

Improvements from Release 2.00 to 2.10

User Comments Database

SDSFIE and ANSI

February 26 – 27, 2002

Standards Working Group Meeting

Vicksburg, Mississippi

96.013 – Spatial Data Standard (SDSFIE)

- **Release 2.10:**
 - Completed Beta - September 2001.
 - Completed Alpha (Data Content & Models) – December 2001.
 - Completed Final (Software) – February 7, 2002.
 - Available for Download – February 20, 2002.
 - CDs Available for Distribution – March 2002.
- **Release 2.20 Schedule:**
 - Complete Alpha – April 2002.
 - Complete Beta – June 2002.
 - Complete Final – July 2002.
 - Available for Download – August 2002.
 - CDs Available for Distribution - August 2002 (at Symposium).



96.013 – Spatial Data Standard (SDSFIE)

**Improvements from Release
2.00 to 2.10**

96.013 – Spatial Data Standard (SDSFIE)

Data Standard Improvements

Toolbox Improvements

Data Standard Improvements

Incorporated Individual Comments Submitted by GIS Users:

- Cherry Point Marine Base
- Army & Army National Guard (ANG)
- USACE Mississippi Valley Division & Districts
- Other USACE Districts
- Fresno, California GIS Users (Local/State Government)
- Patuxent River Naval Air Station
- Several GIS Contractors
 - Higginbotham/Briggs & Associates LLC (Colorado Springs, CO) – from Airfield Obstruction Management System (AOMS) Center Project.
 - G/I/S (Birmingham, AL) - from Navy PWD (Ayman El-Swaify) & ANG projects.
 - Parsons (Austin, TX) – from Air Force Environmental IRP projects.

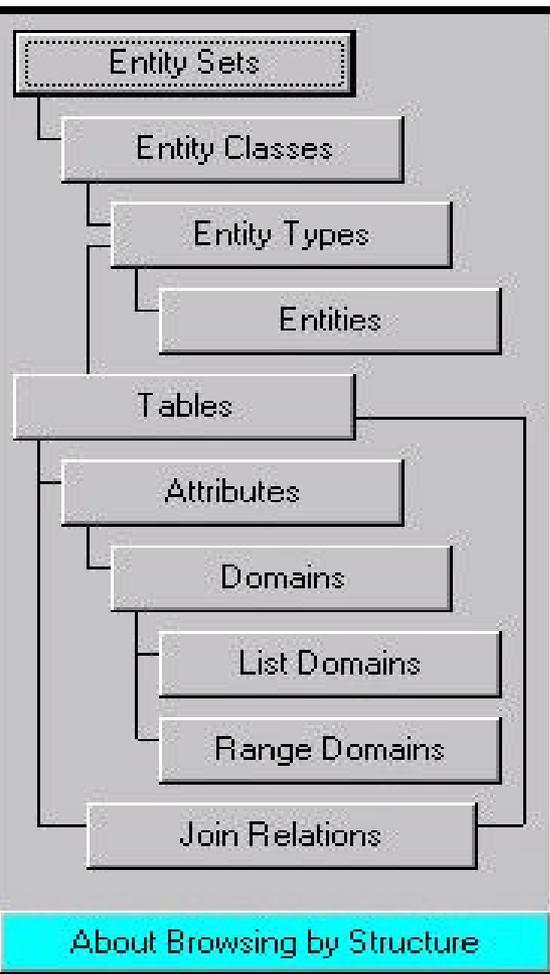
Data Standard Improvements

- **Incorporated FGDC “Utilities Data Content Standard” (FGDC-STD-010-2000).**
- **Incorporated U.S. Department of Transportation (DOT) National Pipeline Mapping System (NPMS) Standard.**
- **Incorporated U.S. Department of Commerce, National Oceanic & Atmospheric Administration (NOAA), National Geodetic Survey (NGS) Monument Data.**
- **Incorporated Additional U.S. Department of Interior Bureau of Land Management (BLM) Data.**

Data Standard Improvements

- **Entity Sets** – No Change.
- **Entity Classes** – Added One New Class.
- **Entity Types** – Added 39 New Entity Types.
- **Attribute Tables** – Added 31 New Attribute Tables.
- **Attributes** – Added 950 New Attributes.
- **Domain Tables** – Added 31 New Domain Tables.
- **List Domain Values** – Added 746 New Values.

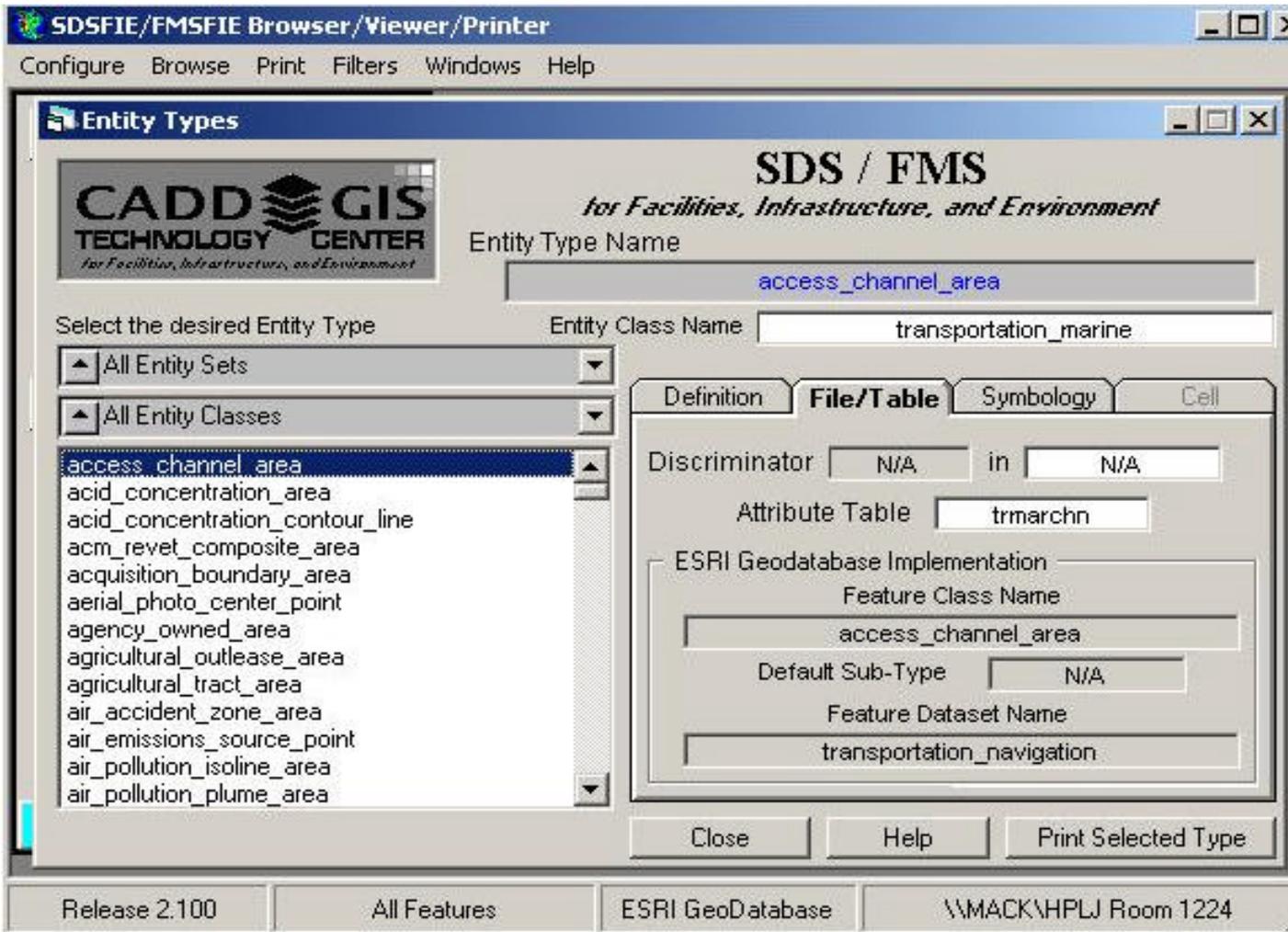
SDSFIE/FMSFIE Release 2.100



26	Entity Sets
182	Entity Classes
1,041	Entity Types
5,733	Entities (CADD & CADD Based GIS)
1,044	Attribute Tables (Database Tables)
26,777	Attributes (Fields in Tables)
989	Domain Tables (List & Range)
22,288	List Domain Values
18	Range Domains
8,404	Relational Database Join Relationships

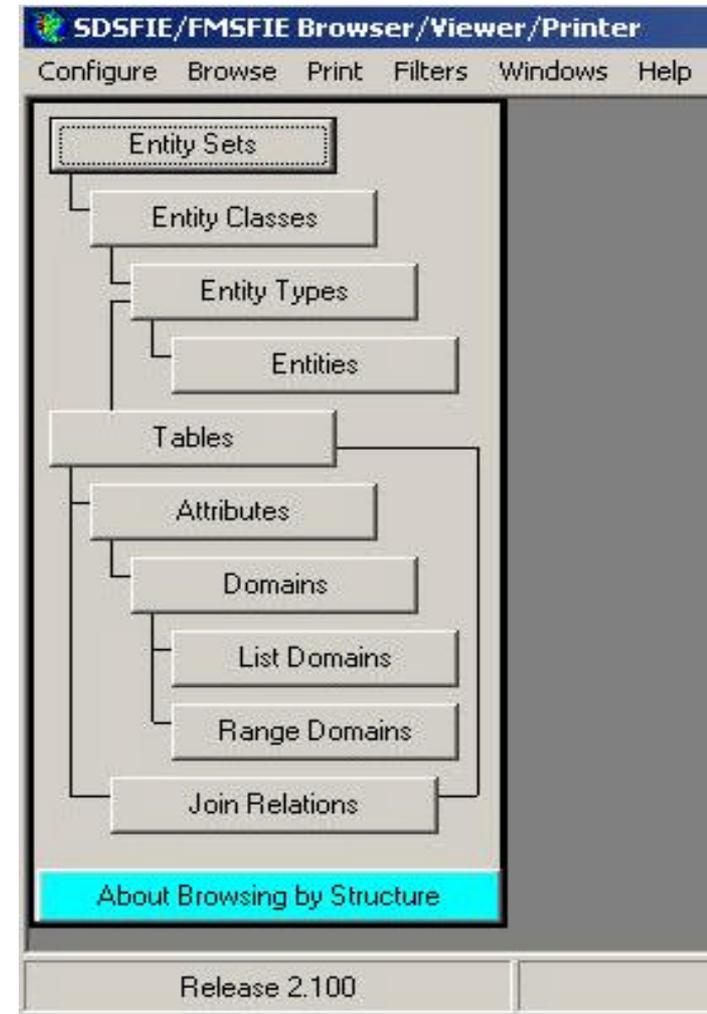
Data Standard Improvements

Incorporation of ESRI ArcGIS Geodatabase Data Structure.



Release 2.10 Software Toolbox Includes:

- Browser – Permits viewing & printing of SDSFIE.
- Filter Maker – Permits customer selection of SDSFIE Subset for specific project or organization.
- Filter Eraser – Permits deletion of customer developed Filters no longer needed.
- Access Builder – Permits construction of SDSFIE compliant Access 97 or 2000 databases.
- SQL Generator – Permits construction of script for Oracle, Informix, SQL Server, ANSI SQL.
- Geomedia Builder – Permits construction of SDSFIE compliant Intergraph GeoMedia databases.
- Geodatabase Builder (new) – Permits construction of SDSFIE compliant ESRI Arc 8.x Personal Geodatabase (Access 2000)
- Access Data Creator – Data Entry



Toolbox Improvements

- **Upgraded all Software Applications for Multiple Windows Operating Systems –**
 - Upgraded & Tested for Windows 2000 and XP.
 - Tested on Windows 98, ME, & NT.
- **Upgraded Access Builder or Multiple Versions of Access -**
 - Now Permits Construction of SDSFIE Compliant Database Tables for Both Access 97 and 2000.
- **Developed “Geodatabase Builder” Application –**
 - Permits Construction of SDSFIE Compliant ESRI ArcGIS Personal Geodatabases.

Toolbox – Future Issues

- Development and Testing of Software Tools for Multiple Windows Operating Systems are Increasing Development Costs.
- Toolbox Applications may also have to be developed for Linux Operating System.
- Multiple Versions of Microsoft Access are Used by Customers, Which Increases Development and Testing Costs –
 - For Release 2.10, Access 97 & 2000 had to be accommodated.
 - For Release 2.20, Access 97, 2000, & XP may have to be accommodated.
 - Each Version of Access has Different Installation Requirements (i.e., DLLs).

96.013 – Spatial Data Standard (SDSFIE)

User Comments Database

96.013 – Spatial Data Standard (SDSFIE)

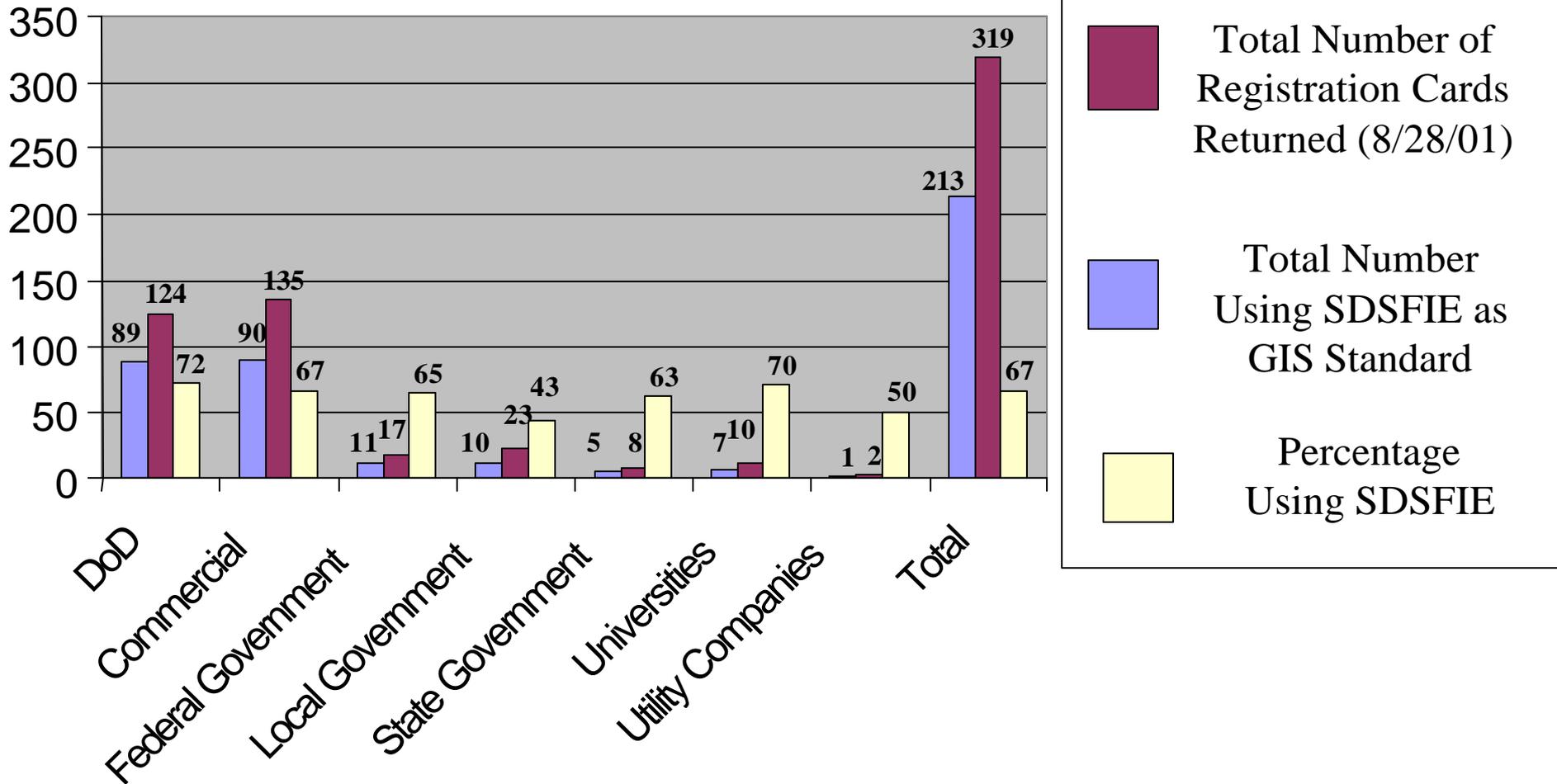
Center Receives Input from GIS and SDSFIE Users from Various Sources:

- **Registration Cards –**
 - Distributed with CDs.
 - Download from SDSFIE Website.
 - Data from Returned Cards Recorded in Database.
- **Email –**
 - Recorded in Comments Database.
 - Templates for submittal of Comments available for Download from SDSFIE Website.
- **Phone Calls –**
- **Meetings -**

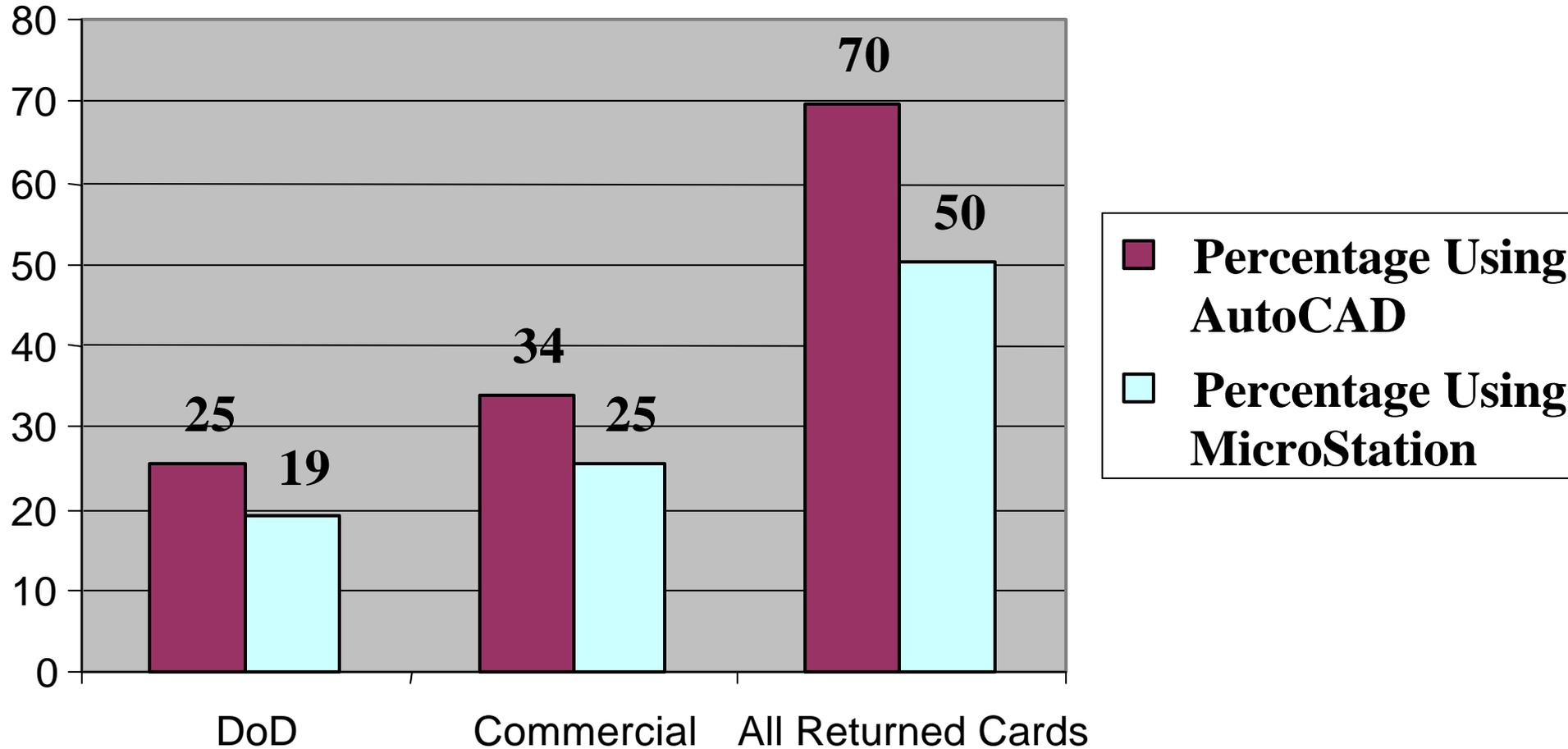
96.013 – Spatial Data Standard (SDSFIE)

Registration Cards Database

Release 2.00 Registration Cards – Use SDSFIE

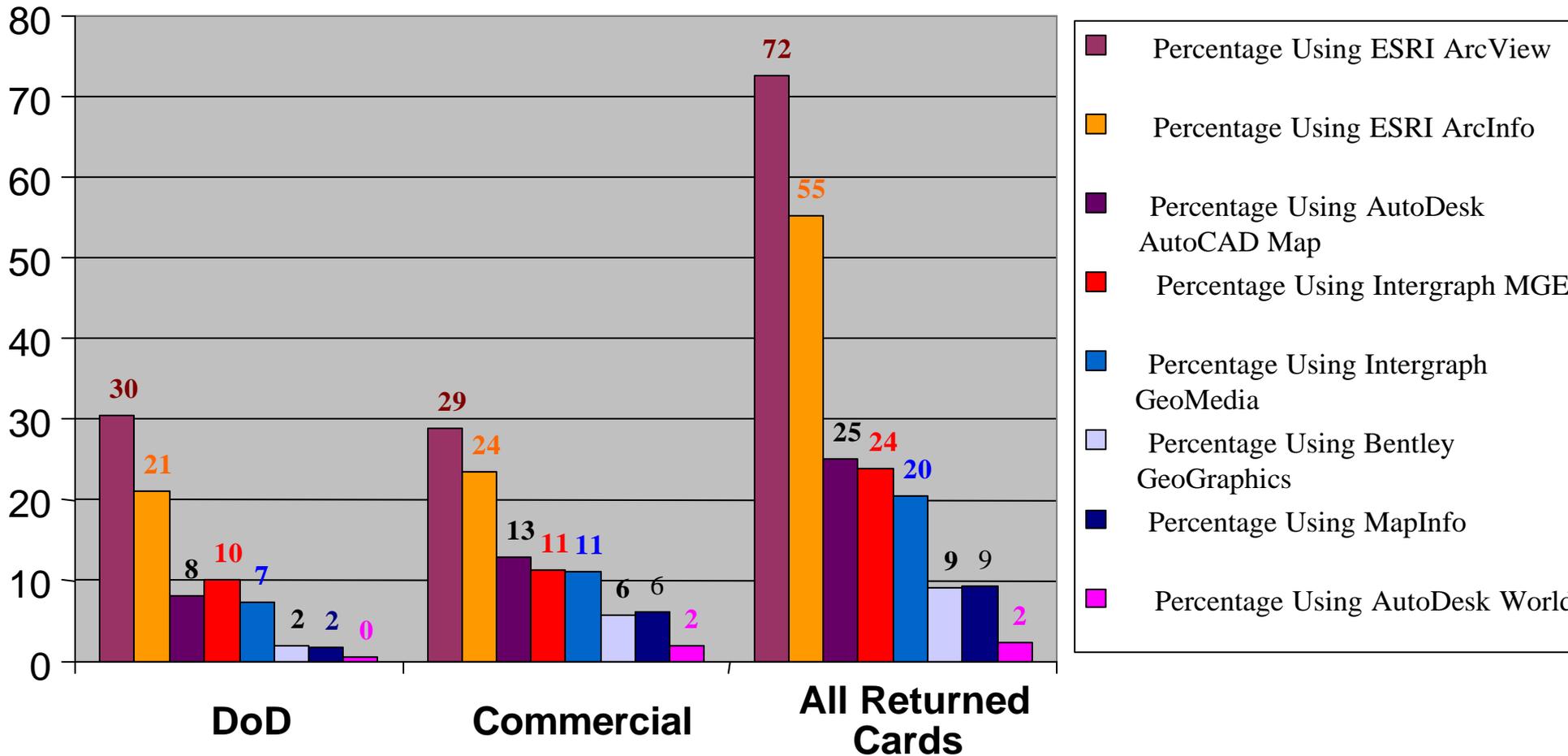


Release 2.00 Registration Cards – CADD Software Used



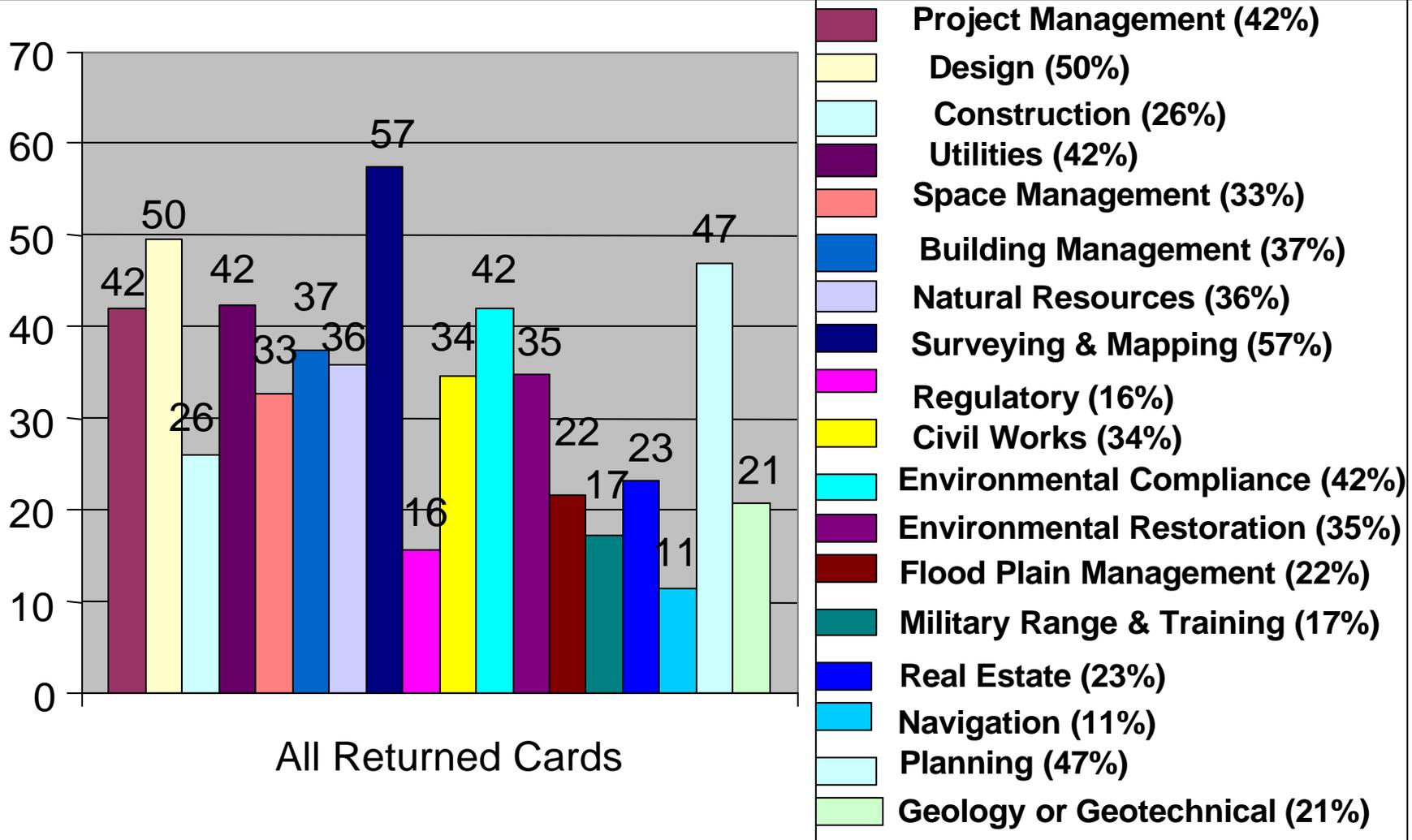
Release 2.00 Registration Cards

– GIS Software Used



Release 2.00 Registration Cards

– Use of CADD or GIS



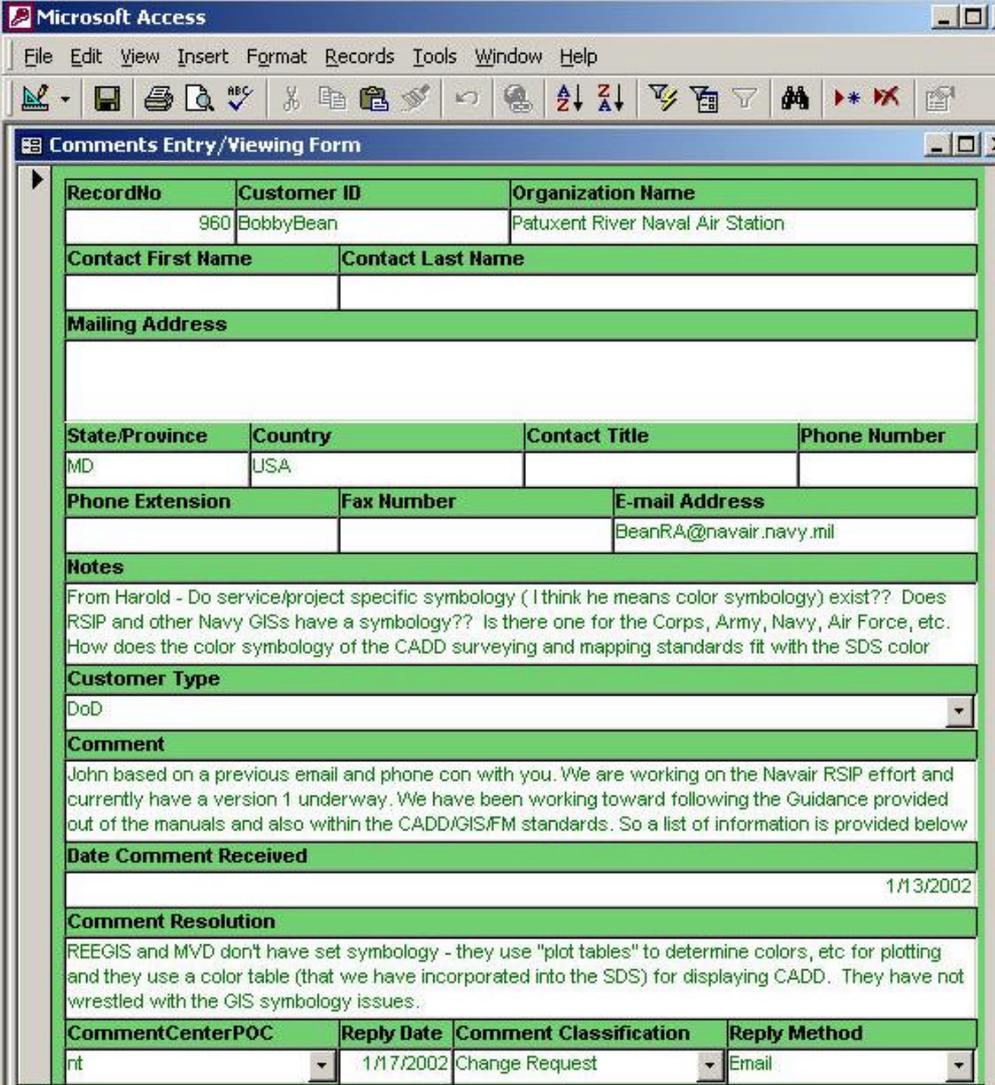
All Returned Cards

96.013 – Spatial Data Standard (SDSFIE)

User Comments Database

Center Maintains Database Containing Customer Comments, Questions, & CD Requests -

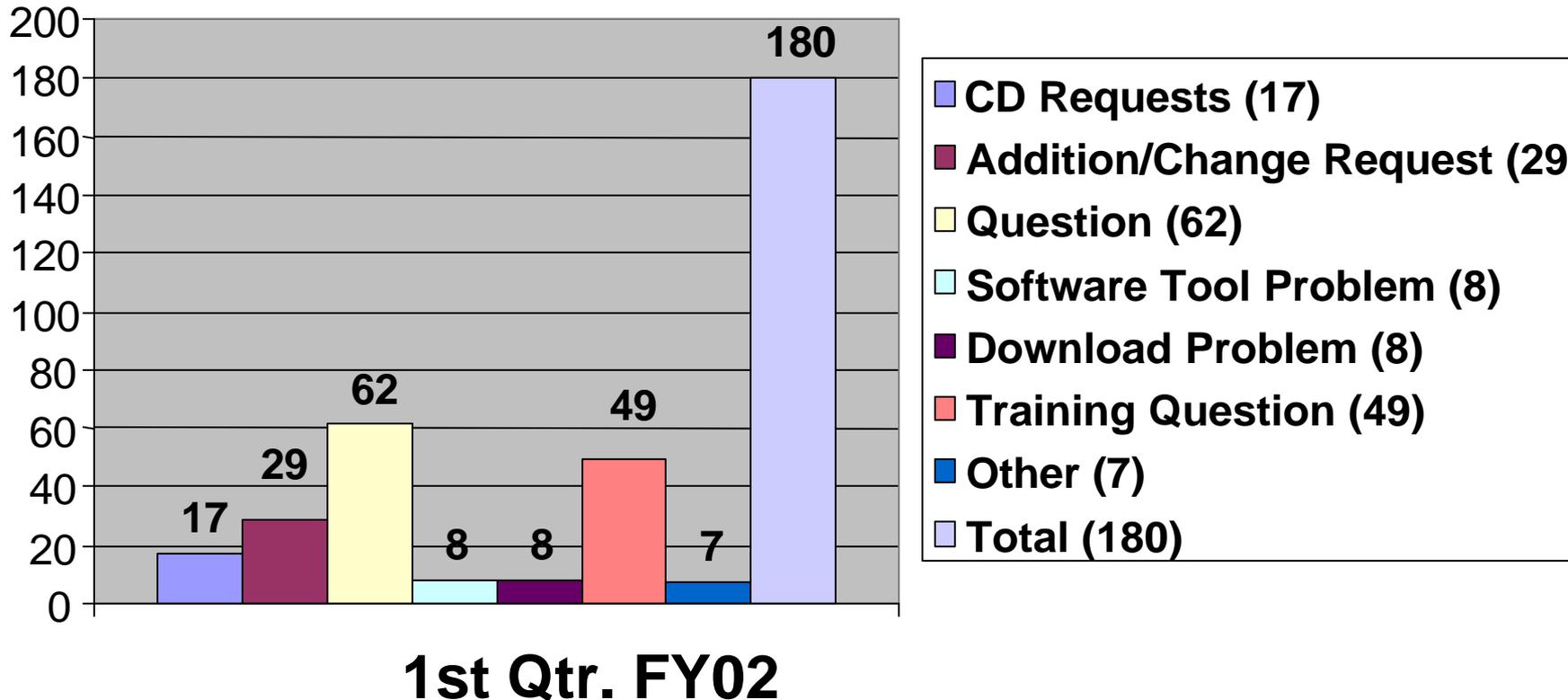
- Total of 1,015 Customer Comments, Questions, etc. Recorded from October 1998 – February 2002.
- Total of 180 Customer Comments, Questions, etc. Recorded from October 2001 – February 2002.



RecordNo	Customer ID	Organization Name	
960	BobbyBean	Patuxent River Naval Air Station	
Contact First Name		Contact Last Name	
Mailing Address			
State/Province	Country	Contact Title	Phone Number
MD	USA		
Phone Extension	Fax Number	E-mail Address	
		BeanRA@navair.navy.mil	
Notes			
From Harold - Do service/project specific symbology (I think he means color symbology) exist?? Does RSIP and other Navy GISs have a symbology?? Is there one for the Corps, Army, Navy, Air Force, etc. How does the color symbology of the CADD surveying and mapping standards fit with the SDS color			
Customer Type			
DoD			
Comment			
John based on a previous email and phone con with you. We are working on the Navair RSIP effort and currently have a version 1 underway. We have been working toward following the Guidance provided out of the manuals and also within the CADD/GIS/FM standards. So a list of information is provided below			
Date Comment Received			
1/13/2002			
Comment Resolution			
REEGIS and MVD don't have set symbology - they use "plot tables" to determine colors, etc for plotting and they use a color table (that we have incorporated into the SDS) for displaying CADD. They have not wrestled with the GIS symbology issues.			
CommentCenterPOC	Reply Date	Comment Classification	Reply Method
nt	1/17/2002	Change Request	Email

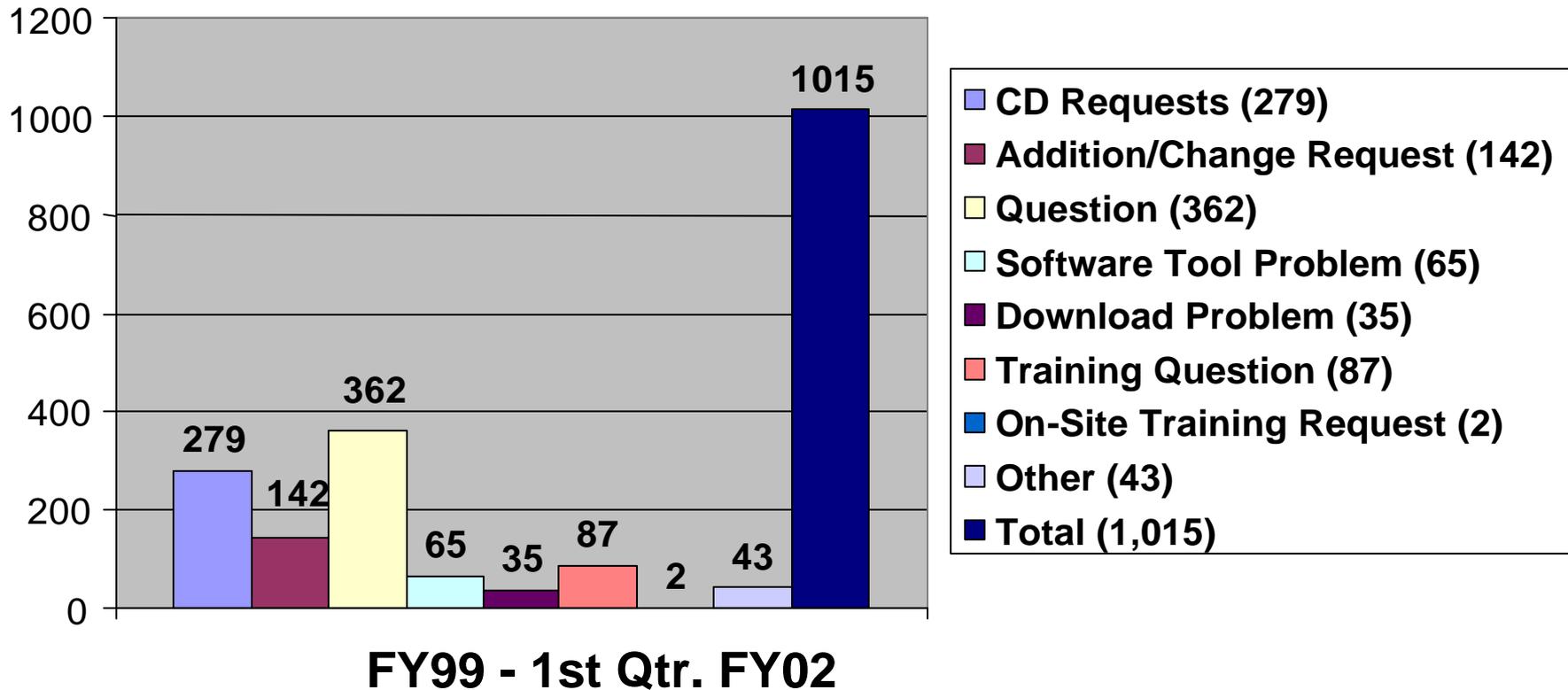
Comments Database

Type of Customer Assistance



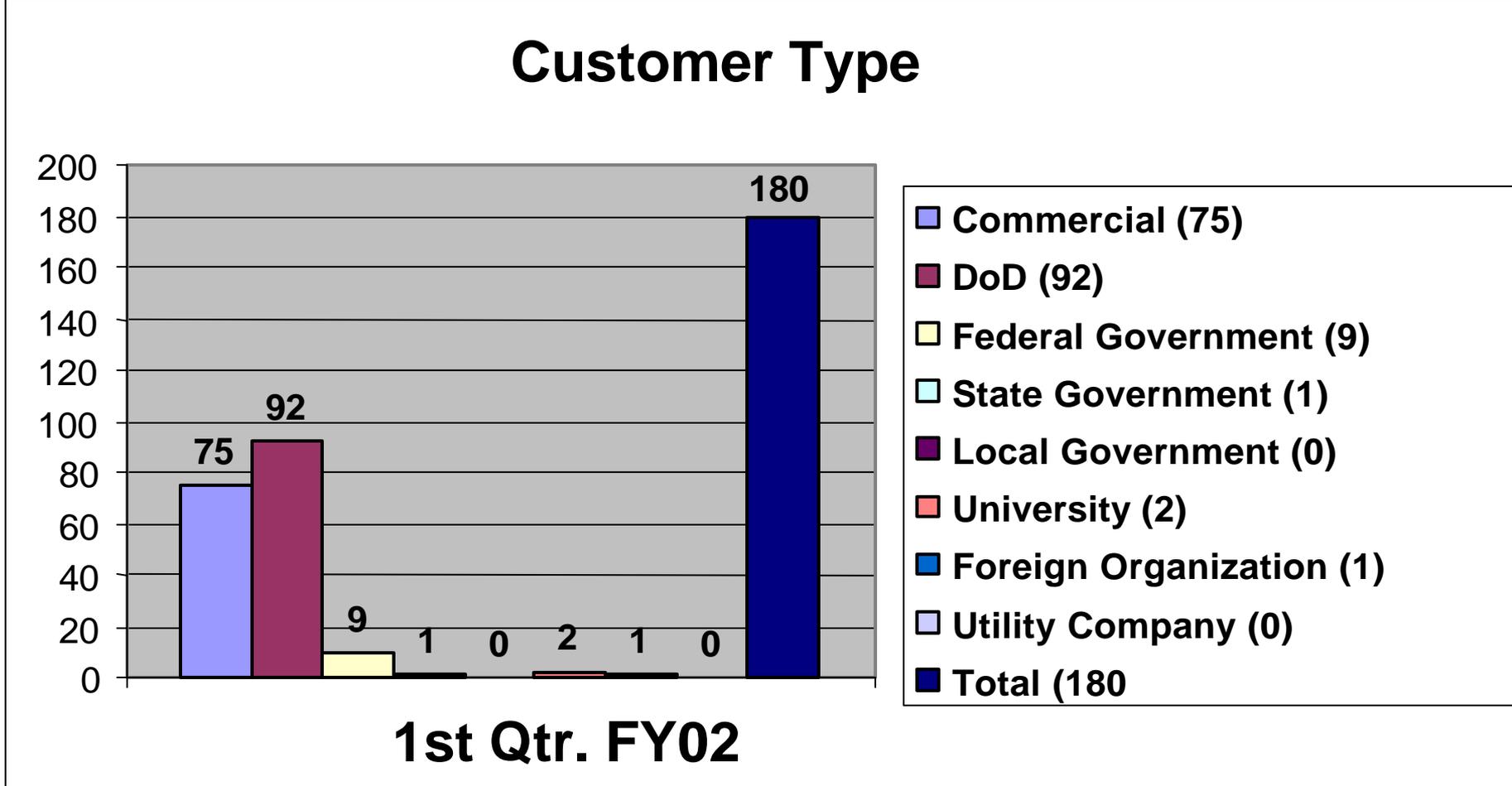
Comments Database

Type of Customer Assistance

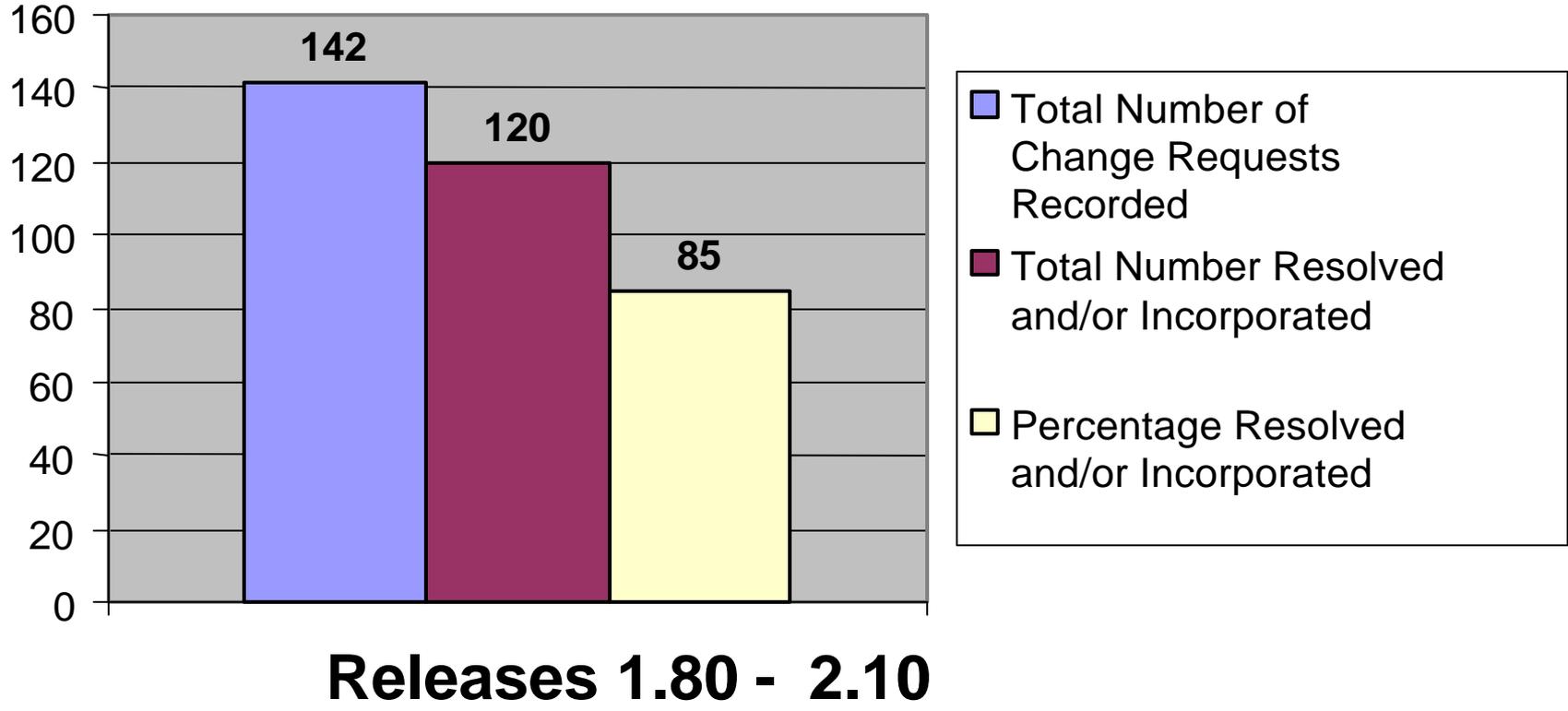


Comments Database

Customer Type



Resolution & Incorporation of Change Requests



96.013 – Spatial Data Standard (SDSFIE)

SDSFIE and ANSI

Spatial Data Standard for facilities, infrastructure, & environment (NCITS 353) –

- Approved by NCITS Executive Committee on November 15, 2001.
- Provides catalog of geographic features (a geographic feature is a representation of a real world phenomenon associated with a location relative to the earth), as well as a list of information commonly collected for each feature.
- NCITS 353 provides a common standard for the collection and storage of geographic data using GIS technology.
- GIS users will profit from increased compatibility through cost and time savings as well as greater accuracy and consistency and the ability to easily share geographic data between different organizations

Spatial Data Standard for facilities, infrastructure, & environment (NCITS 353) -

- Based upon the Spatial Data Standard (SDSFIE) developed and maintained at CADD/GIS Technology Center.
- Provides different application and view of the SDSFIE than provided by CADD/GIS Technology Center applications.
- Will be updated and maintained by CADD/GIS Technology Center.
- Will be distributed by ANSI (NCITS) via CD-ROM.

- *"Now there will be a national standard for enabling the common collection and interoperability of spatial data by DoD facilities, state and local governments. Because these operations include our military facilities, civilian airports and other public facilities, infrastructure, and environment, this standard is fundamental for our homeland defense." - Henry Tom, Chairman of NCITS L1, GIS Technical Committee.*
- *"This truly is an awesome achievement." - Ed Riegelmann, Vice President, CH2M HILL, Inc., Colorado Springs, Colorado*
- *"Whether you realize it or not, you convinced Ron and I that the SDSFIE (way back in the TSSDS days) was going to be the way to go for COMMERCIAL AIRPORTS. We've been promoting that ever since... Now to see this news; for once I can tell some others, "I told you so!" - Joe Zumwald, Woolpert, Inc.*

- *“Congratulations to the Center and others who have invested time and energy. Our implementation of the standards many years ago has proven beneficial many times over. Times here, even with SDS implementation, have held their share of challenges. In retrospect, they seem to have been some of our greatest challenges. The hurdles were presented when we worked with data formats and application solutions using proprietary data formats/structures. Yes - there is always a work around, a band aid of sorts, for those things that do not exactly quite fit out of the developers box - But if not for these experiences, then our appreciation of SDS would be light. Funny how there seems to be a greater appreciation when labor, sweat and brow are involved. As with most things in life - time, persistence, patience, vision and the sharing of knowledge have proven to be consistent factors in evolving an agent of value (SDSFIE-NCITS 353). Again - my congratulations and appreciation.” - Karen Jones, Naval Surface Warfare Center Dahlgren, Public Works Department, Dahlgren, VA*



96.013 – Spatial Data Standard (SDSFIE)

American National Standard Institute (ANSI) –

- <http://www.ansi.org/>
- Private, non-profit organization (founded in 1918) that administers and coordinates the U.S. voluntary standardization and conformity assessment system.
- Mission is to enhance both the global competitiveness of U.S. business and the U.S. quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems, and safeguarding their integrity.

- Represents the interests of its nearly 1,000 company, organization, government agency, institutional and international members through its office in New York City, and headquarters in Washington, D.C.



96.013 – Spatial Data Standard (SDSFIE)

National Committee for Information Technology Standards (NCITS) –

- <http://www.ncits.org/index.html>
- NCITS's mission is to produce market-driven, voluntary consensus standards in the area of Information Technology (IT).
- Most of the standardization activities result in national (ANSI) standards and international (ISO/IEC) standards.
- NCITS is the forum of choice for information technology (IT) developers, producers and users for the creation and maintenance of formal IT standards.

- NCITS is accredited by, and operates under rules approved by, the American National Standards Institute (ANSI).
- NCITS currently has 612 published standards.
- NCITS's L1 Committee (Geographic Information Systems (GIS)) adopts, adapts, and/or develops digital GIS data standards. This technical committee is the U.S. TAG to ISO/TC 211. (<http://www.ncits.org/tcs.html>)



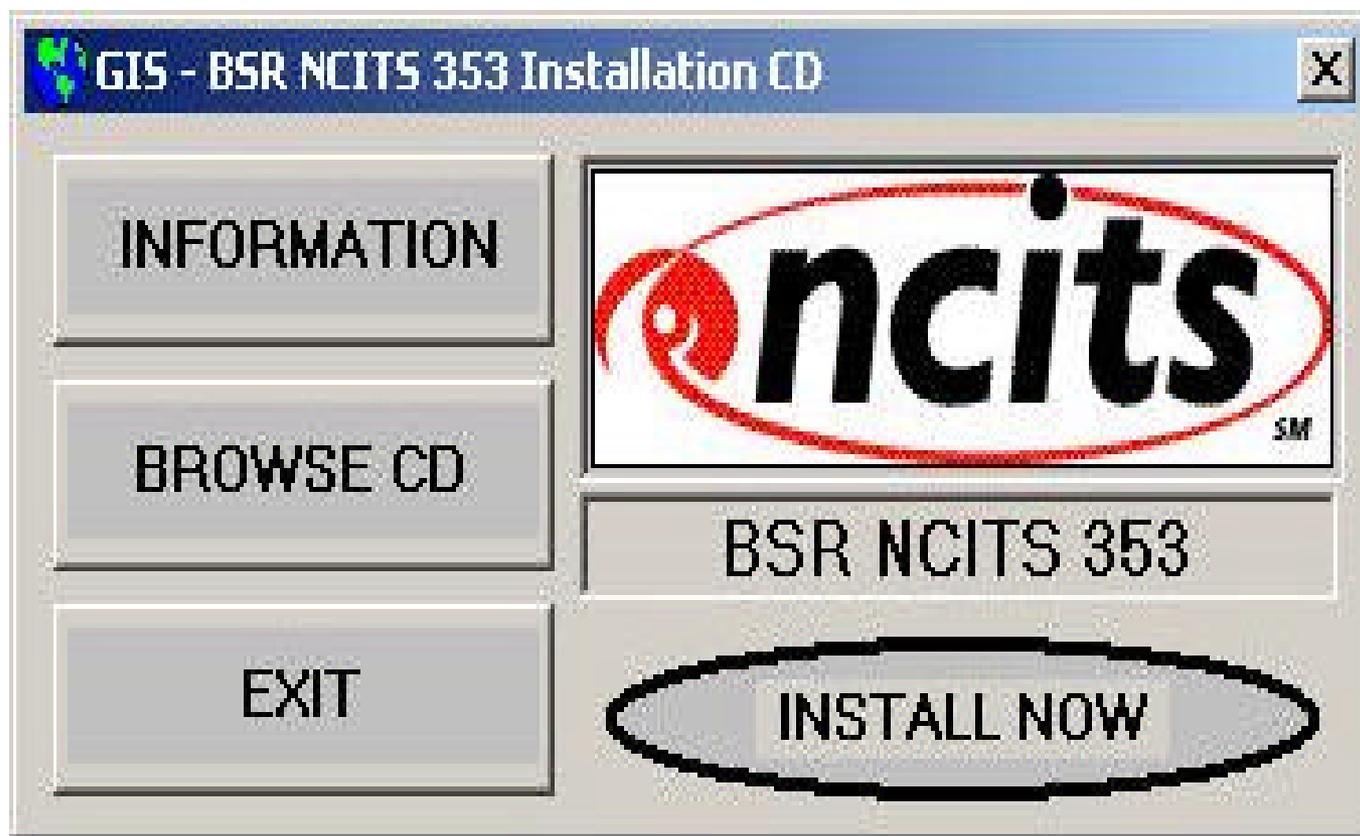
NCITS 353

NCITS 353 (Spatial Data Standard for Facilities, Infrastructure, & Environment) –



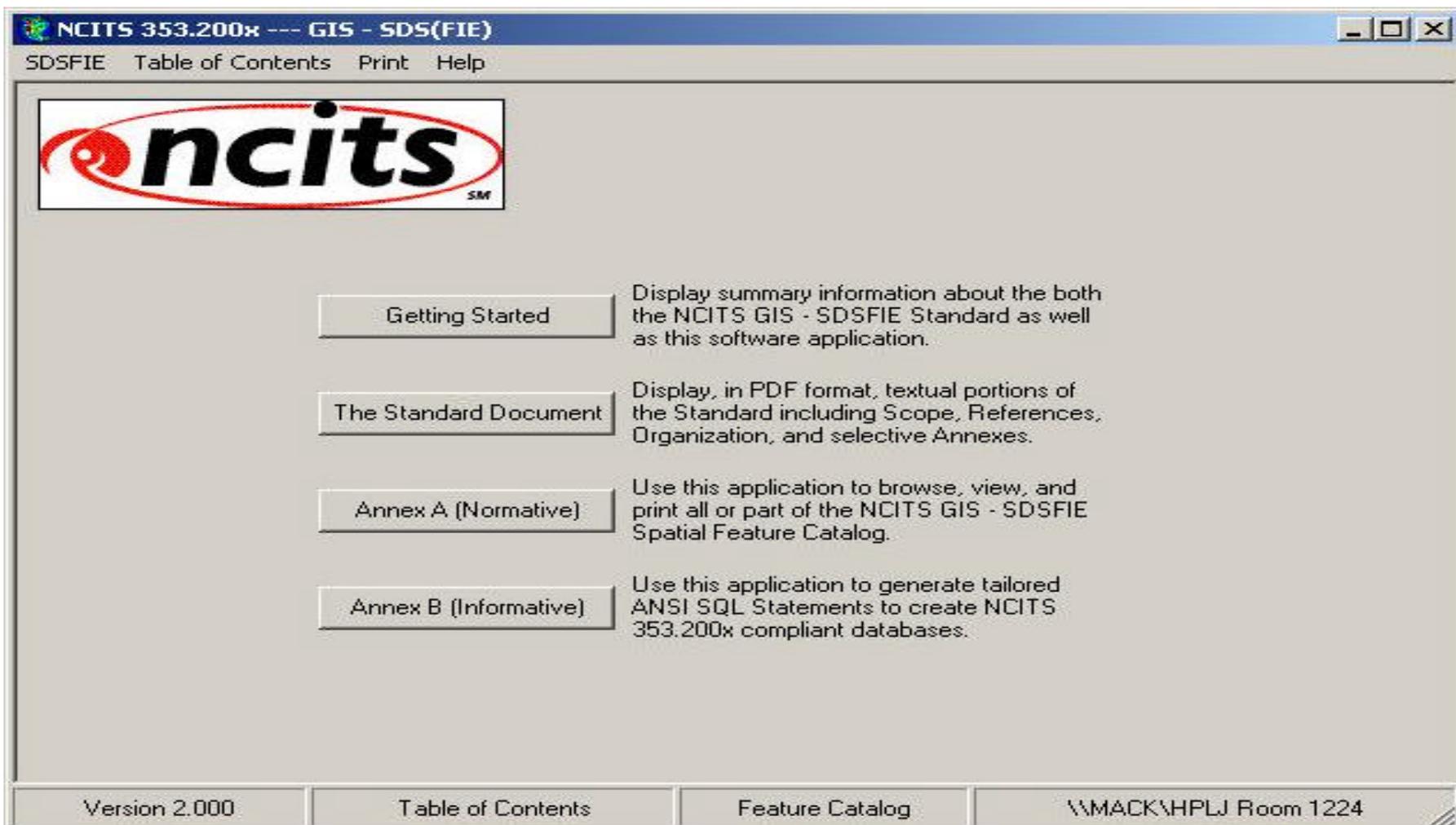
- **November 1999** - NCITS L1 (GIS Technical Committee) approved concept of pursuing adoption of the SDSFIE as a national GIS standard (to be called NCITS 353).
- **April 26, 2000** - NCITS L1 Committee approved development of draft NCITS 353 for public review and comment.
- **October 19, 2000** – Draft NCITS 353 electronic template completed.
- **July 3, 2001** – Public review and comment period completed.
- **November 15, 2001** – NCITS 353 received final approval from NCITS Executive Committee.

NCITS 353 CD-ROM Installation Options -



96.013 – Spatial Data Standard (SDSFIE)

NCITS 353 (Spatial Data Standard for Facilities, Infrastructure, & Environment)



NCITS 353.200x --- GIS - SDS(FIE)

SDSFIE Table of Contents Print Help



Getting Started Display summary information about the both the NCITS GIS - SDSFIE Standard as well as this software application.

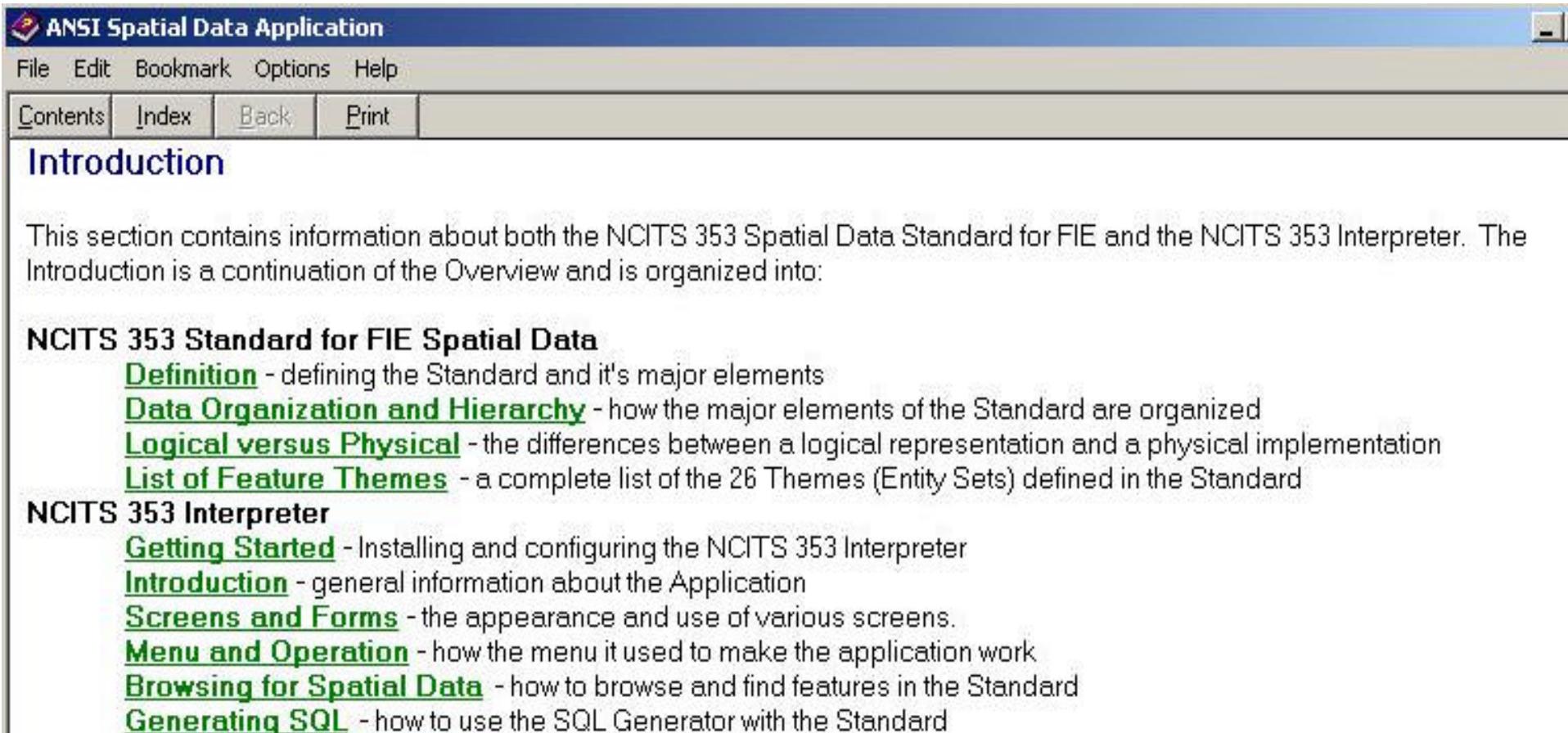
The Standard Document Display, in PDF format, textual portions of the Standard including Scope, References, Organization, and selective Annexes.

Annex A (Normative) Use this application to browse, view, and print all or part of the NCITS GIS - SDSFIE Spatial Feature Catalog.

Annex B (Informative) Use this application to generate tailored ANSI SQL Statements to create NCITS 353.200x compliant databases.

Version 2.000 Table of Contents Feature Catalog \\MACK\HPLJ Room 1224

NCITS 353 Program – Getting Started



ANSI Spatial Data Application

File Edit Bookmark Options Help

[Contents](#) [Index](#) [Back](#) [Print](#)

Introduction

This section contains information about both the NCITS 353 Spatial Data Standard for FIE and the NCITS 353 Interpreter. The Introduction is a continuation of the Overview and is organized into:

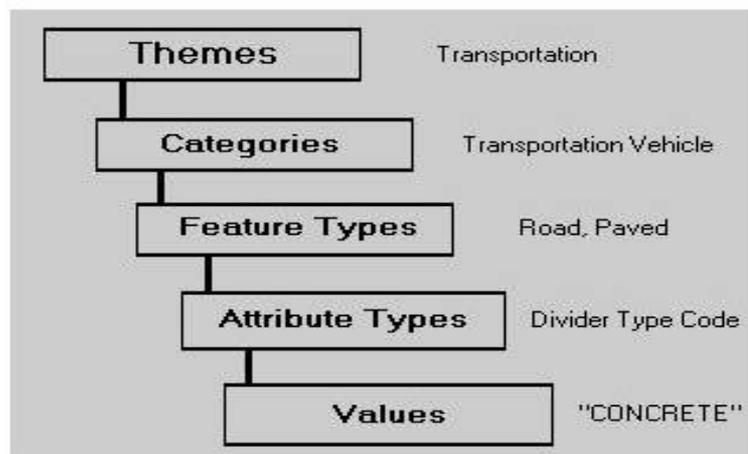
- NCITS 353 Standard for FIE Spatial Data**
 - [Definition](#) - defining the Standard and it's major elements
 - [Data Organization and Hierarchy](#) - how the major elements of the Standard are organized
 - [Logical versus Physical](#) - the differences between a logical representation and a physical implementation
 - [List of Feature Themes](#) - a complete list of the 26 Themes (Entity Sets) defined in the Standard
- NCITS 353 Interpreter**
 - [Getting Started](#) - Installing and configuring the NCITS 353 Interpreter
 - [Introduction](#) - general information about the Application
 - [Screens and Forms](#) - the appearance and use of various screens.
 - [Menu and Operation](#) - how the menu it used to make the application work
 - [Browsing for Spatial Data](#) - how to browse and find features in the Standard
 - [Generating SQL](#) - how to use the SQL Generator with the Standard

NCITS 353 Program – Getting Started



Spatial Data Standard FIE Hierarchy

The NCITS 353 Spatial Data Standard for FIE is organized as shown:



Themes - (Entity Sets) are broad thematic groupings of features with a like purpose or function

Feature Categories - (Entity Classes) are related features likely to appear on the same "map" or spatial product

Features/Feature Types - are individual objects appearing on a "map" or spatial product

Attributes/Attribute Types - are characteristics of feature types

Values - are permissible values for attribute types

NCITS 353 Data Organization & Hierarchy

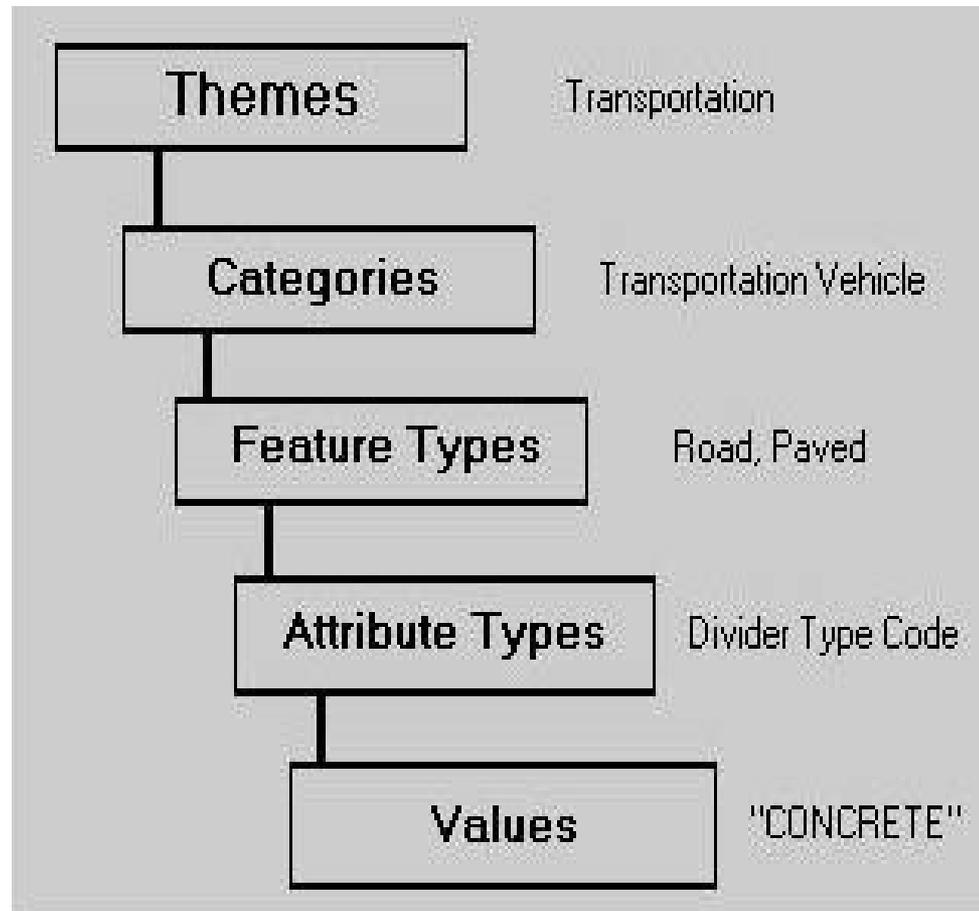
Themes (NCITS 353) =
Entity Sets (SDSFIE)

Categories (NCITS 353) =
Entity Classes (SDSFIE)

Feature Types (NCITS 353) =
Entity Types (SDSFIE)

Attribute Types (NCITS 353)
= Attribute Tables &
Attributes (SDSFIE)

Values (NCITS 353) =
Domain Tables & Domain
Values (SDSFIE)



NCITS 353 - 26 Themes (Entity Sets)

NCITS 353 Standard for FIE Spatial Data Master Themes List

Name	Definition
auditory	The generation and detection of sounds or noise in the environment.
boundary	The borders or boundaries that define logical or political divisions or subdivisions.
buildings	The structures located on the face of the earth that were created, by man, to protect man and his possessions from the environment or to enhance man's activities.
cadastre	The man-made division of land into areas of ownership and control.
climate	The movement and effects associated with the earth's atmosphere.
common	The information that describes the overall data set or components of data that are common to all entity sets.
communications	The means available to relay data and translate data.
cultural	The activities of man that are historically significant.
demographics	The information pertaining to man's trends or traits.
ecology	The information pertaining to the interrelationship between organisms and their environments.
environmental_hazards	The identification and management of natural and manmade substances, materials, and conditions which are, or have the potential to be, detrimental to life and ecosystems on the earth.
fauna	The study of the animals in a region or environment.
flora	The study of the plant life in a region or environment.
future_projects	The information that describes planned projects for future development.
geodetic	The information pertaining to the size and shape of the earth.
geology	The geologic features and processes occurring in a given region on the earth.
hydrography	The physical conditions, boundaries, flow, and related characteristics of earth's waters.
improvement	The miscellaneous man-made minor structures and facilities which improve appearance, provide security, or facilitate man's activities.
land_status	The current use by man of the surface of the earth.
landform	The distribution of features that make up the visible surface of the earth's crust.
military_operations	The information relevant to military presence, operations, training, and security.
olfactory	The detection of odors in the earth's atmosphere.
soil	The unconsolidated materials above bedrock.
transportation	The methods and means of spatial movement in a large scale.
utilities	The man-made components of a system that provides a service to the public. The components of each utility system in this entity set are located outside the foundation of a structure.
visual	The observation of man-made or natural components in and through the atmosphere.

- **NCITS 353 Themes (SDSFIE Entity Sets) – Currently 26**

Auditory

Boundary

Buildings

Cadastral

Climate

Common

Communications

Cultural

Demographics

Environmental Hazards

Ecology

Fauna

Flora

Future Projects

Geodesy

Geology

Hydrography

Improvements

Landform

Land Status

Military Operations

Olfactory

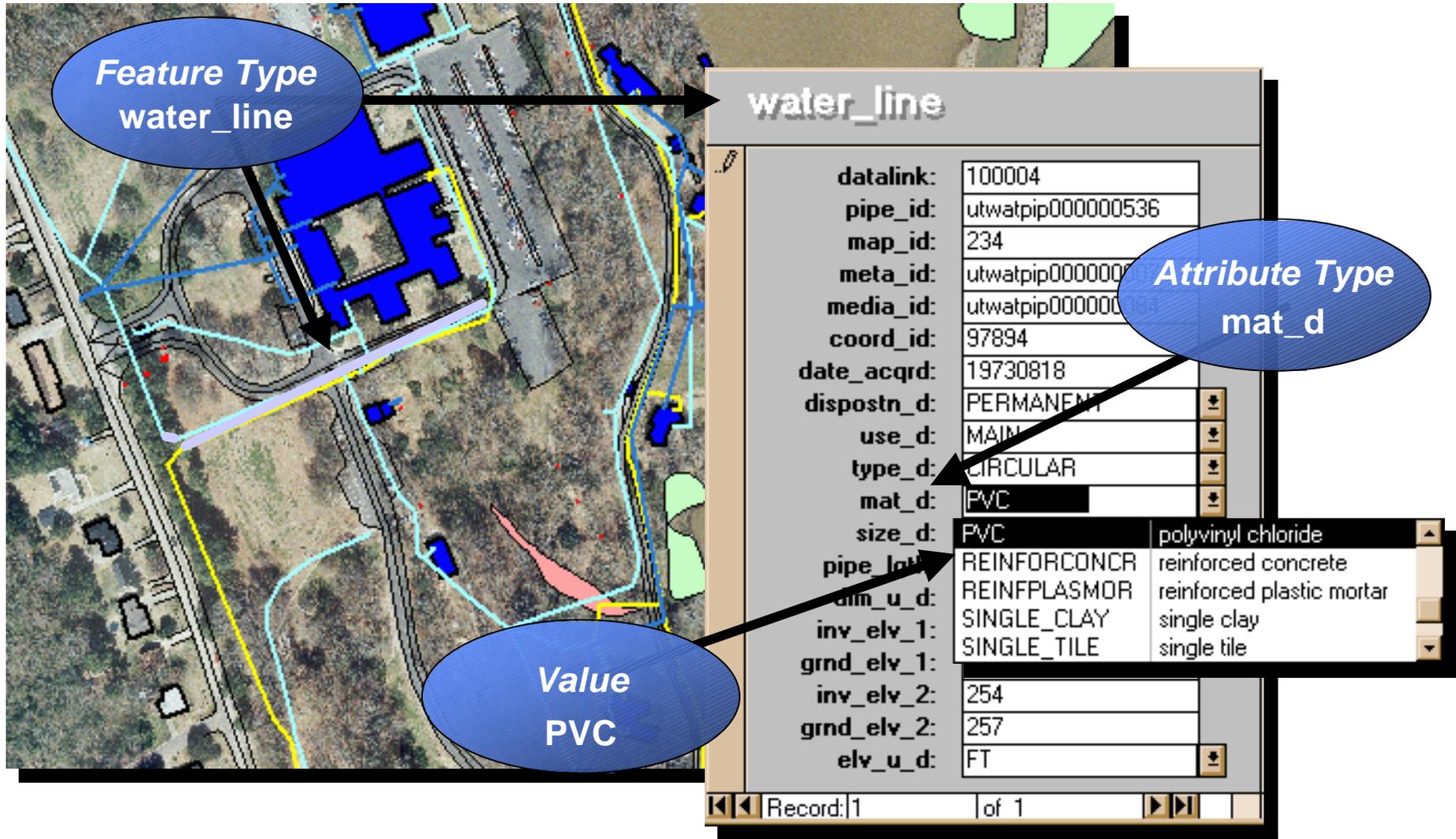
Soil

Transportation

Utilities

Visual

NCITS 353 & SDSFIE Data Model



Feature Type
water_line

Attribute Type
mat_d

Value
PVC

water_line		
datalink:	100004	
pipe_id:	utwatpip000000536	
map_id:	234	
meta_id:	utwatpip0000000	
media_id:	utwatpip0000000	
coord_id:	97894	
date_acqrd:	19730818	
dispostn_d:	PERMANENT	
use_d:	MAIN	
type_d:	CIRCULAR	
mat_d:	PVC	
size_d:	PVC	polyvinyl chloride
pipe_mat_d:	REINFORCONCR	reinforced concrete
pipe_mat_d:	REINFPLASMOR	reinforced plastic mortar
dim_u_d:	SINGLE_CLAY	single clay
dim_u_d:	SINGLE_TILE	single tile
inv_elv_1:		
grnd_elv_1:		
inv_elv_2:	254	
grnd_elv_2:	257	
elv_u_d:	FT	

Record: 1 of 1

NCITS 353

Incorporation of FGDC Wetlands Classification Standard

Entity Set	Entity Class	Entity Type	Attribute	Domain Value
Theme	Category	Feature Type	Attribute Type	Value
Hydrography	Wetland	Wetland	NWI Classification Code NWI pH Modifier Code NWI Soil Modifier Code NWI Special Modifier Code NWI Subclass Code NWI Subsystem Code NWI System Code NWI Regime Non-Tidal Code NWI Inland Salinity Code NWI Regime Tidal Modifier Code NWI Chemistry Coastal Salinity Modifier Code	

NCITS 353 – Annex A (Normative)

NCITS 353.200x --- GIS - SDS(FIE)

SDSFIE Table of Contents Find Print Help

Theme (Entity Set) All Themes	Channel Attributes Primary Key Identifier Width Dimension Width Unit Measure Code Mean Water Depth Dimension Depth Unit Measure Code Depth Datum Name Restrictions Descriptive Text Mean Cross Section Dimension Cross Section Unit Measure Code Area Area Size Unit Measure Code Perimeter Dimension Perimeter Unit Measure Code	Domain Values
Feature Category All Feature Categories	Data Type <input type="text"/> Length <input type="text"/>	
Feature Type Access Channel Access Location, Controlled Military Access Location, Uncontrolled Accident Zone Air Accident, Marine Acid Concentration Area Acid Concentration Contour Acquisition Boundary Area Agency Owned Area Agricultural Tract Air Eliminator, Fuel Air Pressure Area Air Pressure Contour	Definition A manmade channel that provides access from one body of water to another; e.g. form the navigation channel to a harbor.	
Geometry G/GT Polygon	Paragraph A-24.7.4	
	Relates to Analog and Digital Map Metadata Common Media Positional Location Water Course	

Version 2.000 Table of Contents Feature Catalog \\MACK\HPLJ Room 1224