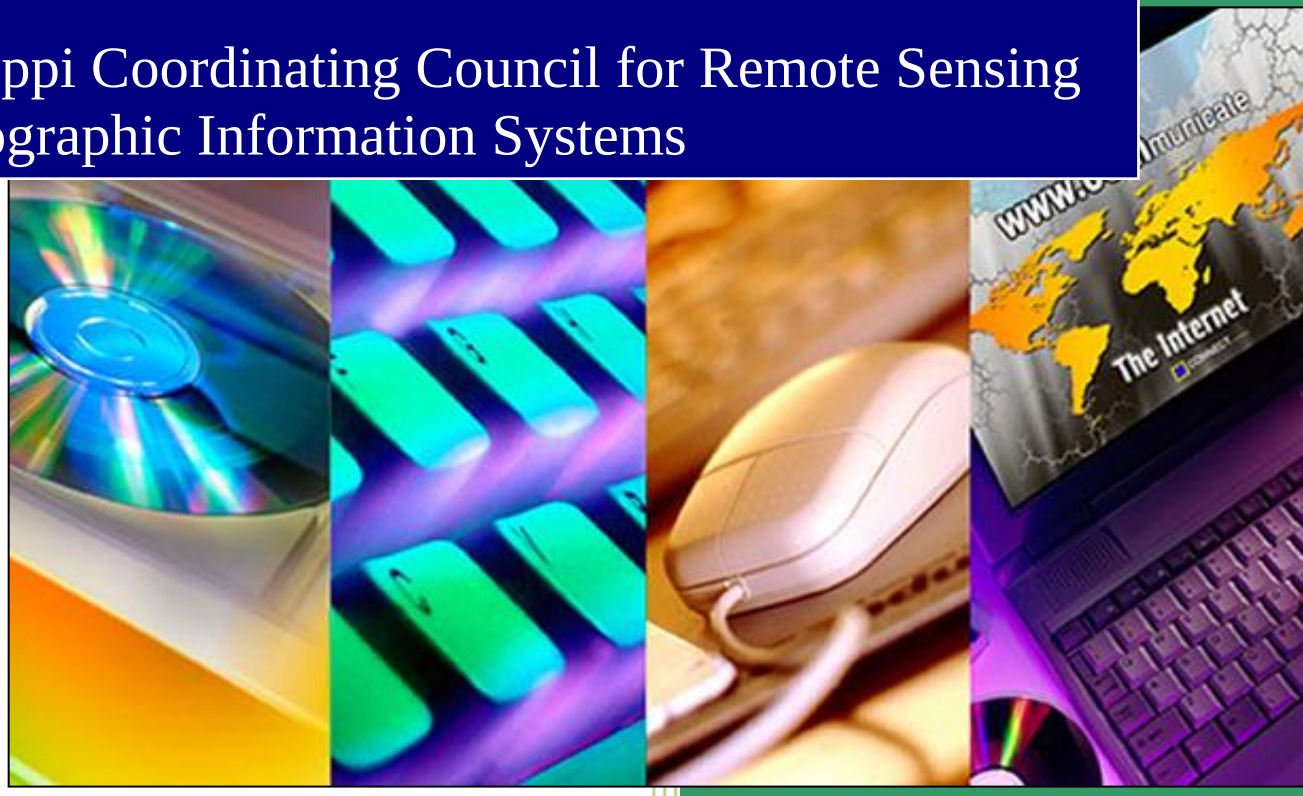
2011 Annual Status Report

Mississippi Coordinating Council for Remote Sensing and Geographic Information Systems



December 2011

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Introduction

The Mississippi Coordinating Council for Remote Sensing and Geographic Information Systems (MCCRSGIS) was established by the 2003 Legislature to ensure coordination of the development, purchase, storing, and sharing of remote sensing and geographic information system data by state and local governmental entities. House Bill 861 established a clear purpose for the Council, as well as a specific list of responsibilities. The Council is directed to set and assure enforcement of policies and standards to make it easier for remote sensing and geographic information system users around the state to share information and to facilitate cost-sharing arrangements to reduce the costs of acquiring remote sensing and geographic information system data. The Council's responsibilities include, but are not limited to:

(a) Coordination of remote sensing and geographic information system activities within Mississippi;

(b) Establishing policies and standards to guide Mississippi Department of Information Technology Services (MDITS) in the review and approval of state and local government procurement of both hardware and software development related to remote sensing and geographic information systems;

(c) Oversight of MDITS' implementation of these responsibilities;

(d) Preparing a plan, with proposed state funding priorities, for Mississippi's remote sensing and geographic information system activities, including development, operation and maintenance of the Mississippi Digital Earth Model;

(e) Oversight of the Mississippi Department of Environmental Quality's development and maintenance of the Mississippi Digital Earth Model, including establishing policies and standards for the procurement of remote sensing and geographic information system data by state and local governmental entities and establishing the order in which the seven (7) core data layers shall be developed;

(f) Designating Mississippi's official representative to the National States Geographic Information Council and to any other national or regional remote sensing or geographic information system organizations on which Mississippi has an official seat;

(g) Establishing and designating the members of an advisory committee made up of policy level officials from major state, local, regional and federal agencies, as well as members of the private sector;

(h) Creating a staff level technical users committee; and

(i) Coordinating with the Mississippi Department of Revenue to assure that state and local governmental entities do not have to comply with two (2) sets of requirements imposed by different organizations.

The law also directed the Mississippi Department of Information Technology Services to work closely with the Council to bring about effective coordination of policies, standards and procedures relating to procurement of remote sensing and geographic information systems (GIS) resources. In addition, MDITS is responsible for development, operation and maintenance of a delivery system infrastructure for geographic information systems data and is charged with providing a warehouse for Mississippi's geographic information systems data.

Additionally, the Mississippi Department of Environmental Quality (MDEQ), Office of Geology and Energy Resources, is given the responsibility for program management, procurement, development and maintenance of the Mississippi Digital Earth Model, which includes the following seven (7) core data layers of a digital land base computer model of the State of Mississippi:

(a) Geodetic control;
(b) Elevation and bathymetry;
(c) Orthoimagery;
(d) Hydrography;
(e) Transportation;
(f) Government boundaries; and
(g) Cadastral

For all seven (7) of the original framework layers, the Mississippi Department of Environmental Quality, Office of Geology and Energy Resources, is designated as the integrator of data from all sources and the guarantor of data completeness and consistency and shall administer the Council's policies and standards for the procurement of remote sensing and geographic information system data by state and local governmental entities. Additionally, the Council will establish metadata standards that will apply to the seven framework layers.

Activities to Date

With collaboration and cooperation firmly set as its number one priority, the Coordinating Council has established seven key elements necessary to achieve this goal:

1. The Council had previously developed and adopted a set of standards for the Mississippi Digital Earth Model (MDEM) that allows easy transfer of digital map information

between state agencies, local government, and the private sector. MDEM is a three-dimensional representation of natural and man-made features in Mississippi comprised of these layers: geodetic control, digital orthoimagery, digital elevation model and contours, property ownership, hydrography, transportation, and governmental boundaries. The Council continues to monitor federal data standards and will update state standards as necessary.

2. The Council had developed an express products list that will allow state agencies and local governments to easily obtain geographic information systems (GIS) hardware and software at the best prices. That dynamic list continues to be expanded and updated.
3. The Council has led an effort to coordinate data acquisition, a key element in achieving cost savings through economy of scale. Collaboration by state agencies, local government, and even federal agencies has produced better and cheaper products for everyone to utilize. In late 2011, the Council was involved in an effort to assist in coordinating a project to collect and develop 1-foot and six-inch orthoimagery covering the six coastal counties.
4. The Council has developed a warehouse/clearinghouse for GIS data - the Mississippi Geospatial Clearinghouse. In 2011, ITS completed a redesign and update of the Clearinghouse website.
5. Despite the lack of direct state funding, development of the seven layers of MDEM continues through the cooperative efforts of state, local, and federal governmental entities. During 2011, work has continued on completion of a state-wide elevation data set including DTM and 5-foot Class 2 contours developed from the 2006 2-foot imagery. MDEQ and its contractor have worked closely with MDOT in developing the statewide transportation layer data. Highly accurate elevation data (Lidar) developed by the U.S. Army Corps of Engineers covering the Mississippi Delta was made available to the State and added to MDEM, to be distributed through the Mississippi Geospatial Clearinghouse. Council members and staff continue to pursue new and creative funding sources to allow for continued MDEM development.
6. In early 2011 the Council took delivery of an updated Geospatial Strategic and Business Plan prepared for the Council by Fairview Industries. Because of a high priority recommendation of the updated plan, in May 2011, the Council selected a Council Coordinator. The Council continues development of a business model for funding and maintenance of the data development and delivery system.
7. Education and outreach continues to be a critical part of the overall plan for the Coordinating Council. The educational component serves to train, through formal and continuing education, the current and next generation of GIS professionals, as well as educating the various stakeholder groups on the value and power of GIS. Outreach utilizes the network of knowledgeable and experienced professionals. A coordinated outreach effort also leverages the Council's authority and effectiveness.

The Mississippi Coordinating Council for Remote Sensing and Geographic Information Systems will continue to move forward with its strategic plan to accomplish these goals of collaboration and cooperation during the coming year.

Updated Strategic and Business Plan

In early 2011, the Council took delivery of an update of the Council's Strategic and Business Plan. The updated plan was prepared by Fairview Industries, which is a nationally recognized firm, and was contracted on the Council's behalf, by the Geosystems Research Institute at Mississippi State University.

The Mississippi Geospatial Strategic Plan addresses two areas; the coordination and management of the collection and update of Mississippi spatial data, and the high-definition/high-accuracy digital mapping framework data to support public and private applications across the state.

The framework data themes are the building blocks for a modern digital Mississippi base map. In the past many agencies and businesses relied on the paper base maps produced by the US Geological Survey (USGS). The 7-½ minute quadrangle map (the quad map) was a commonly used stable base map for decades. With the proliferation of digital data, the ever-widening use of digital maps in consumer products and by agencies and businesses, Mississippi undertook the development of the Mississippi Digital Earth Model (MDEM) to provide a sustainable program for the development and ongoing updates of the framework data required of a modern base map. The data sets are organized into eight data framework themes, are supported by the statewide GIS community, provide statewide coverage and are freely accessible. They include:

- Orthoimagery
- Elevation (onshore and bathymetry)
- Hydrography
- Transportation
- Cadastral (Parcels and Public Land Survey System (PLSS))
- Geodetic Control
- Boundaries (Geopolitical)
- Gazetteer (named places – Optional)

To fully support this effort the Council will also need to focus additional effort on three management themes: Coordination, Education, and Technology and Infrastructure

The Strategic Plan provided options and suggestions in four documents - Implementation Plans, a Geospatial Plan, Funding Options, and the Benefits of GIS - based on the audience for which they are targeted and the different uses for which they are designed.

The strategic plan further identifies prioritized actions to sustain the Mississippi GIS program and to build out critical data sets. Implementation plans were developed for the framework data and three management themes to address the stated programmatic goals of the Council as written in legislation. Recognizing the financial challenges, the implementation plans provide a stepwise approach that first addresses the foundational component of each area, building what can be

accomplished at minimal cost and then progressing to full implementation costs. Specific strategic actions identify what the Council can do to provide institutional support to realize the successful completion of the implementation plans (Coordination and Management, Technology and infrastructure, Education and Outreach, and Data Theme Development).

The results and recommendations of the plan have been the subject of ongoing discussions since delivery of the final plan. These discussions have included options both internal and external to the Council, and have included discussions with the membership of the Mississippi Legislature. The Council will continue to work with the Governor, the Legislature and the leadership of the state to explore ways and means of improving the effectiveness of the Council as it works to ensure the development of its critical digital mapping infrastructure and technological competitiveness.

Coordination Activities

One of the recommendations of the plan is the filling of a full time GIS Coordinator. At the May 24, 2011, Council meeting, Joel Yelverton was selected to be contracted as the Council Coordinator. Mr. Yelverton has spent almost two decades working with local governments. Additionally, Mr. Yelverton was one of the original MCCRSGIS Council members. With the selection of Mr. Joel Yelverton as Council Coordinator, the first order of business was a coordinated Orthoimagery Project for Mississippi's six coastal counties.

The *South Mississippi Aerial Update Initiative:* It has been 4 years since high-resolution, aerial imagery was acquired over the Gulf Coast counties through the MDEM project and 6 years since Hurricane Katrina wreaked destruction across the southern half of Mississippi. The Coastal communities are recovering from this disastrous event, thanks, in part, to the database developed through MDEM. In this short time, considerable change in the infrastructure has occurred over the coastal landscape in regards to land cover, land use and the transportation/utilities.

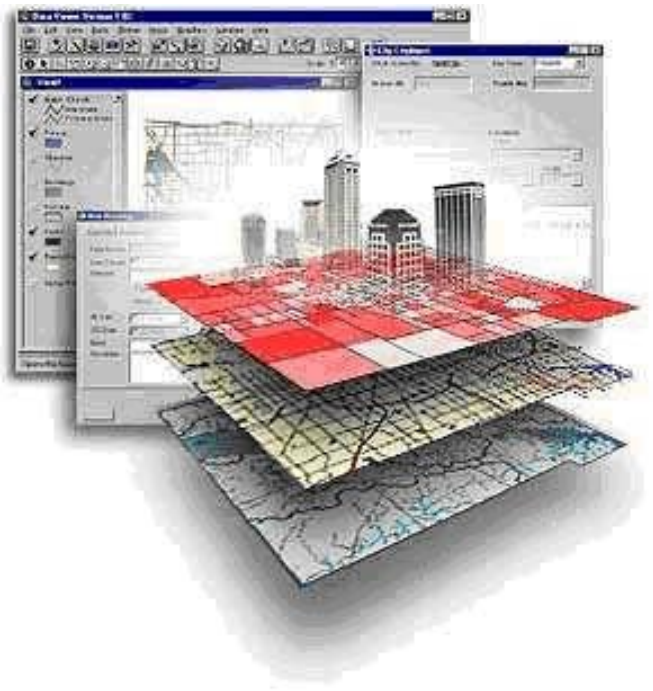
With all of the changes across the coastal landscape during the recovery process, inadvertent changes may have affected risk levels to a variety of hazards, such as sea level rise or a surge associated with a hurricane. Observing the risk potential at ground level is difficult or not apparent. However, the synoptic perspective gained through aerial imagery provides the mechanism to identify landscape changes that may increase risk susceptibility. New high-resolution, aerial imagery over the Coastal Counties can be used by resource planners and decision makers to identify and mitigate areas at potential risk. The expense of being proactive is considerably less than the cost of rescue and recovery after a hazard event.

As with the MDEM aerial imagery missions in 2007, 6-inch resolution imagery over urbanized areas and 1-foot resolution imagery over rural areas will be acquired in the Mississippi coastal counties. A subcontract will be given to Harrison County, the coordinator for the planning and

acquisition of aerial imagery over the Gulf Coast. Bids had been received and final award was forthcoming at the end of 2011.

Mississippi Geospatial Clearinghouse

The Mississippi Geospatial Clearinghouse (MGC), www.gis.ms.gov, was placed in production in September 2007 and serves as the state's premier portal for the Geographic Information System (GIS) community to search, discover, share, and use a comprehensive warehouse of Mississippi's geospatial resources. The goal of the MGC is to make the application of spatial information GIS technologies within the state of Mississippi more efficient by eliminating the duplication of spatial data production and distribution through cooperation, standardization, communication, and coordination.
Moreover, the MGC is the primary location for the Mississippi Digital Earth Model (MDEM). The MGC is housed in the State Data Center at the Mississippi Department of Information Technology Services (ITS).



State agencies, county government, city government and the public can download data that are stored in the MGC. This data provides the foundation for applications to be developed using GIS technology to meet business needs of the governmental agencies and/or public interest.

The requirement to provide operational storage and dissemination of high-resolution digital contour maps from MDEM data collection activities and the development of new technologies prompted the need for a major software and design update for the MGC. The update, completed in April 2011, reflects a new information delivery interface that utilizes up-to-date software, which also lays the groundwork for future upgrades if needed. The design provides the user with simple and easy routes to the three delivery mechanisms: visualization, information search, and data download. The visualization utilizes the web-browser add-on, Adobe Flex. This easy to navigate and responsive viewer accesses ESRI map services and ITS-hosted map and image services. The viewer retains or improves on available user tools which allows for locating, drawing graphics, measuring, printing, and exporting maps as seen by the user. The information search mechanism is more user-friendly by differentiating between MDEM and Non-MDEM datasets allowing for a natural flow to data download. GIS data are available in "Quick Download" packages or through custom online

requests.

This data, primarily the MDEM, provides the foundation for applications to be developed using GIS technology to meet the business needs of the governmental agencies and/or public interest. ITS is continually focused on the development and enhancement of the MGC, as well as maintenance of GIS hardware and software procurement instruments for state agencies and local governing authorities. The projects described in the following paragraphs leverage the MGC infrastructure.

Applications

Architectural and Historic Structures

The State Historic Preservation Office (SHPO) of the Mississippi Department of Archives and History (MDAH) is tasked with developing and maintaining a GIS based system that will map archaeological sites, National Register properties, and above ground historic resources that are situated within the disaster areas defined by Presidential Declaration FEMA-1604-DR and its amendments. This system improves the public's knowledge about the range and extent of historic and prehistoric sites within the Mississippi Gulf Coast Region and provides the SHPO with a new tool to better evaluate and manage these cultural resources.

The Architecture and Archaeology divisions of MDAH previously managed information about historic places in a couple of slightly different ways. The level of completeness with regard to this information was different for each division. The opportunity existed to bring the information in both divisions to the same completion level and to provide management of this information through a common interface. The daily maintenance of these combined records management systems is housed at the State Data Center. The electronic data are supported and accessible twenty-four hours a day, seven-days a week. In addition, all upgrades and maintenance to the combined records management systems is performed by ITS staff, which frees resources at MDAH.

This core system, completed mid-year 2011, provides a tool for the staff of MDAH to add and maintain records, create reports, perform research, perform cross-divisional regulation tasks, and provides easy review of historic building surveys.

New functionality for this system is in progress and completion is slated for 2013.

Archaeology and Historic Sites

The State Historic Preservation Office (SHPO) of the Mississippi Department of Archives and History (MDAH) has been tasked with developing a website to publish the rich, but not well-known archaeological history of Mississippi. This project intends to educate the citizens of

Mississippi about their archaeological heritage through an interactive website that includes virtual tours of archaeological sites. The website will reach citizens as well as teachers, students, and professionals. The website will include key sites in the Mississippi coastal area but will be designed to include information statewide when available. The virtual tours will guide users to experience historic sites that are now non-existent or inaccessible. The site will also guide users, through the use of podcasts and downloadable content to visit actual sites. This project is currently in development.

Small Community Assets

The Asset Development Group of the Mississippi Development Authority has been tasked with developing a GIS based system that will highlight the resources of small communities in Mississippi.

MDA created the Asset Development Group to focus on non-traditional economic development opportunities unique to Mississippi. Such opportunities often require longer term development, guidance, vision and support. This system will showcase resources of small communities to the public. The site will provide tools to tourists, the film industry, and businesses. A tourism-focused application foundation will be created with expandable functionality and the ability to include program areas as data sources become available. The foundation will be an application that has all of the basic functionality that is necessary in any web-based mapping program. This will include multiple base maps, keyword search, address search, zoom/pan, multimedia pop-ups and other basic functions. The foundation will be designed in a way to provide for the easy expansion of more complex functions such as a trip planner. Through the use of standard web feeds, like GeoRSS, the foundation can be designed to consume these feeds as they become available. The project is currently in development.

Biomass in Mississippi

The Mississippi Development Authority has recently contracted with a consulting group, Tetra Tech, to provide a detailed study of potential sources of biomass in Mississippi. As defined by The Mississippi Biomass and Renewable Energy Council, biomass is any non-fossil energy containing a form of organic carbon, which includes all land and water-based vegetation such as trees, aquatic and marine plants, crops, organic components of municipal solid waste, forestry and agricultural residues, animal wastes, and industrial wastes derived from any combination of those substances. Mississippi has many naturally occurring substances as well as substances that can be easily farmed that are natural biomass sources.

The data collected will be in report format with an accompanied geographic dataset. This project will make the data and geographic information available via the Internet to a target audience of potential biomass investors and to the general public. It will include an interactive map with available biomass layers provided by the consultant group. This project is currently in development.

Express Products List (EPL)

Express Product Lists are multi-vendor awards that meet Mississippi requirements for legal purchases. The use of EPLs is governed under Procurement Instruments as stated in the ITS Procurement Handbook.

Engineering and GIS level workstations and mobile workstations are now part of the Micro EPL. Large Format printers and scanner/plotters, such as those used for GIS mapping, are also a part of the Micro EPL.

ITS also maintains EPLs for Environmental Systems Research Institute (ESRI) software and Intergraph software.

All EPLs are available on the ITS website at www.its.ms.gov/EPL.shtml

Mississippi Flood Map Modernization Initiative

The Mississippi Flood Map Modernization Initiative (MFMMI) is a partnership between the State of Mississippi and the Federal Emergency Management Agency which is in the process of modernizing and updating the nation's Flood Insurance Rate Maps used by FEMA to support the National Flood Insurance Program (NFIP) and all local government Floodplain Management Programs. State agencies involved in the program are MEMA, which handles the State NFIP and Floodplain Management Program, and MDEQ with its contractor MGI, LLC, which handles the engineering and mapping activities for the program.

MAP MOD (Map Modernization) was the first multi-year (FY2003-FY2008) FEMA flood mapping program. FY2009 FEMA funded map work is considered transitional to the new program called Risk MAP, which began with FEMA FY2010 funding and will continue so long as funding is made available. This program's primary goals will be DFIRM map maintenance, the addressing of unmet mapping needs not covered during the MAP MOD program, and remapping areas with levee accreditation issues. New activities added may include new elevation data development (Lidar), other non-regulatory mapping, or data development which may be used in flood mitigation, flood risk assessment, flood planning and floodplain management activities of local city and county governments.

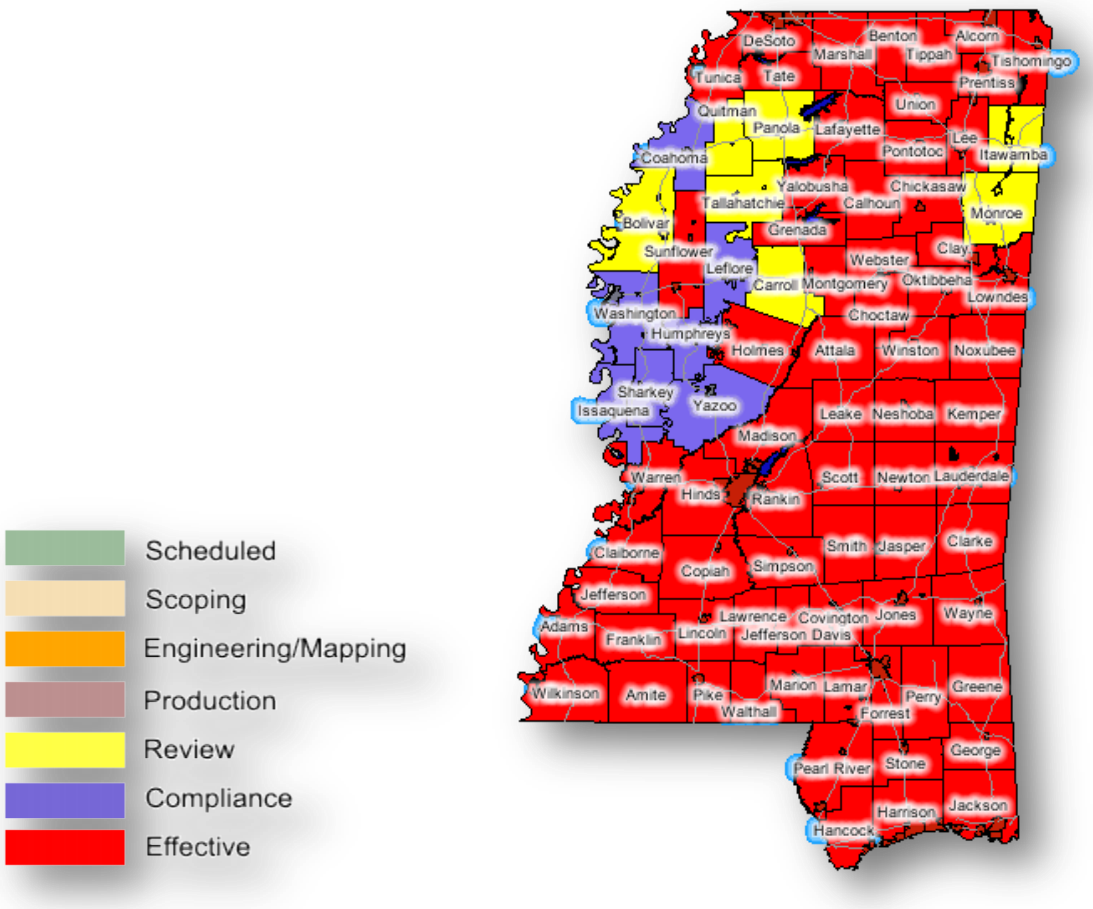
Project Status:

- MAP MOD Status: As of the end of 2011, sixty-eight (68) of Mississippi's 82 counties have new countywide effective Digital Flood Insurance Rate Maps (DFIRMs) and fourteen (14) additional Mississippi counties have had Preliminary

DFIRMs delivered to the local officials for review. Seven (7) of those counties were in the compliance period at the end of 2011. Most County Preliminary DFIRMs under review are expected to go effective for NFIP insurance purposes sometime during 2012.

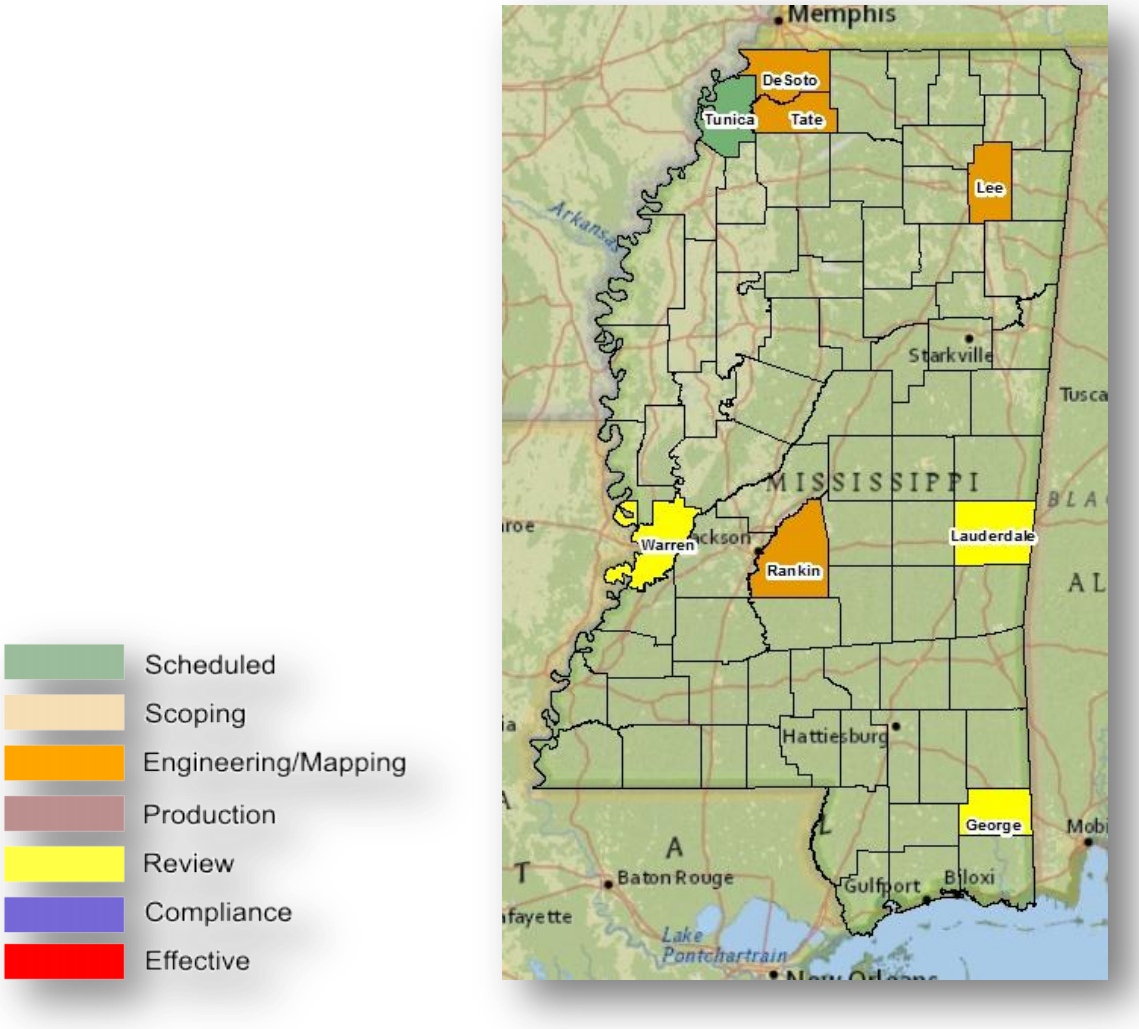
FEMA MAP MOD Funding Year	# of County Projects Funded	# of County Preliminary DFIRMs Delivered	# of County DFIRMs Effective
FY03 Map Mod	5	5	5
FY04 Map Mod	6	6	6
FY05 Map Mod	8	8	8
FY06 Map Mod	20	20	19
FY07 Map Mod	21	21	20
FY08 Map Mod	20	20	8
Totals	80 + 2*	80 + 2*	66 + 2*

*Rankin and Pearl River Counties separate funding



Mississippi County MAP MOD Flood Mapping Status.

- **FY2009**: As of the end of 2011, three (3) of the seven (7) counties had preliminary DFIRMs completed and submitted to local county and community officials for review and for scheduling of appeal periods. This work is covered under FY2009 FEMA funding. The **FY2009** mapping year is considered a transition year in funding between FEMA's MAP MOD program and the Risk MAP program which will begin with FY2010 funding and run through FY2014.



Mississippi FY2009 County Flood Mapping Status.

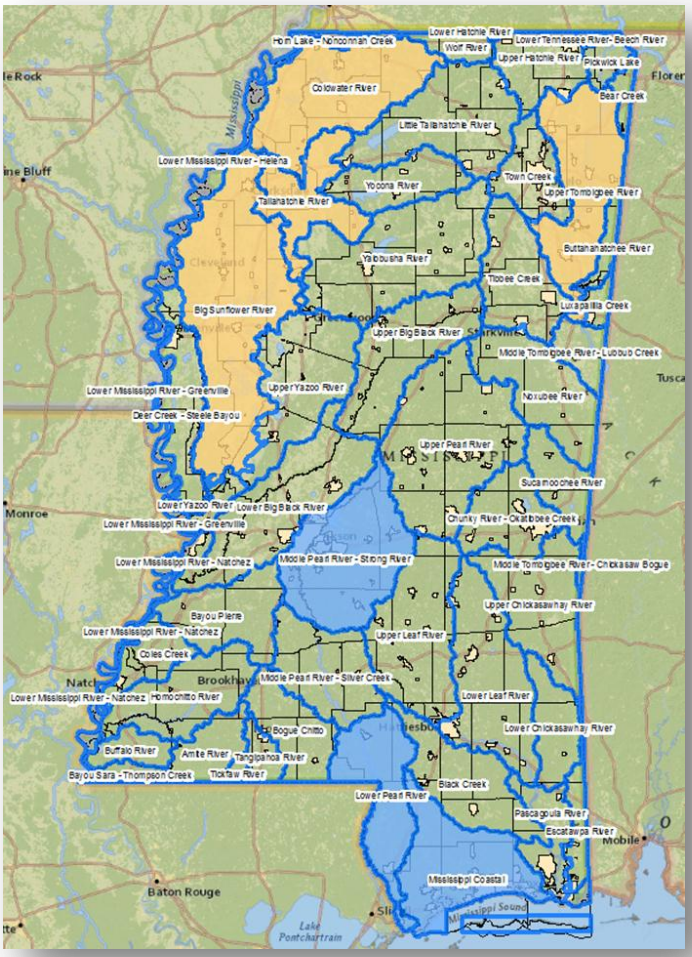
- **RiskMAP FY2010-2014**: With the new FEMA RiskMAP program, all RiskMAP and new DFIRM studies will be based on HUC_8 sub-basin basis. As of the end of 2011, scheduling and work had begun on seven (7) HUC_8 sub-basins. Three (3) sub-basins are scheduled under FY2010 FEMA funding and four (4) under FY2011 FEMA funding. The first Discovery/Scoping Meeting with county and local city officials is scheduled for early February, 2012. These meetings for both FY2010 and FY2011 HUC_8 sub-basins are to be completed in 2012.

FY2010 RiskMAP

- Middle Pearl River - Strong River
- Mississippi Coastal
- Lower Pearl River

FY2011 RiskMAP

- Coldwater River
- Tallahatchie River
- Big Sunflower River
- Upper Tombigbee River



Mississippi FY2010-FY2011 RiskMAP Flood Studies.

Education and Outreach

A coordinated outreach effort leverages the Coordinating Council's authority and effectiveness. The Geospatial Education and Outreach (GEO) Project, managed through the Geosystems Research Institute at Mississippi State University, has served as the education and outreach mechanism since 2004. They have provided training in geospatial technologies to local governments to improve the efficiency of daily routine tasks, such as tax mapping, as well as helping them prepare to provide services during natural or man-made disasters. By offering classes, the GEO Project has provided continuing education to the current and next generation of

GIS professionals, as well as providing technical support on the local level. The outreach by this network of knowledgeable and experienced professionals allows various stakeholder groups to see the value and power of GIS.

Project Status:

- Since June 2006, the GEO Project has provided 237 GIS workshops for 2,291 people from 68 Mississippi counties under the Coordinating Council's education and outreach program – an estimated savings to the state of over $5.3 million.

- The GEO Project is authorized to offer 12 two, three and five day workshops developed by the GIS software developer ESRI. Additional courses are in preparation to meet specific needs of Mississippi's local and state government agencies. The GEO Project has been cited by ESRI as the largest venture of its kind in the United States.

- The Mississippi Geospatial Clearinghouse has received increased exposure to local governments during the GIS classes. Participants are introduced to the resources available through the Mississippi Geospatial Clearinghouse.

Mississippi Digital Earth Model

The Mississippi Department of Environmental Quality, Office of Geology, is charged under state law to develop the seven key base layers of geographic information for the state. These seven layers are referred to as the Mississippi Digital Earth Model (MDEM). MDEM is a seamless, statewide, geospatially-referenced information management and mapping system. The seven key component layers include digital orthoimagery, transportation, hydrography (rivers, streams, lakes, and other water bodies), geodetic control, geo-political boundaries, a three-dimensional topographic model of the ground surface, and the cadastral layer (tax parcels). In the long term, the program will be largely self-sufficient through coordination of state and local government funding by the Mississippi Coordinating Council for Remote Sensing and Geographic Information Systems. In the near term, however, federal grant funding will help transition into an operational implementation of MDEM. MDEM data layers are housed and distributed by the Mississippi Geospatial Clearinghouse: www.gis.ms.gov.

Project Status:

- Orthoimagery Data Collection:

    1. State-wide collection of seamless 2-foot pixel orthoimagery conducted by MDEQ during the 2005 - 2006 flying season with funding supplied by MDOT and NOAA.

2. Collection of seamless 1-foot and 6-inch pixel imagery collected by MDEQ in five Gulf Region counties (Hancock, Harrison, Jackson, Pearl River, and Stone) was completed during the 2007 flying season using post-Katrina CDBG funding.
3. Collection of seamless 2-foot pixel imagery was collected by the US Army Corps of Engineers (USACE) covering the entire Delta region during the 2010 flying season. That data has been provided by the USACE for use in the MDEM clearinghouse.
4. The explosion and sinking of the Deepwater Horizon drilling rig and subsequent massive oil spill in the Gulf of Mexico challenged the State of Mississippi to develop a pre-disaster resource baseline, including high-resolution multi-spectral datasets in the potential impact areas. Complete datasets were collected on the barrier islands and the Mississippi coastline from the Louisiana state line to the Alabama state line. Additional data was collected in estuary areas of St. Louis Bay, Back Bay of Biloxi, and the mouth of the Pascagoula River, from the land/water interface to 200 feet inland. Datasets will be distributed through the GIS Clearinghouse upon completion of the Natural Resource Damage Assessment process.

- Transportation Data Collection:

1. Collection of annotated road data for the five Gulf Region counties (Hancock, Harrison, Jackson, Pearl River, and Stone) was developed by MDEQ using post-Katrina Community Development Block Grant (CDBG) funding in 2007 – 2008. The individual counties provided QA/QC support.
2. Collection of annotated road data for 15 Delta counties was developed by MDEQ during 2010 with funding supplied by NOAA. MDOT and the individual counties provided QA/QC support.
3. Collection of annotated road data for 22 central and northeast Mississippi counties was developed by MDEQ during 2011 with funding supplied by NOAA. MDOT and the individual counties provided QA/QC support.

- Geodetic Control Data Collection:

1. Control points consisting of unambiguous targets easily viewable from existing digital orthoimagery were collected by MDEQ during 2010 in 17 southwest Mississippi counties with funding supplied by NOAA.

- Hydrographic Data Collection:

1. Collection of detailed digital surface waters files were completed for the Coldwater Basin, the Upper Pearl Basin, the Upper Big Black Basin, and the Lower Mississippi Basin by MDEQ during 2010 with funding supplied by NOAA. The total coverage area for these up-dated areas is 5,148 square miles.

The new datasets are being loaded into the MDEM Clearinghouse and into the USGS National Hydrographic Dataset (NHD).

- Elevation and Bathymetry Data Collection:

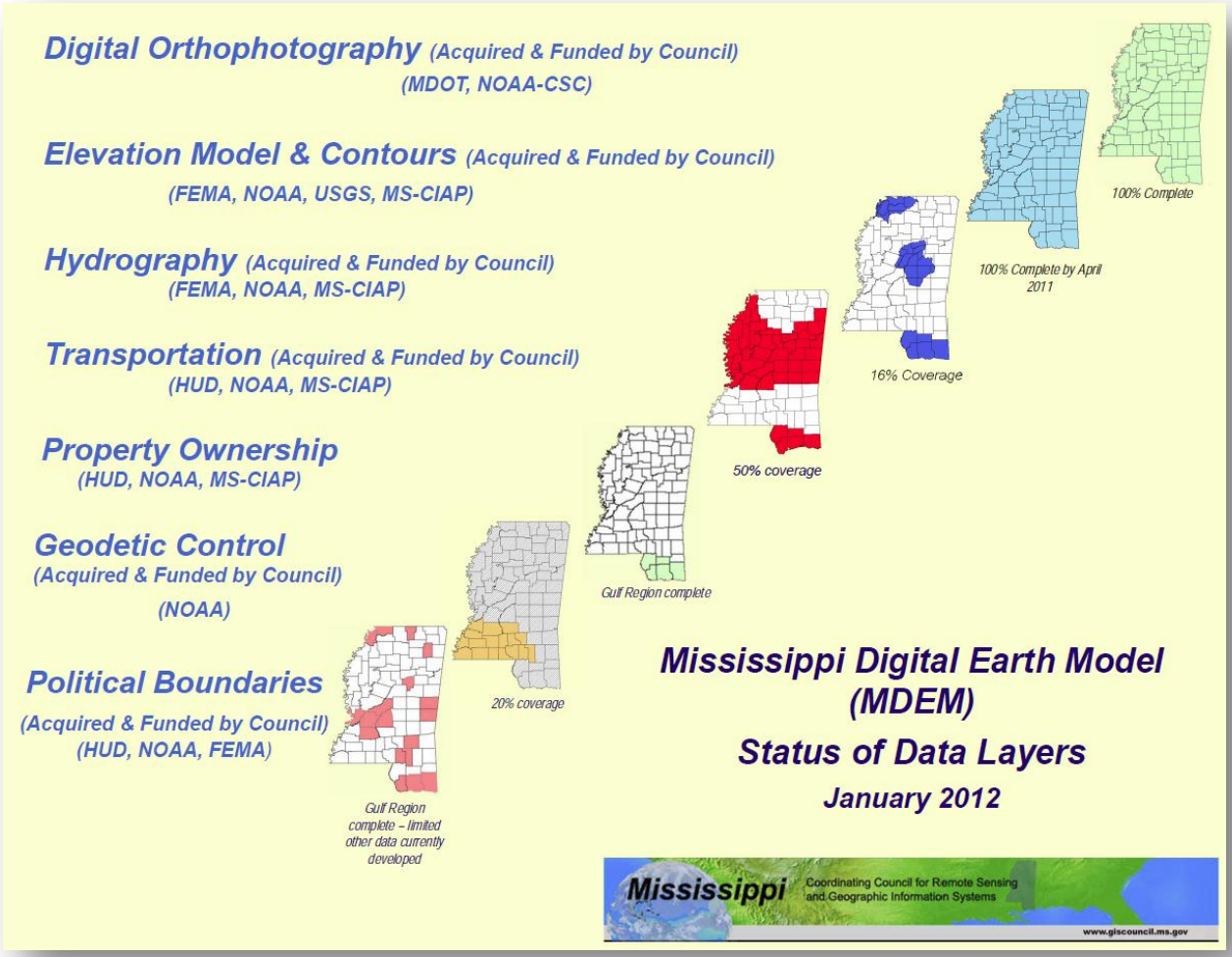
    1. One of the most pressing needs as far as MDEM framework data layer development is concerned, is high resolution digital terrain and contour maps for the state that are aligned and compatible with the state-wide orthoimagery base layer of MDEM. Digital terrain models and contours have been developed for the entire state, with the final seventeen counties in the southwest part of the state being completed in 2010.
    2. LiDAR (light detection and ranging) is an optical remote sensing technology that can provide an extremely accurate rendition of the ground surface. Although expensive to collect, it has numerous applications in agriculture, archaeology, biology and environmental sciences, geology, surveying, and transportation. LiDAR data covering Camp Shelby and surrounding areas was collected in 2008 by MDEQ utilizing National Guard funding.
    3. LiDAR data for the entirety of Hinds County and for 947 square miles along the Tenn-Tom waterway were collected by MDEQ as a part of their work with FEMA's flood mapping program.
    4. The collection and processing of LiDAR data were conducted by the US Army Corps of Engineers (USACE) covering the entire Delta region (Phase I) and headwaters of the Yazoo Basin (Phase II) during the 2010 flying season. That data has been provided by the USACE for use in the MDEM clearinghouse.

- Through funding provided by the U. S. Department of Housing and Urban Development *Recovery Action Plan*, and working closely with the counties, a number of datasets were developed in support of the Gulf Coast Regional Infrastructure Program in the five Gulf Region counties. This work supports implementation of the water and wastewater infrastructure improvements, including developments that will ensue for years to come. The elements of this work included:

    1. Public Land Survey System Improvement – the framework on which property ownership data and juristictional boundary data are based. This element will create an integrated, regional PLSS that will support accurate, georeferenced locations of the water and wastewater infrastructure improvements.
    2. Parcel Publication – the element that creates the publication standard for parcel data and provides the resulting data sets for the State for distribution through the MS Geospatial Clearinghouse to those end users within the Gulf Region who most need the data.
    3. Parcel Improvement and Address Plan – resulting in data that will constitute a seamless, regional property ownership data set that can be used by the State in

the infrastructure program, by Federal agencies, and by various units of local governments in their continuing recovery efforts.

4. Building Footprint and Address Point Collection – complementing the contents of the county parcel record databases.
5. Jurisdictional Boundaries – resulting in a standard, uniform municipal and county boundary for each of the Gulf Regional counties, including the county utility authorities responsible for implementation of the infrastructure program.



MDEM Data Layer Status December 2011.

MDEM data layers are housed and distributed by the Mississippi Geospatial Clearinghouse: www.gis.ms.gov.