

**Montana  
RiskMAP  
State Business Plan  
2009**



**Prepared For:**

**The Federal Emergency Management Agency  
United States Department of Homeland Security**

**Prepared By:**

**Montana Department of Natural Resources and Conservation  
Water Resources Division  
P.O. Box 201601  
Helena, Montana 59620-1601**

**December 2008**

## Table of Contents

Acronyms

Glossary

1.0 Executive Summary

2.0 Agency Summary

2.1 Agency History

2.2 Agency Locations

3.0 Program Vision and Future Goals

4.0 Program Needs

4.1 Mapping Needs

4.2 Training Needs

5.0 Map Modernization Achievements

5.1 Montana Map Mod Projects

5.1.2 State Adoption of Effective DFIRMs

5.2 Map Mod Outreach Program

5.2.1 Informational Mailings

5.2.2 Community Meetings

5.2.3 Program Website

5.2.4 Informational Displays

5.3 Map Mod Cost Share

5.3.1 State/Local Cost Share

5.3.2 Leveraging Other Federal Agency Work

5.3.3 Contractor Cost Share

5.4 Other Related Achievements

5.4.1 Multi-Hazard Information Availability

6.0 RiskMAP Program Management Approach

6.1 Program Staffing

6.1.1 Future Staffing Plans

6.1.2 Existing Staffing Shortfalls

6.1.3 Study Contractor Resources

6.2 Specific Project Management Activities

6.2.1 Deliverables

6.2.2 Reporting

6.2.3 Quality Assurance

6.2.4 Study Contract Management

6.3 Community Outreach

6.3.1 Outreach for Levee Procedures

6.3.2 Training Efforts for State and Local Officials

- 6.4 Compliance and Map Adoption
- 6.5 Assessment of Community Mapping Needs
- 6.6 Maintenance of Digital Base Map Inventory and Information Technology Systems
- 6.7 DFIRM Maintenance Management
- 6.8 Utilization of the Mapping Information Portal (MIP) and the Earned Value (EV) Variance Action Plan.
  - 6.8.1 Potential Issues Relating to Meeting Maintaining Earned Value Requirements

**Figures**

Figure 1. Montana Areas of Rapid Growth and Decline from 1980 to 2006.....14

**Tables**

Table 1. Montana Map Modernization Project Summary.....17  
Table 2. Montana’s Funds Leveraged for Map Mod Program Projects.....21

**Appendices**

APPENDIX A: Montana DNRC Top Priority RiskMAP Community Mapping Needs.....A-1  
APPENDIX B: State and Federal Adoption Processes Flow-Chart.....B-1

## **Acronyms**

BFE – Base Flood Elevation  
CAP – Community Assistance Program  
CAP-MAP – Community Assistance Program – Mapping Assistance Program (now 3MS)  
CIS - Community Information System  
CTP – Cooperating Technical Partners  
DES – Disaster and Emergency Services, a division of Montana Dept. of Military Affairs  
DFIRM – Digital Flood Insurance Rate Map  
DHS - Department of Homeland Security  
DMA 2000 – Disaster Mitigation Act of 2000  
DNRC – Montana Department of Natural Resources and Conservation  
DOQQ – Digital Orthophoto Quarter Quadrangle  
EPP – Montana’s Executive Planning Process  
EV- Earned Value  
FEMA – Federal Emergency Management Agency  
FIRM – Flood Insurance Rate Map  
FIS – Flood Insurance Study  
FMA – Flood Mitigation Assistance  
GIS – Geographic Information System  
HMGP – Hazard Mitigation Grant Program  
IT – Information Technology  
LIDAR – Light Detection and Ranging System  
LOMC – Letter of Map Change  
LOMR-F – Letter of Map Revision Based on Fill  
MAS – Mapping Activity Statement  
3MS – Map Modernization Management Support Program  
MICS - Monitoring Information on Contracted Studies  
MHIP – Multi Year Flood Hazard Identification Plan  
MIP – Mapping Information Portal  
NFIP – National Flood Insurance Program  
NRCS – Natural Resources Conservation Service  
NRIS – Montana Natural Resources Information System  
NSFHA – No Special Flood Hazard Area  
NSP – National Service Provider  
PMT – Project Management Team  
QA/QC – Quality Assurance/Quality Control  
SOW – Statement of Work  
SFIP – Standard Flood Insurance Policy  
SPR – Special Problem Report  
TSDN – Technical Support Data Notebook  
USACE – United States Army Corps of Engineers  
USGS – United States Geological Survey

## Glossary

Base Flood Elevation (BFE) – The elevation of a flood having a 1-percent chance of being equaled or exceeded in any given year.

Community Assistance Program (CAP) – A FEMA program, funded by the NFIP, under which cost-shared funds are provided to states on an annual basis, to provide technical assistance support to communities participating in the NFIP.

Community Assistance Program – Mapping Assistance Program (CAP-MAP) – part of the CAP which cost shares specific mapping and study related tasks and the management process of those tasks with states. Now referred to as the Map Modernization Management Support (3MS) Program.

Community Information System (CIS) – An Oracle database system used by FEMA to track and report on all communities identified by FEMA as potentially floodprone, especially with regard to mapping actions, including Letters of Map Change, taken by FEMA to identify flood hazards in each community.

Cooperating Technical Partners (CTP) Program – An innovative FEMA program to create partnerships between FEMA and participating NFIP communities, regional agencies, and state agencies that have the interest and capability to become more active participants in the FEMA Flood Hazard Mapping Program.

Countywide Map – Standard geographic unit of mapping for Flood Insurance Rate Maps produced by the NFIP. All NFIP communities within a county boundary would be included in the map panels of a single countywide FIRM.

Digital Flood Insurance Rate Map (DFIRM) – A FIRM that has been prepared as a digital product, which may involve converting an existing manually produced FIRM to digital format, or creating a product from new digital data sources using a GIS environment. The DFIRM product allows for the creation of interactive, multi-hazard digital maps. Linkages are built into an associated database to allow users options to access the engineering backup material used to develop the DFIRM, such as hydrologic and hydraulic models, flood profiles, data tables, digital elevation models, and structure specific data, such as digital elevation certificates and digital photographs of bridges and culverts.

Digital Orthophoto Quarter Quadrangle (DOQQ) – Photographic maps distributed by the U.S. Geological Survey. A DOQQ is an aerial photograph that is adjusted to remove distortions caused by variations in terrain and the camera lens to produce a photograph

that displays features in their planimetrically correct location. This term is sometimes used loosely to mean any photographic map produced by this process.

Disaster Mitigation Act of 2000 (DMA 2000) – A mitigation act signed into law by the President in 2000, which requires communities and states to develop hazard mitigation plans to retain eligibility for certain types of Federal funding.

Flood Insurance Rate Map (FIRM) – The insurance and floodplain management map produced by FEMA that identifies, based on detailed or approximate analysis, the areas subject to flooding during a 1-percent-annual-chance (100-year) flood event in a community. Flood insurance risk zones, which are used to compute actuarial flood insurance rates, also are shown. In areas studied by detailed analysis, the FIRM shows BFEs to reflect the elevations of the 1-percent-annual-chance flood. For many communities, when detailed analyses are performed, the FIRM also may show areas inundated by 0.2-percent-annual-chance (500-year) flood and regulatory floodway areas.

Flood Insurance Study (FIS) – The initial study of flood hazards performed for a community that does not have an effective FIRM or Flood Boundary and Floodway Map (FBFM). FEMA study contractors have traditionally performed FISs. However, communities, regional agencies, and states that are participating in the CTP initiative also may perform these types of flood map projects.

Flood Mitigation Assistance (FMA) – A FEMA program to assist States and NFIP communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the National Flood Insurance Program (NFIP).

Geographic Information System (GIS) – A system of computer hardware, software, and procedures designed to support the capture, management, manipulation, analysis, modeling, and display of spatially referenced data for solving complex planning and management problems.

Hazard Mitigation Grant Program (HMGP) – The program, authorized under Section 404 of the Stafford Act, under which FEMA provides grants to states and local governments to implement long-term hazard mitigation measures after a presidential disaster declaration. The purpose of the HMGP is to reduce the loss of life and property due to natural disasters and to enable mitigation measures to be implemented during the immediate recovery from a presidentially declared disaster.

Light Detection and Ranging (LIDAR) System – An airborne laser system, flown aboard rotary or fixed-wing aircraft, that is used to acquire x, y, and z coordinates of terrain and terrain features that are both manmade and naturally occurring. LIDAR systems consist of an airborne global positioning system with attendant base station(s), inertial measuring unit, and light-emitting scanning laser.

Letter of Map Change (LOMC) – A collective term used to describe official amendments and revisions to national flood insurance maps that are accomplished by a cost-effective administrative procedure and disseminated by letter.

Letter of Map Revision Based on Fill (LOMR-F) – A LOMC issued by FEMA when FEMA determines that a legally defined parcel of land or structure has been elevated above the BFE based on the placement of earthen fill after the date of the first NFIP map.

LEVEL I – Mapping category which consists of digitizing existing map information.

LEVEL II – Mapping category which consists of study or restudy which develops new detailed flood hazard information and subsequent FIRM.

Mapping Activity Statement (MAS) – An agreement signed by FEMA and a participant (community, regional agency, or state agency) in the CTP initiative under which the participant will complete specific mapping activities.

Map Modernization Management Support (3MS) – A FEMA program, funded by the NFIP, under which States are provided resources to help take over CTP responsibilities that are part of the Map Mod Program.

Mapping Information Portal (MIP) – FEMA’s project management system to record and track the progress of Flood Map Projects and DFIRM Conversions through their lifecycle.

Monitoring Information on Contracted Studies (MICS) – A project management tool developed by FEMA to record and track the progress of Flood Map Projects through their lifecycle.

Multi-Year Flood Hazard Identification Plan (MHIP) – This document details FEMA's 5-year plan for providing updated digital flood hazard data and maps for areas with flood risk. The completion of flood map updates initiated in the plan extends to 2010.

National Flood Insurance Program (NFIP) – Federal program under which flood hazard areas are identified and flood insurance is made available to the owners of the property in participating communities.

National Service Provider (NSP) – The overall private-sector engineering firm under contract to FEMA, that nationwide, reviews and processes new and revised flood studies, appeals and protests related to the new and revised flood studies, conditional and final map amendments, conditional and final map revisions, and requests for Letters of Determination Review; performs activities related to program development and program support; and maintains regional archives of flood hazard mapping and related data.

Project Management Team (PMT) - Comprised of the FEMA Lead and several Mapping Partners who manage a mapping project throughout its entire lifecycle.

Quality Assurance/Quality Control (QA/QC) Reviews – The reviews of FIS reports, maps, and related products and data performed to ensure compliance with FEMA standards.

Special Flood Hazard Area (SFHA)—The darkly shaded area on a Flood Insurance Rate Map (FIRM) that identifies an area that has a 1-percent chance of being flooded in any given year (100-year floodplain). The FIRM identifies these shaded areas as Zones A, AO, AH, A1-A30, AE, A99.

Statement of Work (SOW) - An agreement signed by FEMA and a FEMA study contractor under which the FEMA study contractor will complete specific mapping activities.

Study Contractor – An engineering firm or Federal, state, or local agency that performs flood hazard studies under contract with FEMA.

Special Problem Report (SPR) – A report, prepared by the Flood Hazard Mapping Partner that is performing an engineering study or other mapping activity, that documents special problems or issues encountered during the performance of the work.

Technical Support Data Notebook (TSDN) – The format for the FEMA-maintained file that contains all of the technical and administrative support data for a community for which FEMA published an NFIP map and all revisions to that map.

## **1.0 Executive Summary**

The State of Montana DNRC floodplain program RiskMAP business plan provides a detailed summary and discussion regarding the floodplain program's capabilities, organization, achievements as CTP for the Map Modernization program, goals, and vision. Also included is a detailed list of the community floodplain mapping needs for Montana, prioritized by DNRC and the floodplain program's outreach plan and EV Variance Action Plan. This document is intended to give a clear picture of the DNRC floodplain programs qualifications and efforts to provide accurate and up-to-date floodplain mapping information to Montana's communities.

## **2.0 Agency Summary**

The Department of Natural Resources and Conservation is organized into seven divisions:

- Centralized Services Division
- Conservation and Resource Development Division
- Forestry Division
- Trust Land Management Division
- Water Resources Division
- Oil and Gas Conservation Division\*
- Reserved Water Rights Compact Commission\*

\*Two of the divisions – the Oil and Gas Conservation Division and the Reserved Water Rights Compact Commission – are attached to the department for administrative purposes only.

Eight boards and commissions are attached to the department. Four of them — the State Board of Land Commissioners, Reserved Water Rights Compact Commission, Board of Oil and Gas Conservation, and Board of Water Well Contractors — have decision-making authority. The other four — the Resource Conservation Advisory Council, Rangeland Resources Committee, Grass Conservation Advisory Committee, and Drought Advisory Committee — act in an advisory capacity only.

### **Water Resources Division**

Floodplain management duties are located within the Water Resources Division. The Water Resources Division is responsible for many programs associated with the uses, development, and protection of Montana's water. The division also develops and recommends water policy to the DNRC director, governor, and legislature. The division consists of an administration unit and four bureaus: water management, water rights, state water projects, and water operations.

### **2.1 Agency History**

First established by combining several separate agencies as a result of the Executive Reorganization Act of 1971, DNRC provides leadership in managing the state's natural resources. In 1995 the department was reorganized as part of the reorganization of Montana's natural resource and environmental agencies. It is responsible for promoting the stewardship of Montana's water, soil, forest, and rangeland resources and for regulating forest practices and oil and gas exploration and production.

## **2.2 Agency Locations**

DNRC has offices throughout the state of Montana. It is headquartered in Helena within the state capitol complex. Its mailing address is P.O. Box 201601, Helena MT 59620-1601.

## **3.0 Program Vision and Future Goals**

The State of Montana DNRC floodplain program is committed to providing excellent program management services as a CTP with FEMA. Furthermore, the floodplain program is increasing its efforts to secure additional cost shares and funding sources for floodplain mapping studies through partnerships, grants, and all other possible avenues. The floodplain program is staffed by a highly competent and knowledgeable staff that consistently produces solid work products and effectively supports both FEMA and State floodplain mapping programs. The primary goal of the DNRC floodplain program is to provide up-to-date and accurate floodplain mapping information to Montana's communities.

The other main goals of the DNRC floodplain program are as follows:

- To increase the amount of funding available for floodplain mapping activities in Montana and to secure additional floodplain mapping projects.
- To continue to perform outstanding outreach and training activities in communities across Montana and to increase the amount of outreach efforts to ensure that continuous and reliable contact is maintained with all communities.
- To increase the coordination of floodplain mapping activities with wetland and other mapping activities in an effort to avoid duplicative work and to gain access to additional funds.
- To successfully complete the ongoing DFIRM conversion projects.
- To continue to use EV metrics to evaluate and manage ongoing floodplain mapping projects and to avoid any variances beyond the allowed 10%.
- To hire a new State of Montana floodplain engineer with skills similar or superior to previous state floodplain engineers and to increase the amount of work done in-house for new floodplain mapping projects.
- To participate in the FEMA LOMR related pilot project.
- To continue as a CTP with FEMA and to maintain funding for the Map Mod Coordinator position and partial funding for the Outreach Specialist position through a CTP funds.

The State has successfully performed all activities required under the CTP agreement and has been extremely active and involved with both project management and outreach activities related to DFIRM conversion projects. Three DFIRM conversion projects were started in 2005; Gallatin County through direct FEMA funding to the NSP, and Flathead and Missoula Counties through CTP funding to DNRC. Flathead County is effective as of September 28, 2007. In addition, Carbon and Park Counties were initiated in 2006 by FEMA via their IDIQ process, and DNRC received a CTP grant for Yellowstone County. Cascade, Lewis & Clark, and Fergus Counties received CTP funding in 2007. Missoula, Lewis and Clark, and Custer County have had preliminary maps issued in 2008. Cascade, Fergus, Yellowstone, Gallatin, Park, and Carbon Counties are expected to have preliminary DFIRMs by the end of 2009. Gallatin Counties are expected to have preliminary DFIRMs by the end of 2007 or early 2008 and adopted maps by the end of 2008.

The State's vision is to continue in its current role and to take on new floodplain mapping CTP projects for its' highest priority communities in 2009. As funds allow DNRC will work towards increasing the amount of work performed in-house, since it can be done at a significant cost savings. The information regarding specific community mapping needs and the DNRC's prioritization of these needs is provided below in Section 4.0 of this document. In addition to taking on new mapping CTP projects in 2009, the floodplain program believes it would be beneficial for it to take part in the LOMR pilot project. DNRC will be applying for admittance to that program in the coming months. The floodplain program's vision is to be the primary source for developing new flood studies, DFIRM maintenance, base map inventory updates, LOMR processing, and flood risk information for the State of Montana

The DNRC floodplain program is also working towards greater collaboration with a diverse array of agencies and organizations to secure additional funding and support for floodplain mapping and management activities. The floodplain program envisions collaborative wetlands, riparian habitat, and floodplain mapping projects that are jointly funded by the EPA, FEMA, the State of Montana Department of Environmental Quality, and DNRC. This collaboration is supported by the Governor and legislation that is likely to come under consideration in next spring's legislative cycle.

The State of Montana Legislature has considered legislation to require setbacks to floodplains and it is anticipated that they will be considering similar legislation in an effort to protect riparian areas. The governor has issued a letter in support of the protection of riparian areas. However, many communities struggle with the adoption of setbacks. Gallatin County has adopted a 300 foot setback from the 100 year floodplain and other communities have adopted similar restrictions. One of the biggest impediments to floodplain setback regulations and legislation is the lack of accurate or up-to-date floodplain mapping information. The State of Montana is working diligently to address this issue and anticipates the possibility for additional state resources to provide this information to communities.

The floodplain program also envisions the integration of natural resource GIS data to provide an improved GIS database and GIS online data viewer that will allow communities to view the locations of wetlands, endangered species, floodplains, and other environmental or natural resource information all in one database which can be accessed by the general public.

## **4.0 Program Needs**

### **4.1 Mapping Needs**

A DNRC Mapping Needs Assessment was completed in 2002 which identified areas for each county in need of flood map updates, study, or restudy. The DNRC started working on floodplain mapping in accordance with the identified priorities at the time, and has continued to examine and annually revise its priorities since then. In 2004, FEMA indicated that county population ranking would be of primary importance in determining priorities for Map Modernization funding nationwide. With this in mind, Montana's initial list of priority counties in its first Business Plan was based largely on county population. In 2005, the priority list was updated slightly to reflect revised priorities focusing somewhat less on populations alone, and more on development pressure. The priority list was provided in the 2005 Business Case Plan Update, and was also reflected in the MHIP Sequencing submitted to FEMA Region VIII in September 2005.

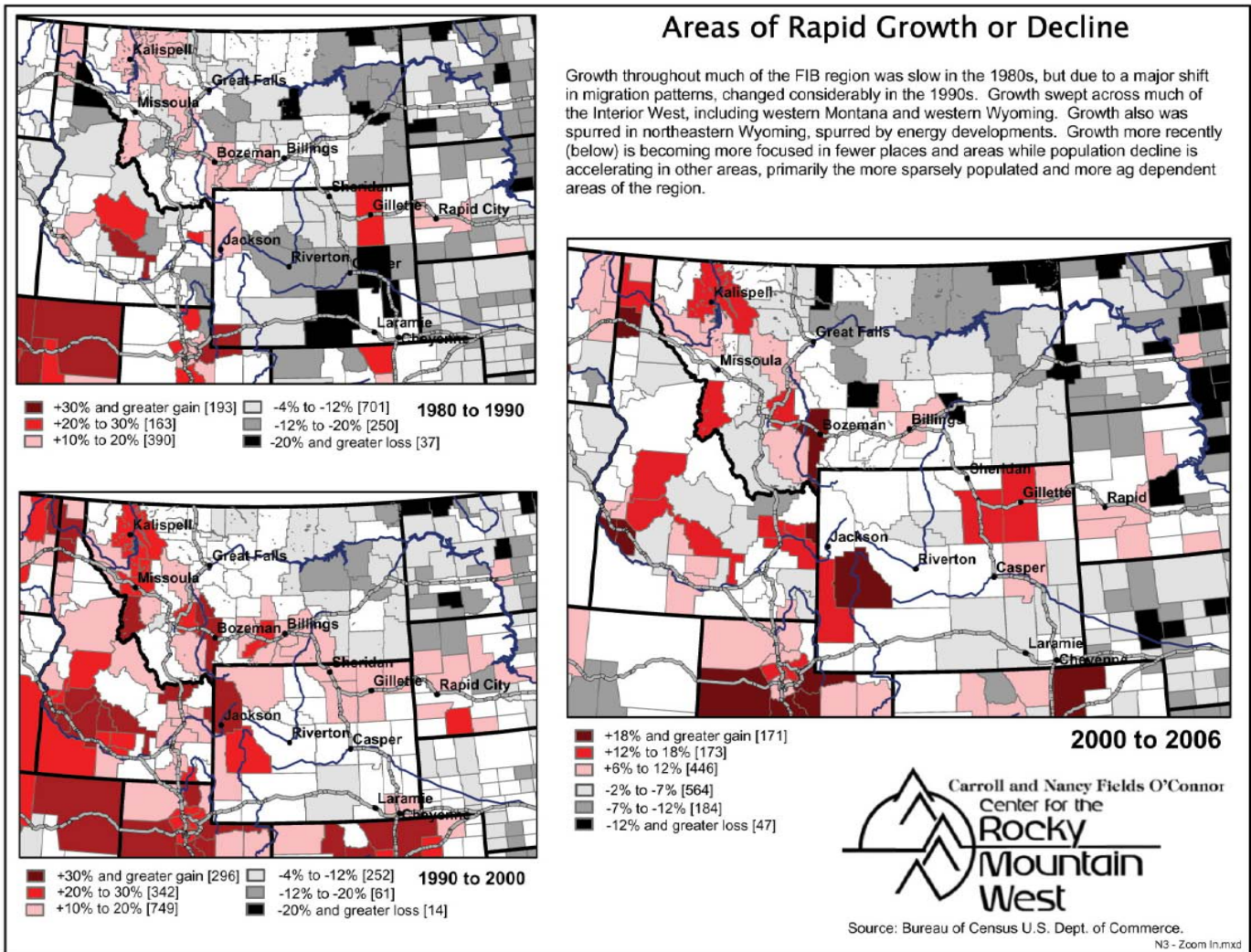
In addition, updated state priorities were identified by the Floodplain Program Engineer via a Mapping Needs Inventory. This county-by-county meeting and inventory process started in 2005 and was completed in Early 2008. The State's mapping needs were further updated August 2008. The State of Montana has worked with communities, State agencies, and other organizations to develop its current top priority mapping needs list. See Appendix A for the "State of Montana Top Priority RiskMAP Community Needs List."

FEMA has indicated that the metrics for Risk MAP will continue to focus on high population and development pressure areas but will also look at regions where there is a need to map large stream reach lengths and to map all areas with high accuracy levels. Montana's needs include high and moderate population counties and cities that are experiencing development pressure and have a high number of stream miles requiring mapping. A lot of effort and money from State grant programs, watershed groups, and local communities has gone into obtaining LiDAR topographic data for priority water bodies and river systems such as Flathead Lake, the Bitterroot River, and the Yellowstone River. The USACE has provided LiDAR topographic data for Stillwater, Sweetwater, and Madison counties. The USACE also received over \$500K to perform new studies along the Yellowstone River and DNRC worked to ensure that these were done in compliance with FEMA standards and submitted to FEMA for incorporation into joint floodplain mapping; which have over the last five years primarily been DFIRM conversion projects efforts. This newest priority list includes not only the higher-population areas remaining to be mapped Montana, but also several additional high priority counties that DNRC views as department priorities for map updates based on

other factors. Factors include current and future development pressure, quality of existing mapping data, and leveraging ability.

Montana is in a unique situation and has the opportunity to map floodplains prior to total build out of floodplains in many of its regions that are currently experiencing development pressure. Figure 1 illustrates the areas of rapid growth and decline in Montana from 1980 to 2006.

**Figure 1. Montana Areas of Rapid Growth or Decline**



Source: Bureau of Census U.S. Dept. of Commerce

As Figure 1 indicates 13 of Montana’s counties had a growth rate above 6%. These jurisdictions contain vast river systems and one of the world’s largest freshwater lakes. The State of Montana has made the combined efforts of riparian area protection and natural hazard risk identification and mitigation top among its priorities. Numerous state agencies are working together to develop programs and obtain data to assist with these

efforts. The DNRC floodplain program is one of such efforts and is working in conjunction with other state agencies to assist communities and provide them with new and accurate data. There is a lot of community support in many regions of Montana for disaster mitigation planning, hazard or risk identification, and specifically floodplain mapping. The accurate mapping of floodplains is being used across the state to prevent and mitigate flood hazard damages and also to limit or prevent development in floodways and flood fringe areas. There is a great need and demand from Montana's communities for additional information, which the state and community groups are aggressively working to respond to. The partnership between FEMA and the State of Montana DNRC on the map modernization program has been an essential and successful part of this response.

The State of Montana has the resources in staff and expertise to ensure that both new mapping and map maintenance activities are performed with high accuracy and efficient project management. The State of Montana has been a CTP partner since 2005 and will continue to work with FEMA to perform flood hazard mapping as well as map maintenance in priority areas. The state will continue to provide FEMA with priority mapping needs information. Individual yearly project determinations will continue to be made by the DNRC in cooperation with FEMA as exact funding allotments become known.

#### **4.2 Training Needs**

The State of Montana is planning to apply for the pilot project FEMA has developed to allow states to perform the LOMR review and processing activities, in coordination with FEMA. Therefore, training regarding the LOMR review process and standards is needed and would be highly beneficial. The State has 5 regional engineers and is in the process of hiring a new floodplain regional engineer. These engineers and the CAP and Map Mod Coordinators typically assist communities with development or review of LOMRs prior to their submittal to FEMA. The State could apply the training gained to both further assist communities and to perform LOMR review services in partnership with FEMA.

The State of Montana could also benefit from additional earned value training. The state Map Mod coordinator has experience using the Mapping Information Portal to evaluate projects using earned value data but it would be beneficial if additional training were received.

### **5.0 Map Modernization Achievements**

The State of Montana DNRC became a CTP in the Map Modernization study process in March 2005. The countywide DFIRM conversion process began in 2005 with Gallatin, Missoula, and Flathead Counties and continued in 2006 and 2007 with CTP projects for Yellowstone, Cascade, Lewis & Clark, and Fergus Counties, as well as, FEMA-IDIQ mapping projects in Carbon, Park, and Custer. In 2008, FEMA-IDIQ mapping projects were initiated in Ravalli and Silver-Bow Counties. During 2008 the State of Montana experienced a prolonged vacancy in the Map Modernization Coordinator position.

Base map data was compiled for these projects, all collection of field data and survey data took place soon after the project scoping and necessary contracting was completed. Following these initial tasks hydrologic and hydraulic analysis of identified flooding sources takes place, utilizing automated modeling programs, typically Hec-Ras, in compliance with FEMA standards. Floodplain mapping work and DFIRM database creation tasks are completed following the QA/QC of the hydrologic and hydraulic analyses. The DNRC engineering staff and the DNRC contractor has provided internal QA/QC of Hydraulic and Hydrologic analysis for both CTP projects and FEMA-IDIQ projects. This is in addition to the NSP's role of providing QA/QC identified specifically in the MAS for each project.

The preliminary DFIRM is developed and released after the data development tasks, listed in each project's MAS, are completed. The preliminary maps are then released to the communities and the State of Montana NFIP Coordinator, Map Mod Coordinator, Floodplain Engineer, Outreach Specialist, Water Operations Bureau Chief, Regional Engineers, and other staff work with local community officials, local floodplain administrators, DNRC contractor staff, and NSP/FEMA personnel to hold final CCO meetings and undertake additional outreach efforts such as open houses and attending meetings sponsored by community officials, local groups, the State, and FEMA. Post-preliminary processing activities are then undertaken to resolve any appeals or issues pertaining to the preliminary maps and associated flood report. At the end of the post-preliminary processing period the State proceeds to adopt the newly effective DFIRMs and assists the communities in also doing so within the six month time frame allotted.

The efforts to scope, undertake, and complete DFIRM conversion and component flood study projects have been extremely successful. The State of Montana has actively performed an increasing amount of project management duties for its CTP projects and has made every possible effort to support FEMA's IDIQ projects. The DNRC floodplain program is well fitted in terms of staff and capabilities to continue as a CTP during and after the transition from the Map Modernization program to the RiskMAP program.

The following sub-sections provide additional details regarding Map Modernization projects in Montana over the past five years, including information regarding outreach activities and cost share.

### **5.1 Montana Map Mod Projects**

Table 1 lists the Map Modernization projects that have been completed, scoped, or are currently in production and specifies whether they are countywide or individual city/town projects. All of the 24 projects have been scoped. Out of these 24 projects there are 10 are currently in production and 8 have been completed. There are currently 6 projects that are scoped and ready to proceed when funding becomes available.

**Table 1. Montana Map Modernization Project Summary**

| <b>Jurisdiction</b>           | <b>Type</b>     | <b>Scoped</b> | <b>In Progress</b> | <b>Preliminary</b> | <b>Completed</b> |
|-------------------------------|-----------------|---------------|--------------------|--------------------|------------------|
| <b>Broadwater County</b>      | Countywide      | X             |                    |                    |                  |
| <b>City of Brockton</b>       | Individual City | X             |                    | X                  | X                |
| <b>Carbon County</b>          | Countywide      | X             | X                  |                    |                  |
| <b>Cascade County</b>         | Countywide      | X             | X                  |                    |                  |
| <b>Custer County</b>          | Countywide      | X             | X                  | X                  |                  |
| <b>City of Culbertson</b>     | Individual City | X             |                    | X                  | X                |
| <b>Fergus County</b>          | Countywide      | X             | X                  |                    |                  |
| <b>Flathead County</b>        | Countywide      | X             |                    | X                  | X                |
| <b>Gallatin County</b>        | Countywide      | X             | X                  |                    |                  |
| <b>Jefferson County</b>       | Countywide      | X             |                    |                    |                  |
| <b>Lake County</b>            | Countywide      | X             |                    |                    |                  |
| <b>Lewis and Clark County</b> | Countywide      | X             | X                  | X                  |                  |
| <b>City of Medicine Lake</b>  | Individual City | X             |                    | X                  | X                |
| <b>Mineral County</b>         | Countywide      | X             |                    |                    |                  |
| <b>Missoula County</b>        | Countywide      | X             | X                  | X<br>(12/15/2008)  |                  |
| <b>Town of Nashua</b>         | Individual Town | X             |                    | X                  | X                |
| <b>Park County</b>            | Countywide      | X             | X                  |                    |                  |
| <b>City of Poplar</b>         | Individual City | X             |                    | X                  | X                |
| <b>Powell County</b>          | Countywide      | X             |                    |                    |                  |
| <b>Ravalli County</b>         | Countywide      | X             | X                  |                    |                  |
| <b>Richland County</b>        | Countywide      | X             |                    | X                  | X                |

|                          |                              |   |   |   |   |
|--------------------------|------------------------------|---|---|---|---|
| <b>Sanders County</b>    | Countywide                   | X   |   |   |   |
| <b>Silver-Bow County</b> | Countywide                   | X   | X   |   |   |
| <b>City of Whitehall</b> | Individual City              | X   |   | X   | X   |
| <b>Totals</b>            | <b>24</b><br><i>projects</i> | <b>24</b><br><i>projects</i><br><i>scoped</i> | <b>10</b><br><i>currently in</i><br><i>production</i> | <b>11</b><br><i>preliminary</i><br><i>maps issued</i> | <b>8</b><br><i>projects</i><br><i>completed</i> |

### 5.1.2 State Adoption of Effective DFIRMs

The State is currently completing the final stage of its adoption process for Flathead County. The States adoption process is underway for Lewis and Clark County and Custer County. The adoption process is about to begin for Missoula County. The DNRC floodplain program has set adoption procedures it adheres to which are outlined in Montana State statutes.

The 3MS Coordinator worked with other DNRC staff and FEMA Region VIII to identify a strategy to meld together the state and federal flood map adoption processes. The 3MS Coordinator drafted a flow chart (see Appendix B) indicating their alignment for use by agency staff and for dissemination to members of the public and community officials. In the past, the federal map adoption process was undertaken separately from the DNRC’s state map adoption process. This resulted in a great deal of overlap of efforts, in addition to building confusion at the local level. This streamlined approach has helped clarify the entire map adoption process for those involved.

## 5.2 Map Mod Outreach Program

Over the last five years, DNRC has successfully participated as a CTP in an outreach partnership agreement with FEMA. The DNRC floodplain group has undertaken an extensive outreach program to reach local community members, community officials and staff, professionals in a variety of fields including, but not limited to: surveyors, insurance agents, realtors, engineers, and sanitarians. Outreach efforts have covered both the NFIP and Map Modernization programs and have also addressed topics such as No Adverse Impact (NAI).

The DNRC floodplain program has developed an outreach plan and coordinated outreach calendar for its outreach events. All outreach activities relating to the Map Modernization program have been coordinated successfully with FEMA, the NSP if pertinent, local communities, and other interested parties.

The DNRC floodplain program has successfully held numerous successful outreach events and worked diligently to continuously improve information sharing and communication between all levels of government and the general public. The following sub-sections detail the types of outreach activities, materials, and planning efforts that

have been utilized over the last five years. Details are provided for those activities which focused on existing or completed Map Modernization DFIRM conversion projects.

### **5.2.1 Informational Mailings**

Existing DNRC-NFIP staff, particularly the new Floodplain Program Outreach Specialist, includes Map Modernization information in letters, brochures, newsletters, and other information distributions already conducted by the current CAP program. Quarterly newsletters are e-mailed to over 200 local floodplain administrators, elected officials in the state's participating municipalities and counties, state legislators, as well as other interested parties. The Mapping Coordinator drafts articles and provides assistance.

### **5.2.2 Community Meetings**

The 3MS Coordinator, the Floodplain Program Outreach Specialist, the NFIP Coordinator, the current DNRC staff floodplain engineer, and contractors have conducted a huge assortment of meetings required or beneficial to facilitating the mapping process, preliminary DFIRM review process, and the state and local DFIRM adoption processes. These activities have included the development of agendas, legal notices, press releases, binders, folders, booklets, display boards, and handouts. Tasks performed have included meeting coordination and planning, meeting facilitation and leadership and the presentation of materials and response to questions. DNRC has had outstanding success with its community meetings related to the Map Modernization program thanks to a wonderful working relationship with FEMA, the local communities, and numerous other groups. The DNRC floodplain program expects and is committed to continuing to conduct successful and meaningful public meetings in the future.

### **5.2.3 Program Website**

The current DNRC website was expanded to further accommodate NFIP related information and a new website was developed for the Montana Map Modernization program ([www.montanadfirms.com](http://www.montanadfirms.com)). The State's NRIS or GIS database website also makes all of the currently effective FIRM information available as well as a host of other community specific GIS data including parcel, watercourse, and other base map data. Preliminary and Effective DFIRM information can be viewed on the Map Modernization website via a built in GIS viewer or PDF format. A host of contact information and general program information are available and there is also a page for each ongoing project with information regarding project details, schedule, and updates.

Postings for property owners, lenders, insurers, builders, and local floodplain administrators have been created and posted online along with web postings for scheduled meetings, and community mailings. The Map Modernization website has been used as an integral component of community outreach for all completed and current DFIRM projects. It is currently being improved upon to increase its capacity for displaying large data sets with ease and speed. The online GIS data map viewer that provides the preliminary and effective DFIRM information is also currently being

upgraded to make it even more user friendly for members of the general public with little exposure to GIS data and online tools.

### **5.2.4 Informational Displays**

Three high quality portable informational display boards were developed to provide floodplain program information to the general public in a reader friendly and visually attractive manner. Other display boards have been created for specific topics and individual community projects. The DNRC floodplain program has made great efforts to provide communities that have ongoing or completed DFIRM conversion projects with individually tailored, easily digested, and informative displays. The displays created have been used at local fairs, community official organizations, community and interest group meetings, professional association meetings, public meetings for specific DFIRM conversion projects, and at training sessions across the State. They have been well received on all occasions. The DNRC floodplain program is continuously working to develop new displays.

## **5.3 Map Mod Cost Share**

The Montana program has utilized cost share from local, state, and other federal agency sources for all of its CTP Map Modernization projects and for a portion of the FEMA-IDIQ Map Modernization projects. Cost share has come in the form of direct funding for flood studies, survey work for use in reviewing and developing floodplain studies, updating flood studies to meet FEMA requirements, and levee certification. It has also come from leveraging GIS base map data and survey data. The following sub-sections detail the cost share over the past 5 years.

### **5.3.1 State/Local Cost Share**

In the 2002 Mapping Needs Assessment no significant sources of cost share were specifically identified. However over the past 5 years, some local governments were able to both fund complete flood studies and contribute cost share in the form of leveraging data. Yellowstone County funded a floodplain study for 5-mile Creek to be incorporated into the DFIRM conversion project. Missoula funded a floodplain study in the Reserve Street area and other Counties and Cities have contributed funds to studies, but not in large amounts. Cost share at a local level in the Map Modernization program has largely come from leveraging local base map or topographic data.

In 2007 and 2008 The State of Montana Floodplain Department spent approximately \$40,000 to fund survey work in support of the development and review of floodplain studies. This includes but is not limited to survey work on the Yellowstone River in Livingston Montana, Dry Gulch Creek in Ravalli County, and Three Mile and Eight Mile Creeks in Ravalli County. The State also spent funds on mapping and other work necessary to bring older studies into compliance with FEMA standards, so that they could be incorporated into ongoing DFIRM conversion projects. This includes work on the Cove Creek study for Yellowstone County. In previous years the State of Montana

provided minimal direct funding for floodplain studies. Table 2 illustrates the funds leveraged for ongoing DFIRM conversion projects in Montana.

**Table 2. Montana’s Funds Leveraged for Map Modernization Projects**

| <b>Jurisdiction</b>           | <b>Leverage</b> | <b>Type</b>   |
|-------------------------------|-----------------|---|
| <b>Yellowstone County</b>     | \$94,300        | Topographic data, survey data, floodplain mapping data from State funds |
| <b>The Town of Ennis</b>      | \$10,000        | Cash match  |
| <b>Missoula County</b>        | \$30,000        | Topographic data, XDS   |
| <b>Cascade County</b>         | \$277,613       | GIS base map  |
| <b>Lewis and Clark County</b> | \$357,222       | Topographic data  |
| <b>Silver-Bow</b>             | \$90,000        | XDS   |
| <b>Ravalli County</b>         | \$120,000       | XDS, topographic data and survey data from State funds                  |

According to Montana statute (76-5-201, MCA) the DNRC is responsible for designating floodplains and floodways in Montana. However there is currently no designated state funding stream available to accomplish this task. The DNRC floodplain program is planning on making a request to the state legislature for mapping funding during the 2009 legislative session. Previous requests for funds were not approved.

In terms of existing sources of potential non-federal match, DNRC oversees the state’s Renewable Resource Grant Program which has also serves as a state source of matching funds for communities seeking floodplain mapping projects or topographic data development. On a biennial basis, communities can seek competitive state grants for up to \$100K for projects that conserve, manage, develop or protect Montana's renewable resources (e.g., flood mapping projects) under the RRGL grant program; or up to \$300K for projects that deal with reclamation and development under the Reclamation and Development Grant Program (RDGP). Grant award decisions are made by the state legislature in the spring of the odd year. In 2007 Ravalli County received a grant award for collection of topographic data via LiDAR. For the current cycle for 2008-2009, DNRC floodplain program staff drafted a \$300K RDGP grant for the Flathead Basin Commission to receive funds for a LiDAR mapping project that would collect topographic data for the Flathead Lake region. The 3MS coordinator and floodplain engineer also assisted Lake County in their development of an RRGL grant application to develop topographic data by obtaining LiDAR for the Swan Lake region of Lake County. Ravalli County also submitted an additional RRGL grant to obtain the next set of priority topographic data via LiDAR. Grant applications will be reviewed and awards will be decided by the state legislature this coming spring 2009.

The DNRC floodplain program is also working with the DEQ wetlands program and the State’s Natural Heritage Program to identify and undertake joint wetland and floodplain mapping efforts. The DEQ wetland program has EPA funds that they can use for this

purpose and the State's Natural Heritage Program can provide cost share by assigning staff to perform GIS tasks related to the mapping projects without any cost to DNRC or FEMA. The DNRC floodplain program is actively working to identify other sources of cost share from State and Local Sources.

### **5.3.2 Leveraging Other Federal Agency Work**

Various studies have been completed over the years by other agencies in some of the priority counties. These studies can be incorporated in any new DFIRM. However, due to the varying age of these studies they have needed evaluation to ensure they meet current standards and reflect current conditions.

In the last three years the USACE has provided LiDAR topographic data for Stillwater, Sweetwater, and Madison counties. The USACE also received over \$500K to perform new studies along the Yellowstone River and DNRC worked to ensure that these were done in compliance with FEMA standards and submitted to FEMA for incorporation into joint floodplain mapping efforts; which have primarily been DFIRM conversion projects.

### **5.3.3 Contractor Cost Share**

The State Map Mod Program was successfully able to obtain leverage funds from Allied Engineering Services, Inc. (AESI) to obtain updated topographic data, compliant with FEMA standards, for the 5-mile Creek Area of Yellowstone County. The State put pressure on the contractor to cover the costs since they were found to be partially delinquent in their fulfillment of their contract with Yellowstone County for floodplain mapping services along 5-mile Creek. The development of this data and the revision of the floodplain mapping boundary was completed for a cost of approximately \$34,000 and the contractor covered half (\$17,000) of the cost.

## **5.4 Other Related Achievements**

There have been other achievements worth noting. In addition to the State of Montana, Department of Natural Resources and Conservation, two Montana communities have participated in the CTP Program, Three Forks and Ennis. And there has been a significant increase in the availability of Multi-Hazard Information.

### **5.4.1 Multi-Hazard Information Availability**

Because of DMA 2000, all counties in Montana have now either completed or initiated development of a multi-hazard mitigation plan. The Montana Disaster and Emergency Services (DES) also completed an update to its currently effective statewide multi-hazard plan. For each county, the plan outlines natural and manmade hazards, and the risks and vulnerabilities in their area of jurisdiction. The categories of hazards include floods, winter storms, summer storms, hazardous-materials incidents, urban fire, rural fire, drought, civil disorder/terrorism, mass casualty, dam failure, shortage of critical materials, and national security emergency. Each county plan has a slightly different

format and layout. The DNRC Floodplain department is also coordinating with the Montana DES on further implementing the Hazard Mitigation Assistance (HMA) program in Montana.

In addition, all of the state regulated high hazard dams in Montana have Emergency Action Plans that are updated on a yearly basis. Table top exercises are also performed on state regulated high hazard dams on a 5-year rotation cycle.

## **6.0 RiskMAP Program Management Approach**

The State of Montana has developed a program that allows it to efficiently handle nearly all floodplain matters in the State of Montana. The State of Montana works with FEMA as a CTP for the Map Modernization program and will continue doing so under the Risk MAP program. The State of Montana has continuously provided excellent program management services. The DNRC floodplain program group is staffed by multiple individuals who are highly trained and experienced in effectively performing program management activities. The program management work that has been performed over the last five years includes: 1) program development including the creation of a business plan, the management of technical mapping activities, providing training to state and local officials, mentoring other individuals in how to successfully manage program activities, and performing a vast amount of outstanding outreach activities related to mapping activities, levee issues, and hazard mitigation issues.

### **6.1 Program Staffing**

The DNRC floodplain program is staffed by the map mod program coordinator, a floodplain outreach specialist, the CAP coordinator, a highly trained floodplain engineer, and five regional engineers. The funding for the map mod program coordinator and outreach specialist have come from 3MS grants which have been essential to allowing Montana to successfully be a very active partner on FEMA mapping projects. The funding for the State floodplain engineer and regional engineers comes from state funds. DNRC also has expertise available through contractors.

Current staff members have experience in completing and reviewing FISs, expertise in GIS (including knowledge of existing data resources within the state), expertise in riverine surveying, expertise with hydrologic and hydraulic modeling, experience developing topographic data, knowledge of FEMA technical mapping activity guidelines and standards, expertise in project management and tracking, experience with development, administration and enforcement of contracts, expertise in grant writing and reporting, and expertise in budget management.

DNRC began to manage study contracts for countywide DFIRM conversions and flood study work in 2005. This effort includes a selection process for contractors as well as development and management of the required contracts. The FEMA-funded Mapping Coordinator has assumed this responsibility. The Map Mod coordinator has over the last three years managed seven CTP DFIRM conversion projects, two large scale scoping

projects involving five plus communities, and multiple state level surveying and topographic data development projects.

The floodplain engineer has dedicated over 75% of their time in the past five years to providing technical support and assistance with management of state mapping projects. Outreach is handled by multiple parties and with a full time outreach specialist the state is able to provide a great amount of outreach support and training that is integral to building community support, developing partnerships, and providing training to local community officials and professionals. The CAP coordinator has worked to align CAP program management activities with Map Modernization program activities and has succeeded in doing so in a very effective manner.

### **6.1.1 Future Staffing Plans**

The floodplain engineer position is currently vacant and the DNRC floodplain program is in the process of filling that position. The new staff person will have a similar or more extensive skill set than the people previously in this position. A request to the legislature has been submitted to provide additional state funds for the floodplain program. That request will be reviewed by DNRC officials and if approved forwarded to the legislature for review/approval in the spring of 2009.

### **6.1.2 Existing Staffing Shortfalls**

The ability of DNRC to complete many of the proposed activities is highly dependent on FEMA's continued funding of the 3MS position. The continued support of the Mapping Coordinator position and part of the Floodplain Program Outreach Specialist's time is essential to the agency's ability to complete current and future mapping activities.

### **6.1.3 Study Contractor Resources**

Outside of DNRC and community resources, study contractors have been retained to conduct DFIRM conversion work, undertake floodplain studies, develop maps, and to perform other services. DNRC has undertaken a contractor selection process for each year's CTP funding, per state requirements. For each Request for Qualifications posted, the top selected firm must be given the opportunity to negotiate, again per state requirements. In 2005, DNRC selected one firm (PBS&J) to undertake both the Missoula and Flathead County DFIRM projects. DNRC and PBS&J successfully negotiated and signed a contract for this work in September 2005. In 2006 and again in 2007, DNRC again selected one firm (PBS&J) and successfully negotiated contracts. DNRC anticipates continuing to utilize study contractor resources but is working towards performing more work in-house.

## **6.2 Specific Project Management Activities**

The State of Montana will continue to perform a variety of specific project management activities including updating and drafting local business plans, managing technical

mapping activities, performing outreach activities, providing training and mentoring, performing contract administration and enforcement, and performing budget and project status reporting activities using earned value tools. In addition the State intends to apply to FEMA for participation in pilot projects, primarily the LOMR review pilot projects. The following sub-sections provide additional details regarding the State of Montana's current and future management activities.

### **6.2.1 Deliverables**

As each floodplain project progresses, hardcopy and digital base and topographic maps will be developed and provided to the community and FEMA by DNRC and/or the study contractor assigned to the project. The community, DNRC, or the assigned project contractor will obtain landowner permission for any fieldwork required for future or ongoing mapping projects. DNRC or the assigned study contractor will be responsible for delivering computer-model calculations, geometric and boundary condition data files, floodway analysis, and other key components of ongoing or future floodplain mapping and map maintenance projects.

The required information for all DFIRM conversion or map maintenance projects will be uploaded to the MIP. Other relevant data and information not directly provided to FEMA during the study process, including Special Problem Reports (SPRs), community maps, correspondence, survey documentation, field notes, and site photographs will be incorporated into the appropriate category of the Technical Support Data Notebook (TSDN). After the TSDN is finalized and ready for delivery DNRC and/or the assigned study contractor will ensure all information is complete before delivering a copy to FEMA.

### **6.2.2 Reporting**

An internal financial accounting and tracking system for map modernization, map maintenance, and other floodplain mapping projects has been set up to manage and monitor federal funds within DNRC's existing department-wide system. DNRC has a great deal of experience with such systems, and has a contract monitoring system in place that it has been successfully using for many years. The mapping coordinator will be continue to be responsible for preparing monthly status updates for each contract and quarterly reports to track study progress. This position will continue to routinely update the MIP and notify FEMA of any delays or issues pertaining to project schedules or costs.

### **6.2.3 Quality Assurance**

FEMA's Floodplain Boundary standards and other program specific mapping guidelines and specifications will be adhered to and kept up-to-date, in order to ensure continued production of high quality DFIRMs and other floodplain mapping projects. Core technical mapping standards will be followed, keeping up-to-date on FEMA's guidelines and specifications, in order to assure the production of high quality FIRMs/DFIRMs.

QA/QC will be carried out in accordance with FEMA standards as well as standards developed by DNRC and the community.

The State anticipates that for DFIRM conversion projects the NSP will continue to provide QA/QC as specified in the effective MAS for each mapping project and that FEMA will continue to fund this QA/QC separately. DNRC will complete an internal QA/QC process for all new engineering and mapping work undertaken in each project and will coordinate with the NSP on this effort.

#### **6.2.4 Study Contract Management**

The DNRC floodplain program will continue to manage the existing DFIRM conversion projects and believes it is well suited to take on additional floodplain mapping projects in 2009. The Map Mod coordinator has successfully resolved mapping issues related to its ongoing projects via the enforcement of contracts. In 2008 the Map Mod coordinator successfully secured \$17,000 in services from Allied Engineering Services, Inc. through contract enforcement. In addition, the Map Mod coordinator has worked with DNRC management and officials to enforce older floodplain study contract terms to secure the delivery of outstanding work products for dry and unnamed creek in Yellowstone County. The Map Mod coordinator will continue to resolve issues with study contractors independent of FEMA as appropriate. All requests for additional funds or schedule adjustments will also continue to be reviewed and facilitated by the Map Mod coordinator prior to being submitted to FEMA. The Map Mod coordinator has successfully resolved project schedule, budget, and technical mapping issues independent of FEMA involvement when appropriate and will continue to do so in order to alleviate demands on FEMA staff time and resources.

#### **6.3 Community Outreach**

The DNRC floodplain program is committed to providing outreach efforts of the highest quality to Montana communities. Floodplain program staff will continue to work diligently to ensure the quality and quantity of outreach activities for DFIRM conversion and other floodplain mapping activities. Outreach activities for the Map Mod program and the CAP program have been integrated and this collaboration will continue for future floodplain mapping or map maintenance activities. The existing DNRC floodplain outreach program is discussed in section 5.2 of this document. The current outreach plan calls for a continuation of existing efforts and an expansion of efforts as allowed by staff and budget resources.

The outreach program for continuous and future floodplain mapping and/or map maintenance projects includes meetings with the communities at project scoping, kickstart, preliminary draft release, and adoption stages; as well as regular check-ins regarding project schedules, changes, or controversial issues. In general there will be an increase in the amount of communication in order to keep communities informed and aware of project status and to build awareness, understanding, and support among community officials, staff, and members of the public. It is anticipated that these

increased efforts will result in a decrease in the amount of Federal resources that will need to be devoted to community outreach efforts during the preliminary map and map adoption periods.

The State of Montana has experienced great success in conducting outreach efforts in collaboration with FEMA and local communities for DFIRM conversion projects. Recent efforts include two open houses four community meetings and one day of workshops in Miles City, Custer County Montana. The state coordinated with the community to attend community official meetings and an open house in October 2008. The state then collaborated with FEMA for a three day outreach event that included a city council meeting, a day of workshops for local professionals and interested members of the public, a public open house, and a city council public hearing. These events were very well received and the education level for that community's officials, staff, and residents has sky rocketed as a result of these efforts. Similar events were held in Lewis and Clark County in November.

In addition to attending and collaboration on the coordination of outreach events, the state has provided services by issuing press releases, legal notices, and writing informational letters. These outreach activities will be continued by DNRC floodplain staff for new projects. The DNRC floodplain program is highly capable of coordinating and performing outreach activities. In addition, floodplain program staff members are skilled in preparing outreach materials, website content, and informational displays.

The DNRC floodplain program is partnering with the State's Natural Heritage program to incorporate floodplain digital GIS data into that programs website map viewer which acts as the primary source for a majority of the Montana natural resource and community GIS data. This map viewer is extremely user friendly and can easily be accessed by both community officials and members of the public. The Map Mod coordinator is working with the Natural Heritage program on a schedule for posting effective floodplain mapping data in their online map viewer. The Montana Map Mod program website will continue to provide effective and preliminary DFIRM conversion project data on its existing map viewer. The State is working on creating just one viewer for all of its GIS data using the State's library, NRIS system that currently houses that data and has a viewer primarily aimed at professionals rather than general members of the public. The Natural Heritage program's viewer is the pilot project for trying to provide data from multiple agencies in a single source. The DNRC floodplain program is participating in this project.

### **6.3.1 Outreach for Levee Procedures**

The Map Mod coordinator has worked with FEMA and the NSP to address levee issues in communities with ongoing mapping projects that meet the requirements in CFR 65.10 but have not been certified. The Map Mod coordinator and the other floodplain program staff members will continue to work on existing and future projects where this is an issue by assisting with education efforts to inform the communities of their options and to resolve issues regarding PAL agreements. Over the past three years the DNRC floodplain program has collaborated with FEMA and the RMC to provide levee

certification outreach activities to Montana communities. In the last year multiple trips and conference calls have taken place to educate appropriate representatives for Cascade County, the City of Great Falls, the Great Falls Levee District, and the Vaughn Levee district regarding Federal levee certification requirements, the Provisionally Accredited Levee agreement, and the mapping implications for areas currently shown as being protected by levees, under the DFIRM conversion project for Cascade County.

The DNRC floodplain program will continue to work with Montana communities to address and resolve levee issues including assisting in their efforts to find avenues for the certification of their levees. The priority new mapping project or map maintenance project communities that have levee issues have been clearly identified by DNRC and this information has been conveyed to FEMA.

### **6.3.2 Training Efforts for State and Local Officials**

The DNRC floodplain program will continue to provide training to state and local officials regarding federal, state, and local floodplain mapping programs, regulations, the NFIP, and additional related topics. The floodplain program collaborates with the Association of Montana Floodplain Managers to provide a yearly conference and workshop for floodplain administrators, local officials, interested members of the community and state agency staff. This collaboration is set to continue in future years. The CAP program and the Map Mod program have coordinated their training efforts to cover issues or topics relevant to both programs when meeting with local and state officials. Regular meetings will continue to be held with state and local officials to keep them up to date regarding project activities and to provide relevant training opportunities. In the past, trainings have focused on PAL agreements, the NFIP program, the DFIRM conversion process, and state, federal and local floodplain regulations. Trainings on these topics are scheduled for 2009. In addition trainings for

The DNRC floodplain program is also working on training specific to professional groups that do work related to flood hazard mitigation, flood studies, and mapping. The current outreach plan calls for offering multiple trainings aimed at professional groups, including but not limited to: insurance professionals, realtors, surveyors, sanitarians, floodplain administrators, planners, and developers.

### **6.4 Compliance and Map Adoption**

The State of Montana successfully aligned its adoption processes to correspond with federal adoption procedures. A flowchart that illustrates both processes in a side-by-side comparison manner can be viewed in Appendix B of this document. The state is currently completing the adoption process for the Flathead County DFIRM conversion process. The state has begun its adoption process for Lewis and Clark County, Missoula County, and Custer County. The state has provided detailed information to FEMA regarding its adoption process and has successfully coordinated with FEMA to undertake both the federal and state adoption processes simultaneously. The DNRC floodplain group

anticipates adopting the rest of the Montana DFIRM conversion projects in coordination with FEMA and is well suited to adopt other floodplain mapping studies in the future.

### **6.5 Assessment of Community Mapping Needs**

The DNRC floodplain engineer will continue to work with the Map Mod Coordinator and NFIP coordinator to compile additional information and update existing information regarding the mapping needs of Montana's communities. This will be done through meetings and conference calls with communities as well as through surveys and/or questionnaires. As new mapping need information is obtained the DNRC floodplain program staff will continue to evaluate and prioritize the information received and provide FEMA with updated mapping needs information. This information will also be available upon request in whatever format FEMA needs. Details regarding the DNRC floodplain program's past activities to assess community mapping needs for Montana's communities can be found in section 4.0 of this document.

### **6.6 Maintenance of Digital Base Map Inventory and Information Technology Systems**

The State of Montana will continue to maintain its current inventory of digital base map data. The State's library has an online database called NRIS that houses the State's digital base map information as well as effective DFIRM data and information. This database is easily search using simple query tools to download and/or view the digital information and associated metadata. The DNRC floodplain program will continue to work with communities, non-profits, federal agencies and other departments within the state to obtain and inventory new base map information as it becomes available. Preliminary DFIRM data is housed in both the DNRC floodplain program database and the consultant's database. This data is made available via hard copy and electronic format and is available for download from via the internet at [www.montanadfirms.com](http://www.montanadfirms.com).

The information from this database or other sources can easily be distributed in hard copy format, via CD's, or sent over the internet using file transfer sites and email. This information is also available online via the internet website: <http://nriss.mt.gov/>. Members of the public, community officials, and other interested parties can easily access this data. This data is backed up and maintained on a regular basis in compliance with state policies regarding electronic data maintenance and storage.

### **6.7 DFIRM Maintenance Management**

The State of Montana DNRC floodplain department has the tools and staff to maintain effective DFIRMs and incorporate new data as it is received. Staff has GIS and other relevant expertise including thorough knowledge of FEMA's floodplain boundary standards and other relevant mapping guidelines and standards. When updates are made to the digital base map inventory those updates will also be analyzed for DFIRM maintenance purposes. Updates to effective DFIRMs will be coordinated with FEMA. The DNRC floodplain program sees the potential to streamline the map maintenance

process for incorporating LOMR and LOMC changes into effective DFIRMs through the LOMR review pilot project.

## **6.8 Utilization of the Mapping Information Portal (MIP) and the Earned Value (EV) Variance Action Plan**

The Map Mod Coordinator currently utilizes the MIP for tracking the cost, schedule, and progress of all existing DFIRM conversion projects for the State of Montana. The Cost Performance Index (CPI) and the Schedule Performance Index (SPI) values are used by the Map Mod Coordinator to monitor project status and to determine where issues may arise with the project budget and/or schedule. Each month the Map Mod Coordinator updates the MIP with most recent schedule and budget information.

The Map Mod Coordinator will adhere to the CPI and SPI requirements by being no more than 10% under or over the baseline values. Due to the Map Mod Coordinators familiarity with the MIP and experience tracking projects using these tools the DNRC floodplain program is capable of adhering to these requirements. All quarterly reports will be amended in the future to include the CPI and SPI information for individual tasks and for the entire project. Detailed information will be provided regarding any variance from the value 1 for either the CPI or the SPI. The Map Mod Coordinator has successfully submitted extremely detailed quarterly reports and is highly capable of providing this additional information.

If at any time a project or specific task is anticipated to vary in SPI or CPI value more than the 10% tolerance, the Map Mod Coordinator will notify FEMA in advance of the variance if possible. If the variance is unexpected the Map Mod Coordinator will work with the FEMA region VIII map mod contact person for Montana to draft a Corrective Action Plan (CAP) in a clear and concise manner for the region to submit to FEMA headquarters. The CAP will include the details regarding the reasons for the variance, the solution to the variance, and the ways in which similar situations will be avoided in the future. This way if a CAP is necessary for particular situation the need for a CAP in a future situation that is similar can be avoided.

### **6.8.1 Potential Issues Relating to Meeting Maintaining Earned Value Requirements**

The main issue of concern for the Map Modernization coordinator is that due to the use of contractors to perform floodplain mapping technical activities and the fact that contractors typically invoice after the work is completed that there is a need to address the delay between work performed and work invoiced in order to more accurately report the costs in line with the percent completed information for individual tasks. It is currently typical for the percent complete information to be constantly accurate but for the cost information to be slightly delayed since some contractors invoice for their work up to two months after it is performed.

To address this issue the State will work to adjust contract language for future contracts to require invoices to be issued with no more than a two-week delay between the time the

work was performed and the time the invoice is received. To address this issue on existing contracts the State will work with its current contractors to find a manner for them to informally provide cost information closer to the time the work was completed to help avoid EV variances.