

APPENDIX C

STATE PLAN

PRIORITIZATION SUMMARIES

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INTRODUCTION

The business plan summaries included in this appendix are not comprehensive; rather, they focus on the plan components that relate to evaluation of mapping needs. A total of 55 state business plans updated in FY04 provided critical input to the sequencing of flood hazard update projects. FEMA extensively reviewed the business plans to identify and summarize factors critical to selecting flood hazard update projects. FEMA collected information regarding these factors, how they were applied in developing priority lists, and concerns identified relating to specific factors or the prioritization process at the state, regional, or national level. This appendix includes summaries of business plans submitted at the time of this MHIP from 48 states, four of the five water management districts that make up the state of Florida, the District of Columbia, Puerto Rico, and the Virgin Islands. No summaries appear for Pennsylvania, the St. John’s River (Florida) Water Management District, Guam, American Samoa, and the Northern Mariana Islands.

The process of creating a priority list of mapping projects generally begins by selecting factors with varied degrees of importance. Primary factors are applied in evaluating communities or counties and are used to create a list of individual counties in order of, or a collection of counties categorized by, mapping priority. This categorization is used to support the proposed sequencing of project starts. A second or third round of evaluation using a secondary set of factors may result in the shuffling of the original priority list, categorization, or sequence.

The following summaries refer to factors applied in the first round of evaluation as “primary,” in the second round as “secondary,” and in the third round as “tertiary.” In some cases, plans did not explain how these factors were applied; in such cases, the application of the factor is referred to as “unspecified.” In addition, factors are not necessarily listed in the order of importance.

1.0 REGION 1

1.1 Connecticut

State of Connecticut Fiscal Year 2004 Map Modernization Business Plan, State of Connecticut Department of Environmental Protection, Inland Water Resources Division, Bureau of Water Management, July 2004.

Factors Identified	Application of the Factor
2002 priority list	Primary
Population in 1998	Primary
County land area	Unspecified
Population density in 1998	Primary
Policies in effect in 2004	Secondary
Completion of ongoing studies	Secondary

In its 2004 Map Modernization Business Plan, the Connecticut Department of Environmental Protection (CTDEP) outlines an approach for participating in FEMA’s national program through its existing Floodplain Management Program (FMP). CTDEP plans to integrate Map Modernization activities with those of the FMP, such as coastal erosion mapping, storm water quality management, and comprehensive land use planning.

CTDEP conducted a mapping needs assessment and data inventory of municipalities in 2002. The results of the survey were used to populate MNUSS and to evaluate county mapping needs according to the characteristics of communities within each.

The 2002 priority list was revised in the 2004 business plan to ensure consistency with FEMA’s current performance metrics. Factors used to adjust the 2002 list include population, land area, 1998 population density, and numbers of policies in effect as of February 2004. Studies in progress also were considered in the development of the 2004 revised priority list. The state’s proposed sequencing of projects corresponds to the priority list, with two counties scheduled for funding during each fiscal year.

1.2 Maine

State of Maine Fiscal Year 2004 Map Modernization Business Plan, Maine State Planning Office, July 29, 2004.

Factors Identified	Application of the Factor
Number of communities	Primary
Percent population growth	Primary
2000 population	Primary
Map age	Primary
Number of NFIP policies	Primary
NFIP policy coverage amount	Primary
Number of claims	Primary
Total paid in claims	Primary
Number of properties lost	Primary
Repetitive losses paid out	Primary
Completion of ongoing studies	Secondary

In 2002, Maine completed an initial mapping needs assessment and inventory of available digital base and topographic data. The evaluation of the information collected focused on those areas with the largest populations, the oldest maps, and the highest risk. Information was evaluated for each basin in the state and was translated into a county priority list. Maine adjusted this list to align it with FEMA’s current performance measures. The highest-priority areas were those with high-growth, high-population densities, higher NFIP policy bases, and ability to leverage resources.

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Information for the factors listed above was collected for each county. Counties were ordered according to each individual factor, with the lowest number denoting the highest score; as such, once each county's scores were totaled, the county with the lowest total sum was determined to have the highest mapping priority. All factors were given equal weight in the evaluation. The proposed sequencing list of projects by fiscal year corresponds to the preliminary list generated in the evaluation of county characteristics in the first and last years of the program. For FY05-FY08, it appears that factors other than those listed above were considered in the proposed sequencing of projects.

The State indicates that several restudy projects will be incorporated into countywide studies slated to start in the first 2 or 3 years of Map Modernization. For restudies in counties scheduled for project starts later in the Map Modernization cycle, it may be possible to complete the technical review and DFIRM production prior to initiating a countywide study.

1.3 Massachusetts

Commonwealth of Massachusetts Map Modernization Business Plan, Department of Conservation and Recreation, Flood Hazard Management Program, July 2004.

Factors Identified	Application of the Factor
Needs report generated by MNUSS	Unspecified
Serious mapping problems identified in Community Assistance Visit	Unspecified
High number of LOMCs as a percentage of policies	Unspecified
Projected population growth	Unspecified
Age of current maps	Unspecified
Mapping needs identified by community or state agencies	Unspecified
Availability of methods/data for coastal studies	Secondary

Massachusetts provided information to the 2002 Map Modernization Plan prepared by FEMA Region 1. The resulting evaluation determined that approximately two of every nine flood map panels required restudy and the remaining panels required digital conversion. Panels were deemed to require restudy if the community had a high number of mapping needs recorded in MNUSS, mapping problems identified in Community Assistance Visits, high numbers of LOMCs as a percentage of policies, projected population growth, old maps, or other mapping needs identified by community or state agencies. FEMA's plan anticipated a modest increase in the panel count for the mapped communities because of increases in map scale.

The Massachusetts 2004 business plan presents a revised panel-based evaluation of the state's mapping needs. The considerations used in 2002 again were applied to determine which panels would require restudy or digital conversion.

Panel count estimates for digital conversions and restudies were revised based on a statewide repaneling scheme. A projection factor for each county was used in conjunction with the results of

the mapping need evaluation to determine the total number of panels that would require digital conversion or restudy. The 2004 plan calls for about one out of every two panels to be a restudy, a much higher proportion than that proposed in the 2002 plan. Because of the increase in panel counts, the total number of panels included in the 2004 estimate is 48 percent greater than it was in the 2002 plan.

The 2004 plan includes proposed fiscal year starts; the order of proposed project starts is in general agreement. The plan indicates that projects in high-priority areas were postponed in 2003, as the coastal study methodology assessment being conducted by FEMA was not complete.

1.4 New Hampshire

State of New Hampshire Flood Map Modernization Business Plan, July 30, 2004.

Factors Identified	Application of the Factor
Number of NFIP policies	Primary
Average map age	Primary
Number of panels	Primary
1998 Population	Primary
Percent population growth	Primary
County land area	Primary
1998 population per square mile	Primary
Development pressure	Secondary
Economy of scale (neighboring county)	Secondary
Completion of LMMP projects	Secondary
Studies completed by other agencies	Secondary
Completion of the Connecticut River restudy	Secondary
Availability of funding	Secondary
Completion of ongoing studies	Secondary

Countywide studies have begun for four of New Hampshire's 10 counties. Counties that have already received funding for countywide projects were selected based on the primary and secondary factors listed above. It is not clear from the text of the state plan how the factors were applied in the evaluation of counties.

The county evaluation provided the basis for the sequencing of proposed project starts by fiscal year. Fiscal years are listed for proposed funding of the six counties that do not already have projects underway. The overall order is consistent with the state's business plan. To accommodate the New Hampshire ordinance adoption process, there will be a one-year gap between the time preliminary maps are delivered to the communities and the date the maps are adopted by those communities.

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1.5 Rhode Island

State of Rhode Island Fiscal Year 2004 Map Modernization Business Plan, Rhode Island Emergency Management Agency, July 30, 2004.

Factors Identified	Application of the Factor
Age of existing FIRMs	Primary
Status of existing maps (digital, manual)	Primary
Format of existing maps	Primary
Existing flood hazard data	Primary
Number of Letters of Map Change (LOMCs)	Primary
Population	Primary
Percent population growth	Primary
Flood insurance claims	Primary
Repetitive losses	Primary
Completed and ongoing studies	Secondary

In 2002, Rhode Island surveyed its municipalities to assess mapping needs and to inventory available base mapping, topographic data, and engineering data. The data was evaluated and translated into a county sequencing list. Minor adjustments were made to the 2002 priority list in order to align it with FEMA's current performance measures. The preliminary sequencing was adjusted to take advantage of scoping work initiated in Providence County. A proposed schedule of project starts by fiscal years is included in the 2004 business plan.

1.6 Vermont

Vermont Multi-Hazard Map Modernization Business Plan, Vermont Agency of Natural Resources, Department of Environmental Conservation, Water Quality Division, July 2004.

Factors Identified	Application of the Factor
Proportion of flood hazard areas that need map upgrades due to problems identified with the existing information	Primary
Age of the existing FIRM	Primary
Population	Primary

The Vermont Department of Environmental Conservation (VT DEC) prepared the 2004 Map Modernization Business Plan with a focus on identifying and documenting mapping priorities and the level of effort required to adequately map and maintain developed or developable flood hazard areas. Vermont is interested in incorporating its Fluvial Erosion Hazard risk assessment methodology into its Map Modernization efforts to create true multi-hazard mapping.

As part of the VT DEC involvement in the implementation of Map Modernization, a priority list of counties and flooding sources was developed for each county. The VT DEC staff's extensive experience and knowledge of existing maps and studies supported the evaluation of mapping needs and priorities at the county level. The qualitative evaluation of county characteristics was based on

the factors listed above. A balance was sought between the need to convert existing FIRMs to a digital format and those FIRMs that require updated hydrologic and hydraulic analyses.

The county-level evaluation performed by VT DEC identified counties with erroneous information in existing FIRMs, counties for which existing data will be digitally converted, counties for which new studies need to be performed, and counties for which special flood hazard area analyses are needed. A detailed description of studies required is provided for stream reaches in each county. VT DEC anticipates that the digital maps to be produced for these counties will include improved base maps, elevation models, and (in some cases) automated engineering analyses.

Proposed fiscal years for project starts are included in the 2004 plan and the order of project starts correspond to the priority list developed. The priority list and proposed mapping activities will be re-evaluated annually to reflect funding available and to leverage and cost-share opportunities with local and/or regional agencies.

2.0 REGION 2

2.1 New Jersey

Fiscal Year 2004 Map Modernization Business Plan, the State of New Jersey, April 30, 2004.

Factors Identified	Application of the Factor
Flooding from Hurricane Floyd	Unspecified
Unmapped streams in communities	Unspecified
Areas with high development pressure	Unspecified

The New Jersey Department of Environmental Protection conducted a stream-based analysis to create a priority list of mapping projects. The analysis was based on the institutional knowledge of local and state groups as well as long-term stream gage records, which were used to determine the need for hydraulic and hydrologic restudy. Restudies are scheduled for streams that experienced flooding from Hurricane Floyd (1999), are located in areas with high-development pressure, and are in communities that have never been mapped or studied. The plan also calls for the update of the Delaware Bay storm surge analysis to address the potential impact of hurricanes and nor'easters on high-exposure counties such as Cape May, Cumberland, Salem, Gloucester, and Camden.

The county mapping priority list provided the basis for the proposed project start years. Generally, counties with the highest priority are scheduled earliest. However, New Jersey proposes that two counties low on the priority list be funded in FY05. This may be attributed to budget considerations, as the two projects will involve only digital conversions.

County data for several factors are listed in an appendix to the state plan, but it is not clear whether these factors were applied in the evaluation of counties. For each county, figures for population, population growth, number of insurance policies, number of claims, number of repetitive losses,

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number of panels, and land area are shown. These are not listed as factors used by the State in the determination of mapping priorities because it is not clear if they are provided for reference or were used in the evaluation of counties.

Through partnership with local, State, and Federal government agencies, New Jersey plans to develop a spatial data infrastructure containing orthophotography, elevation, transportation, hydrography, critical infrastructure, cadastral, land use/land cover, and geodetic control layers. Also, the State is funding the update of regional regression peak flow equations. The State's regulatory standard for flooding, called the New Jersey Special Flood Hazard Area (NJSFHA), predates the Federal maps. The NJSFHA is the area flooded by a 1 percent annual chance storm plus a 25 percent increase in discharge. Though it is not a Federal regulatory standard, the State believes that FEMA will incorporate this information layer into new DFIRM products.

2.2 New York

New York State Flood Mapping Program FY04 Business Plan, New York State Department of Environmental Conservation, May 10, 2004.

Factors Identified	Application of the Factor
Age of existing maps	Primary
Communities not receiving funding from the State or FEMA for mapping projects	Primary
Known mapping needs (as recorded in MNUSS and by the State)	Primary
Listing of Special Flood Hazard Areas in the community status book	Primary
Number of flood insurance policies	Primary
Ongoing map updates, including updates being undertaken by regional agencies or communities in the CTP program	Primary
Participation in the NFIP	Primary
Population density	Primary
Availability of data for coastal studies	Secondary
Completion of mapping projects in adjacent counties	Secondary
Decile, based on the national application of the FY03 funding distribution factors	Secondary
Number of claims	Unspecified
Number of policies	Unspecified
Population growth 1990-2000	Unspecified
Population in 2000	Unspecified
Repetitive loss claims	Unspecified

Information for each community in the state was collected using the primary factors listed above, and an algorithm was developed to aggregate the information to the county level. The details of the algorithm applied are not given in the plan. Three factors had low weights that produced lower scores for those communities not participating in the NFIP, not having SFHAs listed, and already receiving funding for mapping. The figure that resulted from this calculation was used as the basis for ordering projects and sequencing them by fiscal year.

Once an initial sequence list and was created, adjustments were made. Those counties low on New York’s priority list with a decile of 1 (based on the national application of the FY03 funding distribution factors) were reconsidered, and some were moved to earlier fiscal years. One county was moved to a later fiscal year, as its mapping depended on the completion of a project in an adjacent county.

In a table showing the priority for each county, data is provided in the State plan for the factors classified as “unspecified” in the list above. The presence of this data suggests that it was used in determining sequence, but the text does not support this conclusion.

While it does not appear to have affected the priority list or project start schedule, mention was made of the importance of having data available for coastal studies in counties on the Atlantic Ocean and Long Island Sound. It is expected that this data will be available for use in mid-FY05. It also was mentioned that a community’s ability to provide leverage should be considered in determining the level of priority, although the State did not apply this factor.

New York plans to maintain the ability to fund special projects in communities or small watersheds with special needs or unique circumstances that require quick action. If countywide studies are the only focus of attention, needs in local jurisdictions may be overlooked. This is a particularly significant concern for New York because, although its incorporated cities, towns, and villages have land-use authority, its counties do not.

2.3 Puerto Rico

Commonwealth of Puerto Rico Map Modernization Business Plan Fiscal Years 2004-2009, Puerto Rico Planning Board, April 29, 2004 (Revised May 10, 2004).

Factors Identified	Application of the Factor
Known mapping needs	Unspecified
Potential for future development	Unspecified
Methodology used in the existing flood hazard analyses	Unspecified
Existing or potential local mapping partners	Unspecified
Availability of existing base map, topographic data, and/or flood hazard data (including data from other Commonwealth agencies)	Unspecified
Number of Letters of Map Change processed during the last 10 years	Unspecified
Population	Unspecified
Population growth	Unspecified

The most pressing needs in Puerto Rico are analyses and map updates of coastal areas. Puerto Rico also requests that all riverine analyses be restudied in detail to provide information necessary for effective floodplain management.

The Puerto Rico Planning Board (CTP) recently conducted a mapping needs assessment to evaluate riverine restudy needs. Known mapping needs, future development potential, and other community-specific information were compiled and used to assign map upgrade priorities. Several

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additional factors were considered in the process, including methodology used in the existing analysis, existing or potential local mapping partners, availability of existing data, number of LOMCs processed in the last 10 years, population, and population growth. Details regarding the application of the factors listed above are not provided in the business plan.

The preliminary DFIRM for Puerto Rico was issued to the Commonwealth in February 2004 and should be finalized and adopted by 2005. Puerto Rico has forged partnerships with various Federal agencies and has been able to use Light Detection And Ranging (LIDAR) data of the entire coastline, digital bathymetric data, and digital orthophotography quarter quadrangles to produce the preliminary DFIRM. For future updates, Puerto Rico hopes to use island-wide orthophotography that currently is being developed by the U.S. Army Corp of Engineers (USACE), St. Louis District.

2.4 Virgin Islands

Fiscal Year 2004 Map Modernization Business Plan, U.S. Virgin Islands, April 30, 2004.

Factors Identified	Application of the Factor
Availability of existing base map, topographic, and/or flood hazard data	Unspecified
Known mapping needs	Unspecified
Map upgrade needs	Unspecified
Number of LOMCs processed over the last 10 years	Unspecified
Population	Unspecified
Population growth (before 2000)	Unspecified
Potential for future development	Unspecified
Quality of the existing flood hazard data (based on a review of the methodology applied)	Unspecified
Review of the post storm flood hazard verification data (assessment of risk)	Unspecified

Given the risk to property and life, the Virgin Islands rated coastal studies higher than those of streams and rivers. A project underway in St. Croix includes a storm surge analysis that, when complete, will be used to update coastal flood hazard studies on the other islands. Riverine studies were evaluated based on the factors above. However, the plan does not include the details of the factors' application in the determination of priorities. Studies listed in the plan are not scheduled according to proposed fiscal year start.

3.0 REGION 3

3.1 Delaware

Map Modernization Plan for Delaware (DRAFT), Department of Natural Resources and Environmental Control, State of Delaware.

Factors Identified	Application of the Factor
"A" zones for which no detailed studies have been performed	Unspecified
Areas of greatest growth	Unspecified

Factors Identified	Application of the Factor
Frequency of flooding events	Unspecified
Repetitive loss structures	Unspecified

The Delaware Department of Natural Resources and Environmental Control (DNREC) Division of Soil and Water is taking the lead role in developing a protocol for flood mapping and data inventory efforts in Delaware. The DNREC anticipates that by leveraging existing IT resources and tools in partnership with FEMA, Delaware can implement quality Map Modernization that provides meaningful services to a broad array of customers, agencies, and organizations.

The DNREC has identified the development of a protocol for evaluating the need for studies and data as one of its top objectives for FY04. At present, no established methodology for prioritizing the study effort has been developed. The Flood Map Modernization Plan for Delaware (draft - no date) indicates that the evaluation could consist of the application of four factors listed above. However, the state plan does not provide any additional detail as to how the factors would be used to create a preliminary priority list. Delaware’s plan notes that no detailed studies have been performed for many areas designated as “A” zones. A major endeavor of the program will be to address these areas. In addition, the state plan does not list projects or studies by funding year.

3.2 District of Columbia

Multi-Hazard Flood Map Modernization Business Plan, Emergency Management Agency, District of Columbia Government, April 12, 2004.

Factors Identified	Application of the Factor
Availability of funding	Unspecified

The Multi-Hazard Flood Map Modernization Business Plan for the District of Columbia (April 2004) made no mention of mapping need evaluation. The only reference to project priority-setting occurred in the Needs and Plan/Strategy, which included the objective of producing digitized, final flood maps approved by the District Government within 36 months from receipt of study requirements. Discussion with FEMA Region 3 indicated that availability of funding would be important in project implementation for the District of Columbia. The District’s plan did not include a list of projects.

The District’s plan also mentioned that FIRMs are dated from 1985 and do not accurately reflect all flood-prone areas, nor do they accurately document the flood control structures and associated infrastructure located in the floodplain.

3.3 Maryland

State of Maryland Cooperating Technical Partner Floodplain Mapping Business Plan 2004-2009, Wetlands and Waterways Program, Maryland Department of the Environment Water Management Administration, March 31, 2004.

Factors Identified	Application of the Factor
Current and future availability of LIDAR data	Unspecified

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Factors Identified	Application of the Factor
FEMA's decile	Unspecified
Number of policies	Unspecified
Population	Unspecified

The Floodplain Mapping Business Plan (2004-2009) for Maryland (dated March 2004) only briefly describes the process for prioritizing counties for Map Modernization. Based on the application of the FY03 funding distribution factors, FEMA has determined that more than half of the counties in Maryland are high priority for Map Modernization (decile 1 or 2). Counties with a large number of insurance policies or a large population receive higher priority in Maryland's mapping program. The state plan does not list projects or studies by funding year, nor does it provide a detailed description of the methodology used to determine its priorities.

3.4 Virginia

The Virginia Statewide Flood Map Modernization Business Plan, Division of Dam Safety and Floodplain Management, Department of Conservation and Recreation, March 31, 2004.

Factors Identified	Application of the Factor
Age of flood maps	Primary
Communities recently remapped/restudied (removed from the priority list)	Primary
Current status of community needs	Primary
High rate of development	Primary
Percent of state population in the community	Primary
Request for flood mapping updates by the community	Primary
Shared Planning District Commissions	Primary
Cluster population	Secondary
FEMA's Virginia decile list	Secondary
Mapping priority (high, medium, low)	Secondary
Percent of state population in the community	Secondary
Shared watersheds	Secondary

The Department of Conservation and Recreation (DCR) is the agency with primary responsibility for the oversight and implementation of all floodplain management programs and activities in Virginia. The Department's ambitious vision for providing NFIP communities with a more comprehensive and timely means for updating their flood hazard maps is constrained by current funding and staffing levels. Depending on the level of Federal funding, DCR plans to add new responsibilities in managing and coordinating Map Modernization in Virginia, and to augment its current role as a CTP and the Statewide Floodplain Program Manager.

The Flood Map Modernization Plan for Virginia, developed by the DCR, describes a mapping need evaluation process that uses the factors listed above. The DCR first established a baseline of communities that have had a major portion (or all) of the specified flood hazard areas remapped and/or restudied within the past 6 to 7 years (or those communities currently in the process of being

restudied or remapped) without reports of any significant problems. These “current” communities (accounting for approximately 52 percent of the Commonwealth’s population) were excluded from the state’s process of determining remapping/restudy needs. From the list of communities that were not current, DCR selected 40 high-priority communities based on several criteria, including the Department’s knowledge of the current status of its maps, requests for flood mapping updates, the high rate of development in those localities, and/or the age of the flood maps.

Communities were clustered based on geographic proximity, shared watersheds, and common Planning District Commissions. The Center for Geospatial Information Technology conducted a “sensitivity analysis” to rate all Virginia communities individually and subsequently by cluster. The analysis resulted in the addition of another 15 cities and counties to the 40 high-priority communities, based on presence of mapping needs and proximity to high-priority areas.

The preliminary list of priority communities first was sorted according to the population in 2000, with higher populations taking priority over lower populations. State mapping priorities of high, medium, and low then were used to further refine the list. The evaluation was based on information gathered from the local community floodplain managers and existing FIRMs (including map age, LOMCs, population growth, local knowledge of problem stream reaches, and mapping quality). Finally, the Virginia Decile List provided by FEMA in 2003 was used to differentiate communities with similar population and state priority level.

The division of the clusters into each of the 5 years of the mapping program was based loosely on the population goals and number of communities within each cluster. Sequencing was done within each year based on cluster population (with high-population areas addressed before those with low populations).

As discussed, communities that are considered “current” were not included in the DCR’s determination of remapping or restudy priorities. However, these communities may have stream or river reaches that need restudy or remapping because of recent flooding events that have revealed flooding characteristics that appear to differ from those represented on the FIRMs for those communities. The DCR will attempt to address these issues and assess mapping needs for these cases in subsequent years.

3.5 West Virginia

West Virginia Multi-Hazard Flood Map Modernization Plan (Draft), 2004.

Factors Identified	Application of the Factor
Areas where flood control projects had not been incorporated	Primary
County population change	Primary
Total number of building permits issued	Primary
Total number of flood disasters	Secondary
Total number of people affected (in flood disasters)	Secondary
Potential growth of area	Secondary

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In 2002, West Virginia identified county mapping needs using the factors listed above. Each county was scored according to three primary factors: areas without flood control projects, population, and number of building permits issued. The three scores were summed and sorted to provide a list of counties arranged by mapping priority. The secondary factors – total number of disasters, total number of people affected by disasters, and potential growth – were applied to break ties and to modify the preliminary priority list. The factors applied in West Virginia’s project evaluation differed from those used in the determination of regional mapping priorities conducted by FEMA Region 3.

West Virginia’s 2004 draft business plan indicates that the State plans to update the 2002 county priority list in consultation with FEMA Region 3, using information collected through detailed mapping needs assessments and input from stakeholders.

4.0 REGION 4

4.1 Alabama

Flood Map Modernization Program Business Plan, State of Alabama Office of Water Resources, March 30, 2004.

Factors Identified	Application of the Factor
Population	Unspecified
Ability to leverage resources	Unspecified
Areas of high growth	Unspecified
Claims	Unspecified
Excessive repetitive losses	Unspecified
High number of NFIP policies	Unspecified
Population density	Unspecified
Average amount paid per loss	Unspecified
Dollars paid since 1978	Unspecified
Number of claims since 1978	Unspecified
Number of flood-related disasters	Unspecified
Number of losses	Unspecified
Number of policies affected	Unspecified
Percent of the disaster covered	Unspecified
Policy value	Unspecified
Total cost in premiums paid	Unspecified
Total payment per property with loss	Unspecified
Total value of NFIP coverage	Unspecified

The Alabama Office of Water Resources (OWR) has worked very closely with FEMA Region 4 on various aspects of floodplain management that are primarily associated with the NFIP. The OWR

plans to enhance its floodplain management and state/Federal partnership by developing and implementing a Flood Map Modernization Program.

Alabama’s 2004 plan lists counties with an anticipated FY04 start date. Detailed information regarding losses and claims is provided in the table, but it is not clear how the data contributed to the selection or classification of projects. It also is unknown whether a weighting system was applied in the evaluation of county characteristics.

The state plan was based on an expected annual funding allocation in the 5-year program period. The plan was developed to provide some level of mapping for each county, based on the funding expected to be available. The plan did not include an explanation of the manner in which project starts were listed by funding year.

The plan did not identify any concerns relating to county mapping need evaluation, but it is inferred that the quality of the maps and the effectiveness of the program rely heavily on the level of funding provided each year.

4.2 Florida

4.2.1 Northwest Florida Water Management District

Northwest Florida Water Management District FEMA Flood Map Modernization Program 5-Year Business Plan, FY 2004-2009, April 7, 2004.

Factors Identified	Application of the Factor
Consistency with metrics	Unspecified
Funding to CTPs	Unspecified
High population growth	Unspecified
Population	Unspecified

The focus of the Northwest Florida Water Management District’s (NFWFMD) plan is to meet or exceed FEMA metrics for the population, with digital GIS flood data online by county, population with final adopted flood maps, leveraged effort toward digital GIS flood data, and the percentage of funding through the state and/or local CTPs. Although the plan clearly meets and/or exceeds the FEMA metrics, it is not clear if these were the only factors used to establish county priorities. It appears from the plan that the remapping of Bay, Okaloosa, and Leon counties has a high priority, although the reason is unclear.

The business plan notes that, while meeting the FEMA metrics, it is structured with some improvements to the Special Flood Hazard Areas through modeling and floodplain delineation on better topographic data. This suggests that the level of detail required was considered in establishing project priorities, but it is not clear from the text of the plan.

The NFWFMD’s plan was based on funding allocation over the 5-year period. As developed, the plan provides some level of mapping for every county in the district, based on the funding level provided.

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The NFWFMD vision for Map Modernization is to develop a district-wide program providing more accurate and complete flood hazard information for counties and communities within the district. At the end of the process, all 16 counties will have updated DFIRMs that will incorporate new detailed studies, approximate studies, and/or updated base mapping. Updated DFIRMs and the district's ongoing emphasis on protection and acquisition of flood prone areas will lead to achievement of the district's flood protection goals and the non-structural floodplain management strategy. Program Management that is to be performed by a contractor for the district includes assisting with the evaluation of county mapping needs.

4.2.2 South Florida Water Management District

Flood Map Modernization Business Plan Business Plan, South Florida Water Management District, Fiscal Year 2004-2008 (DRAFT), April 29, 2004.

Factor Identified	Application of the Factor
Consistency with metrics	Unspecified

The South Florida Water Management District's (SFWMD) plan seeks to meet or exceed FEMA metrics for population, with digital GIS flood data online by county, population with final adopted flood maps, leveraged effort toward digital GIS flood data, and the percentage of funding through the state and/or local CTPs. Although the plan clearly meets and/or exceeds the FEMA metrics, it is not clear whether these were the only factors used to determine county priorities.

The district plan is based on allocation of funding during the 5-year period. The plan was developed to provide Arc Hydro database development, program management, and an IT management system for every county in the District based on the funding level provided.

The SFWMD envisions partnering with FEMA to develop Arc Hydro databases that meet FEMA's data capture guidelines for all watersheds within the 16-county jurisdiction. This vision also includes the development of an IT system that will serve as a one-stop geospatial distributor of modeling data for all future project activities and will provide the necessary outreach to the public and private sector for implementation and acceptance of the activities. The SFWMD would manage engineering study modeling and floodplain delineation, but wants FEMA to perform the floodplain mapping and DFIRM production tasks to meet FEMA's goals.

4.2.3 Suwannee River Water Management District

Suwannee River Water Management District FEMA Flood Map Modernization Program 5-Year Business Plan FY 2004-2009 (DRAFT), March 30, 2004.

Factor Identified	Application of the Factor
Consistency with metrics	Unspecified

The focus of the Suwannee River Water Management District (SRWMD) plan is to meet or exceed FEMA metrics for population, with digital GIS flood data online by county, population with final adopted flood maps, leverage effort toward digital GIS flood data, and percentage of funding

through the state and/or local CTPs. Although the plan clearly meets and/or exceeds the FEMA metrics, it is not clear whether these were the only factors used to establish county priorities.

The plan notes that, while the FEMA metrics will be met, it is structured with some planned improvements to the Special Flood Hazard Areas through modeling and floodplain delineation using better topographic data. This suggests that the level of detail required was considered in establishing project priorities. However, this is not clear from the text of the plan. Alachua County has been given a low priority for restudy (proposed in 2008) because it was recently restudied by FEMA and will meet Map Modernization standards in 2004.

The SRWMD’s vision for Map Modernization is to develop a district-wide program that provides more accurate and complete flood hazard information for the counties and communities within the district. At the end of the process, all 13 counties will have updated DFIRMs that will incorporate new detailed studies, approximate studies, and/or updated base mapping. Updated DFIRMs and the district’s ongoing emphasis on protection and acquisition of flood-prone areas will lead to achievement of the district’s flood protection goals and the non-structural floodplain management strategy. A part of the planned program management to be performed by a contractor for the district will be to assist with the evaluation of county mapping needs.

In addition to the funding requirements for the DFIRM projects, the district is proposing additional funding for Map Maintenance, development of an IT management system, and program management functions. The district intends to accomplish the 5-year Map Modernization effort with its contractor and, as such, no assistance from the FEMA Region 4 IDIQ contractor or FEMA’s NSP is planned.

The district’s plan was based on allocation of funding over the 5-year period. The plan was developed to ensure that DFIRMs are produced, adopted, and available on the district’s website in the next 5 years.

4.2.4 Southwest Florida Water Management District

FEMA Map Modernization Southwest Florida Water Management District Business Plan, FY04-09 (DRAFT), The Southwest Florida Water Management District, April 27, 2004.

Factors Identified	Application of the Factor
Ability of the community to effectively administer the flood zones as mapped	Unspecified
Consistency with metrics	Unspecified
Population growth	Unspecified
Watershed based approach	Unspecified

The Southwest Florida Water Management District (SWFWM) plans to implement a process whereby it is able to meet, and possibly exceed, FEMA metrics in FY05-FY09 for population, with digital GIS flood data online by county, population with final adopted flood maps, leverage effort toward digital GIS flood data, and percentage of funding through the state and/or local CTPs.

Appendix C - State Plan Prioritization Summaries

The plan was based on allocation of funding during the 5-year period. The plan was developed to fund and modernize DFIRMs for the entire district through the district's Water Management Plan (WMP) and FEMA's Map Modernization by 2009.

Priority consideration is given to those projects designed to further the implementation of the district's WMP, appropriate Comprehensive Watershed Management (CWM) Plans, Surface Water Improvement and Management Plans, and Regional Water Supply Plan. Consideration also is given to the cooperator's efforts in developing, implementing, and enforcing water conservation and flood protection ordinances. Although the plan clearly meets and/or exceeds the FEMA metrics, it is clear that other factors associated with the district's CWM and WMP have been used to establish county priorities.

The implementation of the CWM Initiative through the WMP with all counties in the district lays the framework for watershed management and Map Modernization. The district's vision includes full responsibility for the production and maintenance of the DFIRMs, hosting all DFIRM data, and eventually all aspects of floodplain mapping delegated to the district.

4.3 Georgia

State of Georgia Flood Map Modernization Program Business Plan, Georgia Environmental Protection Division, Water Resources Branch, March 31, 2004.

Factors Identified	Application of the Factor
Population	Unspecified
Consistency with metrics	Unspecified
Leveraging	Unspecified

Georgia's program is initially focusing on mapping counties with the largest populations. Consideration will be given to other counties and communities based on population size, leverage available, and meeting FEMA's metrics. The state plan was based on allocation of funding throughout the 5-year period, and was developed to provide some level of mapping for every county in the state, based on the funding level provided. At the high-funding level, the state would need more than \$10 million more than the planned FEMA-allocated budget. At all funding levels, the state shows 56 counties to be mapped in FY08, which may be difficult to achieve. Also at the high-funding level, the state plans to incorporate into the outreach effort the development of dambreak flood mapping downstream of existing dams. This would include a dambreak flood boundary layer for DFIRMs.

4.4 Kentucky

Commonwealth of Kentucky Flood Map Modernization State Business Plan, Kentucky Division of Water, March 26, 2004.

Factors Identified	Application of the Factor
Population (within the watershed)	Primary
Potential for leverage	Primary

Factors Identified	Application of the Factor
Consistency with metrics	Primary
Political considerations	Secondary
Watershed-based approach	Secondary
Existing or potential CTP	Secondary
Amount of risk	Unspecified
NFIP participation	Unspecified

Kentucky is focusing its mapping program first on those counties and metropolitan areas with large populations. Subsequent factors considered in the evaluation of counties and communities reflected a watershed-based approach. Within watersheds, high-population counties and those with growing populations were sequenced first. Projects listed as FY04 priorities have additional information included in the plan regarding data and resources available for leveraging, as well as presence of existing or potential CTPs. It appears that these factors, in addition to population, were important in the identification of FY04 proposed projects.

The state plan was based on allocation of funding throughout the 5-year period. About 50 percent of the state's population is located in 15 counties, thus these counties are scheduled early in the mapping program, with the remaining counties sequenced according to their location within major watersheds.

Kentucky is coordinating with local authorities to determine county needs, resources, and floodplain mapping desires. This ongoing data collection process will help to refine the State's Map Modernization planning and budgeting, as well as determine available leverage. Kentucky plans annual reviews of the business plan to incorporate lessons learned, refine budgetary and leverage estimates, and adjust map priorities as necessary. Kentucky plans to replace Zone A's as appropriate with some detailed study (very limited, based on development), some limited detail, and approximate methods. The strategy is based on balancing the fulfillment of FEMA metrics with the gradual development of the state's capabilities to support a long-term floodplain management program.

4.5 Mississippi

The State of Mississippi Flood Map Modernization Initiative FY04-FY08 Business Plan (DRAFT), The Mississippi Emergency Management Agency and the Mississippi Department of Environmental Quality, April 12, 2004.

Factors Identified	Application of the Factor
Population	Primary
Consistency with metrics	Primary
Ability to leverage resources	Unspecified
Number of repetitive losses	Unspecified
Excessive number of repetitive losses	Unspecified
High NFIP policy base	Unspecified

Appendix C - State Plan Prioritization Summaries

Factors Identified	Application of the Factor
High population density	Unspecified
High population growth	Unspecified

Mississippi used the factors listed above to determine project priorities. They correspond directly to the performance metrics set forth for Map Modernization. The draft state business plan, dated April 12, 2004, does not provide details regarding the application of the factors to the creation of a priority list. Projects were sequenced by funding year, but it is not apparent from the information provided in the draft plan how the scheduled start years for each county were established.

4.6 North Carolina

Flood Map Modernization State of North Carolina Business Plan FY04-09, State of North Carolina Floodplain Mapping Program, April 9, 2004.

Factors Identified	Application of the Factor
Accuracy of existing maps	Primary
Availability of GIS base data	Primary
Establishment of Memorandums of Agreement for data sharing	Primary
Mapping needs	Primary
Past and projected development	Primary
Recent disasters	Primary
Recent flood events	Primary
River basin approach	Primary
Consistency with metrics	Primary
Number of claims since 1978	Unspecified
Number of flood insurance policies	Unspecified
Number of repetitive losses	Unspecified

Rather than evaluating counties for mapping projects, North Carolina took a river basin approach. Those basins on the coast were of highest priority because of the impact of Hurricane Floyd and large populations. The State conducted scoping meetings and collected information on the items listed above. County-level information was compiled to create a mapping-needs profile for each basin. The state plan included an attachment with information for several factors. Based on the text in the plan, however, it is uncertain how this information was applied in the evaluation of basins.

The six basins touching the coast are listed for funding in FY04, the six basins west of the coastal basins are listed for funding in FY05, and the last five basins are listed for funding in FY07. This proposed schedule reflects the priorities of the State, but may be adjusted depending upon actual funding received and the availability of updated coastal studies methodology.

4.7 South Carolina

2004 Flood Map Modernization State Business Plan for South Carolina (DRAFT), State of South Carolina Department of Natural Resources Land, Water, and Conservation Division, March 31, 2004.

Factors Identified	Application of the Factor
Population	Primary
Population density	Primary
Population growth	Primary
Repetitive loss properties	Primary
Number of NFIP policies	Primary
Consistency with metrics	Primary
Availability of data/methodology for coastal studies	Secondary

It is unclear from the draft South Carolina plan how the factors listed above were applied to create the sequencing list. Based on conversations with those involved in the determination of priorities, it is known that a weighted factor system was applied to score each county. Those counties with the highest score were deemed to have the highest priority based on their risk, relative to other counties in the state. All counties were evaluated in this process, even those with studies underway.

The level of risk, as determined by the factors listed above, was used to rate each county and to determine the type of study to be funded. Counties in the highest risk category will have complete restudies done; others will have limited detailed studies, digital conversions, or reduced digital conversions.

The highest-priority counties, those with high figures for each of the factors listed, are located on the coast. Coastal studies are of the highest priority in South Carolina, but were not scheduled to start in FY04 because the coastal study methodology is not yet available. Aside from the shuffling of project start years based on the availability of coastal study methodology, projects are scheduled to start according to priority. It is anticipated that the funding levels in each fiscal year will dictate the type of study that can be conducted in each county.

4.8 Tennessee

Tennessee Flood Map Modernization Business Case, Local Planning Assistance Office, Department of Economic and Community Development, State of Tennessee, March 31, 2004.

Factors Identified	Application of the Factor
Population	Primary
Availability of base map data (leverage of state program)	Secondary
Number of policies	Unspecified
Population density	Unspecified
Population growth	Unspecified

The priority list included in Tennessee's 2004 state business plan was organized according to county population. It is indicated that there will be adjustments made to this list, according to the availability of data from the Tennessee Base Mapping Program (TBMP). The priority list apparently does not reflect adjustments based on expected data availability from the TBMP. Either the remaining factors listed above did not come into play, or population overshadowed them in the evaluation procedure followed by the State.

Appendix C - State Plan Prioritization Summaries

Project scheduling by funding year is made according to the county population circa 2000, with counties having large populations scheduled first. Sequencing will be adjusted depending on the funding that becomes available for mapping activities.

Most important to Tennessee is improving the quality of risk identification, including FIRMs with BFEs as well as floodways and numbered SFHAs. The State expects the results of Map Modernization to consist of BFEs, derived from detailed or limited detailed studies in all 95 counties.

Assessment of communities within counties will be performed in a scoping-type process in which a regional land-planning organization will work with local government, FEMA Region 4, the regional management center, and contractors to evaluate each county. This process also will identify sources of potential leverage opportunities. Of greatest concern for community-level priorities are unmapped flood-prone areas, high-growth areas with available studies, and potential growth areas.

Tennessee does not intend to promote the CTP program at the outset of Map Modernization. The State prefers to use all funds available for the update of maps rather than developing a capacity at the local level to perform the mapping work.

5.0 REGION 5

5.1 Illinois

Illinois Flood Map Modernization State Business Plan, Illinois Department of Natural Resources, February 26, 2004.

Factors Identified	Application of the Factor
Accuracy/quality of existing maps and/or flood data	Primary
Availability of base map, topographic, and/or flood hazard data	Primary
Population	Primary
Community/county capability to implement mapping projects	Secondary

The State of Illinois intends to participate to the fullest extent possible in FEMA's Map Modernization. Its goals are to reduce or eliminate the inconsistencies in flood hazard mapping that cause incongruities in the administration of local, state, and Federal regulations, and reduce or eliminate the duplication of state and Federal effort in the review of flood map revisions.

Illinois recognizes the task of converting existing flood data and base maps into a digital format as a critical first step. Then, once the Map Modernization program has been implemented, new engineering studies and updating existing data would commence. Population was weighted as an evaluation factor to enable Illinois to meet the Map Modernization metrics set by FEMA. Also, counties whose capabilities were known by the Illinois Department of Natural Resources (ILDNR) staff were given a high priority. The ILDNR made a qualitative assessment of the above criteria in order to evaluate counties and categorize them accordingly:

- Category 1: Conversion of countywide DFIRM95s to standard DFIRM database
- Category 2: Conversion of countywide FIRMs to DFIRM2003s
- Category 3: Development of countywide DFIRM2003s for counties with large populations and urban centers with paper maps and engineering studies
- Category 4: Development of countywide DFIRMs for counties with relatively low population and little or no engineering studies

Counties were selected based on availability of recently adopted digital maps and available data to produce maps. Category 1 counties were sequenced first, followed by counties in categories 2, 3, and 4.

The ILDNR generally chose to fund projects that were conversions of countywide DFIRMs to DFIRM2003s in the first year. The DFIRM conversions would continue through the second year, along with the conversion of FIRMs to DFIRM2003s. The third, fourth, and fifth years consist of projects requiring the development of countywide DFIRM2003s for communities with engineering data, as well as projects for communities without engineering data. Also during these years, projects with automated engineering data will be funded and continue throughout the life of Map Modernization.

5.2 Indiana

Indiana Floodplain Mapping Initiative, Indiana Department of Natural Resources, Division of Water, March 1, 2004.

Factors Identified	Application of the Factor
Decile, based on national application of the FY03 funding distribution factors	Primary
Distributing projects between basins to prevent work overload	Primary
Estimate of funds available for mapping projects each year over the 5 years	Primary
Meeting population-based metrics	Primary
Previously set schedules for FY03 and FY04	Primary

The State of Indiana had a set schedule for FY03 and FY04. These schedules remained the same when considering sequencing for Map Modernization. After incorporation of the FY03- and FY04-scheduled projects, population was the most important criteria that the Indiana Department of Natural Resources (INDNR) used to evaluate the counties. The INDNR also considered the location of the work so that its basin teams would have an equal amount of work in any given year. (The INDNR’s “basin teams” are three teams of INDNR staff. Each team is assigned one-third of the state, based on watersheds.)

The INDNR also used existing knowledge about each county to evaluate mapping needs and meet FEMA’s metrics throughout 5 years for Map Modernization. The projects were listed in a manner that would meet the metrics set by FEMA regarding population while distributing the work between the three State watershed teams. The INDNR also considered that a constant level of funding would be available for the duration of the project.

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The INDNR expressed concern that there are many other factors that could be considered in a sequencing analysis. It concluded that communities with CTP agreements should receive higher priority, as they are willing to provide resources and data to help the mapping process. The INDNR's digital conversion project actually will have a more aggressive timeline than FEMA's, as no wide-scale redelineations are planned. This data can be used in those counties in which redelineation is not necessary (or would be minor) and could be used as a base for the refinement of flood zones. The estimated costs were developed using the data from the 2002 Map Modernization study, but likely will be less than the estimated cost per panel. Any savings realized will be applied to detailed studies. Finally, the State's evaluation does not take into account existing detailed studies or those that may be planned by the INDNR. Staff plans to make an effort to incorporate any detailed study at the time of conversion and the process of conversion will expedite the incorporation of detailed studies into the DFIRM at a later date.

The State plans to participate in FEMA's Map Modernization and achieve the following goals: Establish and maintain a premier data collection system, achieve effective program management, build and maintain mutually beneficial partnerships, and expand and better-inform the user community. The major program areas are base map data development, floodplain data development, mapping revision support, and general program support.

5.3 Michigan

Michigan's Multi-Hazard Flood Map Modernization Phase II Implementation Phase Business Plan, Geological and Land Management Division, Michigan Department of Environmental Quality, January 12, 2004.

Factors Identified	Application of the Factor
High permit workload in the county (for regulated activities within floodplains)	Primary
Land use (residential and developed areas prioritized over undeveloped or forest preserve)	Primary
Population	Primary
Age of existing maps	Primary
Assessment of community mapping needs (completed in 2002)	Primary
Availability of existing base map, topographic data, an/or flood hazard data (including data from other State agencies)	Primary
Availability of State and/or local funding	Primary
Existing or potential local mapping partners	Primary
Flood insurance claims and/or repetitive losses	Primary
Format of existing maps (countywide or community-based)	Primary
Known mapping needs (MNUSS)	Primary
Number of communities	Primary
Number of LOMCs processed during the last 10 years	Primary
Number of unmapped, flood-prone communities	Primary
Population growth	Primary
Status of existing maps (manual, digital, none)	Primary

In the August 2002 Map Modernization Plan for Michigan, the Michigan Department of Environmental Quality (MIDEQ) initially evaluated the mapping needs of its counties and communities using the criteria listed above as well as the responses to community mapping needs surveys. After tallying the results, the communities were sequenced according to the order in which the mapping needs should be addressed. The highest priority was given to counties with communities that had floodplain problems and/or no map. The second priority went to locales whose existing maps were obsolete because the maps were too old or had errors. Finally, an addendum to the plan, sequencing Michigan counties from 1 to 83, was submitted on August 20, 2002,. The factors used in the sequencing were county population, permit workload (the number of permits submitted for construction, grading, or filling in a floodplain, streambed, or stream channel), and land use (residential or developed areas were given priority over undeveloped or forest preserve areas). These were used as the controlling criteria for the sequencing of studies in 2004.

In 2004, the MIDEQ weighted the controlling criteria – population, permit workload, and land use – in a qualitative process to evaluate each county. The MIDEQ staff used its qualitative judgment to apply these factors. No quantitative scores were used.

The mapping needs of each county were categorized as level 1 and level 2 map upgrades. Level 1 upgrades are improvements to existing flood maps that are not based on the development of new detailed flood hazard information. Level 2 upgrades are improvements involving the development of new detailed flood hazard information. The counties were reviewed based on the aforementioned information, and the categories were assigned accordingly. The unmapped areas of counties with low flood damage potential that did not have detailed digital soil surveys were designated for study and mapping at a later date.

The State's plan detailed that funding for the counties in the first year would address the mapping of existing floodplain information, converting existing maps to digital format, and mapping unnumbered A Zones (level 1). Funding during the second and third years would require detailed hydraulics, hydrology, and topographic mapping (level 2) for the most flood-prone areas of rapidly developing counties in southern and lower Michigan. Funding for the rest of the counties requiring level 1 studies would be completed in the following years.

A top-10 list also was developed for counties that must be funded if a one-time allocation were received instead of the funding over 5 years. Most of the counties in the top-ten list are those described above as requiring level 2 studies.

The State designated the maximum level for its participation in Map Modernization and will perform and/or manage some or all of the mapping activities for its counties, with the MIDEQ taking the lead in the floodplain mapping program. Specific activities that the State will perform or manage will depend on its resources and capabilities. The USACE Detroit District will be a primary participant in the mapping program and will contract directly with FEMA. The MIDEQ

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will oversee the work performed under CTP and other agreements between FEMA and local agencies or consultants.

5.4 Minnesota

Minnesota Map Modernization Business Plan, Minnesota Department of Natural Resources, DNR Waters, January 1, 2004.

Factors Identified	Application of the Factor
Existing projects	Primary
CTP counties	Primary
Presence of major watercourses	Secondary
Repetitive loss areas not included in the CTP program	Secondary
Counties that have not been mapped	Secondary
2002 Data collected	Application of the Factor
Known mapping needs, as reported by county hydrologists	Primary
Mapping needs (MNUSS)	Primary
Age of existing maps	Primary
Availability of existing base map, topographic, and/or flood hazard data (including data from other State agencies)	Primary
Availability of GIS data	Primary
Availability of State and/or local funding	Primary
Existing or potential local mapping partners	Primary
Flood insurance policies	Primary
Format of existing maps (countywide or community-based)	Primary
LOMCs processed during the last 10 years	Primary
Number of communities	Primary
Number of perennial stream miles, mapped and unmapped, and mapped intermittent streams for each panel in each county	Primary
Number of unmapped, flood-prone communities	Primary
Ongoing map updates, including updates being undertaken by regional agencies or communities under the CTP program	Primary
Population	Primary
Population growth	Primary
Repetitive losses	Primary
Status of existing maps (manual, digital, none)	Primary

In the January 2004 Map Modernization Plan for Minnesota, the State Department of Natural Resources (MNDNR) decided to evaluate counties based on existing projects, CTP counties, presence of major watercourses, repetitive loss areas not included in the CTP program, and counties that have not been mapped. Also, additional mapping-needs data was collected from county hydrologists to supplement MNUSS data, FEMA data, and data from various State agency offices. The 2002 data was compiled and supported the evaluation of counties located along major watercourses with repetitive loss areas.

Any ongoing projects are scheduled first and are followed by CTP counties. Each year, as new CTP counties are recognized, sequencing will change to promote them. The MNDNR wanted to sequence counties eager to participate in the CTP program earlier because they showed initiative and would be responsible for some of the work. Counties that are not in the CTP program (and that are along major watercourses) and repetitive loss counties will follow. Counties not falling into any of those categories are scheduled last. The MNDNR staff used its qualitative judgment to apply these factors. No quantitative scores were used.

In the 2004 plan, the MNDNR initially scheduled approximately 15 counties per year for mapping based on a recommendation from FEMA Region 5. Recently, FEMA Region 5 told the MNDNR that it could expect about \$2.6 million per year, and the MNDNR changed the schedule to reflect that figure. MNDNR engineers assessing each county's needs and the above criteria qualitatively and MNDNR produced an extension of the schedule beyond the initial 5 years of the project.

The State is very concerned that funding for most of the counties should result in useful maps, not just digital versions of inaccurate maps. It will not digitize county maps simply to get them finished (therefore meeting the metrics set by FEMA), as it is concerned that the counties will be upset if digitization is performed with promised engineering studies in the future.

5.5 Ohio

Draft Map Modernization Plan for the State of Ohio (DRAFT), Ohio Department of Natural Resources Division of Water, January 1, 2004.

Factors Identified	Application of the Factor
Age of existing maps	Primary
Availability of existing base map, topographic, and/or flood hazard data	Primary
Availability of State and/or local funding	Primary
Existing or potential local mapping partners	Primary
Format of existing maps (countywide or community-based)	Primary
Known mapping needs	Primary
Number of communities	Primary
Number of unmapped, flood-prone communities	Primary
Ongoing map updates, including updates being undertaken by regional agencies or communities under the CTP program	Primary
Population	Primary
Population growth	Primary
Status of existing maps (digital, manual, none)	Primary

In the August 2002 Map Modernization Plan for Ohio, using the primary factors listed, the Ohio Department of Natural Resources (ODNR) initially evaluated the mapping needs of its counties and communities. Also, the production options have been categorized as level 1 map upgrades and level 2 map upgrades. Level 1 upgrades are improvements to existing flood maps that are not based on the development of new detailed flood hazard information. Level 2 upgrades are improvements

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involving the development of new detailed flood hazard information. The ODNR staff used qualitative judgment to apply these factors. No quantitative scores were used.

5.6 Wisconsin

Draft Map Modernization Plan for the State of Wisconsin (DRAFT), Wisconsin Department of Natural Resources, April 2004.

Factors Identified	Application of the Factor
Availability of adequate topographic, base map, and modeling data	Primary
Housing density	Primary
Population growth	Primary
Known mapping needs (MNUSS or other sources)	Primary
History of disaster declarations	Unspecified

The Wisconsin Department of Natural Resources (WDNR), using a cost-benefit analysis, initially used the above factors to determine the State's mapping priorities. The cost portion of the analysis accounts for availability of data and the mapping needs of each county. It is clear that counties with improved topographic data move higher on Wisconsin's floodplain mapping priority list. The MNUSS benefit calculation, focused on housing density and population growth, was used. The WDNR is still in the process of finalizing its state business plan and county priority list, and the application of the above factors (other possible factors have not yet been identified) is being adjusted.

6.0 REGION 6

6.1 Arkansas

State Business Plan for Arkansas, Arkansas Soil and Water Conservation Commission, April 19, 2004.

Factors Identified	Application of the Factor
Age of map	Unspecified
Fostering local community involvement and investment in mapping	Unspecified
High-growth areas	Unspecified
Leveraging	Unspecified
Ongoing studies	Unspecified

The State of Arkansas plans to increase its role in Map Modernization by forming a partnership between State agencies, local communities, and FEMA to maintain an inventory of available data such as elevation data, flood data, hydrological and hydraulic data, and study update needs. The State prefers to develop CTP agreements and Mapping Activity Statements for specific mapping projects, and mapping activities that will include topographic data development as well as base map acquisition and preparation. Arkansas will continue to investigate the willingness of the State legislature to provide assistance for funding the Map Modernization in future years. The State also

will initiate mapping counties using detailed, limited detailed, and digital conversions for five counties.

The plan lists partners in the process as the Arkansas Geographic Information Office, the Arkansas Highway and Transportation Department, the Arkansas Department of Emergency Management, the Arkansas Forestry Commission, and the Arkansas Soil and Water Conservation Commission. Five of the 16 counties in the state have map updates in progress.

6.2 Louisiana

State Business Plan for Louisiana, Louisiana Department of Transportation and Development, April 19, 2004.

The State has not identified any priorities at this time.

The State plans to work with Region 6 to determine mapping priorities. Current priorities for the region in Louisiana are LIDAR development, East Baton Rouge Parish, and Orleans Parish. The State may take a more active role in the future to help FEMA identify priority projects through coordination and data inventory efforts.

As a result of the election of a new Governor, the State is not currently in a position to develop a mission statement or vision for its future participation in FEMA’s Map Modernization. The State will be maintaining its current level of activity and will work closely with FEMA Region 6 in determining study and restudy priorities.

6.3 New Mexico

State Business Plan for New Mexico, New Mexico Department of Public Safety/Office of Emergency Management, April 19, 2004.

Factors Identified	Application of the Factor
Age of map	Unspecified
Fostering local community involvement and investment in mapping	Unspecified
High-growth areas	Unspecified
Leveraging	Unspecified
Ongoing studies	Unspecified

To increase the State’s role in Map Modernization, the New Mexico Department of Public Safety/Office of Emergency Management (DPS/OEM) would like to form a partnership with FEMA and State and Federal agencies, local communities, tribal entities, and professional associations. This group of partners would assess, inventory, acquire, and distribute data required to support the planning and development of flood mapping. The intent is to provide the State with an ongoing coordinated flood-mapping program.

New Mexico listed the factors above as important in the determination of mapping priorities. For now, the State will support the mapping priorities determined by FEMA's Region 6 evaluation. New Mexico also plans to conduct needs assessments to assist FEMA in identifying restudy needs.

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6.4 Oklahoma

State Business Plan for Oklahoma, Oklahoma Water Resources Board, April 19, 2004.

Factors Identified	Application of the Factor
Age of maps	Unspecified
Fostering local community involvement and investment in mapping	Unspecified
High-growth areas	Unspecified
History of flooding	Unspecified
Leveraging	Unspecified
Ongoing studies	Unspecified

Oklahoma plans to establish mapping project priorities in the future based on documented needs, the results of scoping activities, and FEMA evaluation. The State has identified the factors listed above as important in determining mapping priorities. Currently, Oklahoma is supporting those priorities established by FEMA Region 6.

A future priority includes revising Map Modernization for the following years to include additional activities that will be better supported through State government initiatives. These goals include ongoing outreach and other scoping/coordination activities for the first year. The State will investigate opportunities to contract existing paper map conversion to digital format and will investigate existing State data layers and their utility for floodplain management activities. In addition, the State will establish priorities from documented needs, scoping activities, and FEMA's 2004 performance metrics that sequence mapping projects for fiscal years 2004 through 2009.

As a CTP, the State will request funds for the conversion of paper FIRMs to a digital format for five counties in the first year and for 10 counties in the second and third years. In the third year, the State will re-evaluate its capability to become more involved in updating flood insurance studies (FISs) as needed. In the fourth year, the State will contract and coordinate FIS and digital mapping for two counties as well as continuing paper conversion mapping work each year for five counties.

The State will request funds from the State Legislature for an additional staff person or contractor to assist with the Map Modernization activities beginning in 2005.

6.5 Texas

State Business Plan for Texas, Texas Commission on Environmental Quality, April 19, 2004.

Factors Identified	Application of the Factor
Age of maps	Unspecified
Fostering local community involvement and investment in mapping	Unspecified
High-growth areas	Unspecified
History of flooding	Unspecified
Leveraging	Unspecified
Ongoing studies	Unspecified

FEMA Region 6 currently oversees the Texas Map Modernization Program, which is managed by the NSP. During a stakeholder meeting in December 2003, Texas agreed to support the Region's mapping priorities.

The State's vision recognizes the importance of up-to-date flood hazard information and supports the creation, maintenance, and dissemination of current DFIRMs. The Texas Commission on Environmental Quality will facilitate implementation of the State's vision.

The State plans to maintain current Map Modernization activities through FY04. These activities will be based on FEMA Region 6 goals and funding.

7.0 REGION 7

7.1 Iowa

Iowa's Map Modernization Business Plan, Iowa Department of Natural Resources, Iowa Geological Survey, March 31, 2004.

Factors Identified	Application of the Factor
Mapping needs (based on data entered into MNUSS)	Primary
Availability of data from the Missouri River or Upper Mississippi River Studies	Unspecified
Input from State and local agencies	Unspecified
Unmapped communities participating in NFIP	Unspecified

Data in MNUSS was used to rate counties according to mapping needs entered. Iowa identified unmapped communities participating in NFIP as important project priorities, including several in the list of projects to be completed in the first year of Map Modernization. It appears that the input from other State and local agencies resulted in a shuffling of priorities, as several projects with no need according to MNUSS appeared high on the priority list. There is no discussion in the text of the state plan regarding the application of the factors. Also included in the table is a column used to specify whether the county in question is on either the Missouri River or Mississippi River.

Because the Region plans to postpone mapping these counties until a USACE study is completed, it seems that this is a factor for Iowa as well. However, it is not clear from the text whether this is the case.

7.2 Kansas

Statewide Map Modernization Plan for Kansas, Kansas Department of Agriculture, Division of Water Resources, March 1, 2004.

Factors Identified	Application of the Factor
Average age of FIRMs	Primary
Cost-sharing	Primary
Dollars paid in flood insurance claims	Primary
High population density	Primary
History of repetitive losses	Primary

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Factors Identified	Application of the Factor
Leveraging of other Federal agency work	Primary
Mapping activities planned for the future by other agencies	Primary
Number of flooding disasters	Primary
Number of floodplain permits issued	Primary
Number of LOMCs	Primary
Number of mapping needs (MNUSS)	Primary
Number of NFIP policies	Primary
Participation in NFIP	Primary
Percent change in number of households	Primary
Percent of county unmapped	Primary
Population growth	Primary
Rainfall intensity (2-year 24-hour)	Primary

Kansas used a detailed system to score each county according to the factors listed above. Points were given to each county based on its characteristics. The points were totaled, with the lowest total indicating the county with the highest mapping need. Those counties that have old or inaccurate maps, are urban, and have experienced population growth are sequenced first.

The Kansas Department of Agriculture anticipates that between five and 10 counties will be studied each year, for a maximum of 50 out of the state's 105 counties. It is uncertain how the mapping of the remaining counties will be funded to meet Map Modernization goals.

7.3 Missouri

Missouri Multi-Hazard Flood Map Modernization Business Plan, Missouri State Emergency Management Agency, March 1, 2004.

Factors Identified	Application of the Factor
Age of existing maps	Primary
Amount paid in FIS claims	Primary
CTP participation	Primary
Mapping needs (based on information in MNUSS)	Primary
Mapping projects scheduled by FEMA, USACE, local governments, or other entity	Primary
Number of disaster declarations	Primary
Number of NFIP policies	Primary
Percent change in the number of households	Primary
Percent of unmapped stream miles	Primary
Percent population change	Primary
Population density	Primary
Rainfall intensity (2-year, 24-hour rainfall event)	Primary
Availability of data from the Missouri River or Upper Mississippi River Studies	Secondary
Completion of ongoing studies or conversion of maps	Secondary
Mapping needs assessments are complete and data has been entered into MNUSS	Secondary

A point system was used to rate each factor for each county, according to the specific items listed above. The lower the aggregate score, the higher the rating. This system was originally used to set priorities in 2002. The application of the secondary factors listed above effectively resulted in a shuffling of the original priority list, according to the projected dates by which the Upper Mississippi River Study would be completed, mapping needs assessments would be complete, and whether additional work required by the NSP would need to be done.

7.4 Nebraska

Flood Map Modernization Business Plan for Nebraska, Nebraska Department of Natural Resources, March 1, 2004.

Factors Identified	Application of the Factor
Age of existing maps	Primary
History of flood disaster declarations	Primary
Mapping projects scheduled by FEMA, USACE, or local governments	Primary
Mapping requests (cataloged in 1997)	Primary
Number of Floodplain Development Permits issued in the last 5 years	Primary
Number of NFIP policies	Primary
Number of recent BFE change requests	Primary
Number of request for LOMAs, LOMRs, and PMRs	Primary
Participation in NFIP	Primary
Percent 1990-2000 population change	Primary
Percent of unmapped stream miles draining one or more square miles	Primary
Population density	Primary
Rainfall intensity (2-year, 24-hour rainfall event)	Primary
Existence of 10' contour data and regional hydrologic models for approximate studies	Unspecified
Existence of detailed topographic data and bridge survey	Unspecified

The same factors listed above were used to determine project priorities in 2002. The 2002 Flood Study Production Plan (Appendix 4 in the 2004 State Business Plan) provided a detailed description of the application of the factors listed in the determination of mapping priorities. Data was collected for each of the factors listed, and the measurements were assigned point values. The lower the sum of the points for a county, the earlier it is sequenced.

In the 2004 State Business Plan, Nebraska indicates that it will apply a watershed-based approach, and plans to map all watersheds, at some point in time, over the next 5 years.

Given the expected level of available funding during 5 years of Map Modernization, most floodplain mapping in Nebraska will consist of Approximate Zone A delineation, for which adequate data exists. In practice, mapping for selected counties should be delayed on a case-by-case basis if additional data is necessary.

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Nebraska believes that final project selection should be based on careful consideration of the listed factors and not determined based on population alone. While no concerns were expressed in the 2004 State Business Plan, Nebraska has strongly expressed concerns to FEMA in other correspondence regarding prioritization based on population alone.

The State's overarching concern is that a county with a large population may be mapped before adequate topographic data can be developed, even when the State has offered to develop the data at State cost. At the same time, counties that have been in the NFIP for more than six years, with no floodplain map, are not scheduled for mapping. Cities that have provided new detailed studies to FEMA have not been able to get the maps published if their county does not have adequate population.

Nebraska has been a strong mapping partner and is eager to continue this mutually beneficial relationship. Nebraska plans to continue to work with FEMA Region 7 to develop floodplain-mapping priorities.

8.0 REGION 8

8.1 Colorado

Colorado Business Case Plan, Colorado Water Conservation Board, March 4, 2004.

Factors Identified	Application of the Factor
Flood hazard risk in a county, based on the risk in the communities	Primary
Policy base per capita (used as an indicator for the number of people and structures in the floodplain)	Primary
Population growth (percent change 1990-2000)	Primary
Population in 2000	Primary
Quality of existing maps	Primary
Unique watershed conditions (existence of hazards such as fires, ice jam flooding, and debris flows)	Primary
Weighted score from Colorado's 2002 priority list	Primary
Colorado regional considerations for less-populated counties that may have very old maps	Secondary
Federal leveraging or local leveraging above and beyond the required match	Secondary
Immediate availability of existing data (topographic, base map, etc)	Secondary
Immediate availability of geographic information systems at the county level	Secondary
Readiness and likelihood of success (based on data collected in 2002 for the MMIP report)	Secondary

The Colorado Water Conservation Board (CWCB) used the factors listed above to evaluate each county. Population size, population growth, score from the 2002 Map Modernization Implementation Plan, and policies per capita were evaluated quantitatively, with points from 0 - 5 assigned according to the category in which the population parameter fell. Map quality, flood hazard risk, and unique watershed conditions were evaluated qualitatively and assigned points

based on importance relative to conditions in other counties in the State. Points assigned for each factor were weighted, with population having the greatest weight. The sums of the weighted values were used to divide counties in quartiles.

Additional sorting of project priorities was done within each quartile, based on an evaluation of the secondary factors listed above. All of the secondary factors except “readiness and likelihood of success” were evaluated qualitatively.

Based on current anticipated funding levels, the State assumes that it will be impossible to meet the FEMA KPIs. Therefore, the CWCB presented a schedule (sections 3.1 and 3.2 of the state plan) that could be achieved with an increase in funding levels beyond current levels. The schedule is based on meeting population goals set by FEMA’s KPIs for 2004 to 2008. The business plan includes an appendix featuring discussion of the difficulty of meeting the FY09 performance target of providing 100 percent of the population with digital flood hazard data. Because many Colorado counties have small populations, a large amount of funding must be invested to create maps according to specifications, but few people will be affected.

8.2 Montana

Montana Multi-Hazard Flood Map Modernization State Business Plan 2004-2008, Montana Department of Natural Resources and the Conservation Water Resources Division, March 31, 2004.

Factors Identified	Application of the Factor
Existing and potential development	Primary
Flood data update needs	Primary
Local officials' assessments of map accuracy and effectiveness	Primary
Map maintenance needs	Primary
Number of stream miles and level of detail in the existing mapped floodplain	Primary
Ability to leverage other FEMA and Federal agency work	Unspecified
Accuracy and adequacy of product	Unspecified
Availability of leverage cost sharing with State, regional, and local organizations	Unspecified
Communities with rapid development along watercourses	Unspecified
Comprehensive watershed approach	Unspecified
Population density	Unspecified
Successful experience working with communities	Unspecified
Unmapped communities with flood risk	Unspecified

Mapping needs assessments and detailed map inventories were made for Montana communities in 2002, and findings were used to evaluate the quality of existing maps and each county’s mapping needs. The results of the 2002 evaluation were used to identify the mapping project priorities listed in the Montana’s 2004 State Business Plan. Eleven counties have been selected for inclusion in Map Modernization and will be mapped, at some point, in the next 5 years.

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It appears as though the State has not sequenced projects by funding year. They have a “rough guide” of goal projects, but not a complete list of studies that will be done according to fiscal year. The plan indicates that, once funding is available, a detailed timeline will be developed.

According to the 2002 Map Modernization Plan for Montana, several counties are experiencing increased development in the floodplain at a rate much higher than population growth. Approval for this development is based on old flood data that may be inaccurate, which is a major concern for the State.

The communities or Department of Natural Resources and Conservation will provide most of the 20% of the local cost share required by the CTP program. The Montana business plan relies heavily upon the State becoming a CTP.

8.3 North Dakota

North Dakota Multi-Hazard Flood Map Modernization State Business Case Plan 2004-2008, North Dakota State Water Commission, January 31, 2004.

Factors Identified	Application of the Factor
Age of existing FIRMs	Primary
Community mapping needs	Primary
Disaster dollars spent	Primary
NFIP participation	Primary
Number of flood claims	Primary
Number of flood disasters	Primary
Number of LOMCs	Primary
Number of policies	Primary
Number of repetitive loss properties	Primary
Population	Primary
Population change	Primary
Age of maps (counties studied recently were moved to the bottom of the list)	Secondary
Population growth (considered at two stages)	Secondary

North Dakota conducted a comprehensive Mapping Needs Assessment in 2002 and used the results to sequence counties. The approach follows that taken by Iowa in 2002, with some factors eliminated and the weights of remaining factors adjusted. Factor weighting was adjusted to reflect North Dakota's priorities; population change, mapping needs, FIRM age, and NFIP participation were the most important factors in project sequencing. The county sequence was used to determine whether counties were of high, medium, or low mapping priority.

The priority list developed in 2002 provided the basis for evaluation of counties in the 2004 State Business Plan. In its 2004 plan, North Dakota identifies additional factors that were considered in the process of setting project priorities. The 2002 sequencing was adjusted to address the secondary factors listed above. Counties in which projects are underway were excluded from the 2004 evaluation exercise.

Project starts are listed by funding year for 2004 through 2008. There is a correspondence between the priority list and the sequencing for the first three years but not for the last two years. It is unclear how the priority list was used to develop the proposed project start schedule included in the business plan.

One concern, relating to the ability to leverage projects, was noted in the North Dakota plan. In general, counties with larger populations are better able to support mapping activities. However, two counties with growing populations on Reservation lands may not have the resources available to contribute to detailed flood map studies.

The ability of the State Water Commission to complete many of the proposed activities is highly dependent on FEMA’s funding of additional staff resources. The two employees comprising the existing NFIP staff, currently funded through the Community Assistance Program (CAP) and FEMA, are committed to fulfilling their responsibilities to those programs.

In 2003, the North Dakota legislature authorized an additional full-time employee for the proposed Mapping Coordinator position. The continued support of the Mapping Coordinator position will be essential to the agency’s ability to complete the proposed activities. It is envisioned that the Mapping Coordinator will coordinate the community outreach activities associated with the various mapping projects, update the state’s ongoing Mapping Needs Assessment, participate in the project scoping process, and manage the selection process and contract management for Study Contractors.

8.4 South Dakota

Flood Map Modernization Business Plan for South Dakota, South Dakota Office of Emergency Management, January 1, 2004.

Factors Identified	Application of the Factor
Community mapping needs	Primary
Disaster dollars spent	Primary
FIRM age	Primary
NFIP participation	Primary
Number of flood disasters	Primary
Number of flood insurance claims	Primary
Number of LOMCs	Primary
Number of NFIP policies	Primary
Number of repetitive losses	Primary
Population	Primary
Population change	Primary

Priorities were established in South Dakota’s 2002 Map Modernization Implementation Plan, based on the results of a comprehensive mapping needs analysis process. South Dakota used the database and factor system developed by Iowa in 2002. It is unknown whether both states applied all the factors and the same weighting systems. County scores were used to sequence regions for mapping

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project starts. It was noted that counties with rapidly growing rural populations are considered to be of high importance.

The state was sub-divided into five regions, which are bounded by major rivers. Based on the scores of the counties within each region, the state's five regions were sequenced. It is assumed that one region will be completed within each fiscal year. Therefore, all projects are expected to be complete by March 2010.

The State intends to become an active mapping partner through FEMA's CTP program. South Dakota does not have enough citizens to have a large impact on FEMA's goals for mapping population. However, South Dakota can have a large impact in terms of percent leverage and total funding contracted through the CTP grants program.

8.5 Utah

The Map Modernization Program Business Case Plan for the State of Utah, Department of Public Safety, Division of Emergency Services, Floodplain Management Office, March 1, 2004.

Factors Identified	Application of the Factor
Availability of base map, flood, and topographic data	Primary
Average FIRM age	Primary
Local contribution potential	Primary
Population	Primary
Population growth	Primary
Urgency of mapping need (emergency, priority, routine)	Primary

Priorities were established based on Utah's 2002 Map Modernization Implementation Plan, which was created following the completion of mapping needs assessments for communities in the state. The factors above were evaluated for each county. A five-point scale was used for all factor evaluations, indicating that they were given equal weight. The sums of scores were used to divide counties into categories of high, medium, and low priorities. The priority categorization will be used to sequence projects, as funding is made available, with counties in the "high" priority category receiving funding first.

Utah has some of the oldest maps in the country, with an average FIRM age of 15 years. The State believes that the mapping situation is in severe need of attention. Utah feels that much of the mapping is inaccurate and does not represent current conditions. Floodplain management is becoming difficult given the State's rapid population growth and the extremely old flood maps.

8.6 Wyoming

Wyoming Multi-Hazard Flood Map Modernization State Business Case Plan FFY 2004-2008, Wyoming State Geological Survey, February 15, 2004.

Factors Identified	Application of the Factor
Age of existing maps	Primary

Factors Identified	Application of the Factor
Mapping status (mapped or unmapped)	Primary
Number of repetitive losses	Primary
Participation in NFIP	Primary
Approximate population increase within 250, 500, and 1,000 feet of all streams in a panel or jurisdiction	Secondary
Population per panel	Secondary

Each panel was evaluated according to the four factors listed above. Points between 0.25 and 4.5 were assigned according to ranges of values set for each factor. Based on the value of points assigned, map age had the largest influence. For each county with a cumulative score greater than 4.75, the population per panel was added to the countywide population within 500 feet of streams. This total population figure was used as the basis for a score, with the largest sum indicating the highest priority. The scored counties were then grouped into categories of high, medium, and low priority. Counties were distributed equally between the three categories. The highest priority counties were selected each funding year, sequenced according to score. Three counties were scheduled in FY04, four counties for each year FY05 through FY08.

Wyoming assessed information by panel and evaluated mapping needs on that scale. The State observed that the disadvantage of using a county-based evaluation scheme is that it obscures need at the community level, as a direct result of the aggregation of information.

9.0 REGION 9

9.1 Arizona

Map Modernization Plan for Arizona (DRAFT), FEMA/DHS Region 9, November 1, 2003.

Factors Identified	Application of the Factor
Accuracy of existing flood data	Unspecified
Population growth	Unspecified

Arizona's Map Modernization Plan (dated August 2002 - no comprehensive 2004 plan has been provided to date) included a list of criteria used by the Arizona Department of Emergency Management (ADEM) in coordination with FEMA Region 9 staff to assess mapping needs.

The State performed the initial mapping needs assessments in conjunction with the FEMA Map Coordination Contractor (MCC), which collected the MNUSS data. In the future, the State will also assist in outreach and community coordination on mapping projects. Arizona will not manage or perform any mapping projects; instead, FEMA Region 9 will do this, with the ADEM taking the lead in the floodplain-mapping program. No details regarding the application of the factors to the evaluation of mapping needs were included in the 2004 draft plan.

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9.2 California

Flood Map Modernization State Business Plan, California Department of Water Resources, Floodplain Management Branch, June 23, 2004.

No factors are identified in the 2004 business plan

California's 2004 Map Modernization Plan summarizes current issues and needs while supporting the mapping priorities of FEMA Region 9. In 2002, the California Department of Water Resources (CADWR), in cooperation with FEMA Region 9, completed data collection and outreach activities in several hundred communities to supplement data available from MNUSS and FEMA. Upon completion of this mapping needs assessment, CADWR and FEMA Region 9 jointly evaluated the counties according to mapping priority. The 2002 plan does not provide any details regarding the application of factors used in the evaluation. FEMA Region 9 has adjusted the priorities over time based on its knowledge of each county and the floodplain conditions within them.

Two significant topics discussed in the 2004 state plan that are unique to California are the need for a comprehensive statewide database of levees and the existing Awareness Floodplain Mapping Program by CADWR. The levee database is required so that the State can understand the condition of approximately 6,000 miles of levees in the Central Valley and other parts of California. The database could be used to proactively plan for and prevent flooding events related to levee failures. The CADWR Awareness Floodplain Mapping Program is an effort by the State to use its financial resources to the maximum benefit. Cost-effective GIS analysis techniques are used to assess areas that have not been mapped by FEMA and identify "awareness zones" that have the potential for flooding. These awareness zones are meant to serve as red flags, indicating that additional flood studies should be performed if future development and growth is planned within the area. This program is an advisory planning process, not a regulatory process. The quality of the mapping is approximate, but the potential to prevent unintentional development in flood-prone areas is useful.

9.3 Hawaii

Map Modernization Plan for Hawaii, FEMA/DHS Region 9, May 17, 2004.

No factors are identified in the 2004 business plan

The 2004 plan that has been provided to date states that Hawaii is "currently unable to assist in the implementation of the state's priorities, and does not anticipate a change in that status." The State of Hawaii will perform a majority of the Mapping Needs Assessments and will assist with outreach and community coordination on the mapping projects. Hawaii relies on funding made available from various partners. The State hopes to use LIDAR rather than aerial photos. The Hawaii Department of Land and Natural Resources (HDLNR) will take the lead in the floodplain-mapping program. The State Department of Planning Economic Development will assist the HDLNR in converting the information into a GIS format and will retain and maintain the data on its server thereafter.

9.4 Nevada

Map Modernization Plan for Nevada (DRAFT), FEMA/DHS Region 9, November 1, 2003.

Factors Identified	Application of the Factor
Ability of the community to effectively administer the flood zones as mapped	Unspecified
Age of the existing maps/FIRMs	Unspecified
Development since the flood map was last updated	Unspecified
Population growth	Unspecified

The State of Nevada Map Modernization Plan (dated August 2002 – no comprehensive 2004 plan has been provided to date) included a list of criteria used by the State to assess mapping needs. The Nevada Division of Water Resources (NDWR) evaluated the information collected through the MNUSS worksheets by the State and FEMA. The NDWR also conducted telephone interviews with 14 counties and eight communities to collect additional data. The NDWR then used the criteria listed above to develop priorities. No details regarding the application of the factors are provided in the plan.

Nevada cannot provide staff resources in the foreseeable future to substantially assist with the refinement of its mapping needs, development of a mapping schedule, or coordination with the local government. The 2004 plan that has been provided to date states that Nevada is "currently unable to assist in the implementation of the State’s priorities, and does not anticipate a change in that status." Nevada does not have the staff to assist in the majority of the Mapping Needs Assessments or to assist with outreach and community coordination on the mapping projects.

The State has a CTP agreement with FEMA that was entered into prior to the Floodplain Management Program’s transfer to the NDWR. If more than one community is contributing funding or in-kind services for a mapping effort, it may be appropriate to exercise the CTP agreement. The State does not anticipate that any funding will be made available for the mapping efforts, but it could act as an administrator of a pass-through agreement among communities.

Clark County has been the fastest growing community in the country for years. It has used local funding for flood mapping updates in the county and will continue to do so, reducing the amount of funding that FEMA has had to allocate to this county and the State in general. The State therefore would like this recognized by FEMA as an acknowledged non-Federal contribution to the NFIP mapping process.

10.0 REGION 10

10.1 Alaska

Flood Map Modernization Alaska Business Plan (DRAFT), Division of Community Advocacy, Department of Community and Economic Development, March 4, 2004.

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Factors Identified	Application of the Factor
Unmapped areas with flood hazards	Primary
Ability to leverage other funds	Primary
Community willingness/ readiness to participate	Secondary
Availability of flood data and other information necessary to produce adequate maps	Unspecified
Degree of interest shown by area local governments in using flood data and maps in an effective floodplain management program	Unspecified
Potential for flood damage or loss of life	Unspecified
Potential for future development	Unspecified
Probability that adequate data and maps will be prepared within a reasonable time-frame by other sources	Unspecified

Alaska's Department of Community and Economic Development used the criteria listed above to develop priorities, which were originally used in the Statewide Flood Hazard Map Modernization Plan (dated August 2002). The 2004 evaluation of mapping needs included boroughs, cities in the NFIP, and cities in the unorganized borough. The 2004 plan includes a spreadsheet showing the priority level (high, medium, or low) as well as a proposed sequencing (FY03-FY05) for boroughs and communities identified as being in need of additional mapping.

A large part of Alaska is in the unorganized borough. The State relies on the recruitment of larger boroughs into CTP agreements to supply the necessary GIS capabilities. The State plan emphasizes the need to map high-risk communities and those unmapped areas with flooding risk; however, population and population growth, in combination with funding and/or resource assistance, are the primary factors used to determine mapping needs and project sequencing. Based on information provided in the plan, it is not clear how each of these factors was applied in the evaluation process. Assistance from the state floodplain coordinator helped verify those primary factors from the secondary and unspecified factors.

Concern was expressed regarding authority for planning, platting, and land-use regulation in Alaska in the 2002 plan. Alaska state law requires that home rule, first- and second-class boroughs, unified municipalities, and first-class and home-rule cities outside of boroughs provide planning, platting, and land-use regulation. Second-class cities, including those in the unorganized borough, may exercise these powers but are not required to do so under state law.

10.2 Idaho

Idaho Flood Map Modernization Business Plan (DRAFT), Idaho Department of Water Resources, March 4, 2004.

Factors Identified	Application of the Factor
Age of map index	Primary
Maps with error not reported	Primary
Maps with known error	Primary
Number of existing LOMAs	Primary
Number of existing LOMR-F	Primary

Factors Identified	Application of the Factor
Number of flood declarations	Primary
Population	Primary
Population growth	Primary
Repetitive property loss	Primary
Unmapped areas with flood hazards	Primary
Ability of the community/county to provide matching funds	Secondary
Existing or potential mapping partners	Unspecified
Format of existing maps (countywide or non-countywide)	Unspecified
Status of existing maps (digital, manual)	Unspecified

Idaho’s Flood Map Modernization Business Plan drew on the work completed in the State’s 2002 plan. The 2002 plan contained a distinct evaluation system that used the factors listed above to achieve a countywide sequencing scheme for the State. The priorities were determined using a cumulative assessment of the factors listed above. For each factor, each county was assigned points ranging either from 1 to 5 or 1 to 10, except for the factors “unmapped areas with flood hazard” and “maps with known error.” For those two factors, each county received scores of either 0 or 10. Each factor was weighted based on the specific goals of the State and its interpretation of the overall goals of FEMA, resulting in priorities consistent with the goals for the State. Each county’s points were totaled, and higher point totals correlate with higher priority.

With the weighting values controlling the evaluation, the factors such as map age, unmapped areas with flooding hazard, and known errors in the existing maps appear to influence the results more than population, number of policies, and number of flood declarations (FY03 funding distribution factors).

The priority listing and sequencing are based primarily on overall community/county needs in conjunction with the FY03 funding distribution factors. Priority is given to those counties without maps that have a significant flood hazard, of which there are eight in Idaho. However, as long as the FY03 funding distribution factors and the metrics guide budget allocation, there is no definitive means to raise the profile of these unmapped counties at a regional or national level.

Following the initial evaluation of the counties, there was a second analysis conducted to determine the respective time frame in which to conduct individual studies. Reevaluation, based on the weighted priorities for individual communities within the counties and the overall ability of a community or county to provide matching funds, resulted in the creation of a more detailed sequencing scheme for the 3-year period. Project distribution is heavily weighted toward the first year in order to expedite the overall process.

The Idaho Department of Water Resources (IDWR) is the primary organization responsible for oversight and implementation of the Flood Insurance Program in Idaho. Current staffing and funding does not adhere to the needs of a full mapping partner with full mapping project management capabilities, but does have some capabilities regarding database maintenance and IT

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support. With additional funding, the IDWR hopes to play a more substantial role in the Map Modernization effort, including management of one to three new mapping projects per year, establishment and maintenance of an Internet-based database for technical maps and data, needs assessment, CTP assistance, and public outreach activities.

10.3 Oregon

Flood Map Modernization Business Plan for Oregon, Oregon Department of Land Conservation and Development Floodplain / Natural Hazards Program, March 1, 2004.

Factors Identified	Application of the Factor
Age of the FIRMs	Primary
Format of existing maps (GIS/base map availability)	Primary
Known mapping needs (known errors in existing maps, problematic approximate A or AO zones, etc.)	Primary
Mapping partners (potential and identified)	Primary
Number of LOMCs within the county	Primary
Number of repetitive loss properties	Primary
Number of NFIP policies per community	Primary
Population/Community growth	Primary
Ability to leverage other Federal agency work	Primary
Availability of cost-sharing with state and regional entities	Primary
Community willingness and readiness to participate	Primary
Congressional mandate	Primary
Findings of community assistance visits	Primary
Population density	Primary

Oregon’s Flood Map Modernization Plan (dated August 2002) and the Map Modernization Business Plan (dated March 2004) both include a list of factors pertinent to establishing the flood mapping priority list. However, the county evaluation methodology was only described in the 2002 plan. Generally, the factors used to develop the priority listing in 2002 are fairly consistent with the FY03 funding distribution factors, specifically focusing more on communities with high population growth, a large number of NFIP policies, and those readily affected by flood loss.

The 2002 plan included a priority list based on the factors specified above. Generally, Oregon counties were evaluated based on the frequency with which they appeared in the “top 10” for each assessment factor specified in the 2002 plan. This method weighted each factor equally.

As mentioned previously, the 2004 State Map Modernization Business Plan listed a number of factors used to establish flood-mapping priorities, some of which were included in the 2002 Map Modernization Plan and were used in the detailed evaluation described above. However, some of the factors were not listed in the 2002 plan and their application to the determination of priorities was not discussed in the 2004 plan. Assistance from the State Floodplain Coordinator helped better define any additional primary factors not readily shown in either the 2002 or 2004 plans.

County sequencing was determined based on the 2002 State Map Modernization Plan evaluation. The top 12 counties in the priority list had proposed project start dates in 2003, the following 12 in 2004, and the remaining counties in 2005. This sequencing was used as a template to project DFIRM generation and conversion over the 5-year MapMod period.

The Oregon Department of Land Conservation and Development (DLCD) acts as the primary oversight and implementation organization. Although the DLCD is prepared to financially assist with Map Modernization, the extent of the involvement ultimately depends on Federal funding and maintaining a stable funding/staffing balance. The DLCD hopes to pursue a CTP agreement with FEMA to support State efforts (community outreach, mapping needs assessment, inventory existing DFIRM base map data, and management of data standards).

10.4 Washington

Map Modernization Business Plan: Washington State, Washington Department of Ecology, April 1, 2004.

Factors Identified	Application of the Factor
Accuracy/adequacy of products (known / reported map error)	Primary
Comprehensive watershed approach	Primary
Existing data (ability to leverage)	Primary
High risk (repetitive loss/claims / disasters)	Primary
NFIP policy base	Primary
Population density	Primary
Population growth	Primary
Map age	Secondary
Number of LOMCs	Secondary
Overall mapping needs (from MNUSS)	Secondary
Unmapped communities	Secondary
Availability of existing data (topographic, base map, etc.)	Unspecified
Availability of State and local funding	Unspecified
Existing or potential mapping partners	Unspecified
Status and format of existing maps (digital/manual, countywide or non-countywide)	Unspecified

The Map Modernization Business Plan for Washington provides a detailed summary of project sequencing over a 5-year period, depending on projected budget allocations. Both the 2002 Map Modernization Plan and the 2004 Map Modernization Business Plan include a list of criteria used for in the evaluation of mapping needs. The 2004 plan includes a broad-based qualitative assessment of priority (high, medium, or low) by year and by funding projection (full, partial, or low funding to the State by FEMA) for specific studies within counties.

The State's priorities were based on national application of the FY03 funding distribution factors. Based on this analysis, deciles for each county were determined and, for the State of Washington, these deciles generally influenced sequencing of studies.

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High-priority counties included those in low-decile categories (largely supporting the FY03 funding distribution factors) and those with areas currently being studied. The second round of evaluation used more need-based factors to conduct a mapping needs assessment for all counties, but there are a number of secondary factors that do not seem to coincide with need-based assessment, and it is uncertain how they were applied.

Generally, counties only requiring DFIRM conversion and little or no additional work (restudies) were sequenced later in the 5-year study scope, whereas counties requiring additional studies were sequenced earlier. This indicates that a slightly higher priority was given to counties with activity in progress or predicted in the future.

Evaluation of the individual studies within the county was based more upon mapping needs (such as age of existing maps, unmapped areas, the number of LOMCs processed, the availability of existing base map data, and the areas with existing studies being conducted) rather than strict application of the FY03 funding distribution factors. The results of a detailed mapping needs assessment were used to re-sequence counties.

The Washington Department of Ecology (WDOE) is responsible for Map Modernization oversight and implementation. Currently employing four full-time employees, the State serves as a full mapping partner, taking part in project planning, scoping, contract management, needs assessment, and outreach. Without additional funding, WDOE may not adequately support all the activities required as part of Map Modernization (such as additional community service, workshops, GPS information sharing, GIS, and mapping assistance).

The State is focused on meeting the criteria to become a full mapping partner. As a result, its evaluation factors correlate well with FEMA's national goals and interim program metrics.

