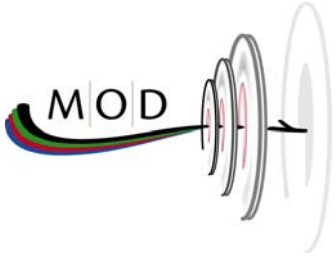
Flood Map Modernization

NFIP Metadata Profiles Guidelines

Version 1.1

April 6, 2006



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Appendix A. Glossary of Terms A-1

MOD Team

1. Introduction

This document contains guidelines for the National Flood Insurance Program (NFIP) metadata profiles, which are used to characterize and inventory DFIRM datasets and associated data artifacts in the Mapping Information Platform (MIP). The ability to describe, search, discover, and reuse DFIRM artifacts is a key requirement of the Map Modernization Program. To achieve this, metadata about DFIRM artifacts must be recorded and updated throughout the DFIRM lifecycle, from study scoping to collection, storage and management, production, publication, dissemination, and use.

The Map Modernization program has developed operational procedures that institutionalize metadata production and maintenance as part of MIP workflows, content management infrastructure and maintenance tools. Metadata based on industry-standard information models is a key component of the data development and management process. This document contains guidance regarding the development and submission of NFIP metadata; the specifications for the NFIP metadata profiles can be found in the companion document entitled NFIP Metadata Profiles Specifications.

This document begins with a brief overview of relevant metadata standards and background, as well as an overview of the MIP metadata lifecycle. This is followed by a discussion of metadata profiles developed specifically for the NFIP, which are based on the Federal Geographic Data Committee's (FGDC) Content Standard for Digital Geographic Metadata (CSDGM). The document describes the metadata requirements for the MIP and provides an overview of the FGDC CSDGM. The document describes the mandatory elements for the NFIP metadata profiles and provides guidance and examples for providing this required information.

2. Reference Documents

This section identifies the documents that are referenced directly in the metadata requirements or were used to derive the metadata requirements.

2.1. Applicable Documents

Documents whose content is considered to form a part of the requirements are considered to be applicable. The specified parts of the applicable documents carry the same weight as if they were stated within the body of this document. The applicable documents are:

- FEMA Internet Publication Standards, v. 4.0, Revised: February 23 2004
- Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata (FGDC-STD-001-1998) (http://www.fgdc.gov/metadata/metadata.html)

2.2. Reference Documents

Reference documents, although not a part of this document, serve to amplify or clarify its contents. The specific reference documents are:

- Federal Agency Guidance for Modules 2 and 3 of the Geospatial One Stop Initiative
- Request for Comment, Geospatial One-Stop Portal Version 2, Annex A: Functional Requirements, July 15, 2004
- FGDC Contract for Interoperable Geospatial Portal Components (available at http://www.fgdc.gov/geoportal/)
- FGDC Metadata Quick Guide (available at http://www.fgdc.gov/metadata/education/MetadataCliffNotes.pdf)
- FGDC Top Ten Metadata Errors (available at http://www.fgdc.gov/metadata/top10metadataerrors.pdf)
- FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases, April 2003 (available at (http://www.fema.gov/fhm/dl_cgs.shtm)
- FEMA Guidelines and Specifications for Flood Hazard Mapping Partners: Data Capture Standards, Preliminary Draft, April 2004 (available at http://www.fema.gov/fhm/dl_cgs.shtm)
- Hazard Metadata Assessment Deliverable (available at http://extranet.lotus.com/QuickPlace/femamip/main.nsf)
- GOS Reporting Requirements (available at http://extranet.lotus.com/QuickPlace/femamip/main.nsf)

3. Metadata and Relevant Standards

3.1. The Purpose and Role of Metadata

Metadata is often referred to as “data about data,” or structured information that defines the important characteristics of a dataset. When used in relation to digital geospatial data, metadata is critical information that describes the content, quality, condition, and characteristics of the data. Metadata is a critical component of any geospatial data sharing framework, in that it allows for interoperability at the level of the data set, and even down to the level of individual features and their properties. In this capacity, it plays an important role in informing users about the quality of data and their intended use, to ensure that data are correctly utilized by the end user community.

The key purpose for collecting and publishing metadata is to:

- Maintain an organization's internal investment in geospatial data

- Provide information about an organization's data holdings to data catalogs, clearinghouses, and brokerages
- Provide information needed to process and interpret data to be received through a transfer from an external source

In support of inventory and documentation of information resources, the role of metadata is to describe information resources, which include datasets, individual granules within datasets, processing services, etc.

The most common use of metadata and associated services is for discovery, qualification, and access to resources. Through appropriate mechanisms such as metadata catalogs and services as described in section 2.3, and as implemented in the MIP, users are able to search for, assess, and then access desired resources. The basic requirements for discovery, qualification, and access to resources are the following:

- **Publishing** – Authorized users must be able to publish or update metadata about geospatial resources
- **Discovery** – Authorized users must be able to search for and identify geospatial resources of interest
- **Qualification** – Authorized users must have the means to qualify the utility and suitability of geospatial resources for use
- **Access** – Authorized users must be able to determine how to assess and then access desired geospatial resources

From an operational perspective, there are two basic requirements that must be fulfilled for metadata to be used effectively for discovery, qualification, and access of resources. They are:

- Availability of high-quality metadata that properly characterizes the resources
- A metadata catalog with associated application, tools, and services to populate, update, and manage access to the resources.

The metadata standards discussed in section 2.2 address availability, while the metadata catalogs and services discussed in section 2.3 focus on populating, updating, and managing access to the resources, and is discussed in section 3 of this document.

3.2. Metadata Standards

This section describes geospatial metadata standards, focusing on the CSDGM and other relevant standards.

3.2.1. Content Standard for Digital Geospatial Metadata (CSDGM)

The FGDC is a 19-member interagency committee composed of representatives from the Executive Office, Cabinet-level, and independent agencies. To address the need for an open, consensus-based standard for geospatial metadata, the FGDC has developed the CSDGM, FGDC-STD-001-1998. This standard has received much attention in the Federal community, with active participation by many producers and consumers of geospatial data. In the United States, most State and Federal agencies adhere to the CSDGM.

The FGDC is also charged with developing the National Spatial Data Infrastructure (NSDI), in cooperation with State, local, and tribal governments, as well as the academic community and the private sector. A key component of the NSDI is the NSDI Clearinghouse, which is an electronic service that provides access to geospatial data and metadata from distributed sources. FEMA is mandated in the revised OMB Circular A-16 (Executive Order 12906, as amended by E.O. 13286) to fully participate in the NSDI, which includes making metadata available to the NSDI Clearinghouse in the CSDGM format.

The CSDGM geospatial metadata standard has evolved over more than a decade, and its structure reflects the key requirements for geospatial metadata, as discussed in Section 2.1 (Publishing, Discovery, Qualification, and Access). The CSDGM structure gives consideration to how geospatial data are to be used (downstream from the producer). That is, it not only addresses data set identity (what it is), but who/where/when/how it was produced and characteristics concerning its suitability for use (e.g., accuracy, resolution, etc). An important point to understand about CSDGM is that without the information it provides, users of geospatial data cannot properly assess the value of candidate data sets for given tasks. Without CSDGM-type metadata, there is great uncertainty about the value, utility, and suitability of these data in downstream business user processes, which could prove to be harmful to the mission.

By utilizing the CSDGM, metadata captures the unique characteristics of datasets such as data format, storage requirements, distribution policies and usage constraints, points of contact, as well as descriptive information specifically derived from the data content, including identification of measurements and statistics used, hydrological models, data quality (completeness, resolution, and accuracy), etc. The revised OMB Circular A-16 (Executive Order (EO) 12906, as amended by EO 13286) notes that metadata about geospatial data consists of content, source, vintage, spatial scale, accuracy, projection, responsible party, contact phone number, method of collection, and other descriptions. Circular A-16 notes that it is critical to document, preserve and protect agencies' spatial data assets, and that reliable metadata, structured in a standardized manner such as CSDGM, is essential to ensuring that geospatial data are used appropriately and that any resulting analysis is credible. The circular further notes that metadata also can be used to facilitate the search and access of data sets or geospatial services within the NSDI Clearinghouse or data library, clearly emphasizing that the focus of FGDC and the NSDI is to achieve interoperability for geospatial data and services.

3.2.2. Additional Relevant Metadata Standards

Other formats of metadata, while not necessarily mandated by Executive Order, may also play important roles in the data discovery and distribution systems for DFIRM and other NFIP datasets. Two other important standards of note include the international geospatial metadata standard ISO-19115, and "Dublin Core," which defines a metadata standard more broadly, as opposed to being limited to digital geospatial data.

ISO-19115 is a newer standard than FGDC-CSDGM, is generally more configurable for different application communities, and adopts broader support for internationalism (in terms of languages and character sets). The two standards are very closely aligned, and it is relatively straightforward to map existing repositories of CSDGM metadata to the ISO-19115 standard. In fact, the FGDC has published a "crosswalk" between the two standards, which is available at http://www.fgdc.gov/CrossWalk/ISO-FGDC-METADATA-CROSSWALK-V4.xls. A general discussion of FGDC-ISO metadata harmonization activities is also provided at http://www.fgdc.gov/metadata/whatsnew/fgdciso.html. Given these similarities and the planning efforts going on within both organizations, one can expect that FEMA metadata produced in compliance with CSDGM will also eventually be easily converted for ISO compliance should the adoption of this standard become broader among Federal agencies in the future.

The Dublin Core metadata standard extends these concepts to many different information types other than geospatial data, including both physical and electronic resources in many forms. Dublin Core metadata provides a set of card catalog-like definitions for describing the properties of objects for Web-based resource discovery systems. The Core Element Set consists of 15 semantic definitions that are applicable across a broad range of vertical industries and disciplines.

While a full discussion of either Dublin Core or ISO-19115 is beyond the scope of the present document, it is nonetheless important to keep these standards in mind when documenting the many different types of information produced in the NFIP. Dublin Core forms of metadata in particular may be useful in the documentation of engineering data and other valuable information collected during DFIRM development and other processes that may not lend themselves to documentation in CSDGM or another geospatially-focused form.

3.3. Metadata Catalogs and Services

Metadata catalog applications and their associated services allow a user to query single or distributed collections of geospatial information through their metadata descriptions. Users interested in locating geospatial information can access a search interface, and fill out a search form specifying queries for data with certain properties. The search request is passed to the catalog service, and poses the query to one or more registered catalog servers. Each catalog server in a distributed collection manages its own collection of metadata entries. There are a variety of service types available in this type of catalog search in various national and regional Spatial Data

Infrastructures (SDIs) around the world. Interoperable searches across catalogs can be achieved through the use of a common descriptive vocabulary (geospatial metadata), and a common search and retrieval protocol. The most commonly used search and retrieval protocols for geospatial data are described below.

3.3.1. Z39.50 – Geo Profile

ANSI/NISO Z39.50 defines a standard way for two computers to communicate for the purpose of information retrieval. Z39.50 is a computer-to-computer communications protocol designed to support searching and retrieval of information in a distributed network environment.

The GEO Profile of Z39.50 is a registered profile of the standard that incorporates FGDC's Content Standard for Digital Geospatial Metadata. The GEO Profile defines the following:

- What subset of Z39.50 services (functions) must be understood by a Z39.50 GEO Profile server
- What attributes may or must be understood by a server
- What relations must be understood by a server (e.g., "Equal," "Near").

The Z39.50 Geo Profile search protocol is widely adopted by agencies sharing geospatial data around the world. This includes many large interoperable data discovery and distribution systems in the United States, like Geospatial One-Stop (GOS).

3.3.2. OpenGIS® Catalog Service, Web Profile (CSW)

The OpenGIS® Catalog Service, Web Profile (section 10 of the specification), commonly referred to as the "CSW", defines a standard interface that enables applications to perform discovery, browse, and query operations against distributed and potentially heterogeneous catalog servers. Metadata records act as generalized properties that can be queried and returned through catalog services for resource evaluation, and in many cases, invocation or retrieval of the referenced resource. OGC Catalog Services support the use of several query languages to find and return results using metadata and their associated encodings.

4. Metadata in MIP

Metadata is a critical asset for the inventory and documentation of FEMA geospatial data products and specifically those flood mapping data artifacts held and managed by the MIP. Metadata must be collected and organized to permit rapid search and access across data collections or among the individual granules of a collection, based on common query patterns (e.g., search by theme/topic category, publication date, publishing organization, geographic extent, time period, etc).

As noted in the revised OMB Circular A-16, lead agencies have the responsibility for coordinating the national coverage and stewardship of specific spatial data themes. As the designated lead

agency for production, management, and dissemination of Flood Hazard data, FEMA will be a GOS "channel steward" for flood hazard data, providing metadata about relevant resources to GOS via searchable "channels". [1, 2] The MIP, in its role as information portal for all FEMA flood-mapping data and information resources, is the authoritative source for metadata to be published to GOS for discovery and access via GOS channels.

4.1. The MIP Metadata Lifecycle

Metadata development is an important process within the DFIRM production chain, and a requirement that must be met by mapping partners when submitting data to the MIP. Metadata plays a pivotal role in facilitating data discovery and access by helping to both build the catalog of available data granules available within the MIP, and by providing information to consumers of the data on the history and appropriate use of data layers being accessed. The lifecycle of metadata in the MIP has been redesigned to better support a range of discovery and access tools.

4.1.1. Background

Mapping partners historically have been responsible for producing metadata at a number of different points during the DFIRM production chain. As data are developed in the DFIRM production lifecycle, mapping partners produce or modify metadata for multiple datasets, including those related to base maps, terrain, engineering, field surveys, and ultimately, the DFIRM database itself.

For DFIRM data submittals, a detailed metadata template was developed (Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L), and has been used by mapping partners to produce compliant, FGDC-compatible metadata with each DFIRM submittal. Using this approach, metadata have been submitted as a part of the data submission package as a plain ASCII text file, and kept with the DFIRM data package for subsequent use and distribution. For other mapping products, including hydrology, hydraulics, terrain, and survey data, standards for developing metadata have been available in Appendix N, the Data Capture Standards document.

A variety of tools exist for creating the metadata component of these submittals, tools whose capabilities range from utilizing the Appendix L DFIRM metadata example as a basic template into which specific content is added in a text editor, to the use of more automated desktop tools such as ESRI's ArcCatalog. Once developed, these metadata files are generally included as plain ASCII files when the corresponding data are distributed, and typically have not been made available via on-line data catalog applications or services to facilitate data discovery and access.

4.1.2. Current Practices

For the MOD Program, a state-of-the-art geospatial data discovery and access system has been implemented as part of the MIP. All DFIRM datasets and associated data artifacts will be stored within this system, and the data holdings made available through the MIP to mapping partners and

other user communities and national systems like the GOS Portal. As a part of this effort, metadata production and maintenance has been institutionalized as a critical component of MIP workflows, which are described further in the following sections.

4.2. DFIRM Artifacts/MIP Data Submission Packages

As specified in the Guidance for Preparing Draft Digital Data and DFIRM Databases [6], a "Mapping Partner must perform initial research to avoid duplication of effort during a Flood Map Project. This is especially critical for digitally prepared study/restudy components because data collection is expensive. The assigned mapping partner shall identify and use existing digital data whenever possible, while still meeting required specifications and quality of work."

The mapping partner producing draft study/restudy digital artifacts must identify the available digital data and obtain those datasets and hardcopy plots for the study/restudy areas of interest. Potential sources for this information include FEMA, State, county, or local government agencies.

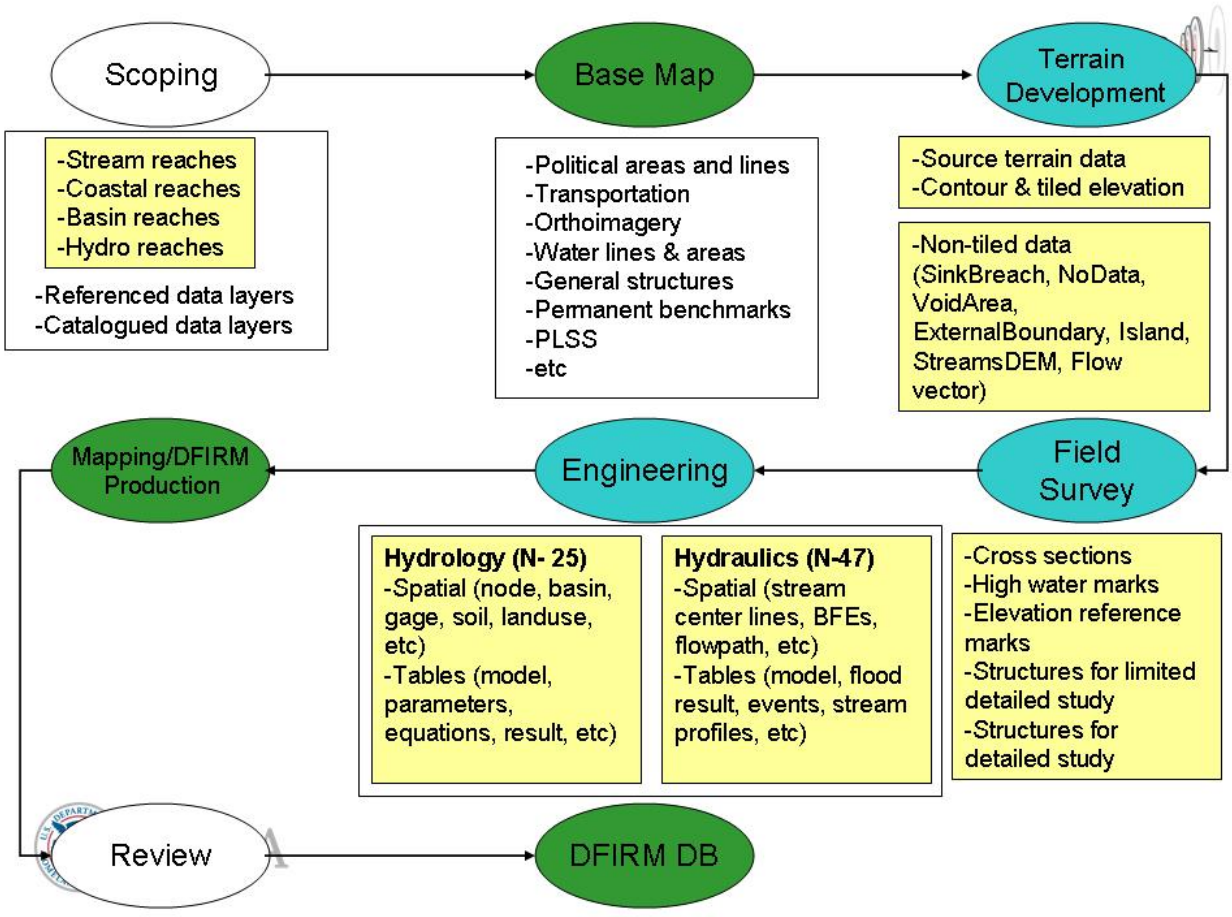

Figure 1. DFIRM Production Lifecycle and Metadata Artifacts

Through the MIP, Mapping Partners are able to upload and search for the types of study artifacts listed in Table 1.

Table 1 Types of MIP DFIRM Artifacts/Submission Packages

DFIRM Artifact and MIP Submission Package	Description
DCS – Hydrology Naming convention: <CID>_Hydrology_metadata `geoform` identifier(s): *"FEMA-DCS-Hydrology"*	Hydrology data as defined in Section N.4 of "*Appendix N: Data Capture Standards*", including spatial datasets and data tables necessary for documenting the hydrologic procedures for estimating flood discharges for the flood insurance study, which includes the hydrologic data expected by FEMA for new riverline studies. The objective is to archive the hydrologic data in a database such that it can be revised and used with minimum effort in future flood insurance studies or map revisions. (Source: FEMA Guidelines and Specifications, *Appendix N*, Section N.1.4)
DCS – Hydraulics Naming convention: <CID>_Hydraulics_metadata `geoform` identifier(s): *"FEMA-DCS-Hydraulics"*	Hydraulics data as defined in Section N.5 of "*Appendix N: Data Capture Standards*". Development of a hydraulic model to provide water-surface elevations for floodplain mapping requires significant investment in time and resources to obtain and process topographic survey data including cross-section and bridge surveys. Recent developments in digital terrain and geospatial database management technology make it possible to protect this investment for existing and future projects to a much greater extent than was possible in the past. The minimum requirement for hydraulics data includes input and output files for all hydraulic models and spatial datasets that are needed to implement the models. (Source: FEMA Guidelines and Specs, *Appendix N*, Section N.1.5)
DCS – Terrain Naming convention: <CID>_Terrain_metadata `geoform` identifier(s): *"FEMA-DCS-Terrain"*	Terrain data as defined in Section N.2 of "*Appendix N: Data Capture Standards*", which includes the digital topographic data that was used to create the elevation data representing the terrain environment of a watershed and/or floodplain. (Source: FEMA Guidelines and Specs, *Appendix N*, Section N.1.2)
DCS - Survey Naming convention: <CID>_Survey_metadata	Survey data as defined in Section N.3 of "*Appendix N: Data Capture Standards*", which includes spatial datasets and data tables necessary to digitally represent data collected in the survey phase of the study. The survey phase has traditionally been one of the most expensive portions of the study; survey data is often submitted for features such as

DFIRM Artifact and MIP Submission Package	Description
`geoform` identifier(s): *"FEMA-DCS-Survey"*	dams, culverts, bridges, and channels. (Source: FEMA Guidelines and Specs, *Appendix N*, Section N.1.3)
Study-Coastal Naming convention: <CID>_Coastal_metadata `geoform` identifier(s): *"FEMA-Study-Coastal"*	Coastal study data as defined in *FEMA Guidelines and Specifications "Appendix D: Guidance for Coastal Flooding Analyses and Mapping"*, submitted as a result of a costal study. Appendix D notes that a variety of analytical methodologies may be used to establish Base (1-percent-annual-chance) Flood Elevations (BFEs) and floodplains throughout coastal areas of the United States. Appendix D itemizes references for the methodologies currently in use by FEMA for specific coastal flood hazards, provides general guidance for documentation of a coastal flood hazard analysis, specifies flood hazard analysis procedures for the Great Lakes coasts, and outlines intermediate data submissions for coastal flood hazard analyses with new storm surge modeling and revised stillwater flood level (SWFL). (Source: FEMA Guidelines and Specs, *Appendix D "Guidance for Coastal Flooding Analyses and Mapping"*, Section D.1
Study-Alluvial Fan Naming convention: <CID>_AlluvialFan_metadata `geoform` identifier(s): *"FEMA-Study-Alluvial"*	Alluvial fan study data as defined in *FEMA Guidelines and Specifications "Appendix G: Guidance for Alluvial Fan Flooding Analyses and Mapping"*, submitted as a result of an alluvial fan study. Appendix G notes that alluvial fans, and flooding on alluvial fans, show great diversity because of variations in climate, fan history, rates and styles of tectonism, source area lithology, vegetation, and land use. Acknowledging this diversity, the Federal Emergency Management Agency (FEMA) developed an approach that considers site-specific conditions in the identification and mapping of flood hazards on alluvial fans. (Source: FEMA Guidelines and Specs, *Appendix D "Guidance for Alluvial Fan Flooding Analyses and Mapping"*, Section G.1
Framework – Ortho Imagery Naming convention: <CID>_Orthoimagery_metadata `geoform` identifier(s): *"FGDC-Framework-OrthoImagery"*	Digital orthographic imagery datasets contain georeferenced images of the Earth's surface, collected by a sensor in which object displacement has been removed for sensor distortions and orientation, and terrain relief. Digital orthoimages have the geometric characteristics of a map, and image qualities of a photograph. (Source: Circular A-16, p. 16) The datasets are the orthoimagery data used during DFIRM production, which have been kept separate from the other framework themes for future consistency with the NDOP registry.

DFIRM Artifact and MIP Submission Package	Description
Framework themes – Base maps Naming convention: <CID>_BaseMap_metadata `geoform` identifier(s): *"FGDC-Framework-Basemap"*	FGDC framework themes comprise six of the seven FGDC themes of geospatial data that are used by most GIS applications. (The seventh framework theme, orthographic imagery, is managed separately, as noted above). cadastral geodetic control governmental unit transportation general structures hydrography (water areas & lines) These data include an encoding of the geographic extent of the features and a minimal number of attributes needed to identify and describe the features. (Source: Circular A-16, p. 13)
DFIRM themes – Floodplain Mapping or Redelineation Naming convention: <CID>_Floodplain_metadata <CID>_Redelineation_metadata `geoform` identifier(s): *"FEMA-DFIRM-Floodplain"* *"FEMA-DFIRM-Redelineation"*	The objective of the Floodplain Mapping/Redelineation data submission is to archive the flood boundary and/or redelineation data for a study in a database such that it can be revised and used with minimum effort in future flood insurance studies or map revisions. This digital data is produced for the purposes of updating/creating a DFIRM database.
DFIRM Naming convention: <CID>_DRAFT_metadata <CID>_PRELIM_metadata <CID>_<effective date in yyyymmdd format>_metadata `geoform` identifier(s): *"FEMA-DFIRM-Draft"* *"FEMA-DFIRM-Preliminary"* *"FEMA-DFIRM-Final"* *"Vector digital data"*	Digital Flood Insurance Rate Map (DFIRM) data as defined in Appendix L. DFIRM is defined as a Flood Insurance Rate Map (FIRM) that has been prepared as a digital product, which may involve converting an existing manually produced FIRM to digital format, or creating a product from new digital data sources using a Geographic Information System. The DFIRM product allows for the creation of interactive, multi-hazard digital maps. Linkages are built into an associated database to allow users options to access the engineering backup material used to develop the DFIRM, such as hydraulic models, Flood Profiles, data tables, Digital Elevation Models, and structure-specific data, such as digital elevation certificates and digital photographs of bridges and culverts. The MIP workflow supports the following types of DFIRM submissions: Draft Preliminary The purpose of these DFIRM submissions is to produce a Final DFIRM product, which happens when the so-called

DFIRM Artifact and MIP Submission Package	Description
	"effective event" occurs in the MIP workflow and the DFIRM submission becomes effective officially. (Source: FEMA Guidelines and Specifications, *Glossary*, page TERMS-8)

Each of the DFIRM artifacts in Table 1 is uploaded as a MIP data submission package and may consist of several files. When submitted, each package must include a metadata file, describing the contents of the package. The MIP metadata team has developed FGDC-compliant metadata profiles for each type of package listed in Table 1, and documented these NFIP metadata profiles in the NFIP Metadata Profiles Specification document. For each artifact type, the metadata to be provided includes descriptive information about the following:

- Point of Contact
- Data Type
- Source Information
- Data Quality, Lineage, and Processing Steps
- Coordinate Reference Information (Projections, Datums, Accuracy)
- Data Contents
- Transfer Media

5. Overview of FGDC CSDGM

As noted earlier, the NFIP metadata profiles, which are documented in the NFIP Metadata Profiles Specification, are based on the FGDC CSDGM. To most effectively utilize the NFIP metadata profiles, it is helpful to have a general understanding of the CSDGM. This section provides an overview of the CSDGM; additional, detailed information about the CSDGM standard can be found at http://www.fgdc.gov/metadata/csdgm.

5.1. Metadata schema

As noted in Section 2.2.1, the CSDGM is a consensus-based standard for geospatial metadata developed by the FGDC, and which has been widely utilized by State and Federal agencies. The XML schemas for the CSDGM are available from the FGDC at http://www.fgdc.gov/metadata/metaxml.html; These schemas were used to generate the following diagrams that depict graphically the structure, multiplicity, and elements of the CSDGM.

The Figure 2 diagram depicts a high-level view of the XML schema for the CSDGM, where the single, top-level element of the schema is shown on the left-hand side, and the seven second-level children elements of the top-level element are shown on the right-hand side. Note that the right-

hand side elements in the diagram contain what looks like a boxed plus sign ("+") on the right, which indicates that each of these elements could be "expanded" to reveal yet another level of children elements, each of whose parent would be one of the second-level elements.

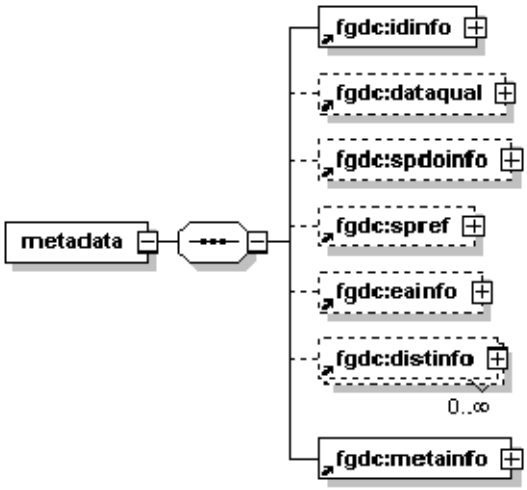

Figure 2. Top-level classes of CSDGM

The root element of the schema is metadata. All child elements depicted in **Error! Reference source not found.** with solid (rather than dashed) outlines represent "mandatory" elements of the CSDGM (i.e., elements that must be provided with values for a metadata document to be valid). The mandatory child elements are idinfo (basic information about the dataset) and metainfo(information about the currentness of the metadata information and the responsible party). Those elements shown with dashed outlines are either "mandatory-if-applicable" (i.e., elements that must be provided if the data set exhibits the defined characteristic) or "optional" (i.e., provided at the discretion of the metadata producer). These elements are the following:

- Dataqual (General assessment of the quality of the data set)
- Spdoinfo (Mechanism used to represent spatial information in the data set)
- Spref (Description of the reference frame for, and the means to encode, coordinates in the dataset)
- Eainfo (Details about the information content of the data set, including the entity types, their attributes, and the domains from which attribute values may be assigned)
- Distinfo (Information about the distributor of and options for obtaining the data)

Figures 3 and 4 depict the elements contained within the two required elements (idinfo and metainfo).

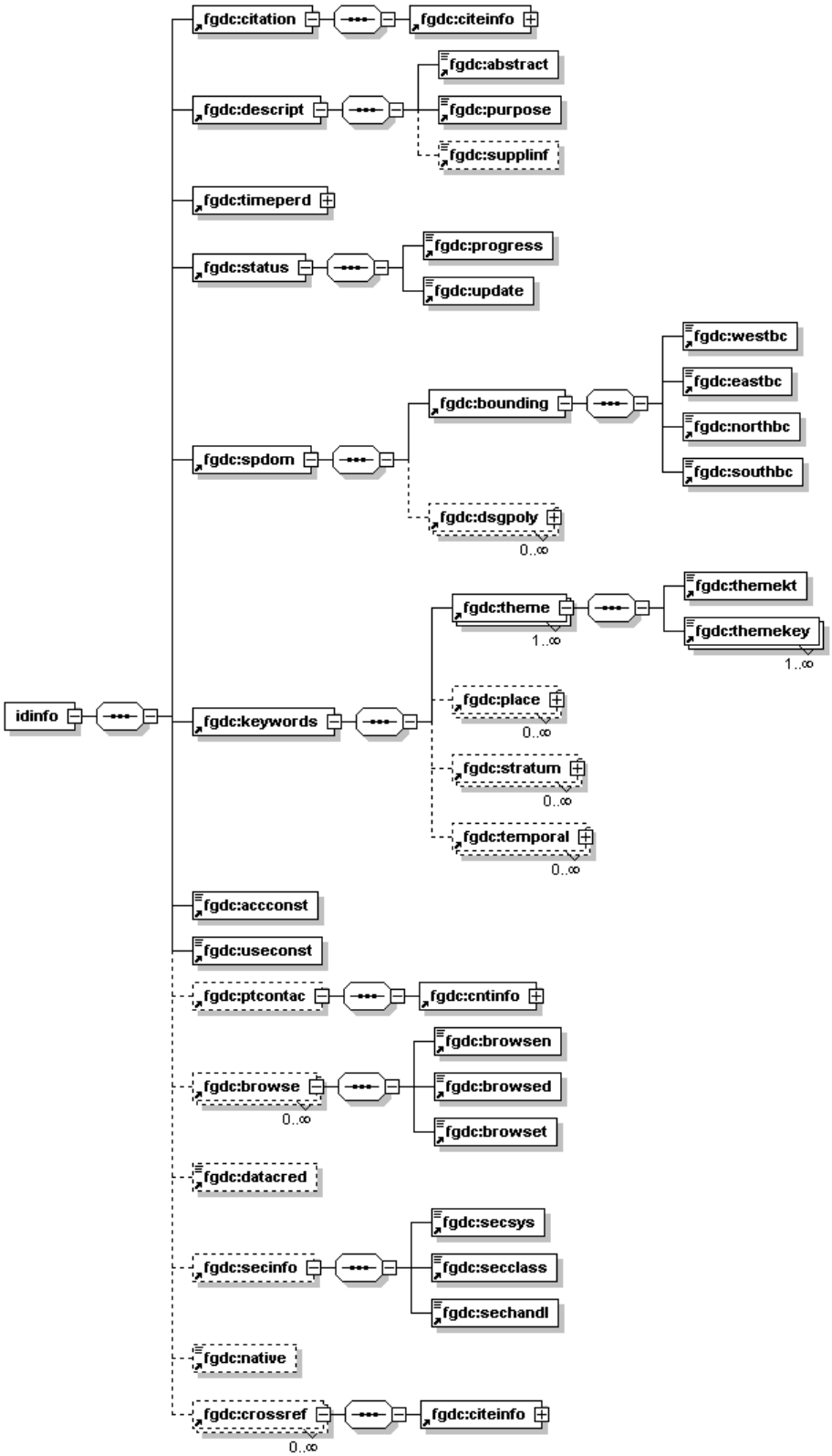

Figure 3. Identification Information Classes

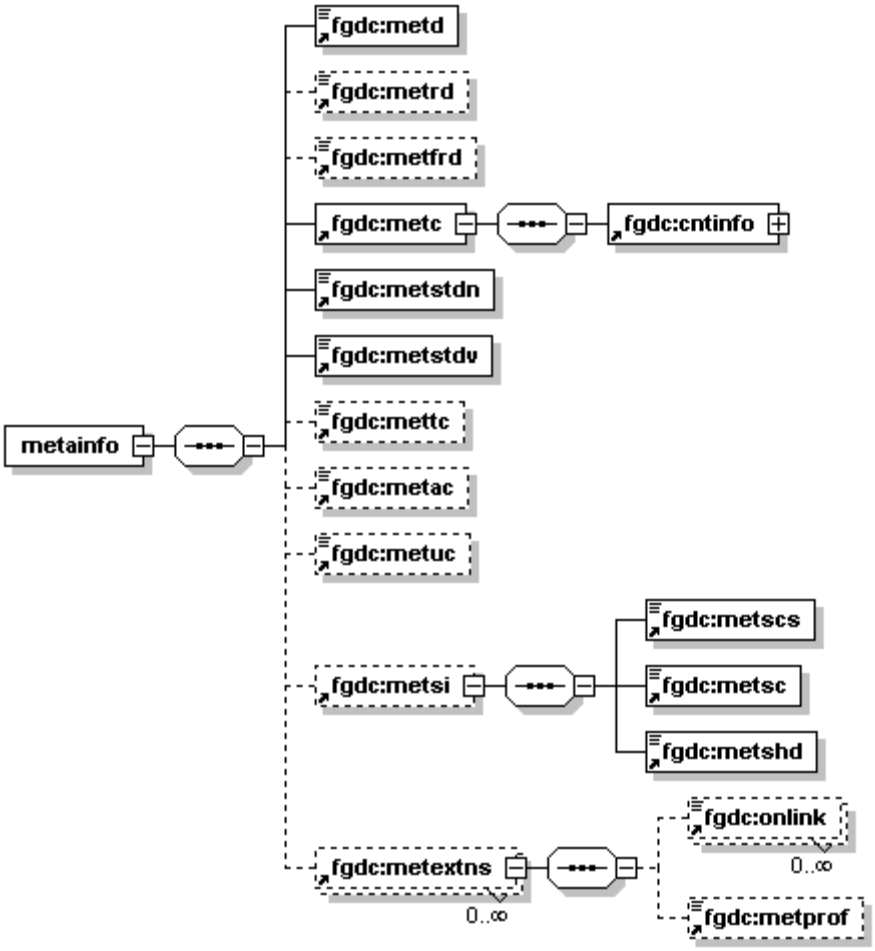

Figure 4. Metadata Information Classes

5.1.1. FGDC Guidance for Producing High-Quality Metadata

Quality metadata is complete, accurate, comprehensive, and discoverable. It has both breadth and depth in the sense that it is complete in the number of elements used to describe the data and the robustness of the information within those elements.

The following advice, guidelines, and rules-of-thumb can be found in various FGDC documents and briefings:

- Quality metadata is operational metadata
- Value of metadata is to capture what is unique/critical (not common to all)
- Enable users to locate data and related services
- Use both broad and narrow keywords
- Provide ‘status’ as a data search element

- Use profiles (vs. extensions) to provide specific guidance on content for non-extended fields
- Consider using an existing extension (e.g., the Remote Sensing Extension) or creating and publishing a custom extension
- Time spent providing robust information is time saved fielding inquiries. For completeness use:
  - ISO Topic Categories for Theme_Keyword
  - Use_Constraints to note legal disclaimers or intended uses of the data
  - Accuracy element to include quantitative measures when possible
  - Process_Step to record information during and about the data development process
- For '`Entity_and_Attribute_Information`', if attributes are described in other references, provide only an overview of the information and provide as clear a reference as possible to the attribute documentation (title, author, online link, etc). If attributes are not described elsewhere, use the metadata as an opportunity to document attribute definitions.
- The '`Supplemental_Information`' element is used to record special or unique information (information not captured elsewhere in the metadata) or highlight information "buried" within the metadata, such as:
  - funding type
  - projected cost
  - budget cost
  - partnered funds
- Include all data contributors and if not known, say so
- Create metadata during data development and review and update regularly. Metadata should be recorded throughout the life of a dataset:
  - Planning (entities and attributes)
  - Digitizing (abscissa/ordinate/resolution)
  - Analysis (processing history)
  - Publication (publication date)
- Develop operational procedures that: 1) institutionalize metadata production and maintenance and 2) make metadata a key component of the data development and management process.

6. NFIP Metadata Profile Examples

This section provides examples of the types of metadata that data-development partners should produce for inclusion with their MIP data-package submissions. The intent of these examples is to illustrate how each of the NFIP metadata profiles can be completed, based on the formal NFIP Metadata Profiles Specification. In the examples below, optional fields have not been included, and users should refer to the specific NFIP Metadata Profiles Specification for guidance on how to populate these fields when deemed useful or necessary.

Portions of the example listing below that are underlined typically vary with each submission. In addition, the Mapping Partner must take care to modify or replace other portions of the metadata file to fully document the DFIRM database.

6.1. Alluvial Fan (<CID>_AlluvialFan_metadata)

Identification_Information:
Citation:
Citation_Information:
Originator: *Flood County GIS Department (Name of organization that developed the data set.)*
Publication_Date: *20030505*
Title: *ALLUVIAL FAN STUDY, FLOOD COUNTY, USA*
Geospatial_Data_Presentation_Form: *FEMA-Study-Alluvial*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://hazards.fema.gov*
Larger_Work_Citation:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: Unknown
Title: *FEMA CASE 00-00-0000S*

Description:
Abstract: *Alluvial fan study data as defined in FEMA Guidelines and Specifications, Appendix G: Guidance for Alluvial Fan Flooding Analyses and Mapping*
Purpose: *Alluvial fan study data are submitted as a result of an alluvial fan study. Appendix G notes that alluvial fans, and flooding on alluvial fans, show great diversity because of variations in climate, fan history, rates and styles of tectonism, source area lithology, vegetation, and land use. Acknowledging this diversity, the Federal Emergency Management Agency (FEMA) developed an approach that considers site-specific conditions in the identification and mapping of flood hazards on alluvial fans. (Source: FEMA Guidelines and Specs, Appendix G, Guidance for Alluvial Fan Flooding Analyses and Mapping)*

Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20051101*
Currentness_Reference: *FIRM and FIS Effective*

Status:
Progress: *Complete*
Maintenance_and_Update_Frequency: *Unknown*

Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: *-75.8781*
East_Bounding_Coordinate: *-75.2487*
North_Bounding_Coordinate: *39.3780*
South_Bounding_Coordinate: *38.7478*

Keywords:
Theme:
Theme_Keyword_Thesaurus: *ISO 19115 Topic Category*
Theme_Keyword: *environment*
Theme_Keyword: *inlandWaters*

Theme:
Theme_Keyword_Thesaurus: *FEMA NFIP Topic Category*
Theme_Keyword: *Hydraulics*
Theme_Keyword: *Alluvial Fan*
Theme_Keyword: *Digital Flood Insurance Rate Map*
Theme_Keyword: *DFIRM*
Theme_Keyword: *Flood Hazard Data*

Place:
Place_Keyword_Thesaurus: *None*
Place_Keyword: *REGION num*
Place_Keyword: *STATE abbreviation*
Place_Keyword: *COUNTY name*
Place_Keyword: *COUNTY-FIPS code*
Place_Keyword: *COMMUNITY name*
Place_Keyword: *FEMA-CID code*

Access_Constraints: *None*
Use_Constraints: *Acknowledgement of FEMA would be appreciated in products derived from these data. This digital data is produced for the purposes of updating/creating a DFIRM database.*

Data_Quality_Information:
Logical_Consistency_Report: *An Alluvial Fan Study uses fan history, fan characteristics, survey, vegetation, hydrologic analysis results and other pertinent information for the study area. FEMA approved models are used to compute water surface elevations for required flood events. Computed water surface elevations, identification of active and inactive fan areas, and topographic data are used to delineate flood hazard boundaries and establish BFEs on the FIRMs.*
Completeness_Report: *An Alluvial Fan Study generates necessary data for SHFA delineations and flood zone designations. Detail descriptions of alluvial fan landform characterization, active and inactive area identification, and modeling/analysis are provided in the FIS Report. The SHFA areas and flood risk zone designations are shown on the FIRM.*

Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: *Originator of source data*
Publication_Date: *20030505*

Title: *Title of source data.*
Type_of_Source_Media: *online*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20051101*
Source_Currentness_Reference: *publication date*
Source_Citation_Abbreviation: *HYDRAMODEL1*
Source_Contribution: *Brief statement identifying the information contributed by the source to the data set*
Process_Step:
Process_Description: *Steps involved in Alluvial Fan Study include alluvial fan landform characterization, identification of active and inactive areas, analysis/modeling to define the SFHA boundary.*
Process_Date: *20030505*

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: *Universal Transverse Mercator*
Universal_Transverse_Mercator:
UTM_Zone_Number: *11*
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: *0.9996*
Longitude_of_Central_Meridian: *-117.0*
Latitude_of_Projection_Origin: *0.0*
False_Easting: *500000*
False_Northing: *0.0*
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: *coordinate pair*
Coordinate_Representation:
Abscissa_Resolution: *0.000172*
Ordinate_Resolution: *0.000172*
Planar_Distance_Units: *meters*
Geodetic_Model:
Horizontal_Datum_Name: *North American Datum of 1983*
Ellipsoid_Name: *Geodetic Reference System 80*
Semi-major_Axis: *6378137*
Denominator_of_Flattening_Ratio: *298.25*

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: *CrossSection*
Entity_Type_Definition: *Cross Section*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix G: Guidance for Alluvial Fan Analyses and Mapping (available at http://www.fema.gov/fhm/dl_cgs.shtm).*
Overview_Description:
Entity_and_Attribute_Overview: *The Alluvial Fan submission is made up of several data themes containing both spatial and attribute information. These data together represent the current hydrology for the subject area as identified by FEMA. The attribute tables include Gage, Basin, Boundary, Soil, Landuse, Impervious Areas, Network Connectivity, Flow and other data related to the NFIP.*

Entity_and_Attribute_Detail_Citation: *Appendix G of FEMA Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of the data themes and references to other relevant information.*

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: *FEMA, Mapping Information Platform*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Distribution_Liability: *No warranty expressed or implied is made by FEMA regarding the utility of the data on any other system nor shall the act of distribution constitute any such warranty.*
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: *ARCE*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: *http://hazards.fema.gov*
Fees: Contact Distributor

Metadata_Reference_Information:
Metadata_Date: *20030612*
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: *John Doe*
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Metadata_Standard_Name: *FGDC Content Standards for Digital Geospatial Metadata*
Metadata_Standard_Version: *FGDC-STD-001-1998*
Metadata_Extensions:
Online_Linkage: *http://hazards.fema.gov*
Online_Linkage: *http://www.epsg.org*
Profile_Name: *FEMA NFIP Metadata Content and Format Standard*

6.2. Basemap (<CID>_BaseMap_metadata)

Identification_Information:
Citation:
Citation_Information:
Originator: *Flood County GIS Department (Name of organization that developed the data set.)*
Publication_Date: *20030505*
Title: *BASEMAP, FLOOD COUNTY, USA*
Geospatial_Data_Presentation_Form: *FGDC-Framework-Basemap*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://hazards.fema.gov*
Larger_Work_Citation:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: Unknown
Title: *FEMA CASE 00-00-0000S*
Description:
Abstract: *FEMA Framework Basemap datasets comprise six of the seven FGDC themes of geospatial data that are used by most GIS applications (Note: the seventh framework theme, orthographic imagery, is packaged in a separate NFIP Metadata Profile): cadastral, geodetic control, governmental unit, transportation, general structures, hydrography (water areas & lines. These data include an encoding of the geographic extent of the features and a minimal number of attributes needed to identify and describe the features. (Source: Circular A16, p. 13)*
Purpose: *The Basemap datasets reflect the reference features (i.e., roads, streets, hydrographic features, political jurisdiction boundaries) needed by users to locate properties on FIRMs. (Source: Guidelines and Specifications Vol 1, p. 68)*

Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20030505*
Currentness_Reference: *FIRM and FIS Effective Date*

Status:
Progress: *Complete*
Maintenance_and_Update_Frequency: *Unknown*
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: *-75.8781*
East_Bounding_Coordinate: *-75.2487*
North_Bounding_Coordinate: *39.3780*
South_Bounding_Coordinate: *38.7478*

Keywords:
Theme:
Theme_Keyword_Thesaurus: *ISO 19115 Topic Category*
Theme_Keyword: *transportation*

Theme:
Theme_Keyword_Thesaurus: *FEMA NFIP Topic Category*
Theme_Keyword: *Basemap*

Place:

Place_Keyword_Thesaurus: *None*
Place_Keyword: *REGION num*
Place_Keyword: *STATE abbreviation*
Place_Keyword: *COUNTY name*
Place_Keyword: *COUNTY-FIPS code*
Place_Keyword: *COMMUNITY name*
Place_Keyword: *FEMA-CID code*

Access_Constraints: *None*
Use_Constraints: *Acknowledgement of FEMA would be appreciated in products derived from these data. This digital data is produced for the purposes of updating/creating a DFIRM database.*

Data_Quality_Information:
Logical_Consistency_Report: *Polygons intersecting the neatline are closed along the border. Segments making up the outer and inner boundaries of a polygon tie end-to-end to completely enclose the area. Line segments are a set of sequentially numbered coordinate pairs. No duplicate features exist nor duplicate points in a data string. Intersecting lines are separated into individual line segments at the point of intersection. Point data are represented by two sets of coordinate pairs, each with the same coordinate values. Tests for logical consistency are performed by DFIRM tools topology verification software.*
Completeness_Report: *The Basemap datasets represents all the features utilized during the study mapping process to spatially position the DFIRM information and highlights the specific prioritization process laid out in the Guidelines and Specifications Vol 1, p. 69 in their selection for use. The final selection criteria, and rational for inclusion should be outlined here, along with rational for exclusion of use of specific base map datasets if applicable.*
Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report: *The NSSDA is used to report the horizontal accuracy of the base map data used by FEMA to produce a FIRM. The NSSDA uses radial accuracy (Accuracy) to report the radius of a circle of uncertainty, such that the true or theoretical location of a point falls within that circle 95 percent of the time. (Guidelines and Specifications Vol 1, p. 70)*
Quantitative_Horizontal_Positional_Accuracy_Assessment:
Horizontal_Positional_Accuracy_Value: *11.5824*
Horizontal_Positional_Accuracy_Explanation: *The minimum horizontal positional accuracy for new FIRM base map data is that of the default base map, the USGS DOQs, which have an NSSDA radial accuracy of 38 feet. Data that meet higher accuracy standards are also acceptable. Accuracy of 38 feet is the same as radial root mean square error (RMSEr) of 22 feet. (Guidelines and Specifications Vol 1, p. 70)*
Lineage:
Process_Step:
Process_Description: *All Flood Map Projects that will result in a digital FIRM require a digital base map that reflects reference features (i.e., roads, streets, hydrographic features, political jurisdiction boundaries) needed by users to locate properties on FIRMs. During the Project Scoping phase, the Project Team identified the base map to be used and assign the Mapping Partner responsible for obtaining the base map for use by FEMA for FIRM production. Early coordination with all communities affected by a Flood Map Project is an important part of the Project Scoping Process described in Section 1.3 of these Guidelines. Therefore, the Section 1.4 1-68 Guidelines and Specifications for Flood Hazard Mapping Partners [April 2003] Mapping Partner responsible for preparing the Preliminary version of the FIRM or another assigned Mapping Partner shall send a letter to each affected community that: Describes the FIRM product; Requests pertinent information (pertinent information that is requested includes base map data; a current corporate limits map; elevation data [either electronic or hardcopy] and any engineering information that needs to be updated or added to the FIRM); Describes the minimum requirements for the submittal of data to be included in the new FIRM product, and Identifies the base map source that will be used if community data are not available or suitable. A sample version of this letter and other correspondence that may be generated during the Map Production phase of the project are presented in the FEMA Document Control Procedures Manual (FEMA, 2000).*
Process_Date: *20030505*

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: *Universal Transverse Mercator*
Universal_Transverse_Mercator:
UTM_Zone_Number: *11*
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: *0.9996*
Longitude_of_Central_Meridian: -*117.0*
Latitude_of_Projection_Origin: *0.0*
False_Easting: *500000*
False_Northing: *0.0*
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: *coordinate pair*
Coordinate_Representation:
Abscissa_Resolution: *0.000172*
Ordinate_Resolution: *0.000172*
Planar_Distance_Units: *meters*

Entity_and_Attribute_Information:
Overview_Description:
Entity_and_Attribute_Overview: *The Basemap submission is made up of several data themes containing both spatial and attribute information. These data together represent the current basemap layers for the subject area as identified by FEMA.*
Entity_and_Attribute_Detail_Citation: *Appendix L of FEMA Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of the data themes and references to other relevant information*

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: *FEMA, Mapping Information Platform*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Contact_Instructions: *Data requests must include the full name of the community or county and the FIRM panel number(s) or the 7.5- minute series quadrangle sheet area(s) covered by the request.*

Distribution_Liability: *No warranty expressed or implied is made by FEMA regarding the utility of the data on any other system nor shall the act of distribution constitute any such warranty.*
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: *ARCE*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:

Network_Address:
Network_Resource_Name: *http://hazards.fema.gov*
Fees: Contact Distributor

Metadata_Reference_Information:
Metadata_Date: *20030612*
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: *John Doe*
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Metadata_Standard_Name: *FGDC Content Standards for Digital Geospatial Metadata*
Metadata_Standard_Version: *FGDC-STD-001-1998*
Metadata_Extensions:
Online_Linkage: *http://hazards.fema.gov*
Online_Linkage: *http://www.epsg.org*
Profile_Name: *FEMA NFIP Metadata Content and Format Standard*

6.3. Coastal (<CID>_Coastal_metadata)

Identification_Information:
Citation:
Citation_Information:
Originator: *Flood County GIS Department (Name of organization that developed the data set.)*
Publication_Date: *20030505*
Title: *COASTAL STUDY, FLOOD COUNTY, USA*
Geospatial_Data_Presentation_Form: *FEMA-Study-Coastal*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://hazards.fema.gov*
Larger_Work_Citation:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *Unknown*
Title: *FEMA CASE 00-00-0000S*

Description:
Abstract: *Coastal study data as defined in FEMA Guidelines and Specifications, Appendix D: Guidance for Coastal Flooding Analyses and Mapping, submitted as a result of a coastal study. Appendix D notes that a variety of analytical methodologies may be used to establish Base (1-percent-annual-chance) Flood Elevations (BFEs) and floodplains throughout coastal areas of the United States. Appendix D itemizes references for the methodologies currently in use by FEMA for specific coastal flood hazards, provides general guidance for documentation of a coastal flood hazard analysis, specifies flood hazard analysis procedures for the Great Lakes coasts, and outlines intermediate data submissions for coastal flood hazard*

analyses with new storm surge modeling and revised stillwater flood level (SWFL). (Source: FEMA Guidelines and Specs, Appendix D Guidance for Coastal Flooding Analyses and Mapping, Section D.1)
Purpose: *Coastal study data as defined in FEMA Guidelines and Specifications, Appendix D: Guidance for Coastal Flooding Analyses and Mapping*

Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20051101*
Currentness_Reference: *FIRM and FIS Effective*

Status:
Progress: *Complete*
Maintenance_and_Update_Frequency: *Unknown*

Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: *-75.8781*
East_Bounding_Coordinate: *-75.2487*
North_Bounding_Coordinate: *39.3780*
South_Bounding_Coordinate: *38.7478*

Keywords:
Theme:
Theme_Keyword_Thesaurus: *ISO 19115 Topic Category*
Theme_Keyword: *environment*
Theme_Keyword: *inlandWaters*
Theme_Keyword: *oceans*

Theme:
Theme_Keyword_Thesaurus: *FEMA NFIP Topic Category*
Theme_Keyword: *Hydraulics*
Theme_Keyword: *Coastal*
Theme_Keyword: *Digital Flood Insurance Rate Map*
Theme_Keyword: *DFIRM*
Theme_Keyword: *Flood Hazard Data*

Place:
Place_Keyword_Thesaurus: *None*
Place_Keyword: *REGION num*
Place_Keyword: *STATE abbreviation*
Place_Keyword: *COUNTY name*
Place_Keyword: *COUNTY-FIPS code*
Place_Keyword: *COMMUNITY name*
Place_Keyword: *FEMA-CID code*

Access_Constraints: *None*
Use_Constraints: *Acknowledgement of FEMA would be appreciated in products derived from these data. This digital data is produced for the purposes of updating/creating a DFIRM database.*

Data_Quality_Information:
Logical_Consistency_Report: *In a Coastal Study data, the FIRM and the FIS are developed together and care is taken to ensure that the elevations and other features included in the FIS agree with the information shown on the FIRM. The data input to the models (e.g. SWELs, wave heights, wave periods, and fetch lengths) are checked for consistency with the historical data. Boundary conditions are checked and compared with those adjacent studies to*

ensure reasonable agreement. The results of the erosion assessment are evaluated by comparing the eroded profile to past effects, in the form of profiles, photographs, or simply descriptions.
Completeness_Report: *Coastal Study data includes key physical data used in the process, model parameters and model output. The methodology employed as well as the computational approach and the input data used in the calculation of the coastal flood elevations are clearly documented in the FIS Report. Results of coastal analysis are used to map flood hazard risk zones. Model parameters are reasonable and carefully selected. Model boundary conditions are checked and justified.*

Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: *Originator of source data*
Publication_Date: *20030505*
Title: *Title of source data.*
Type_of_Source_Media: *online*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20051101*
Source_Currentness_Reference: *publication date*
Source_Citation_Abbreviation: *HYDROMODEL1*
Source_Contribution: *Brief statement identifying the information contributed by the source to the data set*
Process_Step:
Process_Description: *The Coastal Study results in the delineation of the SFHA and designation of flood risk zones on the FIRM, and in the FIS report. Details of the coastal analyses are documented in the FIS report. Steps involved in the process include selecting methods and/or models, modeling/performing required analysis, and mapping.*
Process_Date: *20030505*

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: *Universal Transverse Mercator*
Universal_Transverse_Mercator:
UTM_Zone_Number: *11*
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: *0.9996*
Longitude_of_Central_Meridian: -*117.0*
Latitude_of_Projection_Origin: *0.0*
False_Easting: *500000*
False_Northing: *0.0*
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: *coordinate pair*
Coordinate_Representation:
Abscissa_Resolution: *0.000172*
Ordinate_Resolution: *0.000172*
Planar_Distance_Units: *meters*
Geodetic_Model:
Horizontal_Datum_Name: *North American Datum of 1983*
Ellipsoid_Name: *Geodetic Reference System 80*
Semi-major_Axis: *6378137*
Denominator_of_Flattening_Ratio: *298.25*

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: *HydroModels*
Entity_Type_Definition: *Hydrology Models*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix D: Guidance for Coastal Flooding Analyses and Mapping (available at http://www.fema.gov/fhm/dl_cgs.shtm).*
Overview_Description:
Entity_and_Attribute_Overview: *The Coastal submission is made up of several data themes containing both spatial and attribute information. These data together represent the current necessary elements of the FIRM and the FIS report for the subject area.*
Entity_and_Attribute_Detail_Citation: *Appendix D of FEMA Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of the data themes and references to other relevant information.*

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: *FEMA, Mapping Information Platform*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Distribution_Liability: *No warranty expressed or implied is made by FEMA regarding the utility of the data on any other system nor shall the act of distribution constitute any such warranty.*
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: *ARCE*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: *http://hazards.fema.gov*
Fees: Contact Distributor

Metadata_Reference_Information:
Metadata_Date: *20030612*
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: *John Doe*
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*

State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Metadata_Standard_Name: *FGDC Content Standards for Digital Geospatial Metadata*
Metadata_Standard_Version: *FGDC-STD-001-1998*
Metadata_Extensions:
Online_Linkage: *http://hazards.fema.gov*
Online_Linkage: *http://www.epsg.org*
Profile_Name: *FEMA NFIP Metadata Content and Format Standard*

6.4. DFIRM (<CID>_DRAFT_metadata, <CID>_PRELIM_metadata, or <CID>_<effective date in yyyymmdd format>_metadata)

Identification_Information:
Citation:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *20030505*
Title: *DIGITAL FLOOD INSURANCE RATE MAP DATABASE, FLOOD COUNTY, USA*
Geospatial_Data_Presentation_Form: *FEMA-DFIRM-Final*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://www.fema.gov/msc*
Larger_Work_Citation:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *Unknown*
Title: *FEMA CASE 00-00-0000S*
Description:
Abstract: *The Digital Flood Insurance Rate Map (DFIRM) Database depicts flood risk information and supporting data used to develop the risk data. The primary risk classifications used are the 1-percent-annual-chance flood event, the 0.2-percent-annual- chance flood event, and areas of minimal flood risk. The DFIRM Database is derived from Flood Insurance Studies (FISs), previously published Flood Insurance Rate Maps (FIRMs), flood hazard analyses performed in support of the FISs and FIRMs, and new mapping data, where available. The FISs and FIRMs are published by the Federal Emergency Management Agency (FEMA).*

In addition to the preceding, required text, the Abstract should also describe the projection and coordinate system as well as a general statement about horizontal accuracy.

Purpose: *The FIRM is the basis for floodplain management, mitigation, and insurance activities for the National Flood Insurance Program (NFIP). Insurance applications include enforcement of the mandatory purchase requirement of the Flood Disaster Protection Act, which "... requires the purchase of flood insurance by property owners who are being assisted by Federal programs or by Federally supervised, regulated or insured agencies or institutions in the acquisition or improvement of land facilities located or to be located in identified areas having special flood hazards, " Section 2 (b) (4) of the Flood Disaster Protection Act of 1973. In addition to the identification of Special Flood Hazard Areas (SFHAs), the risk zones shown on the FIRMs are the basis for the establishment of premium rates for flood coverage offered through the NFIP. The DFIRM Database presents the flood risk information depicted on the FIRM in a digital format suitable for use in electronic mapping applications. The DFIRM database is a subset of the Digital FIS database that serves to archive the information collected during the FIS.*
Time_Period_of_Content:

Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20030505*
Currentness_Reference: *FIRM and FIS Effective Date*

Status:
Progress: *Complete*
Maintenance_and_Update_Frequency: *Unknown*
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: *-75.8781*
East_Bounding_Coordinate: *-75.2487*
North_Bounding_Coordinate: *39.3780*
South_Bounding_Coordinate: *38.7478*

Keywords:
Theme:
Theme_Keyword_Thesaurus: *ISO 19115 Topic Category*
Theme_Keyword: *hydrology*
Theme_Keyword: *environment*
Theme_Keyword: *inlandWaters*
Theme_Keyword: *structure*
Theme_Keyword: *transportation*
Theme_Keyword: *elevation*

Theme:
Theme_Keyword_Thesaurus: *FEMA NFIP Topic Category*
Theme_Keyword: *DFIRM*
Theme_Keyword: *FIRM*
Theme_Keyword: *FEMA Flood Hazard Zone*
Theme_Keyword: *DFIRM Database*
Theme_Keyword: *Special Flood Hazard Area*
Theme_Keyword: *Digital Flood Insurance Rate Map*
Theme_Keyword: *CBRS*
Theme_Keyword: *Coastal Barrier Resources System*
Theme_Keyword: *Riverine Flooding*
Theme_Keyword: *Coastal Flooding*
Theme_Keyword: *NFIP*
Theme_Keyword: *Base Flood Elevation*
Theme_Keyword: *SFHA*
Theme_Keyword: *Flood Insurance Rate Map*
Theme_Keyword: *Floodway*

Place:
Place_Keyword_Thesaurus: *None*
Place_Keyword: *REGION **num***
Place_Keyword: *STATE **abbreviation***
Place_Keyword: *COUNTY **name***
Place_Keyword: *COUNTY-FIPS **code***
Place_Keyword: *COMMUNITY **name***
Place_Keyword: *FEMA-CID **code***

Access_Constraints: *None*
Use_Constraints: *The hardcopy FIRM and DFIRM and the accompanying FISs are the official designation of SFHAs and Base Flood Elevations (BFEs) for the NFIP. For the purposes of the NFIP, changes to the flood risk*

information published by FEMA may only be performed by FEMA and through the mechanisms established in the NFIP regulations (44 CFR Parts 59-78). These digital data are produced in conjunction with the hardcopy FIRMs and generally match the hardcopy map exactly. However the hardcopy flood maps and flood profiles are the authoritative documents for the NFIP. Acknowledgement of FEMA would be appreciated in products derived from these data.

Point_of_Contact:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-800-358-9616*
Contact_Electronic_Mail_Address: *http://www.fema.gov/msc*

Cross_Reference:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *20051101*
Title: *Flood Insurance Rate Map, Flood County, USA.*
Geospatial_Data_Presentation_Form: *map*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://www.fema.gov/msc*
Cross_Reference:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *20051101*
Title: *Flood Insurance Study, Flood County, USA.*
Geospatial_Data_Presentation_Form: *document*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://www.fema.gov/msc*
Cross_Reference:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *20051101*
Title: *Raster FIRM, Flood County, USA.*
Geospatial_Data_Presentation_Form: *raster digital data*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://www.fema.gov/msc*

Data_Quality_Information:
Attribute_Accuracy:
Attribute_Accuracy_Report: *The DFIRM Database consists of community based vector files and associated attributes produced in conjunction with the hard copy FEMA FIRM. The published effective FIRM and DFIRM*

maps are issued as the official designation of the SFHAs. As such they are adopted by local communities and form the basis for administration of the NFIP. For these purposes they are authoritative. Provisions exist in the regulations for public review, appeals and corrections of the flood risk information shown to better match real world conditions. As with any engineering analysis of this type, variation from the estimated flood heights and floodplain boundaries is possible. Details of FEMA's requirements for the FISs and flood mapping process that produces these data are available in the Guidelines and Specifications for Flood Hazard Mapping Partners. Attribute accuracy was tested by manual comparison of source graphics with hardcopy plots and a symbolized display on an interactive computer graphic system.

Independent quality control testing of FEMA's DFIRM database was also performed.

To obtain more detailed information in areas where Base Flood Elevations (BFEs) and/or floodways have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the FIS report that accompanies this DFIRM database. Users should be aware that BFEs shown in the S_BFE table represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report must be used in conjunction with the FIRM for purposes of construction and/or floodplain management. The 1-percent-annual-chance water-surface elevations shown in the S_XS table match the regulatory elevations shown in the FIS report.

Logical_Consistency_Report: *When FEMA revises an FIS, adjacent studies are checked to ensure agreement between flood elevations at the boundaries. Likewise flood elevations at the confluence of streams studied independently are checked to ensure agreement at the confluence. The FIRM and the FIS are developed together and care is taken to ensure that the elevations and other features shown on the flood profiles in the FIS agree with the information shown on the FIRM. However, the elevations as shown on the FIRM are rounded whole-foot elevations. They must be shown so that a profile recreated from the elevations on the FIRM will match the FIS profiles within one half of one foot.*

Completeness_Report: *Data contained in the DFIRM Database files reflect the content of the source materials. Features may have been eliminated or generalized on the source graphic, due to scale and legibility constraints. With new mapping, FEMA plans to maintain full detail in the spatial data it produces. However, older information is often transferred from existing maps where some generalization has taken place. Flood risk data are developed for communities participating in the NFIP for use in insurance rating and for floodplain management. Flood hazard areas are determined using statistical analyses of records of river flow, storm tides, and rainfall; information obtained through consultation with the communities; floodplain topographic surveys; and hydrological and hydraulic analysis. Both detailed and approximate analyses are employed. Generally, detailed analyses are used to generate flood risk data only for developed or developing areas of communities. For areas where little or no development is expected to occur, FEMA uses approximate analyses to generate flood risk data. Typically, only drainage areas that are greater than one square mile are studied.*

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report: *The DFIRM Database consists of community based vector files and associated attributes produced in conjunction with the hardcopy FEMA FIRM. The published effective FIRM and DFIRM are issued as the official designation of the SFHAs. As such they are adopted by local communities and form the basis for administration of the NFIP. For these purposes they are authoritative. Provisions exist in the regulations for public review, appeals and corrections of the flood risk information shown to better match real world conditions. As with any engineering analysis of this type, variation from the estimated flood heights and floodplain boundaries is possible. Details of FEMA's requirements for the FISs and flood mapping process that produces these data are available in the Guidelines and Specifications for Flood Hazard Mapping Partners. Horizontal accuracy was tested by manual comparison of source graphics with hardcopy plots and a symbolized display on an interactive computer graphic system. Independent quality control testing of FEMA's DFIRM database was also performed.*
Vertical_Positional_Accuracy:

Vertical_Positional_Accuracy_Report: *The DFIRM Database consists of community based vector files and associated attributes produced in conjunction with the hardcopy FEMA FIRM. The published effective FIRM and DFIRM maps are issued as the official designation of the SFHAs. As such they are adopted by local communities and form the basis for administration of the NFIP. For these purposes they are authoritative. Provisions exist in the regulations for public review, appeals and corrections of the flood risk information shown to better match real world conditions. As with any engineering analysis of this type, variation from the estimated flood heights and floodplain boundaries is possible. Details of FEMA's requirements for the FISs and flood mapping process that produces these data are available in the Guidelines and Specifications for Flood Hazard Mapping Partners. Vertical accuracy was tested by manual comparison of source graphics with hardcopy plots and a symbolized display on an interactive computer graphic system. Independent quality control testing of FEMA's DFIRM database was also performed.*

Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *1998*
Title: Flood *Insurance Study Report, FLOOD COUNTY, USA and Incorporated areas.*
Type_of_Source_Media: *paper*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *19980701*
Source_Currentness_Reference: *FIS and FIRM Effective Date*
Source_Citation_Abbreviation: *FIS1*
Source_Contribution: *Spatial and attribute information, floodplain widths, BFEs, floodplain location.*

Source_Information:
Source_Citation:
Citation_Information:
Originator: *Town of Floodville Stormwater Management Department, 126 Royal Oaks Drive, Suite 201, Floodville, USA 99150*
Publication_Date: *1995*
Title: *Base map for Floodville, USA*
Type_of_Source_Media*:* *CD-ROM*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *19950301*
Source_Currentness_Reference: *ground condition*
Source_Citation_Abbreviation: *BASE1*
Source_Contribution: *Location of roads, railroads, bridges, streams and other physical features shown.*

Source_Information:
Source_Citation:
Citation_Information:
Originator: *Flood County Geographic Information Systems Department, 1110 South Road, Suite 205, Floodville, USA 99150*
Publication_Date*:* *1995*
Title: *Base map for Flood County, USA*
Type_of_Source_Media: *CD-ROM*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:

Calendar_Date: *19950301*
Source_Currentness_Reference: *ground condition*
Source_Citation_Abbreviation: *BASE2*
Source_Contribution: *Location of roads, railroads, bridges, streams and other physical features shown:*

Source_Information:
Source_Citation:
Citation_Information:
Originator: *U.S. Geological Survey*
Publication_Date: *1998*
Title: *Digital Orthophoto Quadrangle*
Type_of_Source_Media: *CD-ROM*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *19970301*
Source_Currentness_Reference: *ground condition*
Source_Citation_Abbreviation: *BASE3*
Source_Contribution: *Location of roads, railroads, bridges, streams and other physical features shown:*

Process_Step:
Process_Description: *The DFIRM Database is compiled in conjunction with the hardcopy FIRM and the final FIS report. The specifics of the hydrologic and hydraulic analyses performed are detailed in the FIS report. The results of these studies are submitted in digital format to FEMA. These data and unrevised data from effective FIRMs are compiled onto the base map used for DFIRM publication and checked for accuracy and compliance with FEMA standards.*
Process_Date: *19960505*

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: *Universal Transverse Mercator*
Universal_Transverse_Mercator:
UTM_Zone_Number: *11*
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: *0.9996*
Longitude_of_Central_Meridian: *-117.0*
Latitude_of_Projection_Origin: *0.0*
False_Easting: *500000*
False_Northing: *0.0*
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: *coordinate pair*
Coordinate_Representation:
Abscissa_Resolution: *0.000172*
Ordinate_Resolution: *0.000172*
Planar_Distance_Units: *meters*
Geodetic_Model:
Horizontal_Datum_Name: *North American Datum of 1983*
Ellipsoid_Name: *Geodetic Reference System 80*
Semi-major_Axis: *6378137*
Denominator_of_Flattening_Ratio: *298.25*
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Datum_Name: *North American Vertical Datum of 1988*

Altitude_Resolution: *0.03*
Altitude_Distance_Units: *feet*
Altitude_Encoding_Method: *Attribute values*

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Base_Index*
Entity_Type_Definition: *Location and attributes for a tiling index for raster data used for the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_BFE*
Entity_Type_Definition: *Location and attributes for base flood elevations lines shown on DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_CBRS*
Entity_Type_Definition*: Location and attributes for Coastal Barrier Resource System units on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Cst_Gage*
Entity_Type_Definition*: Location and attributes for the coastal gages for the study area*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Cst_Tsct_Ln*
Entity_Type_Definition*: Location and attributes for coastal transect lines shown on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_FIRM_Pan*
Entity_Type_Definition*: Location and attributes for DFIRM hardcopy map panels*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Fld_Haz_Ar*
Entity_Type_Definition*: Location and attributes of flood insurance risk zones on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:

Entity_Type:
Entity_Type_Label: *S_Fld_Haz_Ln*
Entity_Type_Definition*: Location and attributes for boundaries of flood insurance risk zones on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Gen_Struct*
Entity_Type_Definition*: Location and attributes for flood control structures shown on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Label_Ld*
Entity_Type_Definition*: Location and attributes for leader lines on transportation and hydrography labels shown on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Label_Pt*
Entity_Type_Definition*: Location and attributes for transportation and hydrography labels shown on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_LOMR*
Entity_Type_Definition*: Location and attributes for LOMRs on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Nodes*
Entity_Type_Definition*: Location and attributes of points used to define the topology of the hydrologic network.*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Ovrbnkln*
Entity_Type_Definition*: Location and attributes for the overbank flow lines features for the study area.*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Perm_Bmk*
Entity_Type_Definition*: Location and attributes for bench marks on the DFIRM*

Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_PFD_Ln*
Entity_Type_Definition*: Location and attributes for the primary frontal dune features for the coastal study area.*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_PLSS_Ar*
Entity_Type_Definition*: Location and attributes of sections, townships and ranges on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_PLSS_Ln*
Entity_Type_Definition: *Location and attributes section lines, township lines and range lines on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Pol_Ar*
Entity_Type_Definition: *Location and attributes for political jurisdictions shown on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Pol_Ln*
Entity_Type_Definition: *Location and attributes for political boundaries shown on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Precip_Gage*
Entity_Type_Definition: *Location and attributes for rain gages used in developing the hydrologic analysis*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm*
Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Profil_BasLn*
Entity_Type_Definition: *Location and attributes for profile baseline and stream centerline features for the study area.*

Entity_Type_Definition_Source*: FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Quad_Index*
Entity_Type_Definition: *Location and attributes for USGS quadrangle maps covering the DFIRM area.*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Riv_Mr*
Entity_Type_Definition: *Location and attributes for river mile markers shown on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Shore_Ln*
Entity_Type_Definition: *Location and attributes for the shoreline used in the coastal flood hazard model*.
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Stn_Start*
Entity_Type_Definition: *Location and attributes for station points.*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Subbasins*
Entity_Type_Definition: *Location and attributes for subbasins in the hydrologic analysis.*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Trnsport_Ln*
Entity_Type_Definition: *Location and attributes for roads, railroads and other transportation features shown on the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Water_Gage*
Entity_Type_Definition: *Location and attributes for non- rain gages used in developing the hydrologic analysis*

Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Wtr_Ar*
Entity_Type_Definition: *Location and attributes for hydrography features shown on DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Wtr_Ln*
Entity_Type_Definition: *Location and attributes for hydrography features shown on DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_XS*
Entity_Type_Definition: *Location and attributes for cross-section lines in the area covered by the DFIRM*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*

Overview_Description:
Entity_and_Attribute_Overview: *The DFIRM Database is made up of several data themes containing both spatial and attribute information. These data together represent the current flood risk for the subject area as identified by FEMA. The attribute tables include SFHA locations, flood zone designations, BFEs, political entities, cross-section locations, FIRM panel information, and other data related to the NFIP.*
Entity_and_Attribute_Detail_Citation: *Appendix L of FEMA Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of each attribute code and a reference to other relevant information.*
Entity_and_Attribute_Detail_Citation:
The following tables are included in this data set: L_Stn_Start S_Base_Index S_BFE S_FIRM_Pan S_Fld_Haz_Ar S_Fld_Haz_Ln S_Gen_Struct S_Label_Pt S_Perm_Bmk S_PLSS_Ln S_Pol_Ar S_Pol_Ln S_Quad_Index S_Wtr_Ln S_XS

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: *FEMA, Map Service Center*
Contact_Address:
Address_Type: *mailing*
Address: *P.O. Box 1038*
City: *Jessup*
State_or_Province: *Maryland*
Postal_Code: *20794-1038*
Country: *USA*
Contact_Voice_Telephone: *1-800-358-9616*
Contact_Electronic_Mail_Address: *http://www.fema.gov/msc*
Contact_Instructions: *Data requests must include the full name of the community or county and the FIRM panel number(s) or the 7.5- minute series quadrangle sheet area(s) covered by the request.*

Distribution_Liability: *No warranty expressed or implied is made by FEMA regarding the utility of the data on any other system nor shall the act of distribution constitute any such warranty. FEMA will warrant the delivery of this product in a computer-readable format, and will offer appropriate adjustment of credit when the product is determined unreadable by correctly adjusted computer input peripherals, or when the physical medium is delivered in damaged condition. Requests for adjustment of credit must be made within 90 days from the date of this shipment from the ordering site.*

Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: *ARCE*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: *http://www.fema.gov/msc*

Digital_Form:
Digital_Transfer_Information:
Format_Name: *ESRI Shapefile*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: *http://www.fema.gov/msc*

Digital_Form:
Digital_Transfer_Information:
Format_Name: *MapInfo Interchange file (MIF)*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: *http://www.fema.gov/msc*

Digital_Form:
Digital_Transfer_Information:
Format_Name: *ARCE*
Digital_Transfer_Option:
Offline_Option:
Offline_Media: *CD-ROM*
Recording_Format: *ISO 9660*

Digital_Form:
Digital_Transfer_Information:
Format_Name: *ESRI Shapefile*
Digital_Transfer_Option:
Offline_Option:
Offline_Media: *CD-ROM*
Recording_Format: *ISO 9660*

Digital_Form:
Digital_Transfer_Information:
Format_Name: *MapInfo Interchange file (MIF)*
Digital_Transfer_Option:
Offline_Option:
Offline_Media: *CD-ROM*
Recording_Format: *ISO 9660*

Fees: Contact Distributor

Metadata_Reference_Information:

Metadata_Date: *20030612*
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: ***FREE TEXT***
Contact_Organization: *Federal Emergency Management Agency*
Contact_Position: ***FREE TEXT***
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-800-358-9616*
Contact_Electronic_Mail_Address: *http://www.fema.gov/msc*
Metadata_Standard_Name: *FGDC Content Standards for Digital Geospatial Metadata*
Metadata_Standard_Version: *FGDC-STD-001-1998*

Metadata_Extensions:
Online_Linkage: *http://hazards.fema.gov*
Online_Linkage: *http://www.epsg.org*
Profile_Name: *FEMA NFIP Metadata Content and Format Standard*

6.5. Floodplain Mapping/Redelineation (<CID>_Floodplain_metadata or <CID>_Redelineation_metadata)

Identification_Information:
Citation:
Citation_Information:
Originator: *Flood County GIS Department (Name of organization that developed the data set.)*
Publication_Date: *20030505*
Title: *FLOODPLAIN, FLOOD COUNTY, USA*
Geospatial_Data_Presentation_Form: *FEMA-DFIRM-Floodplain*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://hazards.fema.gov*
Larger_Work_Citation:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *20030505*
Title: *FEMA CASE 00-00-0000S*
Description:
Abstract: *The Floodplain Mapping/Redelineation study deliverables depict and quantify the flood risks for the study area. The primary risk classifications used are the 1-percent-annual-chance flood event, the 0.2-percent-annual- chance flood event, and areas of minimal flood risk. The Floodplain Mapping/Redelineation flood risk boundaries are derived from the engineering information Flood Insurance Studies (FISs), previously published Flood Insurance Rate Maps (FIRMs), flood hazard analyses performed in support of the FISs and FIRMs, and new mapping data, where available. The FISs and FIRMs are published by the Federal Emergency Management Agency (FEMA).*

Purpose: *The objective of the Floodplain Mapping/Redelineation data submission is to archive the flood boundary and redelineation data for a study in a database such that it can be revised and used with minimum effort in future flood insurance studies or map revisions. This digital data is produced for the purposes of updating/creating a DFIRM database.*

Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20030505*
Currentness_Reference: *FIRM and FIS Effective Date*
Status:
Progress: *Complete*
Maintenance_and_Update_Frequency: *Unknown*
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -75.8781
East_Bounding_Coordinate: -75.2487
North_Bounding_Coordinate: 39.378
South_Bounding_Coordinate: 38.7478
Keywords:
Theme:
Theme_Keyword_Thesaurus: *ISO 19115 Topic Category*
Theme_Keyword: *hydrology*
Theme_Keyword: *environment*
Theme_Keyword: *inlandWaters*
Theme:
Theme_Keyword_Thesaurus: *FEMA NFIP Topic Category*
Theme_Keyword: *Floodplain Mapping*
Theme_Keyword: *Digital Flood Insurance Rate Map*
Theme_Keyword: *DFIRM*
Theme_Keyword: *FIRM*
Theme_Keyword: *FEMA Flood Hazard Zone*
Theme_Keyword: *DFIRM Database*
Theme_Keyword: *Special Flood Hazard Area*
Theme_Keyword: *CBRS*
Theme_Keyword: *Coastal Barrier Resources System*
Theme_Keyword: *Riverine Flooding*
Theme_Keyword: *Coastal Flooding*
Theme_Keyword: *NFIP*
Theme_Keyword: *Base Flood Elevation*
Theme_Keyword: *SFHA*
Theme_Keyword: *Flood Insurance Rate Map*
Theme_Keyword: *Floodway*
Place:
Place_Keyword_Thesaurus: None
Place_Keyword: *REGION num*
Place_Keyword: *STATE abbreviation*
Place_Keyword: *COUNTY name*
Place_Keyword: *COUNTY-FIPS code*
Place_Keyword: *COMMUNITY name*
Place_Keyword: *FEMA-CID code*
Access_Constraints: *None*

Use_Constraints: *Acknowledgement of FEMA would be appreciated in products derived from these data. This digital data is produced for the purposes of updating/creating a DFIRM database.*
Data_Quality_Information:
Logical_Consistency_Report: *When FEMA revises an FIS, adjacent studies are checked to ensure agreement between flood elevations at the boundaries. Likewise flood elevations at the confluence of streams studied independently are checked to ensure agreement at the confluence. The FIRM and the FIS are developed together and care is taken to ensure that the elevations and other features shown on the flood profiles in the FIS agree with the information shown on the FIRM. However, the elevations as shown on the FIRM are rounded whole-foot elevations. They must be shown so that a profile recreated from the elevations on the FIRM will match the FIS profiles within one half of one foot.*
Completeness_Report: *Data contained in the Floodplain Mapping and Redelineation files reflect the content of the source materials. Features may have been eliminated or generalized on the source graphic, due to scale and legibility constraints. With new mapping, FEMA plans to maintain full detail in the spatial data it produces. However, older information is often transferred from existing maps where some generalization has taken place. Flood risk data are developed for communities participating in the NFIP for use in insurance rating and for floodplain management. Flood hazard areas are determined using statistical analyses of records of river flow, storm tides, and rainfall; information obtained through consultation with the communities; floodplain topographic surveys; and hydrological and hydraulic analysis. Both detailed and approximate analyses are employed. Generally, detailed analyses are used to generate flood risk data only for developed or developing areas of communities. For areas where little or no development is expected to occur, FEMA uses approximate analyses to generate flood risk data. Typically, only drainage areas that are greater than one square mile are studied.*
Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: *Originator of source data*
Publication_Date: *20051101*
Title: *Title of source data.*
Type_of_Source_Media: *online*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20030505*
Source_Currentness_Reference: *publication date*
Source_Citation_Abbreviation: *BASE1*
Source_Contribution: *Brief statement identifying the information contributed by the source to the data set*
Process_Step:
Process_Description: *Floodplain Mapping and Redelineation datasets are compiled in conjunction with the hardcopy FIRM and the final FIS report. The specifics of the hydrologic and hydraulic analyses performed are detailed in the FIS report. The results of these studies are submitted in digital format to FEMA. These data and unrevised data from effective FIRMs are compiled onto the base map used for DFIRM publication and checked for accuracy and compliance with FEMA standards.*
Process_Date: *20030505*
Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: *Universal Transverse Mercator*
Universal_Transverse_Mercator:
UTM_Zone_Number: *11*

Transverse_Mercator:
Scale_Factor_at_Central_Meridian: *0.9996*
Longitude_of_Central_Meridian: *-117.0*
Latitude_of_Projection_Origin: *0.0*
False_Easting: *500000*
False_Northing: *0.0*
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: *coordinate pair*
Coordinate_Representation:
Abscissa_Resolution: *0.000172*
Ordinate_Resolution: *0.000172*
Planar_Distance_Units: *meters*
Geodetic_Model:
Horizontal_Datum_Name: *North American Datum of 1983*
Ellipsoid_Name: *Geodetic Reference System 80*
Semi-major_Axis: *6378137*
Denominator_of_Flattening_Ratio: *298.25*
Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Fld_Haz_Ar*
Entity_Type_Definition: *Location and attributes for flood insurance risk zones*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_Fld_Haz_Ln*
Entity_Type_Definition: *Location and attributes for boundaries of flood insurance risk zones*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Overview_Description:
Entity_and_Attribute_Overview: *The Floodplain Mapping and Redelineation datasets contain both spatial and attribute information. These data together represent the current flood risk for the subject area as identified by FEMA. The attribute tables may include SFHA locations, flood zone designations, BFEs, political entities, cross-section locations, FIRM panel information, and other data related to the NFIP.*
Entity_and_Attribute_Detail_Citation: *Appendix L of FEMA Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of each attribute code and a reference to other relevant information.*
Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: *USA*

Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Distribution_Liability: *No warranty expressed or implied is made by FEMA regarding the utility of the data on any other system nor shall the act of distribution constitute any such warranty.*
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: *ESRI Shapefile*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: *http://hazards.fema.gov*
Fees: *Contact Distributor*
Metadata_Reference_Information:
Metadata_Date: *20030612*
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: *John Doe*
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City*: Washington*
State_or_Province*: District of Columbia*
Postal_Code*: 20472*
Country: *USA*
Contact_Voice_Telephone*: 1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Metadata_Standard_Name: *FGDC Content Standards for Digital Geospatial Metadata*
Metadata_Standard_Version*: FGDC-STD-001-1998*
Metadata_Extensions:
Online_Linkage*: http://hazards.fema.gov*
Online_Linkage: *http://www.epsg.org*
Profile_Name: *FEMA NFIP Metadata Content and Format Standard*

6.6. Hydraulics (<CID>_Hydraulics_metadata)

Identification_Information:
Citation:
Citation_Information:
Originator: *Flood County GIS Department (Name of organization that developed the data set.)*
Publication_Date: *20030505*
Title: *HYDRAULICS, FLOOD COUNTY, USA*
Geospatial_Data_Presentation_Form: *FEMA-DCS-Hydraulics*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://hazards.fema.gov*

Larger_Work_Citation:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *20030505*
Title: *FEMA CASE 00-00-0000S*
Description:
Abstract: *Recent developments in digital terrain and geospatial database management technology make it possible to protect this investment for existing and future projects to a much greater extent than was possible in the past. The minimum requirement for hydraulics data includes input and output files for all hydraulic models and spatial datasets that are needed to implement the models. (Source: FEMA Guidelines and Specs, Appendix N)*
Purpose: *Development of a hydraulic model to provide water-surface elevations for floodplain mapping requires significant investment in time and resources to obtain and process topographic survey data including cross-section and bridge surveys.*

Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20030505*
Currentness_Reference: *FIRM and FIS Effective Date*

Status:
Progress: *Complete*
Maintenance_and_Update_Frequency: *Unknown*
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: *-75.8781*
East_Bounding_Coordinate: *-75.2487*
North_Bounding_Coordinate: *39.3780*
South_Bounding_Coordinate: *38.7478*

Keywords:
Theme:
Theme_Keyword_Thesaurus: ISO 19115 Topic Category
Theme_Keyword: *environment*
Theme_Keyword: *inlandWaters*

Theme:
Theme_Keyword_Thesaurus: *FEMA NFIP Topic Category*
Theme_Keyword: *Hydraulics*
Theme_Keyword: *Digital Flood Insurance Rate Map*
Theme_Keyword: *DFIRM*
Theme_Keyword: *Flood Hazard data*
Theme_Keyword: *0.2-Percent-Annual-Chance Flood*
Theme_Keyword: *Channel*

Place:
Place_Keyword_Thesaurus: *None*
Place_Keyword: *REGION num*
Place_Keyword: *STATE abbreviation*
Place_Keyword: *COUNTY name*
Place_Keyword: *COUNTY-FIPS code*
Place_Keyword: *COMMUNITY name*
Place_Keyword: *FEMA-CID code*

Access_Constraints: *None*

Use_Constraints: *Acknowledgement of FEMA would be appreciated in products derived from these data. This digital data is produced for the purposes of updating/creating a DFIRM database.*

Data_Quality_Information:
Logical_Consistency_Report: *Hydraulic analysis uses all valid existing flood elevation, survey, hydrologic analysis results and other pertinent information for the study area. FEMA approved models are used to compute water surface elevations for required flood events. Computed water surface elevations and topographic data are used to delineate flood hazard boundaries. Roughness coefficients are carefully selected to represent the conditions along stream beds and banks. Base Flood Elevations (BFEs) on the FIRMs and in floodway data tables agree with the flood profiles in the FIS.*
Completeness_Report: *Hydraulic analysis provides water surface elevations at different locations along the stream and for different flooding events. Hydraulic submittal includes key physical data used in the process, model parameters and model output. Data developed in surveying and hydrologic analysis are incorporated in hydraulic analysis. Results of hydraulic analysis are used to map Special Flood Hazard Area (SFHA) boundaries. Selection of model parameters (e.g. roughness coefficients, expansion and contraction coefficients, etc) is supported by additional information (e.g. landuse, aerial photo, etc). Model boundary conditions are carefully selected and justified. Modeled velocities are checked for potential erosion.*

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report: *an explanation of the accuracy of the horizontal coordinate measurements and a description of the tests used.*
Vertical_Positional_Accuracy:
Vertical_Positional_Accuracy_Report: *an explanation of the accuracy of the vertical coordinate measurements and a description of the tests used.*

Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: *Originator of source data*
Publication_Date: *20030505*
Title: *Title of source data.*
Type_of_Source_Media: *online*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20030505*
Source_Currentness_Reference: *publication date*
Source_Citation_Abbreviation: *HYDRAMODEL1*
Source_Contribution: *Brief statement identifying the information contributed by the source to the data set*
Process_Step:
Process_Description: *Hydraulic Study data development involves compiling survey and hydrologic analysis data, selecting an appropriate hydraulic model, preparing model input data, estimating model parameters, simulating water surface elevations for required recurrence intervals and delineate flood hazard boundaries.*
Process_Date: *20030505*

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: *Universal Transverse Mercator*
Universal_Transverse_Mercator:
UTM_Zone_Number: *11*
Transverse_Mercator:

Scale_Factor_at_Central_Meridian: *0.9996*
Longitude_of_Central_Meridian: *-117.0*
Latitude_of_Projection_Origin: *0.0*
False_Easting: *500000*
False_Northing: *0.0*
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: *coordinate pair*
Coordinate_Representation:
Abscissa_Resolution: *0.000172*
Ordinate_Resolution: *0.000172*
Planar_Distance_Units: *meters*

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: HydraModels
Entity_Type_Definition: ***FREE TEXT***
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix N: Data Capture Standards and Data Capture Guidelines (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Overview_Description:
Entity_and_Attribute_Overview: *The Hydraulic submittal is made up of several data themes containing both spatial and attribute information. These data represent the extent of flooding and the water surface elevations for the subject area. The spatial data files and attribute tables include stream centerline, cross-sections, flood hazard boundaries, BFEs, flow, roughness coefficients, manmade structures and other data related to the NFIP.*
Entity_and_Attribute_Detail_Citation: *Appendix N of FEMA Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of the data themes and references to other relevant information.*

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: *FEMA, Mapping Information Platform*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Distribution_Liability: *No warranty expressed or implied is made by FEMA regarding the utility of the data on any other system nor shall the act of distribution constitute any such warranty.*
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: *FEMA-DCS-Hydraulics*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: *http://hazards.fema.gov*
Fees: Contact Distributor

Metadata_Reference_Information:
Metadata_Date: *20030612*
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: *John Doe*
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: *USA*
Contact_Voice_Telephone: *1-800-358-9616*
Contact_Electronic_Mail_Address: *http://www.fema.gov/msc*
Metadata_Standard_Name: *FGDC Content Standards for Digital Geospatial Metadata*
Metadata_Standard_Version: *FGDC-STD-001-1998*

Metadata_Extensions:
Online_Linkage: *http://hazards.fema.gov*
Online_Linkage: *http://www.epsg.org*
Profile_Name: *FEMA NFIP Metadata Content and Format Standard*

6.7. Hydrology (<CID>_Hydrology_metadata)

Identification_Information:
Citation:
Citation_Information:
Originator: *Flood County GIS Department (Name of organization that developed the data set.)*
Publication_Date: *20030505*
Title: *HYDROLOGY, FLOOD COUNTY, USA*
Geospatial_Data_Presentation_Form: *FEMA-DCS-Hydrology*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://hazards.fema.gov*
Larger_Work_Citation:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *20030505*
Title: *FEMA CASE 00-00-0000S*
Description:
Abstract: *Hydrology data include spatial datasets and data tables necessary for documenting the hydrologic procedures for estimating flood discharges for a flood insurance study, which includes the hydrologic data expected by FEMA for new riverline studies. (Source: FEMA Guidelines and Specifications, Appendix N)*
Purpose: *The objective of this Hydrology data submission is to archive the hydrologic data for a study in a database such that it can be revised and used with minimum effort in future flood insurance studies or map revisions.*

Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:

Calendar_Date: *20030505*
Currentness_Reference: *FIRM and FIS Effective Date*

Status:
Progress: *Complete*
Maintenance_and_Update_Frequency: *Unknown*
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: -75.8781
East_Bounding_Coordinate: -75.2487
North_Bounding_Coordinate: 39.3780
South_Bounding_Coordinate: 38.7478

Keywords:
Theme:
Theme_Keyword_Thesaurus: *ISO 19115 Topic Category*
Theme_Keyword: *environment*
Theme_Keyword: *inlandWaters*

Theme:
Theme_Keyword_Thesaurus: *FEMA NFIP Topic Category*
Theme_Keyword: *Hydrology*
Theme_Keyword: *Digital Flood Insurance Rate Map*
Theme_Keyword: *DFIRM*
Theme_Keyword: *Flood Hazard data*
Theme_Keyword: *0.2-Percent-Annual-Chance Flood*
Theme_Keyword: *Channel*

Place:
Place_Keyword_Thesaurus: *None*
Place_Keyword: *REGION num*
Place_Keyword: *STATE abbreviation*
Place_Keyword: *COUNTY name*
Place_Keyword: *COUNTY-FIPS code*
Place_Keyword: *COMMUNITY name*
Place_Keyword: *FEMA-CID code*

Access_Constraints: *None*
Use_Constraints: *Acknowledgement of FEMA would be appreciated in products derived from these data. This digital data is produced for the purposes of updating/creating a DFIRM database.*

Data_Quality_Information:
Logical_Consistency_Report: *Proven hydrologic methods and/or FEMA approved models are used to compute flows at different locations and for different recurrence intervals (e.g. 1-percent-annual-chance (100-year) event, the 10-percent-annual-chance (10-year), 2-percent-annual-chance (50-year), and 0.2-percent-annual-chance (500-year) event). Computed flows are compared with historic data and flows established in previous hydrologic investigations to ensure reasonableness. Flows at the confluences are checked for the possibility of coincident peaks. Flows exiting the system and regulated by dams are carefully analyzed. At a given location flows for longer recurrence intervals are larger.*
Completeness_Report: *Flows are computed at different locations of the study area. The method(s) and/or model(s) are described in the FIS Report. Assumptions and special considerations are also clearly stated in the report. Flows previously determined in other studies or hydrologic investigations are used for comparison. Computed flows are compared with historic flooding data. Submittal of hydrologic data in accordance with Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix N: Data Capture Standards ensures completeness of the Hydrology Study submittal.*

Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: *Originator of source data*
Publication_Date: *20051101*
Title: *Title of source data.*
Type_of_Source_Media: *online*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20030505*
Source_Currentness_Reference: *publication date*
Source_Citation_Abbreviation: *FLOW-GAGE1*
Source_Contribution: *Brief statement identifying the information contributed by the source to the data set*
Process_Step:
Process_Description: *Process steps include selection of method(s) and/or model(s), preparation of input data and computing/modeling. Preparation of input data involves compilation of rain and/or flow gage data; delineation of sub-basins; and processing of topographic, landuse and soil data, if used.*
Process_Date: *20030505*

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: *Universal Transverse Mercator*
Universal_Transverse_Mercator:
UTM_Zone_Number: *11*
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: *0.9996*
Longitude_of_Central_Meridian: -*117.0*
Latitude_of_Projection_Origin: *0.0*
False_Easting: *500000*
False_Northing: *0.0*
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: *coordinate pair*
Coordinate_Representation:
Abscissa_Resolution: *0.000172*
Ordinate_Resolution: *0.000172*
Planar_Distance_Units: *meters*
Geodetic_Model:
Horizontal_Datum_Name: *North American Datum of 1983*
Ellipsoid_Name: *Geodetic Reference System 80*
Semi-major_Axis: *6378137*
Denominator_of_Flattening_Ratio: *298.25*

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: *S_HydroNode*
Entity_Type_Definition: *A spatial data set consisting of points showing the locations of computed discharge values.*

Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix N: Data Capture Standards and Data Capture Guidelines (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Overview_Description:
Entity_and_Attribute_Overview: *The Hydrology submission is made up of several data themes containing both spatial and attribute information. These data together represent the current hydrology for the subject area as identified by FEMA. The attribute tables include Gage, Basin, Boundary, Soil, Landuse, Impervious Areas, Network Connectivity, Flow and other data related to the NFIP.*
Entity_and_Attribute_Detail_Citation: *Appendix N of FEMA Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of the data themes and references to other relevant information.*

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Distribution_Liability: *No warranty expressed or implied is made by FEMA regarding the utility of the data on any other system nor shall the act of distribution constitute any such warranty.*
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: *FEMA-DCS-Hydrology*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: *http://hazards.fema.gov*
Fees: Contact Distributor

Metadata_Reference_Information:
Metadata_Date: *20030612*
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: *John Doe*
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *http://hazards.fema.gov*

_Metadata_Standard_Name: *FGDC Content Standards for Digital Geospatial Metadata*
Metadata_Standard_Version: *FGDC-STD-001-1998*

Metadata_Extensions:
Online_Linkage: *http://hazards.fema.gov*
Online_Linkage: *http://www.epsg.org*
Profile_Name: *FEMA NFIP Metadata Content and Format Standard*

6.8. Orthoimagery (<CID>_Orthoimagery_metadata)

Identification_Information:
Citation:
Citation_Information:
Originator: *Flood County GIS Department (Name of organization that developed the data set.)*
Publication_Date: *20030505*
Title: *ORTHOIMAGERY, FLOOD COUNTY, USA*
Geospatial_Data_Presentation_Form: *FGDC-Framework-OrthoImagery*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://hazards.fema.gov*
Larger_Work_Citation:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *20030505*
Title: *FEMA CASE 00-00-0000S*
Description:
Abstract: *Digital orthographic imagery datasets contain georeferenced images of the Earth's surface, collected by a sensor in which object displacement has been removed for sensor distortions and orientation, and terrain relief. Digital orthoimages have the geometric characteristics of a map, and image qualities of a photograph. (Source: Circular A-16, p. 16)*
Purpose: *Orthoimagery data are used during DFIRM production, which have been kept separate from the other framework themes for future consistency with the NDOP registry.*

Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20030505*
Currentness_Reference: *FIRM and FIS Effective Date*

Status:
Progress: *Complete*
Maintenance_and_Update_Frequency: *Unknown*
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: *-75.8781*
East_Bounding_Coordinate: *-75.2487*
North_Bounding_Coordinate: *39.3780*
South_Bounding_Coordinate: *38.7478*

Keywords:
Theme:
Theme_Keyword_Thesaurus: *ISO 19115 Topic Category*
Theme_Keyword: *imageryBaseMapsEarthCover*

Theme:
Theme_Keyword_Thesaurus: *FEMA NFIP Topic Category*
Theme_Keyword: *Orthoimage*
Theme_Keyword: *DOQ*
Theme_Keyword: *DOQQ*
Theme_Keyword: *FGDC Framework*
Theme_Keyword: *Digital Orthophoto Quad*
Theme_Keyword: *Orthophoto*

Place:
Place_Keyword_Thesaurus: *None*
Place_Keyword: *REGION num*
Place_Keyword: *STATE abbreviation*
Place_Keyword: *COUNTY name*
Place_Keyword: *COUNTY-FIPS code*
Place_Keyword: *COMMUNITY name*
Place_Keyword: *FEMA-CID code*

Access_Constraints: *None*
Use_Constraints: *Acknowledgement of FEMA would be appreciated in products derived from these data. This digital data is produced for the purposes of updating/creating a DFIRM database.*

Data_Quality_Information:
Logical_Consistency_Report: *An explanation of the fidelity of relationships in the data set and tests used*
Completeness_Report: *Complete and integrated data for an entire county are preferred. If only portions of a county are available, FEMA may choose to use the default base map source (USGS DOQs) for the county. (Guidelines and Specifications Vol 1, p 71).*

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report: *Framework digital orthoimagery accuracy shall employ the National Standard for Spatial Data Accuracy (NSSDA), which implements a statistical and testing methodology for estimating the positional accuracy of points in a digital geospatial data, with respect to georeferenced ground positions of higher accuracy. The NSSDA uses root-mean-square error (RMSE) to estimate positional accuracy. This accuracy shall reflect all uncertainties, including those introduced by geodetic control coordinates, compilation, and final computation of ground coordinate values in the product.*
Quantitative_Horizontal_Positional_Accuracy_Assessment:
Horizontal_Positional_Accuracy_Value: *198.265*
Horizontal_Positional_Accuracy_Explanation: *the identification of the test that yielded the Horizontal Positional Accuracy Value.*

Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: *Originator of source data*
Publication_Date: *20030505*
Title: *Title of source data.*
Type_of_Source_Media: *online*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20030505*
Source_Currentness_Reference: *publication date*

Source_Citation_Abbreviation: *CONSTITUENT-TILE1*
Source_Contribution: *Brief statement identifying the information contributed by the source to the data set*

Process_Step:
Process_Description: *Processing steps include geometric corrections (elevation-related distortions or image smears) and radiometric corrections, enhancements or restorations*
Process_Date: 20030505
Cloud_Cover: *50*

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: *Universal Transverse Mercator*
Universal_Transverse_Mercator:
UTM_Zone_Number: *11*
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: *0.9996*
Longitude_of_Central_Meridian: -*117.0*
Latitude_of_Projection_Origin: *0.0*
False_Easting: *500000*
False_Northing: *0.0*
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: *coordinate pair*
Coordinate_Representation:
Abscissa_Resolution: *0.000172*
Ordinate_Resolution: *0.000172*
Planar_Distance_Units: *meters*
Geodetic_Model:
Horizontal_Datum_Name: *North American Datum of 1983*
Ellipsoid_Name: *Geodetic Reference System 80*
Semi-major_Axis: *6378137*
Denominator_of_Flattening_Ratio: *298.25*

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: *Panchromatic*
Entity_Type_Definition: ***FREE TEXT***
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L: Guidance for Preparing Draft Digital Data and DFIRM Databases (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Overview_Description:
Entity_and_Attribute_Overview: *The Orthoimagery submission represents the current basemap layer for the subject area as identified by FEMA. For black and white orthoimages from panchromatic source each pixel contains an 8-bit gray-scale value between 0-255. A value of 0 represents the color black while a value of 255 represents the color white. All values between 0 and 255 are represented as a shade of gray varying from black to white.*
Entity_and_Attribute_Detail_Citation: *Appendix L of FEMA Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of the data themes and references to other relevant information.*

Distribution_Information:
Distributor:
Contact_Information:

Contact_Organization_Primary:
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Distribution_Liability: *No warranty expressed or implied is made by FEMA regarding the utility of the data on any other system nor shall the act of distribution constitute any such warranty.*
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: *TIFF*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: *http://hazards.fema.gov*
Fees: Contact Distributor

Metadata_Reference_Information:
Metadata_Date: *20030612*
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: *John Doe*
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: *USA*
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Metadata_Standard_Name: *FGDC Content Standards for Digital Geospatial Metadata*
Metadata_Standard_Version: *FGDC-STD-001-1998*
Metadata_Extensions:
Online_Linkage: *http://hazards.fema.gov*
Online_Linkage: *http://www.epsg.org*
Profile_Name: *FEMA NFIP Metadata Content and Format Standard*

6.9. Survey (<CID>_Survey_metadata)

Identification_Information:
Citation:
Citation_Information:
Originator: *Flood County GIS Department (Name of organization that developed the data set.)*
Publication_Date: *20030505*
Title: *SURVEY, FLOOD COUNTY, USA*

Geospatial_Data_Presentation_Form: *FEMA-DCS-Survey*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://hazards.fema.gov*
Larger_Work_Citation:
Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *20030505*
Title: *FEMA CASE 00-00-0000S*
Description:
Abstract: *Survey data includes spatial datasets and data tables necessary to digitally represent data collected in the survey phase of the study. (Source: FEMA Guidelines and Specs, Appendix N)*
Purpose: *The survey phase has traditionally been one of the most expensive portions of the study; survey data is often submitted for features such as dams, culverts, bridges, and channels*

Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20030505
Currentness_Reference: *FIRM and FIS Effective Date*

Status:
Progress: *Complete*
Maintenance_and_Update_Frequency: *Unknown*
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: *-75.8781*
East_Bounding_Coordinate: *-75.2487*
North_Bounding_Coordinate: *39.3780*
South_Bounding_Coordinate: *38.7478*

Keywords:
Theme:
Theme_Keyword_Thesaurus: *ISO 19115 Topic Category*
Theme_Keyword: *structure*
Theme_Keyword: *location*
Theme_Keyword: *elevation*
Theme_Keyword: *transportation*

Theme:
Theme_Keyword_Thesaurus: *FEMA NFIP Topic Category*
Theme_Keyword: *Survey*
Theme_Keyword: *Digital Flood Insurance Rate Map*
Theme_Keyword: *DFIRM*
Theme_Keyword: *Flood Hazard Data*
Theme_Keyword: *Bridges*
Theme_Keyword: *Culverts*
Theme_Keyword: *Dams*
Theme_Keyword: *Levees*
Theme_Keyword: *Cross Sections*
Theme_Keyword: *Cross Section Lines*
Theme_Keyword: *Streams*
Theme_Keyword: *Creeks*
Theme_Keyword: *Water Body*

Place:
Place_Keyword_Thesaurus: *None*
Place_Keyword: *REGION num*
Place_Keyword: *STATE abbreviation*
Place_Keyword: *COUNTY name*
Place_Keyword: *COUNTY-FIPS code*
Place_Keyword: *COMMUNITY name*
Place_Keyword: *FEMA-CID code*

Access_Constraints: *None*
Use_Constraints: *Acknowledgement of FEMA would be appreciated in products derived from these data. This digital data is produced for the purposes of updating/creating a DFIRM database.*

Data_Quality_Information:
Logical_Consistency_Report: *Survey data is the most important input to hydraulic analysis that determines water surface elevations. Surveyed cross-sections cross entire 0.2 percent-annual-chance floodplain. Survey data development conforms to the Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix L.*
Completeness_Report: *Survey data includes channel and floodplain cross sections, elevation reference marks (ERMs), physical dimensions of hydraulic and flood control structures, and photographs at hydraulic structures. The FEMA guidelines and standards are followed in the development of Survey data.*

Positional_Accuracy:
Horizontal_Positional_Accuracy:
Horizontal_Positional_Accuracy_Report: ***FREE TEXT***
Vertical_Positional_Accuracy:
Vertical_Positional_Accuracy_Report: ***FREE TEXT***

Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: *Flood County GIS Department (Name of organization that developed the data set.)*
Publication_Date: *20030505*
Title: *Title of source data.*
Type_of_Source_Media: *online*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20030505*
Source_Currentness_Reference: *publication date*
Source_Citation_Abbreviation: *SURVEY FILES1*
Source_Contribution: *Brief statement identifying the information contributed by the source to the data set*

Process_Step:
Process_Description: *Survey data collection steps include field reconnaissance, historical flooding research, setting Elevation Reference Marks (ERMs) and conducting field survey of cross-sections and hydraulic structures.*
Process_Date: *20030505*

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: *Universal Transverse Mercator*
Universal_Transverse_Mercator:

UTM_Zone_Number: *11*
Transverse_Mercator:
Scale_Factor_at_Central_Meridian: *0.9996*
Longitude_of_Central_Meridian: *-117.0*
Latitude_of_Projection_Origin: *0.0*
False_Easting: *500000*
False_Northing: *0.0*
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: *coordinate pair*
Coordinate_Representation:
Abscissa_Resolution: *0.000172*
Ordinate_Resolution: *0.000172*
Planar_Distance_Units: *meters*
Geodetic_Model:
Horizontal_Datum_Name: *North American Datum of 1983*
Ellipsoid_Name: *Geodetic Reference System 80*
Semi-major_Axis: *6378137*
Denominator_of_Flattening_Ratio: *298.25*
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Datum_Name: *North American Vertical Datum of 1988*
Altitude_Resolution: *11.2*
Altitude_Distance_Units: *meters*
Altitude_Encoding_Method: *Attribute values*

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: *Bridge*
Entity_Type_Definition: ***FREE TEXT***
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix N: Data Capture Standards and Data Capture Guidelines (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Overview_Description:
Entity_and_Attribute_Overview: *The Survey data contains both spatial and attribute information. These data provide ground elevations at stream over bank areas, channel geometry, information about physical obstructions to conveyance and channel roughness. FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix N: Data Capture Guidelines provides detailed descriptions of the data themes and attribute information.*
Entity_and_Attribute_Detail_Citation: *Appendix N of FEMA Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of the data themes and references to other relevant information.*

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*

Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Distribution_Liability: *No warranty expressed or implied is made by FEMA regarding the utility of the data on any other system nor shall the act of distribution constitute any such warranty.*
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: *FEMA-DCS-Survey*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: *http://hazards.fema.gov*
Fees: Contact Distributor

Metadata_Reference_Information:
Metadata_Date: *20030612*
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: John Doe
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: *USA*
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Metadata_Standard_Name: *FGDC Content Standards for Digital Geospatial Metadata*
Metadata_Standard_Version: *FGDC-STD-001-1998*

Metadata_Extensions:
Online_Linkage: *http://hazards.fema.gov*
Online_Linkage: *http://www.epsg.org*
Profile_Name: *FEMA NFIP Metadata Content and Format Standard*

6.10. Terrain (<CID>_Terrain_metadata)

Identification_Information:
Citation:
Citation_Information:
Originator: *Flood County GIS Department (Name of organization that developed the data set.)*
Publication_Date: *20030505*
Title: *TERRAIN, FLOOD COUNTY, USA*
Geospatial_Data_Presentation_Form: *FEMA-DCS-Terrain*
Publication_Information:
Publication_Place: *Washington, DC*
Publisher: *Federal Emergency Management Agency*
Online_Linkage: *http://hazards.fema.gov*
Larger_Work_Citation:

Citation_Information:
Originator: *Federal Emergency Management Agency*
Publication_Date: *20030505*
Title: *FEMA CASE 00-00-0000S*
Description:
Abstract: *Terrain data, as defined in FEMA Guidelines and Specifications, Appendix N: Data Capture Standards, describes the digital topographic data that was used to create the elevation data representing the terrain environment of a watershed and/or floodplain. Terrain data requirements allow for flexibility in the types of information provided as sources used to produce final terrain deliverables. Once this type of data is provided, FEMA will be able to account for the origins of the flood study elevation data. (Source: FEMA Guidelines and Specifications, Appendix N, Section N.1.2).*
Purpose: *Terrain data is used to represent the topography of a watershed and/or floodplain environment and to extract useful information for hydraulic and hydrologic models. (Source: FEMA Guidelines and Specs, Appendix N)*

Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 20030505
Currentness_Reference: *FIRM and FIS Effective Date*

Status:
Progress: *Complete*
Maintenance_and_Update_Frequency: *Unknown*
Spatial_Domain:
Bounding_Coordinates:
West_Bounding_Coordinate: *-75.8781*
East_Bounding_Coordinate: *-75.2487*
North_Bounding_Coordinate: *39.3780*
South_Bounding_Coordinate: *38.7478*

Keywords:
Theme:
Theme_Keyword_Thesaurus: *ISO 19115 Topic Category*
Theme_Keyword: e*levation*

Theme:
Theme_Keyword_Thesaurus: *FEMA NFIP Topic Category*
Theme_Keyword: *Land Surface*
Theme_Keyword: *Relief*
Theme_Keyword: *Topography*
Theme_Keyword: *Digital Terrain Model*
Theme_Keyword: *Elevation Data*
Theme_Keyword: *Slope*
Theme_Keyword: *LIDAR*
Theme_Keyword: *Breaklines*
Theme_Keyword: *Contours*
Theme_Keyword: *DEM*
Theme_Keyword: *Flow vectors*

Place:
Place_Keyword_Thesaurus: *None*
Place_Keyword: *REGION num*
Place_Keyword: *STATE abbreviation*
Place_Keyword: *COUNTY name*

Place_Keyword: *COUNTY-FIPS code*
Place_Keyword: *COMMUNITY name*
Place_Keyword: *FEMA-CID code*

Access_Constraints: *None*
Use_Constraints: *Acknowledgement of FEMA would be appreciated in products derived from these data. This digital data is produced for the purposes of updating/creating a DFIRM database.*

Data_Quality_Information:
Logical_Consistency_Report: *The Terrain data are consistent with the Elevation dataset. A comparison of profile plots with the flow vector data confirms that flow vectors are correctly drawn. Flood hazard boundaries do not extend beyond the ExternalBoundary, if exists. FIRM panels show the flood hazard area delineations where Island data are present.*
Completeness_Report: *Data contained in the Terrain package highlights specific issues in the Elevation datasets. Terrain data are derived datasets that aid automated hydrologic and hydraulic analyses, the flood hazard area boundary delineations, and quality control.*

Positional_Accuracy:
Vertical_Positional_Accuracy:
Vertical_Positional_Accuracy_Report: *NMAS*
Quantitative_Vertical_Positional_Accuracy_Assessment:
Vertical_Positional_Accuracy_Value: *10.2*
Vertical_Positional_Accuracy_Explanation: the identification of the test that yielded the Vertical Positional Accuracy Value.

Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: *Originator of source data*
Publication_Date: *20030505*
Title: *Title of source data.*
Type_of_Source_Media: *online*
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: *20030505*
Source_Currentness_Reference: *publication date*
Source_Citation_Abbreviation: *VARIABLE-SPACING1*
Source_Contribution: *Brief statement identifying the information contributed by the source to the data set*

Process_Step:
Process_Description: *SinkBreach is a linear spatial file representing sink breaches used to hydrologically correct terrain models. A comparison of flow path automatically generated by a GIS software using the Elevation data and known flow paths from existing maps and/or orthophotos show sinks that need to be corrected. NoData, VoidArea, ExternalBoundary and Island are polygon spatial files by reviewing Elevation datasets.*
Process_Date: *20030505*

Spatial_Reference_Information:
Horizontal_Coordinate_System_Definition:
Planar:
Grid_Coordinate_System:
Grid_Coordinate_System_Name: *Universal Transverse Mercator*
Universal_Transverse_Mercator:
UTM_Zone_Number: *11*

Transverse_Mercator:
Scale_Factor_at_Central_Meridian: *0.9996*
Longitude_of_Central_Meridian: -*117.0*
Latitude_of_Projection_Origin: *0.0*
False_Easting: *500000*
False_Northing: *0.0*
Planar_Coordinate_Information:
Planar_Coordinate_Encoding_Method: *coordinate pair*
Coordinate_Representation:
Abscissa_Resolution: *0.000172*
Ordinate_Resolution: *0.000172*
Planar_Distance_Units: *meters*
Geodetic_Model:
Horizontal_Datum_Name: *North American Datum of 1983*
Ellipsoid_Name: *Geodetic Reference System 80*
Semi-major_Axis: *6378137*
Denominator_of_Flattening_Ratio: *298.25*
Vertical_Coordinate_System_Definition:
Altitude_System_Definition:
Altitude_Datum_Name: *North American Vertical Datum of 1988*
Altitude_Resolution: *11.2*
Altitude_Distance_Units: *meters*
Altitude_Encoding_Method: *Attribute values*

Entity_and_Attribute_Information:
Detailed_Description:
Entity_Type:
Entity_Type_Label: *FLOW-VECTORS*
Entity_Type_Definition: *FREE TEXT*
Entity_Type_Definition_Source: *FEMA Guidelines and Specifications for Flood Hazard Mapping Partners, Appendix N: Data Capture Standards and Data Capture Guidelines (available at http://www.fema.gov/fhm/dl_cgs.shtm)*
Overview_Description:
Entity_and_Attribute_Overview: *The Terrain data package is made up of several data themes containing primarily spatial information. These data supplement the Elevation datasets by providing additional information to aid flood risk evaluation and flood hazard area delineations.*
Entity_and_Attribute_Detail_Citation: *Appendix N of FEMA Guidelines and Specifications for FEMA Flood Hazard Mapping Partners contains a detailed description of the data themes and references to other relevant information.*

Distribution_Information:
Distributor:
Contact_Information:
Contact_Organization_Primary:
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: USA
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*

Distribution_Liability: *No warranty expressed or implied is made by FEMA regarding the utility of the data on any other system nor shall the act of distribution constitute any such warranty.*
Standard_Order_Process:
Digital_Form:
Digital_Transfer_Information:
Format_Name: *FEMA-DCS-Terrain*
Digital_Transfer_Option:
Online_Option:
Computer_Contact_Information:
Network_Address:
Network_Resource_Name: *http://hazards.fema.gov*
Fees: Contact Distributor

Metadata_Reference_Information:
Metadata_Date: *20030612*
Metadata_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: *John Doe*
Contact_Organization: *Federal Emergency Management Agency*
Contact_Address:
Address_Type: *mailing*
Address: *500 C Street, S.W.*
City: *Washington*
State_or_Province: *District of Columbia*
Postal_Code: *20472*
Country: *USA*
Contact_Voice_Telephone: *1-877-336-2627*
Contact_Electronic_Mail_Address: *miphelp@mapmodteam.com*
Metadata_Standard_Name: *FGDC Content Standards for Digital Geospatial Metadata*
Metadata_Standard_Version: *FGDC-STD-001-1998*

Metadata_Extensions:
Online_Linkage: *http://hazards.fema.gov*
Online_Linkage: *http://www.epsg.org*
Profile_Name: *FEMA NFIP Metadata Content and Format Standard*

Appendix A. Glossary of Terms

Authority Record	A record that shows the preferred form of a personal or corporate name, geographic region or subjects.
Controlled Vocabulary	A collection of preferred terms that are used to assist in more precise retrieval of content
Crosswalk	A table that maps the relationships and equivalencies between two or more metadata formats.
CSGDM	The Content Standard for Digital Geospatial Metadata (FGDC-STD-001-1998), an FGDC-developed standard for describing the content, quality, condition and other key characteristics of geospatial data.
Dublin Core	A 15-element metadata set intended to facilitate discovery of a wide range of electronic resources
Element	A discrete unit of metadata.
Extensible Markup Language (XML)	A W3C standard markup language for documents containing structured information. As opposed to HTML which is designed specifically for web browsers, XML is the basis for a broad array of standards that describe messages between systems, document structures, etc. XML is human readable and platform independent.
FGDC	The Federal Geographic Data Committee, a 19 member interagency committee composed of representatives from the Executive Office of the President, Cabinet-level and independent agencies.
GOS	Geospatial One-Stop, an intergovernmental project managed by the Department of the Interior in support of the President's Initiative for E-Government, and designed to improve the ability of the public and government to use geospatial information to support the business of government and facilitate decision making.
Metadata	A definition or description of data. "Data about data"
Metadata Profile	A set of metadata elements, policies and guidelines defined for a particular application
OAI	The Open Archives Initiative, maintainers of the OAI Protocol for metadata harvesting: http://www.openarchives.org

Schema	A systematic, orderly combination of elements. A set of rules for encoding information that supports a specific user community.
Thesaurus	A taxonomy that includes associated and related terms. A type of controlled vocabulary used to standardize terminology, and subsequently, to inform discovery systems.
Uniform Resource Locator (URL)	A technique for indicating the name and location of Internet resources. The URL specifies the name and type of the resource, as well as the computer, device and directory where the resource may be found.
World Wide Web Consortium (W3C)	An international industry consortium founded to develop common protocols and standards and to ensure interoperability on the Web.
Z39.50	An ISO standard for an application layer protocol for information retrieval which is specifically designed to aid retrieval from distributed servers: http://lcweb.loc.gov/z3950/agency