

3.0 DISTRIBUTION OF FUNDS TO THE REGIONS

The President's Map Modernization budget totals \$1.475 billion for the 6-year period beginning in FY03 and ending in FY08. This budget is based on actual funding for FY03 and FY04, and projected funding for FY05-FY08 (the budget for FY04-FY08 was documented in the *Budget of the United States Government Fiscal Year 2004*.)

FEMA has further developed this budget to determine the portion of the budget to be set aside specifically for map production. This plan defines how FEMA will accomplish the key performance indicators described in subsection 1.5, Map Modernization Performance, within the map production portion of the current budget. This section describes FEMA's budget for Map Modernization and plan for distribution of Map Modernization funds to its Regional Offices. This section also defines the process by which risk was assigned to each mapping project and how the distribution of funds may be modified in the future.

The discussions of funding that follow refer to funding from FEMA for specific flood hazard studies and associated map production for one or more counties. While studies and counties are described as funded, the money does not get distributed directly to the county. The maps are developed by CTPs, FEMA's contractors, and other Federal agencies. FEMA also expects to leverage funds, services, and other resources from some of these mapping partners. These anticipated additional resources are not counted in the funding amounts described in this section and are not reflected in the estimated mapping budgets listed in appendix A. Additional resources may increase the value of the mapping product.

The Map Modernization budget must fund data maintenance and technical and program support in addition to map production and distribution.

3.1 Map Modernization Budget

3.1.1 Map Modernization Cost and Spending Categories

Map Modernization is a complex program that requires work and resources from many different partners, beyond the engineering required for making the flood maps. It includes such activities as hazard data maintenance, ongoing technical support, system and tools development, customer care and outreach efforts, and program support. The Map Modernization budget must fund all of these in addition to map production and distribution.

The work required to accomplish Map Modernization falls into four major categories. These categories represent Map Modernization's work breakdown structure (WBS) that constitutes the basis for budget, schedule, and performance baselines.

1. **Engineering & Mapping:** Activities within this category include efforts, mostly related to flood hazard studies and map production, that are required to develop hazard identification and risk assessment products. These include efforts to assess the risk, establish flood heights

and the extent of the floodplain. The documentation of associated engineering and scientific methodologies, analyses, guidelines, and specifications also apply. Maintenance efforts include small-scale and/or site-specific refinements of hazard data such as Letters of Map Change (LOMCs) as well as LOMC delegation activities.

2. **Customer Care & Outreach:** These activities focus on enhancing existing partnerships and creating new partnerships, increasing stakeholders’ awareness of and usage of risk data, providing mentoring and assistance to increase partner capabilities to mitigate risk and customer service.
3. **Technical Support & Tools:** This category includes the design, development, testing, maintenance, and enhancements of specialized IT systems and infrastructure systems.
4. **Program Management & Support:** This category includes efforts required for program planning, oversight, and overall implementation.

Most of the activities (and spending) related to Map Modernization fall within engineering and mapping. Within this category, most of the activities center around flood map studies and production and maintenance. The other three categories’ activities are crucial to the development and maintenance of hazard data. Flood hazard data, in the form of DFIRMs, cannot be adopted effectively and efficiently (and therefore used) by communities without outreach (category 2). Data cannot be made readily available without systems and tools (category 3). And finally, any program will falter without effective program management (category 4). Table 3-1 presents a summary of the budget breakdown for the Map Modernization categories.

Table 3-1. Summary Spending Table - Map Modernization (in millions)

No.	Description	FY03 - 04	FY05	FY06	FY07	FY08	Total
1	Engineering & Mapping	\$364	\$188	\$194	\$200	\$206	\$1,152
2	Customer Care and Outreach	\$16	\$20	\$20	\$20	\$20	\$96
3	Technical Support – Systems and Tools	\$42	\$20	\$15	\$13	\$10	\$100
4	Program Management Support	\$27	\$25	\$25	\$25	\$25	\$127
	Total	\$449	\$253	\$254	\$258	\$261	\$1,475
	Cumulative	\$449	\$702	\$956	\$1,214	\$1,475	

Source: FEMA Multi-Hazard Flood Map Modernization Program Acquisition Plan and Acquisition Program Baseline, May 2004

Before FY03, funding for all activities came only from NFIP policy and user fees (approximately \$50 million annually). To implement Map Modernization, Congress appropriated substantially more funds. These funds, in addition to the policy fee-related funds, need to be allocated to all four cost categories, not to map production alone.

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3.1.2 Mapping Project Funding

The largest spending category under Map Modernization is category 1, Engineering and Mapping. Most of the tasks under this category are flood hazard studies performed in the Regions, but the category also includes other related efforts such as developing guidelines and standards for engineering and GIS data, and engineering planning efforts. Of the proposed appropriations for FY04-FY08, \$800 million has been made available in this plan for map production (\$732 million for regional allocation and \$68 million as a contingency reserve of 10 percent for each fiscal year FY05-FY08). This MHIP focuses primarily on the sequencing and scope of work for map production with the \$732 million defined above.

Table 3-2 summarizes the current budget for map production, based on actual and anticipated appropriations. The current budget is used for planning the mapping projects for FY04-FY08, the period for which this MHIP schedules and reports map production.

Table 3-2. Anticipated Program Funding (FY04-FY08)

Fiscal Year	Total Funding ¹	Map Production Budget ²	Regional Allocation	Total Divided by Map Production
FY04	\$250,000,000	\$120,000,000	\$120,000,000	2.08
FY05	\$253,000,000	\$160,000,000	\$144,000,000 ³	1.58
FY06	\$254,000,000	\$170,000,000	\$153,000,000 ³	1.49
FY07	\$258,000,000	\$175,000,000	\$157,500,000 ³	1.47
FY08	\$ 261,000,000	\$175,000,000	\$157,500,000 ³	1.49
Total FY04-FY08	\$1,276,000,000	\$800,000,000	\$732,000,000	1.60

Notes: 1 – Reflects FY04 plus \$50,000,000 from NFIP fees.

2 – Reflects only map production budget, part of category 1 spending.

3 – Reflects 10 percent contingency reserve being withheld from Map Production Budget by the National Office.

The last column in table 3-2 indicates the ratio of total Map Modernization costs to map production costs. The value of 2.08 in FY04 results from initial investments in planning map modernization, including this MHIP, developing data acquisition and archiving standards (the non-map-production portion of category 1); and IT tools and systems development to support Map Modernization (category 4). After those initial investments, the ratio of total Map Modernization costs to map production costs is approximately 3:2. That is, every two dollars allocated to map production must be matched with an additional dollar for supporting activities.

Data is not yet available to determine how much of each supporting dollar is directly proportional to the two dollars of map production; how much of it is required per county studied; and how much of it is required to administer the NFIP in general. FEMA expects that the ratio will decrease or increase with (but not proportional to) an increase or decrease, respectively, in map production funding.

Because the primary focus of MHIP is to plan map production, unless otherwise stated, budgets and expenditures reported herein are for map production only. Caution should be exercised when

extrapolating map production costs from this plan to program-wide costs. As shown in table 3-2, future program-wide budget estimates are approximately 1.5 times the map production budget estimates presented in this plan.

In addition to the budgets presented herein, FEMA anticipates leveraging cost-sharing opportunities through contributions of dollars, data, and/or services from local and state mapping partners (particularly CTPs) and other Federal agencies. FEMA expects those contributions from other sources to equal 20 percent of the total funding allocated by FEMA to map production each year. FEMA’s contingency reserve is currently able to cover the additional support activities, therefore, all of the 20 percent from the partners is expected to go toward map production. As mentioned, FEMA expects that the additional supporting costs will be less than one-half of those leveraged, leaving some of the reserve.

3.1 Approach to Distributing Funds

FEMA distributes funds to the Regions based on a national perspective of their flood hazard risk. Along with the funding, FEMA articulates goals for mapping the Nation that the Regions are directed to collectively meet or exceed. Although the MHIP contains cost and schedule information for map production at the county level, FEMA Regions and their mapping partners are encouraged to combine resources where this makes sense to achieve economies of scale. As an example, figure 3-1 shows nine counties in a single watershed (highlighted area) where a combined effort to map flood hazards would be beneficial.

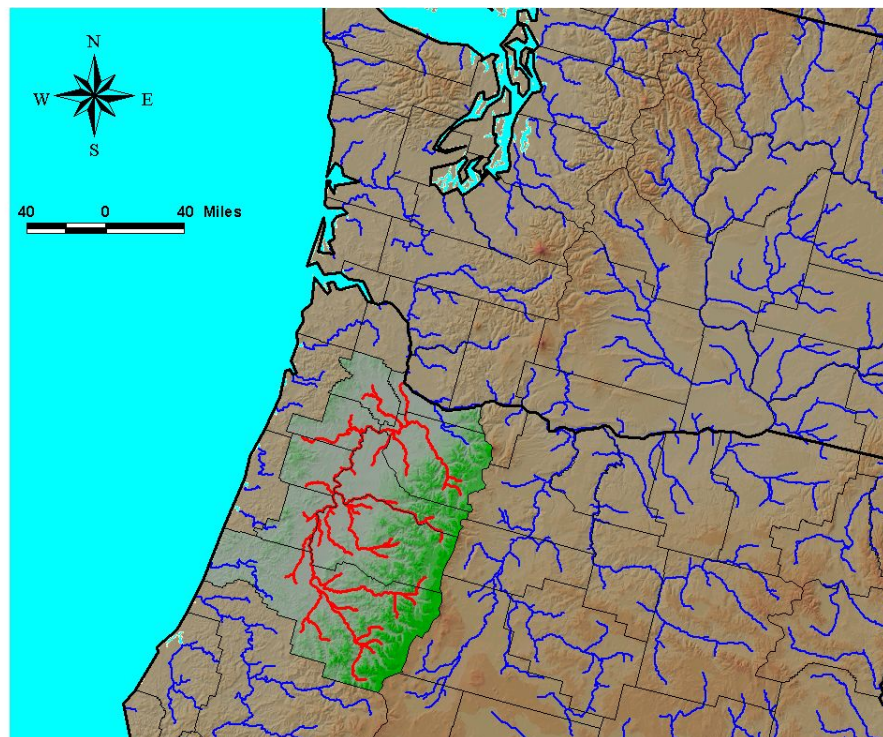


Figure 3-1. Opportunity to Combine Resources

Distribution of Funds to the Regions

In an instance such as this, the Region would meet with all affected communities to develop a detailed plan for mapping the watershed over the next several years. Combining resources this way allows for flexibility in “county” budgets and schedules so that FEMA can optimize leveraging of Federal funds, capture economies of scale, and produce products to assist in mitigating flood losses earlier in areas otherwise not scheduled for “completed” studies until later in the sequencing.

3.1.1 Distribution of FY03 Funds to the Regions

FEMA conducted a meeting in Atlanta in January 2003 to bring nationwide consistency to distributing funds for flood mapping projects at the community level. At this meeting, local, state, and Federal stakeholders from across the United States outlined criteria FEMA should consider when targeting areas for updated flood maps. These criteria included:

- High population density
- High-growth areas
- High-risk areas with a history of recurring loss/claims/disasters
- NFIP policy base: local commitment to floodplain management as evidenced, for example, by the community rating system
- Cost-sharing opportunities with local, state, and regional entities
- Leveraged work from other Federal agencies
- Accuracy and adequacy of products
- Comprehensive watershed approach
- Contingencies, disasters, and/or emergencies

To prepare for making decisions regarding the distribution of Map Modernization funding in FY03, FEMA reviewed the status of ongoing mapping and any existing plans for future mapping projects. In particular, FEMA reviewed:

- Status of mapping projects, including proposed delivery dates, study formats, communities involved, and adequacy of current funding to see each project through to a modernized map
- Flood map plans developed in September 2002 by FEMA’s Regional Offices in coordination with the States, including recommendations for funding specific studies at the county level, the potential cost of such studies, and the proposed delivery date of final map products
- Flood map plans developed in March 2003 by FEMA’s Regional Offices, identifying mapping projects that could be completed in a relatively short time frame

Focusing on quantifiable data available at a national level that reflects as much of the identified criteria as possible, FEMA developed an approach to distributing funding to the Regions. Using U.S. Census, NFIP, and disaster response data (specifically, population, population growth, housing units, policies, claims, repetitive loss properties and claims, and flood disasters), FEMA defined a risk value for each county in the country. The risk value is determined by calculating the

percentage each county contributes to the national total of each of the eight categories, then dividing the sum of those contributions by eight.

Miami-Dade County, Florida makes up 0.79 percent of the Nation’s population; 1.05 percent of the population growth; 0.73 percent of all housing units nationwide; and 7.86 percent of the flood insurance policy base. Miami-Dade County accounts for 3.51 percent of the flood insurance claims filed. A portion of those claims makes up 1.94 percent of the repetitive loss claims nationally and comes from 2.53 percent of the repetitive loss properties nationally. Roughly 0.08 percent of the declared flood disasters nationwide affect Miami-Dade County. Adding these percentages and dividing by the number of factors results in a risk factor of 2.3112 for Miami-Dade County. The same computation was performed nationwide. Figure 3-2 shows this risk calculation for Miami-Dade County.

Factor	Value
% Population:	0.79
% Population Growth:	1.05
% Housing Units:	0.73
% Flood Insurance Policies:	7.86
% Flood Insurance Claims:	3.51
% Repetitive loss claims:	1.94
% Repetitive loss properties annually:	2.53
% Declared flood disasters:	0.08
Sum =	18.49
Risk Factor (Sum of Factors / Total # of Factors):	18.49 / 8 = 2.3112

Figure 3-2. Sample Calculation for Risk Score: Miami-Dade County

FEMA placed each county into one of 10 groups (deciles) based on risk value. The first group (decile 1) consisted of counties whose risk values were among the Nation’s top 10 percent. The second group (decile 2) consisted of counties with risk values within the second top 10 percent. The last group was made up of counties whose risk values were among the lowest 10 percent of all risk values (decile 10). Appendix D presents the factors, risk value, and decile for each county.

The information gathered in these reviews determined the funding allocated. Compelling reasons for funding were provided for several mapping projects identified in the status review and regional plans; therefore, FEMA funded those projects through delivery of final modernized maps. FEMA also funded several of the projects identified in the March 2003 regional plans.

FEMA provided funding through to delivery of a final map for mapping projects in need of further funding that were within a map processing stage—either preliminary or final—if the county in question had a risk value that placed it in the top decile group. FEMA also allocated funding to five projects within the data acquisition and engineering stage being performed by other Federal agencies. The counties associated with those projects were in the top decile group.

Distribution of Funds to the Regions

The remaining funds, approximately \$30 million, were distributed to Regions based on the sum of the county risk values within each Region. The Regions allocated funding to individual mapping projects by choosing counties from the top two decile groups. The number of projects funded depended on each Region's risk values and the budgets for the individual projects.

3.1.2 Distribution of FY04 Funds to Regions

FY04 funding was distributed to the Regions using the risk value approach with some improvements. Area was added as a factor for defining risk. The size of a county indicates, in some way, the number and/or length of flooding sources in the county. Although the higher flood risk areas within the larger counties may be as densely concentrated as within the smaller counties (that is, near cities and towns), the larger counties tend to have more areas with low risk. Here, risk means a potential for loss of life and/or property. So as to not give too much weight to areas of low risk, the percent of area of a county was weighted 20 percent of the other factors.

Recognizing that there is a minimum cost associated with modernizing a flood map, FEMA recomputed the risk values. Specifically, FEMA estimated a rough cost for each county by multiplying the risk value by \$900 million and adding \$60,000. FEMA reset rough costs that exceeded \$5 million to \$5 million. The rough costs were totaled. Each county's rough cost, which is included in Appendix D, was divided by the sum of the rough costs, thereby defining a cost-adjusted risk value. Appendix D presents the FY03 risk values, rough costs, and adjusted risk values for each county (these risk values are not equivalent to the funds budgeted per county in appendix A, because the costs associated with sequencing within the Regions were computed differently than funds were distributed to the Regions).

The population growth factor used in the approach is the difference (if positive) in population reported by the U.S. Census in 2000 and 1980 for each county. FEMA improved the approach for FY04 distributions by adjusting regional risk factors using a projected growth factor. Projected growth figures are available for each state from 2000 to 2015. Aggregating those figures to the regional level allows FEMA to consider projected growth in deciding the distribution of funding to the Regional Offices.

The percentage of projected growth attributed to each county was weighted 10 percent of the cost-adjusted risk value. The FY04 funding distributions were determined by adding the weighted growth percentage and cost-adjusted risk value and then normalizing (that is, dividing by 1.1) that sum, as table 3-3 shows.

3.1.3 Distribution of FY05–FY08 Funds to Regions

Future year planning in this MHIP is based on approximate increases in funding from FY04 to FY05 of 20 percent, from FY05 to FY06 of 6 percent, and from FY06 to FY07 of 3 percent. The planned funding in FY08 is the same as in FY07. Tentative planning for FY05 through FY08 (see Section 7, FY05-FY10 Production Forecast) is based on the same distribution of funding as FY04.

Table 3-3. FY04 Funding Distribution

Region	Cost-Adjusted Risk Value	Projected Growth (2000 to 2015)	Final FY04 Funding Distribution
1	3.8%	2.7%	3.7%
2	8.2%	4.3%	7.9%
3	8.7%	5.4%	8.4%
4	25.2%	22.1%	24.9%
5	12.4%	6.9%	11.9%
6	17.6%	16.1%	17.5%
7	7.5%	2.7%	7.0%
8	4.7%	4.1%	4.7%
9	8.2%	29.5%	10.1%
10	3.7%	6.2%	3.9%

Table 3-4 shows the distributions to each Region that FEMA initially planned for FY04 through FY08.

Table 3-4. Planned Map Production Funding Distribution by Region, FY04-FY08

Region	Distribution to Region	FY04 Funding	FY05 Funding	FY06 Funding	FY07 Funding	FY08 Funding
1	3.7%	\$4,440,000	\$5,328,000	\$5,661,000	\$5,827,500	\$5,827,500
2	7.9%	\$9,480,000	\$11,376,000	\$12,087,000	\$12,442,500	\$12,442,500
3	8.4%	\$10,080,000	\$12,096,000	\$12,852,000	\$13,230,000	\$13,230,000
4	24.9%	\$29,880,000	\$35,856,000	\$38,097,000	\$39,217,500	\$39,217,500
5	11.9%	\$14,280,000	\$17,136,000	\$18,207,000	\$18,742,500	\$18,742,500
6	17.5%	\$21,000,000	\$25,200,000	\$26,775,000	\$27,562,500	\$27,562,500
7	7.0%	\$8,400,000	\$10,080,000	\$10,710,000	\$11,025,000	\$11,025,000
8	4.7%	\$5,640,000	\$6,768,000	\$7,191,000	\$7,402,500	\$7,402,500
9	10.1%	\$12,120,000	\$14,544,000	\$15,453,000	\$15,907,500	\$15,907,500
10	3.9%	\$4,680,000	\$5,616,000	\$5,967,000	\$6,142,500	\$6,142,500
Total	100%	\$120,000,000	\$144,000,000	\$153,000,000	\$157,500,000	\$157,500,000

3.1.4 Future Updates and Changes to Distribution to Regions

FEMA anticipates further improvements to the MHIP as it evolves through incorporation of stakeholder input and analysis of planning-related data. Efforts are underway to include other criteria identified in the Atlanta meeting. In particular, information on leveraging work and cost sharing, by way of funding or services, is being gathered at FEMA's Regional Offices. FEMA is investigating ways to identify and incorporate mapping needs other than risk into the funding distribution approach. For example, several stakeholders have identified length of stream as a factor that should be incorporated. Therefore, national databases of stream reaches in the United States as well as surrogates for stream reaches (area coupled with drainage density models, for example) are being investigated.

Distribution of Funds to the Regions

Further improvements may warrant different distributions of funding to the Regions. As resources are committed to modernizing maps in selected counties according to the regional allocation scheme, the national distribution of risks and mapping needs may change. As the higher-risk counties in a Region are studied, the total unstudied risk within that Region—and the Nation—will decrease. The allocation of resources among the Regions will reflect any disproportionate decrease in risk. That is, resources will be allocated based on the remaining unstudied risk and mapping needs nationwide.

