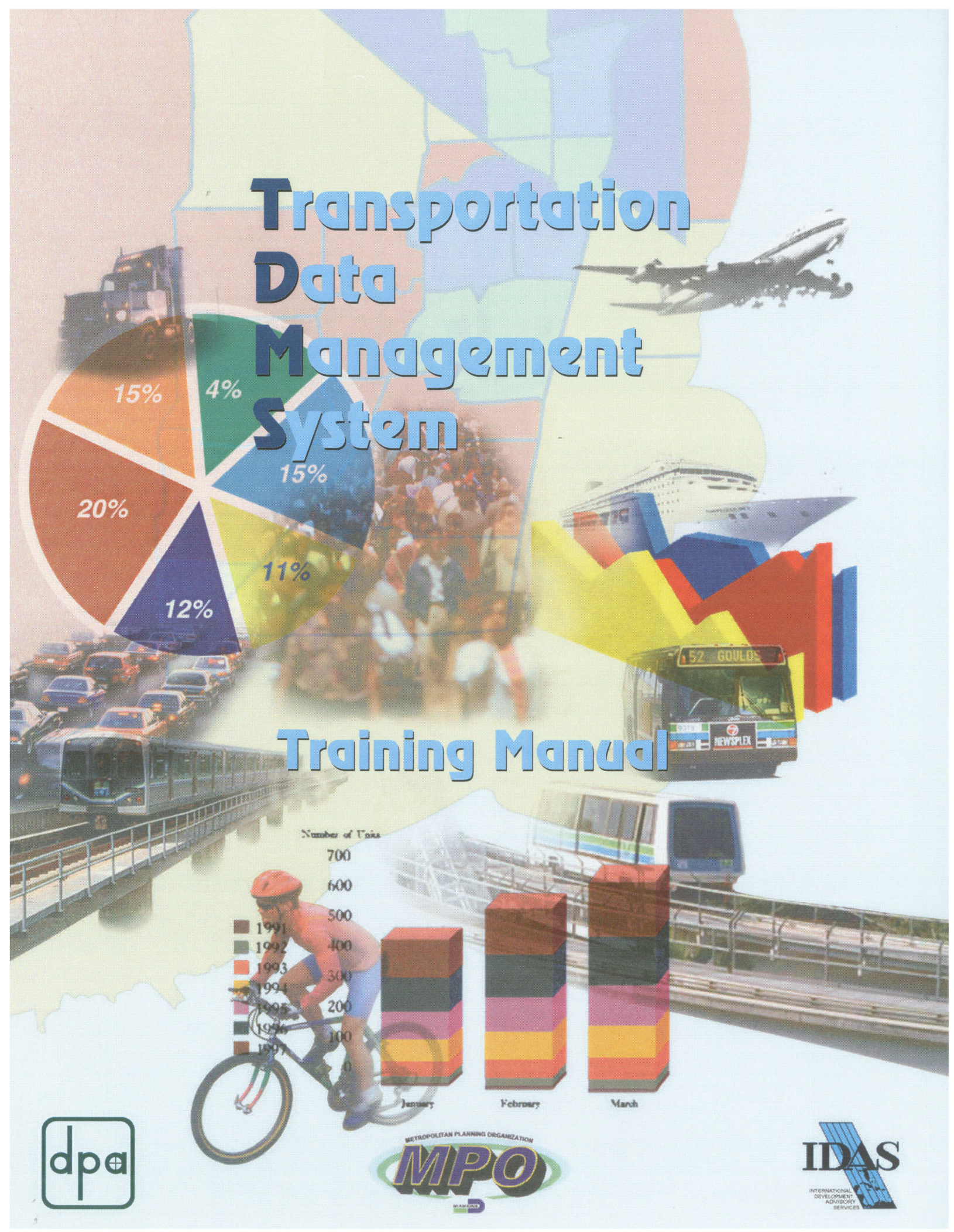
Transportation Data Management System

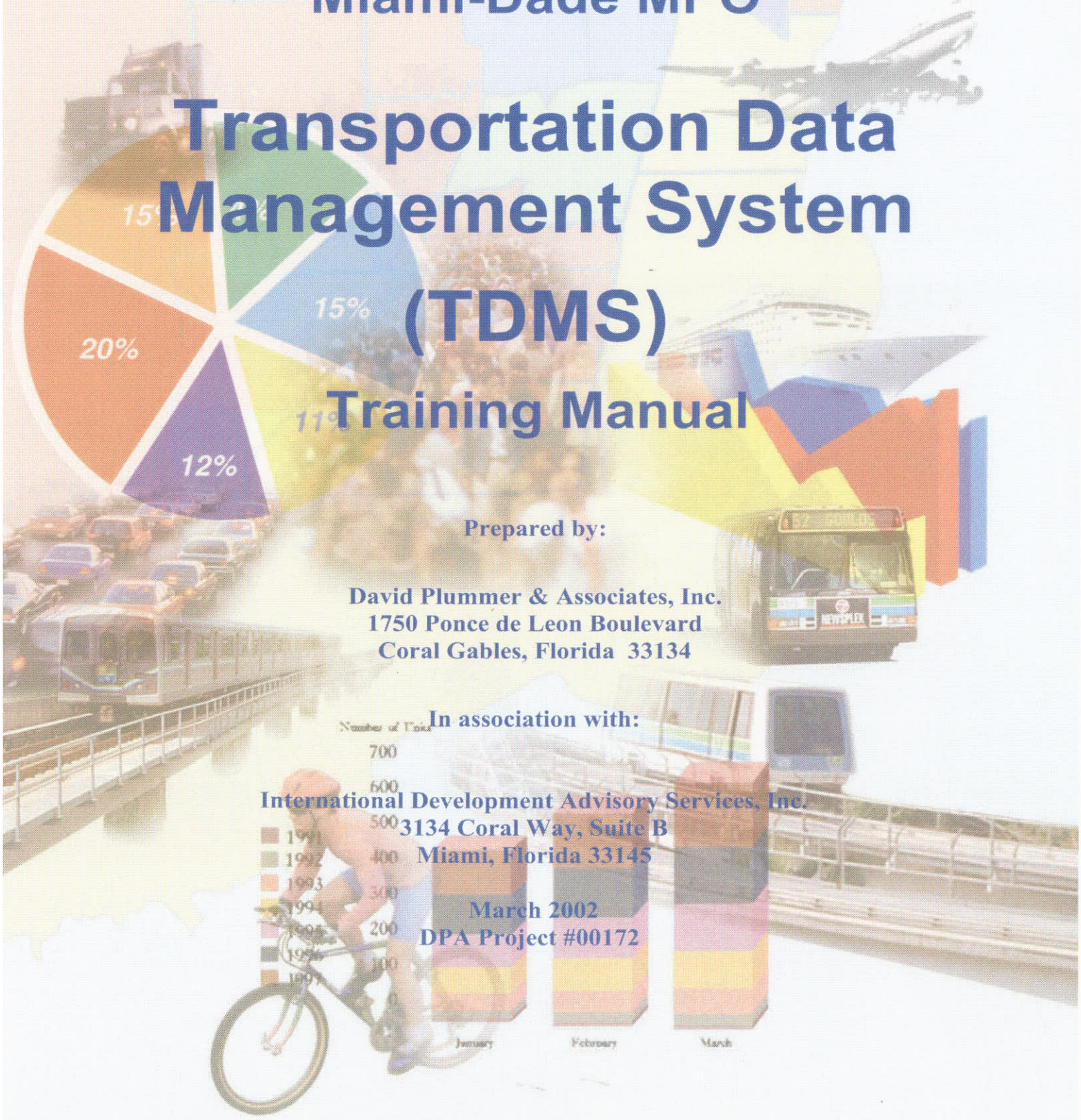
Training Manual



Miami-Dade MPO

Transportation Data Management System (TDMS)

Training Manual



Prepared by:

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March 2002
DPA Project #00172

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(TDMS)

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EXECUTIVE SUMMARY

This report is designed to provide MPO technical staff with comprehensive technical documentation concerning key aspects of the Transportation Data Management System (TDMS) implemented by the team of David Plummer and Associates (DPA) and International Development Advisory Services (IDAS). This report is to be used as a training and overall reference manual.

Section 1 introduces the basic purpose and philosophy underscoring the creation of the TDMS.

Section 2 describes the key software platform used to build and maintain of the TDMS, including ArcView 8.1, MS Access and HTML ImageMapper.

Section 3 details the system's basic file structure, particularly in the context of ArcCatalog, one of the key components of ArcView 8.1.

Section 4 details selected procedures deemed important to guide MPO staff in the various processes of updating, maintaining and continuously expand the TDMS.

Section 5 describes the Access application developed by the consultants to facilitate access and documentation to the TDMS.

Appendix A summarizes various notes and tables prepared, as part of the training, by the MPO technical staff.

1.0 INTRODUCTION

The objective of this project was to develop and implement a flexible, expandable, computer-based electronic database. The database now resides at the Miami-Dade Metropolitan Planning Organization (MPO). The database holds transportation-related information that allows statistical, temporal, and geographic analyses. This data has been assembled into a product called the Transportation Data Management System (TDMS). The system is capable of generating reports in tabular, chart and/or map formats. The information in the system can then be used in reports, handouts, presentation exhibits, electronic presentations, and/or for publishing onto the Internet.

1.1 Background

A disparate array of information in a variety of formats and assorted media were available from numerous locally involved federal, state, and local public and private agencies. Travel demand model input data, and limited output data were available in yet other formats. Various efforts are being pursued by other agencies. However, there was no central location capable of making these data available.

1.2 Purpose of This Report

The purpose of this report is to provide a training manual to MPO technical staff in support of their continuing system maintenance and updating requirements.

2.0 TDMS COMPONENTS

Various hardware and software components were assembled as part of the overall TDMS project implementation.

2.1 Hardware

Project funds were applied to the purchase of the following hardware equipment:

- Dell Computer Dimension 8100 workstation, Intel Pentium 4 processor operating at 1.5 GHz, 384 MB of RAM, an 80 GB SCSI hard drive, a 64MB graphics card, a 32x CD-ROM writer/reader, and a 48X CD-ROM reader. Its operating system is MS Windows 2000, with Dell integrating MS Office 2000 Professional as part of the package.

  It is noted that this workstation was used during system development to ensure proper installation of all the peripheral hardware, software and data. This approach provided ample opportunity for testing the system in its entirety to further assure the MPO that the system was fully operational at project completing when the system was turned over to the MPO. The computer was also used for the continuous hands-on training of MPO personnel. The training, therefore, was done under the exact same setup that the system will have at project completion.

- LCD Projector - Epson PowerLite 505c for presentation of maps and graphs.

- Scanner - Hewlett Packard ScanJet 6300 with document feeder for digitizing information not in electronic format.

- Digital Camera, including Case and Wide-angle Lens - Sony Cybershot DSC-F707 for acquiring digital photos to be included in the TDMS database.

2.2 Software

This project included the acquisition and installation of original licenses for the core software that comprise the system. The software was installed in the system computer and fully tested prior to delivering the computer/software system package to the MPO.

These core software programs include ArcView GIS 8.1, Access 2000 and HTML ImageMapper 8.1. Selection of this core software was driven by factors such as its proven reliability, ease of use, its adoption as a standard across Miami-Dade County departments, familiarity to a wide range of users, compatibility with most common databases, compatibility with the available source data as well as other MPO databases.

In addition to the core software, other MS Office Professional modules, including Word, Excel, PowerPoint and FrontPage were used at different points of the TDMS original developmental process. These modules will be continuously used in the future, supporting the process of incorporating, maintaining and updating data within the TDMS, and making the data usable through maps, reports and/or charts.

2.2.1 ArcView GIS

Geographic Information Systems (GIS) software provide the primary graphical and visual analysis component of the system.

The core software providing these capabilities is ArcView GIS 8.1, an industry-standard GIS package developed and published by Environmental Systems Research Institute (ESRI). This latest version of ArcView is more powerful and flexible than the previous versions, ArcView 3.x, currently being used by the MPO.

A major improvement in the 8.1 version is the ability to readily interface with state-of-the-art relational databases. Its native database of ArcView GIS 8.1, when used on a single desktop, is MS

Access; ArcView GIS 8.1 builds "geodatabases" using MS Access as the underlying database engine, holding data in both spatial and tabular forms. Should the MPO eventually contemplate the use of its TDMS by a number of concurrent users, the underlying geodatabases, originally built in MS Access, can be easily exported to an enterprise-wide database platform, such as Microsoft's SQL Server.

ArcView GIS 8.1 consists of three integrated modules:

- ***ArcCatalog*** – A spatial database management interface, similar to MS Explorer, but for both geographic and tabular data, provides the supporting spatial database, geodatabase and metadata creation and maintenance functionality required to build and sustain a robust transportation-oriented data warehouse.
- ***ArcMap*** – A "map-oriented" Graphical User Interface (GUI) provides an extensive set of state-of-the-art data selection, querying and display tools, as well as extensive map layout tools capable of producing cartographic-quality map products.
- ***ArcTools*** – A set of time-tested spatial analysis and management tools complimenting the two principal modules, *ArcCatalog* and *ArcMap.*

In addition, the out-of-the-box capabilities of ArcView GIS 8.1 can be easily extended through a readily accessible programming environment based on ArcObjects, a built-in set of programming objects supporting MS Visual Basic as well as other industry-standard Component Object Model (COM) based programs.

The ArcView GIS box contained, in addition to the actual software media and license, a complete set of training manuals published by ESRI, including:

- What is ArcGIS?
- Getting Started with ArcGIS
- Using ArcMap
- Editing in ArcMap

- Using ArcCatalog
- Building a Geodatabase
- Design Modeling Our World – The ESRI Guide to Geodatabase
- Getting to know ArcGIS
- Using ArcToolbox
- Understanding Map Projections
- The ESRI Guide to GIS Analysis – Vol. 1: Geographic Patterns & Relationships

Some of these manuals were used extensively to support the initial training of MPO technical staff, and will remain available to the MPO for future consultation. Other manuals present advanced topics not covered in the initial basic training. It is strongly recommended that MPO technical staff, as part of the process of refreshing, maintaining and expanding their skills in GIS, review and utilize these manuals in an on-going and disciplined manner.

In addition to the initial training that was part of this project, ArcView training and training materials are commonly available from many sources, including ESRI-authorized courses provided locally by IDAS and area universities.

In summary: ArcView GIS 8.1 is extremely flexible, which makes it an ideal off-the-shelf tool that the MPO can tailor to their specific needs as they change over time. Furthermore, the long-term vision for future development and expansion of the ArcGIS family of programs assures a robust system that can be expanded even further in the future if and when the need arises.

The TDMS avails itself of another GIS package, ArcView 3.2a, a license previously acquired by the MPO, which is also installed in the Dell computer workstation. ArcView 3.2a, also published by ESRI, is a precursor to ArcView 8.1. Some of the procedures described in Chapter 4 rely on this package to provide support to backbone GIS operations performed in ArcView 8.1.

2.2.2 MS Access 2000

The database software used in the TDMS is Microsoft Access (2000 or the newer XP version), the flagship desktop database package from Microsoft, included as part of MS Office 2000 Professional, bundled with the workstation.

The industry-standard Access (2000 or XP) is a state-of-the-art relational database fully compatible with ArcView. As a member of the Microsoft family of products; as such, it is highly compatible with other Microsoft products such as Excel and Word. Additionally, the program is capable of importing files from other databases and converting them into Access format. Access too, although relatively new, is considered a mainstream program, is very flexible and adaptable to the future needs of the MPO.

Access is also upwards compatible with enterprise-strength databases, such as Oracle and SQL-Server. Extensive training and training materials are also available to the MPO from a multitude of sources for the future training needs after the completion of the project.

The program is compatible with other MPO tools and databases including Visual dBASE. Access, however, is more user-friendly and flexible, it has many similarities with Excel, and offers powerful database functions in addition to charting and reporting options. Access is used to store the transportation-related data that can be displayed and analyzed graphically using ArcView.

Furthermore, the MPO staff person charged with responsibility for maintaining and upgrading the TDMS is fully conversant with Access, requiring little or no additional training.

2.2.3 HTML ImageMapper 8.1

This software is an add-on extension to ArcView GIS 8.1, developed and published by Alta4, a German company partnering with ESRI.

ImageMapper is designed to allow users to develop and publish web-enabled pages containing maps capable of zooming to pre-determined fixed increments, panned across a given extent, and querying underlying feature attributes. Once created, these pages can be published in the Internet, across Miami-Dade County's intranet, or even simpler, posted in the MPO's computer and made accessible to other users through the county's Local Area Network (LAN).

The software's relative low cost, full integration into ArcView, and easy use makes it an ideal tool for the task of producing web-enabled "dynamic" maps.

Use of this software extension is documented in Chapter 4, and a complete User's Manual has been made available to the MPO as part of the software license documentation package.

2.2.4 Cross-Platform Integration

The cross-platform integration of the software components of the system is achieved at three distinct levels, as follows:

1. The intrinsic codependence, built-in relationship between ArcView GIS and Access by virtue of the software's built-in ability, through its geodatabase structures, to display and manipulate data attached to geographic features.

2. The second level of integration is achieved by means of a GUI application, developed in Access, that allows access to the information through a series of screens with buttons. The screens group the information by category and present various options for its use. These levels of integration are described below.

3. The third level is of integration is represented by the ability to create and publish web-enabled maps through the use of HTML ImageMapper.

This integration will be transparent to most users. In essence, once certain sets of data are set-up on the system, there are layers of information that can be turned-on from the GIS (ArcView) environment. In other words, ArcView already knows the location of the data (as an element of a larger database) and automatically "calls-up" the information onto the corresponding map.

Once the data is displayed in ArcMap, a series of functions are available which allow the user to query, select, relate, analyze, print and otherwise use the information in many formats.

When any information that is already included in the database is updated, a simple replacement of the database file (or component) is all that is needed to make the information useable inasmuch as ArcView already knows where the information is located and how to display it. When new information is added to the database, the information must first be set-up by creating the layers that define how the data is attached to particular geographic features. This process does take several steps to complete, but is a very common function that quickly becomes an automatic routine.

Changes in the underlying data may require modification of the previously-created web-enabled pages. As an extension to ArcView, HTLM ImageMapper 8.1 is always available to easily create new pages, seamlessly replacing outdated ones.

Direct use of ArcView provides access to all the powerful functions built-into the GIS software. However, this method of accessing the data does require a certain level of ArcView and Access knowledge, as well as a proper understanding of the data available and its location.

Another method of accessing the data is through the MS Access application developed as part of this project and described in Chapter 5 of this manual. Users with little or no previous knowledge of GIS and/or databases can use this application to gain valuable information about key aspects of the TDMS and its database, mapping, reporting and web-enabled components.

2.2.5 Metadata

The ArcView software formalized the process of creating and maintaining metadata within the software's ArcCatalog module.

Throughout the TDMS design and implementation, special care was given to the issue of documenting the data underlying the system, what is usually referred to as "metadata", or "data about data". Ensuring that the TDMS data complies with widely recognized metadata standards is a key and necessary element of this process. All spatial and tabular data incorporated into the TDMS underwent an extensive process of documenting the metadata, namely the data's sources, time of creation, applicable coordinate system, attribute definition, data scope and limitations, in short, all of the data's metadata. Key components of this process are presented in Section 4.x (Chapter 4) of this report.

Maintaining this metadata component up to date is essential in order to maintain the system fresh and valid, thus avoiding a gradual deterioration in the quality of the data. We strongly recommended that MPO staff in charge of updating the validity and freshness of the system's data ensure that the strict metadata standards are rigorously followed over time.

3.0 TDMS FILE STRUCTURE

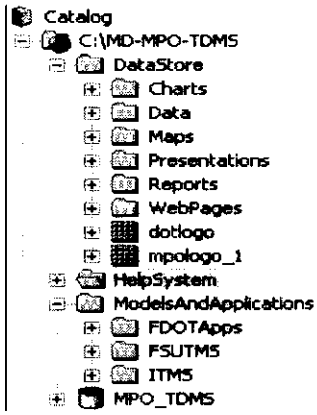
The MPO's Transportation Database Management System (TDMS) has been organized within an integrated, rational file structure under the directory ***MD-MPO-TDMS*** in the primary C: drive of the MPO computer.

All the readily available data, in the appropriate format, has been loaded into that directory from multiple sources. Future data, new and/or updated, can be input through a variety of conventional media such as floppy disc, CDs, as well as through the computer's communications port, which is capable of providing direct access to and from other computers at the MPO, the Internet and the Miami-Dade Intranet. Additionally, images can be imported into the computer from the scanner and the digital camera via USB ports.

Output from the system can be generated and stored in safely-located back-up files. Additionally, paper output can be generated using the color and/or black and white printers and plotters already available at the MPO. The system software packages also have wide flexibility with the format of input and output files. In some cases the format of some files may be converted to another format.

The *C:\MD-MPO-TDMS* directory has three main subdirectories and one Access-based application, as shown in Exhibit 3.1, below right, a screen shot from ArcView GIS 8.1 ArcCatalog.

1. DataStore: This subdirectory functions as the systems overall data repository.
2. Help System: Holds help files used by the system.
3. ModelsAndApplications: Stores specific models and applications developed by the system.
4. MPO-TDMS: The MS Access application designed to tie together all elements of the system.



3.1 DataStore

This subdirectory has been designed to function as the MPO's overall transportation data warehouse. It contains folders containing Charts, Data, Maps, Presentations, Reports and WebPages.

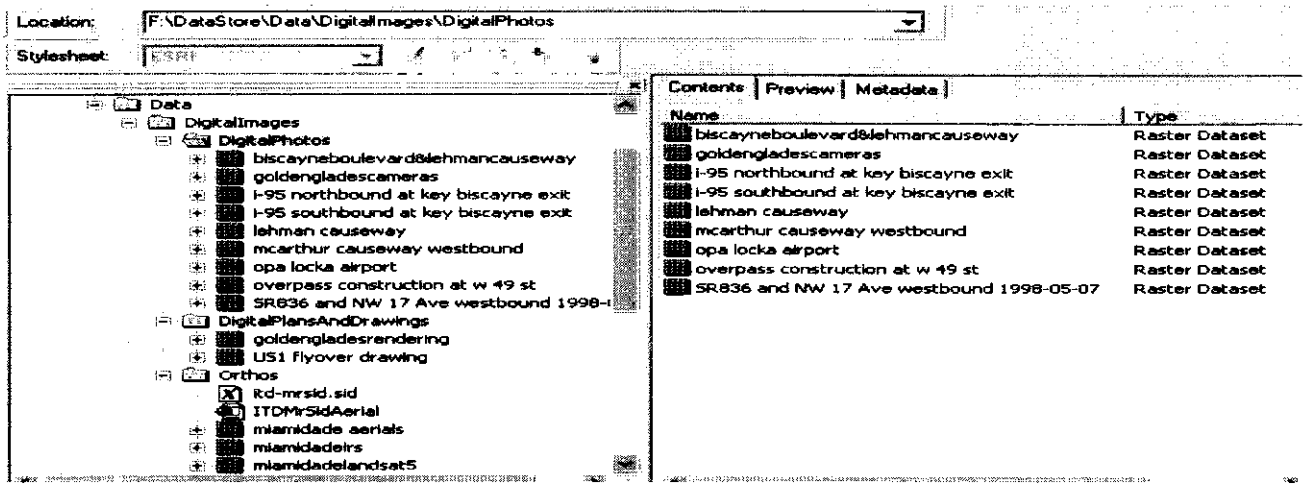
3.1.1 Data

This folder is designed as a data warehouse holding the entire volume of transportation-related, as well as non-transportation support data requested by the MPO.

The Data folder is organized into its own subfolders, as follows:

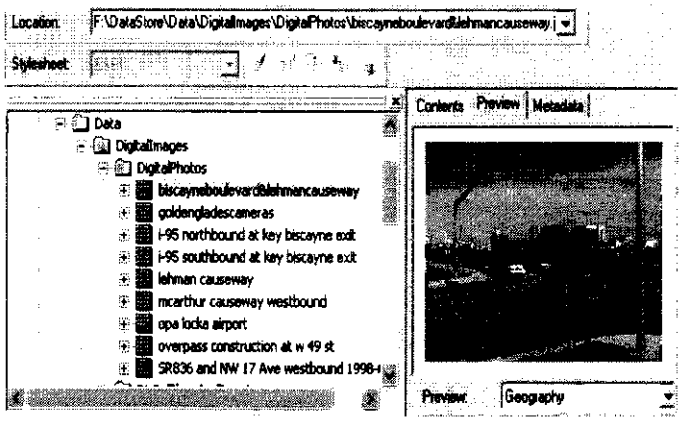
3.1.1.1 DigitalImages

This folder holds three types of digital imagery: 1) digital photos related to transportation projects, some of which were obtained with the digital camera recently acquired by the MPO as part of this project; 2) digital plans and drawings, mostly obtained by scanning paper documents; 3) digital ortho-corrected aerial and/or satellite photography of Miami-Dade County. Exhibit 3.2 below shows the basic organization of this folder:

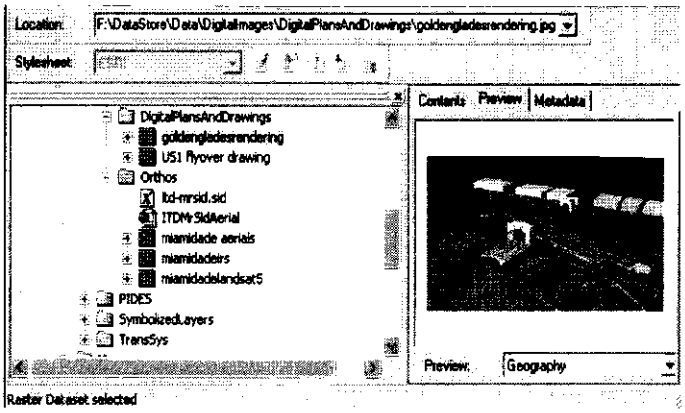


It is noted that the open architecture nature of the system allows unlimited storage of these digital photographs, as well as further specialized organization.

1. *DigitalPhotos:* Exhibit 3.3, at right, shows a list of digital photos currently stored in this folder, plus a preview of one of these (Biscayne Blvd. & Lehman Causeway).

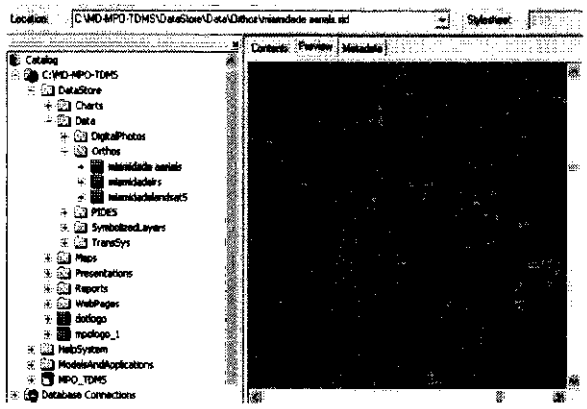


2. *DigitalPlansAndDrawings:* Plans, drawings and renderings of future projects/ developments, as shown in Exhibit 3.4, at right.



3. ***DigitalOrthoPhotos:*** This folder holds ortho-corrected aerial digital photos as well as selected satellite imagery for Miami-Dade County, which can be used as backdrops for maps produced through the TDMS.

   Exhibit 3.5, at right, shows a list of ortho-corrected digital photo files currently stored in this folder. It also shows, in preview, a zoomed-in shot of downtown Miami from black-and-white ortho-corrected aerials commissioned by the Miami-Dade Information Technology Department (ITD) to be used by local agencies in their GIS-related projects.



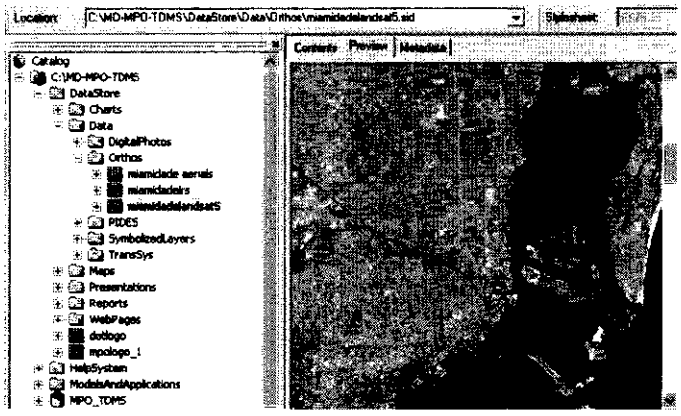


Exhibit 3.6, at left, shows a LandSat 5 color (multi-spectral) satellite photo of the central Miami area.

3.1.1.2 PIDES

This folder is designated to hold the entire inventory of non-transportation data currently available for Miami-Dade County. As an acronym, PIDES stands for "Physical, Institutional, Developmental, Environmental and Socio-economic" data.

The open architecture of ArcCatalog allows with ease the updating of feature classes within existing geodatabases, for future data to be easily added to the corresponding geodatabases, and for the fast creation of new symbolized layers.

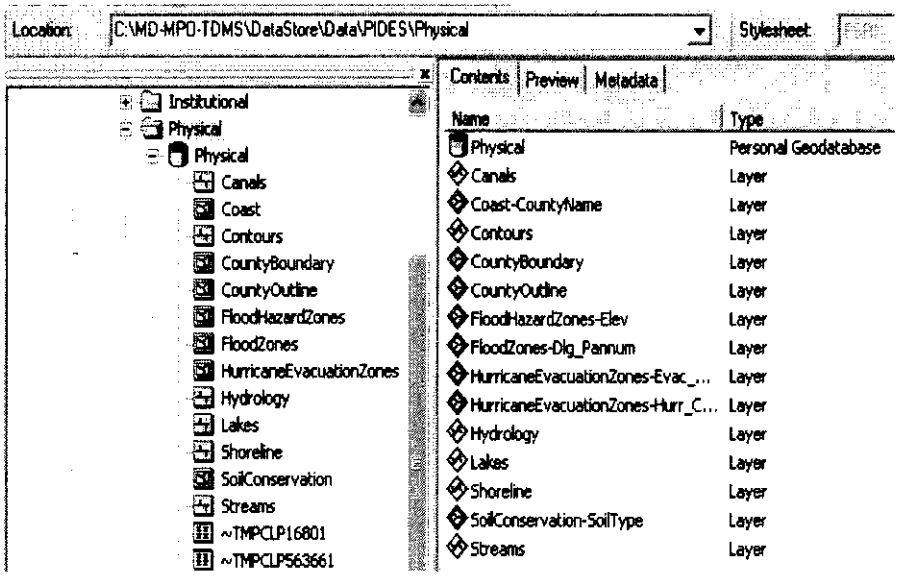
This folder is divided into several sub-folders, each containing the corresponding data in the form of geodatabases and symbolized layers. It is noted that:

- Geodatabases contain in a single ArcGIS/Access database, all spatial and tabular data defined for a given folder, as detailed in Section 2.2.1.5 (previous chapter).
- Symbolized layers are thematic representations of a given feature class within the corresponding geodatabases, as detailed in Section 2.2.1.6 (previous chapter).

3.1.1.2.1 Physical

As previously indicated, this folder holds all physio-hydrographic data for the County. The folder contains a geodatabase named "Physical", which contains separate symbolized layers, each corresponding to a feature class within the geodatabase. Individual feature classes and symbolized layers, as shown in Exhibit 3.7 below, include:

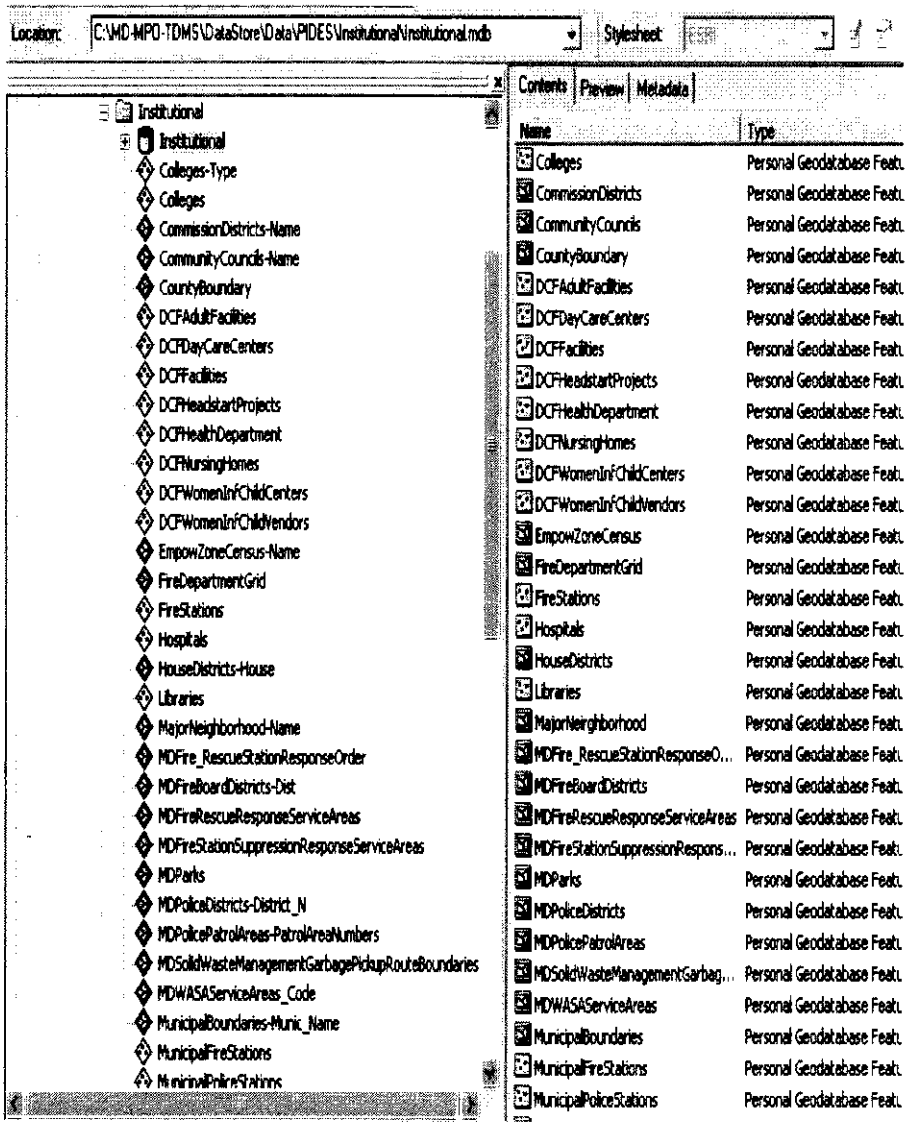
- County Boundary, outline, shoreline
- Contours
- Hydrography (rivers, lakes, streams, canals)
- Flood Hazard Zones
- Hurricane Evacuation Zones
- Soil Conservation



3.1.1.2.2 Institutional

This folder contains all available institutional data as a geodatabase named "Institutional" and separate symbolized layers, each corresponding to a feature class within the geodatabase. Individual feature classes and symbolized layers, as shown in Exhibit 3.8 below, include, among multiple others:

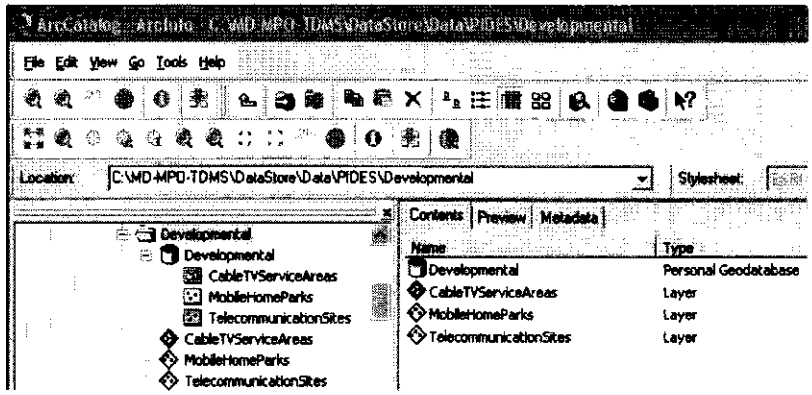
- County Commission Districts
- Municipal Boundaries
- Major County Neighborhoods
- Senate and House Districts
- Team Metro Boundaries/Offices
- Empowerment Zone(s) Boundaries
- Fire Board Districts, Fire Stations, Fire Dept. Grid, Rescue/Suppression Response Service Areas
- Police Districts, Patrol Areas, Grids
- Parks Dept. Districts, Parks
- Hospitals, Libraries
- Polling Precincts
- Schools, Public/Private
- WASA Service Areas, Solid Waste Management. Pickup Routes



3.1.1.2.3 Developmental

This folder contains all available development-oriented data as a geodatabase named "Developmental" and separate symbolized layers, each corresponding to a feature class within the geodatabase. Individual feature classes and symbolized layers, as shown in Exhibit 3.9 below, include:

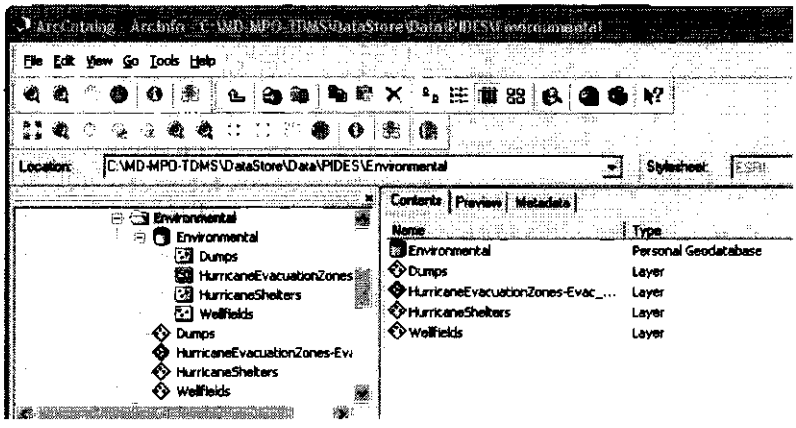
- Cable/TV Service Areas
- Mobile Home Parks
- Telecommunication Sites



3.1.1.2.4 Environmental

This folder contains all available environmental-oriented data as a geodatabase named "Environmental" and separate symbolized layers, each corresponding to a feature class within the geodatabase. Individual feature classes and symbolized layers, as shown in Exhibit 3.10 below, include:

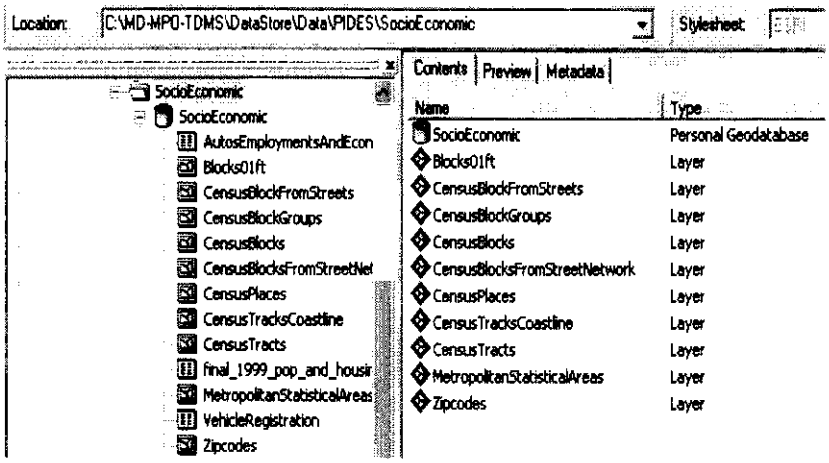
- Dumps
- Hurricane Evacuation Zones
- Hurricane Shelters
- Well Fields



3.1.1.2.5 SocioEconomic

This folder contains all available socio-economic data as a geodatabase named "SocioEconomic" and separate symbolized layers, each corresponding to a feature class within the geodatabase. Individual feature classes and symbolized layers, as shown in Exhibit 3.11 below, include:

- Census Boundaries (Tracks, Enumeration Districts, Blocks)
- Metropolitan Statistical Areas (MSAs)
- Zip Codes
- Vehicle Registration
- Autos, Employment and Economic Ranking (FSUTMS)
- Population, Housing and Employment (FSTUMS data)



3.1.1.3 TransSys

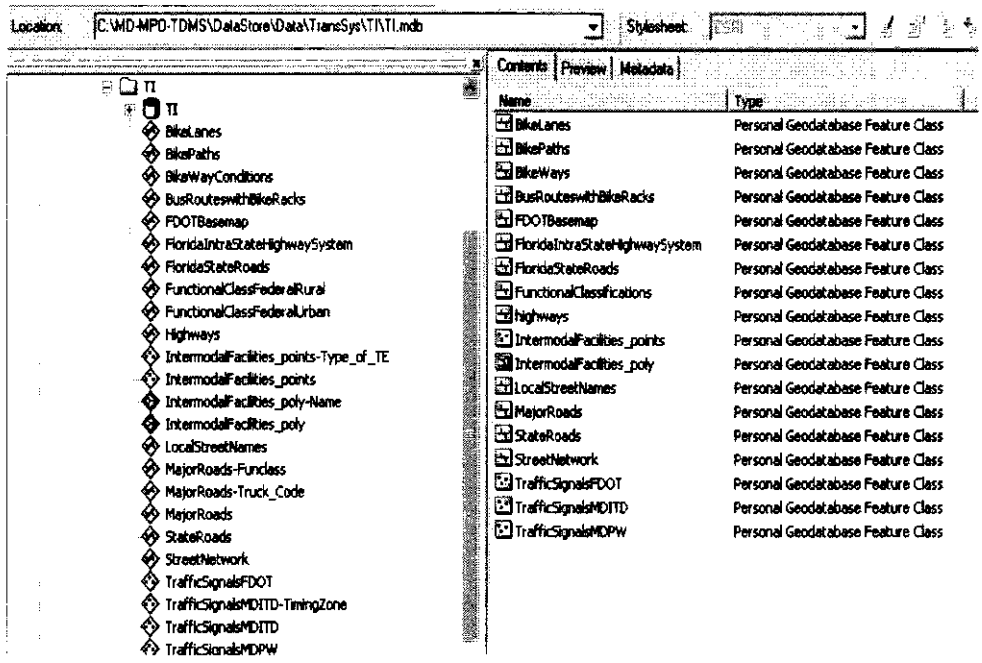
This folder is designated to hold the entire inventory of transportation data currently available for Miami-Dade County. The open architecture of ArcCatalog allows with ease the updating of feature classes within existing geodatabases, for future data to be easily added to the corresponding geodatabases, and for the fast creation of new symbolized layers. This folder is divided into several sub-folders, each containing the corresponding data in the form of geodatabases and symbolized layers. It is noted that:

- Geodatabases contain, in a single ArcGIS/Access database, all spatial and tabular data defined for a given folder, as detailed in Section 2.2.1.5 (previous chapter).
- Symbolized layers are thematic representations of a given feature class within the corresponding geodatabases, as detailed in Section 2.2.1.6 (previous chapter).

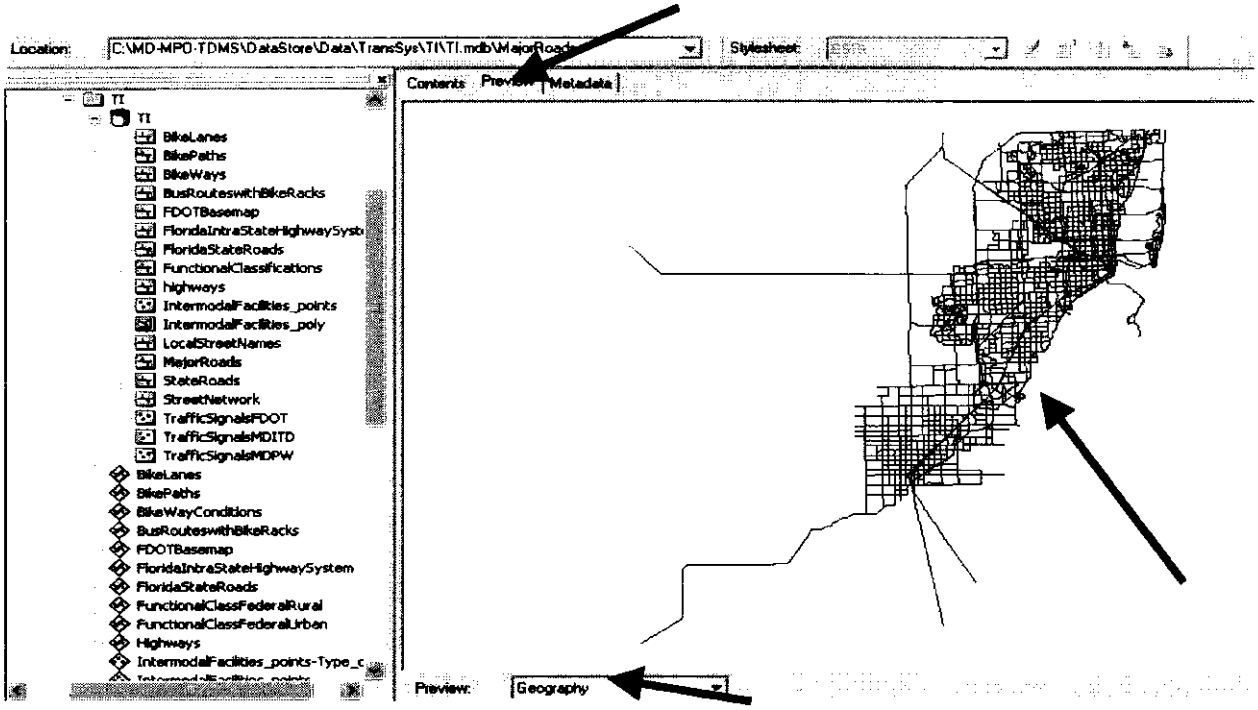
3.1.1.3.1 TI (Transportation Infrastructure)

This folder holds all data related to transportation infrastructure. The folder contains a geodatabase named "TI" and separate symbolized layers, each corresponding to a feature class within the geodatabase. Individual feature classes and symbolized layers, as shown in Exhibit 3.12 below, include:

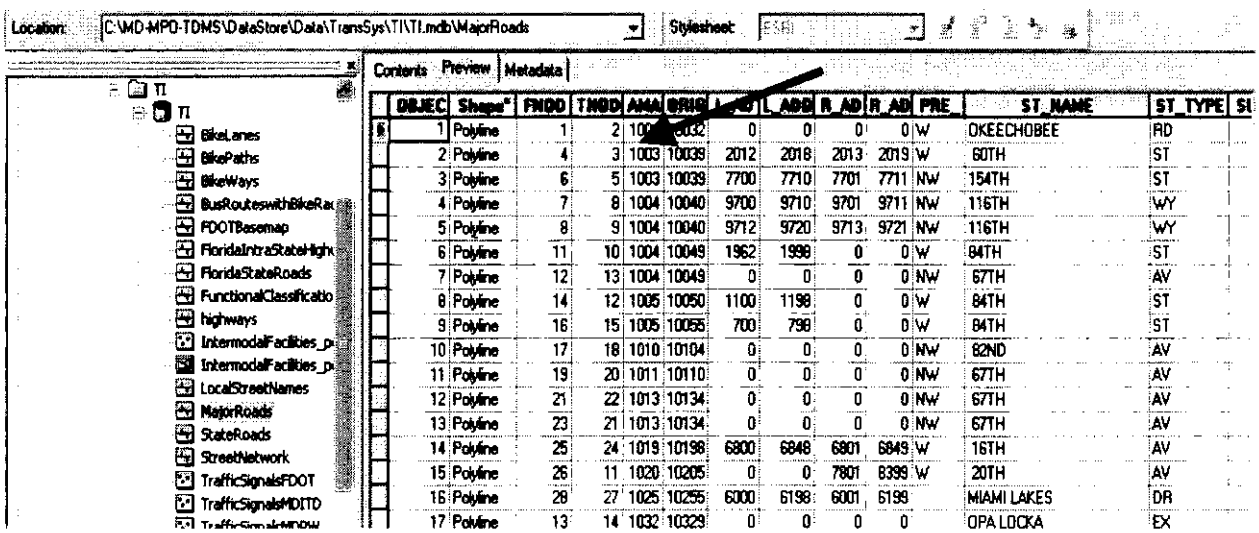
- Bike Lanes, Paths and Bikeways
- Bus Routes
- FDOT Basemap (not enabled for DynSeg)
- Florida State Roads System
- Functional Road Classifications
- Intermodal Facilities
- Street Network
- Major Roads
- State Roads
- Traffic Signals



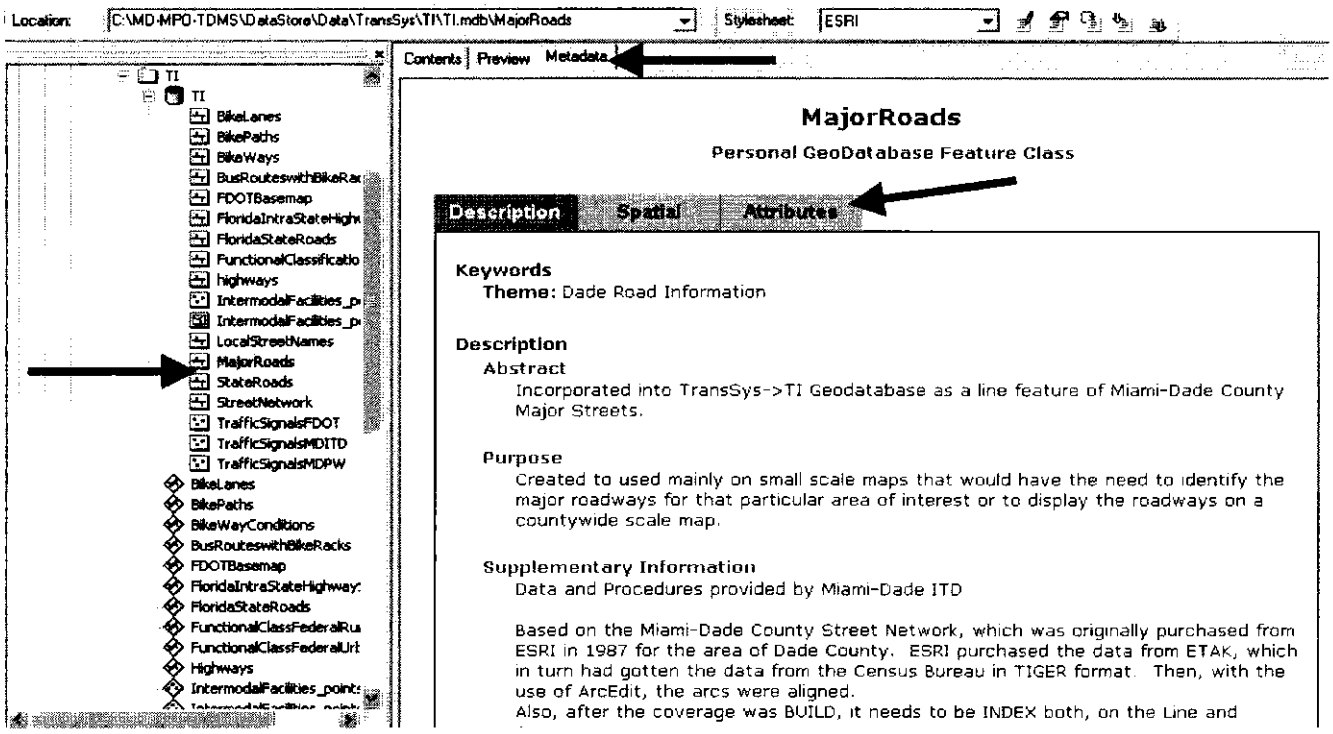
The user can exploit ArcCatalog's capabilities to further explore the individual characteristics of any feature class. As an example, the user may wish to explore the "MajorRoads" feature class within the TI geodatabase. After opening TI, one would then click on the MajorRoads class, then clicking on the Preview Tab, would select "Geography". ArcCatalog will present the following (Exhibit 3.13):



Alternatively, by selecting "Table" mode in "Preview", the user can review data values for that feature class, as shown in Exhibit 3.14 below:



Similarly, by clicking on the "Metadata" tab, the user can view, edit and update the feature class' metadata[1]/, as shown in Exhibit 3.15, below.



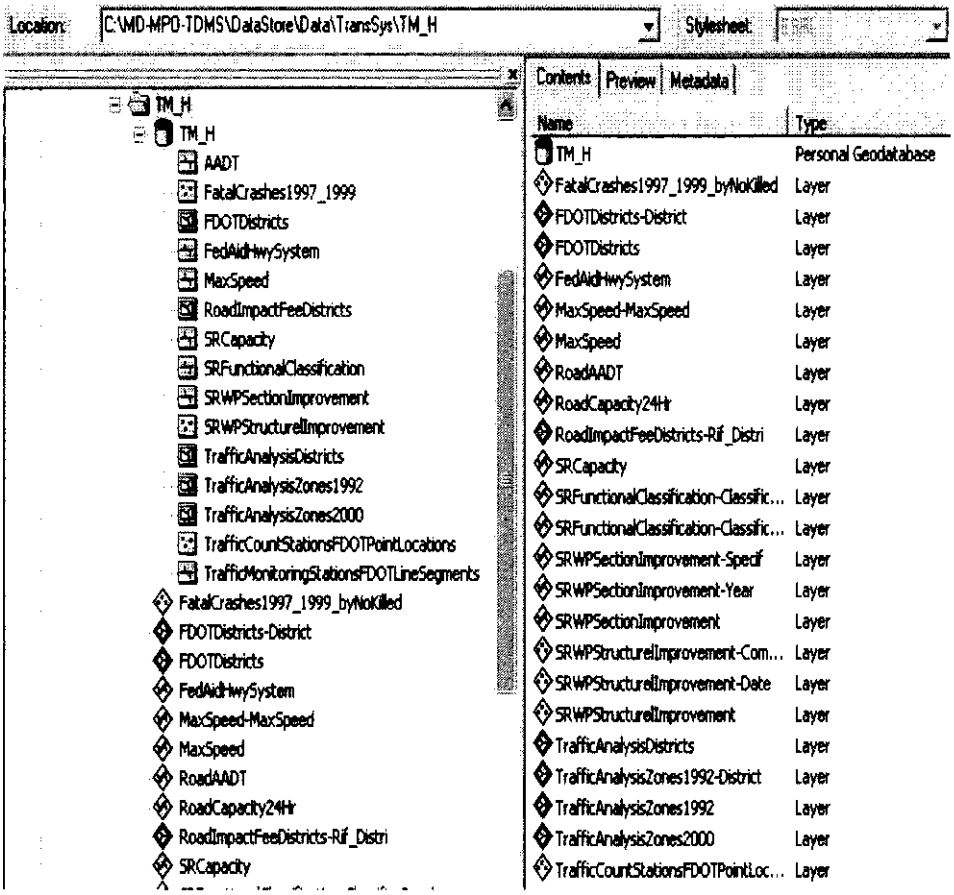
3.1.1.3.2 TM_H (Travel Mode: Highway)

This folder holds all data related to travel mode highway for the entire County. The folder contains a geodatabase named "TM_H" and separate symbolized layers, each corresponding to a feature class within the geodatabase. Individual feature classes and symbolized layers, as shown in Exhibit 3.16 below, include:

---

[1]/ *Metadata operations are explained in detail in Section 2.x.x.x (previous chapter).*

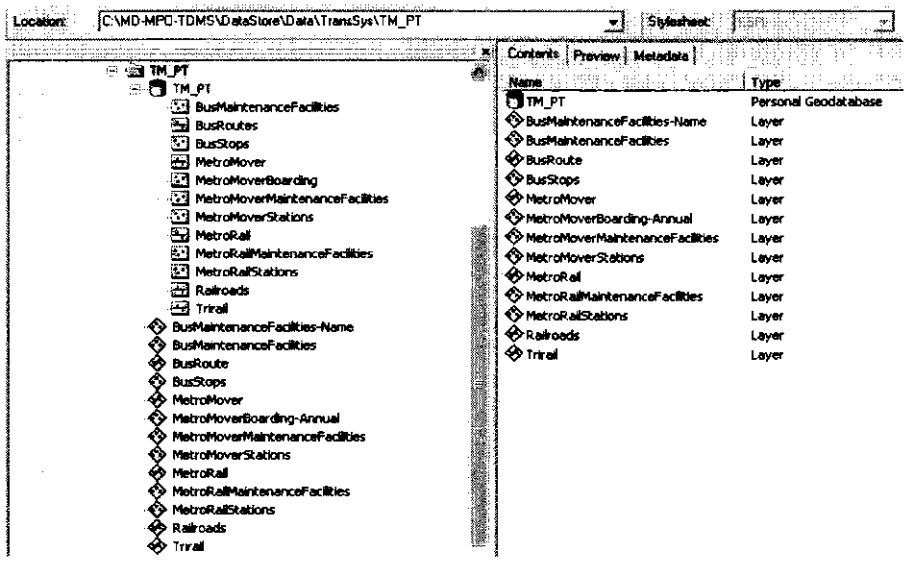
- AADT
- Fatal Crashes 1997-99
- FDOT Districts
- Federal Aid Highway System
- Maximum Speed
- Road Impact Fee Districts
- SR Capacity and Functional Classification
- SRWP Section/Structure Improvement
- Traffic Analysis Districts
- Traffic Analysis Zones (1992 and 2000)
- Traffic Count Stations
- Traffic Monitoring Stations



3.1.1.3.3 TM_PT (Travel Mode: Public Transportation)

This folder holds all data related to "travel mode - public transportation" for the entire County. The folder contains a geodatabase named "TM_PT" and separate symbolized layers, each corresponding to a feature class within the geodatabase. Individual feature classes and symbolized layers, as shown in Exhibit 3.17 below, include:

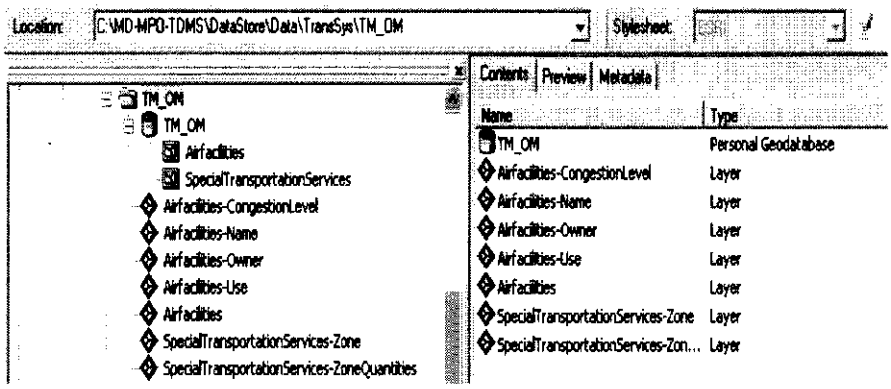
- Bus Maintenance Facilities
- Bus Routes
- Bus Stops
- MetroMover Routes
- MetroMover Boarding
- MetroMover Stations
- MetroRail Routes
- MetroRail Maintenance Facilities
- MetroRail Stations
- Railroad
- TriRail



3.1.1.3.4 TM_OM (Travel Mode: Other Means)

This folder holds all data related to other means of travel for the entire County, including aviation and special transportation services. The folder contains a geodatabase named "TM_OM" and separate symbolized layers, each corresponding to a feature class within the geodatabase. Individual feature classes and symbolized layers, as shown in Exhibit 3.18 below, include:

- Air Facilities, including:
  - Name
  - Owner
  - Use
- Special Transportation Services – Zone
- Special Transportation Services - Quantities



3.1.1.3.5 Other

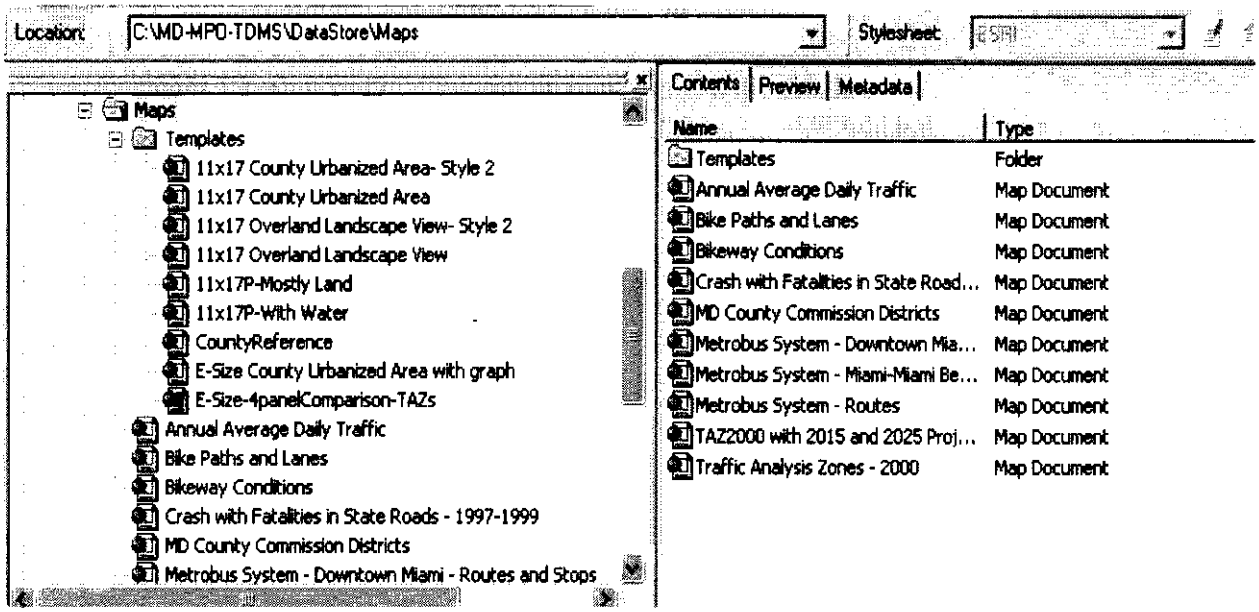
This folder is designated to hold all other transportation-related data not specifically linked to any other folders. At the time of this writing, the "Other" geodatabase does not contain any feature classes. This folder can be populated by the MPO on an as-needed basis.

3.1.1.3.6 Basemap

This folder contains an Arc/Info coverage with FDOT's most current basemap, enabled for Dynamic Segmentation. Users should ensure they use this coverage whenever they wish to apply DynSeg techniques to the FDOT road network for Miami-Dade County.

3.1.2 Maps

This folder is designed as a map warehouse holding various ready-made map templates as well as numerous special purpose presentation-quality maps prepared by MPO staff, as shown in Exhibit 3-19, below.



3.1.2.1 Templates

This folder contains a number of ready-made map templates available. The following are included in this folder:

- County Reference
- 11"x17" County Urbanized Areas, Styles 1 and 2
- 11"x17" Overland Landscape View, Styles 1 and 2
- 11"x17" Portrait, Mostly Land
- 11"x17" Portrait, With Water
- E-Size County Urbanized Area, With Graph
- E-Size – 4-panel Comparison, TAZs

Additional templates can be easily created by modifying existing ones.

3.1.2.2 Presentation-Ready Maps

When using ArcMap, MPO staff can avail themselves of these templates simply by replacing the feature classes and/or symbolized layers provided in the template with the ones desired for the actual map.

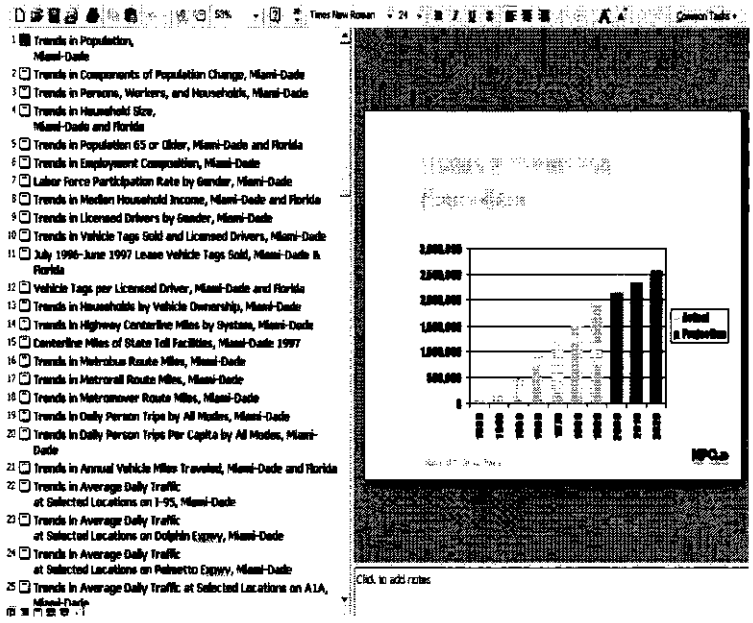
3.1.3 Charts

This folder is designed to contain bar and pie charts, as well as similar graphics and charts developed by the MPO staff from data and applications stored in any of the other TDMS folders, developed through the facilities provided by ArcView GIS, MS Access and/or MS Excel.

3.1.4 Presentations

This folder is designed to contain presentations developed by MPO staff using PowerPoint, Excel, Access and other software support packages, from data and applications stored in any of the other TDMS folders. At the time of this writing, this folder contains the Miami-Dade Transportation Information Y2000 Summary presentation, consisting of the following files:

- PowerPoint (Exhibit 3-20, right). To run this presentation, simply double-click on the file in Explorer.
- The underlying Excel file
- An Access database file with individual tables set out for each PowerPoint slide. To update this file in preparation for creation of a new PowerPoint presentation, simply copy, rename and modify the underlying table values.



3.1.5 Reports

This folder is designed to contain reports developed by MPO staff using the report-writing functionalities provided by ArcView GIS, MS Access and/or by MS Excel.

3.1.6 WebPages

This folder is designed to contain various types of web-enabled pages developed by the consultants as well as by MPO staff. These pages fall into two categories:

3.1.6.1 HelpSystem

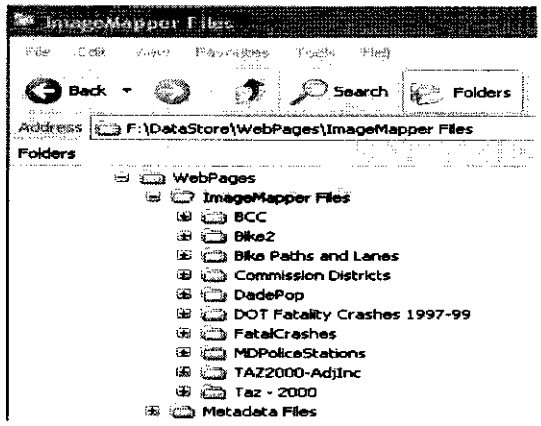
This folder contains help files used by the Access application (see Chapter 5). Files are in HTML format, and are enabled by double-clicking on them.

3.1.6.2 ImageMapper Files

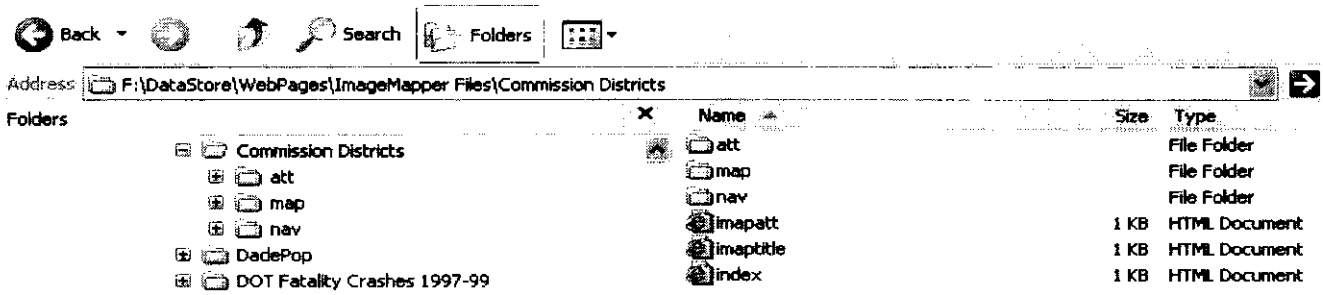
As part of this project, the MPO acquired HTML ImageMapper 8.1, an extension to ESRI's ArcView GIS 8.1. This extension enables the TDMS to create web-enabled maps for Internetand/or intranet publication.

This folder is designated to hold sub-directories, each containing the results of applying this extension on data being worked on within ArcView GIS.

At the time of this writing, various HTML ImageMapper web pages were included in this folder, as shown in Exhibit 3-21, at right.



It is noted that HTML ImageMapper creates an individual master folder for each page it creates. As shown in Exhibit 3.22, below, this master folder (in this case Commission Districts) contains, in standard sub-folders, all navigational (nav), zoom (map) and attribute query (att) functionality .required to make the page work as a separate, self-contained HTML entity. The user enables the page by double-clicking the *index.html* file corresponding to that master folder.



A more extensive discussion on running an HTML ImageMapper map-creation session is presented in section 4.x, the next chapter of this manual. Complete documentation on this extension is provided under separate cover.

3.1.6.3 Metadata Files

This folder holds files describing the data contained in the multiple geodatabases and symbolized layers created as part of the TDMS. This is called "metadata". The ArcCatalog module of ArcView GIS 8.1 allows the user to easily create and maintain metadata. It also provides the user with the ability to extract this metadata into several file formats. One of these formats, suitable for web and text description usage, is *html*, suitable for web and regular viewing and publication.

As part of the TDMS creation process, the consultants and MPO technical staff extracted *html* metadata files for each feature class included in the numerous geodatabases, as well as the symbolized layers comprising the system. The Access application described in Chapter 5 makes extensive use of these *html* files.

3.2 ModelsAndApplications

This folder contains various transportation-oriented models and applications. It is essentially divided in three sub-folders, as follows:

3.2.1 FDOTApps

As of this writing, this folder contains input and output data for three (3) specific GIS-oriented applications developed by and obtained from FDOT District 6. The names of the folders describe the basic focus and contents of the individual applications:

3.2.1.1 HighAccidentSpots

As the name implies, this application takes 5-year data on accidents occurring on state roads and maps it to FDOT's dynamically-segmented Basemap. The resulting spatial theme is symbolized by types/gravity of accident.

3.2.1.2 PavementManagementSystem (PMS)

This application takes multiple-year data on rated pavement conditions on state roads, and maps it to FDOT's dynamically segmented Basemap. It also maps various other related themes, such as Proposed 5-year Work Plan and Priorities.

3.2.1.3 RailroadHighwayInventory (RHIS)

This application bring together FDOT's Basemap with Miami-Dade County's railroad line map, it establishes a point file for intersections, and locates 4-way digital photos to each intersection. It also maps data on accidents occurring at those intersections, by types/gravity of accidents.

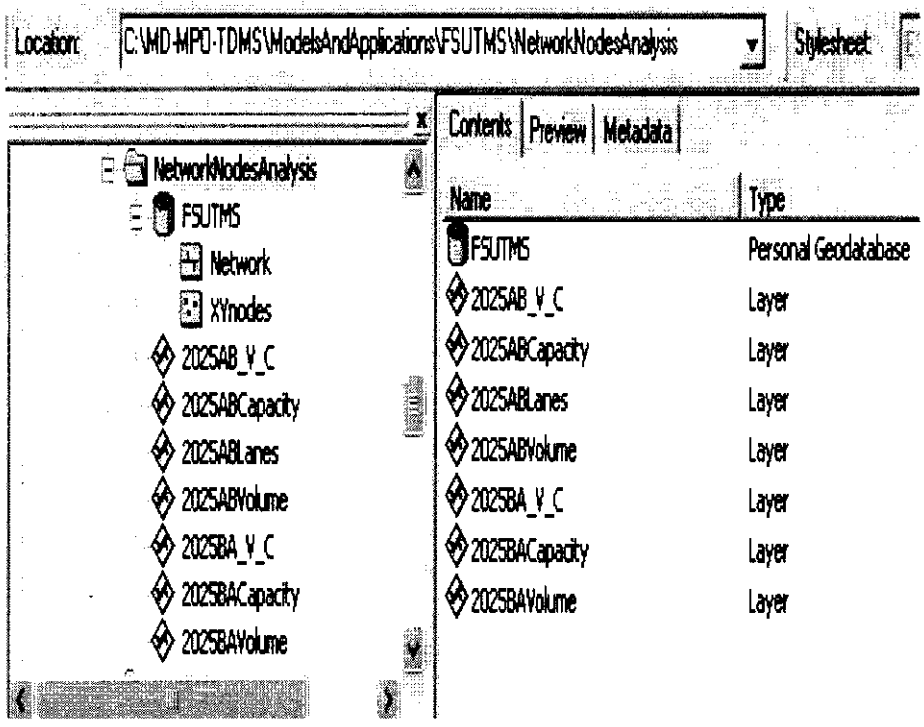
3.2.2 FSUTMS

This folder contains input data as well as symbolized layers and map products for various sets of analysis drawn from the execution of the Florida Standard Urban Transportation Modeling Structure (FSUTMS) model(s) by MPO technical staff:

3.2.2.1 NetworkNodesAnalysis

This folder focuses on the latest network-node data provided by the execution of the FSUTMS model.

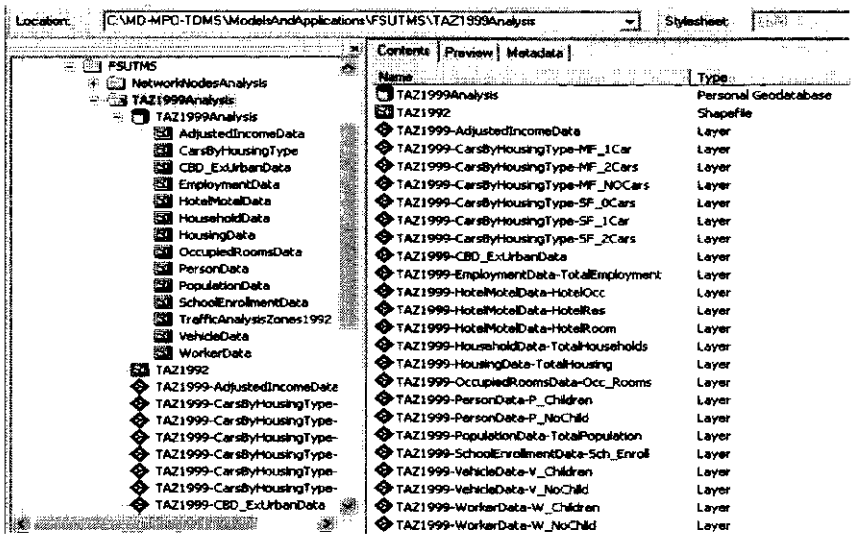
As shown in Exhibit 3.23 (at right), it includes the FSUTMS geodatabase containing 2025 data for two feature classes: Network and XYnodes, as well as various symbolized layers de-rived from those feature classes, namely direc-tional AtoB or BtoA, volume-to-capacity ratios, capacity and traffic volumes.



3.2.2.2 TAZ1999Analysis

This folder focuses on socio-economic data, such as housing, employment, automobile utilization, income levels, etc., as applied to the 1992 Transportation Analysis Zones (TAZ) structure.

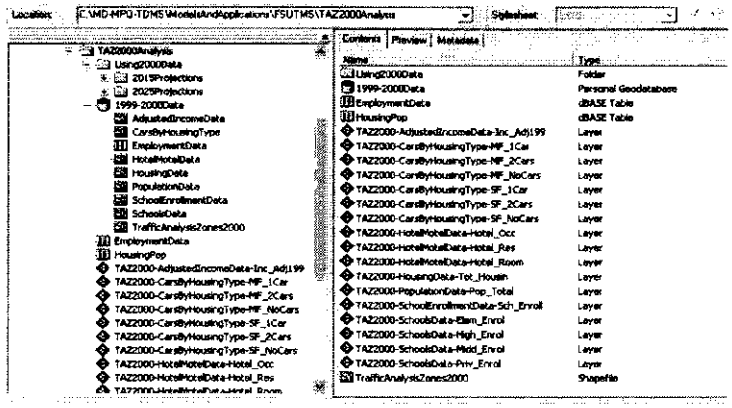
As shown in Exhibit 3.24, at right, the folder contains the TAZ1999Analysis geodatabase, showing its socio-economic oriented feature classes, as well as the supporting symbolized layers created from these feature classes.



3.2.2.3 TAZ2000Analysis

This folder focuses on socio-economic data, such as housing, employment, automobile utilization, income levels, etc., as applied to the 2000 Transportation Analysis Zones (TAZ) structure. The TAZ2000 network is the current standard used by MPO, and superceded the 1992TAZ network, which now is being kept for archival/historical purposes.

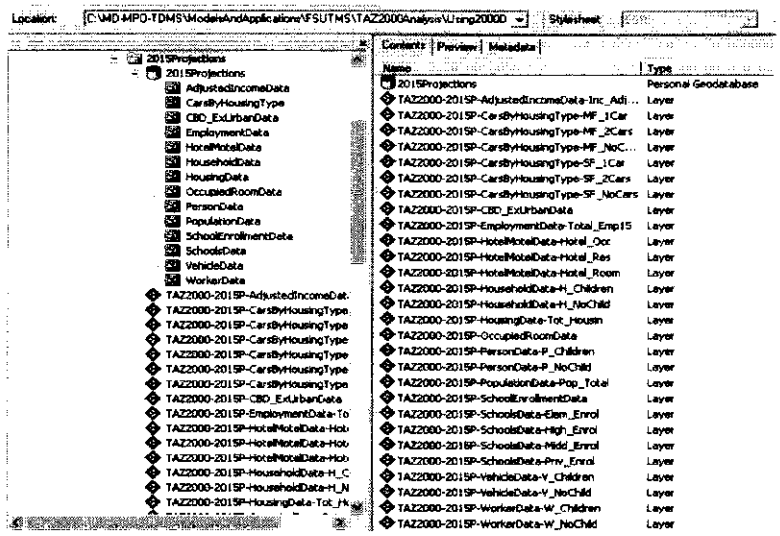
As shown in Exhibit 3.25, at right, this folder contains the 1999-2000Data geodatabase, showing its socio-economic oriented features, as well as the supporting symbolized layers created from these feature classes.



This folder also contains two additional sub-folders, 2015Projections and 2025Projections.

Each of these sub-folders contain a geodatabase with projections for the indicated year for each of its feature classes; it also contains corresponding symbolized layers.

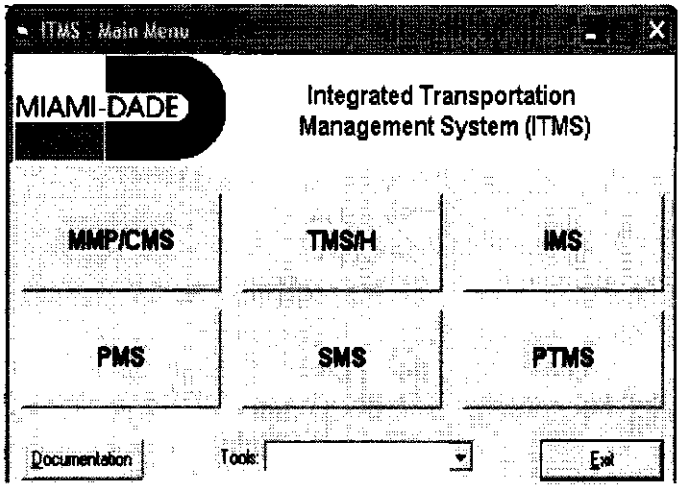
Exhibit 3.26, at right, shows these components for the 2015Projections folder. Similar contents are included in the 2025Projections folder.



3.2.3 ITMS (Integrated Transportation Management System)

This folder contains the executable files to enable the TDMS to launch the ITMS application. The ITMS was completed prior to the development of the TDMS. It is noted that, to launch this application, place the ITMS data CD in drive D: (the CD-ROM reader) of the MPO's computer.

To launch the application from Explorer, double-click on the ITMS application icon. As shown in Exhibit 3.27, at right, the main ITMS menu will appear on screen, then the user can choose the desired option. The MPO has all the needed documentation previously prepared for the ITMS.

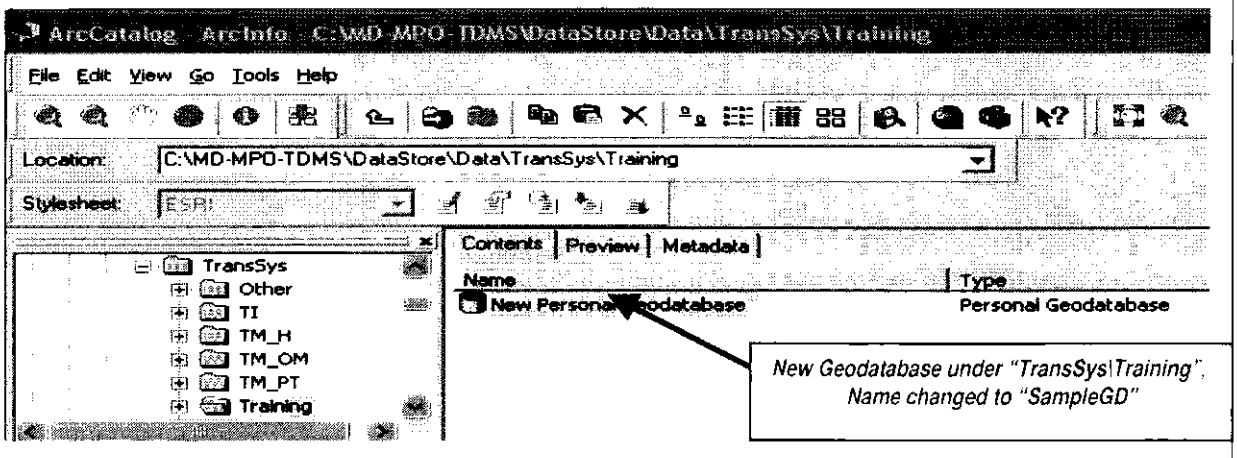


4 TDMS PROCEDURES

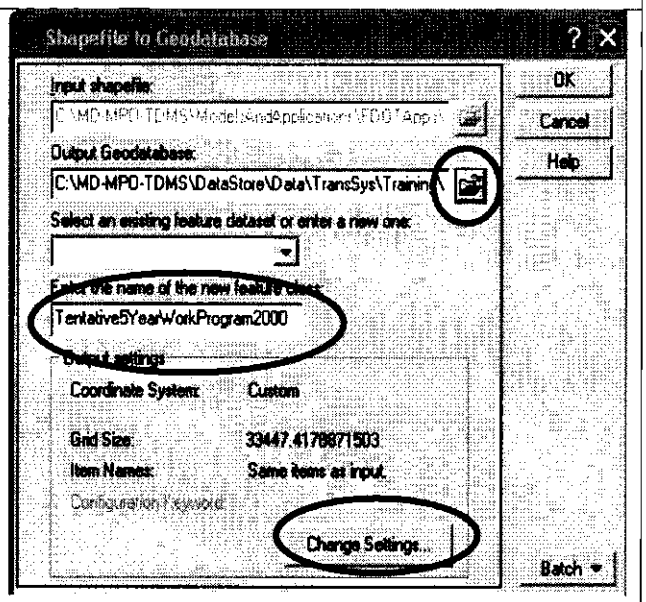
The sections presented in this chapter address specific issues and procedures of relevance to the creation, maintenance and updating of geodatabases and symbolized layers within the TDMS, to the metadata process of this data, to the production of paper and/or web-enabled map products, and to selected spatial analysis functions.

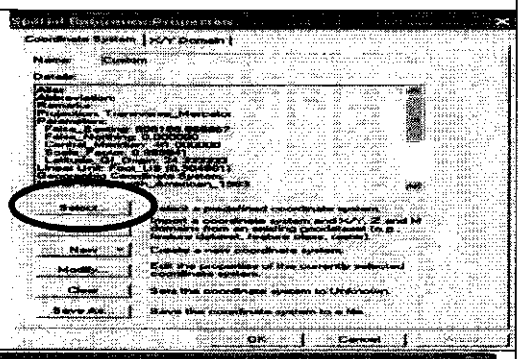
4.1 CREATING AND POPULATING GEODATABASES

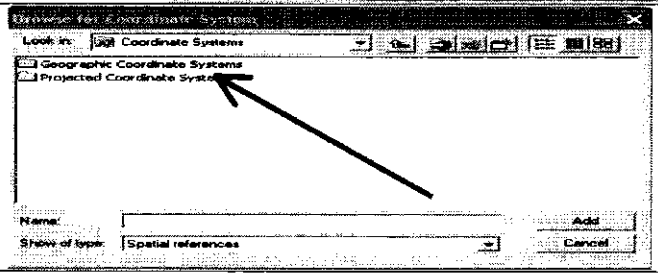
The process of creating and populating geodatabases is performed entirely within the ArcCatalog module, as follows.

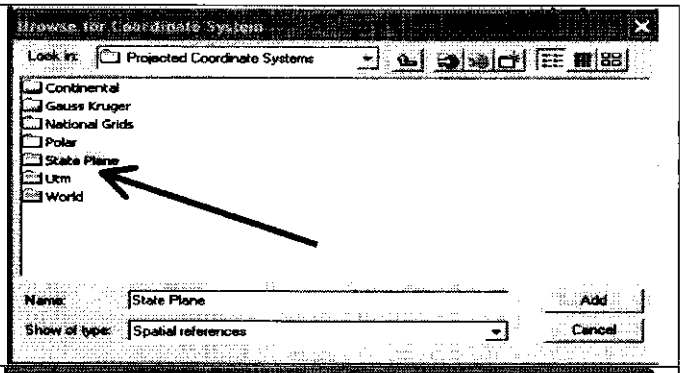
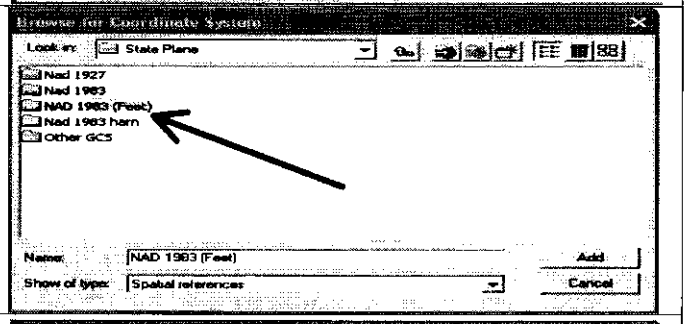
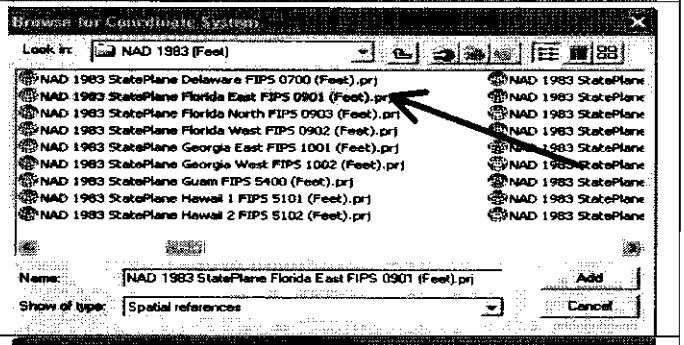
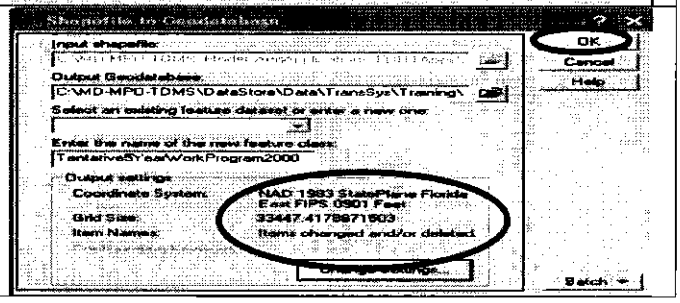
Step	Action
1	Create a new folder or subfolder to hold the new geodatabase, or create it in an existing folder. To create a new folder, select from menu *File->New->Folder* or, alternatively, right-click the mouse on the folder above, select *New->Folder*. Type in the name of the new folder.
2	Click on the folder where the geodatabase will be created, highlighting it. Select from menu *File->New->Personal Geodatabase* or, alternatively, right-click the mouse, select *New->Personal Geodatabase*.
3	The system prompts the user to name the new geodatabase, as shown in Exhibit 4.1 below: 

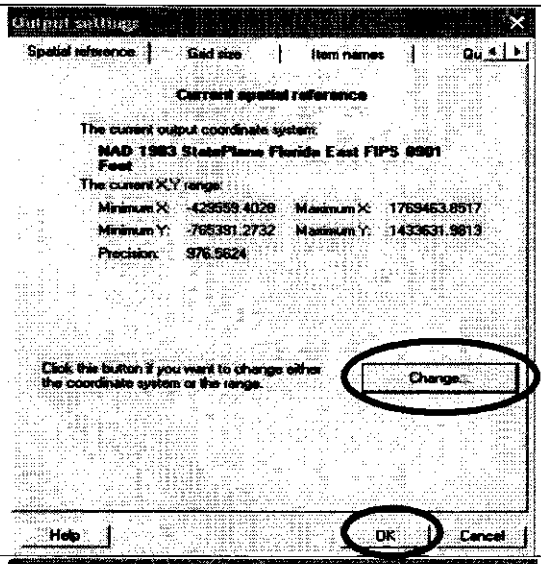
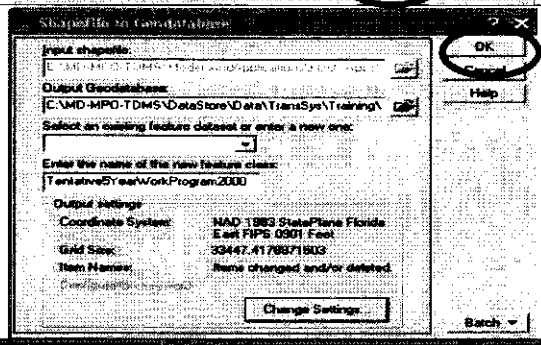
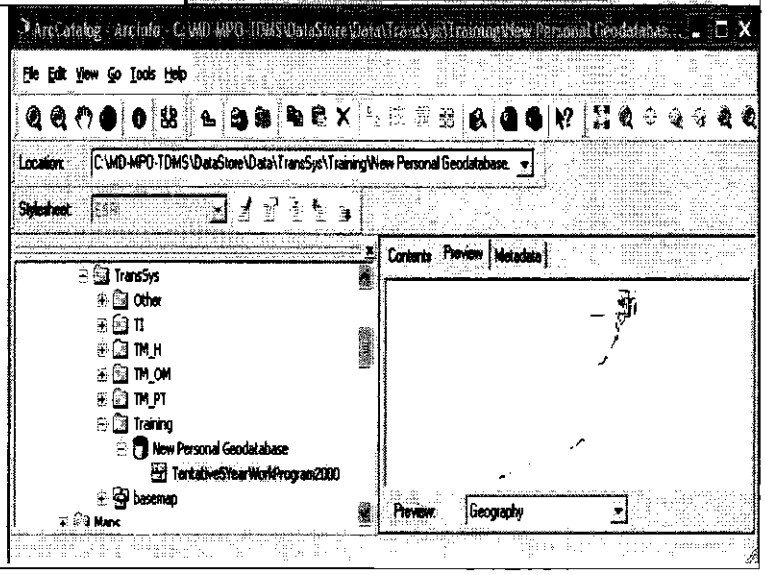
4	The user now wishes to populate this geodatabase, newly named *SampleGD* by creating feature classes from existing ArcView 3.x shapefiles, Arc/Info coverages, CAD drawings and/or database tables.
4a	In the first example, the user will incorporate an ArcView shapefile existing in another folder, named *Tentative5YearWorkProgram.shp*. The user highlights the shapefile, right-clicks the mouse, then selects Export->Shapefile to Geodatabase.
4b	The Shapefile->Geodatabase dialogue box is shown, giving the user various choices, as shown in Exhibit 4.2, at right. At this point, the user: 1. Provides the name of the target geodatabase, or browses to find it; 2. Changes the name of the new feature class, as desired. Unless specified otherwise, the feature class will be given the same name as the shapefile. 3. Clicks on the "Change Settings" button. This and the following are important steps, as they ensure the setting of the proper coordinate system.
4c	When presented with the "Output Settings" dialogue box, press the "Change" button in the "Current Spatial Reference" tab. Then, in the "Coordinate System" tab, press the "Select" button. (Exhibit 4.3)
4d	In the next dialogue box, click on "Projected Coordinate Systems", press the "Add" button. (Exhibit 4.4)



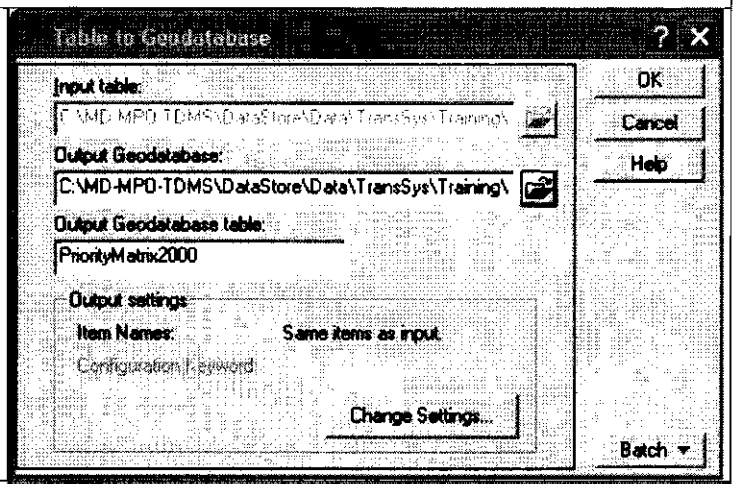


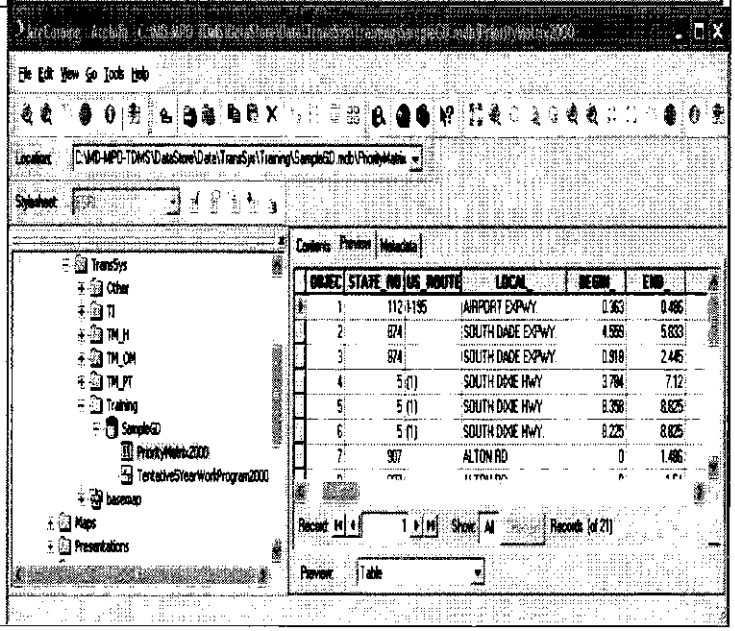


4e	In the next dialogue box, click on "State Plane", press the "Add" button (Exhibit 4.5).	
4f	In the next dialogue box, click on "NAD 1983 (Feet)", press the "Add" button. (Exhibit 4.6)	
4g	In the next dialogue box, click on "NAD 1983 StatePlane Florida East FIPS 0901 (Feet).prj", press the "Add" button. (Exhibit 4.7)	
4h	The next dialogue box confirms the actions requested, click on OK if agree, on "Change Settings" if something did not go according to plan. (Exhibit 4.9)	

4i	The next-to-final dialogue box confirms the user's selection, provides the option to proceed (by pressing the "OK" button) or to go back (by pressing the "Change" button). (Exhibit 4.9)	
4j	Back to the "Shapefile to Geodatabase" box, press OK to confirm all settings. (Exhibit 4.10)	
4k	Final result, Exhibit 4.11!! Note: • The SampleGD geodatabase has added a new feature class "Tentative5Year WorkProgram2000". • The characteristics of this feature class can now be viewed on the panel at right, by pressing the "Contents", "Preview" or "Metadata" tabs. This exibit shows the Geography characteristics in Preview.	

5	The same procedures apply when adding Arc/Info coverages and/or CAD drawing files as feature classes to a geodatabase.
6	To add a table as a feature class to an existing geodatabase, follow these simple steps. In this particular example, we will be working with a dBASE table named "PriorityMatrix2000". It is noted that, should you wish to export a table from Excel or any other database, you must first export that table into dBase using the database program's own export file conversion capabilities.
6a	Highlight the table to be exported, right click, then press Export->Table to Geodatabase.
6b	The following dialogue box, "Table to Geodatabase" (Exhibit 4.11) opens. The user is asked to select (typing or browing) the target geodatabase, then to confirm the desired name for the Output Geodatabase table. Accepting the default will yield the same name as the original table. Press OK to confirm and export.
6c	Final result, Exhibit 4.12!! Note: • The SampleGD geodatabase has added a new feature class "PriorityMatrix2000". • The characteristics of this feature class can now be viewed on the panel at right, by pressing the "Contents", "Preview" or "Metadata" tabs. This exibit shows the Table characteristics (only one possible in this case) in Preview tab.





4.2 MODIFYING ATTRIBUTE TABLES

This section will describe various procedures to edit, maintain and update the attributes of spatial databases. We provide examples using two distinct approaches, either one of which can be applied by the user, depending on the circumstances and preferences:

1. Using ArcView GIS 3.2 on shapefiles;
2. Using ArcView GIS 8.1 on feature classes within geodatabases.

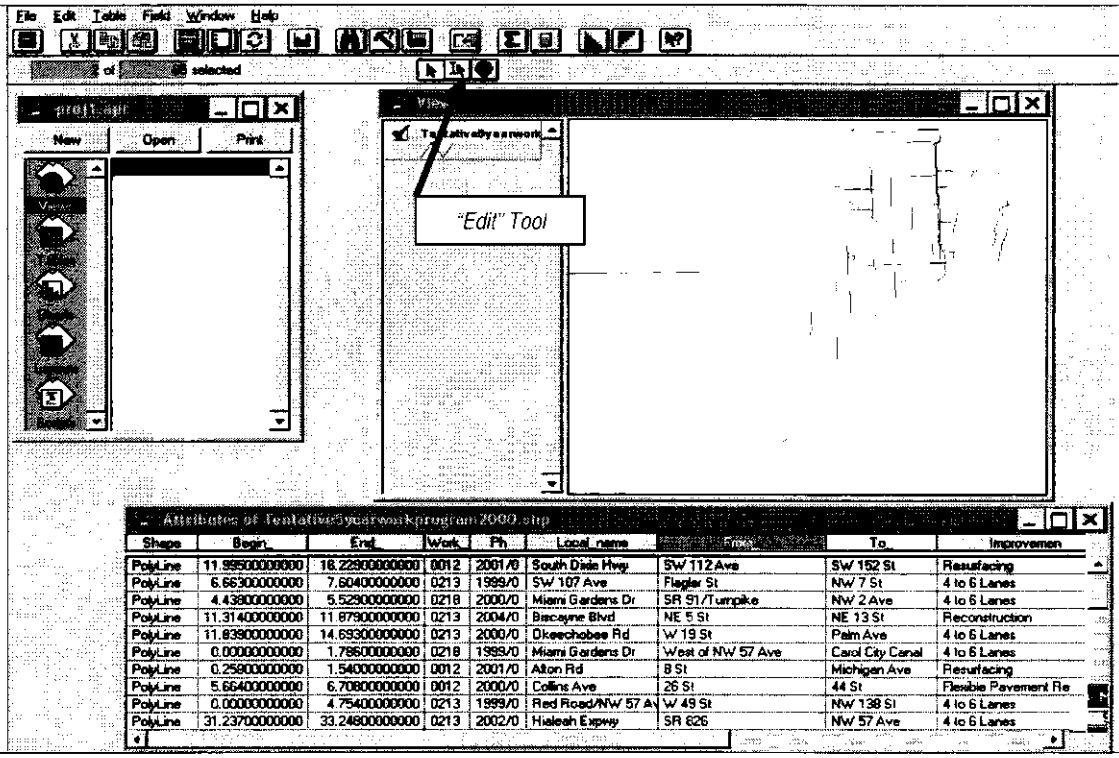
It is noted that the second approach can be used with both geodatabases and shapefiles, whereas the first approach can be used only with shapefiles. In general, the user may wish to use the first approach while working with an existing shapefile prior to it being exported as a feature class within a geodatabase. On the other hand, if the data is already configured as a feature class within an existing geodatabase, the second approach will be applicable.

4.2.1 Modifying Attributes within an Existing Table

4.2.1.1 Using ArcView 3.2 on a Shapefile

The following steps outline a procedure to modify attributes in a given shapefile or table, using ArcView 3.2.

Step	Action
1	With the indicated shapefile made active within a view, click on the "Open Theme Table" icon.  The table will open.
2	Use the "Select" tool  to isolate the feature to be modified.
3	Making the table active, select from menu *Table->Start Editing*. The attribute table is now ready to be edited, with the specific feature to be edited highlighted in yellow, as shown in Exhibit 4.13, below.



Shape	Begin_	End_	Work	Ph	Local_name	From	To	Improvemen
PolyLine	11.99500000000	16.22900000000	0012	2001/0	South Dixie Hwy	SW 112 Ave	SW 152 St	Resurfacing
PolyLine	6.66300000000	7.60400000000	0213	1999/0	SW 107 Ave	Flagler St	NW 7 St	4 to 6 Lanes
PolyLine	4.43800000000	5.52900000000	0218	2000/0	Miami Gardens Dr	SR 91/Turnpike	NW 2 Ave	4 to 6 Lanes
PolyLine	11.31400000000	11.87900000000	0213	2004/0	Biscayne Blvd	NE 5 St	NE 13 St	Reconstruction
PolyLine	11.83900000000	14.69300000000	0213	2000/0	Okeechobee Rd	W 19 St	Palm Ave	4 to 6 Lanes
PolyLine	0.00000000000	1.78600000000	0218	1999/0	Miami Gardens Dr	West of NW 57 Ave	Carol City Canal	4 to 6 Lanes
PolyLine	0.25800000000	1.54000000000	0012	2001/0	Alton Rd	8 St	Michigan Ave	Resurfacing
PolyLine	5.66400000000	6.70800000000	0012	2000/0	Collins Ave	26 St	44 St	Flexible Pavement Re
PolyLine	0.00000000000	4.75400000000	0213	1999/0	Red Road/NW 57 Av	W 49 St	NW 138 St	4 to 6 Lanes
PolyLine	31.23700000000	33.24800000000	0213	2002/0	Hialeah Expwy	SR 826	NW 57 Ave	4 to 6 Lanes

4 Using the "Edit" tool , change the value of a specific field on the selected feature. For instance, we will now change the content of the field "Improvemen" from *Resurfacing* to *Reconstruction.* The result is shown in Exhibit 4.14, below.

Begin_	End_	Work_	Ph	Local_name	From	To_	Improvemen	
11.99500000000	16.22900000000	0012	2001/0	South Dixie Hwy	SW 112 Ave	SW 152 St	Reconstruction	87020
6.66300000000	7.60400000000	0213	1999/0	SW 107 Ave	Flagler St	NW 7 St	4 to 6 Lanes	87072
4.43800000000	5.52900000000	0218	2000/0	Miami Gardens Dr	SR 91/Turnpike	NW 2 Ave	4 to 6 Lanes	87026
11.31400000000	11.87900000000	0213	2004/0	Biscayne Blvd	NE 5 St	NE 13 St	Reconstruction	87030
11.83900000000	14.69300000000	0213	2000/0	Okeechobee Rd	W 19 St	Palm Ave	4 to 6 Lanes	87090
0.00000000000	1.78600000000	0218	1999/0	Miami Gardens Dr	West of NW 57 Ave	Carol City Canal	4 to 6 Lanes	87026
0.25800000000	1.54000000000	0012	2001/0	Alton Rd	8 St	Michigan Ave	Resurfacing	87037
5.66400000000	6.70800000000	0012	2000/0	Collins Ave	26 St	44 St	Flexible Pavement Recon	87060
0.00000000000	4.75400000000	0213	1999/0	Red Road/NW 57 Av	W 49 St	NW 138 St	4 to 6 Lanes	87002
31.23700000000	33.24800000000	0213	2002/0	Hialeah Expwy	SR 826	NW 57 Ave	4 to 6 Lanes	87080

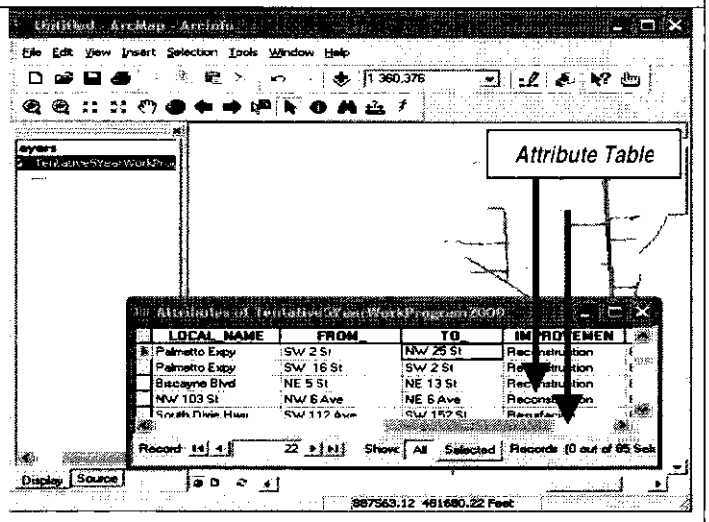
5 Selecting from menu *Table->Stop Editing* will save the changes.

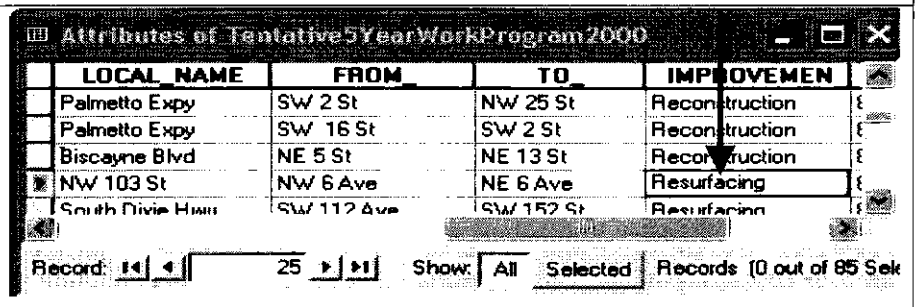
4.2.1.2 Using ArcView 8.1 on a Geodatabase

Within ArcView GIS 8.1, the process of editing and maintaining table attributes can be performed in either ArcCatalog and/or ArcMap. The "Using ArcCatalog" and "Using ArcMap" manuals describe attribute editing functions in detail.

To change the value of a given attribute in ArcMap:

Step	Action
1	Right click on the layer, click on *"Open Attribute Table"* submenu. The attribute table opens up, as shown in Exhibit 4-15, at right. Navigate to the record to be edited, then to the field to be edited. In this case, the user wants to work with the road segment "NW 103 St", between "NW 6 Ave" and "NE 6 Ave", and wants to change the current scheduled improvement "IMPROVEMEN" field contents from "Reconstruction" to "Resurfacing".
2	To effect the change, the user places the cursor on the specified field, simply types the new contents and presses "Enter". The results are shown in Exhibit 4-16, at right.
3	To undo edits, retype the original text/value, or alternatively click the "Undo" button on the toolbar.

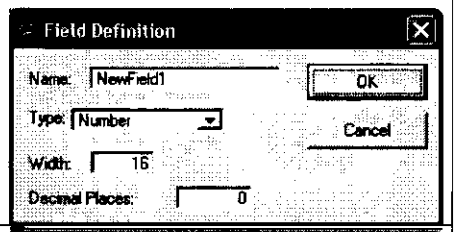
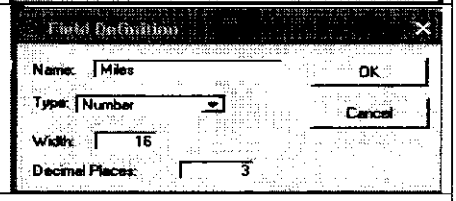
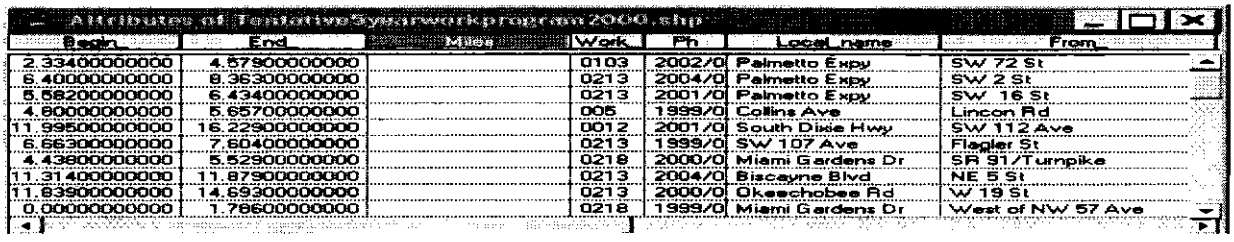




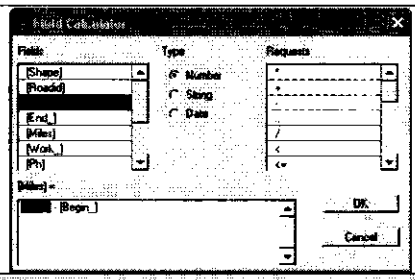
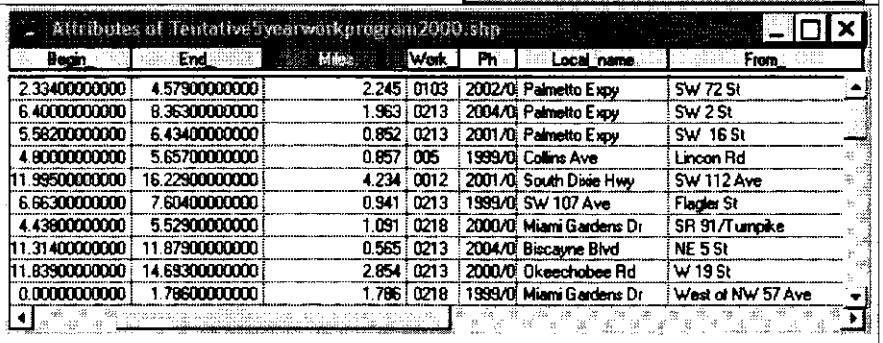
4.2.2 Adding a Field to an Attribute Table and Populate It

4.2.2.1 Using ArcView 3.2 on a Shapefile

The following steps outline a procedure, using ArcView 3.2, for the purpose of adding an attribute field in a given shapefile or table, then populating said field based on a calculated formula.

Step	Action
1	With the attribute table open, select from the menu *Table->Start Editing.*
2	Select from the menu *Edit->Add a field.* ArcView 3.2 presents Exhibit 4.17a. 
3	The user then specifies the name of the field *(Miles),* the type *(Number),* and size *(Width = 16, 3 Decimal Places),* as shown in Exhibit 4.17b. The type can also be specified as a character string or as a logical field. 
4	By clicking "OK" the user accepts these specifications, and the field is created. The user may wish to move the new field to a more desirable position, as shown in Exhibit 4.18, immediately following the "Begin_" and "End_" fields. 
5	The user wishes to populate this field by calculating the difference, for each feature, between their ending mile post (field "End_") and the beginning mile post (field "Begin_". The "Calculate" button  is used for this purpose. If the calculation is to be effected across the entire database, do not select any records. However, selecting certain records will effect the calculation only for the selected ones.

Begin_	End_	Miles	Work	Ph	Local_name	From_
2.334000000000	4.579000000000		0103	2002/0	Palmetto Expy	SW 72 St
6.400000000000	8.363000000000		0213	2004/0	Palmetto Expy	SW 2 St
6.582000000000	6.434000000000		0213	2001/0	Palmetto Expy	SW 16 St
4.800000000000	5.657000000000		005	1999/0	Collins Ave	Lincon Rd
11.99500000000	16.22900000000		0012	2001/0	South Dixie Hwy	SW 112 Ave
6.663000000000	7.604000000000		0213	1999/0	SW 107 Ave	Flagler St
4.438000000000	5.529000000000		0218	2000/0	Miami Gardens Dr	SR 91/Turnpike
11.31400000000	11.87900000000		0213	2004/0	Biscayne Blvd	NE 5 St
11.83900000000	14.69300000000		0213	2000/0	Okeechobee Rd	W 19 St
0.000000000000	1.786000000000		0218	1999/0	Miami Gardens Dr	West of NW 57 Ave

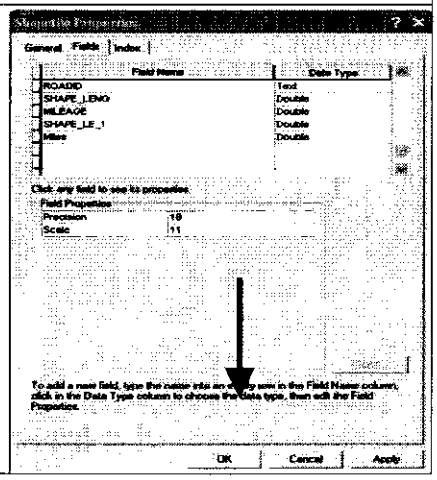
6	The "Field Calculator" window is presented (Exhibit 4.19), where the user can formulate the precise way in which the field (in this case *"Miles"*) is to be calculated (*"End_ - Begin_"*).	
7	Pressing "OK" will populate the field. Exhibit 4.20 shows the result of the calculation on the "Miles" field. Selecting menu *"Table->Stop Editing"* saves the changes.	

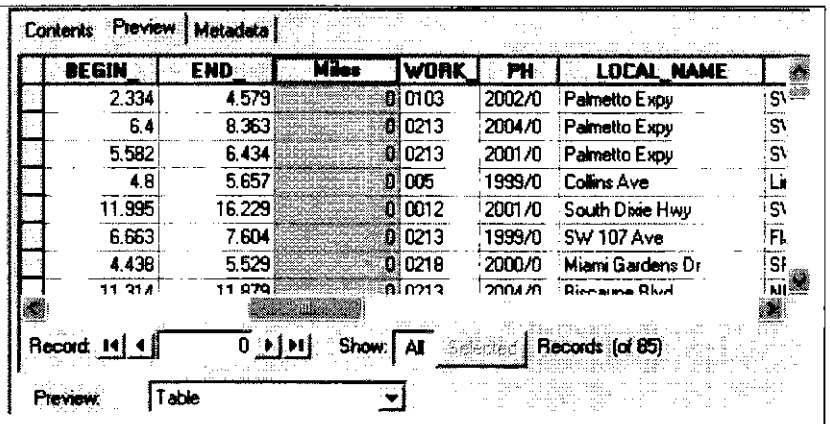
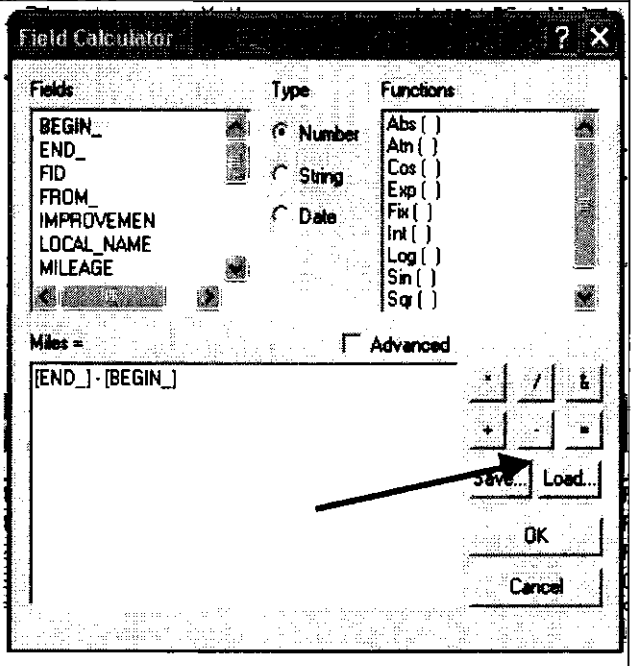
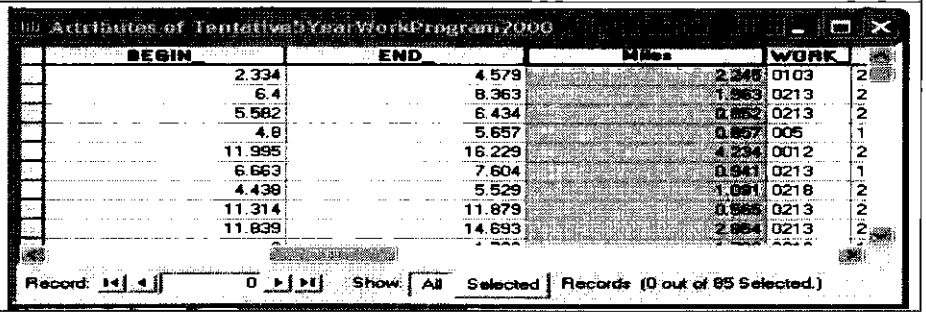
Attributes of Tentative5yearworkprogram2000.shp

Begin_	End_	Miles	Work	Ph	Local_name	From_
2.33400000000	4.57900000000	2.245	0103	2002/0	Palmetto Expy	SW 72 St
6.40000000000	8.36300000000	1.963	0213	2004/0	Palmetto Expy	SW 2 St
5.58200000000	6.43400000000	0.852	0213	2001/0	Palmetto Expy	SW 16 St
4.80000000000	5.65700000000	0.857	005	1999/0	Collins Ave	Lincon Rd
11.99500000000	16.22900000000	4.234	0012	2001/0	South Dixie Hwy	SW 112 Ave
6.66300000000	7.60400000000	0.941	0213	1999/0	SW 107 Ave	Flagler St
4.43800000000	5.52900000000	1.091	0218	2000/0	Miami Gardens Dr	SR 91/Turnpike
11.31400000000	11.87900000000	0.565	0213	2004/0	Biscayne Blvd	NE 5 St
11.83900000000	14.69300000000	2.854	0213	2000/0	Okeechobee Rd	W 19 St
0.00000000000	1.78600000000	1.786	0218	1999/0	Miami Gardens Dr	West of NW 57 Ave

4.2.2.2 Using ArcView 8.1 on a Geodatabase

Similar steps are followed when using ArcView GIS 8.1 to perform these tasks on a shapefile, feature class within a geodatabase or plain table.

Step	Action	
1	In ArcCatalog, right click on the shapefile or feature class to be modified. Select *"Properties"*. The Properties dialogue box opens, with a note at the bottom advising the user that, to add a new field, simply move to an empty row, start typing its intended name and data type characteristics. In this case, the user types "Miles" for Field Name, then selects "Double" as the Data Type, with a Precision of 18 and a Scale of 11. These numerical parameters are the same as the "Beg_" and "End_" fields. These specifications are shown in Exhibit 4-21, at right.	

2	After clicking "OK", the new field is created at the right end of the table. The user can then move it to the desired position in the table. In this case, the new field "Miles" has been moved next right to the "End_" field. All values are 0, as shown in Exhibit 4-22.	
3	To populate the new field in a similar manner as was done in ArcView 3.2, the user takes the layer into ArcMap, once there opens the attribute table (by right-clicking on the layer), then highlights the new field, and chooses the *"Calculate Values"* option. A dialogue box opens, which allows the user to formulate the precise way in which the field (in this case *"Miles"*) is to be calculated (*"End_ - Begin_"*). As shown in Exhibit 4-23, this approach is closely similar to the one used in ArcView 3.2, except that this SQL-type selection, once established, can be saved into a new "query" file, and/or loaded from an existing "query" file.	
4	After clicking the "OK" button, ArcMap proceeds to calculate the new values for the field, Exhibit 4-24, right.	

4.2.3 Deleting a Field from an Attribute Table

4.2.3.1 Using ArcView 3.2 on a Shapefile

The following steps outline a procedure, using ArcView 3.2, for the purpose of deleting an attribute field in a given shapefile or table.

Step	Action
1	With the attribute table open, select from the menu *Table->Start Editing.*
2	Click on the field to be deleted, in this case the same field *"Miles"*, as shown in Exhibit 4.25.
3	Select from menu *Edit->Delete Field.* The user is asked to confirm the deletion. After confirming this action, the field is deleted, as shown in Exhibit 4.26.
4	Selecting menu *"Table->Stop Editing"* saves the changes.

Attributes of Tentative5yearworkprogram2000.shp

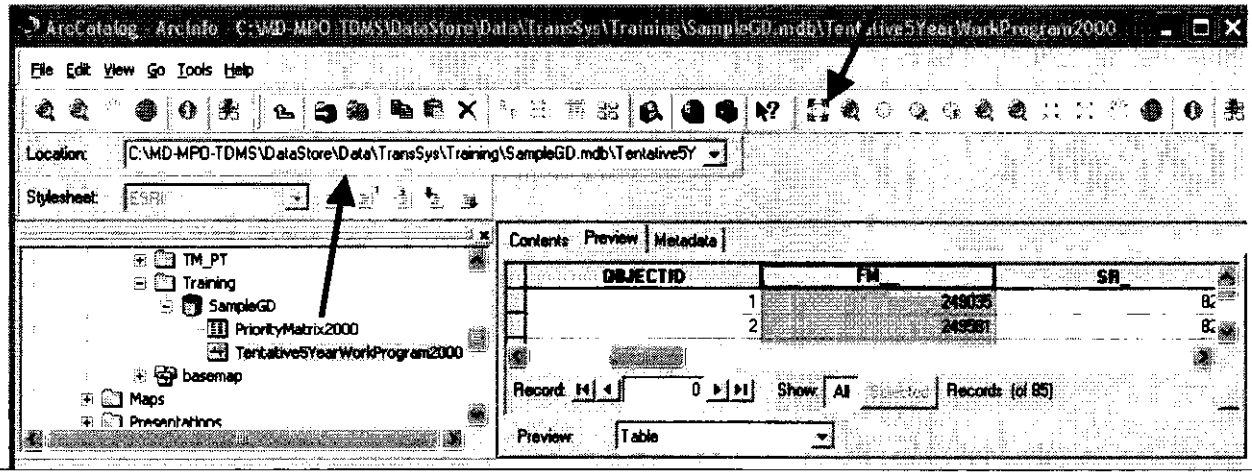
Begin_	End_	es	Work_	Ph	Local_name	From_
2.334000000000	4.579000000000	2.245	0103	2002/0	Palmetto Expy	SW 72 St
6.400000000000	8.363000000000	1.963	0213	2004/0	Palmetto Expy	SW 2 St
5.582000000000	6.434000000000	0.852	0213	2001/0	Palmetto Expy	SW 16 St
4.800000000000	5.657000000000	0.857	005	1999/0	Collins Ave	Lincon Rd
11.995000000000	16.229000000000	4.234	0012	2001/0	South Dixie Hwy	SW 112 Ave
6.663000000000	7.604000000000	0.941	0213	1999/0	SW 107 Ave	Flagler St
4.438000000000	5.529000000000	1.091	0218	2000/0	Miami Gardens Dr	SR 91/Turnpike
11.314000000000	11.879000000000	0.565	0213	2004/0	Biscayne Blvd	NE 5 St
11.839000000000	14.693000000000	2.854	0213	2000/0	Okeechobee Rd	W 19 St
0.000000000000	1.786000000000	1.786	0218	1999/0	Miami Gardens Dr	West of NW 57 Ave

Attributes of Tentative_yearworkprogram2000.shp

Begin_	End_	Work_	Ph	Local_name	From_	To_
2.334000000000	4.579000000000	0103	2002/0	Palmetto Expy	SW 72 St	SW 32 St
6.400000000000	8.363000000000	0213	2004/0	Palmetto Expy	SW 2 St	NW 25 St
5.582000000000	6.434000000000	0213	2001/0	Palmetto Expy	SW 16 St	SW 2 St
4.800000000000	5.657000000000	005	1999/0	Collins Ave	Lincon Rd	26 St
11.995000000000	16.229000000000	0012	2001/0	South Dixie Hwy	SW 112 Ave	SW 152 St
6.663000000000	7.604000000000	0213	1999/0	SW 107 Ave	Flagler St	NW 7 St
4.438000000000	5.529000000000	0218	2000/0	Miami Gardens Dr	SR 91/Turnpike	NW 2 Ave
11.314000000000	11.879000000000	0213	2004/0	Biscayne Blvd	NE 5 St	NE 13 St
11.839000000000	14.693000000000	0213	2000/0	Okeechobee Rd	W 19 St	Palm Ave
0.000000000000	1.786000000000	0218	1999/0	Miami Gardens Dr	West of NW 57 Ave	Carol City Canal

4.2.3.2 Using ArcView 8.1 on a Geodatabase

The following procedure shows how to delete a selected field within the table.

Step	Action
1	In ArcCatalog, select the desired shapefile or feature class within the geodatabase, then within the Preview tab select "Table" view. The attribute table will show. Click on the field to be deleted, FM_. This will highlight all the underlying attribute values for that field, as shown in Exhibit 4-27. 
2	Right-click on the field's header, select *Delete*. ArcCatalog will advise you that once a field is deleted, the action cannot be retrieved. Proceed at will..
3	The field is deleted.
4	Proceed similarly with any other fields wished for deletion.

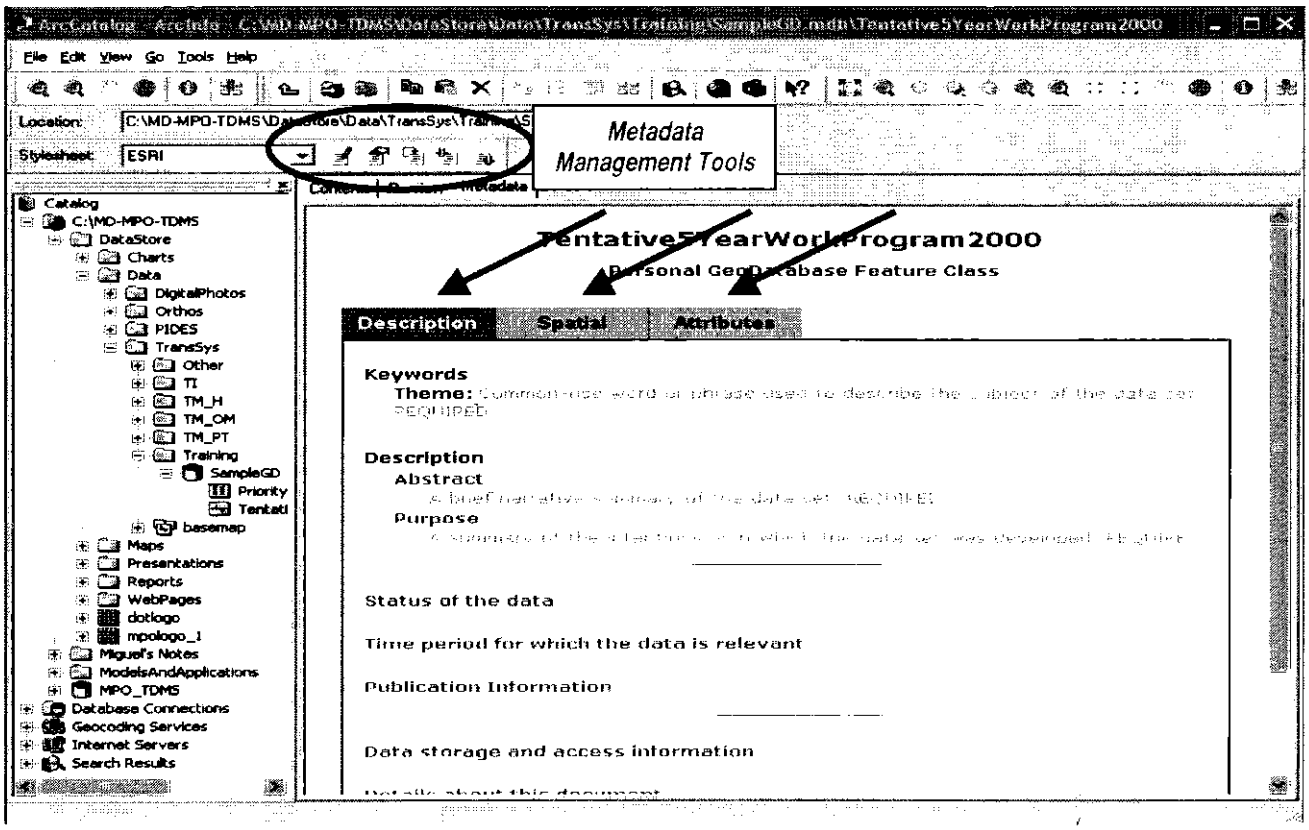
4.3 CREATING AND MANAGING METADATA

The process of editing and maintaining metadata is also performed entirely within ArcCatalog. As indicated in Chapter 2, the software provides an extensive set of tools to perform these tasks. Before tackling an actual metadata management session, the following paragraphs will describe the basic components and options provided by ArcCatalog's Metadata management screen.

When pressing the Metadata tab, three subsidiary tabs are presented, as shown in Exhibit 4-14 below:

1. Description *2 Spatial* *3. Attributes*

It also provides a set of tools to manage the contents of these three tabs and of the entire Metadata environment, exhibit 4-28.



As the name implies, the *Description* tab contains information specifically describing the feature class, including: keywords; an abstract short description; purpose; status of the data; time period for which the data is relevant; publication information; data storage and access information, and several other important fields. Some of these fields are required, others are optional. ArcCatalog provides a "skeleton", allowing the user to complete as many or as few of the fields as wished.

The five Metadata management buttons circled above perform the following functions, from left to right:

Edit metadata for the selected item

Displays metadata properties for the selected item

Automatically create or update metadata for the selected item

Import metadata of the selected item

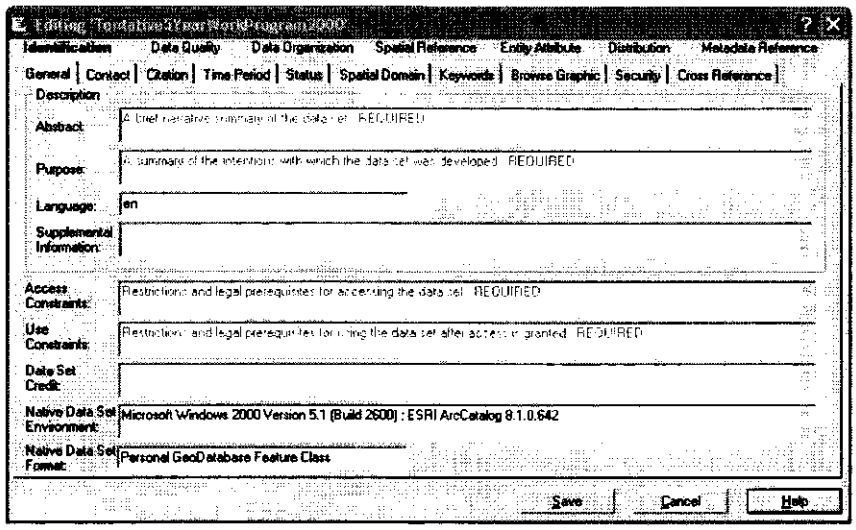
Export metadata of the selected item

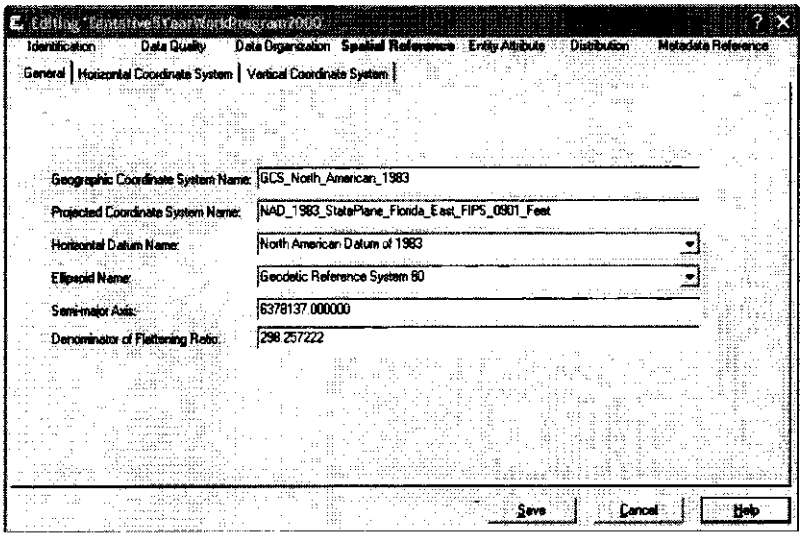
4.3.1 Editing Metadata

By clicking on the leftmost icon, ArcCatalog provides a series of tabbed screens, which allow the user to fill in a vast number of fields and/or to edit existing information in these fields. It is outside of the scope of this manual to cover these tab screens in detail. MPO staff is encouraged to review in detail the full range of metadata documentation available through these screens. We will cover those screens deemed relevant to this report.

Exhibit 4-29 shows a typical metadata editing dialogue box, with multiple forward and backward tabs. The tabs to the back indicate the major item. The tabs in the front provide various input/editing choices within that first tab. The box, as shown, is ready to take inputs from the user into the "Identification->General" screen. At this point, the user can enter text for "Abstract", "Purpose", "Language", "Supplemental Information", "Access Constraints", "User Constraints", and "Data Set Credits". Although some of these required fields, the user can just leave in the default text.

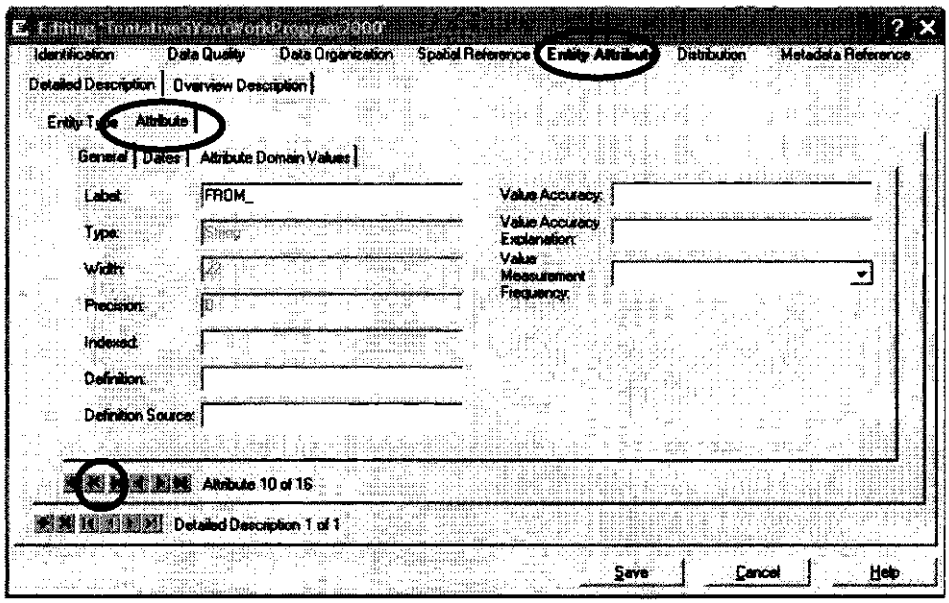
Additional metadata types can be entered and/or edited by tabbing on the various other selections available. In addition to "Identification", other major items include "Data Quality", "Data Organization", Spatial Reference", "Entity Attribute", "Distribution" and "Metadata Reference".





It's worthwhile noting that some of the work done during the process of creating, from a shapefile, a feature class within the geodatabase, as explained in 4.1, has resulted in the automatic updating of the spatial coordinate metadata. Exhibit 4-30, left, shows the complete set of coordinate information provided by the Spatial Reference tab.

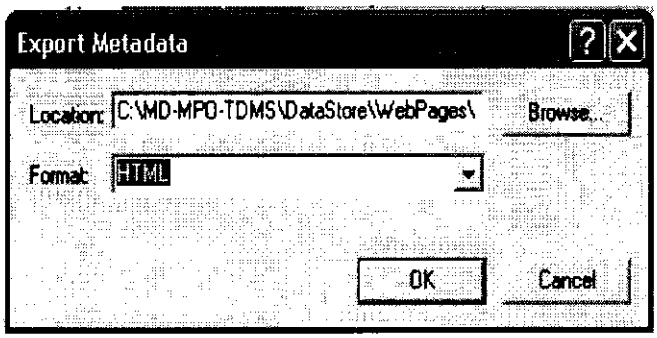
Exhibit 4-31, at right, presents the screen when pressing the "Entity Attributes" primary tab, then the "Attributes" secondary tab. At this point, the user can review and delete, if desired, metadata reference to selected attributes. In this case, the attribute *"FROM_"*, previously deleted from the attribute table, can now be also deleted from the metadata by pressing the Delete (X) button.



4.3.2 Exporting Metadata

As indicated above, the metadata functions of ArcCatalog provide the ability to export the metadata created for a given feature class. We used this functionality extensively to obtain self-documenting HTML files viewable through the MS Access application described in chapter 5.

The process is initiated by pressing the Metadata Export button, then filling in the information requested in the following dialogue box (Exhibit 4-32).



Note first that the location parameter requires the user to indicate the full path where the file is to be placed. Second, the selected choice under Format should be "HTML". After pressing the "OK" button, the new HTML file can be accessed and linked to in the indicated location.

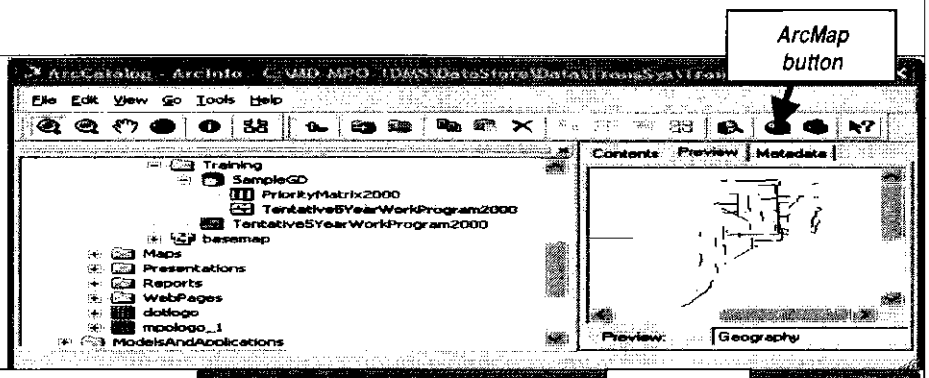
4.4 DISPLAYING, QUERYING AND MANIPULATING MAP DATA

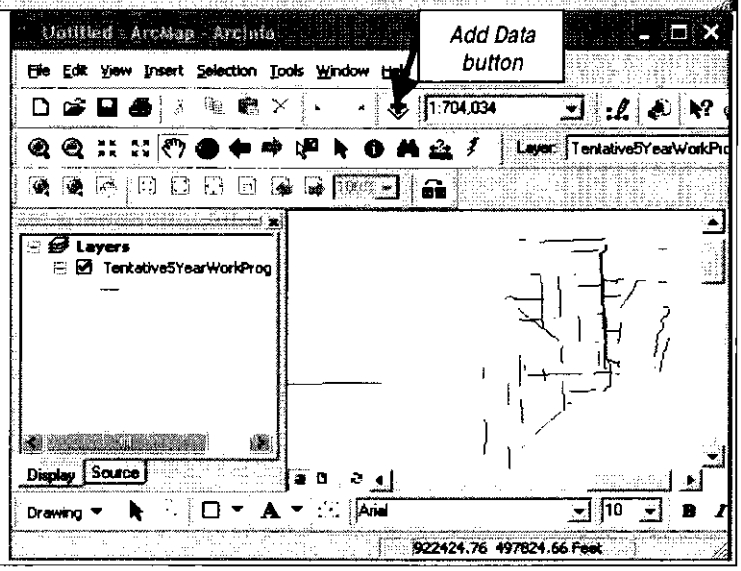
Actions to display, query, symbolize, prepare a layout and/or otherwise manipulate spatial data in map form are performed in the ArcMap module of ArcView 8.1. This section of the manual highlights several commonly-used ArcMap procedures. A more in-depth presentation of the full range of ArcMap's built-in capabilities are presented in the manuals listed in Chapter 1.

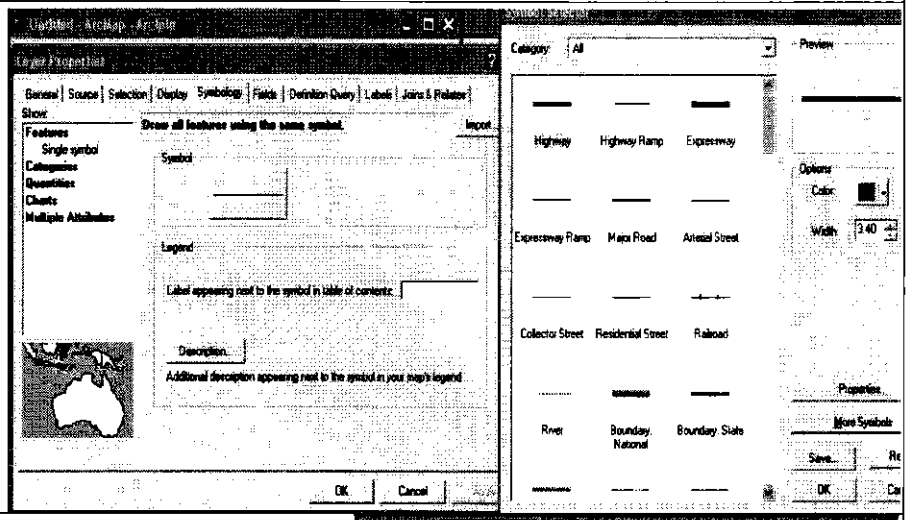
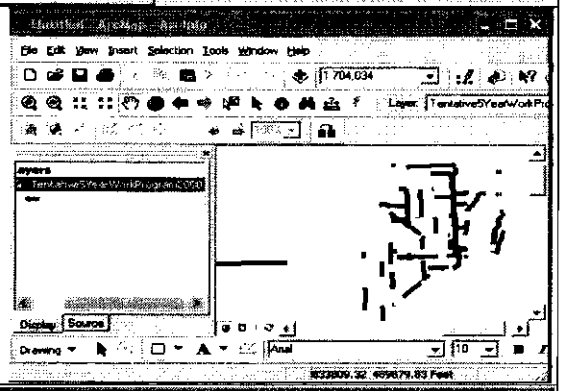
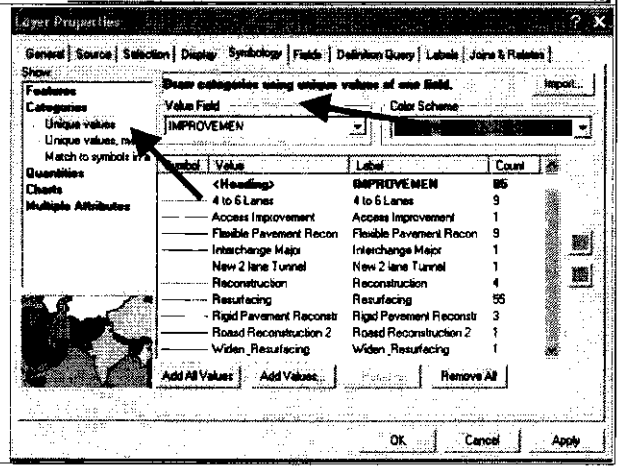
4.4.1 Displaying Map Data

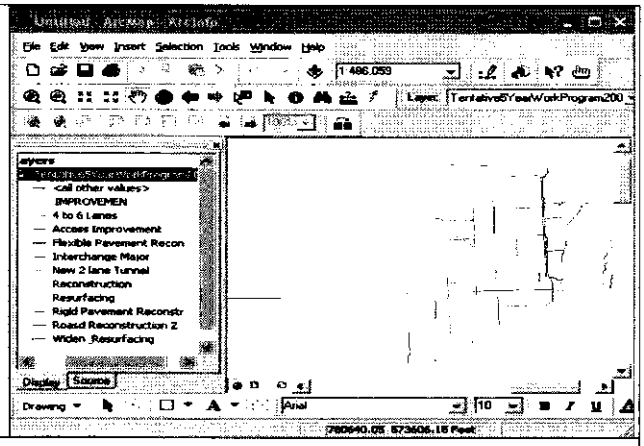
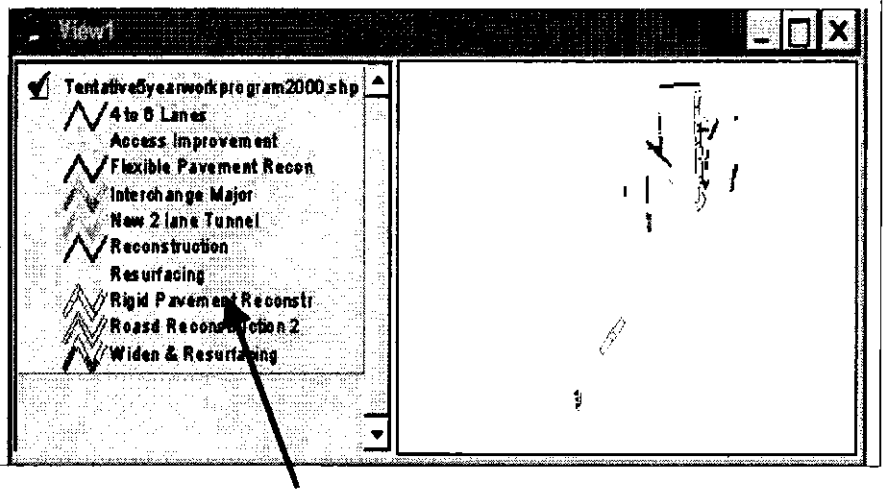
The following procedure shows how to add and symbolize data within an ArcMap session.

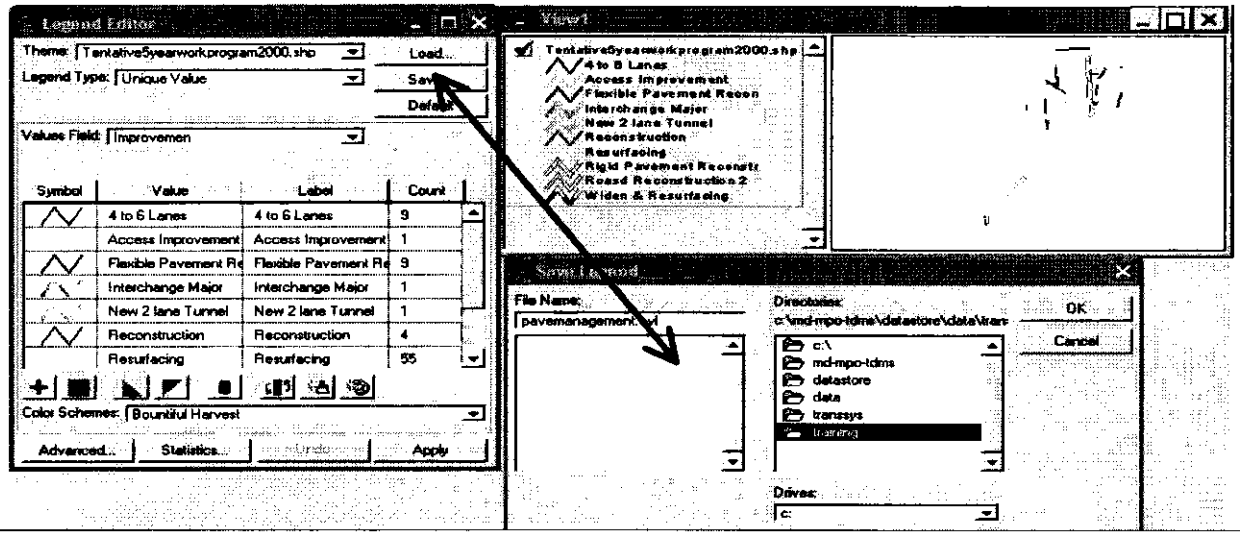
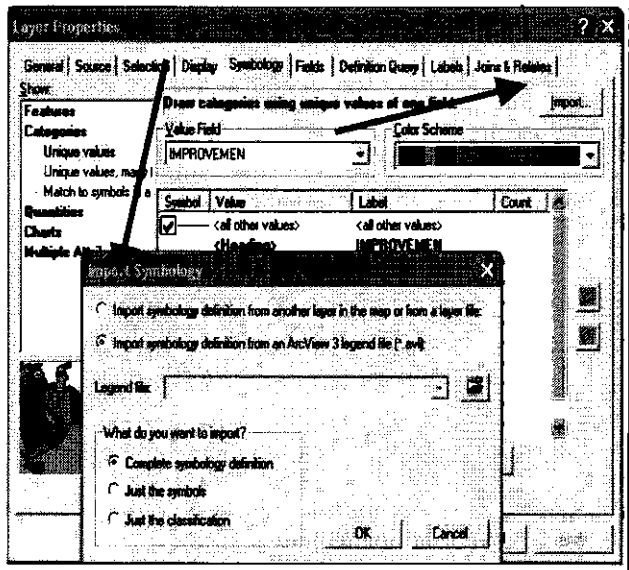
Step	Action
1	Bring up ArcMap, either as a direct program call from the desktop, or by clicking on the ArcMap button within Arc Catalog, as shown in Exhibit 4-33, below.
2	ArcMap comes up. The user can start populating the dataframe by clicking and dragging one or more spatial databases, in this case *"Tentative5YearWorkProgram2000"* feature class from the SampleGD geodatabase, into the ArcMap display space (Exhibit 4-34). Additional layers databases can be displayed in the same dataframe, by dragging them from ArcCatalog or by pressing the Add Data button within ArcMap.

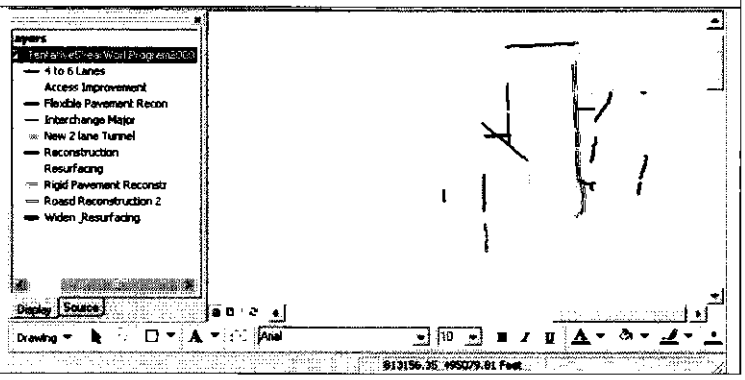




3	To change the way the data is represented, the user would right-click on the theme to be re-symbolized, chose *"Properties"*, then click on the *"Symbology"* tab.
4.	To choose a single symbol, the user clicks on *"Features->Single Symbol"*, then on the button. A dialogue box opens, allowing the user to choose the color, width and type of symbol desired. In this case, a thick red continuous line, as shown in Exhibit 4-35, at right. 
5	After clicking "OK" and accepting all the options, the user has succeded in changing the symbology, as shown in Exhibit 4-36, at right. 
6	There will be occasions when the user may wish to present thematic symbology based on the values of certain parameters within the database, in this case, for instance, the value of the "Improvemen" field. The user would then rightclick on the theme, choose *"Properties->Symbology->Categories->Unique Values"*, then choose "IMPROVEMEN" as the Value Field, as shown in Exhibit 4-37, at right.. 

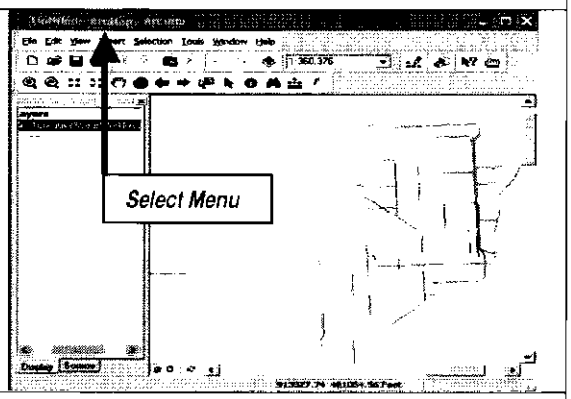
7	Clicking on the "OK" button bring the desired changes, as shown in Exhibit 4-38. 
8	ArcView 8.1 allows the user to save this specific symbology in what are called "symbology layers". This layers can be reused at any time for any other map. In fact, numerous symbology layers, each focusing on the vlaues of a specific attribute field, can be created and saved from a single feature class. To save a given classification into a permanent "symbology layer", right click the theme, then choose *"Save as a Layer File"*. ArcCatalog will provide the user with a dialogue box to indicate where the new layer file is to be saved. After the layer is saved, it can be repeatedly used as if it were a stand-alone spatial database.
9	ArcView 8.1 also allows the user to import "legend files" created in ArcView 3.2. This is useful when the user wishes to preserve, in an ArcView 8.1 layer, the same thematic classification developed for a prior ArcView 3.2 project. The following steps describe the process, starting with an existing thematic classification in ArcView 3.2, as indicated in Exhibit 4-39, right. 

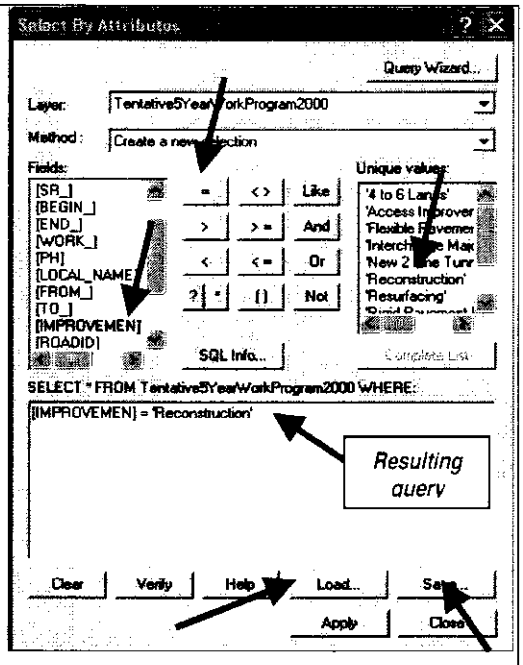
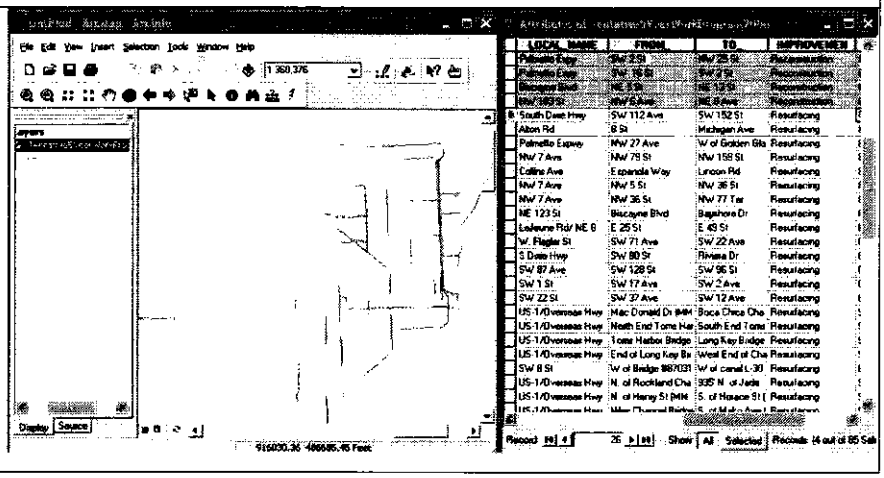
9a	Double-click on the shapefile's theme legend. The Legend Editor Dialogue box appears. Click on the "Save" button. Save the legend file (with an .avl ending) to the desired place in the hard drive, as shown in Exhibit 4-40, below. 
9b	Once saved, this .avl file can be used to replicate the same symbology in ArcView 8.1. It is noted that this .avl file can be used not only with the original shapefile but also with a similarly structured geodatabase feature class. To execute this approach, (Exhibit 4-41) in ArcMap; a. Right-click the layer to be symbolized. b. Choose *Properties->Symbology.* c. Click the Import button. d. The "Import Symbology" box opens. e. Choose the *"Import symbology definitions from an ArcView 3 legend file (*.avl)"* radio button. f. Specify what you want to import. You have several choices, including: • Complete symbology definitions • Just the symbols • Just the classification The first choice ususally works best. g. Type in or browse to the location and name of the desired "*.avl" file. h. Indicate the value field on which to import the symbology. In this case, "IMPROVEM". 

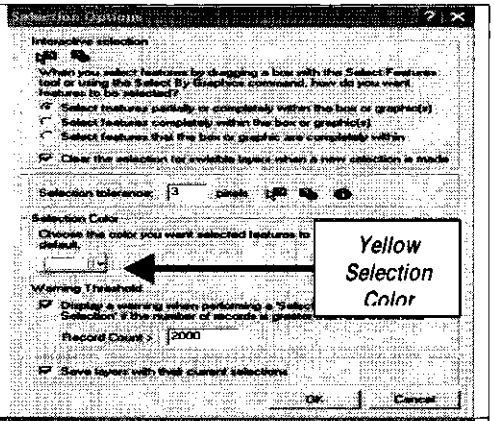
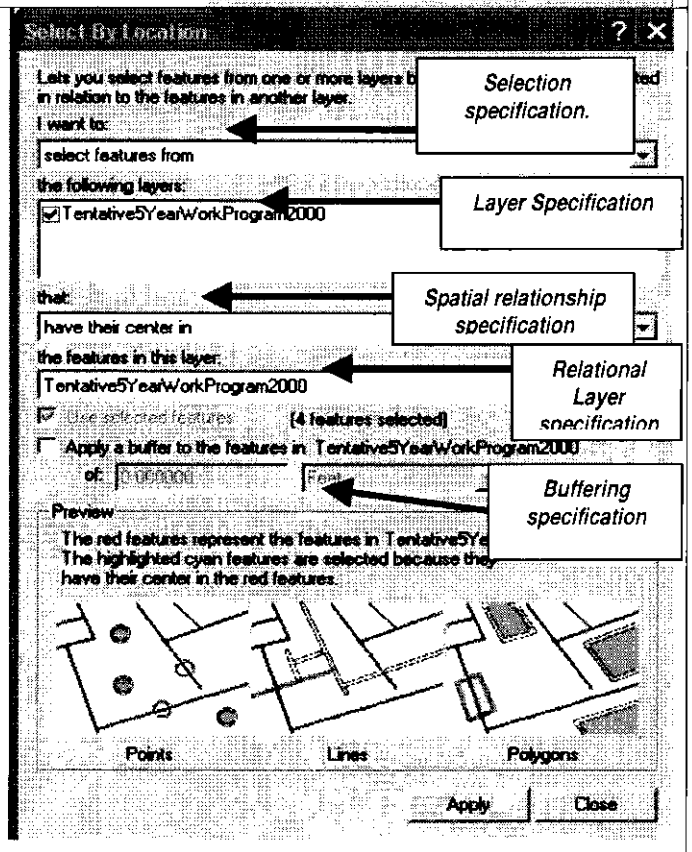
	i. Click "OK", then "OK"	
9c	The original symbology now controls the display of the new ArcView 8.1 layer. (Exhibit 4-42, at right). This new symbology can be now saved into a new layer, as described in Step 8, above.	

4.4.2 Selecting Data Through Spatial and/or Attribute Queries

ArcMap provides the user with the ability to select features based on spatial and/or attribute queries.

Step	Action	
1	The selection process starts by clicking on the *Selection* menu, as shown in Exhibit 4-43. This provides a number of options, including: • *Select by Attributes* • *Select by Location* Each of these can be used as a single query, or can be combined to provide a complex spatial/attribute query.	
2	The user, wishing to select by attributes, clicks on the first option. ArcMap comes up with a dialogue box where the user can specify the desired selection. For instance, the user wants to select all road segments scheduled for "Reconstruction".	

	To set up this SQL-style query (see Exhibit 4-44), the user double-clicks on the desired field on the left panel, "IMPROVEMEN", double-clicks on the "=" sign (middle panel), then completes the process by double-clicking on the desired value, "Reconstruction" (right panel). The results of the query are reflected in the lower window. The user can set up complex queries, involving "and", "or", "like" and "not" operators, as well as a number of numberic operators, such as "=", ">", "<", ">=", "<=". It is also noted that the user can save queries, using the "Save" button, as well as load previously created queries, using the "Load" button. This is a significant improvement over Arcview 3.2, which did not provide this important time-saving functionality.	
3	By clicking on the "Apply" button, ArcMap executes the query, which now reflects on the display window, as well as on the corresponding attribute table. As shown in Exhibit 4-45, selected features are shown in a light blue "selection" color.	

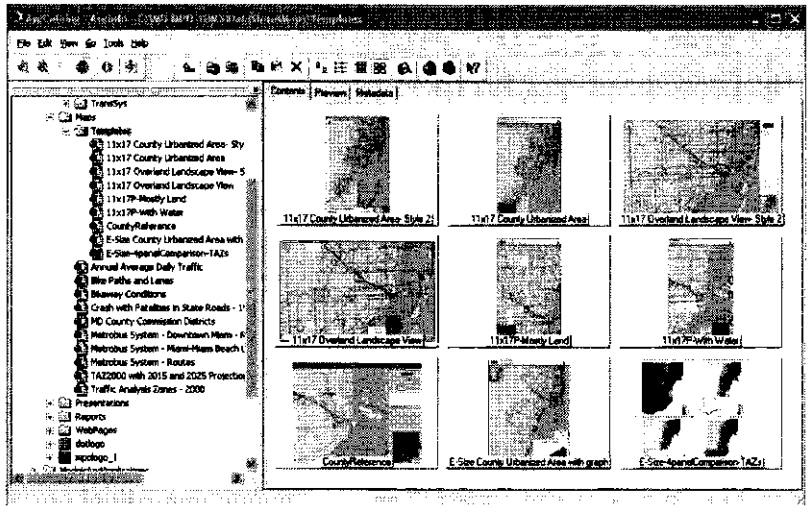
4	It is noted that this is the default selection color, the user can choose other colors from the *"Options"* submenu within the *"Selections"* menu, as shown in Exhibit 4.46. 
5	The user can further expand or narrow the selection by clicking on the extensive *"Select by Location"* submenu. This opens up another dialogue box (Exhibit 4-47), enabling the user to select features which: a. Are within the boundaries of a set graphic; b. Spatially relate to features in the same or other layer, including: • Intersect • Are within a distance of • Completely contain or are completely within • Share the line segment with, or share the boundary of • Are identical to • Are crossed by • Have their center in the indicated "relational" layer.  Exercising the extensive spatial selection options is beyond the scope of this manual. Users interested in exploring these capabilities are encouraged to read the corresponding chapter int he "Using ArcMap" manual.

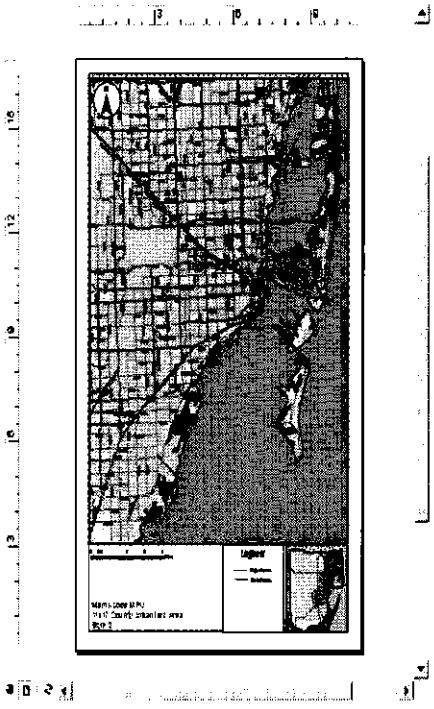
4.4.3 Using a Map Template

As indicated in Chapter 3, a number of map templates were developed and stored as an integral part of the TDMS. The user may choose an existing map template to start his/her map publishing work, then add the desired layers, thus

1. Saving significant valuable time.
2. Maintaining approved standards.

To start the process, the user chooses an existing map template from those available in ArcCatalog, as shown in Exhibit 4-48, at right, simply by clicking on the desired template.





This brings up ArcMap, loaded already with the selected template. Exhibit 4-49 shows ArcMap pre-loaded with the "11x17 County Urbanized Area – Style 2 " template.

The user continues by adding layers, selecting features, modifying attributes, etc. At times, one or more of the layers pre-loaded with the given template may have to be deleted. The user may also wish to zoom in the detail map to the level desired; it is noted that this template is built so that the "county-wide" reference map shows, at any zoom level, the area selected under the detail map. As soon as possible thereafter, the user should save his/her new map under a new name, and not as a template, but as a new map (*.mxd) file, to be stored in the *Maps* subfolder within the *DataStore* main folder of the TDMS.

4.4.4 Creating and Displaying a Chart

ArcMap provides the user with tools to create and display various types of 2- and 3-dimensional charts, including frequency, pie and others.

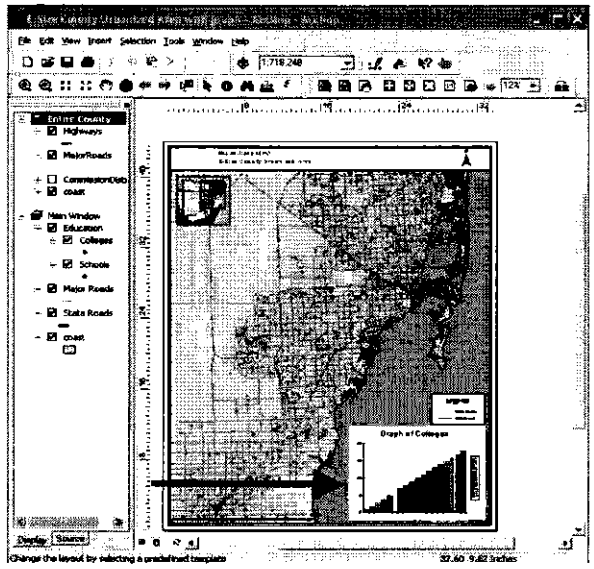
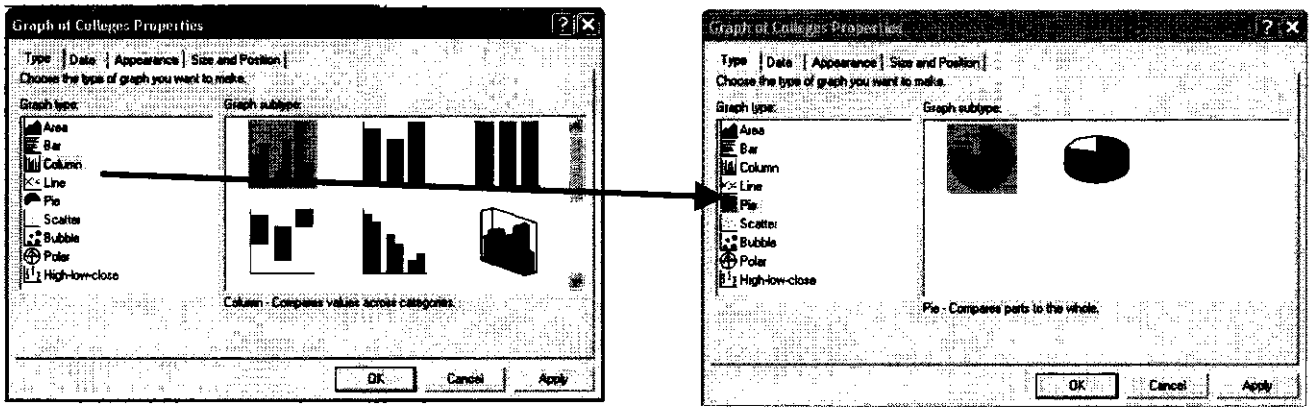
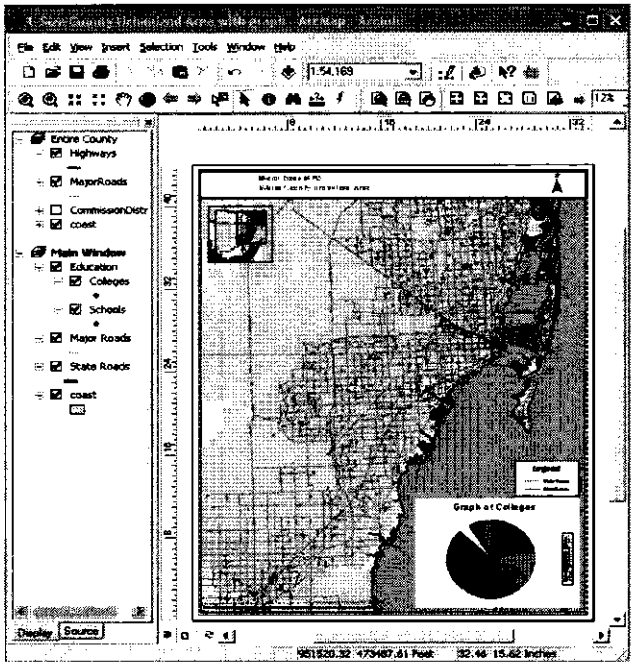


Exhibit 4-50 shows the *"E-Size County Urbanized Area with Graph"* template. Note the included column bar graph, representing the numeric values of a variable, in this case "Colleges". The actual contents themselves are unimportant.

What matters is that, by double-clicking on that chart frame, we open up ArcView 8.1's chart-definition capabilities.

For instance, we may wish to change the chart type to represent a pie chart, rather than a column bar graph. This is easily accomplished by changing the type in the selection area on the left of the box, as shown in Exhibit 4-51, below.





When accepting the change indicated on the second frame, and clicking "OK", the chart frame changes to represent a pie chart, as shown at left, Exhibit 4-52.

It is noted that the above captioned Properties dialogue box contains all of the necessary elements to develop an extensive series of business-oriented charts and graphs. For additional details, consult the "Using ArcMap" manual.

It is also noted that both MS Access and MS Excel have excellent built-in charting capabilities. As both of these programs (particularly Access having ready interaction with ArcView 8.1's geodatabase structures) are available to the user, these additional charting capabilities can be easily incorporated into the TDMS[2]/.

4.5 CREATING TABULAR REPORTS

ArcMap provides a full complement of capabilities to build tabular reports. The user can choose from creating:

1. "Simple" reports, showing for a selected layer (or features within that layer) the values of certain fields in a ready-made tabular form. While these reports can actually display data in "fancy" ways, the approach is most effective when used to quickly create fairly straight forward, uncomplicated reports.

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[2]/ *Section 3.x presents a short discussion on creating charts using Access.*

2. A fully-featured version of Crystal Reports is included within ArcView 8.1. Through a systems of "wizards", the user can configure and develop highly complex, visually attractive reports which may include, in addition to the desired table, also complex business charts, logos and even pictures of the actual map displays.

To initiate the process of configuring a report, click the *"Tools->Reports"* menu, then choose between *"Create Report"* ("simple") or *"Crystal Reports Wizard"*.

The following describes the steps taken to set up a "simple" report.

Step	Action
1	Click on the *"Tools->Reports->Create Report"* menu item. When the Report Specification dialogue box comes up,
2	On the Fields tab, click the Layer/Table dropdown arrow and click the layer or table you want to base the report on.
3	In the Available Fields list, double-click the fields to be included in the report.
4	Check Use Selected Set if want to create a report with only the selected features.
5	Click the arrow buttons to order the report fields.
6	Click the Sorting tab.
7	Click a field to sort in the Sort column.
8	Check the Display tab.
9	Click Settings and click Elements.
10	Check Title to add a title to the report. Locate the Text property and type a title for the report.
11	Click the Font property and set the font and size of the title.
12	Click Show Settings to preview the report.
13	Click Generate Report.
14	At the top of the Report Viewer, click Add to add the report to the map layout, if so desired. Click OK
15	The report is added to the layout as a graphic element. Each page of the report is added as a separate graphic element on the layout. It is up to the user to determine how to place these elements within the overall layout. By creating a report with a particular page size, the user can ensure that it fits exactly where wanted on the layout.

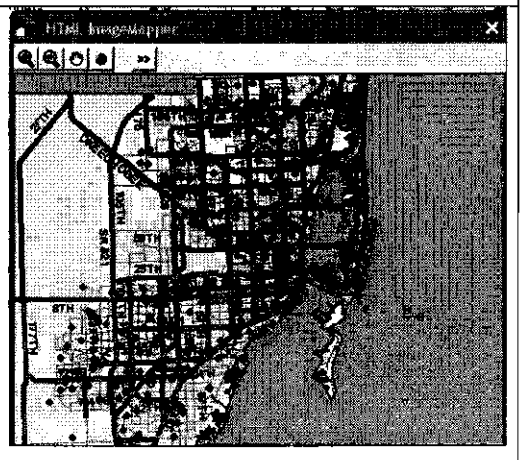
Further discussion on reports go beyond the intent of this Training Manual. It is noted, however, that Crystal Reports, through its wizard structure is capable of producing highly professional reports, which can then be independently saved and executed within the *"Reports"* subfolder, within the *"DataStore"* folder of the TDMS. Furthermore, as was the case with Charts, both MS Access and Excel have extensive additional report-making capabilities, which can be applied by the TDMS user.

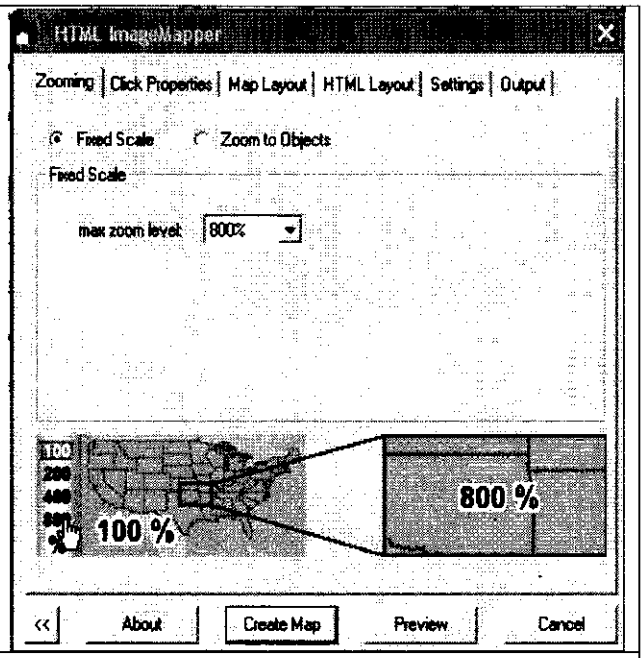
4.6 CREATING WEB-ENABLED MAP PAGES WITH HTML ImageMapper

As indicated in Chapter 2, the MPO acquired the HTML ImageMapper 8.1 extension to ArcView GIS. This extension provides for the design and implementation of semi-dynamic map pages for display and manipulation in the web.

The following procedure describes a typical ImageMapper web-enabled map page creation session.

Step	Action
1	In ArcMap, make sure you are in Data View. HTML ImageMapper only works in this view mode, not in Layout View.
2	Make sure the HTML ImageMapper extension is loaded and ready. This is verified by the program's icon, a yellow hand, on ArcMap's button bar.
3	Should the icon be disabled or not present, click on *"Tools->Extension"*, check the HTLM ImageMapper box.
4	Zoom to the desired extent of the map web page. Click on the hand icon.
5	The HTML ImageMapper control panel appears, as shown in Exhibit 4-53, right. You can further adjust the extent of the map page by using the zoom in/out, pan and full extent tools. After determining this extent, then click on the *"Proceed"* icon, 



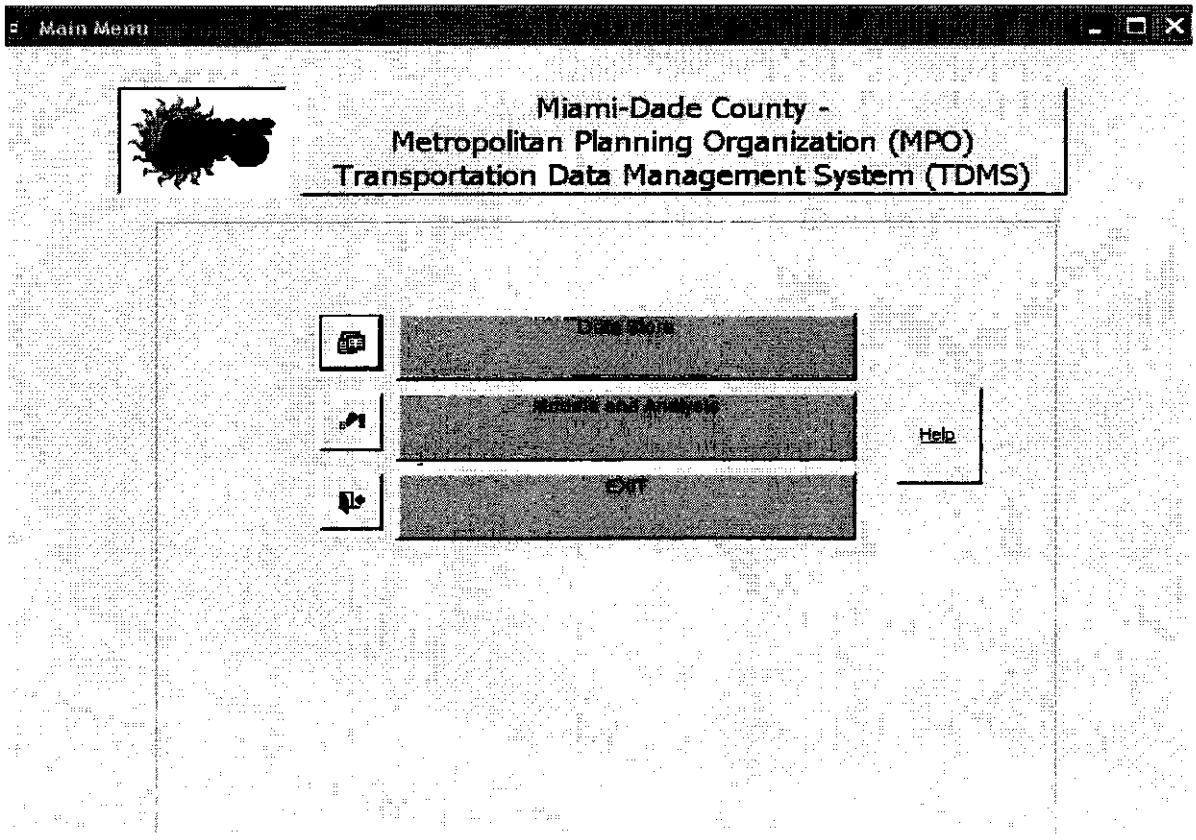
6	This opens up the full ImageMapper dialogue box, where the user, through its various tabs, can specify exactly how the web page is to be structured, zoom levels, queriable attributes, atc. Exhibit 4-54, at right, shows the user specifying a zoom level 800%. The extension allows zoom levels of 100%, 200%, 400% and 800%. It is noted that selecting a higher zoom level causes the resulting HTML code to grow significantly.	
7	The other tabs within the dialogue box allows various other page components to be fully specified. When ready, clicking on the "Preview" button provides a quick view of what the resulting page will look like. Clicking on the "Create Map" button starts actually producing the web page. When the process is completed, ImageMapper invites the user to view the resulting page.	

A complete manual of the software is provided under separate cover.

5.0 MPO_TDMS ACCESS APPLICATION

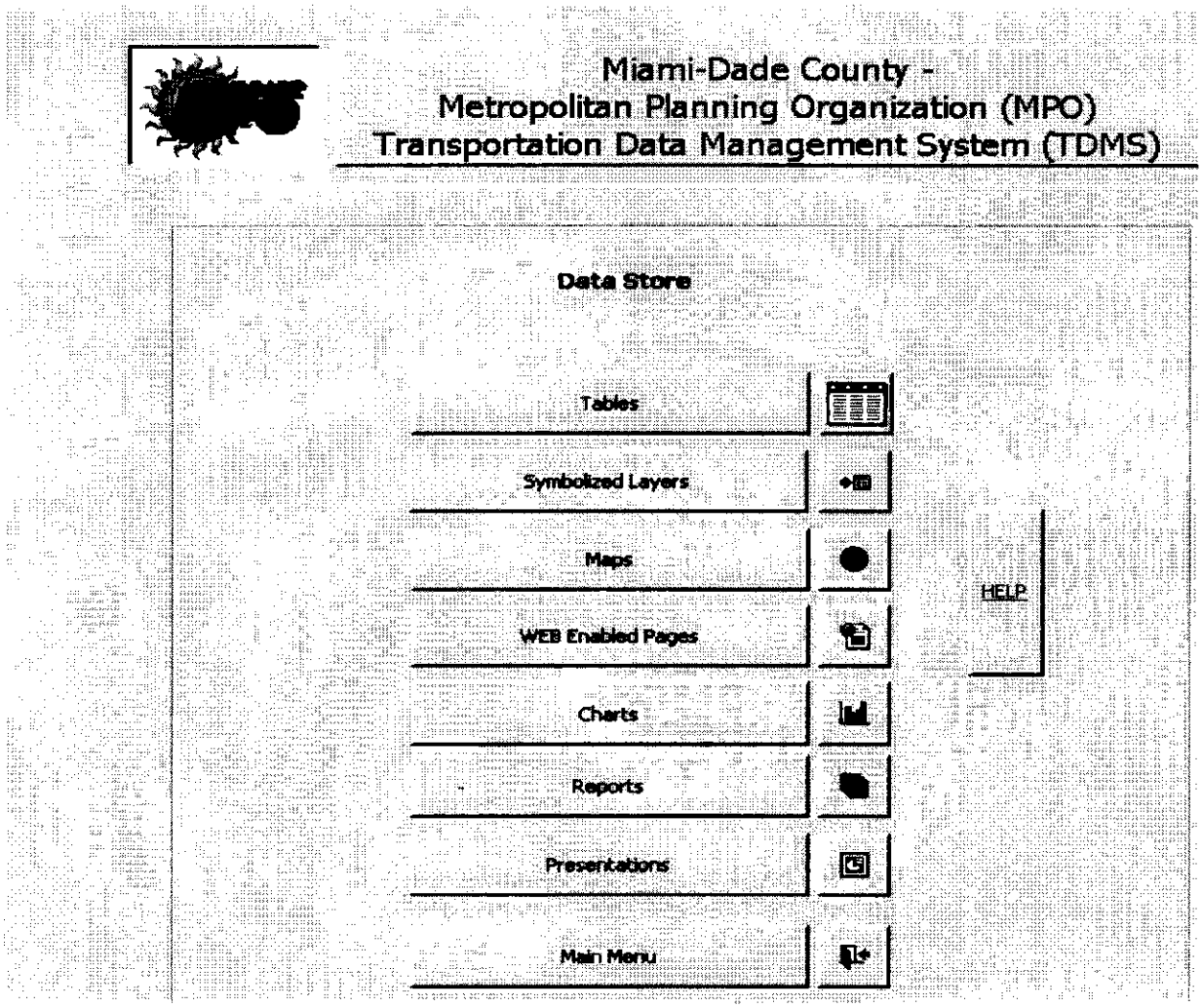
The consultants developed an application, using MS Access, to provide additional documentation and guidance to the TDMS user. Through a simple and clear GUI (Graphical User Interface), the application provides the user with a detailed description of each of the system file components previously described in Chapter 3.

To load and execute this application, the user double-clicks on the icon provided. After loading, the following main menu screen (Exhibit 5.1) will appear, enabling the user to choose one of the three indicated options:



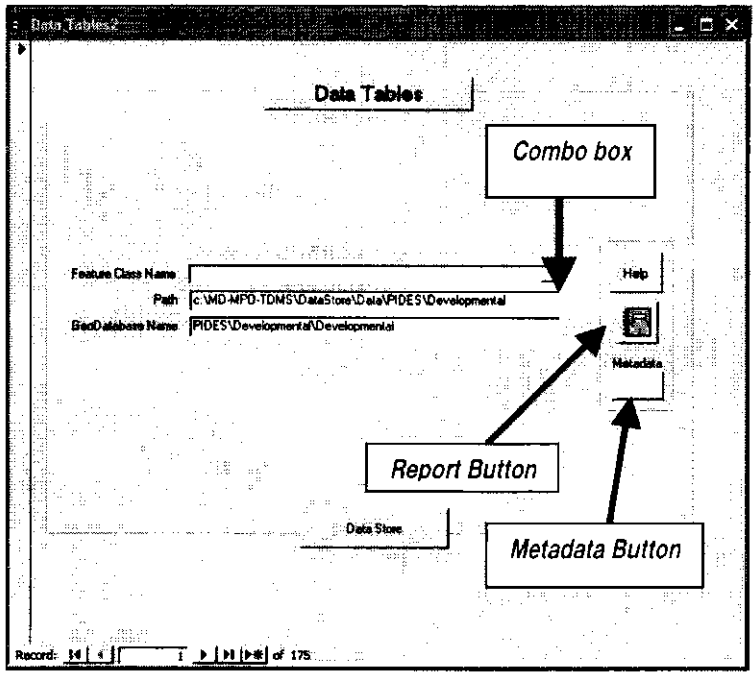
5.1 Data Store Menu

By selecting either the first icon to the left, or the "Data Store" button bar, the user is directed to the Data Store menu screen, shown as Exhibit 5.2. Once there, the user, by selecting an icon or a button bar, is provided additional options, including the ability to return to the Main Menu and/or request help.



5.1.1 Individual Action Buttons (Data Tables, Symbolized Layers, Maps, Web Enabled Pages, Charts, Reports and Presentations)

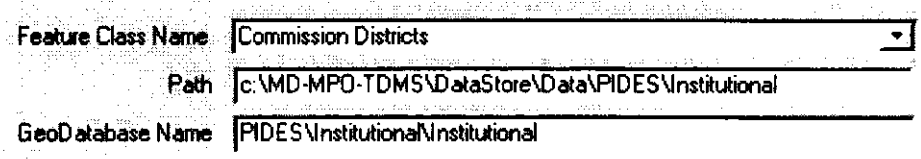
The following description applies to all individual action buttons, except for the "Maps" button, which has an additional option, as explained below.



After selecting any of the secondary buttons, the user with presented with a screen which follows a similar layout across all options.

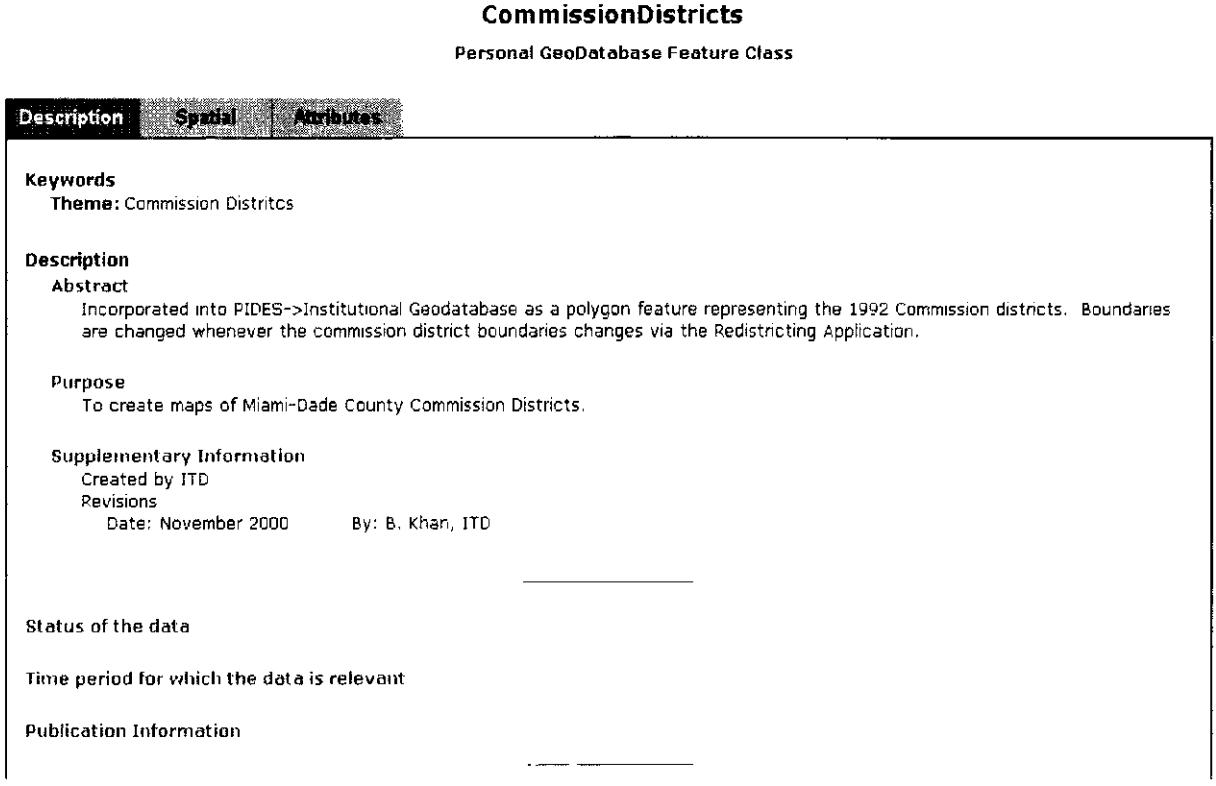
Exhibit 5.3, at right, shows the screen presented after the user selects the Data Tables icon or button bar. By clicking on the combo box, the TDMS user can select a particular table and verify its path, the geodatabase it belongs to, and review the contents of its metadata file.

For instance, the user wishes to find out more about the "Commission Districts" table. The user then can select that table (Exhibit 5.4),



and be informed that its path is: "C:\MD-MPO-TDMS\DataStore\Data\PIDES\Institutional" and that it is part of the "Institutional" geodatabase in "PIDES\Institutional".

Additional information on that table can be obtained by pressing the "Metadata" button to the right of the screen. The following Exhibit 5.5 will appear. It is noted that some of the tables may not have associated metadata, in which case pressing the button will result in no further action.



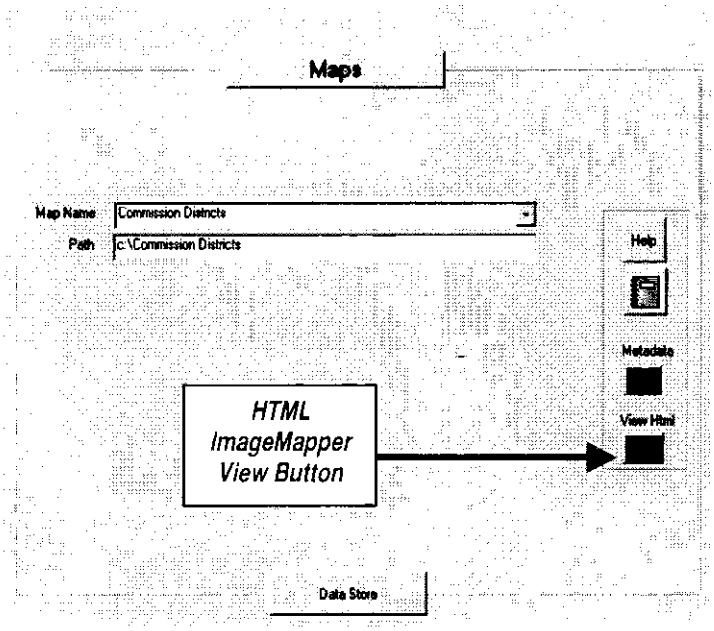
The user can click on the various tabs (Description, Spatial, Attributes) to obtain relevant information under each of these tabs.

By selecting the "Reports Button", the user can request an on-screen report on all available data tables, organized alphabetically as shown in Exhibit 5.5.

To obtain a hard copy of this report, the user can send it to the printer.

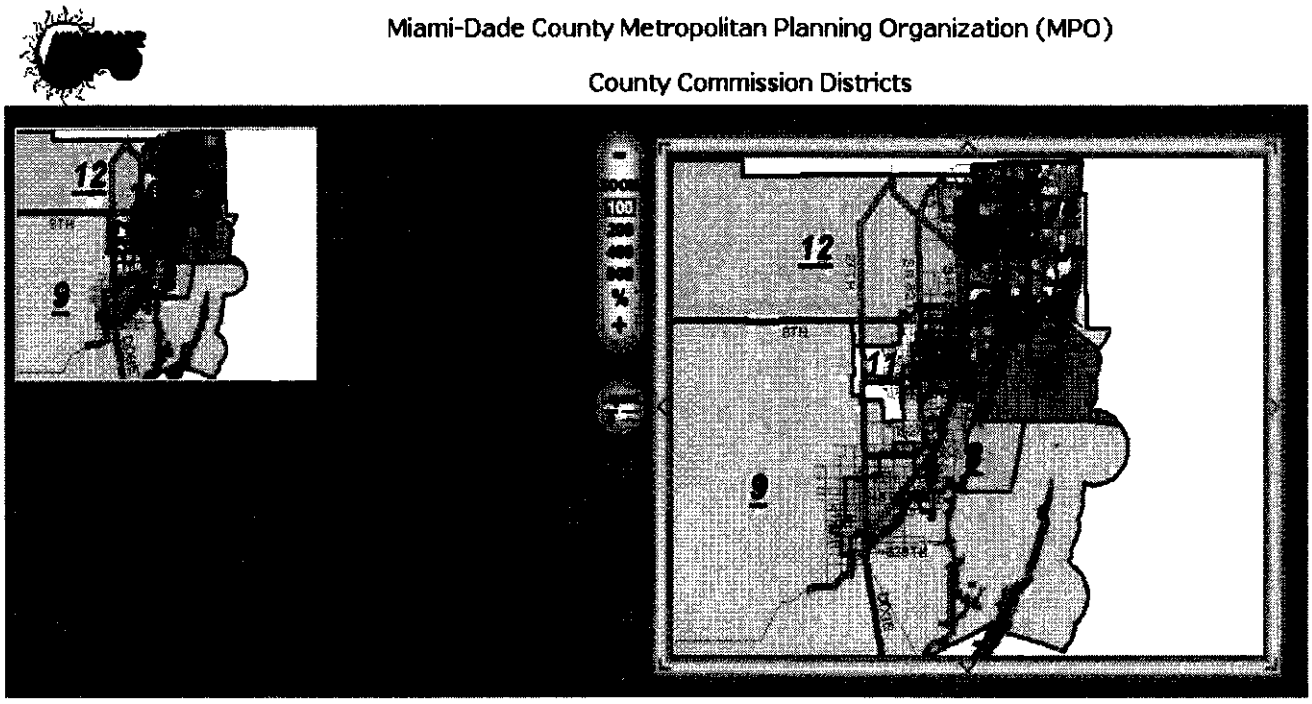
Data Tables

Feature Class Name	*Path*	*GeoDatabase Name*
Airport Facilities	C:\MD-MPO-TDMS\DataStore\D	TransSys\TM_OM\TM_OM
Annual Average Daily Traffic (AA	C:\MD-MPO-TDMS\DataStore\D	TransSys\TM_H\TM_H
Autos Employment and Economi	c:\MD-MPO-TDMS\DataStore\D	PIDES\SocioEconomic\SocioEc
Bike Lanes	C:\MD-MPO-TDMS\DataStore\D	TransSys\TI\TI
Bike Paths	C:\MD-MPO-TDMS\DataStore\D	TransSys\TI\TI
Bike Ways	C:\MD-MPO-TDMS\DataStore\D	TransSys\TI\TI
Bus Maintenance Facilities	C:\MD-MPO-TDMS\DataStore\D	TransSys\TM_PT\TM_PT
Bus Routes	C:\MD-MPO-TDMS\DataStore\D	TransSys\TM_PT\TM_PT
Bus Routes with Bike Racks	C:\MD-MPO-TDMS\DataStore\D	TransSys\TI\TI
Bus Stops	C:\MD-MPO-TDMS\DataStore\D	TransSys\TM_PT\TM_PT
Cable TV Service Areas	c:\MD-MPO-TDMS\DataStore\D	PIDES\Developmental\Developm
Canals	c:\MD-MPO-TDMS\DataStore\D	PIDES\Physical\Physical
Census Block	c:\MD-MPO-TDMS\DataStore\D	PIDES\SocioEconomic\SocioEc
Census Block From Street Netw	c:\MD-MPO-TDMS\DataStore\D	PIDES\SocioEconomic\SocioEc



In the case of the "Maps" selection, an additional option is presented, giving the user the ability to execute an HTML ImageMapper file, if available, as shown in Exhibit 5.6.

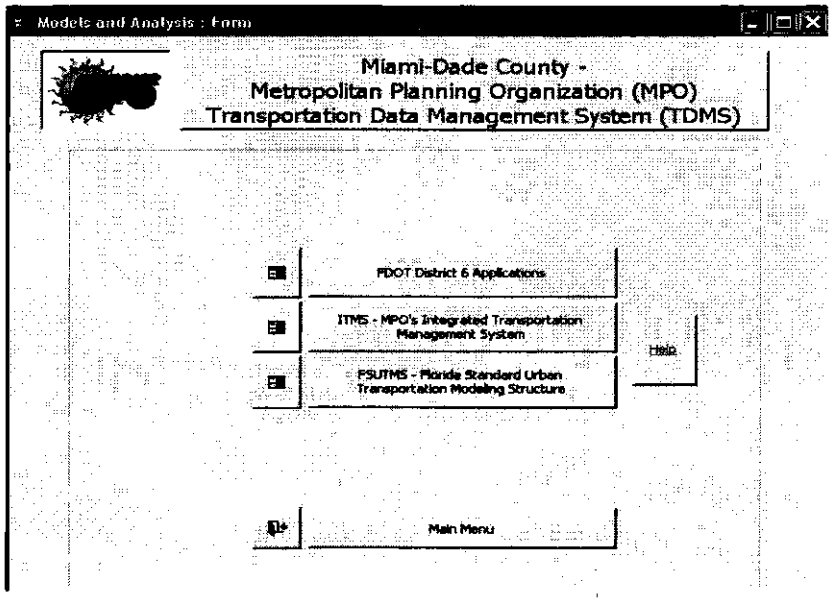
Upon selecting this option, the user is then presented with the corresponding map,, as shown in Exhibit 5.7, below. The user can then zoom the map to one of the available scales, navigate to a desired area within the map, and query its attributes.



5.2 Models and Analysis

By selecting, in the Main Menu, either the second icon to the left, or the "Models and Analysis" button bar, the user is directed to the "Models and Analysis" menu.

The icons and buttons shown in Exhibit 5.8, at right, are to provide the user with additional information as well as access to each of these applications.



5.3 Database Updating and Maintenance Requirements

Maintaining the database underlying this application up to date is essential in order to maintain the system fresh and valid, thus avoiding a gradual deterioration in the quality of the data and in the overall usability of the application. We strongly recommended that MPO staff in charge of updating the validity and freshness of the system's data ensure that the strict data input and maintenance standards are rigorously followed over time.

Appendix A
Training Notes and Tables:
Miguel Cordero, MPO

A.1 System Procedures

Process	*Step*	*Action*
General checking of tables and metadata		Start ArcCatalog
	1	Click on PREVIEW Tab.
	2	Click on the PREVIEW Pull-own Menu, select TABLE.
	3	Delete unnecessary fields from geodatabase tables using Right-Click > Delete Field.
	4	Click on METADATA Tab.
	5	In the DESCRIPTION area, make note of incomplete or unfilled metadata description
	6	In the ATTRIBUTES area, make NOTE of duplicate or old attributes
Editing metadata (deleting unwanted attributes).		Start ArcCatalog
	1	Click on the METADATA Tab.
	2	Select the ATTRIBUTES area..
	3	Click on the EDIT METADATA icon.
	4	In the Editing dialogue box, select Entity Attribute on the menu..
	5	In the resulting dialog, click on the ATTRIBUTE Tab.
	6	Use the navigation controls (next to Attribute 1 of nn) to select and delete unwanted attributes.
Exporting metadata (to HTML).		Start ArcCatalog
	1	Click on the EXPORT METADATA icon.
	2	In the Export Metadata dialog, click on BROWSE.
	3	Select the target folder and name webpage, or select existing file to replace.
	4	Click SAVE.
	5	In the FORMAT pull-down menu, select HTML.
	6	Click OK.
FSUTMS - Adding a Shapefile to a Geo-database		Start ArcCatalog...
	1	Select the SHAPEFILE
	2	Right-click > select EXPORT > click SHAPEFILE TO GEODATABASE.
	3	In dialogue box: click OUTPUT GEODATABASE and select target geodatabase.
	4	In same dialogue box, rename FEATURE CLASS.
	5	In same dialogue box, click CHANGE > CHANGE SETTINGS > SELECT
	6	Select the PROJECTED COORDINATE SYSTEM folder > STATE PLANE > NAD 1983 (FEET) folder;
	7	Select NAD 1983 FLORIDA EAST FIPS 0901 (FEET).PRJ and click ADD.
	8	Click OK > OK to exit boxes and run procedure.
FSUTMS - Creating a Shapefile (in ArcView GIS 3.2	1	Start a new ArcView 3.x project.
	2	Add in the main/master shapefile and subject DBF.
	3	Select subject DBF and select TABLE menu > PROPERTIES.
	4	Deselect unwanted fields and click OK.
	5	Move common field to beginning of fields in table.
	6	Repeat 3 and 4 for main/master shapefile.
	7	With both tables open select common field (first subject then master).
	8	Click on the JOIN icon at top.
	9	Select VIEW window (which contains master shapefile).
	10	Click THEME > CONVERT TO SHAPEFILE.
	11	In dialogue box select folder and name shapefile.
	12	Click YES to view shapefile in the VIEW window.

FSUTMS - Converting Excel Datasets to DBF	1	Open dataset in Excel
	2	Delete original column headings and leave new ones copied from previous year. - >>>DO NOT SAVE FILE
	3	Select RANGE with all info within.
	4	Click FILE > SAVE AS.
	5	Select DBF4 (dBase IV) in the SAVE AS TYPE pulldown menu.
	6	Rename file to shorter filename as done in previous years.
	7	Click SAVE, and click on NO to "Format note dialogue box".
	8	Click CANCEL when SAVE AS dialogue box reappears.
	9	Close Excel file but *DO NOT SAVE*.
Creating and using a LEGEND file for Layers:		Start ArcCatalog..
	1	Enter (or Browse) for output folder and file, then click OK.
	2	Start ArcView 3.2 and create a new VIEW.
	3	Click ADD THEME icon and locate desired file, then click OK
	4	Arrange the layer as needed (with desired number of categories, etc.)
	5	Save LEGEND as a file.
Creating LAYERS:	6	Start ArcCatalog AND ArcMap
	7	In ArcCatalog, select the Feature Class. Drag and drop the item into ArcMap to create a new layer.
	8	In ArcMap, right-click the Layer and select PROPERTIES.
	9	In the Layer Properties dialogue select the SYMBOLOGY tab.
	10	Click on QUANTITIES > GRADUATED COLORS.
		>>> On ocassion, it may be CATEGORIES
	11	Select the VALUE drop-down list and click on the desired field name.
	12	After a range of categories appear, customize as necessary. Click OK.
	13	>>> If a v3.x legend file was created, click IMPORT > IMPORT...ARCVIEW 3 LEGEND FILE.
	14	>>> Click on the Browse button and locate the desired .AVL file.
	15	Once complete, right-click layer and select SAVE AS LAYER FILE.
	16	Choose a folder and filename and click SAVE
Adding a Predefined SPATIAL Reference	1	Right-click on the desired feature class.
	2	Select the FIELD tab.
	3	Click on SHAPE in the list of Field Names.
	4	Below the list is the Properties List for SHAPE.
	5	Click on the BROWSE button next to Spatial Reference.
	6	In the resulting dialog, click on SELECT.
	7	In the dialogue titled "Browse for Coordinate System" double-click on the "Project Coordinate Systems" folder.
	8	Go through the "State Plane" > "NAD 1983 (Feet)" folders.
	9	Select the file titled "NAD 1983 StatePlane Florida East FIPS 0901 (Feet).PRJ then click on ADD.
	10	Click APPLY and exit all dialogue boxes.

A2. NOTES 2001.12.04

Procedure to edit Metadata:

1. ***Start ArcCatalog.***
2. ***Using PREVIEW Tab, delete unnecessary fields from geodatabase tables using Right-Click > Delete Field.***
3. ***Using METADATA Tab, make NOTE of incomplete or unfilled metadata descriptions.***
4. ***Using METADATA Tab, make NOTE of duplicate or old attributes.***
5. ***If #4 is true, select EDIT METADATA > Entity Attribute > Attribute tab and delete unwanted attributes.***

Data Source	Action
CableTVServicesAreas	OK; metadata exported
MobileHomeParks	OK; metadata exported
Telecommunications	OK; metadata exported
Dumps	OK; metadata exported
HurricaneEvacuationZones	del dupl attr shape_area
HurricaneShelters	del dupl attr adaaccess, psn_shel, psn_primar, sn
Wellfields	OK; metadata exported
Colleges	OK; metadata exported
CommissionDistricts	OK; metadata exported
CommunityCouncils	OK; metadata exported
CountyBoudary	del dupl attr shape_area; metadata exported
DCFAdultFactilies	OK; metadata exported
DCFDayCareCenters	OK; metadata exported
DCFFacilities	OK; metadata exported
DCFHeadStartProjects	OK; metadata exported
DCFHealthDepartments	OK; metadata exported
DCFNursingHomes	OK; metadata exported
DCFWomenInfChildCenter	OK; metadata exported
DCFWomenInfChildVendors	OK; metadata exported
EmpowZoneCensus	del dupl attr shape_area, shape_length, name
FireDepartmentGrid	OK; metadata exported
FireStations	OK; metadata exported
Hospitals	OK; metadata exported
HouseDistricts	del fields objectid; del dupl attr shape_area
Libraries	OK; metadata exported
MajorNeighborhood	OK; metadata exported
MDFire_RescueStation ResponseOrder	no metadata; del fields area, perimeter, pfiresro_, pfiresro_l; del `upl. attr shape_area, shape_length

MDFireBoardDistricts	no metadata; del fields area, perimeter, pfiredis_ pfiredis_i; del dupl attr shape_area, shape_length
MDFireRescueResponseServiceArea	no metadata; del fields area, perimeter, pfireres_, pfireres_i; del dupl attr pfireres_i, res_sta, shape_area, shape_length
MDFireStationSuppression...	no metadata; del fields area, perimeter, pfiresup_, pfiresup_i; del dupl attr pfiresup_i, sup_sta, shape_area, shape_length
MDParks	no metadata; del fields area, perimeter, pparks_; del dupl. attr pparks_id, shape_area, shape_length
MDPolicePatrolAreas	no metadata;
MDPolicePrecincts	no metadata; del fields area, perimeter, pprecinc_, pprecinc_i; del dupl attr hou, cong, shape_length, shape_area
MDSolidWasteManagementGarbagePick	no metadata; del fields area, perimeter; del dupl attr th, tot, shape_length, shape_area
MDWASAServiceAreas	no metadata; del fields area, perimeter, pwasdsa_, pwasdsa_id; del dupl attr pilot, omitted, shape_length, shape_area
MunicipalBoundaries	OK; del fields area, perimeter, pmunicwt_; del dupl attr munic_code,shape_length,
MunicipalFireStations	no metadata; del fields area, perimeter, lfiremun_; del dupl attr zip, munic_code, type
MunicipalPoliceStations	no metadata; del fields area, perimeter, lpolimun_; del dupl attr fax, juris, sub_sta
ParkDistrict	OK; del fields objectid; del dupl attr shape_area
Parks	OK
PoliceGrids	OK
PoliceStations	OK
Polls	OK
PrivateSchools	OK; del fields area, perimeter; del dupl attr x_coord, y_coord
Schools	OK
SectionBoundaries	OK; del fields objectid, shape_leng; del dupl attr shape_area
SenateDistricts	OK; del fields objectid, shape_leng; del dupl attr shape_area
TeamMetroBoundaries	OK; del fields objectid, shape_leng; del dupl attr shape_area
TeamMetroOffices	OK
TeamMetroRegionalOffices	discrepancy: ltmetro_ or ltmetro_id numbers?; no metadata; del fields area, perimeter; del dupl attr ofcname, zip
USHouseOfRepresentatives	OK; del fields area, perimeter, pushouse_; del dupl attr cong, shape_length, shape_area
BikeLanes	OK
BikePaths	OK; del dupl attr shape_length
BikeWays	unknown fields: elevation, thickness?
BusRouteswithBikeRacks	unknown fields: lat, lon?
DadeRoads	no metadata; unknown fields: l_zip, r_zip, flg1, flg2, mun, grid, trss, cens, waste?
FDOTBaseMap	cannot delete fields road_ (s/a objectid), road_id (s/a roadway)
FLIntraStateHighwaySystem	no metadata; del fields road_; del dupl attr shape_length
FloridaIntraStateHighwaySystem	no metadata; del fields road_; del dupl attr shape_length; copy of "FLIntraStateHighwaySystem"?
FloridaStateRoads	unknown fields

FunctionalClassifications	no metadata
Highways	OK
IntermodalFacilities_points	OK
IntermodalFacilities_poly	OK
LocalStreetNames	OK
MajorRoads	unknown fields: l_zip, r_zip, flg1, flg2, mun, grid, trss, cens, waste?
StateRoads	OK
StreetNetwork	no metadata; unknown fields: flg1, flg2?
TrafficSignalsFDOT	OK
TrafficSignalsMDITD	OK
TrafficSignalsMDPW	OK
AADT	OK
FDOTDistricts	OK; del dupl attr shape_area
FedAidHwySystem	OK
MaxSpeed	OK; del fields objectid, shape_leng; del dupl attr shape_length
RoadImpactFeeDistricts	OK; del fields area, perimeter, prdimpct_, prdimpct_i; del dupl attr prdimpct_i, rif_distri, shape_length, shape_area
SRCapacity	OK
SRFunctional Classifications	OK; del dupl attr rd_status, highmeasur, county, section
SRWPSectionImprovement	OK; del fields id; del dupl attr shape_length
SRWPStructuralImprovement	OK (mispelled feature class name?)
TrafficAnalysisDistricts	OK; del dupl attr shape_area
TrafficAnalysisZones1992	OK; del dupl attr shape_area
TrafficAnalysisZones2000	OK; del fields rev2ktz_; del dupl attr acres, shape_leng, shape_length, shape_area
TrafficCountStations	OK
AirFacilities	OK; del dupl attr tower_type
SpecialTransportationServices	OK
BusMaintenanceFacilities	no metadata
BusRoutes	OK
BusStops	unknown fields: x_coord, y_coord; del dupl attr y_coord
MetroMover	OK; del dupl attr shape_length
MetroMoverBoarding	no metadata
MetroMoverMaintenance Facilities	no metadata
MetroMoverStations	discrepancy: lmmovrst_ and lmmovrst_i; unknown fields: x_coord, ycoord; del fields area, perimeter; del dupl attr code, name
MetroRail	Discrepancy: amrail_ and amrail_id; unknown fields: length
MetroRailMaintenanceFacilities	no metadata
MetroRailStations	OK
Railroads	discrepancy: arail_ and arail_id; del fields lpoly, rpoly, length; del dupl attr arail_, arail_id, shape_length
Tri-rail	OK; del dupl attr rpoly, length, atrirail_, atrirail_i, route, rtype , shape_length

A3. Feature Class Metadata Export to HTML

Feature Class Name	Status	Meta-data Added	Meta-data Export?	Del Duplicate Attributes	Deleted Fields	Dis-crepancies	Unknown Fields	Remarks
PIDES / DEVELOPMENTAL								
CableTVServicesAreas	OK	YES	YES					Completed
MobileHomeParks	OK	YES	YES					Completed
Telecommunications	OK	YES	YES					Completed
PIDES / ENVIRONMENTAL								
Dumps	OK	YES	YES					Completed
HurricaneEvacuationZones	OK	YES	YES	shape_area				Completed
HurricaneShelters	OK	YES	YES	adaaccess, psn_shel, psn_primar, sn				Completed
Wellfields	OK	YES	YES					Completed
PIDES / INSTITUTIONAL								
Colleges	OK	YES	YES					Completed
CommissionDistricts	OK	YES	YES					Completed
CommunityCouncils	OK	YES	YES					Completed
CountyBoudary			YES	shape_area				Completed
DCFAdultFactilies	OK	YES	YES					Completed
DCFDayCareCenters	OK	YES	YES					Completed
DCFFacilities	OK	YES	YES					Completed
DCFHeadStartProjects	OK	YES	YES					Completed
DCFHealthDepartments	OK	YES	YES					Completed
DCFNursingHomes	OK	YES	YES					Completed
DCFWomenInfChildCenters	OK	YES	YES					Completed
DCFWomenInfChildVendors	OK	YES	YES					Completed
EmpowZoneCensus	OK	YES	YES	shape_area, shape_length, name	area, perimeter			Completed
FireDepartmentGrid	OK	YES	YES					Completed
FireStations	OK	YES	YES					Completed
Hospitals	OK	YES	YES					Completed
HouseDistricts	OK	YES	YES	shape_area	objectid			Completed
Libraries	OK	YES	YES					Completed

MajorNeighborhood	OK	YES	YES					Completed
MDFire_RescueStationResponseOrder		YES	YES	shape_area, shape_length	area, perimeter, pfiresro_, pfiresro_i			Completed
MDFireBoardDistricts		YES	YES	shape_area, shape_length	area, perimeter, pfiredis_, pfiredis_i			Completed
MDFireRescueResponseServiceArea		YES	YES	pfireres_i, res_sta, shape_area, shape_length	area, perimeter, pfireres_, pfireres_i			Completed
MDFireStationSuppression...		YES	YES	pfiresup_i, sup_sta, shape_area, shape_length	area, perimeter, pfiresup_, pfiresup_i			Completed
MDParks		NO	NO	pparks_id, shape_area, shape_length	area, perimeter, pparks_			**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
MDPoliceDistricts		YES	YES					Completed
MDPolicePatrolAreas		YES	YES					Completed
MDPolicePrecincts		YES	YES	hou, cong, shape_length, shape_area	area, perimeter, pprecinc_, pprecinc_i			Completed Name changed from PolicePrecincts to Polling Precincts
MDSolidWasteManagementGarbagePick...		NO	NO	th, tot, shape_length, shape_area	area, perimeter			**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
MDWASAServiceAreas		YES	YES	pilot, omitted, shape_length, shape_area	area, perimeter, pwasdsa_, pwasdsa_id			Completed
MunicipalBoundaries	OK	YES	YES	munic_code, shape_length, shape_area	area, perimeter, pmunicwt_			Completed
MunicipalFireStations		YES	YES	zip, munic_code, type	area, perimeter, lfiremun_			Completed
MunicipalPoliceStations		YES	YES	fax, juris, sub_sta	area, perimeter, lpolimun_			Completed
ParkDistrict	OK	YES	YES	shape_area	objectid			Completed
Parks	OK	YES	YES					Completed
PoliceGrids	OK	YES	YES					Completed

PoliceStations	OK	YES	YES					Completed
Polls	OK	YES	YES					Completed
PrivateSchools	OK	YES	YES	x_coord, y_coord	area, perimeter			Completed
Schools	OK	YES	YES					Completed
SectionBoundaries	OK	YES	YES	shape_area	objectid, shape_leng			Completed
SenateDistricts	OK	YES	YES	shape_area	objectid, shape_leng			Completed
TeamMetroBoundaries	OK	YES	YES	shape_area	objectid, shape_leng			Completed
TeamMetroOffices	OK	YES	YES					Completed
TeamMetroRegionalOffices		YES	YES	ofcname, zip	area, perimeter	ltmetro_ or ltmetro_id		Completed Standard ArcInfo fields. May be deleted or kept
USHouseOfRepresentatives	OK	YES	YES	cong, shape_length, shape_area	area, perimeter, pushouse_			
PIDES / PHYSICAL								
Canals	OK	YES	YES					Completed
Coast	OK	YES	YES					Completed
Contours		NO	NO		acontour_i		acontour_	**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
CountyBoudary	OK	YES	YES					Completed
CountyOutline		YES	YES	island, shape_length, shape_area	area, perimeter, poutline_		poutline_i	Completed ArcInfo field. Not necessary. Deleted
FloodHazardZones	OK	YES	YES					Completed
FloodZones		NO	NO					**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
HurricaneEvacuationZones	OK	YES	YES					Completed
Hydrology	OK	YES	YES					Completed
Lakes	OK	YES	YES					Completed
Shoreline	OK	YES	YES					Completed
SoilConservation	OK	YES	YES					Completed
Streams		NO	NO					**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
PIDES / SOCIOECONOMIC								

Autos_Employment_and_economic_ranking		YES	YES					Completed
CensusBlockFromStreets		NO	NO					**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
CensusBlockGroups		NO	NO	shape_length, shape_area	pblkgrp_, pblkgrp_id			**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
CensusBlocks		NO	NO					**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
CensusBlocksFromStreetNetwork		NO	NO	x, shape_length, shape_area	area, perimeter, pdadeblk_		pdadeblk_i	**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
CensusPlaces	OK	YES	YES	shape_area	pcenspla_			Completed
CensusTracks		YES	NO	shape_le_1, shape_length, shape_area	objectid_1, shape_leng, shape_le_1	objectid_12* or objectid		Completed Renamed to CensusTracts. Objectid deleted
CensusTracksCoastline		NO	NO	shape_le_1, shape_length, shape_area	objectid_1, shape_leng, shape_le_1	objectid_12* or objectid	tracts_id	**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
final_1999_pop_and_housing fsutms_dat...		YES	NO					Rename?
MetropolitanStatisticalAreas		NO	NO					**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
VehicleRegistration		YES	YES					Completed
Zipcodes	OK	YES	YES	pzipcode_i, zip, shape_length, shape_area	area, perimeter, pzipcodes_, pzipcodes_i			Completed
TRANSYS / TI								
BikeLanes	OK	YES	YES					Completed
BikePaths	OK	YES	YES	shape_length				Completed
BikeWays		YES	NO				elevation, thickness	Completed Elevation and Thickness fields do not have info. Deleted
BusRouteswithBikeRacks		YES	YES				lat, lon	Completed Lat (latitude) and Lon (longitude) fields do not have info. Can be deleted
DadeRoads		YES	YES					Completed Similar to MajorRoads Deleted
FDOTBaseMap		YES	YES					Completed

FLIntraStateHighwaySystem		YES	YES	shape_length	road_			Completed Deleted
FloridaIntraStateHighwaySystem		YES	YES	shape_length	road_			Completed
FloridaStateRoads	OK	YES	YES	usroute, stroute, descript, class, shape_length	lploy_, rpoly, length, majrds_, majrds_id			Completed
FunctionalClassifications		YES	YES					Completed
Highways	OK	YES	YES					Completed
IntermodalFacilities_points	OK	YES	YES					Completed
IntermodalFacilities_poly	OK	YES	YES					Completed
LocalStreetNames	OK	YES	YES					Completed
MajorRoads		YES	YES				l_zip, r_zip, flg1, flg2, mun, grid, trss, cens, waste?	Completed Standard ArcInfo fields. May be deleted or kept
StateRoads	OK	YES	YES					Completed
StreetNetwork		YES	YES				flg1, flg2	Completed Standard ArcInfo fields. May be deleted or kept
TrafficSignalsFDOT	OK	YES	YES					Completed
TrafficSignalsMDITD	OK	YES	YES					Completed
TrafficSignalsMDPW	OK	YES	YES					Completed
TRANSYS / TM_H								
AADT	OK	YES	YES					Completed
FDOTDistricts	OK	YES	YES	shape_area				Completed
FedAidHwySystem	OK	YES	YES					Completed
MaxSpeed	OK	YES	YES	shape_length	objectid, shape_leng			Completed
RoadImpactFeeDistricts	OK	YES	YES	prdimpct_i, rif_distri, shape_length, shape_area	area, perimeter, prdimpct_, prdimpct_i			Completed
SRCapacity	OK	YES	YES					Completed
SRFunctional Classifications	OK	YES	YES	rd_status, highmeasur, county, section				Completed
SRWPSectionImprovement	OK	YES	YES	shape_length	id			Completed
SRWPStructuralImprovement	OK	YES	YES					Completed
TrafficAnalysisDistricts	OK	YES	YES	shape_area				Completed

TrafficAnalysisZones1992	OK	YES	YES	shape_area				Completed
TrafficAnalysisZones2000	OK	YES	YES	acres, shape_leng, shape_length, shape_area	rev2ktz_			Completed
TrafficCountStations	OK	YES	YES					Completed
TRANSYS / TM_OM								
AirFacilities	OK	YES	YES	tower_type				Completed
SpecialTransportationServices	OK	YES	YES					Completed
TRANSYS / TM_PT								
BusMaintenanceFacilities		NO	NO					**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
BusRoutes	OK	YES	YES					Completed
BusStops		YES	YES	y_coord			x_coord, y_coord	Completed X and Y coordinates. May be deleted or kept
MetroMover	OK	YES	YES	shape_length				Completed
MetroMoverBoarding		NO	NO					**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
MetroMoverMaintenanceFacilities		NO	NO					**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
MetroMoverStations		YES	YES	code, name	area, perimeter, lmmovrst_i		x_coord, ycoord	Completed X and Y coordinates. May be deleted or kept
MetroRail	OK	YES	YES		amrail_ and amrail_id			Completed
MetroRailMaintenanceFacilities		NO	NO					**NO INFORMATION. NEED TO BE REQUESTED FROM ITD**
MetroRailStations	OK	YES	YES					Completed
Railroads		YES	YES	arail_, arail_id, shape_length	lpoly, rpoly, length	arail_ and arail_id		Completed. Standard ArcInfo fields. May be deleted or kept
Tri-Rail	OK	YES	YES	rpoly, length, atrirail_, atrirail_i, route, rtype, shape_length				Completed

A4. Symbolized Layer Creation

Feature Class	*Layer(s) Created*	*Metadata*	*Convert to HTML*
Pides \ Developmental			
CableTVServiceAreas	CableTVServiceAreas	YES	YES
MobileHomeParks	MobileHomeParks	YES	YES
Telecommunications	Telecommunications	YES	YES
Pides \ Environmental			
Dumps	Dumps	YES	YES
HurricaneEvacuationZones	HurricaneEvacuationZones-Evac_Color	YES	YES
HurricaneShelters	HurricaneShelters	YES	YES
Wellfields	Wellfields	YES	YES
Pides \ Institutional			
Colleges	Colleges-Type; Colleges	YES	YES
CommissionDistricts	CommissionDistricts-Name	YES	YES
CommunityCouncils	CommunityCouncils-Name	YES	YES
County Boundary	CountyBoundary	YES	YES
DCFAdultFacilities	DCFAdultFacilities	YES	YES
DCFDayCareCenters	DCFDayCareCenters	YES	YES
DCFFacilities	DCFFacilities	YES	YES
DCFHeadstartProjects	DCFHeadstartProjects	YES	YES
DCFHealthDepartment	DCFHealthDepartment	YES	YES
DCFNursingHomes	DCFNursingHomes	*YES*	YES
DCFWomenInfChildCenters	DCFWomenInfChildCenters	*YES*	YES
DCFWomenInfChildVendors	DCFWomenInfChildVendors	*YES*	YES
EmpowZoneCensus	EmpowZoneCensus-Name	*YES*	YES
FireDepartmentGrid	FireDepartmentGrid	YES	YES
FireStations	FireStations	YES	YES
Hospitals	Hospitals	YES	YES
HouseDistricts	HouseDistricts-House	YES	YES
Libraries	Libraries	YES	YES
MajorNeighborhood	MajorNeighborhood-Name	YES	YES
MDFire_RescueStationResponseOrder	MDFire_RescueStationResponseOrder	YES	YES
MDFireBoardDistricts	MDFireBoardDistricts-Dist	YES	YES
MDFireRescueResponseServiceAreas	MDFireRescueResponseServicesAreas	YES	YES
MDFireStationSuppressionResponseServices	MDFireStationSuppressionResponseServices	YES	YES
MDParks	MDParks	YES	YES
MDPoliceDistricts	MDPoliceDistricts-Districts_N	YES	YES

MDPolicePatrolAreas	MDPolicePatrolAreas-PatrolAreaNumbers	YES	YES
MDSolidWasteManagementGarbagePickup	MDSolidWasteManagementGarbagePickup	YES	YES
MDWASAServiceAreas	MDWASAServiceAreas-Code	YES	YES
MunicipalBoundaries	MunicipalBoundaries-Munic_Name	YES	YES
MunicipalFireStations	MunicipalFireStations	YES	YES
MunicipalPoliceStations	MunicipalPoliceStations	YES	YES
ParkDistricts	ParkDistricts-DistrictNumbers	YES	YES
Parks	Parks	YES	YES
PoliceGrids	PoliceGrids	YES	YES
PoliceStations	PoliceStations	YES	YES
PollingPrecincts	PollingPrecincts; PollingPrecincts-Senate; PollingPrecincts-House; PollingPrecincts-Commission	YES	YES
Polls	Polls	YES	YES
PrivateSchools	PrivateSchools	YES	YES
Schools	Schools	YES	YES
SectionBoundaries	SectionBoundaries	YES	YES
SenateDistricts	SenateDistricts-Senate	YES	YES
TeamMetroBoundaries	TeamMetroBoundaries-Offices	YES	YES
TeamMetroOffices	TeamMetroOffices	YES	YES
TeamMetroRegionalOffices	TeamMetroRegionalOffices	YES	YES
USHouseOfRepresentatives	USHouseOfRepresentatives-HouseDistrictNos	YES	YES
Pides \ Physical			
Canals	Canals	YES	YES
Coast	Coast-CountyName	YES	YES
Contours	Countours	YES	YES
CountyBoundary	CountyBoundary	YES	YES
CountyOutline	CountyOutline	YES	YES
FloodHazardZones	FloodHazardZones-Elev	YES	YES
FloodZones	FloodZones-Dlg_Pannum	YES	YES
HurricaneEvacuationZones	HurricaneEvacuationZones-Evac_Color; HurricaneEvacuationZones-Hurr_Categ	YES	YES
Hydrology	Hydrology	YES	YES
Lakes	Lakes	YES	YES
Shoreline	Shoreline	YES	YES
SoilConservation	SoilConservation	YES	YES
Streams	Streams	YES	YES
Pides \ SocioEconomic			
AutosEmploymentAndEconomicRanking			
Blocks01ft	Blocks01ft	YES	YES

CensusBlockFromStreets	CensusBlockFromStreets	YES	YES
CensusBlockGroups	CensusBlockGroups	YES	YES
CensusBlocks	CensusBlocks	YES	YES
CensusBlocksFromStreetNetwork	CensusBlocksFromStreetNetwork	YES	YES
CensusPlaces	CensusPlaces	YES	YES
CensusTracksCoastline	CensusTracksCoastline	YES	YES
CensusTracts	CensusTracts	YES	YES
MetropolitanStatisticalAreas	MetropolitanStatisticalAreas	YES	YES
Zipcodes	Zipcodes	YES	YES
TransSys \ TI			
BikeLanes	BikeLanes	YES	YES
BikePaths	BikePaths	YES	YES
BikeWays	BikeWayConditions	YES	YES
BusRouteswithBikeRacks	BusRouteswithBikeRacks	YES	YES
FDOTBasemap	FDOTBasemap	YES	YES
FloridaIntraStateHighwaySystem	FloridaIntraStateHighways	YES	YES
FloridaStateRoads	FloridaStateRoads	YES	YES
FunctionalClassifications	FunctionalClassFederalRural; FunctionalClassFederalUrban	YES	YES
Highways	Highways	YES	YES
IntermodalFacilities_points	IntermodalFacilities_points; IntermodalFacilities_points-Type_of_TE	YES	YES
IntermodalFacilities_poly	IntermodalFacilities_poly	YES	YES
LocalStreetNames	LocalStreetNames	YES	YES
MajorRoads	MajorRoads; MajorRoads-Truck_Code; MajorRoads-Funclass	YES	YES
StateRoads	StateRoads	YES	YES
StreetNetwork	StreetNetwork	YES	YES
TrafficSignalsFDOT	TrafficSignalsFDOT	YES	YES
TrafficSignalsMDITD	TrafficSignalsMDITD; TrafficSignalsMDITD-TimingZone	YES	YES
TrafficSignalsMDPW	TrafficSignalsMDPW	YES	YES
TransSys \ TM_H			
AADT	RoadAADT; RoadCapacity24Hr	YES	YES
FatalCrashes1997_1999	FatalCrashes1997_1999_byNoKilled	YES	YES
FDOTDistricts	FDOTDistricts; FDOTDistricts-District	YES	YES
FedAidHwySystem	FedAidHwySystem	YES	YES
MaxSpeed	MaxSpeed; MaxSpeed-MaxSpeed	YES	YES
RoadImpactFeeDistricts	RoadImpactFeeDistricts-Rif_Distri	YES	YES
SRCapacity	SRCapacity	YES	YES

SRFunctionalClassification	SRFunctionalClassification-ClassificaRural; SRFunctionalClassification-ClassificaUrban	YES	YES
SRWPSectionImprovement	SRWPSectionImprovement; SRWPSectionImprovement-Specif; SRWPSectionImprovement-Year	YES	YES
SRWPStructuralImprovements	SRWPStructuralImprovements; SRWPStructuralImprovements-Comments; SRWPStructuralImprovements-Date	YES	YES
TrafficAnalysisDistricts	TrafficAnalysisDistricts	YES	YES
TrafficAnalysisZones1992	TrafficAnalysisZones1992; TrafficAnalysisZones1992-District	YES	YES
TrafficAnalysisZones2000	TrafficAnalysisZones2000	YES	YES
TrafficCountStationsFDOTPointLocations	TrafficCountStationsFDOTPointLocations	YES	YES
TrafficMonitoringStationsFDOTLineSegments	[No spatial reference. Read-only feature class.]		
TransSys \ TM_OM			
AirFacilities	Airfacilities; Airfacilities-CongestionLevel; Airfacilities-Name; Airfacilities-Owner; Airfacilities- Use	YES	YES
SpecialTransportationServices	SpecialTransportationServices-Zone; SpecialTransportationServices-ZoneQuantities	YES	YES
TransSys \ TM_PT			
BusMaintenanceFacilities	BusMaintenanceFacilities; BusMaintenanceFacilities-Name	YES	YES
BusRoutes	BusRoutes	YES	YES
BusStops	BusStops	YES	YES
MetroMover	MetroMover	YES	YES
MetroMoverBoarding	MetroMoverBoarding-Annual	YES	YES
MetroMoverMaintenanceFacilities	MetroMoverMaintenanceFacilities	YES	YES
MetroMoverStations	MetroMoverStations	YES	YES
MetroRail	MetroRail	YES	YES
MetroRailMaintenanceFacilities	MetroRailMaintenanceFacilities	YES	YES
MetroRailStations	MetroRailStations	YES	YES
Railroads	RailRoads	YES	YES
Trirail	Trirail	YES	YES
FSUTMS \ TAZ1999Analysis			
AdjustedIncomeData	TAZ1999-AdjustedIncomeData	YES	YES
CarsByHousingType	TAZ1999-CarsByHousingType-MF_1Car; TAZ1999-CarsByHousingType-MF_2Cars; TAZ1999-CarsByHousingType-MF_NoCars; TAZ1999-CarsByHousingType-SF_1Car; TAZ1999-CarsByHousingType-SF_2Cars; TAZ1999-CarsByHousingType-SF_NoCars	YES	YES

CBD_ExUrbanData	TAZ1999-CBD_ExUrbanData	YES	YES
EmploymentData	TAZ1999-EmploymentData-TotalEmployment	YES	YES
HotelMotelData	TAZ1999-HotelMotelData-HotelOcc; TAZ1999-HotelMotelData-HotelRes; TAZ1999-HotelMotelData-HotelRoom	YES	YES
HouseholdData	TAZ1999-HouseholdData-TotalHouseholds	YES	YES
HousingData	TAZ1999-HousingData-TotalHousing	YES	YES
OccupiedRoomsData	TAZ1999-OccupiedRoomsData-Occ_Rooms	YES	YES
PersonData	TAZ1999-PersonData-W_Children; TAZ1999-PersonData-W_NoChild	YES	YES
PopulationData	TAZ1999-PopulationData-TotalPopulation	YES	YES
SchoolEnrollmentData	TAZ1999-SchoolEnrollData-Sch_Enroll	YES	YES
TrafficAnalysisZones1992			YES
VehicleData	TAZ1999-VehicleData-V_Children; TAZ1999-VehicleData-V_NoChild	YES	YES
WorkerData	TAZ1999-WorkerData-W_Children; TAZ1999-WorkerData-W_NoChild	YES	YES
FSUTMS \ TAZ2000Analysis			
AdjustedIncomeData	TAZ2000-AdjustedIncomeData-Inc_Adj199	YES	YES
CarsByHousingType	TAZ2000-CarsByHousingType-MF_1Car; TAZ2000-CarsByHousingType-MF_2Cars; TAZ2000-CarsByHousingType-MF_NoCars; TAZ2000-CarsByHousingType-SF_1Car; TAZ2000-CarsByHousingType-SF_2Cars; TAZ2000-CarsByHousingType-SF_NoCars	YES	YES
EmploymentData	[unknown fields]		
HotelMotelData	TAZ2000-HotelMotelData-Hotel_Occ; TAZ2000-HotelMotelData-Hotel_Res;TAZ2000-HotelMotelData-Hotel_Room	YES	YES
HousingData	TAZ2000-HousingData-Tot_Housin	YES	YES
PopulationData	TAZ2000-PopulationData-Pop_Total	YES	YES
SchoolEnrollmentData	TAZ2000-SchoolEnrollmentData-Sch_Enroll	YES	YES
SchoolsData	TAZ2000-SchoolsData-Elem_Enrol; TAZ2000-SchoolsData-High_Enrol; TAZ2000-SchoolsData-Midd_Enrol; TAZ2000-SchoolsData-Priv_Enrol	YES	YES
FSUTMS \ TAZ2000Analysis \ 2015Projections			
AdjustedIncomeData	TAZ2000-2015P-AdjustedIncomeData-Inc_Adj201	YES	YES

CarsByHousingType	TAZ2000-2015P-CarsByHousingType-MF_1Car; TAZ2000-2015P-CarsByHousingType-MF_2Cars; TAZ2000-2015P-CarsByHousingType-MF_NoCars; TAZ2000-2015P-CarsByHousingType-SF_1Car; TAZ2000-2015P-CarsByHousingType-SF_2Cars; TAZ2000-2015P-CarsByHousingType-SF_NoCars	YES	YES
CBD_ExUrbanData	TAZ2000-2015P-CBD_ExUrbanData	YES	YES
EmploymentData	TAZ2000-2015P-EmploymentData-Total_Emp15	YES	YES
HotelMotelData	TAZ2000-2015P-HotelMotelData-Hotel_Occ; TAZ2000-2015P-HotelMotelData-Hotel_Res;TAZ2000-2015P-HotelMotelData-Hotel_Room	YES	YES
HouseholdData	TAZ2000-2015P-HouseholdData-H_Children; TAZ2000-2015P-HouseholdData-H_NoChild	YES	YES
HousingData	TAZ2000-2015P-HousingData-Tot_Housin	YES	YES
OccupiedRoomsData	TAZ2000-2015P-OccupiedRoomsData	YES	YES
PersonData	TAZ2000-2015P-PersonData-P_Children; TAZ2000-2015P-HousingData-P_NoChild	YES	YES
PopulationData	TAZ2000-2015P-PopulationData-Pop_Total	YES	YES
SchoolEnrollmentData	TAZ2000-2015P-SchoolEnrollmentData	YES	YES
SchoolsData	TAZ2000-2015P-SchoolsData-Elem_Enrol; TAZ2000-2015P-SchoolsData-High_Enrol; TAZ2000-2015P-SchoolsData-Midd_Enrol; TAZ2000-2015P-SchoolsData-Priv_Enrol	YES	YES
VehicleData	TAZ2000-2015P-VehicleData-V_Children; TAZ2000-2015P-VehicleData-V_NoChild	YES	YES
WorkerData	TAZ2000-2015P-WorkerData-W_Children; TAZ2000-2015P-WorkerData-W_NoChild	YES	YES
FSUTMS \ TAZ2000Analysis \ 2025Projections			
AdjustedIncomeData	TAZ2000-2015P-AdjustedIncomeData-Inc_Adj202	YES	YES
CarsByHousingType	TAZ2000-2025P-CarsByHousingType-MF_1Car; TAZ2000-2025P-CarsByHousingType-MF_2Cars; TAZ2000-2025P-CarsByHousingType-MF_NoCars; TAZ2000-2025P-CarsByHousingType-SF_1Car; TAZ2000-2025P-CarsByHousingType-SF_2Cars; TAZ2000-2025P-CarsByHousingType-SF_NoCars	YES	YES
CBD_ExUrbanData	TAZ2000-2025P-CBD_ExUrbanData	YES	YES
EmploymentData	TAZ2000-2025P-EmploymentData-Total_Emp15	YES	YES

HotelMotelData	TAZ2000-2025P-HotelMotelData-Hotel_Occ; TAZ2000-2025P-HotelMotelData-Hotel_Res;TAZ2000-2025P-HotelMotelData-Hotel_Room	YES	YES
HouseholdData	TAZ2000-2025P-HouseholdData-H_Children; TAZ2000-2025P-HouseholdData-H_NoChild	YES	YES
HousingData	TAZ2000-2025P-HousingData-Tot_Housin	YES	YES
OccupiedRoomsData	TAZ2000-2025P-OccupiedRoomsData	YES	YES
PersonData	TAZ2000-2025P-PersonData-P_Children; TAZ2000-2025P-HousingData-P_NoChild	YES	YES
PopulationData	TAZ2000-2025P-PopulationData-Pop_Total	YES	YES
SchoolEnrollmentData	TAZ2000-2025P-SchoolEnrollmentData	YES	YES
SchoolsData	TAZ2000-2025P-SchoolsData-Elem_Enrol; TAZ2000-2025P-SchoolsData-High_Enrol; TAZ2000-2025P-SchoolsData-Midd_Enrol; TAZ2000-2025P-SchoolsData-Priv_Enrol	YES	YES
VehicleData	TAZ2000-2025P-VehicleData-V_Children; TAZ2000-2025P-VehicleData-V_NoChild	YES	YES
WorkerData	TAZ2000-2025P-WorkerData-W_Children; TAZ2000-2025P-WorkerData-W_NoChild	YES	YES