elevations (BFEs), appeal eligible
 - Cross sections
 - Flood way
 - o 1 percent annual exceedance probability (100-year flood) floodplain
 - o 0.2 percent annual exceedance probability (500-year flood) floodplain
- (2) Riverine Zone A (Base Level Engineering)
 - Hydrologic and hydraulic modeling analysis based on new terrain data
 - Streamgage data or regression equations used for hydrology, and HEC-RAS modeling used for hydraulics
 - No field survey
 - Cross-sectional values derived from new LiDAR terrain data
 - Mapping: Approximate delineation for the 1-percent annual-chance event, no BFEs
 - Also available: Delineations and analysis grids for 0.2-, 2-, 4-, 10-, and 1-percent \pm annual-chance events

(3) Redelineation (Zone AE)

- No new engineering analysis
- Acceptable when effective BFEs are considered accurate
- Effective elevation data are transferred to new LiDAR terrain data to create new floodplain delineations for a FIRM
- FIS data: same as effective study

FEMA Region I used the information provided by communities—as shared in this Discovery Report—to determine priority areas for study in the next phase of the Risk MAP process. The final selection and prioritization of areas for new study depended on the funds that Congress allocated to Region I for this purpose. Additionally, individual communities may choose to conduct their own studies of priority areas and/or take mitigation actions, and provide that information to FEMA Region I for consideration as part of the updated maps the communities may receive in the future.

VII. Close

Local officials in the Pemigewasset Watershed communities were willing participants in the Discovery process and were open to learning more about how they can begin to develop resiliency to flood, storm, and manmade hazard events. They identified areas for map updates and areas in which they could use additional technical support from FEMA.

Using the input from the Discovery Meeting, the project team finalized the Discovery Report and Map. From this information, FEMA Region I has developed a scope of work and budget for the Pemigewasset Watershed Risk MAP project. The Region assessed the mapping needs in the Pemigewasset Watershed against the mapping needs across the entire Region before selecting and initiating this Risk MAP project. Project selection is contingent upon the level of funding FEMA Region I receives, which varies yearly. FEMA Region I will communicate with the communities about project selections, when appropriate.

If the mapping needs have changed since the information was provided during Discovery, or if the need for a new project is identified after the publication of the Discovery Report, the affected community is responsible for providing updates to the Region. Additionally, if a community has the capacity to provide leveraged data or contribute funding toward the completion of a Risk MAP project, FEMA Region I took that information into consideration when prioritizing its projects.

With the completion of the Discovery process for the Pemigewasset Watershed project, the project will move into the next phase which includes the following Risk MAP project workflow:

- Data development procedures, which includes engineering-related activities, such as hydrologic and hydraulic analyses, floodplain mapping, and risk assessments
- Development of Preliminary FIRMs, which will be distributed to the communities upon completion of the revisions
- Post-Preliminary processing tasks, which include initiating the appeal and comment period, community ordinance updates, and distributing the effective FIRM products
- Outreach meetings and community engagement for the entire project life cycle
- Mitigation planning support for the entire project

VIII. Literature Cited

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IX. Appendices

Appendix A: Watershed Community and Stakeholder Outreach

- I. Stakeholder Database
- II. Sample Letters
- III. Sample Email
- IV. Sample Post-Meeting Emails
- V. Questionnaire Form

Appendix B: Discovery Meeting Materials

- I. Presentation
- II. Meeting Attendees

Appendix C: Meeting Synopses

Appendix D: Community Feedback

I. Community Completed Questionnaires

Appendix E: Hazard Mitigation Plan Status

I. Hazard Mitigation Plan Status

Appendix F: Community Profiles

Appendix G: Areas of Interest for Potential Study

- I. Community Feedback Maps
- II. Community Feedback Table
- III. Stream Prioritization Table

Appendix A Watershed Community and Stakeholder Outreach