State of New Hampshire
Risk MAP Business Plan

February 2015

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1. Introduction and Purpose

The State of New Hampshire's two Cooperating Technical Partners (CTP), the New Hampshire Office of Energy and Planning (OEP) and the Earth Systems Research Center (ESRC) at the University of New Hampshire (UNH) are responsible for assisting the Federal Emergency Management Agency (FEMA) in implementing the Risk Mapping, Assessment, and Planning (Risk MAP) program in New Hampshire.

The purpose of this Plan is to outline the state of New Hampshire's strategic approach to floodplain mapping and outreach. This Plan identifies the state's project management activities and goals and technical mapping related activities to support the goals of Risk MAP. This Plan also provides updates on the state's mapping activities, identifies the state's mapping needs and priorities, and presents the state's recommendations for future floodplain mapping. This Plan was prepared by OEP and ESRC with assistance from AECOM.

Figure 1. FEMA Risk MAP Cycle.

2. CTP Program and Organizational Structure

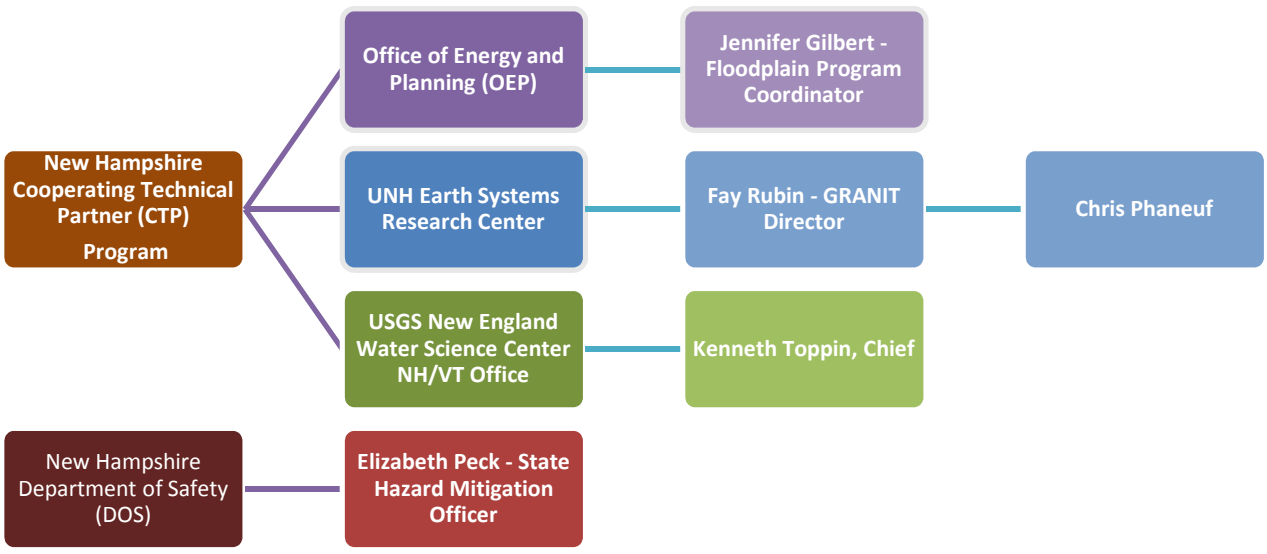
2.1. New Hampshire CTP Program

The Cooperating Technical Partners (CTP) Program is an innovative approach to creating partnerships between FEMA and participating National Flood Insurance Program (NFIP) communities, regional agencies, state agencies, and universities that have the interest and capability to become more active participants in the FEMA flood hazard mapping program. The program permits local agencies to become more involved in the program, thus providing critical local expertise and knowledge. New Hampshire's CTPs are OEP, the state's designated NFIP coordinating agency, and the ESRC, the host of the state's geographic information system (GIS) clearinghouse. Through the CTP program, OEP and ESRC have an opportunity to manage their priorities for flood hazard data development and mapping. The partnership between OEP and ESRC is effective because they have a long history of collaboration as well as complementary skill sets that allow them to focus on their respective areas of expertise.

2.2. New Hampshire Cooperating Technical Partners

The organizational structure of the New Hampshire CTP Program is illustrated below in Figure 2. The following sections describe the participating program.

Figure 2. NH CTP Program Organizational Chart.



2.2.1.1. New Hampshire Office of Energy and Planning (OEP)

Beginning in October 1, 2004, OEP became the state's NFIP coordinating agency. OEP had previously administered the Community Assistance Program (CAP) component of the NFIP program for the former NH Bureau of Emergency Management, but traditionally, their role in flood hazard mapping had been limited. However, since 2004 OEP became increasingly involved in helping FEMA identify mapping needs through its community coordination role, providing review and comment on preliminary mapping products to FEMA and its mapping coordination contractor, and assisting with post preliminary processing, local map adoption issues, ordinance reviews and subsequent local ordinance revisions and other outreach related activities. In fiscal year 2010, OEP became a CTP with FEMA. OEP's primary responsibility is to coordinate the state's overall floodplain management strategy, and to manage the community outreach and technical assistance aspects.

2.2.1.2. Earth Systems Research Center (ESRC), University of New Hampshire

The GRANIT System, New Hampshire's statewide GIS, is a cooperative project to create, maintain, and make available a digital geographic database serving information to state, federal, regional and local decision-makers. The system was initiated in the mid 1980's as a collaborative effort between ESRC (formerly Complex Systems Research Center) and OEP (formerly NH Office of State Planning). Participation has since expanded to include all of the major agencies active in resource mapping in the state, including state agencies, regional planning agencies, municipalities, and non-profit organizations. The ESRC has brought technical expertise to the program that permits NH to execute Digital Flood Insurance Rate Maps (DFIRM) projects and develop other NFIP mapping products for New Hampshire. The ESRC has had significant experience implementing and managing all aspects of developing DFIRMS.

As host agency for GRANIT, ESRC has been a CTP since 1999. Through a sequence of CTP agreements with FEMA, the ESRC CTP has progressed from performing strictly map conversion, to a project management role encompassing mapping, modeling, adoption, and outreach activities. In that capacity, ESRC staff have participated in floodplain mapping and related activities in much of the state.

In addition, ESRC staff have contributed to the ongoing maintenance of floodplain data by providing the following core competencies:

- Broad expertise in many facets of GIS, GPS, image processing, data visualization, and related geospatial technologies;
- Strong interest and considerable experience in maintaining and updating the DFIRM data sets, to support both floodplain management applications and general planning activities in the state;
- Experience in building and maintaining internet mapping sites;

- Understanding of and access to databases housed throughout the state, and in many cases, participation in the development and maintenance of those data sets;
- Participation in an advisory role in a number of GIS-related initiatives, providing access to a coordinated network of GIS users across the state; and
- Access to a body of engineering expertise through the University of New Hampshire that can be incorporated into the data maintenance stream.

2.2.1.3. New Hampshire Department of Safety (DOS)

The DOS Division of Homeland Security and Emergency Management (HSEM) is responsible for coordinating the state's hazard mitigation programs, which include developing and implementing the state's Hazard Mitigation Plan. The plan serves as a tool for reducing and eliminating risk from hazard events. HSEM also provides technical assistance to local governments in developing this hazard mitigation plans and projects and administers FEMA's hazard mitigation grant programs. The State Hazard Mitigation Officer works for HSEM and will begin playing an important part of the NH CTP program.

2.2.1.4. USGS New England Water Science Center

The U.S. Geological Survey (USGS) plays an important role in the production of DFIRM maps in New Hampshire. They have provided services in the Discovery process, conducting detailed riverine studies through hydraulic and hydrologic analyses (H&H) and reviewing H&H studies (coastal, redelineation and automated approximate Zone A studies).

2.2.2. New Hampshire CTP Program Accomplishments

The partnership between OEP and ESRC on flood hazard mapping has resulted in a long history of accomplishments, as summarized below. These accomplishments demonstrate the New Hampshire CTP Program's continued ability to achieve the CTP performance criteria as outlined below in Table 1.

- Since 2004, OEP has completed 203 community floodplain ordinance reviews as part of the map adoption process, with only one community suspended from the NFIP for non-compliance. OEP assisted that community to be reinstated into the NFIP soon after.
- Since 1999, ESRC has completed floodplain mapping activities in all ten counties of NH. These projects have ranged in depth and complexity from basic recompilation and digitizing of effective floodplain data, to management of the current Coastal Project.
- ESRC has maintained data distribution and online mapping systems, providing communities with access to updated floodplain management, planning, and natural resource data sets.

- The OEP/ESRC collaboration on the Coastal Project has raised awareness within the state's coastal communities of floodplain management issues, FEMA's Community Rating System, and coastal resources and data sets.
- The Coastal Project has also increased collaboration with other state agencies and interest groups in the coastal area.
- OEP's involvement in the Coastal Project and the state legislative Coastal Risks and Hazards Commission has made state legislators, state agencies, and other entities aware and informed of the preliminary coastal maps.
- OEP developed a project web site for the Coastal Project and an email distribution list to keep interested parties informed of project updates through the project.

Table 1. CTP Program Performance Criteria.

CTP Performance Criteria	NH CTP Program Achievement
Continued maintenance of the processes or systems in place to support mapping or data collection activities that contribute to flood hazard identification	✓
Adherence to standards for timeliness and completeness of reports and map products submitted to the FEMA Regional Office	✓
Adherence to performance metrics	✓
Demonstrated quality of product(s) submitted to the FEMA Regional office	✓
Ability to cooperate and coordinate with the staff of the following organizations during all phases of the activities as needed: the FEMA Regional office, Risk Analysis Division, and designated FEMA contractors	✓

2.2.3. CTP Program Risks and Challenges

Over the years, OEP and ESRC have experienced challenges within the flood hazard mapping process. The following is a summary of those challenges and the type of assistance that is needed to help overcome them.

2.2.3.1. Funding Challenges

A. The limited Light Detection and Ranging (LiDAR) data collected in New Hampshire limits the scope of potential projects in the state.

   The type of assistance needed to address this funding challenge is:
   - Additional Federal and state financial resources; and
   - FEMA assistance in promoting the benefits of LiDAR to state leaders is needed.

B. The limited FEMA Region 1 and state funding to provide staff support of the state's CTP Program leads to staff turnover.

   The type of assistance needed to address this funding challenge is:
   - FEMA promotion of the benefits of CTP Program to state leaders;
   - Multi-year funding commitments and additional resources from FEMA; and
   - FEMA to share management responsibilities with OEP for projects planned in New Hampshire.

2.2.3.2. Communication Challenges

A. Miscommunication to communities and other stakeholders by multiple interest groups, who are becoming increasingly involved in flood hazard mapping, floodplain management, and insurance issues due to their lack of programmatic background and lack of technical expertise.

   The type of assistance needed to address this communication challenge is:
   - Increased participation of FEMA staff at meetings/workshops in the state.

B. There is a lack of FEMA communication regarding new and planned (future priorities) funded mapping opportunities in the state. This impacts both the credibility of the CTPs and effectiveness of the CTPs in finding ways to leverage these projects.

   The type of assistance needed to address this communication challenge is:
   - Regular contact needed with state partners on updates regarding new and planned mapping opportunities and on FEMA's priorities and acquisition of LiDAR in the state.

2.2.3.3. Communication Strategy

The New Hampshire CTP team would like to maintain a regular communication plan with FEMA Region 1. It is critically important that the CTP is aware of the status of ongoing projects, new projects and future plans. It is also important that the CTP regularly convey information related to the State.

In order to effectively implement Risk Map in New Hampshire the following communication tools are recommended.

- Monthly status meetings with FEMA and mapping partners conducting projects in NH.
- Quarterly meetings with FEMA Region 1, New England State Partners, Regional Service Center and other important stakeholders in the region (USGS liaison).
- Notification emails when new projects are awarded in New Hampshire and areas that border the State, including the Mapping Activity Statement and who was awarded the work.
- A quarterly spreadsheet that includes ongoing and future studies in Region 1.

2.2.3.4. Training Challenges

A. Due to limited local regional training opportunities, CTPs have difficulty in keeping current with new and updated information.

   The type of assistance needed to address this training challenge is:
   - Development of a regional annual training workshop to allow CTPs in the region to maintain and learn new essential knowledge of the Program and to allow CTPs to share experience and best practices.

2.2.4. Program Management Activities

There are a variety of program management activities that the NH CTP program has experience in and would like to take greater responsibility for going forward. Table 2 depicts the areas where there is interest.

Table 2. NH CTP Program Management Capabilities.

Program Management Activity	NH CTP Program Capability
Business Plans or Updates	✓
Global Program Management	✓
Global Outreach for mapping	✓
Training	✓
Mitigation Planning Technical Assistance	✓
Staffing	✓
Technical Pilot Projects	✓
Mentoring	✓
Minimal Map Panel Printing	✓
CNMS Data Collection/Population/Maintenance	✓

2.2.5. Technical Mapping Activities

The NH CTP Program has considerable experience in DFIRM map production and associated tasks that date back to the Map Modernization Program. Table 3 lists technical mapping activities which NH CTP Program staff has experience and capability to perform.

Table 3. NH CTP Technical Mapping Capabilities.

Technical Mapping Activity	NH CTP Program Capability
Discovery	✓
Project Level Outreach	✓
Project level Community Engagement	✓
Base Map	✓
Digital Topographic Data Development	✓
DFIRM Preparation	✓
Post-preliminary Processing	✓
Risk Assessment	✓
Risk Map Non-regulatory Product	✓

3. New Hampshire Risk Map Status

3.1.1 New Hampshire Statistics and Existing Data

The state of New Hampshire is comprised of ten counties and 234 incorporated municipalities. There are five major watersheds in the state, which include the Connecticut River, Merrimack River, Saco River, Androscoggin River, and the Piscataqua River/Coastal Plain. These five major watersheds include 16 Hydrologic Unit Code (HUC) -8 watersheds as depicted in Figure 3.

Figure 3. New Hampshire's Counties and HUC-8 Watersheds.

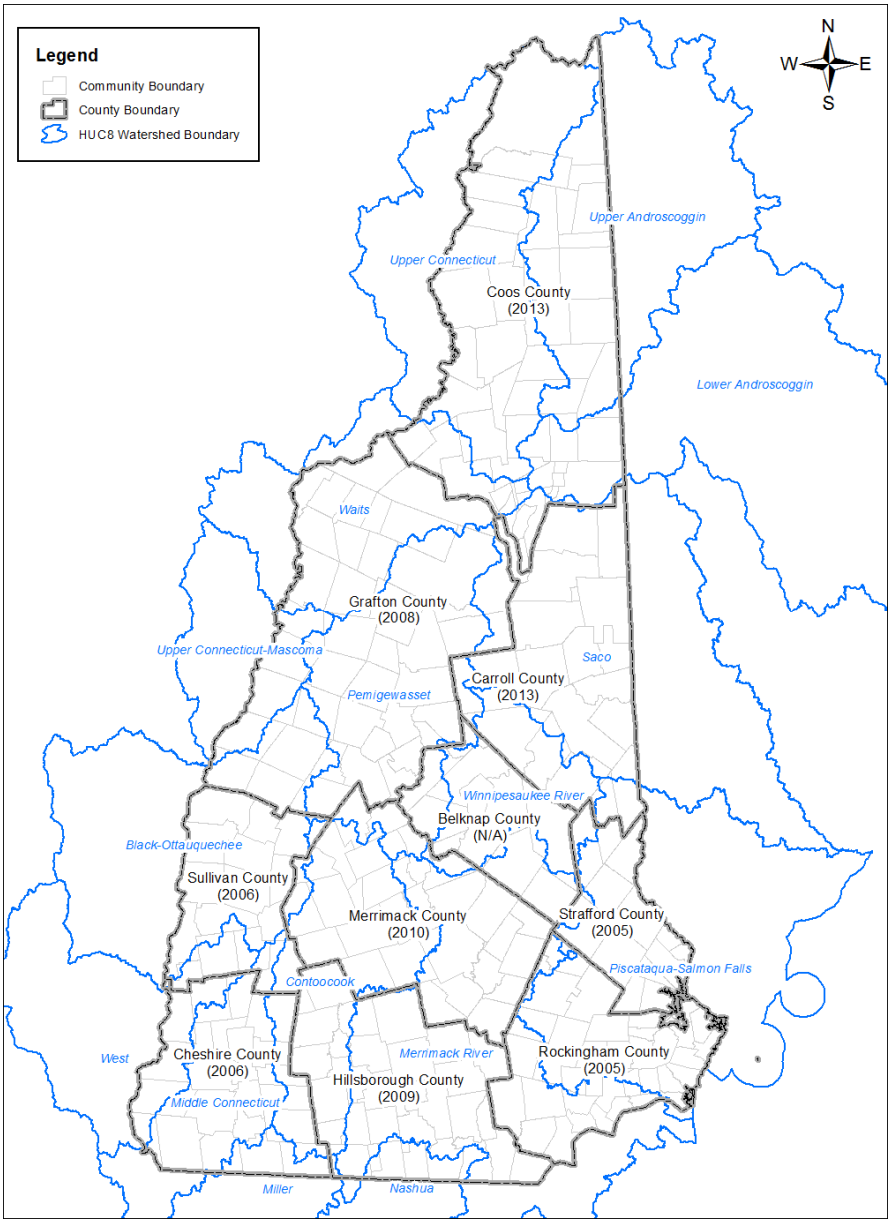


Table 4 below, shows the number of NFIP policies in effect, population and percentage growth, land area, population density, and total stream miles for each county. Several of these factors have been used in the selection of mapping projects to date. The amount and type of data that is available is also a part of the planning and project selection process. Table 5 provides a summary of relevant data available for use in New Hampshire floodplain mapping projects.

Table 4. New Hampshire County Statistics.

County	NFIP Policies*	Pop. 2000	Pop. 2010	Percent Change in Population (2000-2010	Land Area (mi2)	2010 Pop. Density (persons per mi2)	Total Stream Miles (Zones A, AE, V & VE)
Belknap	337	56,325	60,088	6.7%	400.2	150.1	258.8
Carroll	503	43,666	47,818	9.5%	931.1	51.4	562.5
Cheshire	539	73,825	77,117	4.5%	706.7	109.1	415.9
Coos	197	33,111	33,055	-0.2%	1794.7	18.4	518.6
Grafton	887	81,743	89,118	9.0%	1708.8	52.15	766.8
Hillsborough	1347	380,841	400,721	5.2%	876.1	457.4	708.9
Merrimack	570	136,225	146,445	7.5%	934.1	156.8	646.7
Rockingham	4065	277,359	295,233	6.4%	694.7	425.0	618.7
Strafford	397	112,233	123,143	9.7%	369.0	333.7	362.1
Sullivan	186	40,458	43,742	8.1%	537.3	81.4	329.1
State	**9028**	**1,235,786**	**1,316,480**	**6.5%**	**8952.7**	**147.0**	**5188.1**

Data as of December 31, 2014
Sources: U.S. Census (www.census.gov) and FEMA Policy Statistics (bsa.nfipstat.fema.gov/reports/1011.htm#NHT)

Table 5. Summary of Available Data in New Hampshire.

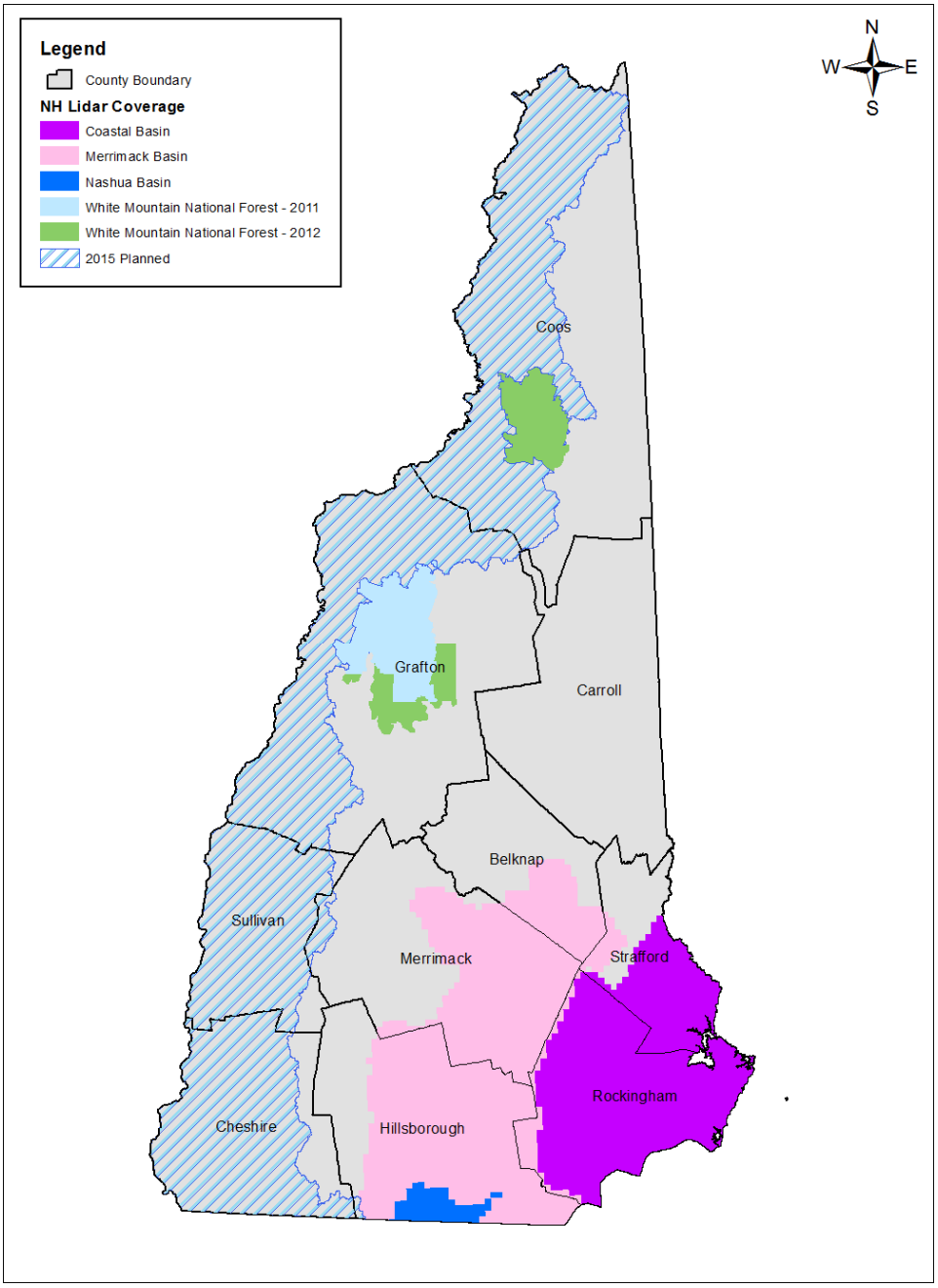
Layer	Scale/Resolution	Date of Acquisition/Date of Last Update	Archive Location
Orthophotography	1-foot resolution	2010/2011*	GRANIT, UNH
LiDAR	1-meter resolution	2010-2014*	GRANIT, UNH
Digital Elevation Models	1/10/30-meter resolution	Varies	GRANIT, UNH
Road Centerlines	1:24,00	2014	GRANIT, UNH
Corporate Limits	1:24,00	Varies	GRANIT, UNH
NH National Hydrographic Dataset	1:24,00	2012	GRANIT, UNH

*A Spring, 2015 collection is currently being planned.

3.1.2 Light Detection and Ranging (LiDAR) in New Hampshire

Many agencies within the state have an interest in and need for high resolution topographic data. At the present time, LiDAR data is available for approximately 2,933 square miles in NH, or about 32% of the state (see Figure 4). ESRC is well-positioned to understand the mapping needs of the multiple interested agencies and to develop the cross-agency connections that will be essential for a purchase of this magnitude, and is now working with the NH Geological Survey within the NH Department of Environmental Services as well as other potential state and federal partners to develop a strategy for statewide LiDAR acquisition.

Figure 4. LiDAR data Available in New Hampshire.



3.1.3 New Hampshire Risk Mapping, Assessment and Planning (Risk MAP) Program

In fiscal year 2009, FEMA began a new initiative called Risk MAP. The goal of Risk MAP is to provide a bridge between continuing improvements to flood hazard data and mapping, and the identification and broad understanding of flood and other natural hazards at the local and state level. The Risk MAP effort will strengthen partnerships with local communities as the emphasis is now on seeking innovative ways to identify hazards and weaving this information into the local and regional decision-making processes.

Building on the success of the Map Modernization Program, FEMA began collaborating with Federal, State and local stakeholders to achieve the following goals under Risk MAP:

A. **Flood Hazard Data.** Address gaps in flood hazard data to form a solid foundation for risk assessment, floodplain management, and actuarial soundness NFIP.
B. **Public Awareness/Outreach.** Ensure that a measurable increase of the public's awareness and understanding of risk results in a measurable reduction of current and future vulnerability.
C. **Hazard Mitigation Planning.** Lead and support States, local, and Tribal communities to effectively engage in risk-based mitigation planning resulting in sustainable actions that reduce or eliminate risks to life and property from natural hazards.
D. **Enhanced Digital Platform.** Provide an enhanced digital platform that improves management of Risk MAP, stewards information produced by Risk MAP, and improves communication and sharing of risk data and related products to all levels of government and the public.
E. **Alignment and Synergies.** Align Risk Analysis programs and develop synergies to enhance decision-making capabilities through effective risk communication and management.

The vision for Risk MAP in New Hampshire is to deliver quality data that increases public awareness and leads to action that reduces risk to life and property. The state's specific objectives are to:

- Achieve complete, high-quality digital flood hazard coverage for the state, with improved flood hazard data for areas of highest population densities, growth potential, and flood histories;
- Foster an environment to build state and local capabilities on natural hazards identification, understanding, assessment, and planning;
- Create a continuously improving program for flood hazard data development and future map maintenance;
- Promote professional floodplain management excellence within the state of New Hampshire; and
- Encourage collaborations with other state agencies and with other New England states.

Although funding under the Risk MAP program was first used for updates in Carroll and Coos Counties, only regulatory maps and studies were produced and no non-regulatory

Risk MAP products were developed. The first full suite of both Risk MAP regulatory and non-regulatory products in the state is currently underway for the coastal portions of Rockingham and Strafford Counties.

3.1.4 New Hampshire Risk MAP Current Status

The status of DFIRM availability for the ten counties in New Hampshire is presented in Table 6 and Figure 5. DFIRMs are now effective in nine counties in the state. Within Rockingham and Strafford Counties, 17 coastal communities are currently being updated with an expected effective date in late 2015.

Table 6. Existing Digital Countywide Mapping.

County	Status	No. of Printed Panels
Belknap	N/A	N/A
Carroll	Effective March 19, 2013	112
Cheshire	Effective May 23, 2006	116
Coos	Effective February 20, 2013	168
Grafton	Effective February 20, 2008	171
Hillsborough	Effective September 25, 2009	227
Merrimack	Effective April 19, 2010	154
Rockingham*	Effective May 17, 2005	151
Strafford*	Effective May 17, 2005	75
Sullivan	Effective May 23, 2006	78
Total DFIRMS		1249

*The effective date for parts of Rockingham and Strafford counties, which are part of the current Piscataqua/Salmon Falls study completed by ESRC, will be changing when the new maps become effective.

Figure 5. DFIRM Status in New Hampshire as of December 2014.

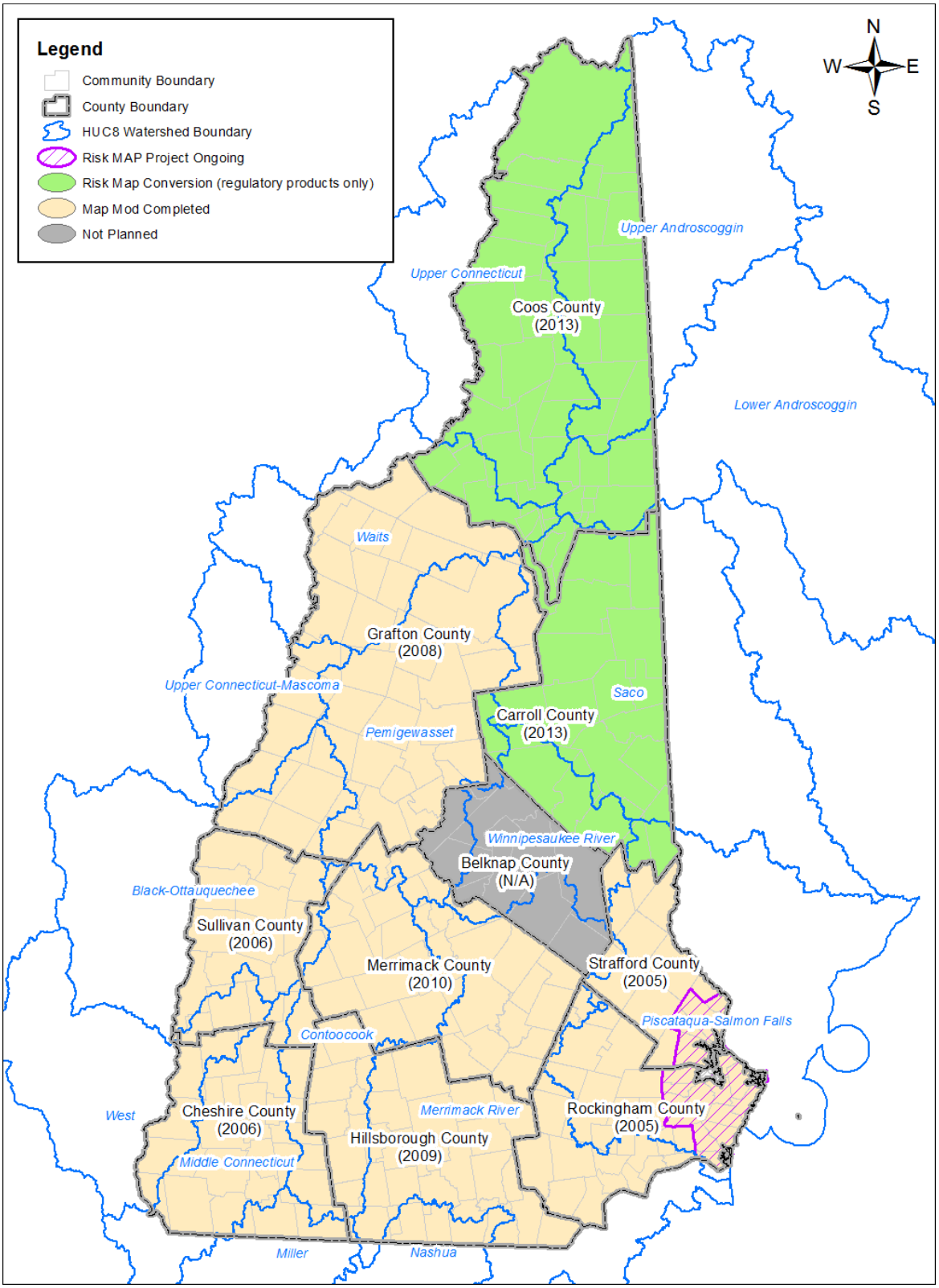


Table7 below summarizes New Hampshire's current floodplain mapping inventory as represented by stream miles in the Coordinated Needs Management Strategy (CNMS) database.

Table 7. New Hampshire's Floodplain Mapping Inventory.

County	Miles Detailed Study	Coastal Miles*	Miles Approximate Study
Belknap	99.45		159.35
Carroll	192.80		369.68
Cheshire	141.58		274.27
Coos	103.11		415.50
Grafton	234.52		532.26
Hillsborough	347.20		361.68
Merrimack	159.93		486.76
Rockingham	162.89	22.89	455.79
Strafford	90.89		271.16
Sullivan	114.89		214.16
Total State	1647.26	22.89	3540.62

*Based on FEMA simplified coastline data set

3.1.5 Risk

FEMA's Risk MAP program involves a quantitative approach to project prioritization. One method used by FEMA to prioritize risk across the nation is the National Flood Risk Database. This method is based on 10 factors associated with flood risk and developed at the census block group level. Figure 6 depicts risk in New Hampshire by census block group level. Figure 7 presents similar information, but on a watershed basis and in comparison with watersheds nationwide. This information aids FEMA and its partners on determining where the greatest risks are in the State. When combined with the greatest needs and areas where high quality topography is located, FEMA has a much better idea of where resources should be allocated.

Figure 6. Census Block Risk by HUC-8 Watershed.

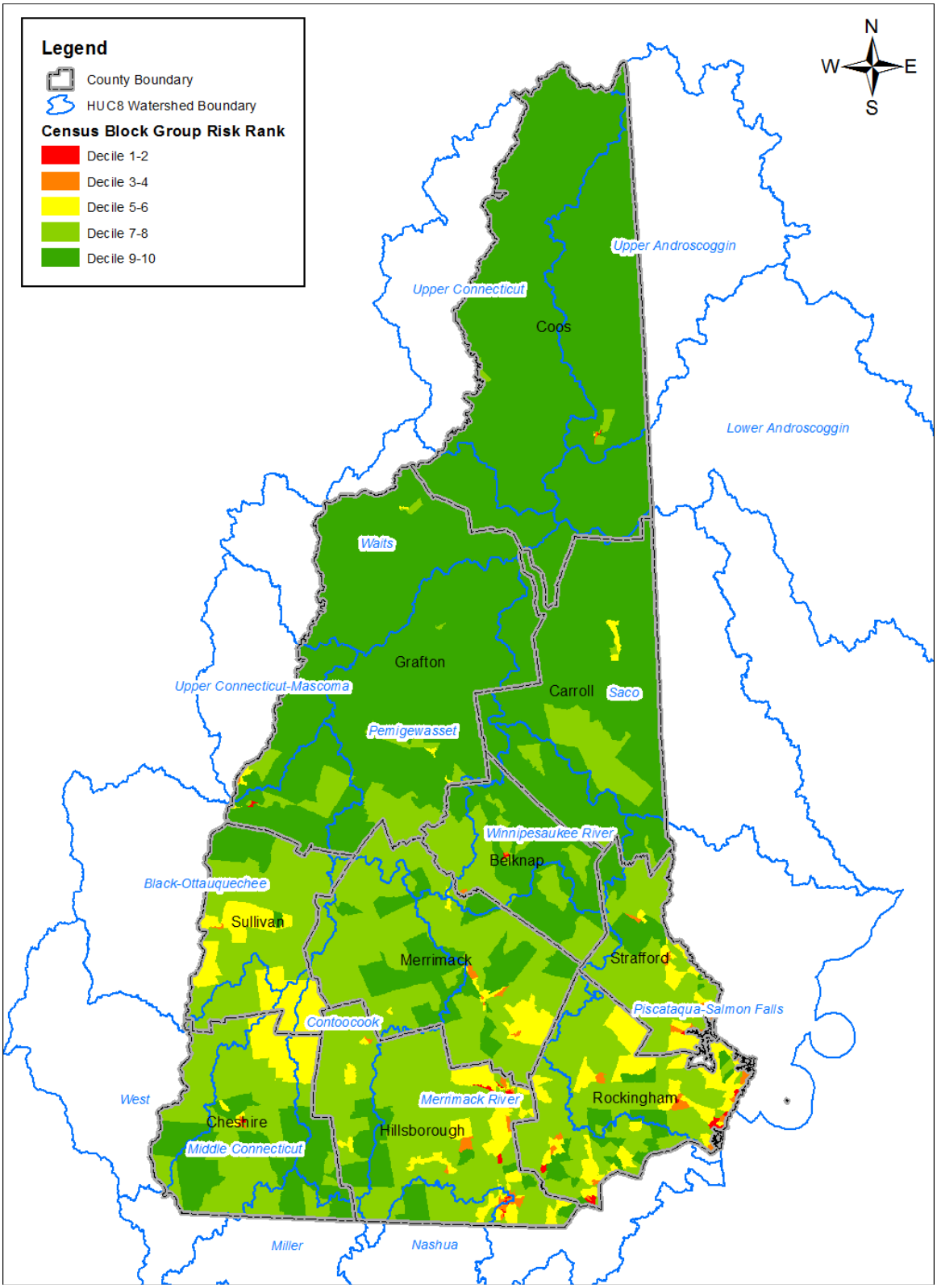
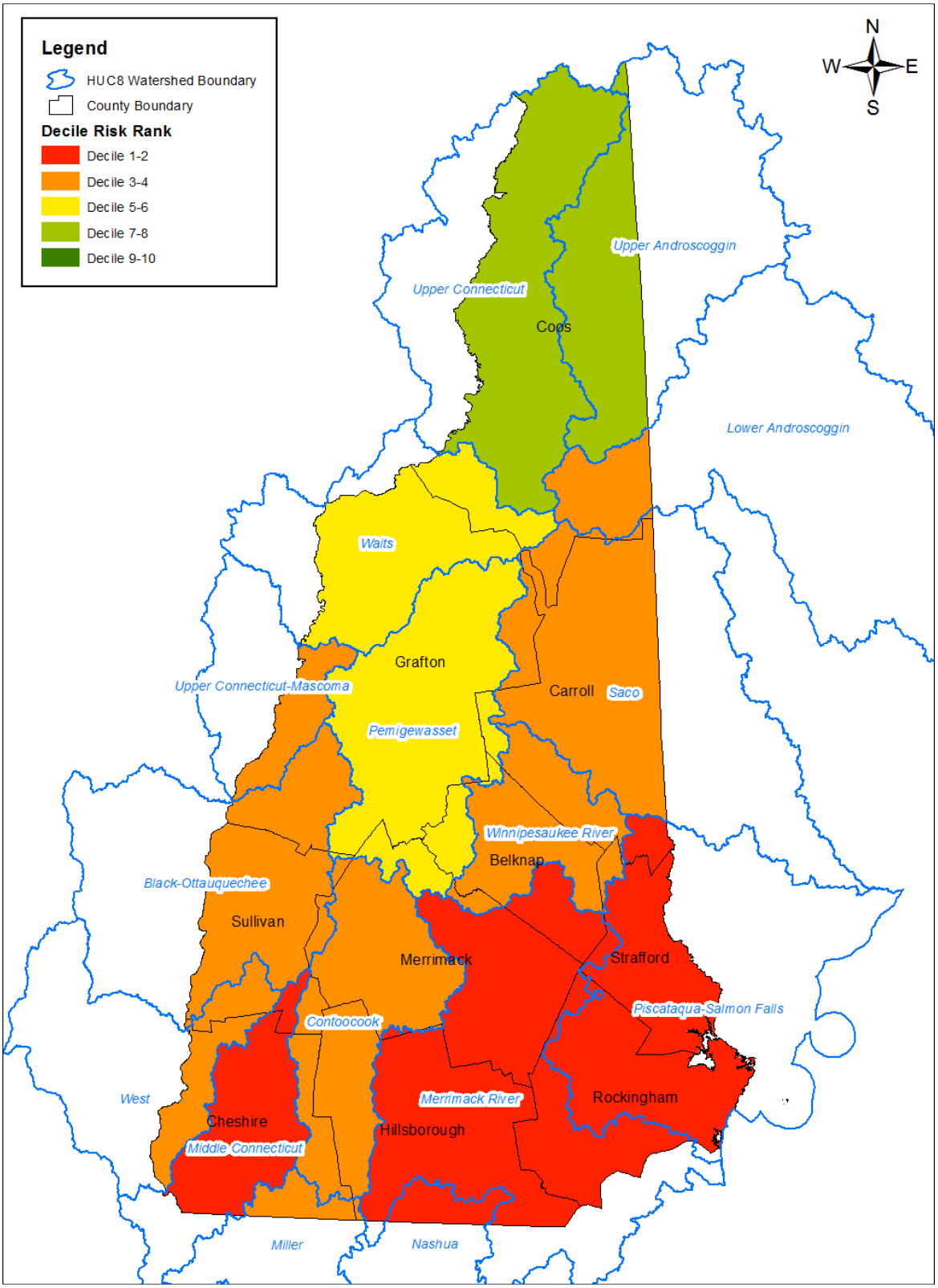


Figure 7. HUC-8 Risk MAP Priority Ranking for New Hampshire.



3.1.6 FEMA's Coordinated Needs Management Strategy (CNMS)

Flood study mapping needs are also important in establishing priorities within the State. Mapping needs are tracked through FEMA's Coordinated Needs Management Strategy (CNMS), which utilizes digital map data to inventory and manage flood map update issues and support DFIRM revision and production planning activities. CNMS establishes the portion of its national mapping inventory (riverine) that is New, Validated, or Based on Updated Engineering (NVUE). Table 8 presents the current status of NVUE compliant miles in New Hampshire by County. Table 9 presents the same information, but summarized by HUC8 Watershed.

As shown in the below CNMS summary tables, the inventory of approximate study mapping in New Hampshire is more than twice the number of miles as the detailed study mapping. Other than the 144 miles of approximate study that will become valid in the Piscataqua-Salmon Falls watershed once that study becomes effective later in 2015, none of the approximate studies in New Hampshire are currently categorized as Valid. Figure 8 illustrates the current CNMS inventory in New Hampshire.

The lack of valid approximate studies in New Hampshire is a significant need reflected in the CNMS inventory. This need is also demonstrated by the large number of Letters of Map Amendment (LOMAs) and Letters of Map Revision (LOMRs) in New Hampshire. As shown in Figures 9 through 12, there have been 3,436 LOMAs and 55 LOMRs completed in New Hampshire since 1983.

Table 8. New Hampshire's NVUE Inventory by County.

FY15Q1	Detailed Studies					Approximate Studies				Total Inventory		
County	Unknown-To Be Assessed	Unverified-Being Studied	Unverified – To Be Studied	Valid – NVUE Compliant	Total Detailed Miles	Unknown-To Be Assessed	Unknown – Being Studied	Valid – NVUE Compliant	Total Approximate Studies	Total Miles	Valid Miles	NVUE % Attained
Belknap	99.45				99.45	159.35			159.35	258.80		0%
Carroll	126.22			66.58	192.80	369.68			369.68	562.48	66.58	12%
Cheshire			43.13	98.45	141.58	274.27			274.27	415.85	98.45	24%
Coos	37.70			65.41	103.11	415.50			415.50	518.61	65.41	13%
Grafton			92.51	142.01	234.52	532.26			532.26	766.78	142.01	19%
Hillsborough			73.15	274.05	347.20	361.68			361.68	708.89	274.05	39%
Merrimack			87.46	72.47	159.93	486.76			486.76	646.68	72.47	11%
Rockingham		9.05	85.02	68.83	162.89	370.07	85.72		455.79	618.68	68.83	11%
Strafford		7.88	14.82	68.19	90.89	213.02	58.14		271.16	362.06	68.19	19%
Sullivan			2.36	112.53	114.89	214.16			214.16	329.05	112.53	34%
Total State	263.36	16.93	398.44	968.53	1647.26	143.87	3396.75	0	3540.62	5187.88	968.52	19%

Table 9. New Hampshire's NVUE Inventory by HUC8 Watershed.

FY15Q1	Detailed Studies					Approximate Studies				Total Inventory		
HUC8 Watershed	Unknown-To Be Assessed	Unverified-Being Studied	Unverified – To Be Studied	Valid – NVUE Compliant	Total Detailed Miles	Unknown-To Be Assessed	Unknown – Being Studied	Valid – NVUE Compliant	Total Approximate Studies	Total Miles	Valid Miles	NVUE % Attained
Black-Ottauquechee			39.51	127.33	166.83	229.08			229.08	395.91	127.33	32%
Contoocook			42.03	111.75	153.78	332.85			332.85	486.63	111.75	23%
Lower Androscoggin				20.95	20.95	1.38			1.38	22.32	20.95	94%
Merrimack River			165.20	284.10	449.30	614.89			614.89	1064.19	284.10	27%
Middle Connecticut			36.37	42.55	78.92	183.82			183.82	262.74	42.55	16%
Miller				5.73	5.73	51.07			51.07	56.81	5.73	10%
Nashua			1.18	11.27	12.45	44.98			44.98	57.43	11.27	20%
Pemigewasset	10.30		32.85	47.76	90.92	287.28			287.28	378.20	47.76	13%
Piscataqua-Salmon Falls		16.93	49.17	90.71	156.80	426.89	143.87		570.75	727.56	90.71	12%
Saco	66.83			28.55	95.37	277.97			277.97	373.35	28.55	8%
Upper Androscoggin	0.28			44.47	44.75	68.94			68.94	113.68	44.47	39%
Upper Connecticut	37.42				37.42	290.37			290.37	327.79		0%
Upper Connecticut-Mascoma			15.89	33.29	49.18	38.99			38.99	88.17	33.29	38%
Waits			6.61	53.29	59.90	296.83			296.83	356.73	53.29	15%
West			1.30	33.39	34.69	71.93			71.93	106.62	33.39	31%
Winnipesaukee River	148.54		8.34	33.39	190.27	179.50			179.50	369.76	33.39	9%
Total State	263.36	16.93	398.44	968.53	1647.26	143.87	3396.75	0	3540.62	5187.88	968.52	19%

Figure 8. New Hampshire's CNMS Inventory.

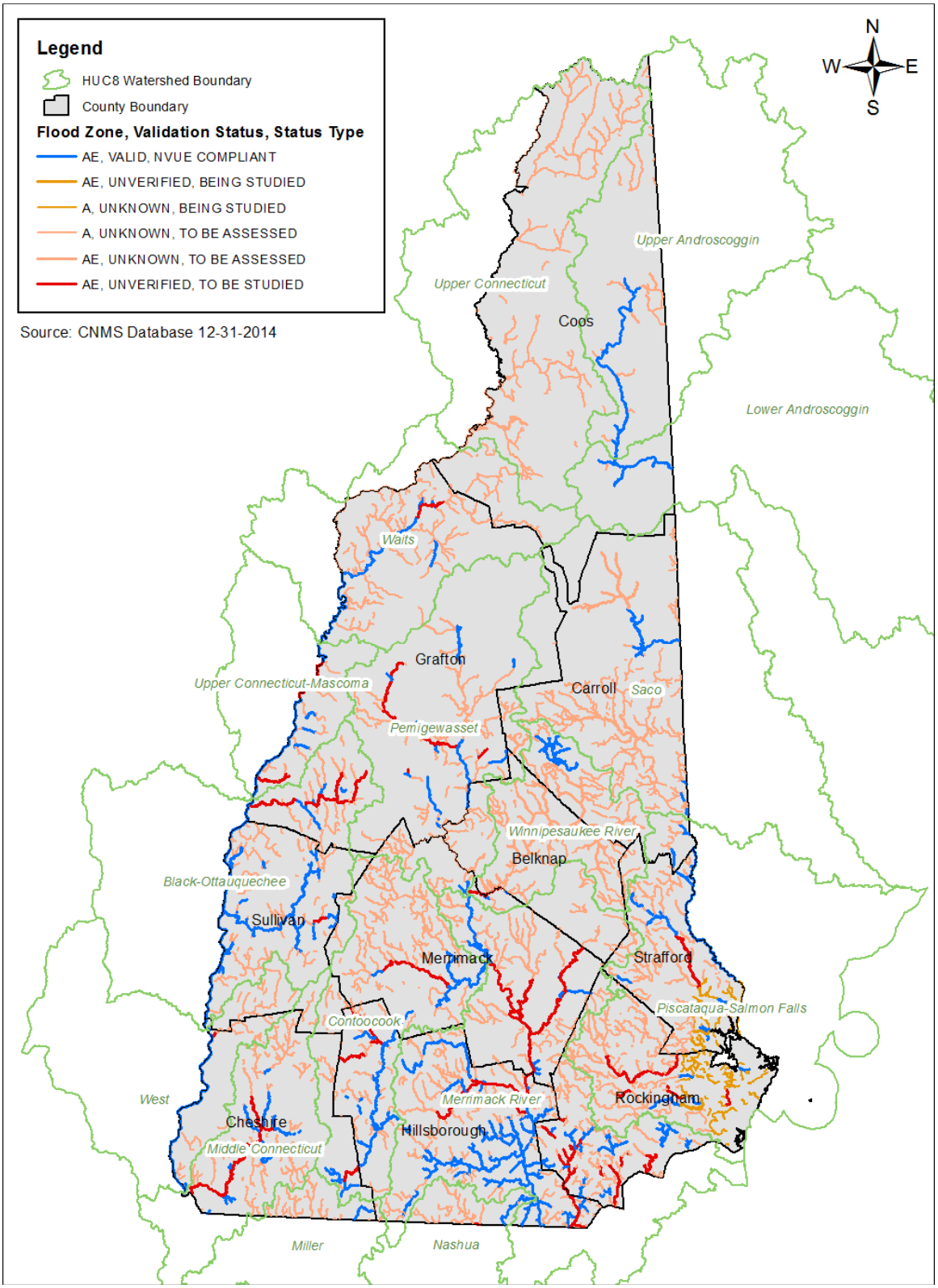


Figure 9. LOMAs completed in New Hampshire since 1983.

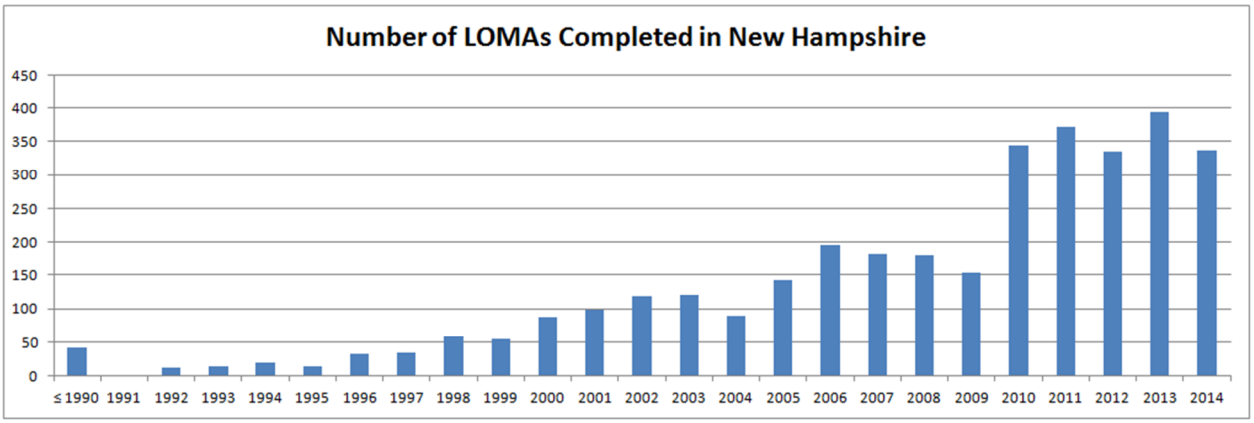


Figure 10. LOMAs completed in New Hampshire by county since 1983.

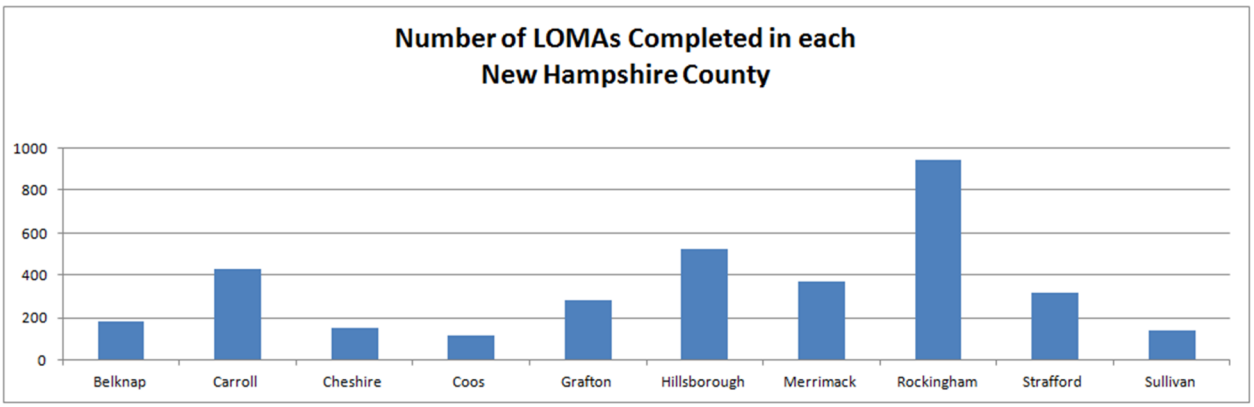


Figure 11. LOMRs completed in New Hampshire since 1983.

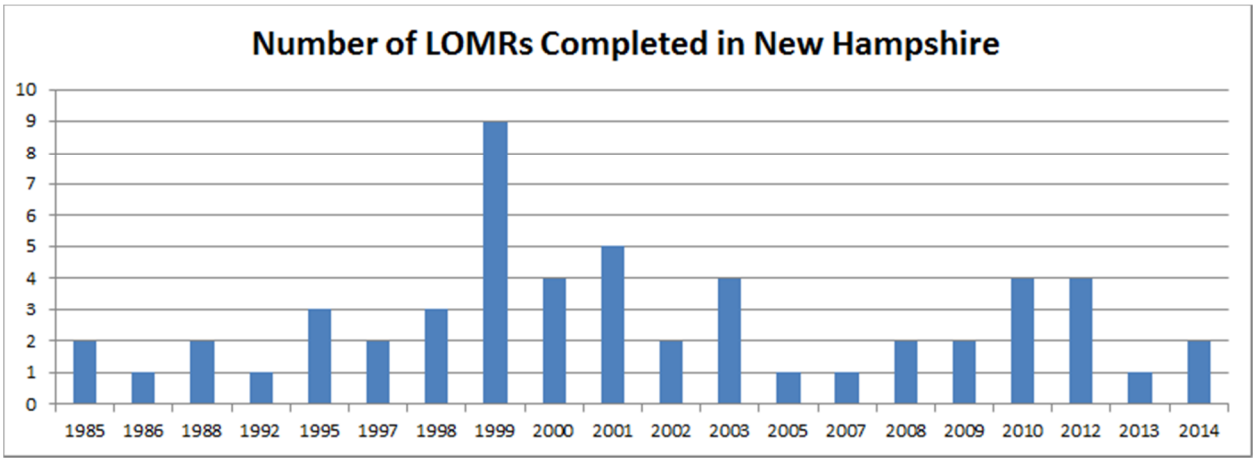
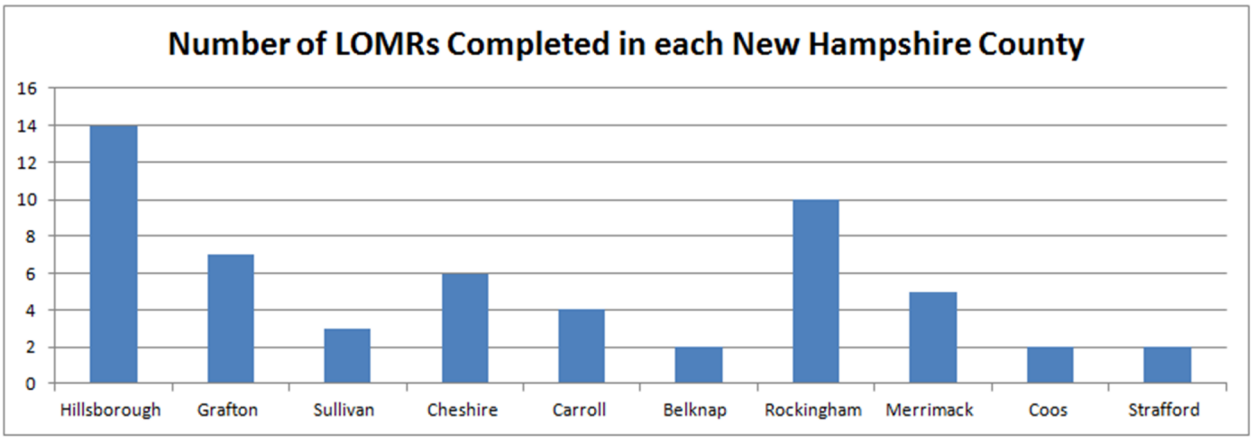


Figure 12. LOMRs completed in New Hampshire by county since 1983.



4. Risk Map Performance Measures

With the initiative of Risk MAP, FEMA's vision is to deliver quality data that increases public awareness and leads to action that reduces risk to life and property. The key performance measures to track Risk MAP are Deployment, NVUE, Identify and Advance. These measures are to be updated and reported on a regular basis, monitored for progress and taking corrective actions, as necessary, so that the desired outcomes can be achieved. The NH CTP Program seeks to grow each of these program measures through innovative strategies and leveraging the Program's local knowledge and expertise.

4.1 Deployment

Deployment is the percentage of population where Risk MAP has been deployed. This can be measured where Discovery Meetings have occurred and where Base Flood Risk MAP products are contracted.

With new LiDAR acquisition being planned in the Connecticut River Watershed in 2015, there exists a good opportunity for new Risk MAP Discovery efforts in this area. In addition, the towns in Rockingham and Strafford counties that were not updated during the Piscataqua/Salmon Falls watershed coastal studies will be undergoing the Discovery process soon.

4.2 New Validated and Updated Engineering (NVUE)

Quality flood hazard data provides the foundation for FEMA and the NH CTP Program to successfully communicate flood risk and encourage action. The NVUE metric is used to determine whether a mapped flood study is a valid representation of the hazard based upon physical, climatological, and engineering factors. By statute, these data must be validated and, as necessary, updated every five years. The CNMS is used to systematically evaluate and attribute the validity of FEMA's mapped inventory. CNMS is a geospatial database model that allows NVUE mileage to be calculated directly from GIS data. The goal of this measure is to identify opportunities to validate effective engineering data. This provides an inexpensive means to increase NVUE attained without funding new engineering studies or producing inventory that may be valid to boost the NVUE –attained measure without significant cost.

As described in section 3.1.3.3, the majority of New Hampshire's inventory of approximate flood studies is currently categorized in CNMS as "UNKNOWN – TO BE ASSESSED". By leveraging recent FEMA guidelines for validation of approximate studies, there exists an opportunity for the NH CTP Program validation assessments on these effective approximate studies, thereby potentially increasing the NVUE measure in New Hampshire.
With the availability of high resolution topography and automated mapping techniques, approximate flood zone mapping has become more accurate and cost effective in recent years. This represents additional opportunity for increasing the NVUE metric in areas where effective engineering studies are determined to be unverified following validation assessments.

4.3 Action

Flood risk data and products provided through Risk MAP give local communities the basis to develop sound, practical hazard mitigation plans, communicate risks to citizens, and allow the public to take action to prevent or reduce flood risk. The measure pertaining to action to reduce flood risk is a cumulative measure of population (in a watershed) where Risk MAP data and products helped communities identify new or improved planned mitigation strategies and ultimately advance identified mitigation actions.

Since it may take several years for a community to complete actions, Risk MAP has adopted a multi-tiered approach to tracking action. The tiered approach allows Risk MAP to encourage and track actions as they evolve from idea to completion during the lifecycle of a Risk MAP project.

Action Measure 1: Mitigation Actions Identified:
Total number of communities where Risk MAP processes, technical assistance and/or products have helped identify at least one new, or refined an existing mitigation action.

The NH CTP Program will continue to approach communities during initial meetings with new mitigation strategies and recommendations. There is currently a study being implemented by the DOS where they are polling community officials to identify high risk areas from flooding. This information will be useful to the NH CTP program and FEMA for identifying areas that may require new studies.

Action Measure 2: Mitigation Actions Advanced:
Total number of communities where Risk MAP processes, technical assistance and/or products have helped advance at least one mitigation action.

Through collaboration between Risk MAP project teams and communities, the NH CTP Program will work to improve upon previously identified actions (from Hazard Mitigation Plans or DOS project) or develop new strategies where opportunities exist.

4.3 Awareness

The measure specific to awareness is based on annual surveys of local officials. The Risk MAP program includes more outreach activities during a flood study as a way to increase local officials' awareness of the flood risk in their community. This will be accomplished through enhanced Risk MAP project team engagement with local officials and delivery of flood risk products that increase awareness of the presence and origin of the community's flood risk. The following describes New Hampshire's proposed effort to increase flood risk awareness in communities.

4.3.1 Building community awareness

Building community awareness is the first stage in the NH approach — an awareness of existing risks and of the Risk MAP process. This will help educate communities on risk assessment and will encourage them to evaluate their current efforts to incorporate hazard mitigation planning into the local and regional land use and planning process.

Key activities include:

- Assembling existing data, including local and regional hazard mitigation plans;
- NFIP Community Assistance Visit results and Letters of Map Change;
- Utilizing this data to identify areas of mitigation concern as well as mitigation successes; and
- Establishing ongoing communications with local officials and other stakeholders.

4.3.2 Develop a communication strategy

Develop a communication strategy that addresses public awareness of risk and builds an action plan that communities can use to incorporate risk management into local and regional decision-making.

Key activities include:

- Convene local and region-wide meetings;
- Develop message strategies on risk management/mitigation;
- Prepare action plans that targets activities/outcomes specific to New Hampshire communities; and
- Coordinate regional cluster workshops on specific hazard issues of mutual concern.

4.3.3 Implementation

Implementation takes the assessments and action plans and creates a "blueprint" for the towns and others to address risk management as part of the local and regional decision-making process.

This stage may include outcomes such as:

- Local risk management strategies and plans to communicate risk to stakeholders;
- Grant Opportunities for specific projects/programs; and
- New initiatives at the local and regional level that ultimately reduce risk.

5. New Hampshire's Risk MAP Strategy

1.1.1 New Hampshire's Flood Hazard Mapping Priorities

New Hampshire's flood hazard mapping priorities include the following:

1. Conduct Discovery in Rockingham and Strafford Counties in the areas not included in current study;
2. Identify, assemble, and/or enhance data sets, including high-resolution topographic data (e.g. LIDAR) and high resolution imagery, that support scoping and map update activities;
3. Complete statewide DFIRM availability through conversion of Belknap County to DFIRMs;
4. Continue the development of a framework for incorporating new flood hazard data in areas where mapping needs are identified;
5. Implement procedures for prioritizing the balance of the state, based on Floodplain Boundary Standard and complemented by other state priorities;
6. Initiate scoping activities in those counties with high flood risk based on #4;
7. Ensure that communities understand the DFIRM maps and how they can be used to support floodplain management activities; and
8. Conduct a broad-based outreach program to ensure that communities are in compliance with the NFIP and have adopted the applicable DFIRMS and FIS.

1.1.2 Prioritized Mapping Needs

Based upon the limited regional funding, unmet mapping needs for New Hampshire have been prioritized based upon risk, mapping needs indicated in the CNMS inventory and the availability of leverage data. The top 3 current mapping needs for New Hampshire include the following:

- **Belknap County.** The state continues to rely on panels that are more than 35 years old in Belknap County. In addition, the digital data that has been developed for this county has not been fully processed, so that the county has to rely on paper products that cannot be easily incorporated into other mapping and planning activities. OEP and ESRC feel strongly that efforts to achieve statewide DFIRM coverage are so advanced that continuing on this path will yield the most cost effective and efficient course of action.

- **Lower Connecticut River Watershed Discovery.** The planned LiDAR collection in the Connecticut River watershed in 2015 presents an excellent opportunity to perform Discovery in this area, with a focus on the lower portion of the watershed where risk and mapping needs in CNMS are the highest.

- **Suncook River PMR.** Initially submitted as a LOMR application by OEP, the number of panels impacted by this update will instead require a physical map revision (PMR).

1.1.3 Topography/Study Needs

As described previously in section 3.1.2, and illustrated in Figure 4, more than 50% of the state is lacking adequate topographic data for floodplain mapping. The planned LiDAR collection along the Connecticut River Corridor will address a portion of the state's needs for accurate topographic data. Only 29% of Belknap County is currently covered by the Merrimack River Basin LiDAR data set, yet this county represents a high priority in terms of new floodplain mapping needs.

1.1.4 Planned Sequencing

New Hampshire's strategy for implementing these proposed activities is provided in Table 10.

Table 10. New Hampshire's Flood Hazard Mapping Priorities and Status.

Fiscal Year	County	Activities	Status
2014	Rockingham	Production of preliminary DFIRMs	Complete
	Strafford	Production of preliminary DFIRMs	Complete
2015	Rockingham	Work with communities on map adoption for coastal communities; Initiate Discovery in upland communities	In Progress
	Strafford	Work with communities on map adoption for coastal communities; Initiate Discovery in upland communities	In Progress
	Statewide	Initiate methodology for prioritizing balance of state	Proposed
2016	Rockingham	Adoption of effective DFIRMs for coastal communities	Proposed
	Strafford	Adoption of effective DFIRMs for coastal communities	Proposed
	Belknap	Production of preliminary DFIRMs	Proposed
	Statewide	Complete prioritizing	Proposed
2017	Belknap	Work with communities on map adoption	Proposed
	Statewide	Initiate Discovery in priority areas identified via methodology	Proposed

6. FEMA Flood Hazard Mapping Funding

The level of funding that has been allocated to OEP by FEMA has been at its lowest levels for the past two years (Figure 13). The funding permits OEP to conduct high level program management (updating business plans and project management), but does not allow for other important parts to the program to be managed successfully. In the past, New Hampshire has employed two staff, a Risk Map Coordinator and a National Flood Insurance Program (NFIP) Coordinator. OEP currently employs just one staff member and any reduction in funding will impact program management considerably. Additional funding will permit OEP to support additional program management activities as stated in Section 2.2.4 above.

The ESRC currently receives the majority of their FEMA funding from technical task orders, where Risk Map products are being developed. This allows for ESRC to be involved in the Risk Map program and alleviates some of the burden on the FEMA regional staff. The ESRC is interested in expanding their technical role in the CTP program by taking on more of tasks identified in Section 2.2.5 above.

Figure 13. OEP Funding from FEMA since 2004