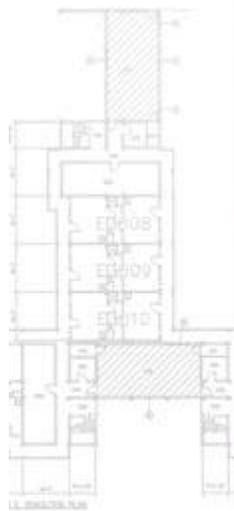


CADD/GIS Insights

advancing to new capabilities

U.S. Army Engineer Research and Development Center

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EDMS
SDSFIE
FMSFIE
EBS
A/E/C CADD
SEMMS



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The First Ten Years

by Harold L. Smith, Chief, The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment

I was very surprised when Stephen Spangler brought to my attention that in October of 2002 the CADD/GIS Technology Center passed our 10-year anniversary. What an interesting ten years it has been!

Standards: One of the most exciting developments in the Center's 10-year history has been in the development of standards. In 1992, geographic information systems (GIS) was a relatively unknown term, and there definitely was not a standard that addressed the organization and collection of GIS data. Since that time, the Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE) has become a major standard for GIS not only in the United States but worldwide. In 2001, the SDSFIE was accredited as a national standard by the American National Standards Institute as NCTIS 353. The Architectural/Engineering/Construction (A/E/C) Computer-Aided Design and Drafting (CADD) Standard, developed for use in either AutoCAD or MicroStation, has become a recognized CADD standard in use by Federal, state, and local governments and industry. Both of these standards began as seemingly impossible tasks, but have become two of the Center's leading products.

Staff: The Center could not have succeeded without the group of hardworking individuals I am fortunate to lead. The Center staff started out as a few individuals and has grown to become a team of twenty-three. Every year, my staff amazes me by what they achieve regardless of budget reductions. The ultimate goal of a supervisor is to assemble a staff that requires minimal supervision and creates professional products. I am very proud to be associated with the Center's team.

It has been a fast, exciting ten years. I enjoy serving as the Chief of the Center and look forward to even more years with the Center. If you think that what we have accomplished in the first ten years was great, you haven't seen anything yet!

Center Timeline

- 1987 - U.S. Army Corps of Engineers established CADD Center at Waterways Experiment Station (WES)
- 1989 - Center expanded to include Directorates of Engineering and Housing
- 1990 - Center expanded activities to include GIS
- 1991 - DMRD 982 recommended expansion of Center to include Tri-Service
- 1993 - Center consisted of 12 staff members
- 1993 - First CADD/GIS/FM Symposium held in Crystal City, VA
- 1994 - Center posted first web page
- 1995 - Coast Guard joined the Group
- 1996 - 2nd Symposium held in Kissimmee, FL
- 1997 - Defense Logistics Agency joined the Center
- 1997 - Electronic Bid Solicitation Team receives the National Hammer Award
- 1998 - Tri-Service CADD/GIS Team receives the National Hammer Award
- 1999 - Expanded CADD/GIS role to other Federal Agencies (name changed to The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment)
- 1999 - Center Staff received the U.S. Army Commander's Award for Civilian Service in Recognition of Standard Development
- 2001 - SDSFIE approved as NCITS 353

Ten Years of CADD/GIS Symposiums or How to Throw a Reunion Every Two Years for One Thousand Friends

By Stephen Spangler, The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment

When I first arrived at the CADD/GIS Technology Center for Facilities, Infrastructure, and Environment (then called the Tri-Service CADD/GIS Technology Center) back in November of 1992, one of the first projects I was assigned was to organize a February 1993 CADD/GIS Symposium in Washington, D.C. My first thought was "What's a Symposium?" I soon found out.



Think of it this way. Imagine trying to arrange a family reunion for over 400 relatives. All the relatives have said they will attend, so you have to arrange accommodations for them. You decide that you want some of those relatives to make speeches regarding the family. You eventually find 50 relatives who will agree to make those speeches. Now, you have to acquire synopses of their speeches and short biographies of them for a "commemorative booklet" of the reunion. Also, wouldn't it be neat to have a dedicated room containing displays of the different branches of the family? You find enough relatives who can display different items, but you have to make sure that all relatives get equal space in the exhibit area (because

you know that relatives will never forget if they feel slighted in any way). While this may be an exaggerated scenario with regard to a family reunion, basically these are only *some* of the things I have had to consider when coordinating a Symposium.

Toby Wilson and I worked many hours of overtime in those 3 months, but we eventually had the 1993 Symposium. I can remember being downstairs at 6:00 every morning (or earlier) to set up for that day's activities. Often, the day would not end until 8:00 or later that night. We also quickly learned the lesson that February is not the best month weather-wise to have a conference in Washington D.C. I turned 25 during the Symposium, so I had the unique pleasure of having all the attendees sing "Happy Birthday" during that morning's session (what a way to spend your birthday). Ultimately, we had over 400 attendees, and Toby and I must have done something right because we have coordinated the subsequent four Symposiums in 1995, 1997, 2000, and 2002.

The 1995 Symposium was held in Kissimmee, Florida (we couldn't say Orlando because then people would say we held it there because of the proximity to Disney World). Again, we were not thinking about the season and locale when the Symposium was scheduled. It was rare to see Symposium attendees outside during the high Florida summer temperatures. The 1997 and 2000 Symposiums were both held in St. Louis, in conjunction with the Corps' Surveying, Mapping, and Remote Sensing Conference. Fortunately, Bob Mesko with the St. Louis District handled a lot of the site coordination for both of these symposiums, which took a significant load off Toby and me. In 2002, we joined with the Air Force's Pollution Prevention Conference in San Antonio, Texas. Again, we had a lot of great help from Nancy Carper at Brooks Air Force Base.

Each event just gets bigger and better. The attendance grows with each Symposium, and it is always a struggle to "shoehorn in" as many events as possible into 3 days. We have also progressed from every presentation being performed with either transparencies or 35 mm slides to PowerPoint presentations and even live Internet demos. We have expanded from occupying one big room in a hotel to taking over the entire floor of a convention center! With each Symposium, I wonder how much more we will be adding to the schedule this time and how we can top the last one.

Final Word: No discussion of the Symposium would be complete without a major tip of the hat to Toby Wilson. Toby is one of those guys who will not rest until he is sure that every attendee is satisfied. No matter how hectic things may have gotten behind the scenes, I never saw him lose his composure or take his frustrations out on a member of the staff. I couldn't have been partnered with a better person in coordinating all five Symposiums. If you enjoyed a particular Symposium, chances are it was due to Toby's planning.



Ten Years with the A/E/C CADD Standard

By Stephen Spangler, The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment



"Your mission, Stephen, should you choose to accept it, is to create an Architectural/Engineering/Construction Computer-Aided Design and Drafting (A/E/C CADD) Standard for the Department of Defense. This Standard should do the following:

1. Incorporate existing standards in use by the Air Force, Army, Corps of Engineers, and Navy.
2. Be generic enough that it can be implemented in both AutoCAD and MicroStation.
3. Be compliant with the U.S. National CAD Standard."

If Jim Phelps from *Mission: Impossible* had been given this assignment, I think he would have had second thoughts before accepting the mission. It is hard to believe that I have been working on the A/E/C CADD Standard for over ten years. Whenever I speak to my parents, they always ask what I am working on. When I tell them "the Standard," they say, "Don't you work on anything else?" Actually I do, but in order to keep a Standard up to speed with the latest technology and field requirements, it does take up a significant amount of my time.

I can still remember when I was first given the assignment of working on the A/E/C CADD Standard over ten years ago. I had just joined the Center a few months before, so this was really my first big project. I worked for the Naval Facilities Engineering Command prior to working for the Center, so I was very familiar with AutoCAD. When I was told that the Standard had to work in both AutoCAD and MicroStation, my first thought was "Piece of cake! How different can the two packages be?" I soon found out just how different they were. Keep in mind that this was pre-AutoCAD 2002 and pre-MicroStation V8. I rapidly discovered that AutoCAD and MicroStation were very dissimilar CADD packages. AutoCAD had the restriction of setting specific lineweights to colors, while MicroStation had the restrictions of a design cube and 63 levels per design file. Whenever we had to "dumb down" the Standard to conform to certain limitations, the users of the opposing software complained about having their hands tied by the Standard.

The Center distributed Release 1.4 of the A/E/C CADD Standard in April 1995. We really did not receive too much feedback about it. The major complaint was that we did not have any tools available to assist in implementing the Standard. After the release of 1.4, the U.S. National CAD Standard (NCS) came out. Since we were a major supporter of the NCS, we had to revise our document to comply with this Standard. In October of 1999, the Center distributed Release 1.8 of the A/E/C CADD Standard. This release incorporated updates based on the NCS **and** provided Workspace tools to implement the A/E/C CADD Standard in both AutoCAD and MicroStation. With this release, the year 2000 was a big year as far as the A/E/C CADD Standard was concerned.

Prior to the release of 1.8, Corps of Engineers Headquarters had issued a memorandum rescinding the old Corps CADD standard in favor of the latest and greatest A/E/C CADD Standard. Most Corps sites decided to wait for Release 1.8 before they tackled implementing the A/E/C CADD Standard. Since the Standard was now mandated, the Center began receiving numerous comments about it. While the Standard basically worked, some of the methods needed fine-tuning. Enter Steve Hutsell at Fort Worth District. Steve had been put in charge of a 100% implementation of the Standard at Fort Worth District. While going through the Standard, he found several things that just did not make sense to him. When he ran into one of these items, he would call me for clarification. Eventually, it got to the point where he put my number on his speed dial list! Ultimately, Steve set up several meetings at Fort Worth District, where Center personnel, members of the Corps' Field Action CADD

groups, and Fort Worth District engineers/architects went through every level, layer, and symbol in the Standard. The ultimate result was a lean, mean Standard when Release 2.0 came out!

Since Release 2.0, more and more sites are beginning to implement the A/E/C CADD Standard. Thanks to the efforts of John Kincaid (Rock Island District) in forming Standard/Workspace Assistance Teams (SWAT) to assist users in implementing the Standard, Districts and Divisions are beginning to see the usefulness of a single DoD CADD Standard. With numerous tools like the Workspace and various commercial-off-the-shelf packages available to aid in implementation, there is no longer an excuse for people to not follow a Standard. While I foresee my working on the A/E/C CADD Standard for years to come, at least what was once a Mission: Impossible has now become a Mission: Possible!



Spatial Data Standard - From Then to Now

By Nancy Towne and Rita Massey, CADD/GIS Technology Center for Facilities, Infrastructure, and Environment



A milestone for the CADD/GIS Technology Center was reached in 2001 when the Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE) was accredited by the American National Standards Institute as NCTIS 353. The Center is responsible for the design, development, and maintenance of the SDSFIE (which were termed the Tri-Service Spatial Data Standards prior to July 1999. The acronym "SDS" was used from July 1999 until January 2001). The SDSFIE was developed so that geographic information system (GIS) users can better transfer and communicate data and information. Computer-aided drafting and design (CADD) users can also use the SDSFIE in development of maps and drawings to be incorporated into a GIS.

The CADD/GIS Center updates the SDSFIE and releases modifications to the libraries and toolbox at least once a year. Major releases are scheduled for every October, and interim releases are on an as-needed basis. All SDSFIE releases contain updated libraries, tools, and release notes. Major releases will also contain updated data models. The current data models are in Integrated Definition (IDEF) format. The Center is in the process of creating high-level Microsoft Visio data models to replace the IDEF models. These will be made available as they are completed. The majority of updates to the SDSFIE come from the user comments database, which was created to streamline the SDSFIE update process. Users can submit comments to this database via the Center's Web page http://tsc.wes.army.mil/comments/aecstds_comments/AECSDS-CommentForm.asp.

The SDSFIE has evolved over the past several years due to technology advancements, such as object-relational databases and enhanced coding options. The current SDSFIE library supports all relational database management systems (RDBMS) and supports ESRI, Intergraph, Bentley, and Autodesk GIS and CADD applications. The current SDSFIE toolbox includes:

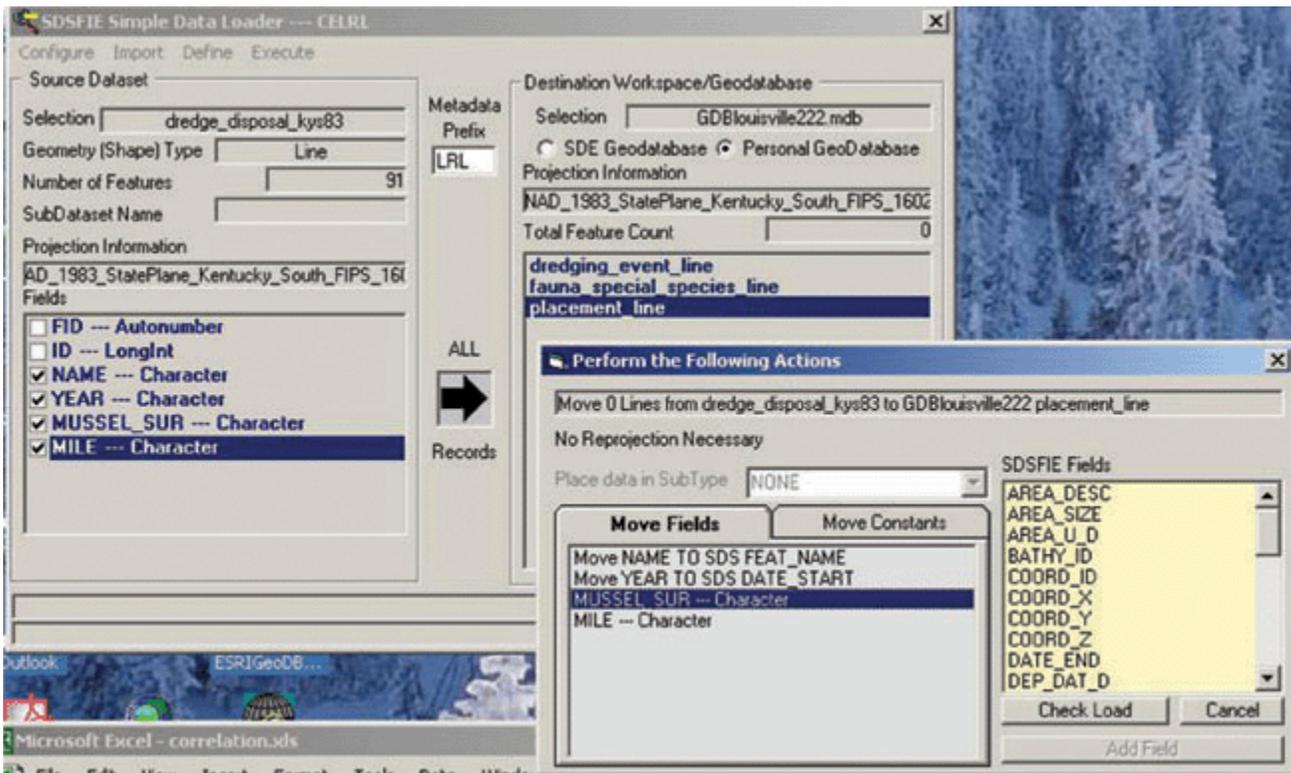
- Browser
- Filter Maker/Filter Eraser
- Generator tools
 - Microsoft Access 97/2000 databases
 - SQL scripts for all RDBMS
 - ESRI Personal/SDE Geodatabases
 - Intergraph GeoMedia warehouses
- Geodatabase tools

- Data Loader
- Data Checker

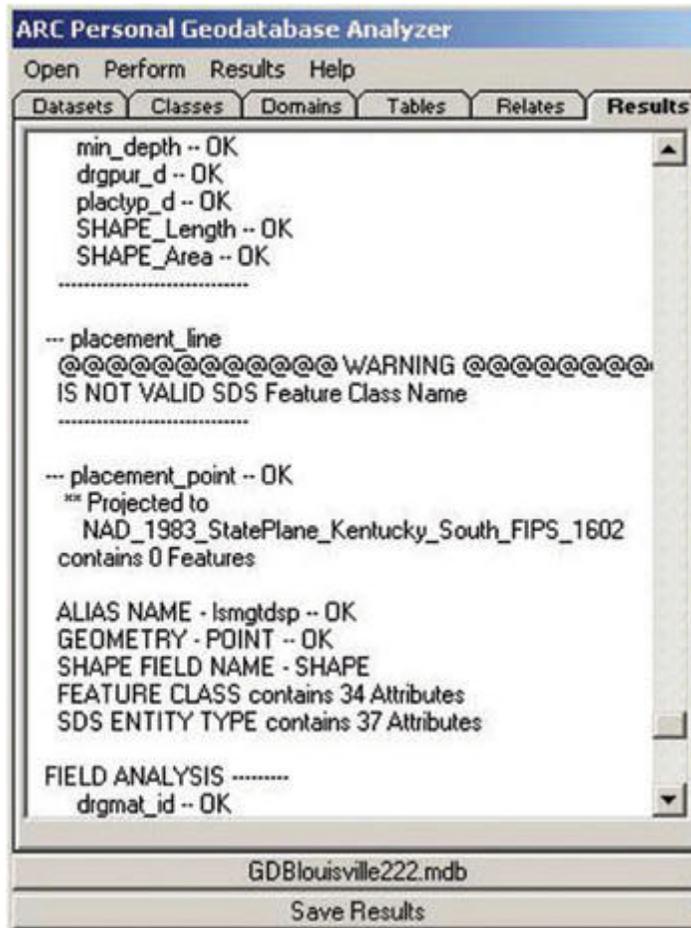
SDSFIE Release 2.22 became available April 2003, and SDSFIE Release 2.30 is scheduled for October 2003.

The Geodatabase Tools were written to satisfy the Center's ESRI geodatabase users and to enhance many of the simple tools that ESRI provides with ArcGIS 8.x. The Geodatabase Tools use ESRI technology for building and loading geodatabases, utilizing ArcObjects. They are available with Release 2.20 and higher of the SDSFIE/Facility Management Standards for Facilities, Infrastructure, and Environment (FMSFIE) and work as wizards to allow the user to create, open, check, and load data into either a Personal Geodatabase or an SDE Multi-User Geodatabase. In order to access an SDE Multi-User Geodatabase, an SDE connection must pre-exist. Using the Geodatabase Tools requires knowledge of the SDSFIE/FMSFIE data model and the SDSFIE/FMSFIE geodatabase model. There is a white paper at <http://tsc.wes.army.mil/News/Geodatabase/Geodatabase.asp> which explains how the Center mapped the relational data model of Entity Sets, Entity Classes, Entity Types, Attributes, and Domains to the geodatabase object-relational model of Feature Data Sets, Feature Classes, Object Classes, and Domains.

The Data Loader Tool automates the loading of source data from coverages, shapefiles, and geodatabases with a variety of structures (the contained fields) into a SDSFIE/FMSFIE compliant Personal or SDE geodatabase feature class, considering the constraints of geometry, projections, fields, values, and constants. The Data Loader allows the user to translate as much data as possible while minimizing the loss of data as they are loaded into the SDSFIE geodatabase feature class. It also allows the user to start creating feature level metadata on the source data. The Data Loader gives the user quality checks and query capability, and generates a log file of the load transaction - all of which are not available using the ESRI Simple Data Loader.



After the source data are loaded into a Personal or SDE geodatabase, the user can utilize the Data Checker Tool to ensure the geodatabase is SDSFIE compliant. Under the Diagnose options, all elements are checked at once or can be checked one at a time (Feature Datasets, Feature Classes, Domain Tables, and Object Classes). The Data Checker displays the results to a viewer or to a file.



For additional information, contact Nancy Towne at 601-634-3181 or send e-mail to Nancy.A.Towne@erdc.usace.army.mil.

Facility Management Standard for Facilities, Infrastructure, and Environment

by Bobby G. Carpenter, The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment



Initial development of the Facility Management Standard for Facilities, Infrastructure, and Environment (FMSFIE) began in 1997. An underlying criterion for development of the FMSFIE has been to provide integration with the CADD/GIS Technology Center's CADD and GIS data standards (notably the Architectural/Engineering/Construction CADD and Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE)). Several different strategies were evaluated for integration of the FMSFIE within the SDSFIE and A/E/C CADD Standard. It was determined that, initially, the FMSFIE would be incorporated within the SDSFIE data model (designated as FM Entity Classes within the appropriate SDSFIE Entity Sets). This stage of FMSFIE development focused on: (1) development of "business" FM, "event," and temporal information (e.g., construction, operation, maintenance, repair, and inspection records) concerning the "real-world" features/objects depicted in the SDSFIE and A/E/C CADD Standard, and (2) development of the capability to link to and share data with "corporate" databases, computerized information management systems, computer maintenance management systems, and commercially available FM software.

In 2000, the CADD/GIS Technology Center's Standards Working Group (SWG) and Corporate Staff (CS) approved a FMSFIE development Strategic Plan (<http://tsc.wes.army.mil/products/tssds-tsfs/fms/projects/fmsfiepr.htm>), which provided a framework and strategy for evolution of the FMSFIE to a more robust "transactional" data model closely integrated with the SDSFIE and A/E/C CADD Standard. Development of the "transactional" FMSFIE data model and standard began in 2000, with an initial focus on Asset Management. Its first release will be included with the SDSFIE and FMSFIE Release 2.30, scheduled to be completed in September 2003. The transactional FMSFIE defines a data model and data dictionary for facility management legal and Federal data reporting requirements encompassing the areas of asset management, work management, environmental management, public safety management, organization management, information security management, and financial management. In addition, the design of the FMSFIE will facilitate the sharing of data between various FM information management systems (e.g., Army Integrated Facilities System, Air Force Interim Work Information Management System, Air Force Automated Civil Engineer System, Navy Facility Assets Data Base, Army Corps of Engineers Facilities and Maintenance System, and OSD Real Property Enterprise System).

Like the SDSFIE, the transactional FMSFIE is being designed for implementation using commercially available relational database software (e.g., Oracle and SQL Server) and a Microsoft Windows Operating System (e.g., Windows 2000, XP, and NT). The FMSFIE is non-proprietary, thereby permitting other organizations,

contractors, and vendors the ability to freely use the data schema and data dictionary, share FMSFIE compliant data with other organizations, and build applications based upon the FMSFIE data schema.

For updates on the FMSFIE, visit the Center's Web site at <http://tsc.wes.army.mil/products/tssds-tsdfs/fms/fmsprods.asp>. For additional information, contact Bobby G. Carpenter at 601-634-4572 or send e-mail to him at carpenb@wes.army.mil.

Working Together with the FGDC

by Laurel Gorman, The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment



When the Center was established in early 1992, the Federal Geographic Data Committee (FGDC) had been in operation just 2 years with similar goals of promoting the use and dissemination of geospatial data at the national level between Federal agencies. Under the direction and leadership of M.K. Miles, USACE Headquarters proponent for CADD/GIS implementation, the Corps of Engineers and other military installations actively participated in the FGDC meetings on the development of various thematic data standards. Field representatives and various Center staff members flew to Washington, D.C., on a quarterly basis to participate in the unprecedented, interagency-wide coordination of geospatial data issues including metadata, the National Spatial Data Infrastructure (NSDI) clearinghouse, data content standards, and GIS implementation.

Over a decade later, the Center continues to participate in the FGDC standards development process by actively participating in the FGDC Standards Working Group (SWG). It is the SWG that makes recommendations on the approval of standard proposals, draft standards for public review, and draft standards for FGDC endorsement. It is through this SWG that guidance on FGDC standard policy and procedures and coordination among FGDC subcommittees having overlapping standard activities occur. Since 2002, Jack Huntley has stepped into Kevin Backe's role as Standards Development Coordinator, and as representative of the Center and Corps in the FGDC SWG.

Additional representation from USACE at the senior level of the FGDC organization includes the Steering Committee by Don Basham, Chief of Engineering and Construction, who is responsible for the strategic direction of the FGDC as a whole, and the Coordination Working Group by Nancy Blyler, who approves the endorsements presented by the SWG. This participation has greatly improved access of geospatial information and gives the SDSFIE further national exposure.

The FGDC began with 11 subcommittees and 3 working groups (Standards, Technology and Liaison) guided by the oversight Coordination Working Group. Today, there are 13 subcommittees and 14 working groups (WG) (see Figure 1). The most recent FGDC WGs address pertinent national issues including homeland security, marine boundaries, forest resources, tribal, and GIS operability.

Federal Geographic Data Committee (FGDC) Organization

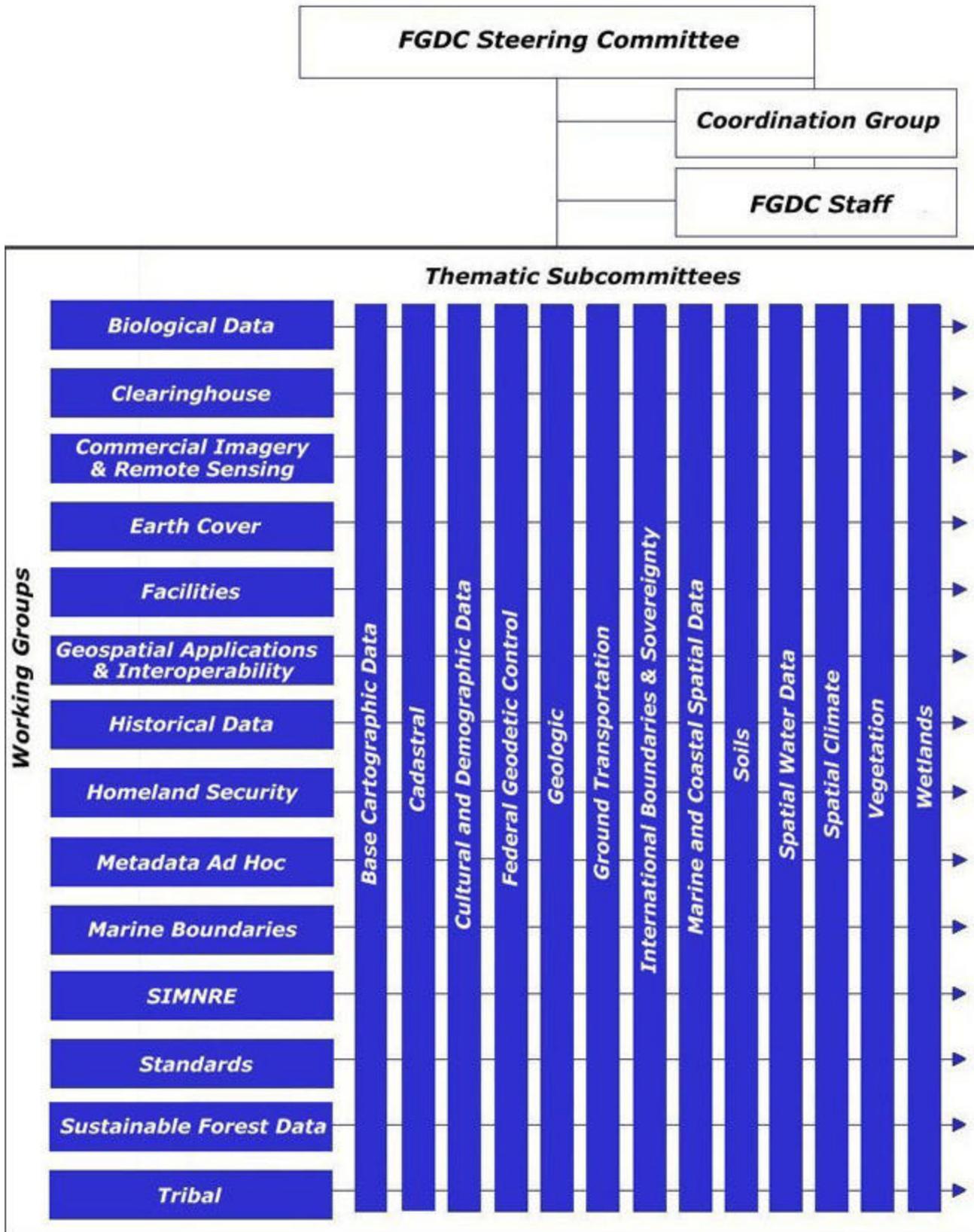


Figure 1. Organization chart

Of special interest to the Corps of Engineers and DoD installations is the Facilities Working Group (FWG),

which was established in January 1995 to develop standards for facility management and civil engineering. Since October 1999, the FWG was merged with the CADD/GIS Technology Center for Facilities, Infrastructure, and Environment (Center). Since then, the Center staff and affiliated groups including the Board of Directors, Corporate Staff, and Field Working Groups serve as members of the FGDC Facilities WG. One of the many accomplishments of the Facilities WG is the approval of the SDSFIE as a national and American National Standards Institute standard.

The Center closely monitors the thematic and framework standards that are developed by each FGDC Subcommittee or Working Group. To date, 20 FGDC standards have been approved and gone through a 12-step approval process, which has been divided into five stages (Proposal, Project, Draft, Review, and Final). Recent FGDC-endorsed standards cover a wide range of specialties including digital geospatial metadata for remote sensing, geospatial positioning accuracy for architecture, engineering, construction, and facilities management, U.S. grids, and ANSI-approved SDSFIE. The status of the FGDC standards and activities can be found on the many FGDC Web pages. A sampling of key FGDC URLs are listed below.

Key FGDC Web Pages	
Topic	URL
FGDC Main Website	http://www.fgdc.gov
FGDC Standards Working Group	http://www.fgdc.gov/standards/standards.html
GeoSpatial One-Stop	http://www.geo-one-stop.gov/
Metadata Information	http://www.fgdc.gov/metadata/metadata.html
Clearinghouse Resources	http://www.fgdc.gov/clearinghouse/clearinghouse.html
Sustainable Resources	http://www.pwrc.usgs.gov/brd/sfd.htm
Facilities WG	http://corpsgeo1.usace.army.mil/FGDC/welcome.html
Tribal WG	http://www.fgdc.gov/fgdc/tribal/charter.html
Publications	http://www.fgdc.gov/publications/publications.html
Newsletters	http://www.fgdc.gov/publications/newslet.html
Note: Red denotes New Pages	

For additional information, contact Laurel Gorman at 601-634-4484 or send e-mail to Laurel.T.Gorman@erdc.usace.army.mil.



Object Model Moves to Next Level

by David M. Johnson, The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment

In traditional projects, CADD software is used to create, edit, and "model" data. In this sense, "model" means to digitally represent a real-world object (such as a building, a site, or a dam) in a form that provides analysis and user feedback that would not be

feasible without constructing the actual design.

There is a tremendous amount of information represented in a CADD drawing, from building notes to dimensions to hatching symbology. It may take several drawings to fully represent something as seemingly simple as a door. The only data contained in most CADD drawings are the start and end points, the color, the line type, the thickness of lines, arcs, and circles. It is only in the mind of the user that these lines and arcs represent "WALLS" or "DOORS."

Objects represent the future of CADD. Objects are a more realistic or intelligent representation of a real world "thing." An Object contains information about what the "thing" is, how it works, and includes information on how it should be displayed on the drawing. It is the information that defines how an object works that gives an Object its real power. Protective constraints in an Object prevent a designer or draftsman from joining a 2-inch pipe to a 1-inch pipe without a fitting between them.

An Object is a special Entity consisting of:

- **A Name**
- **Attributes** - Data associated with the Object
- **Methods/Behaviors** - Functions to interact with the Object
- **Inherited properties** from its **Parent Class**
- **Associations** with other Objects

- A generic Object such as a **door** has general common **attribute** information such as:
 - height, width, thickness, material, fire rating, manufacturer, hardware. This is the **Parent Class**.
- The **Child class** could be a **Wood Door**.
- The **Wood Door** has additional **attribute** information created specifically for it:
 - Style material, veneer.
- a **Door Object** also has common **methods, behaviors** instructing the door on how to:
 - Move location.
 - Change swing.
 - Change type.
 - Change frame based on wall width.
 - The **Door Object** can check the fire rating of the associated **Wall Object** that it is inserted into and determine if there is a conflict (i.e., a 2-hour rated wall containing a "C" label door would not be allowed).
 - The **Door Object** can also check with the associated **Hardware set Object** and determine if there are conflicts (i.e., a fire-rated door without a door closer).
- a **Door Object** has **Associations** with other Objects:
 - The **Door Object** is part of a **Wall Object**.
 - A change in wall type, thickness will automatically affect the door frame (thickness is changed).
 - A **Door Object** will have a hardware set associated with it.
 - A **Door Object** can become part of a **Work Order Object**, allowing a Facilities Manager to select numerous **Objects** to include as part of a **Work Order Object** (example of selecting specific walls and floors within a building for maintenance and automatically being able to generate reports for

floor areas based on finish types and buildings).

The CADD/GIS Technology Center is in the process of transferring its CADD and GIS data formats to the next level: an Object Model. The initial project requires the adaptation of the Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE) entity data and attribution into the Object Model format. The Center has taken the Utilities Object Model project (developed with the Open GIS Consortium) and used the structure to integrate the SDSFIE information into several classes, including water piping, fitting, and valve.

New class information is created when two Objects join, such as the OSDS_Pipe and the OSDS_Fitting that will record the actual joined length and can accommodate the differences due to the method of connection (Figure 1). Connection rules can be created at this point that will not allow a pipe of a certain size to be joined to a pipe of another size without an adapter. This models the real-world situation.

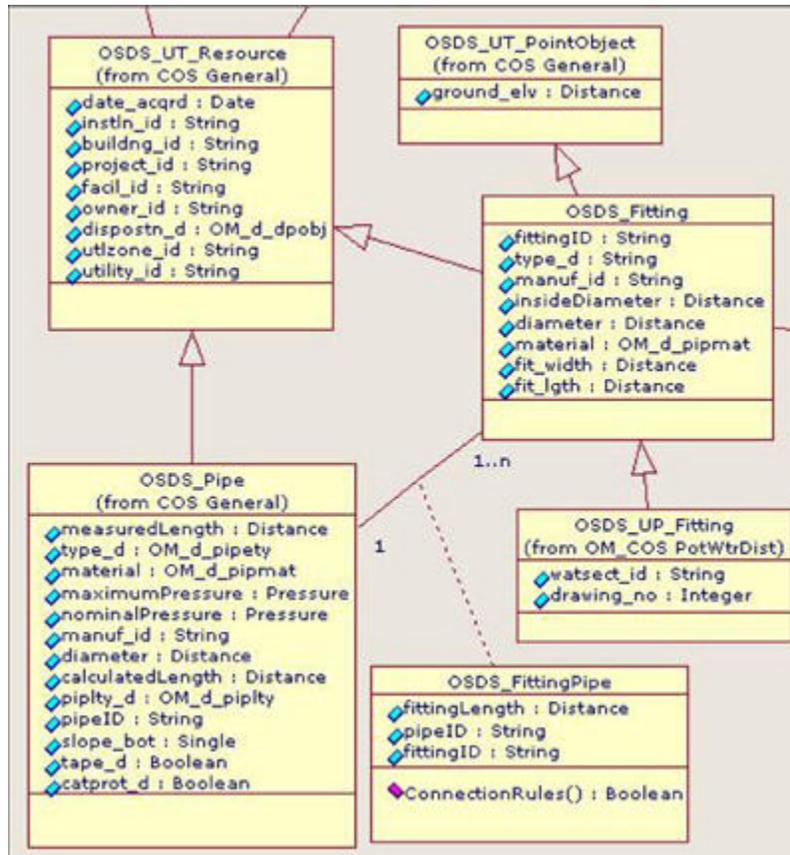


Figure 1. Joining of two Objects

More work is planned to transfer the information contained in the SDSFIE into a model form. Modeling can allow the information to be created by the original designer, and then extended as necessary to incorporate specific engineering applications.

For additional information, contact Dave Johnson at 601-634-3509 or send e-mail to Dave.M.Johnson@erdc.usace.army.mil.

Vendor News

by John A. Hood and David Johnson, The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment

Baker and InStep Awarded BPA Contracts

The CADD/GIS Technology Center recently awarded two Blanket Purchase Agreement (BPA) contracts for CADD, GIS, facility management, environmental and infrastructure, and other related information technology services. The awards were made to Michael Baker, Jr., Inc. Corp. and InStep Software, LLC. Both companies provide a broad range of services for these technologies and have significant experience and expertise.

Contracts with these companies were competitively awarded; therefore no further competition is required when customers place orders with either. The contracts are also extremely cost effective with labor rates substantially below respective GSA schedule rates and containing all labor categories.

The contracts are immediately available to all Center partnering agencies, and all Corps of Engineers Contracting Officers are pre-authorized to place orders. Other partnering agencies need only request a Delegation of Procurement Authority (DPA) from the Vicksburg Consolidated Contracting Office (VCCO), the Center's contracting service.

All information, for both users and contracting personnel, is available on the Center's Web site at tsc.wes.army.mil under the main bar entitled "CONTRACTS." In addition, detailed information about each company and its services and capabilities is available.

Bentley/ESRI Meet with Standards Working Group

Al Moulton, president of the North American office of Graphisoft, and Bill Miller, representing ESRI, Inc., met with the CADD/ GIS Center's Standards Working Group (SWG) in February 2003 to discuss the current efforts to share data between Graphisoft and ESRI software. Graphisoft is involved with an enterprise project with the U.S. Coast Guard that will combine Facilities Management information and GIS information as well as a three-dimensional CADD model.

In March, representatives from Bentley Systems met with the SWG regarding their cooperative project with ESRI, Inc. The presentation focused on the strategy for developing interoperability between the CADD and the GIS documents. Representing Bentley Systems were Doug Moat, Jerry King, and John Lynch.

Danushkodi Elected ASCE Fellow

Dr. Vaiyapuri Danushkodi was recently elevated to the membership rank of "Fellow" by the American Society of Civil Engineers (ASCE). This designation is one of the highest honors that civil engineers can receive from their peers. To be selected for the grade of Fellow, an individual must be a registered engineer or land surveyor, have 10 years responsibility at the grade of Member, and be qualified to direct, plan, or design engineering works.

During ceremonies conducted in Vicksburg, Delon Hampton, ASCE past president, stated, "The work of these prominent civil engineers realizes a major goal: to serve as stewards of the public infrastructure and guardians of public health and safety."

Among his many achievements, Dr. Danushkodi is noted for his contributions to the development of the Survey Engineering and Monument Management System (SEMMS). This software package allows users to store, retrieve, manage, view, and distribute both horizontal and vertical survey control information on a stand-alone desktop PC and through the Internet. SEMMS also contains all the existing National Geodetic Survey control data for the entire United States and territories.

New Staff Members

The CADD/GIS Technology Center welcomes **Edward Huell** and **Blaise Grden** onboard.

Edward Huell comes to the Center through the Computer Systems Technology Inc (CST). Before joining CST, he was a Systems Analyst with Dyntel Corporation (where he assisted in the development of the A/E/C CADD Workspaces for AutoCAD and MicroStation users), a graduate teaching assistant at Kent State University in Kent, OH (where he taught classes in engineering graphics and computer-aided engineering design in the School of Technology), and Waterways Experiment Station in the Computer-Aided Engineering Division (where he worked as a CADD specialist on projects utilizing AutoCAD and MicroStation software). At the Center, Huell will assist in maintaining and implementing the A/E/C CADD and SDSFIE standards, serve as technical advisor of leading CADD software applications, develop customized CADD productivity tools, and provide technical support on GIS projects.

Blaise Grden is a landscape architect and has served on numerous District GIS committees, including the GIS User Group and the Geospatial Data and Systems Technical Committee. He was Product Manager and Designer of the Digital Project Notebook, a Web-based format of project maps and index sheets within the District, the Division, and Corps Headquarters. While with the Walla Walla District, he was the Master Plan Program Manager responsible for developing, updating, and maintaining Master Plans for Federally owned, Corps-managed lands in the District. He received the Achievement Medal for Civilian Service for his work on the Walla Walla District's GIS and Database and the Tri-Service GIS/Spatial Data Standards. He also received the 1994 Architectural Award for the landscape architecture on the Walla Walla District Headquarters Building. He has authored many publications, including *The Interrelationships of Geographic Information Systems with Master Plans and Operational Management Plan*. Grden completed the first Master Plan for a Corps Water Resource Project that fully used GIS technology and demonstrated the data set at the Pentagon, the Library of Congress, and throughout Corps of Engineers Districts. His duties at the Center include co-facilitating the Civil Works Field Working Group, serving as project manager of the Real Estate Facilities Management Information System, and teaching GPS and GIS implementation courses.

Calendar of Events

Date (2003)	Event
Meetings	
May 27-29	Joint-Corporate Staff and FWG Annual Meeting. Vicksburg, MS. POC: Martha Pettway, 601-634-4109, Martha.Pettway@erdc.usace.army.mil .
Workshops	
August 4-6	Basic SDSFIE Implementation Workshop. Vicksburg, MS. POC: Laurel Gorman, 601-634-4484, Laurel.T.Gorman@erdc.usace.army.mil .
August 6-8	Advanced SDSFIE Implementation Workshop. Vicksburg, MS. POC: Nancy Towne, 601-634-3181, Nancy.Towne@erdc.usace.army.mil .
September 8-12	GPS/GIS Corps of Engineer's Prospect Course. Vicksburg, MS. POC: Registrar's Office, DLL-CEHNC-Registrar@HND01.usace.army.mil .
Conferences	
May 18-22	2003 Geobase Compass Conference. Keystone, CO. POC: SharonRichardson@usafa.af.mil , 719-333-8255, http://www.usafa.af.mil/iita/GeoCompass/geninfo.htm .
May 18-22	Bentley International User Conference. Baltimore, MD. POC: Bentley Systems, Inc., bentleyreg@neocentrix.com , http://www.bentley.com/biuc/ .
May 19-21	Geospatial World 2003 - The Intergraph Geospatial User's Community International Training and Management Conference. New Orleans, LA. POC: Arlen Reimnitz, 1-800-791-3357, iguc@intergraph.com , http://www.geospatialworld.com .
July 7-11	23rd Annual ESRI International User Conference. San Diego, CA. POC: ESRI, Inc., 909-793-2853 ext. 1-1363, uc2003@esri.com , http://www.esri.com/events/uc/index.html .

Mark Your Calendar for Joint Meeting of the Corporate Staff and the Field Working Groups

The annual Joint Meeting of the Corporate Staff and the Field Working Groups will be held on May 27-29, 2003. The meeting will be held at the Information Technology Laboratory located at the U.S. Army Engineer Research and Development Center in Vicksburg, MS.

Key activities include finalizing next year's work plan to ensure that all projects offer something beneficial for each FWG. FWG members should expect to receive a copy of all project proposals via e-mail in late April/early May.

The meetings will begin on May 27th at 1:00 pm and conclude at 5:30 pm on the 28th. The FWG chairs will meet with the Corporate Staff on the morning of May 29th.

For additional information, contact Toby Wilson at 601-634-3604 or send e-mail to James.T.Wilson@erdc.usace.army.mil.

The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment

Harold L. Smith, Center Chief

Laurel Gorman, Outreach Coordinator

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Mail correspondence to The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment, Information Technology Laboratory, ATTN: CEERD-ID-C, U.S. Army Engineer Research and Development Center, Waterways Experiment Station, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199, or call (601) 634-4109.

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*The CADD/GIS Technology Center for Facilities, Infrastructure, and Environment is dedicated to fostering the application of computer-aided design and drafting (CADD) and geographic information system (GIS) technologies for facility life-cycle efforts throughout the DoD, other federal agencies, and private industry. **The CADD/GIS Insights** is published by the CADD/GIS Technology Center for Facilities, Infrastructure, and Environment of the Information Technology Laboratory, U.S. Army Engineer Research and Development Center, 3909 Halls Ferry Road, Vicksburg, Mississippi 39180-6199.*

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