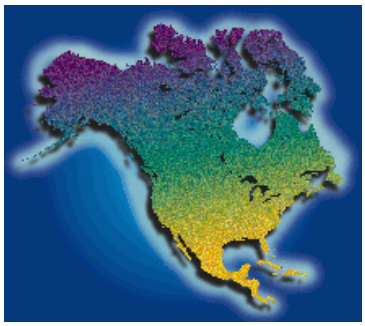
LandView™ III

Guided Tour

September 1997



U.S. Environmental Protection Agency

National Oceanic and Atmospheric Administration

Bureau of the Census

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1 Overview

LandView™ III is an innovative "community right-to-know" software tool in the format of an electronic atlas. LandView III can be used on standard personal computers. The information that LandView III displays in maps and tables combines EPA databases with geographic features and statistics on demographics and economics from the 1990 Census. The LandView III software package combines the LandView III database management system with the MARPLOT® mapping application, which allows you to display and manipulate the information on a map.

This Guided Tour tutorial helps you learn how to access LandView III's databases, perform some basic functions, and use the MARPLOT mapping application. Section 2 of this document provides information about the LandView III system and data included on the CD. Section 3 (which begins on p. 11) provides a Guided Tutorial to help you learn to use the system.

2 What is LandView III?

LandView III is a database management system that contains:

- EPA-regulated site locations and information;
- TIGER/Line® map data;
- Demographic and economic data from the Census Bureau; and
- Miscellaneous public structures and facilities.

This information is presented in a geographic context that includes:

- Jurisdictional entities (states, counties, cities & towns, and congressional districts) and other geographic entities (such as ZIP code reference points);
- Detailed network of major and minor roads, rivers, and railroads;
- Census block groups and tracts; and
- Selected landmarks.

Site, demographic, and geographic information are integrated and accessible through software that provides:

- Essential desktop mapping capabilities for displaying, searching, and identifying map objects;
- Thematic mapping - choosing display attributes based on database information or relation to other map objects; and
- Printed maps and reports.

LandView III has its roots in the CAMEO® system (Computer-Aided Management of Emergency Operations). CAMEO was developed by the Environmental Protection Agency and the National Oceanic and Atmospheric Administration to facilitate the implementation of the Emergency Planning and Community Right-to-Know Act, a far-reaching law requiring communities to develop emergency response plans addressing chemical hazards and making information on chemical hazards in the community available to the public.

CAMEO DOS, first released in 1991, contained a mapping program called MARPLOT, which provided access to computerized street maps based on the Census Bureau's TIGER/Line files. MARPLOT was

subsequently enhanced to include Census boundaries and demographic statistics, and was included in the TIGER/Line 1992 CD-ROM product, under the name of LandView.

With the addition of EPA-regulated sites and more detailed demographic data, LandView became a CD-ROM product in itself, released in 1995 as LandView II. As a DOS-based program, LandView II was limited by the DOS memory restrictions and was difficult to run in memory-intensive environments, such as on networks. To solve that problem, and to provide additional capabilities and ease of use, the LandView III software was converted to the Windows platform. Two programs were developed, MARPLOT for Windows (the mapping engine), and LandView III (the database search and query engine).

2.1 Geographic Information Systems, Spatial Information, and Layers

LandView III functions as a simple Geographic Information System or GIS - a generic term used to describe computer mapping systems that can display individual layers of information that have location or "spatial" information associated with them. For example, each type of building, boundary, or EPA-regulated site for which information is available in LandView III is stored on an individual "layer" (such as a layer for Toxic Release Inventory, or TRI, sites, or a layer for county boundaries). Each layer of spatial information is stored as an individual database or spreadsheet of OBJECT information that contains the name of the object and its spatial information. Some objects, such as the EPA-regulated sites, are POINTS that require one latitude and one longitude point to describe their spatial locations. Some objects, such as streets, are LINES and require multiple points; one each to describe the beginning and ending of each segment of the line (plus other points as required to indicate the shape of the line). Other objects are POLYGONS, made up of multiple lines that usually define the boundaries of an object such as a city, county, congressional district, census block or tract, or facility. These polygon objects require that each of the many boundary lines is defined by the two points at the beginning and end of each side of the polygon. The sum of these lines defines the boundary of polygon objects.

Geographic Information Systems allow the user to access all or some of the spatial information stored in each layer. Layers can be shown or hidden to tailor the displayed information to a user's needs. For example, if only the TRI layer is shown, a user will only see a number of objects displayed. Without other layers in view, there is no context to see which roads or rivers or cities are nearby. By showing other relevant layers, a user can create a map that displays the layers of interest. One analogy frequently used to describe the "layer" concept is that a GIS can be thought of as a series of transparent sheets that are laid on top of each other to be shown, so that each is visible either above or below the others.

2.2 MARPLOT Mapping

MARPLOT (Mapping Application for Response, Planning, and Local Operational Tasks) is the general-purpose mapping application program included in the LandView III software package. It allows you to create, view, and modify maps quickly and easily. It also allows you to link objects on your computer maps to data in other programs (in this case, to LandView III databases).

2.3 LandView III Databases

2.3.1 Census Data

The following is a brief description of Census information in LandView III. The LandView III Help system contains detailed information, including an extensive glossary and appendices from various Census publications.

The "Census Data" database in LandView III contains selected 1990 demographic and economic census information from the Census Bureau, including:

- Population characteristics; and
- Economic and housing characteristics.

These data are available for a number of groupings:

❑ **Alaskan Native Regions:** Alaska Native villages (ANVs) constitute tribes, bands, clans, groups, villages, communities, or associations in Alaska that are recognized pursuant to the Alaska Native Claims Settlement Act of 1972, Public Law 92-203. Because ANVs do not have legally designated boundaries, the Census Bureau has established Alaska Native village statistical areas (ANVSAs) for statistical purposes.

❑ **Census Block Groups:** Census block groups (a collection of census blocks) are usually small areas bounded on all sides by visible features such as streets, roads, streams, and railroad tracks, and by invisible boundaries such as city, town, township, and county limits, property lines, and short, imaginary extensions of streets and roads. Block groups are generally defined so that they contain approximately 400 housing units; thus, depending on the population density in an area, the sizes of block groups may vary widely. Census block groups are the smallest population grouping for which demographic or economic data are available in LandView III.

❑ **Census Tracts/Block Numbering Areas (BNAs):** Census tracts are small, relatively permanent statistical subdivisions of a county. Census tracts usually have between 2,500 and 8,000 persons and, when first delineated, are designed to be homogeneous with respect to population characteristics, economic status, and living conditions. Census tracts do not cross county boundaries. The spatial size of census tracts varies widely depending on the density of settlement. Census tract boundaries are delineated (usually with the help of local officials) with the intention of being maintained over a long time so that statistical comparisons can be made from census to census. However, physical changes in street patterns caused by highway construction, new development, etc., may require occasional revisions; census tracts occasionally are split due to large population growth, or combined as a result of substantial population decline. BNAs are geographic entities similar to census tracts, and delineated in counties (or the statistical equivalents of counties) without census tracts. Both census tracts and BNAs define a set of small geographic areas for the enumeration, tabulation, and publication of census data. LandView III includes both census tract and BNAs in the Census Tract layer.

❑ **Congressional Districts:** Congressional districts are the 435 areas from which persons are elected to the U.S. House of Representatives based on the 101st Congress. After the apportionment of congressional seats among the states, based on census population counts, each

state is responsible for establishing Congressional districts for the purpose of electing representatives. Each Congressional district is to be as equal in population to all other districts in the state as practicable, based on the decennial census counts.

- ❑ **Counties:** The primary political divisions of most states are termed "counties." In Louisiana, these divisions are known as "parishes." In Alaska, which has no counties, the county equivalents are the organized "boroughs" and the "Census areas" that are delineated for statistical purposes by the State of Alaska and the Census Bureau. In four states (Maryland, Missouri, Nevada, and Virginia), there are one or more cities that are independent of any county organization and thus constitute primary divisions of their states. These cities are known as "independent cities" and are treated as equivalent to counties for statistical purposes. In addition, the part of Yellowstone National Park that is located in Montana is treated as a county equivalent. The District of Columbia has no primary divisions, and the entire area is considered equivalent to a county for statistical purposes.

- ❑ **Metropolitan Areas:** Metropolitan Area (MA) is a collective term, established by the Federal OMB and used for the first time in 1990, to refer to metropolitan statistical areas (MSAs), consolidated metropolitan statistical areas (CMSAs), and primary metropolitan statistical areas (PMSAs). The general concept of a metropolitan area is one of a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that nucleus. MAs that are designated as MSAs are typically surrounded by non-metropolitan counties. These areas are a statistical classification defined by the Federal Office of Management and Budget for the use of Federal agencies in the production, analysis, and publication of data on metropolitan areas. The "Metropolitan Statistical Area" layer within LandView III contains information regarding all of these areas.

- ❑ **Minor Civil Divisions:** Minor civil divisions (MCDs) are the primary legal subdivision of a county in 28 states, created to govern or administer an area rather than a specific population. The several types of MCDs are identified by a variety of terms, such as town, township, and district, and include both functioning and nonfunctioning governmental units. Many MCDs represent local, general-purpose governmental units, which makes them required areas for presentation of decennial census data.

- ❑ **American Indian Reservations:** Federal American Indian reservations are areas with boundaries established by treaty, statute, and/or executive or court order, and recognized by the Federal government as territory in which American Indian tribes have jurisdiction.

- ❑ **Places:** Places are concentrations of population either legally bound as an incorporated place, or identified by the Census Bureau as a census designated place (CDPs) for the reporting of decennial census data. CDP boundaries, which usually coincide with visible features or the boundary of an adjacent incorporated place, have no legal status, nor do these places have officials elected to serve traditional municipal functions.

- ❑ **States:** States are the primary political divisions of the United States. The District of Columbia is treated as a statistical equivalent of a state for census purposes. The Census Bureau treats the outlying areas as state equivalents for the 1990 census. The outlying areas are American Samoa, Guam, the Northern Mariana Islands, Palau, Puerto Rico, and the Virgin Islands of the United States.

2.3.2 Air Facilities

The "Air Facilities" database in LandView III contains information maintained by EPA's Office of Air and Radiation in its Aerometric Information Retrieval System (AIRS). AIRS stores information on air quality, point source emissions, and area/mobile source data required by federal regulation from the 50 states. States are required by the Code of Federal Regulations (CFR) to report to EPA annual emissions estimates for point sources emitting greater than or equal to 100 tons per year of volatile organic compounds (VOCs), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns in size (PM-10); 1000 tons per year of carbon monoxide (CO); or 5 tons per year of lead (Pb). The Clean Air Act Amendments also require states to report emissions data for point sources in areas where air pollution exceeds Federal standards (nonattainment areas).

LandView III uses a pink "A" to denote air facilities. Information available on these facilities includes:

- ❑ Location information;
- ❑ Facility identification information;
- ❑ Carbon monoxide emissions (tons/year);
- ❑ Nitrogen oxides emissions (tons/year);
- ❑ Particulate matter emissions (< 10 microns);
- ❑ Sulfur dioxides emissions (tons/year);
- ❑ Volatile organic compound emissions (tons/year);
- ❑ Total particulate emissions (tons/year); and
- ❑ Lead emissions (tons/year).

2.3.3 Hazardous Waste Facilities

EPA's Office of Solid Waste (OSW) manages two major national information systems to support the Resource Conservation and Recovery Act (RCRA) Subtitle C Hazardous Waste program:

- The Resource Conservation and Recovery Information System (RCRIS); and
- The Biennial Reporting System (BRS).

Information contained in the "Hazardous Waste Facilities" database in LandView III is taken from BRS and matched with latitude and longitude information taken from RCRIS by a process of matching facility identification numbers between the two systems. BRS contains information on facilities that treat, store, or dispose (TSD) RCRA hazardous wastes or are classified as Large Quantity Generators (LQGs) under RCRA. A RCRA hazardous waste is a waste that is both (a) described by one or more federal RCRA waste codes, and (b) is not exempted from RCRA regulations. RCRA classifies as LQG a facility that either (a) generated 1,000 kg or more of RCRA hazardous waste in a single month; (b) generated in a single month or accumulated at any time 1 kg of RCRA acute hazardous waste; or (c) generated or accumulated at any time more than 100 kg of spill clean up material contaminated with a RCRA acute hazardous waste. The data are reported by the facilities to EPA on even years about the hazardous waste activities of the previous year.

Hazardous waste facilities are identified in LandView III by a red "H." The following types of information are included for these facilities:

- ❑ Facility identification information;
- ❑ RCRA classification; and
- ❑ Amount of waste generated or managed.

2.3.4 Superfund Sites

Information on Superfund sites was obtained from the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS), which is the official repository for site and non-site specific Superfund data in support of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund). CERCLIS information is used to report official Superfund accomplishments to Congress and the public, help EPA Regional and headquarters managers evaluate the status and progress of site cleanup actions, track the Superfund Comprehensive Accomplishments Plan (SCAP), and communicate planned activities and budgets.

Information on Superfund sites is contained in LandView III in three different files, in accordance with the process used by EPA for prioritizing Superfund sites for clean up actions. Sites are placed on the National Priorities List (NPL) by EPA if they are uncontrolled releases of hazardous substances that are priorities for long-term remediation and response. The sites in the "Superfund NPL Sites" database are shown in LandView III with a red "S." The "Superfund Non-NPL Sites" database in LandView III contains information on Superfund sites where there is ongoing Federal interest or potential Federal activity, but where the hazard posed is not sufficiently significant or time-critical for the site to be placed on the NPL. These sites are shown in LandView III with a gray "C" for CERCLIS. Finally, there are approximately 24,000 sites that have been included in CERCLIS in the past, but for which EPA requires no further action under the Federal Superfund program. These sites, contained in LandView III's "Superfund No Longer of Concern" database, are denoted in LandView III with a black "©."

The following types of information are available for the three types of Superfund sites:

- ❑ Site location and identification information;
- ❑ Incident category;
- ❑ Contamination information; and
- ❑ Contact information.

2.3.5 Toxic Release Inventory Facilities

Maintained by EPA's Office of Prevention, Pesticides, and Toxic Substances, the Toxic Release Inventory (TRI) System (TRIS) contains data submitted to EPA by regulated facilities concerning chemicals and chemical categories listed by the Agency under Section 313 of the Emergency Planning and Community Right-to-Know Act. Data contained in the system include chemicals present, amount of on-site use, releases and off-site transfers (including Publicly-Owned Treatment Works, POTWs), on-site treatment, and minimization/prevention actions. TRIS contains information about releases and transfers of more than 300 toxic chemicals and compounds to the environment. Data include:

- ❑ Facility location and identification information;
- ❑ Chemicals (quantities and Standard Industrial Classification (SIC) codes);

- ❑ Medium of release (air, water, underground injection, land disposal, and offsite); and
- ❑ Pollution prevention data (e.g., recycling, energy recovery, treatment and disposal).

This information is represented in LandView III by a yellow “T” for toxic chemical facility.

2.3.6 Wastewater Discharge Facilities

The Permit Compliance System (PCS) is a national computerized management information system that automates entry, updating, and retrieval of National Pollutant Discharge Elimination System (NPDES) data and tracks permit issuance, permit limits and monitoring data, and other data pertaining to facilities regulated under NPDES. PCS records water-discharge permit data on more than 75,000 facilities nationwide.

The NPDES permit program regulates direct discharges from municipal and industrial wastewater treatment facilities that discharge into the navigable waters of the United States. Wastewater treatment facilities (also called "point sources") are issued NPDES permits regulating their discharge. EPA’s Office of Enforcement and Compliance Assurance is responsible for the operation and maintenance of PCS. EPA Regional Offices and state users of the system are responsible for the entry and quality of the data in the system.

The sites for which information is available from PCS in LandView III are represented by a blue “W” for waste water discharger. Information included in LandView III for these dischargers includes:

- ❑ Facility location and identification information;
- ❑ Facility Standard Industrial Classification (SIC) Code; and
- ❑ Information on the type and quantity of discharge.

2.3.7 Other LandView III Files

2.3.7.1 EPA Air Quality Monitoring Sites

The information in the “EPA Air Quality Monitoring Database” file in LandView III is taken from the Air Quality Subsystem (AQS) of the Aerometric Information Retrieval System (AIRS), maintained by EPA’s Office of Air and Radiation. AQS contains measurements of ambient concentrations of air pollutants and associated meteorological data. The data are collected by thousands of monitoring stations operated by EPA and national, state and local agencies. Monitoring is required for criteria pollutants (identified through the Clean Air Act) based on population, pollutant sources, geographical area, etc.

LandView III uses a rust-colored “Q” to denote air monitoring sites. Information available for these sites include:

- ❑ Site identification information; and
- ❑ Data on carbon monoxide, nitrous oxides, ozone, lead, particulate, and sulfur dioxide emissions.

2.3.7.2 Watersheds

LandView III contains over 2,000 watershed boundaries and an EPA database from the Index of Watershed Indicators (IWI). Information in this file includes:

- ❑ Watershed name and cataloging unit code;
- ❑ Quality and contamination indices;
- ❑ Susceptibility and vulnerability assessment; and
- ❑ Other information on the watershed's condition.

This information does not provide detailed site-specific information on which to base individual actions. However, it can provide valuable insight into national or regional trends. More detailed information about the IWI can be obtained from the internet site "Surf Your Watershed" at http://www.epa.gov/surf.

2.3.7.3 Ozone Non-attainment Areas

This database indicates which U.S. counties have been in a nonattainment status for ozone. On November 6, 1991, most areas of the country were categorized and designated as either unclassifiable/attainment or nonattainment.

The classification "Nonattainment" applies to any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant. The category "Unclassifiable/attainment" includes both those areas that meet the national primary or secondary ambient air quality standard for the pollutant ("attainment") and those areas that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant ("unclassifiable").

2.3.7.4 Dams

The information in the “Dams” file in LandView III comes from the 1995-96 update of the National Inventory of Dams CD-ROM, which was prepared under contract for the United States Federal Emergency Management Agency.

The National Inventory of Dams database contains information on 75,187 dams throughout the United States and its territories. Dams are included in the database if they meet the selection criteria specified in the Dam Safety Acts of 1972 and 1986. These selection criteria are based on the size of the dam and on the potential threat of dam failure to life and property.

The “Dams” file contains:

- ❑ Names of dams;
- ❑ Identification and ownership information;
- ❑ Nearby towns;
- ❑ Level of hazard potential;
- ❑ Physical properties and characteristics of dams; and
- ❑ Year of completion.

2.3.7.5 Airports

The information in the "Airports" file comes from the National Transportation Atlas Databases, Bureau of Transportation Statistics, maintained by the Volpe National Transportation Systems Center of the U.S. Department of Transportation. The file contains a comprehensive geographic database of landing facilities in the United States, including:

- ❑ Physical characteristics of the landing facilities;
- ❑ Usage characteristics; and
- ❑ Other pertinent data.

The airports layer is indicated in LandView III with a green airplane. A companion geographic database, "Runways," contains information on the physical characteristics of the runways for all of the airports in this database.

2.3.7.6 Nuclear Sites

The Nuclear Sites database in LandView comes from the Nuclear Regulatory Commission. It contains information on the following types of sites:

- ❑ Nuclear Power Plants;
- ❑ Fuel Cycle Licensees with Emergency Plans;
- ❑ Material Licensees with Emergency Plans;
- ❑ Site Decommissioning Management Plan Sites with Planned Environmental Justice Reviews;
- ❑ Uranium Mill Sites with Planned Environmental Justice Reviews; and
- ❑ High Level Waste Facilities.

2.3.7.7 U.S. Highways and Water

U.S. Highways and Water are layers present on the MARPLOT map for the national LandView CD (Disk #11). These layers are not present on CDs 1-10, since those CDs have the detailed network of roads, railroads, and water extracted from the Census Bureau's TIGER/Line 1995 files.

The U.S. Highways map layer comes from the National Transportation Atlas Databases: 1995, a CD-ROM publication of the Bureau of Transportation Statistics (BTS), an operating administration of the U.S. Department of Transportation. The original source of the data is the National Highway Planning Network (Version 2.0). It includes approximately 420,000 miles, or 11%, of the Nation's public roads including the proposed National Highway System. The originating agency is the Federal Highway Administration, Office of Environment and planning, HEP-11.

The U.S. Water map layer comes from the U.S. Geological Survey, 1 : 2,000,000 Digital Line Graphs.

2.3.7.8 Canadian Places

The Canadian Places database in LandView III is taken from the Digital Chart of the World (DCW), Edition 1, a CD-ROM publication of the United States Defense Mapping Agency. The MARPLOT map layers for Canadian Province boundaries, roads, and railroads also come from the DCW.

2.3.7.9 Mexican Places

The Mexican Places database in LandView III also comes from the DCW, as do the MARPLOT map layers for Mexican State boundaries, roads, and railroads.

2.3.7.10 Schools, Hospitals, Religious Institutions, and Cemeteries

The information contained in these files comes from the U.S. Department of the Interior's USGS Geographic Names Information System (GNIS). Entries are recorded from the USGS 1 : 24,000–scale survey topographic maps. Since some of the map sheets in this series have not been updated in a number of years, this database should not be considered a current and comprehensive list of these features. Each entry includes:

- ❑ The official name of the feature; and
- ❑ The status of the name as viewed by the U.S. Board on Geographic Names.

2.3.7.11 Zip Codes

The Zip Code file in LandView III was prepared by the Bureau of Census from the U.S. Postal Service City-State file, and contains all 5-digit residential ZIP codes defined as of January 1, 1997, by the U.S. Postal Service. Overseas military APO/FPO and most special commercial establishment ZIP codes are not included.

2.3.7.12 Brownfields Pilots

The Brownfields data in LandView III are extracted from the Brownfields Management System (BMS). BMS is a prototype management tool used by the OSWER Outreach/Special Projects staff at EPA to manage the Brownfields program. This is a preliminary set of information (current as of July 1997) showing pilot boundaries for 115 Brownfields pilots. Since fiscal year 1995, EPA has provided funding to 115 states, cities, towns, counties, and tribes for Brownfields Assessment pilots. The purpose of this funding to bring together community groups, investors, lenders, developers, and other affected parties to address the issues of cleaning up sites contaminated with hazardous substances and returning them to appropriate, productive use.

2.4 Sharing Menu

The applications that make up the LandView III software package (LandView III and MARPLOT) work together by means of their Sharing Menus. The use of these Sharing Menus will be described in the next section, the Guided Tour Tutorial.

3 Guided Tour Tutorial of LandView III

This section is a guided tour tutorial of the LandView III software package and its practical applications. The guided tour tutorial demonstrates the use of:

- LandView III
- MARPLOT

This tutorial accompanies you through several different uses of LandView III. It is suggested that you follow each lesson in sequence, in its entirety, to best grasp of the capabilities of the LandView III software package. Please note that the LandView III screens shown in this tutorial reflect the default system settings, with changes made only as indicated in the tutorial. If you or someone else has previously used LandView III on your computer, you may wish to reinstall the system so that your screen will match that shown in the figures.

3.1 System Requirements

To make full use of LandView III for Windows™ (with optimal performance):

- For the PC system, you need a Pentium™ or 486/DX2 66 MHz IBM-compatible PC with 8 MB of random access memory (RAM) running Microsoft® Windows 3.1, Windows for Workgroups 3.1, Windows 95, or Windows NT.
- For the Macintosh® 68K system, you need a 68,020 processor or higher and a system 7 or later with 8 MB of RAM (12 MB of RAM recommended).
- For the Macintosh Power PC system, you need a system 7.1.2 or later with 8 MB of RAM (16 MB of RAM recommended).

For all three systems, you also need:

- 10 Megabytes (MB) of free space on your hard drive;
- CD-ROM drive;
- VGA monitor, or better (or for MacIntosh systems, MacIntosh-compatible monitor); and
- Mouse or other pointing device.

3.2 Your Mission

You are a member of the Local Emergency Planning Committee (LEPC) for Prince William County, VA. You are interested in finding out about the EPA-regulated facilities in your county and the demographics of the communities in which they are found. This tutorial will teach you to use LandView III to answer these questions.

3.3 Lesson 1 - Getting Started

In Lesson 1, the objective is for you to become familiar with the basic components of LandView III.

The objectives of this exercise are to:

- Learn how to start LandView III; and
- Become comfortable using both the LandView III and the MARPLOT programs.

3.3.1 Starting LandView III

To begin your Guided Tour:

1. Display Windows' **Program Manager** window.

2. Open the LandView III Program Group.

3. Double-click on the LandView III Guided Tour icon. LandView III starts and displays the LandView III startup screen (Figure 1).

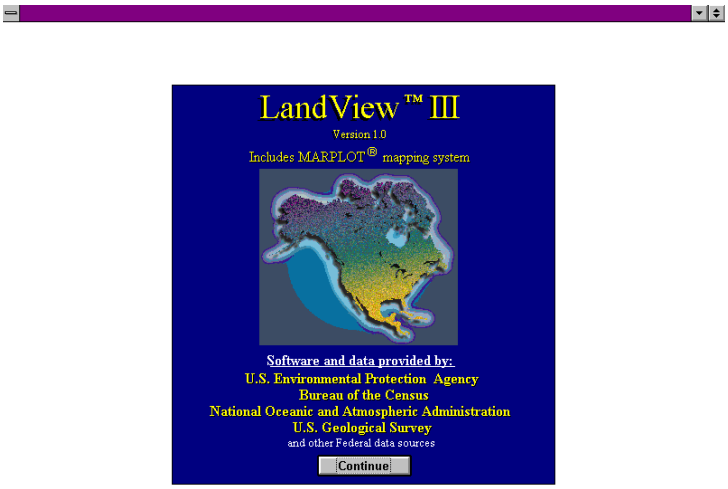

Figure 1: LandView III Startup Screen

4. Click the **Continue** button.

This function opens the MARPLOT program (Figure 2). LandView III runs simultaneously with MARPLOT, so you can access information from LandView III's databases while viewing objects in MARPLOT.

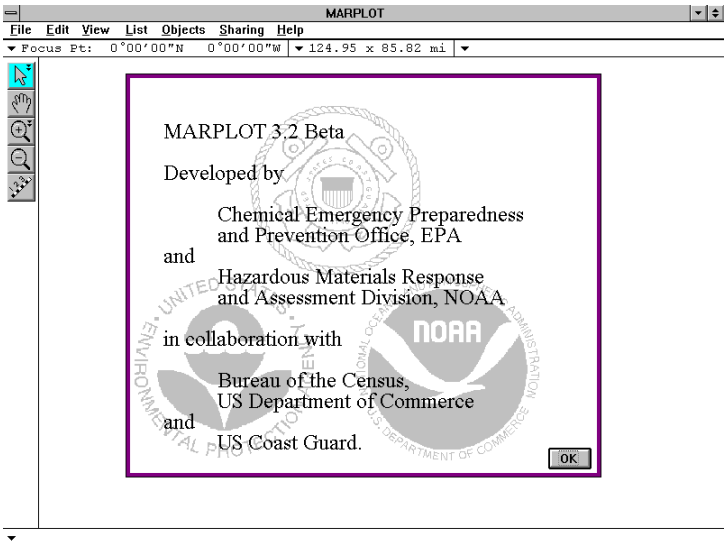

Figure 2: MARPLOT Dialog Box

5. Click the **OK** button.

LandView III's modules and functions are now available. LandView III always opens with its File menu pulled down (Figure 3).

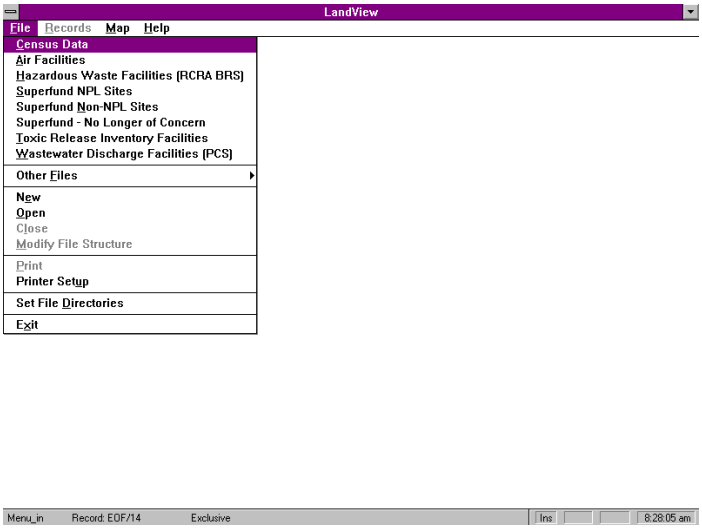

Figure 3: LandView III's File Menu

3.3.2 Getting Comfortable with LandView III and MARPLOT

As mentioned earlier, LandView III is a database search and query engine that works along with the mapping engine, MARPLOT. You can alternate between the two programs in order to get the respective database or mapping information you need.

1. You are currently in LandView III, and you can go to MARPLOT by clicking on **Map** and highlighting **Go to Map** (Figure 4).

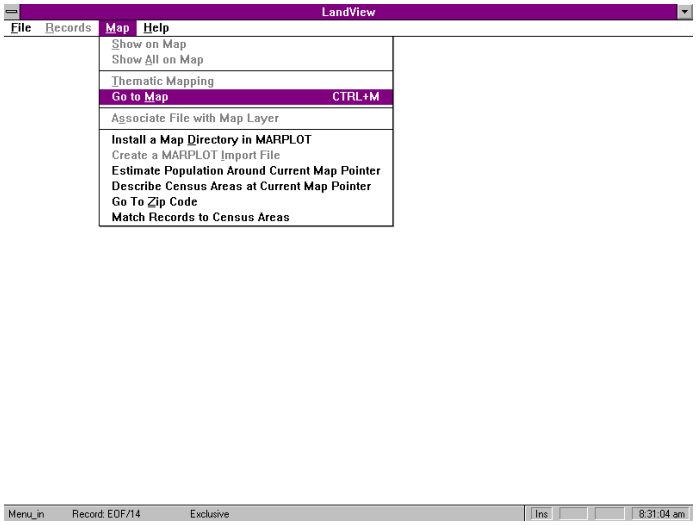

Figure 4: Go to Map

You now see the map of the United States. Currently, the map is drawn on a white background (Figure 5).

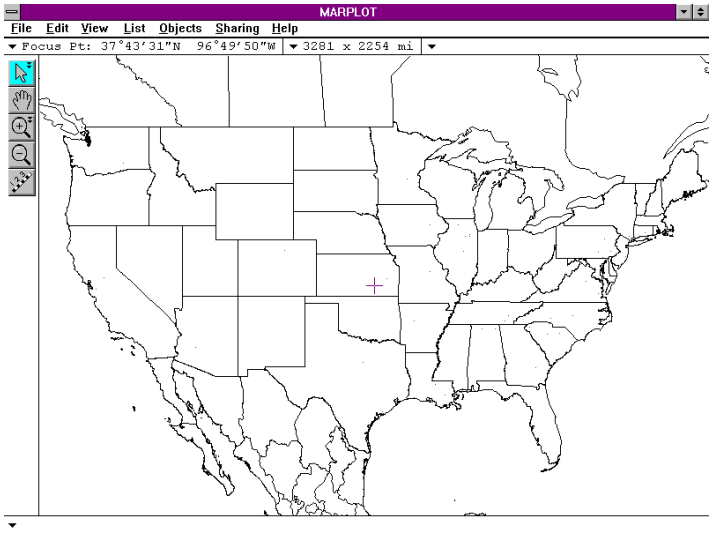

Figure 5: Map of the United States

A small, flashing, target-shaped icon called the "Focus Point," , is placed at about the state of Kansas. The Focus Point marks the location of the most recent point of interest on the map. Every time you click on the map with the arrow tool, the Focus Point moves to the location of your click. The Focus Point also changes in response to other operations. The latitude/longitude coordinates of the Focus Point are shown in the upper-left corner of the map window. The dimensions of the map are shown in the upper, middle part of the map window.

2. Just as you were able to switch from LandView III to MARPLOT, you can easily return to LandView III. Go to the MARPLOT **Sharing** menu and select **LandView Databases**. Under **LandView Databases**, highlight **Go to LANDVIEW** (Figure 6).

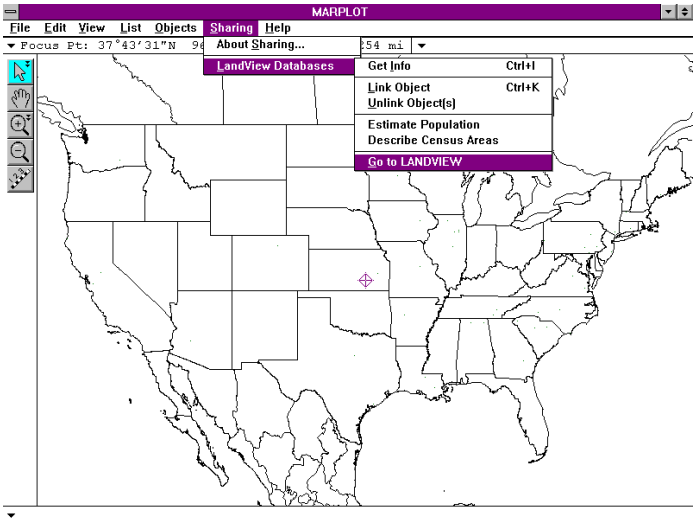

Figure 6: Go to LANDVIEW under Sharing Menu of MARPLOT

Practice switching back and forth from LandView III to MARPLOT. When you feel comfortable, switch back to MARPLOT (Figure 5: Map of the United States), so that you will be ready for the next step.

3. To change the color of the background, click on **File** and choose **Preferences** (Figure 7).

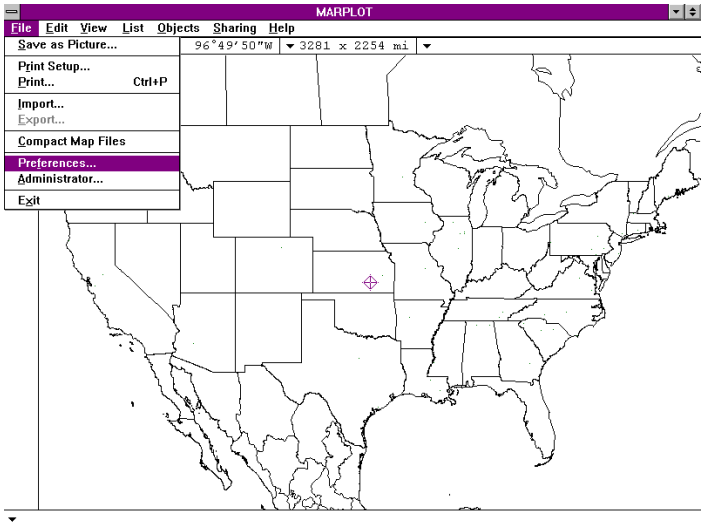

Figure 7: Preferences

This brings up the Preferences dialog box (Figure 8).

Notice that the Preferences dialog box allows you to control many of the ways that MARPLOT displays data. Click on the various tabs (e.g., Tools, Legend) to see how Preferences will allow you to alter the display. However, if you decide to change anything, your display may look different than the ones shown in this Guided Tour.

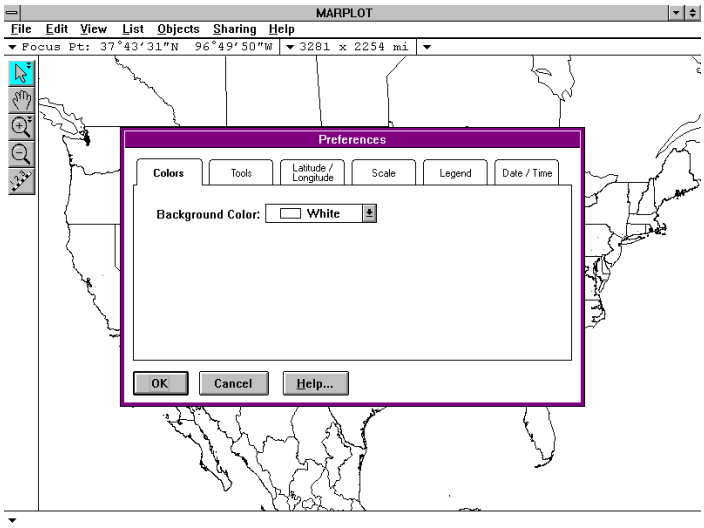

Figure 8: Preferences Dialog Box

4. Click on the tab labeled "Colors." You now see the option of Background Color. When you click on the pop up box for Background Colors, you can select between the colors black or white. Highlight "black" and click on **OK** (Figure 9).

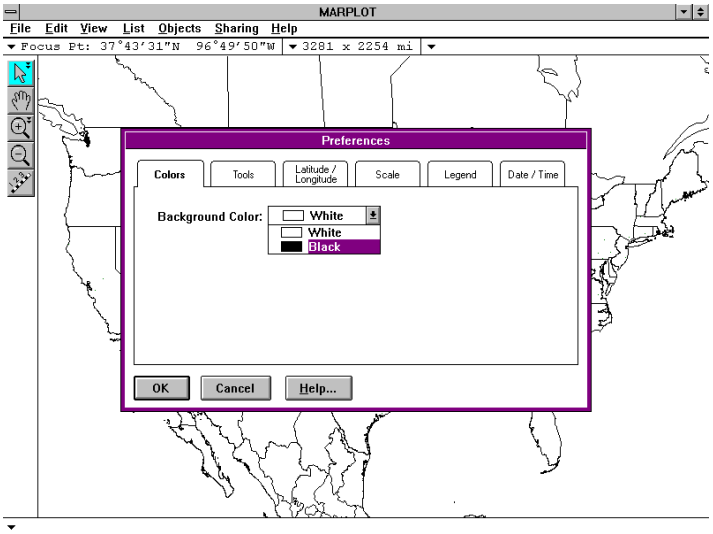

Figure 9: Selection of the Black Background in MARPLOT

5. The background is now changed to black (Figure 10).

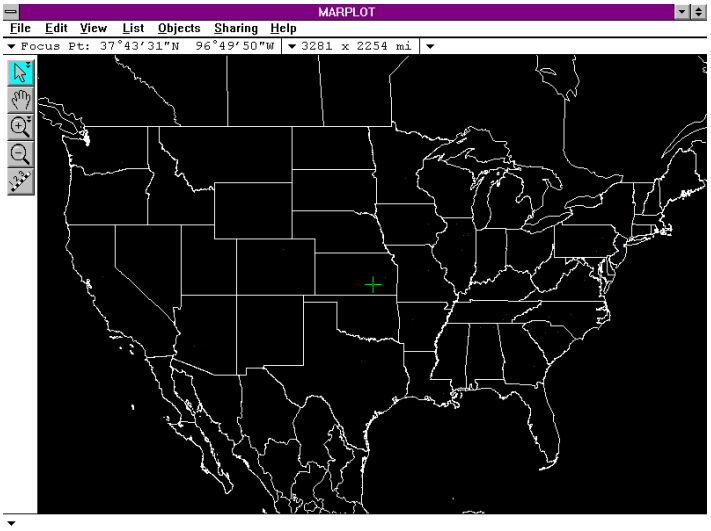

Figure 10: Map of the United States with the Black Background Color

6. For purposes of this Tutorial, change the background color back to white. Go to **Preferences** under the MARPLOT **File** menu. Under the "Colors" tab, select "white" and click on **OK**.

7. There are tool buttons on the upper-left side of your screen. These buttons can help adjust the image of the map you want to see. Currently the arrow tool button is highlighted. When you click on a tool icon, it becomes highlighted and your mouse cursor changes to the corresponding tool when it is in the map window. (Remember, whenever you click on the map with the arrow tool highlighted,  **,** the Focus Point is placed at the location of the click.)

The hand tool,  , is used to move the map in the window. Click and drag with the hand. When you release the button, the viewing screen will shift to follow the hand. It is as if you moved a paper map underneath a window frame.

The plus magnifying glass (zoom-in) tool,  **,** is used to zoom into the map by a factor of two. When you click with the minus magnifying glass (zoom-out) tool,  **,** the map is rescaled out, again by a factor of two, and centered about the location of the click.

The distance tool,  **,** is used to measure distances on the map with the mouse. To use this tool, click on the tool and then click on the map and drag while holding the button down. The mouse movement defines a circle, with a radius drawn from the pointer to the location of the initial click. The radius of the circle is displayed at the bottom of the map window, in the current units.

8. You can use the plus magnifying glass tool to zoom into the map by a factor of two. When you click with the plus magnifying glass tool, the map is rescaled and centered about the location of the click. Click on the plus magnifying glass tool, and with the tool pointer, click once at the center of the state of

Texas. The resulting image is a more magnified image of Texas (Figure 11). Depending on where you clicked, your map image may be different from the image that is shown here.

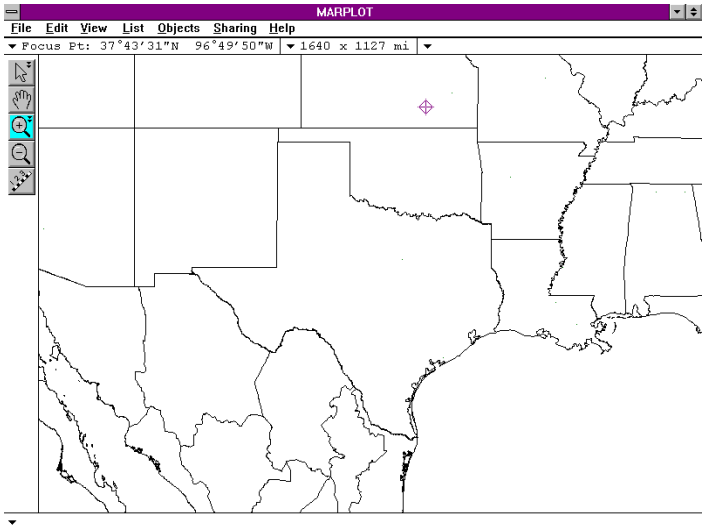

Figure 11: Zoomed-in View of Texas

9. Click a few more times at the center of Texas. You may notice that, as you zoom in further, new characteristics (e.g., water, roads) become apparent as more "layers" of information are displayed. You will get more detail about why this happens, and how you can control it, later in the Tutorial. If the system seems to be taking too long to draw, you can hit the **ESC** (escape) key, which causes MARPLOT to stop drawing. It displays the message [DRAW INCOMPLETE] at the bottom of the map window to remind you that you stopped when the map was incomplete (Figure 12). You can still click on the map and use the tools to continue to move in and out. The map will redraw completely if you change scale. (You can also use **Redraw** under the **View** menu, or type Ctrl-D, to force the same view to be redrawn completely.)

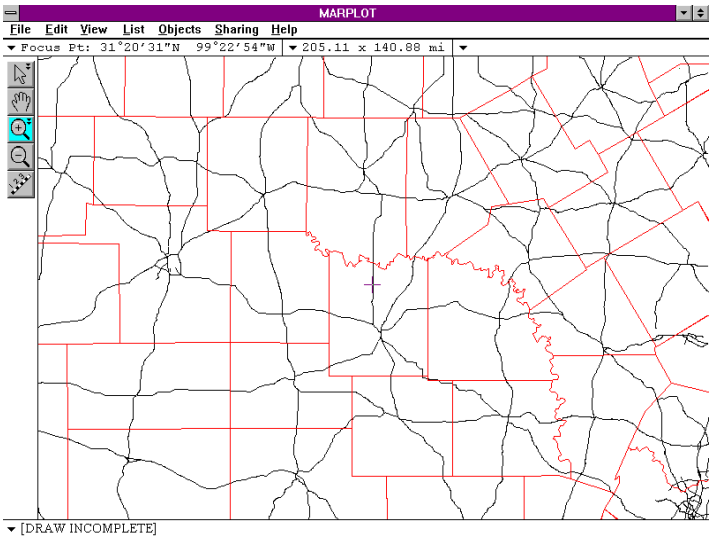

Figure 12: Incomplete Zoomed-In View of Texas

10. With the mouse, click on the minus magnifying glass tool (zoom-out) to the left of the map. Click a few times until you can see multiple states in the main map window (Figure 13).

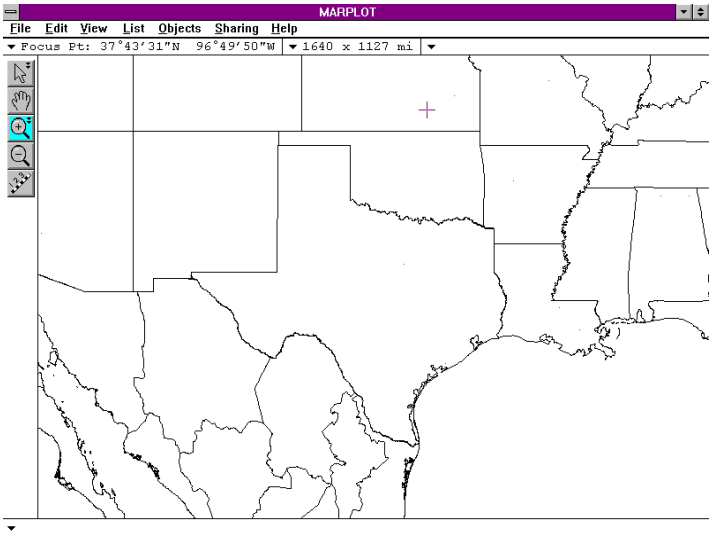

Figure 13: Zoomed-Out View of Texas

11. The plus magnifying glass (zoom-in) tool,  , can also be used to zoom-in to an area of the map by selecting that area as a rectangular region. Starting somewhere northwest of Texas, click down on the left mouse button, but do not release. Drag the pointer to the southeast toward Louisiana and Florida. Try to capture the same area as shown below. You should see a rectangle on the screen (Figure 14). While still holding the button down, move the mouse and watch the rectangle expand and contract.

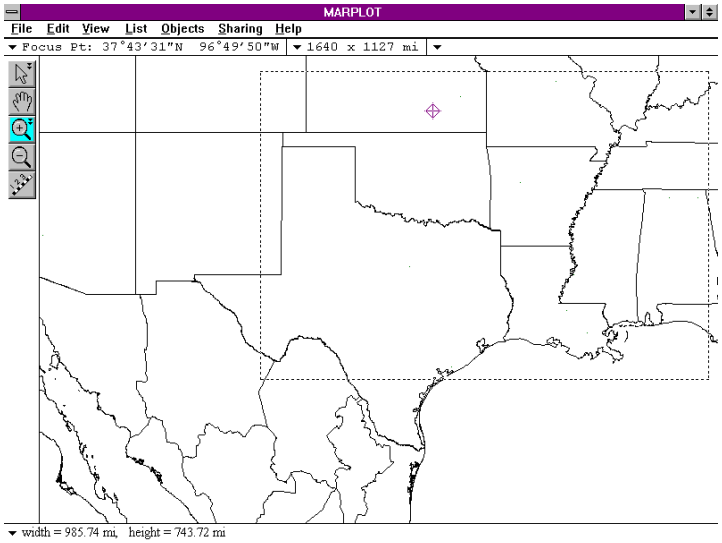

Figure 14: Zoom-In on Rectangular Area

12. When you release the mouse button, the view is zoomed in to show just the selected area (Figure 15).

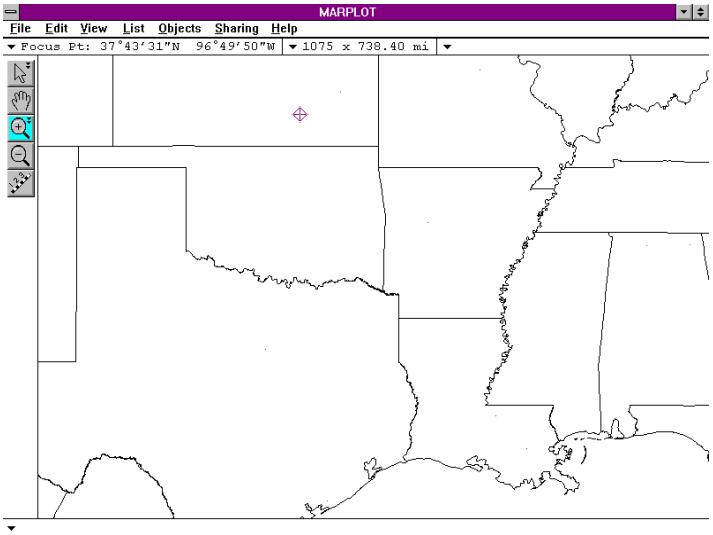

Figure 15: View of the Selected Area

13. You can use the hand tool on the map to move the map in the window without zooming in or out. Click on the hand tool in the tool bar. Then hold the left mouse button down and, without releasing, drag with the hand from the center of Texas and move it all the way to your left. When you release the mouse button, the map will shift in the direction of your drag. You should now be able to see the southeastern part of the United States (Figure 16).

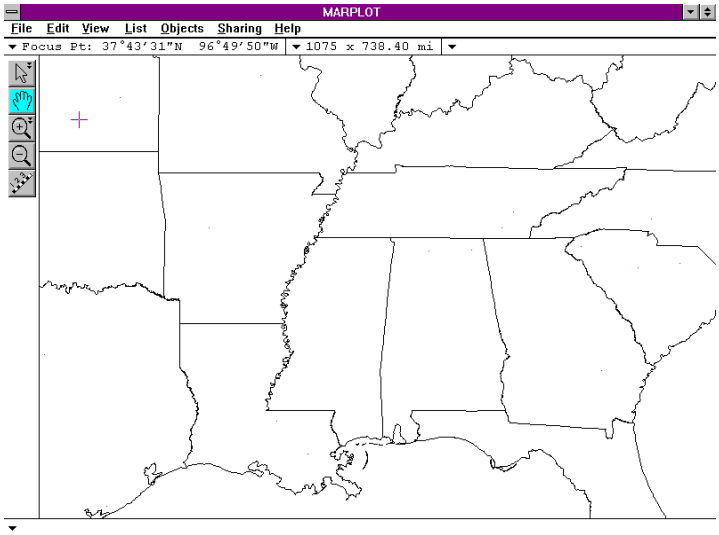

Figure 16: The Southeastern Part of the United States

14. Notice that under the menu bar, you can see the longitude and latitude of the focus point as well as the "scale" or dimension the map is in. The map dimension of the LandView III map shown in Figure 16 is 1075 x 738.40 mi (the map dimensions of your screen may be different, depending on the size of the rectangle you created in step 11). Using preferences, you can change from dimensions to scale. The scale of the map tells you the size of the objects in the map relative to the size of those objects in the real

world. For instance, suppose a certain road is one mile long. If the line representing the road on the computer monitor is 1 inch long, the scale is "1 inch = 1 mile." If you were to zoom out using the minus magnifying glass key, the same road would be shown by a line on the monitor that is half an inch long - scale of "0.5 inch = 1 mile" or "1 inch = 2 mile."

MARPLOT allows you to display the scale in any of the three formats (for more details, see the help screens in MARPLOT under "Scale.") For this Tutorial, you should use the "1 inch = 1 mile" scale. With this option, you can see the size of objects on the map relative to the size of those objects in the actual world. To accomplish this, click on the upside down triangle next to the current scale, which is under the menu bar. Using the arrow tool, select **Scale Format** from the pop-up menu (Figure 17).

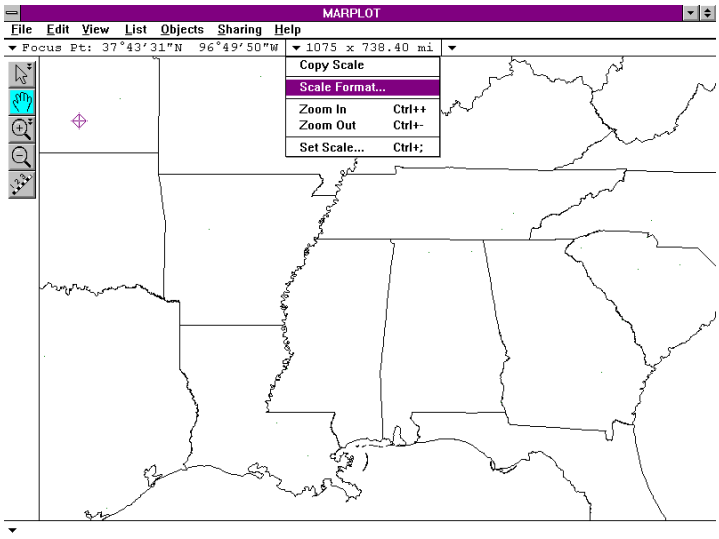

Figure 17: Selection of Scale Format from the MARPLOT Scale Pop-Up Menu

15. This brings up the Preferences dialog box under the Scale tab. (Note that this is the same preferences dialog box that you used earlier to change the color of your map.) It is currently set to "Window Distance" under the Scale Format. Click on "1 in = N mi" (Figure 18), and then click **OK**.

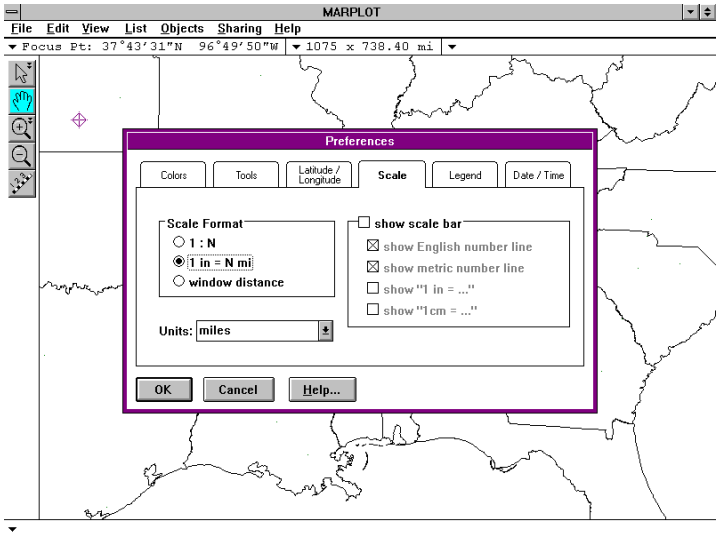

Figure 18: Selection of "1 in = N mi" scale

MARPLOT redraws the map at the scale and same location, but the scale display of the LandView III map has changed (in Figure 19, the current map dimension is "1 in = 138.80 mi" – again, yours may be different).

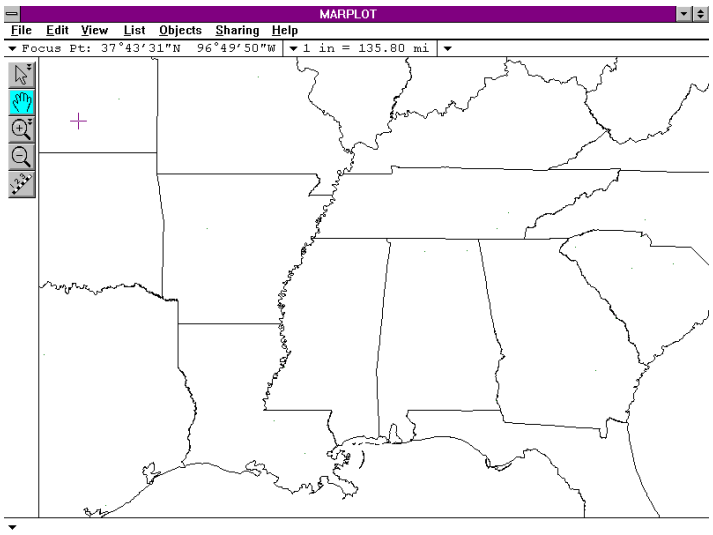

Figure 19: Map in "1 in = N mi" scale

16. Now, use the distance tool to find out the distance from the border of Louisiana to the border of Florida. Click on the distance tool from the tool bar menu. Click and hold the left mouse button at the border of Louisiana. Drag the mouse to the border of Florida. You can see that a dotted line is drawn from the border of Louisiana to the border of Florida. When you let go of the mouse button, you can see the distance measured at the bottom left corner of your screen (Figure 20). In this case, the distance is 142.54 miles and the angle is 85.° Your measurement may be different depending on where you clicked.

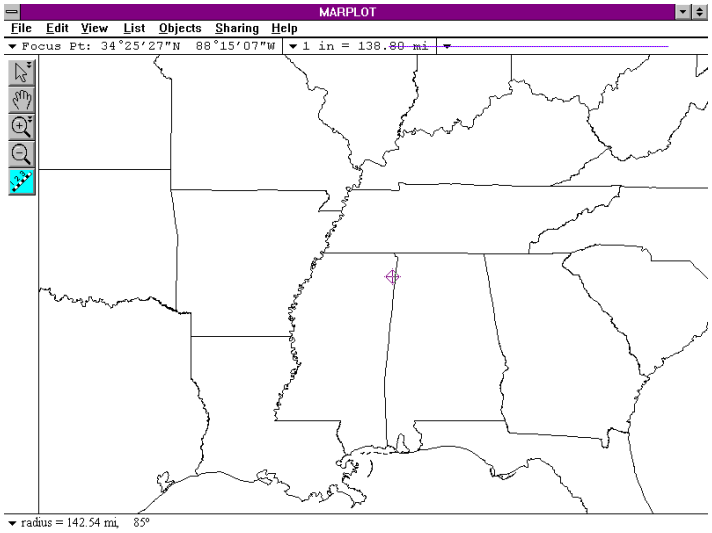

Figure 20: Distance from Louisiana to Florida

17. Now that you have had the chance to practice with LandView III and MARPLOT, you can learn more about the LandView III databases that are available. Before proceeding, you should go back to the original map of the United States. Select the arrow tool. Click on **View** and highlight **Go to View** (Figure 21).

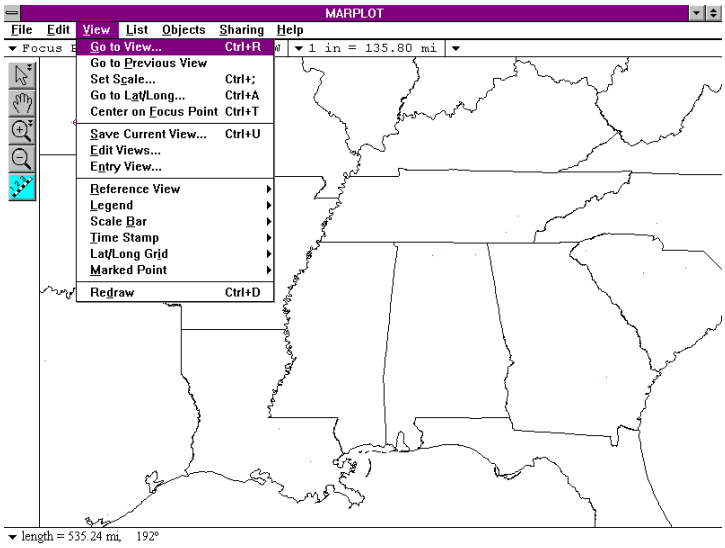

Figure 21: Go to View

18. In the **Go to View** dialog box, click on "CENSUS: Continental US" and then click the **Go to View** button (Figure 22) (the "CENSUS" label simply tells you that the Bureau of the Census was the source for this map).

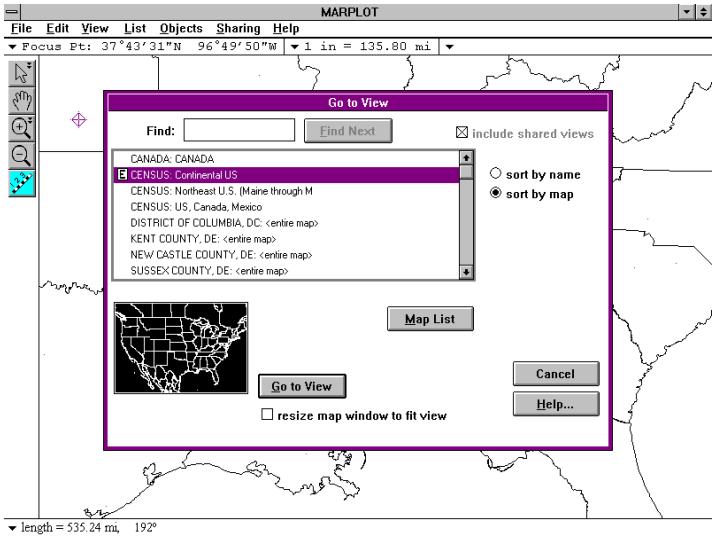

Figure 22: CENSUS: Continental US

19. This **Go to View** function will bring you back to the entry map you started out with (Figure 23).

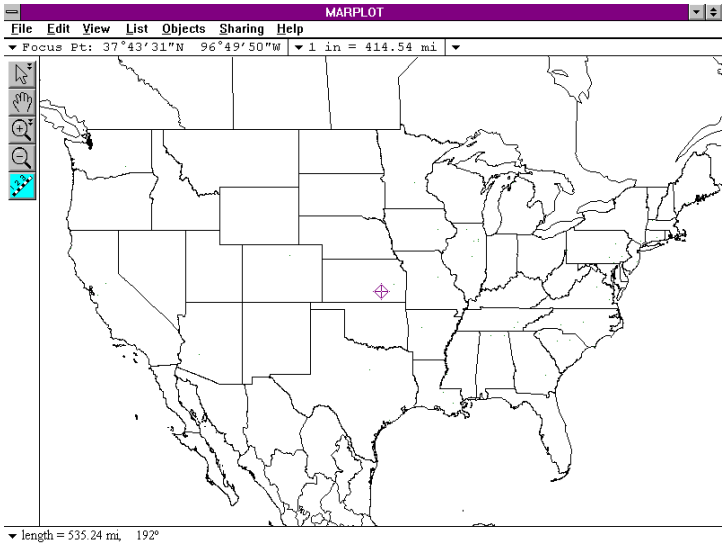

Figure 23: Map of the United States

3.3.3 LandView III Databases

As discussed in Section 2.3, you can access a wide range of information using LandView III, including information on census data, air facilities, hazardous waste facilities, Superfund NPL sites, Superfund non-NPL sites, past Superfund sites that require no further action, Toxic Release Inventory facilities, and waste waster discharge facilities.

To start this exercise, you will need to be in LandView III. You are currently in MARPLOT, so click on **Sharing**, select **LandView Database**, and select **Go to LANDVIEW** (Figure 24). This takes you back to LandView III.

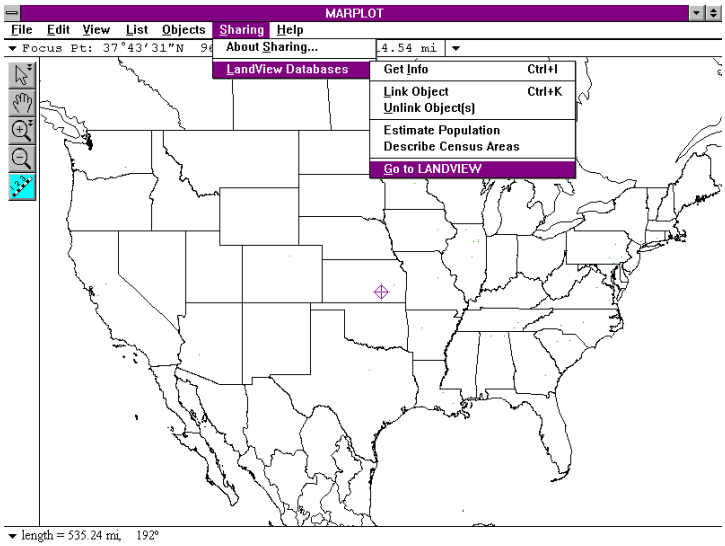

Figure 24: Selection of Go to LANDVIEW under the MARPLOT Sharing Menu

1. You will begin by looking at the data available in the Air Facilities database in LandView III. In LandView III, begin by clicking on the **File** menu and selecting **Air Facilities** (Figure 25). The Air Facilities database stores information on air quality, point source emissions, and area/mobile source data required by Federal regulation from the 50 states. By pulling down LandView III's **File** menu, you can see the various types of data that are contained in the system. The **Other Files** selection under the **File** menu provides access to the types of information discussed in Section 2.3.7.

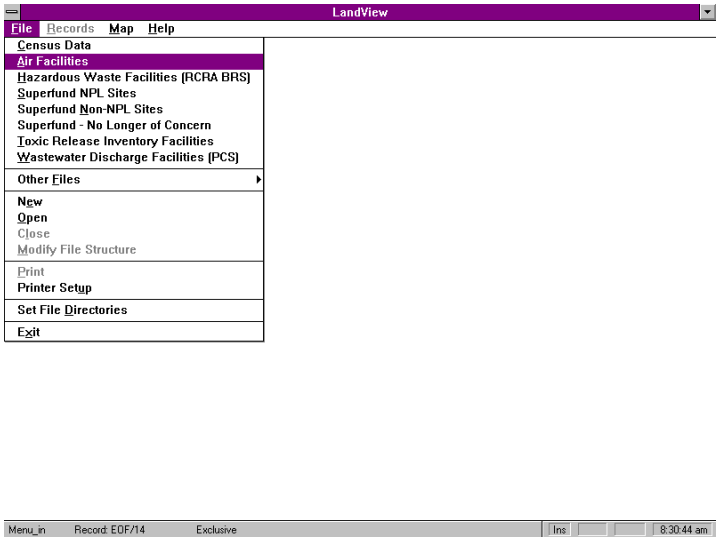

Figure 25: Selection of Air Facilities

2. When you select **Air Facilities**, LandView III displays the data available for the first air facility alphabetically listed in the module (Figure 26). This particular record does not have a name, but you can see that it is located in Los Angeles County, California. The Air Facilities module offers information on the location and the emissions of the facility.

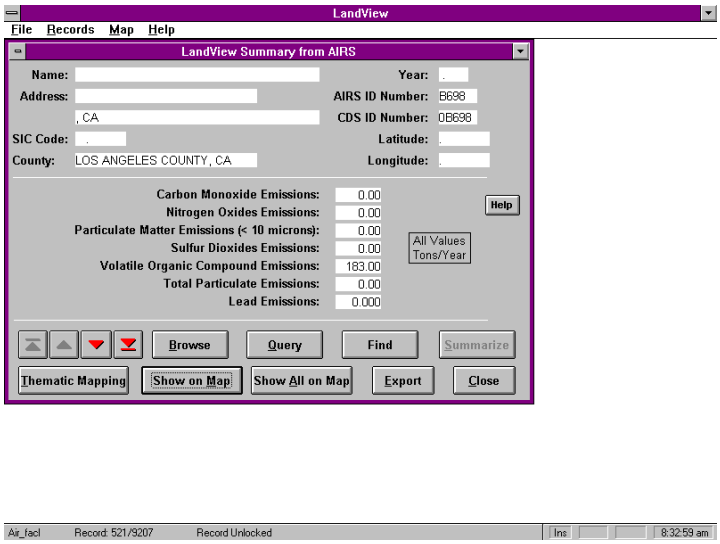

Figure 26: Air Facilities Module

3. At the bottom of the module, you can see various available functions. They include “Browse,” “Query,” “Find,” “Thematic Mapping,” “Show on Map,” “Show All on Map,” “Export,” and “Close.” (The function “Summarize” is grayed out because they are not available at this time.) These functions provide the ability to search for data or to get a specialized view of the information in the database. The “Browse” function displays all the records in the database and allows you to scroll down to find sites as well. By clicking on the “Query” button, you can input values for the fields of interest. The “Find” function provides a way to find a record based on whatever field you choose. The “Show on Map” function allows you to see the location of the site on the map. The arrow keys allow you to scroll through various records, while the underlined arrow keys allow you to move quickly to the first and last records in the file. Instructions detailing how to use “Browse,” “Query,” and “Thematic Mapping” are provided later in the LandView III tutorial.

4. To further familiarize you with the types of information available in LandView III, let's view another module. Click "Close" on the Air Facilities module to get back to the File menu in LandView III. This time, click on **File** and select **Superfund NPL Sites** (Figure 27).

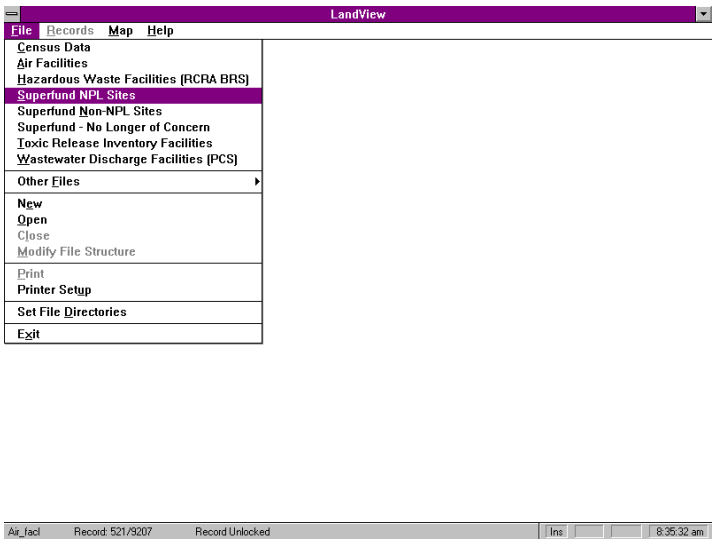

Figure 27: Superfund NPL Sites Module

5. When the Superfund NPL Sites module is displayed, you can see that it provides information on each site's location, identification numbers, and other data. Notice that this dialog box also offers similar functions provided by the Air Facility module. Click "Close" when you are finished viewing this module. In later sections of the tutorial, you will have a chance to access some of the other databases, along with the various functions.

3.4 Lesson 2 - Learning About Your Neighborhood

The objectives of this exercise are to:

- Locate "your" house; and
- Identify objects (e.g., schools) located in the vicinity of your house.

3.4.1 Find Where You Live

In order to find the location of "your" house, you must be in MARPLOT.

1. At the LandView III file menu, go to **Map** and click on **Go to Map** (Figure 28).

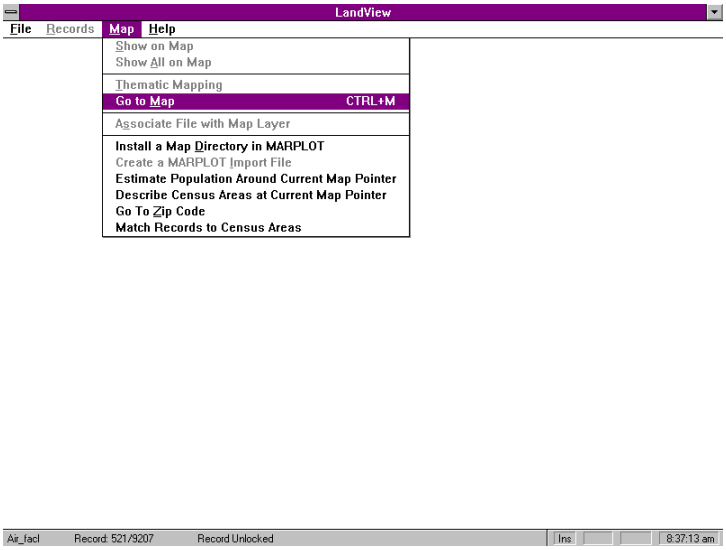

Figure 28: Map menu -- Go to Map Selection

2. MARPLOT opens the map window. The map of the United States is shown (Figure 29). (If MARPLOT does not open to this view, use the **Go to View** item in the **View** menu, highlight the <entire map> view for Continental US, Census, and click **Go to View**.)

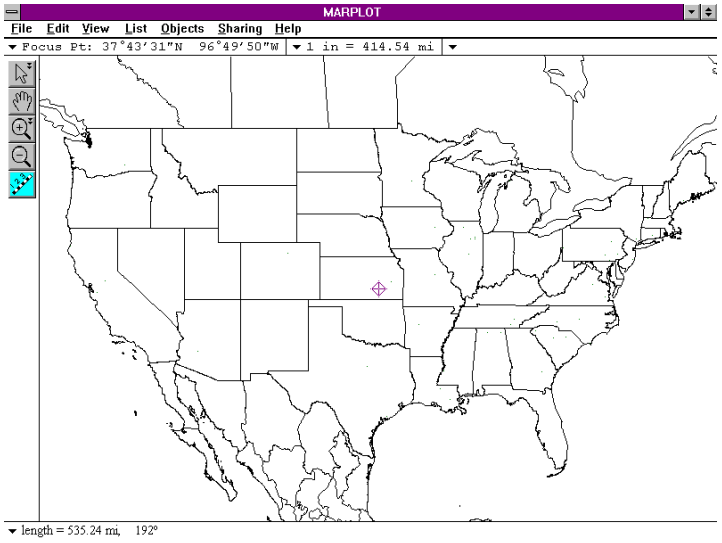

Figure 29: Map of the United States

3. For the purposes of this Tutorial, you live in Prince William County, Virginia, so you would first choose to display the map of Prince William County. To do this, click on **Go to View** item in the **View** menu. This dialog box lists all of the maps known to MARPLOT. You want to view the Prince William

County map, so highlight the <entire map> view for Prince William County, VA, and click **Go to View** (Figure 30). For this Guided Tour, this view will be the only one that you will need. (You may notice that, under **List**, MARPLOT also has an option for **Map List**. When you are more familiar with the LandView III software package, you can use this option to find other maps that may be stored elsewhere on your computer.)

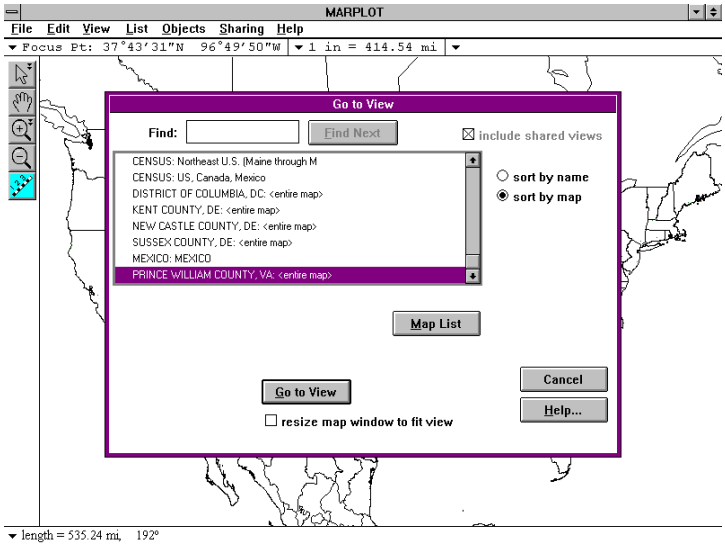

Figure 30: Prince William County, VA: <entire map> Highlighted

4. One of the most common operations you will perform in MARPLOT is searching for an object, such as a road or a place. To search for your address, bring up the Search Criteria dialogue box by selecting **Search** from the **List** menu (Figure 31).

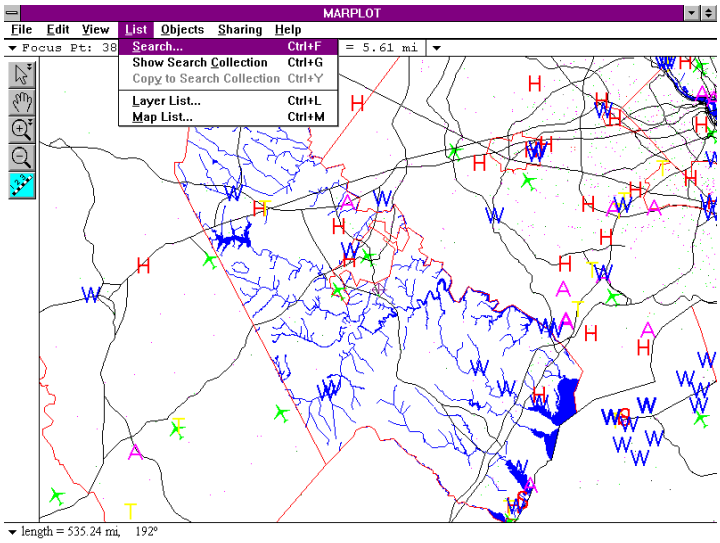

Figure 31: List Menu -- Search

Note: Your map window may not look exactly the same as the one shown in Figure 31. The scale value shown at the top of the window will probably be different.

5. The Search Criteria dialog box, which comes up when you select the Search menu item, is used to find objects according to various criteria you specify (Figure 32). Click on the pop-up box after the label "Search for objects:" and select "with names that start with . . .". After "Layer(s) to search:" choose "Individual Layer..." in the first pop-up box and "Roads" in the second pop-up box. After "Map(s) to search:" choose "Maps in View" and leave the final pop-up box set to "replace previous collection."

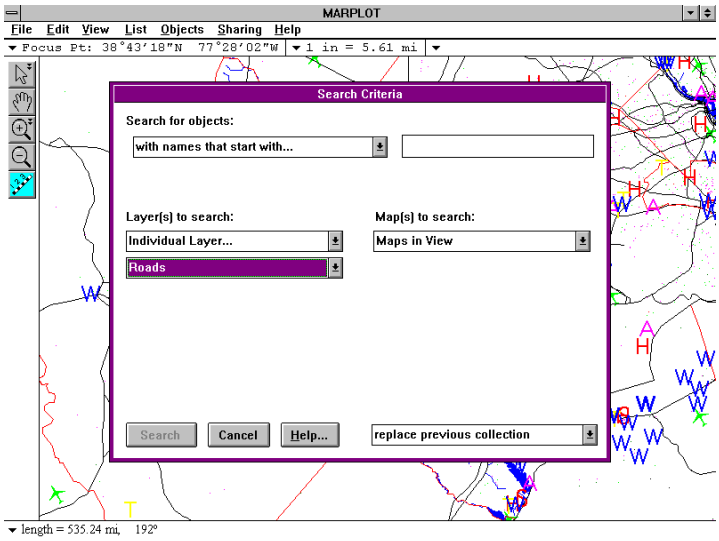

Figure 32: Search Criteria

6. Assume you live on Lomond Court, so you type in "Lomond" in the text box next to the "with names that start with . . ." pop-up box (Figure 33). Then click the **Search** button.

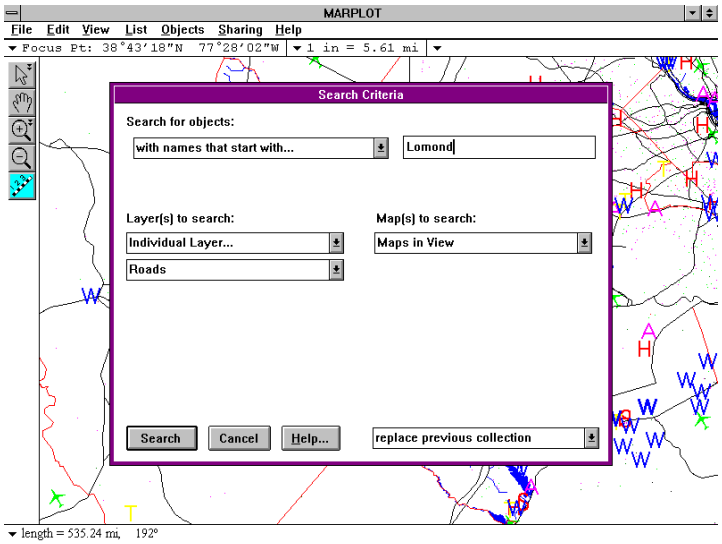

Figure 33: Typing in "Lomond" in the Search Criteria Dialog Box

7. MARPLOT performs the search, and puts all of the objects that match the specified criteria into the Search Collection. In this case, you found 5 objects in the collection based on the entry "Lomond." Since you live on Lomond Court, click once on "Lomond Ct." to highlight it (Figure 34). (If you inadvertently click twice on "Lomond Ct.," you will get the map of Prince William County. Click on "Show Search Collection" under **List** to get back to your search collection.)

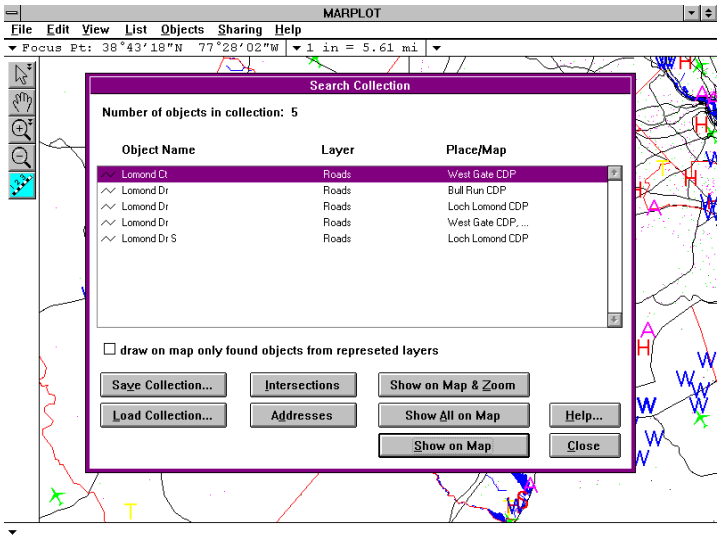

Figure 34: Five Objects in the Search Collection

8. You live on 7948 Lomond Court, so you want to see where your house is along this street. At the bottom of the pop-up box, click on **Addresses**. The Addresses pop-up box is now displayed (Figure 35).

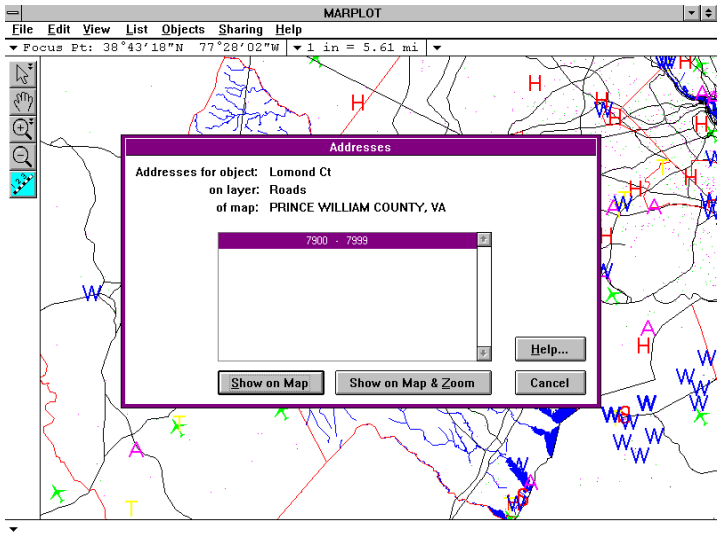

Figure 35: Addresses Pop-up Box

9. There is only one road section available for Lomond Court in the Addresses pop-up box. (Generally, if a street is longer, there will be more sections of the street to select. For those cases, you would select the address range that your house number fell between.) Since your house number falls in between the highlighted section of Lomond Court, you can go ahead and click on **Show on Map & Zoom** to see the section of the map containing your section of Lomond Court (Figure 36). The Focus Point is placed at the midpoint of the chosen street.

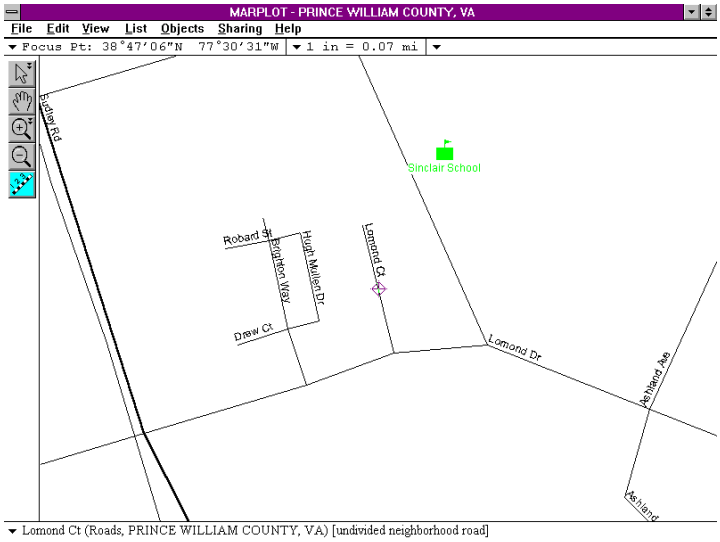

Figure 36: Map of Lomond Court

10. In order to see what is around the area of your home, you can use the Tools that appear as a list of icons along the left edge of the map window.

3.4.2 Find Out What's Near You

First, you need to zoom out a bit to better view your surroundings.

1. Use the minus magnifying glass (zoom-out) tool,  , on the left of the map window and click two or three times in sequence (Figure 37). Click the zoom-out tool on Lomond Court, because the screen will be centered on where you click. By zooming out of the map, you will be able fit more of the surroundings in the window. Don't zoom too far out or the street names disappear!

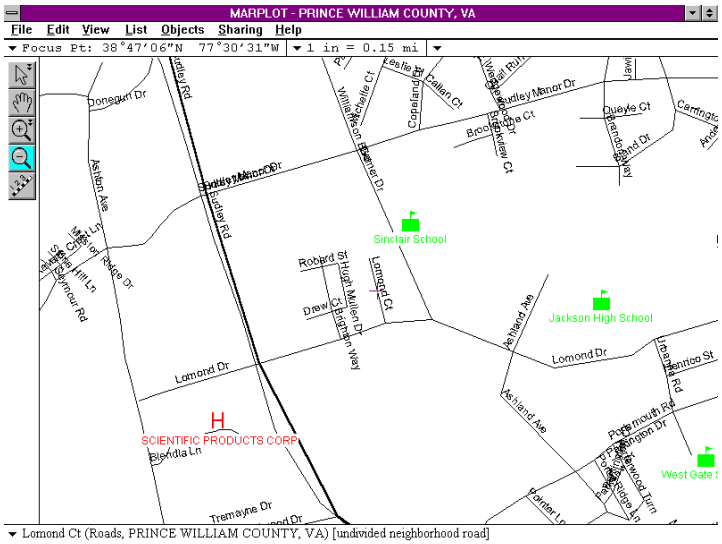

Figure 37: Zoomed-out View of Lomond Court

2. As displayed in the map window, you can see that there are various schools and a hazardous waste facility near Lomond Court. The midpoint of Lomond Court is still marked by the Focus Point.

3. A number of different layers are shown, including the roads, schools, and EPA layers. With the arrow tool, click on an object on the map. As you select objects, they become highlighted with squares, and MARPLOT displays their names at the bottom of the map window. Also, the location where you have clicked with the mouse is marked with a flashing icon, the Focus Point. The latitude/longitude of the coordinates of the Focus Point are shown in the upper-left corner of the map window.

4. Click once on the school symbol for Jackson High School (but first remember to switch to the arrow tool from the zoom-out tool). The site is then highlighted and identified at the bottom of the screen (Figure 38).

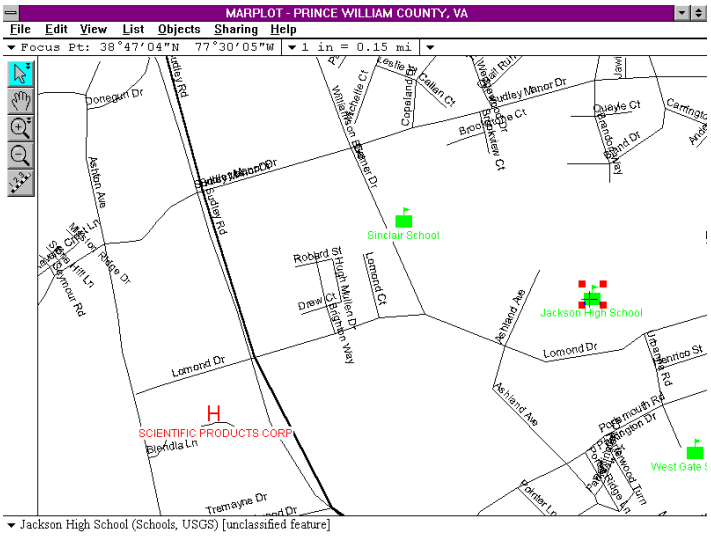

Figure 38: Selection of Jackson High School

3.4.3 Changing the Display Using the Layer List

1. From the map window, select **Layer List** under **List** (Figure 39). This brings up MARPLOT's list of layers. The layers can be sorted alphabetically or from top to bottom according to the order in which they are drawn. Currently the layers are sorted in alphabetical order. Scroll up and down in the list of layers. Click on draw order to look at the list in draw order. Notice that the TIGER-derived objects will draw first, on the "bottom," and then the LandView III objects draw after, on the "top."

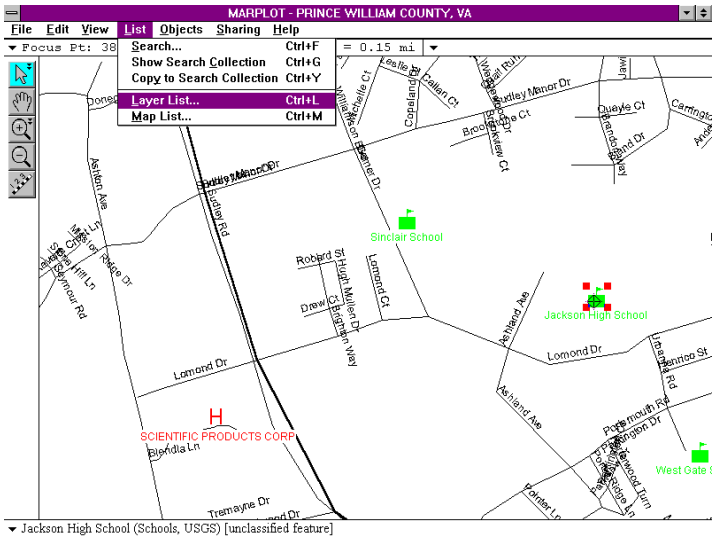

Figure 39: Selection of Layer List

2. In the Layer List, click on the names of different layers. Notice that, in the bottom part of the window, MARPLOT displays the number of objects on that layer, and also some graphical information about the layer. Click on INDIAN_LANDS to see information on this layer (Figure 40).

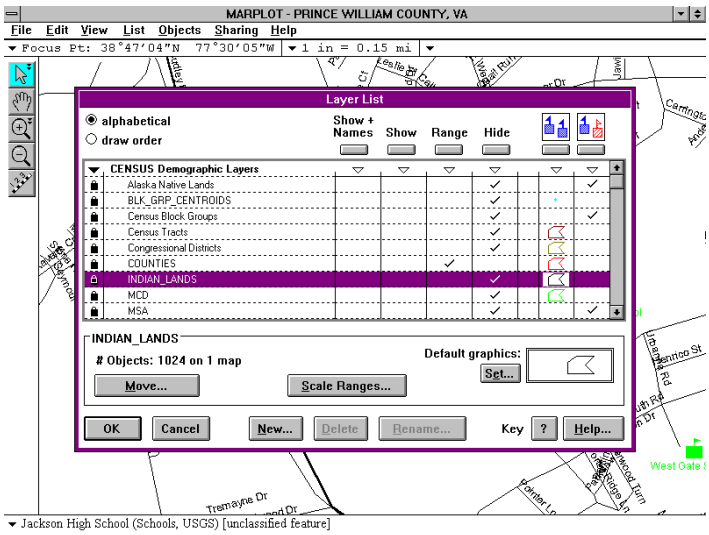

Figure 40: Information on INDIAN_LANDS under the Layer List

3. As can be seen in the columns in the center of the Layer List, some layers are in "Show" mode, while most layers are in "Range" or "Hide" modes. When a layer is in Show mode, it displays no matter what the map scale. When a layer is in Range mode, it displays only within a certain range of map scales. When a layer is in Hide mode, it does not display. "Show + Names" mode is another option you can choose from the Layer List. When a layer is in Show + Names mode, it displays the layer regardless of map scale, as well as the objects' names. Click on **Cancel** when you are done viewing.

4. To see what these display modes can do, it is better to work with the whole map of Prince William County. Go to **View** and select **Go to View** (Figure 41).

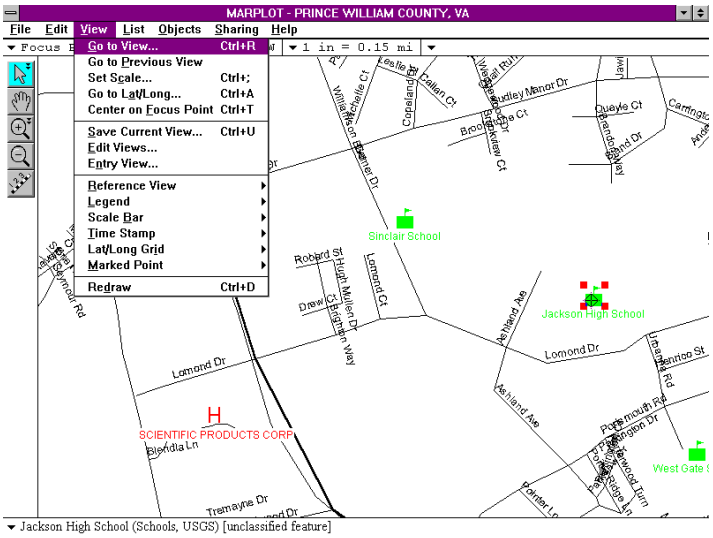

Figure 41: Go to View

5. Scroll down the map menu and select the entire map of Prince William County (Figure 42). (Your list of maps will probably look different than the one in the picture, depending on which maps are on your CD.)

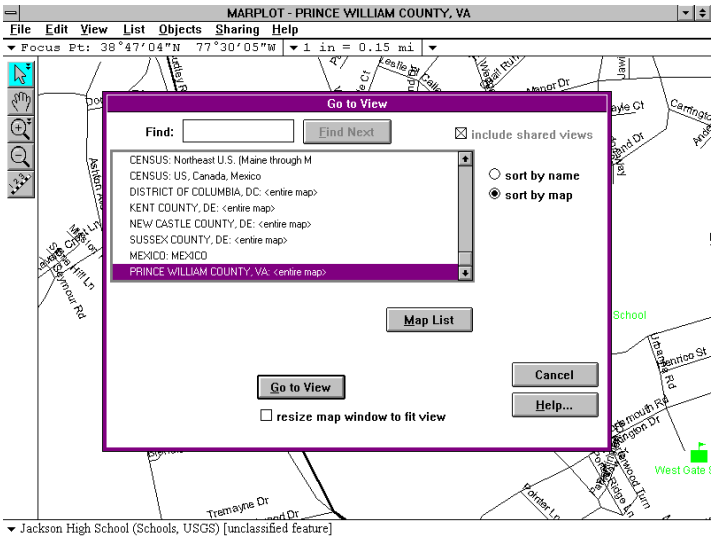

Figure 42: Selection of the Entire Map of Prince William County

6. Click on the Go to View button and the display will change to the entire map of Prince William County again (Figure 43).

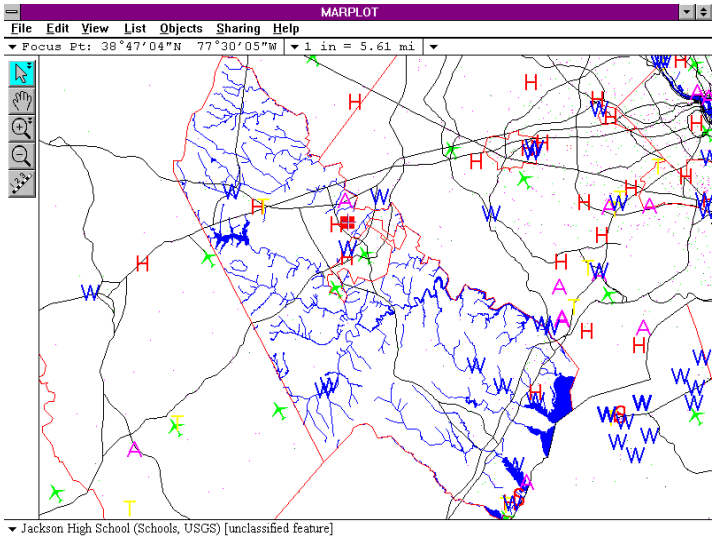

Figure 43: Prince William County

7. Currently many different layers are selected. For now, you can put the EPA-regulated site layers into the Hide mode in order to view the other layers more clearly. To do this, go to **List** and select **Layer List**. Scroll down the menu and first select AIR_FACL under the EPA Layers. The AIR_FACL layer is currently in Range mode. With the mouse, click the Hide box of the AIR_FACL layer (Figure 44). After you are done, do the same with the rest of the EPA layers that are still in either Show or Range mode. You can also hide all the EPA layers at once by clicking on the "Hide" arrow in the line with the "EPA Layers" title name (in other words, on the inverted triangle in the header row).

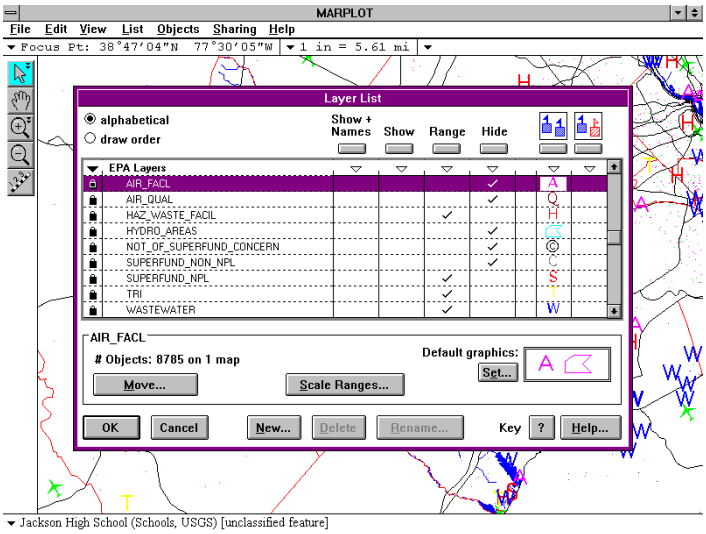

Figure 44: Changing EPA Layers into Hide Mode

8. Click **OK** when you are done, and the map will be redrawn with these new instructions (Figure 45).

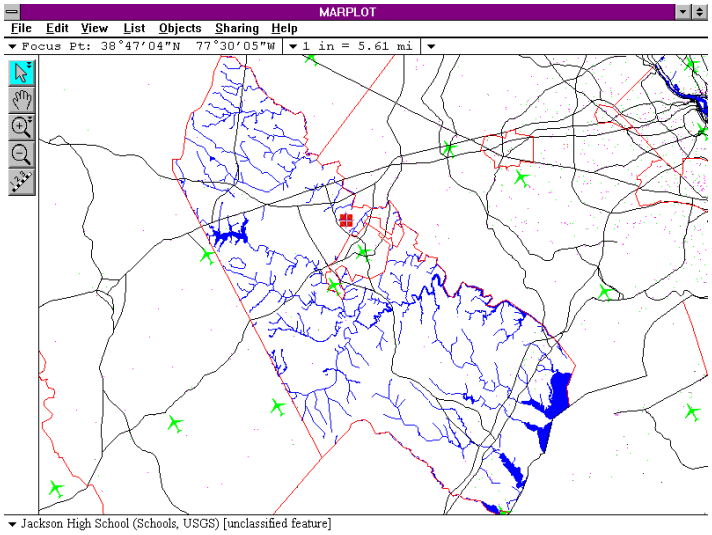

Figure 45: Map of Prince William County Without EPA Layers

9. You will learn how to change the range settings in greater detail later; for now, you will learn about the purpose of this LandView III function. You may have noticed that it takes a significant amount of time to draw all of the roads at this zoomed-out view of the entire county. It would be better to draw the roads only when you are zoomed in closer. That way, you would not have so much information to draw at one time. This is just what the Range setting in the Layer List dialog box is for. Return to the Layer List and set the Roads and Roads (Major) layer (under Census Tiger) to Range mode. In order to see what range of scales the roads will show, highlight the Roads layer in the list and then click on the Scale Ranges button (Figure 46).

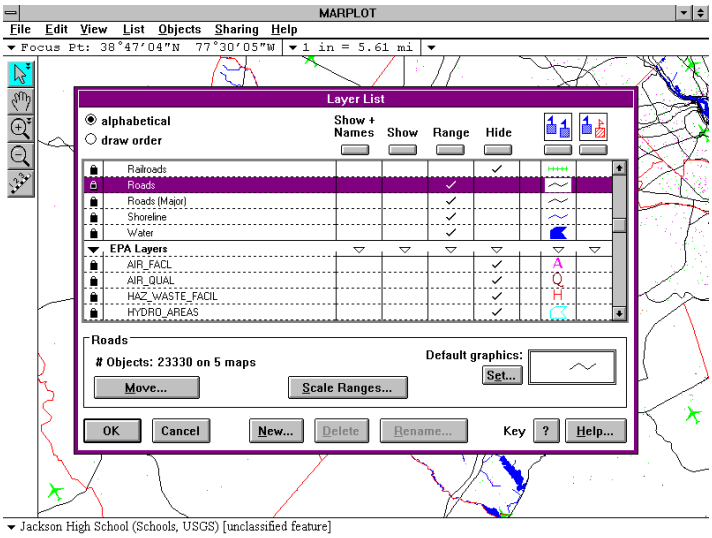

Figure 46: Scale Ranges Button in the Layer List Dialog Box

10. The Layer Scale Ranges dialog box displays and lets you modify four display variables. By moving the lines on the vertical scale range, you can change the scale at which:

- ❏ Icons change to dots;
- ❏ The layer will be displayed;
- ❏ Names will be displayed; and
- ❏ The layer is hidden.

The current map scale is shown on the ruler with a dotted line. Note that in the case of the Roads layer, the layer is set to display when the scale is 1 inch = 1.55 miles. Your current scale is more zoomed out than that (1 in = 5.61 mi). Thus, if you leave these scale values, and leave the Roads layer in Range mode, you'll have to zoom in a bit closer for the roads to appear (Figure 47). Remember that earlier, you clicked in and out to zoom in to and out from the map, and were able to see layers appear and disappear as you did so. The Layer Scale Range allows you to control which layers are displayed at various map scales.

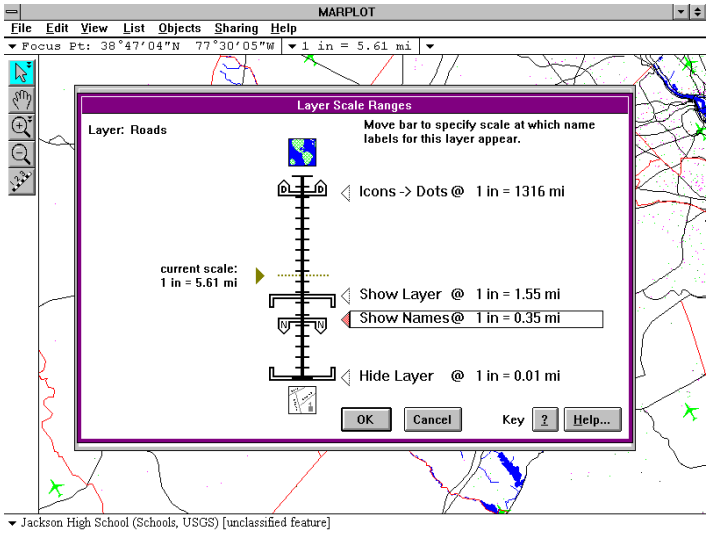

Figure 47: Layer Scale Ranges Dialog Box for Roads

11. Click **OK** to exit the Layer Scale Ranges dialog box, and then click **OK** to exit the Layer List dialog box. Notice the roads are no longer displayed (Figure 48). Let's zoom in using the plus magnifying glass tool. Click on this tool and then, with the plus magnifying glass, click in the center of the county. This causes the view to zoom in by a factor of 2, centered on the point of your click (Figure 49). Note that the number of miles per inch has been cut in half.

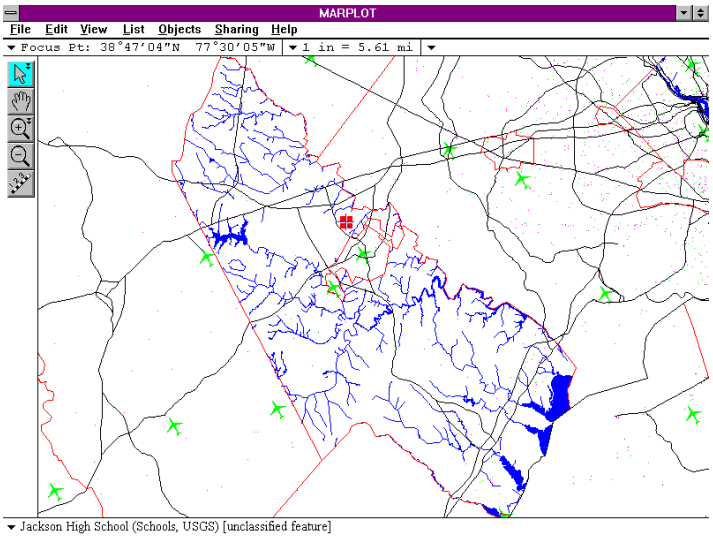

Figure 48: Map of Prince William County Without Roads Layers

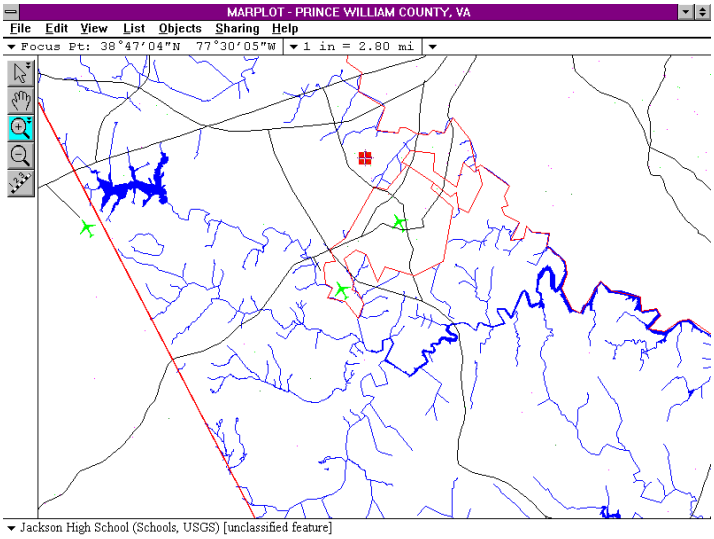

Figure 49: Zoomed-in View of the Map

12. The minor roads (Roads layer) still do not display because, as you saw in the Layer Scale Ranges dialog box, they are set to show only when you are zoomed in to at least 1 inch = 1.55 miles. Click once or twice with the plus magnifying glass, again around the center of the map window, until the roads appear (Figure 50). The minor roads are displayed because you have zoomed in past the threshold scale set for the Layer Scale Ranges. If you continue to zoom in with the magnifying glass tool, you can reach the scale at which the names of the roads appear (1 in = 0.35 mi). Click two or three times near the hospital symbol (a box with a cross inside). As you get closer, you will see that the hospital is named Prince William Hospital and eventually you will also see the road names around that area (Figure 51).

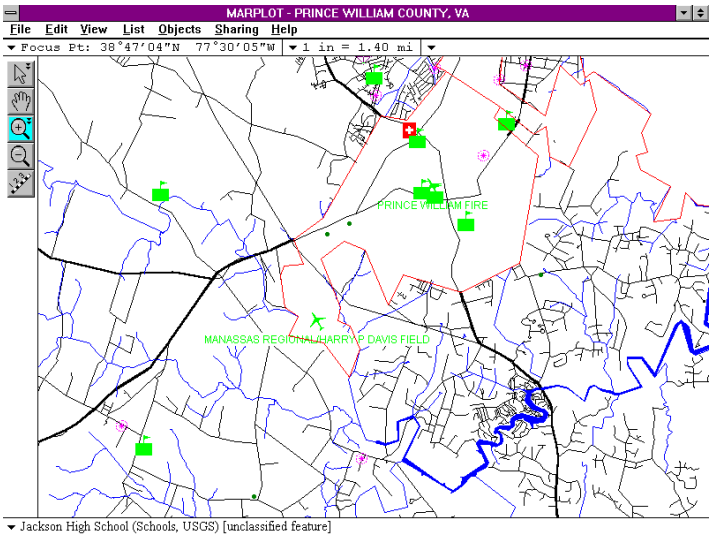

Figure 50: More Zoomed-in View of the Map

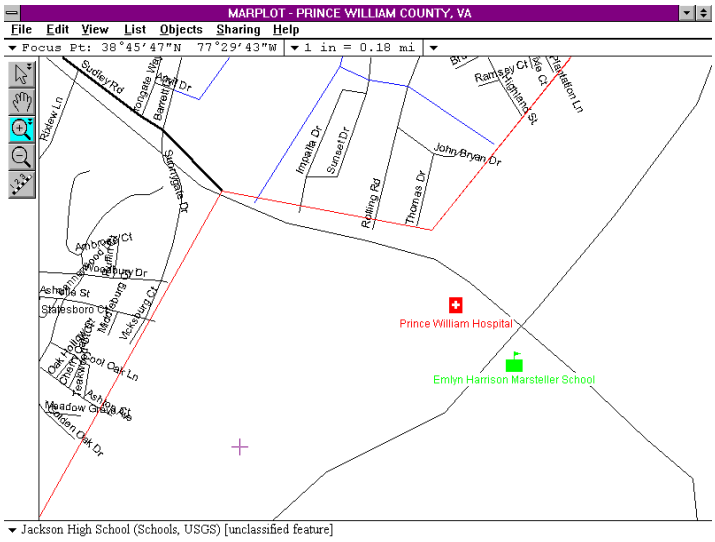

Figure 51: Zoomed-in View of the Map with Road Names

13. Since you will only want to see most layers within a certain range of scales, it is common for most of the layers to be set to Range mode. (If you ever place a layer in the Show mode, and then forget to set it to Range before you zoom out, you may find that the map takes a long time to draw. As noted previously, pressing the ESC key causes MARPLOT to stop drawing. It displays the message [DRAW INCOMPLETE] at the bottom of the map window to remind you that all of the layers to be drawn were not drawn. Even when the drawing is incomplete, however, you can still click on the map with the arrow tool to select any object that was drawn.)

3.5 Lesson 3 - Using Census Demographics

Now that you have found where you live, you might be interested in learning more about the demographics of Prince William County. MARPLOT can access information in the databases stored in LandView III to display selected demographic data on the map. The programs work together by means of the Sharing menu. The Sharing menu has a submenu for each application that MARPLOT communicates with directly.

The objectives of this exercise are to:

- Use MARPLOT to access information in the LandView III databases; and
- View Census Data information for a particular area.

1. Before you proceed, you need to have the Census Tract and Census Block Group layers "on." In MARPLOT, click on **Layer** List, and under Census Demographic Layers, select the "Range" mode for Census Block Groups and Census Tracts. Click **OK** when you are done. In order to view census data, you need to go to **Sharing** in the MARPLOT program and click and hold onto **LandView Databases.** This function brings up a submenu, so you can highlight **Go to LANDVIEW** in order to get to the LandView III databases (Figure 52).

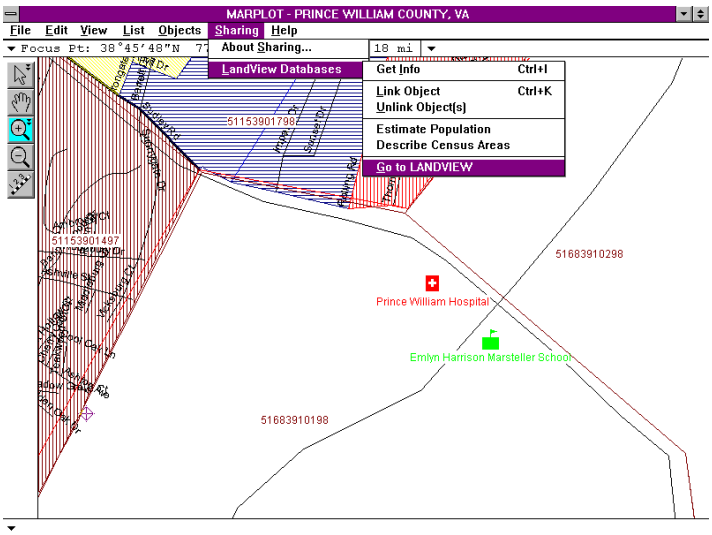

Figure 52: Selecting Go to LANDVIEW under the LandView Databases Submenu

2. Once you are in LandView III, go to the LandView III **File** menu. Under **File,** select **Census Data** (Figure 53).

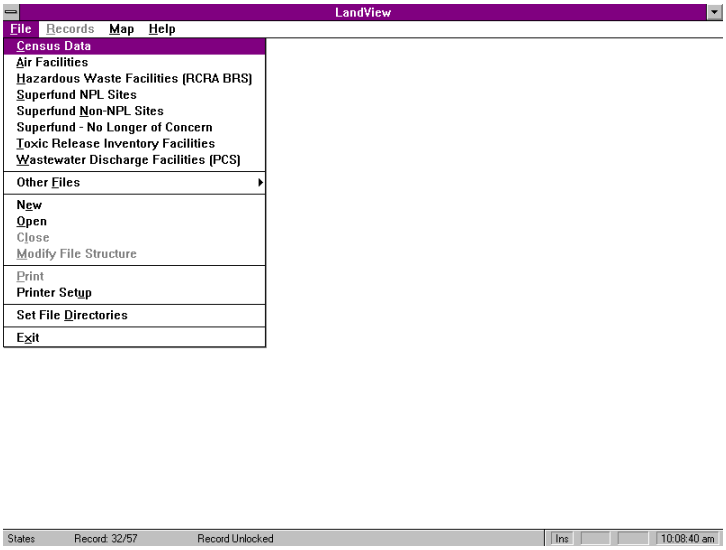

Figure 53: Selection of Census Data

3. This function displays the "Extract from 1990 Census of Population and Housing" dialog box. The dialog shows information on Alabama, because it is the first state (alphabetically) in the Census database (Figure 54).

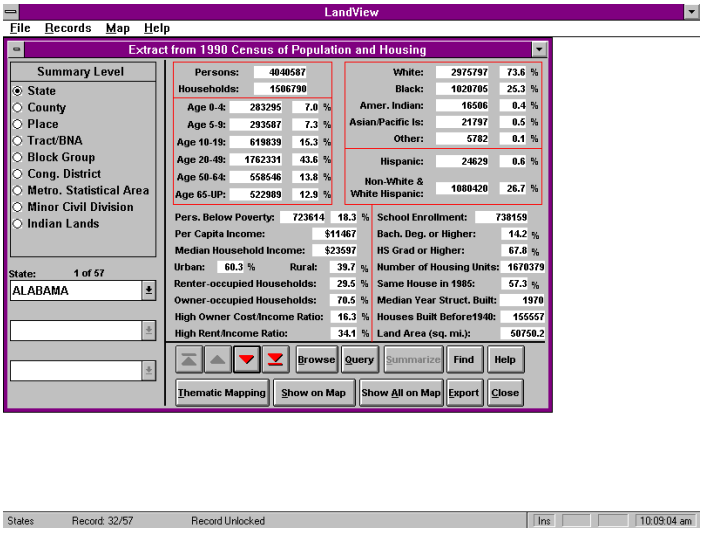

Figure 54: Extract from 1990 Census of Population and Housing Dialog Box (ALABAMA)

4. In order to view information on counties, you need to click on **County** in the Summary Level box. This switches the display to county level information. Once **County** is highlighted, "AUTAUGA COUNTY" is displayed in the County drop-down box (Figure 55).

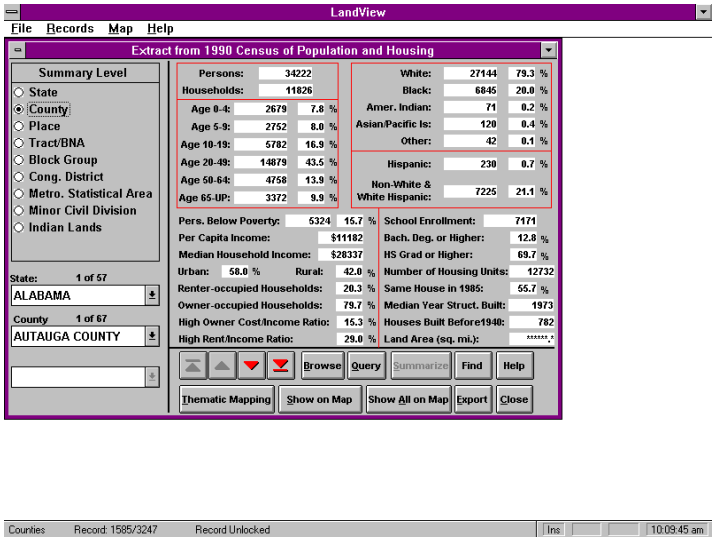

Figure 55: Selection of County Level on Extract from 1990 Census of Population and Housing Dialog Box of ALABAMA

5. Now that County level data are available, you can find the data for the county in which you live. Using the State pop-up menu, scroll down the listing using the arrow to the right until you highlight "VIRGINIA" (Figure 56). Under the County level, you need to click on the scroll-down menu and highlight "PRINCE WILLIAM COUNTY." The Census Data for Prince William County are presented (Figure 57). The census data provide information on:

- ❏ Number of people and households in the county;
- ❏ Distribution of population, in numbers and percentages, by age, race, and ethnicity; and
- ❏ Various other population characteristics.

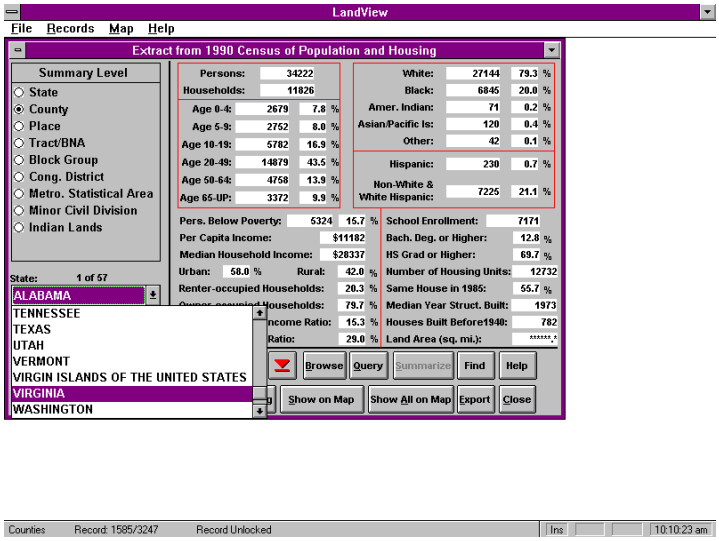

Figure 56: Highlighting VIRGINIA under the Scroll-down Menu

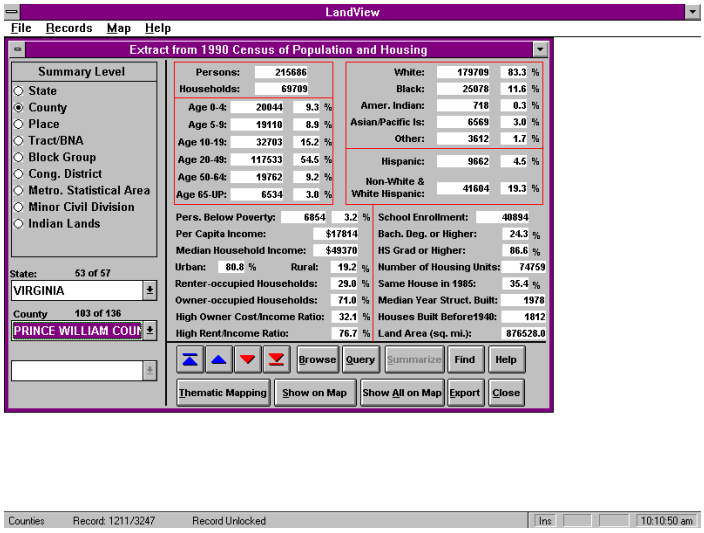

Figure 57: Selection of VIRGINIA and PRINCE WILLIAM COUNTY on the Extract from 1990 Census of Population and Housing Dialog Box

6. The Census Data also offer information on census tracts (see Section 2.3.1 for further details on Census tracts and the population groupings that they represent). You can access tract information by clicking on the Tract/BNA level in the Summary Level box. This brings up information on the first tract in the selected County, 9001 (Figure 58).

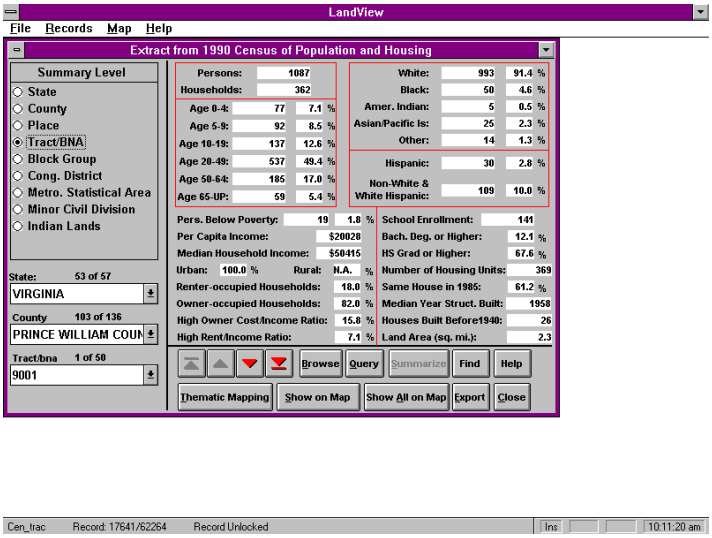

Figure 58: Census Tract Information

7. Now you want information on the actual Census Tract in which your home is located. (Note: The Census Tract layer should be in the Show mode under the **Layer List**, so that it will be displayed.) To find the number of that tract, you will need to return to the map of Lomond Court. Return to MARPLOT by clicking on **Map** and selecting **Go to Map**. Once in MARPLOT, under **List**, select **Search** and do

another search for Lomond Court. Click **Show on Map & Zoom**. The map will show the Census Tract number as it brings up the various layers (Figure 59). The Census Tract data provide information on a portion of the population of Prince William County close to your home. On the map, you can see that the Census Tract in which your home is located is number 51153901601. As you will see later, the FIPS (Federal Information Processing Standards) code for Prince William County is 51 (state code) and 153 (county code). The Census Tract identified specifically as the one in which your house is located by the end of the code, "9016.01." The FIPS county and state codes are established by the Federal government for the purpose of standardizing the coding of statistical information made available through various reference sources.

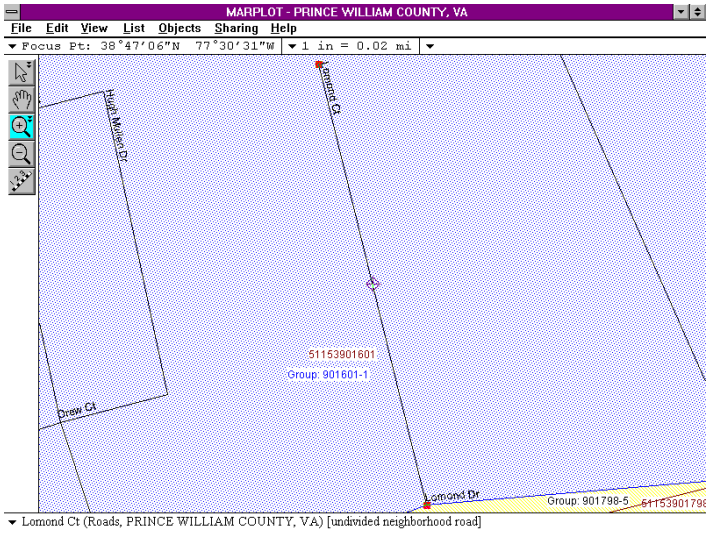

Figure 59: Map of Lomond Court with Census Tract Number

8. To see information on the population within this Census Tract, return to LandView III. Remember, to return to LandView III, go to the **Sharing** menu in MARPLOT and click on **LandView Databases**; then click on **Go to LANDVIEW**. In LandView III, you should still be in the Census Data dialog box; however, if you are not there, click on **File** and click on **Census Data**. Under Summary Level, click on Tract/BNA. Select "VIRGINIA" for the State level, and select "PRINCE WILLIAM COUNTY" for the County level, and select "901601" for the Tract level. This brings up the census data on this particular tract. When you are finished viewing, click **Close**.

A similar process could be followed for the Census block group in which your home is located, for an even smaller area.

3.6 Lesson 4 - Using Toxic Release Inventory (TRI) Facilities Database

3.6.1 Access the TRI Database

As a member of the Prince William County LEPC, you are interested in using LandView III to identify the locations of the TRI sites (as described in Section 2.3.5) in Prince William County.

The objectives of this exercise are to:

- Access the TRI information module;
- Search for information on chemicals released by facilities;
- Use the Search function in MARPLOT to identify all of the TRI facilities located within Prince William County; and
- Learn to change layers' scale range settings.

1. To begin, you will have to open the TRI information module. First, make sure that you are in the LandView III program (it should say LandView III across the top of your screen). Click the **File** menu, and then click on **Toxic Release Inventory Facilities** (Figure 60). LandView III opens the **LandView Summary from TRI** table (Figure 61).

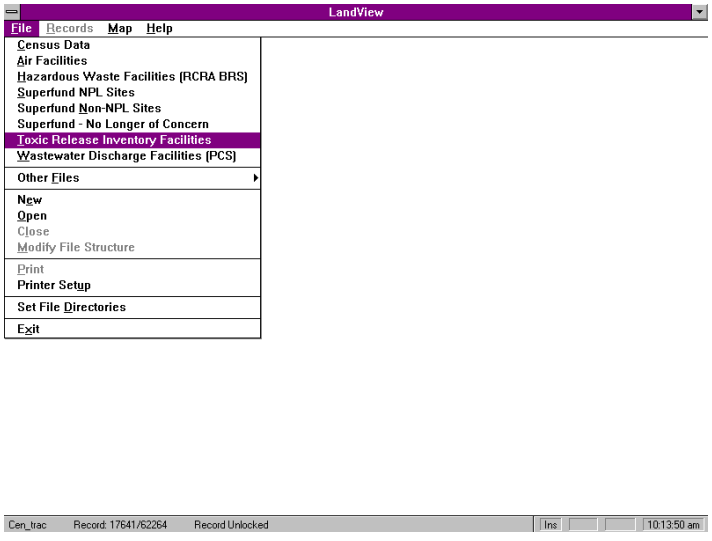

Figure 60: Selecting Toxic Release Inventory Facilities

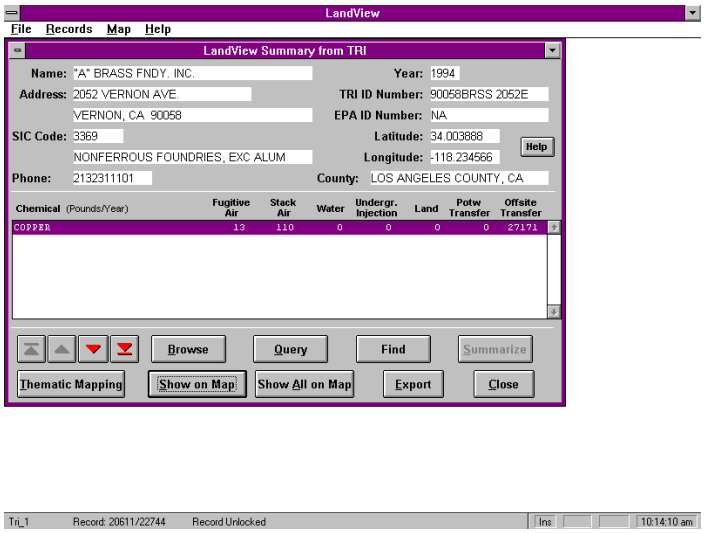

Figure 61: TRI Facilities Summary Table

2. The summary table provides information on TRI facilities, including their address, identification numbers, and types of chemicals released. (Because "A" BRASS FNDY. INC. is alphabetically the first TRI site in the database, the information available on this facility appears in the window. To move to the next facility, you can click on the down arrow in the lower left corner of the screen, or go to the last facility in alphabetical order by clicking on the underlined arrow. Because the information for the first facility is currently displayed, going backwards is not an option, and the up arrows are therefore grayed out.) You can browse through the list of facilities by clicking on the **Browse** button. This opens the TRI browse window, which allows you to quickly scroll through facilities using the Windows bars (Figure 62).

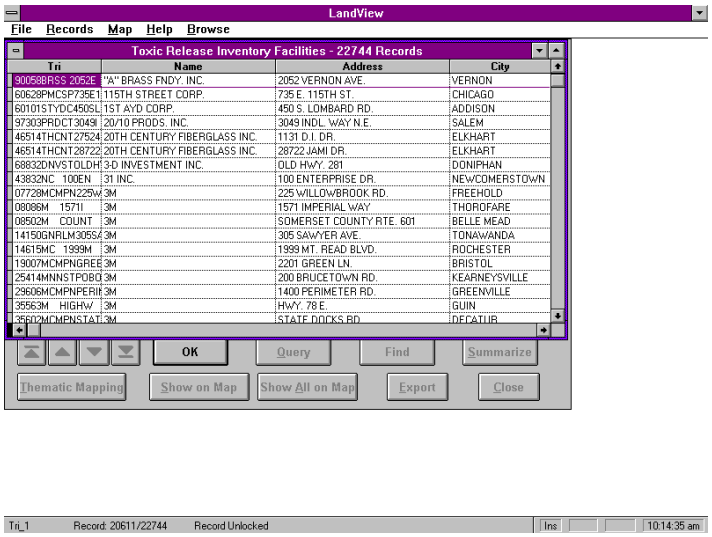

Figure 62: TRI Browse Window

3. To find a particular facility, click the **Records** menu. LandView III overlays the Records menu on top of the TRI browse window (Figure 63) (this option is also available in the TRI facilities summary table).

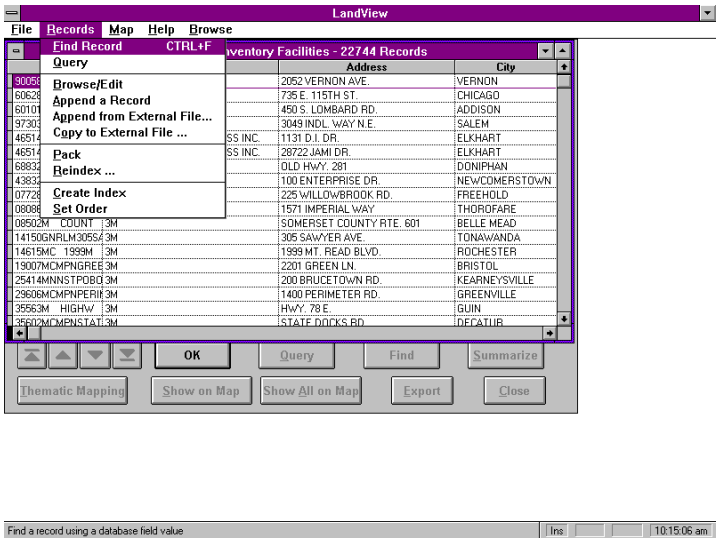

Figure 63: Selecting Find Record under the Records Menu

4. Click **Find Record**. LandView III displays the **Find TRI_1 Record** dialog box (Figure 64). If you know the name of a particular site, you can type the name to find the record. Let's say you are interested in Imco Inc.; you can type this site name into "Enter value for NAME" (Figure 65). (Note: Depending on the LandView CD you are using, Imco Inc. may not be in your TRI database)

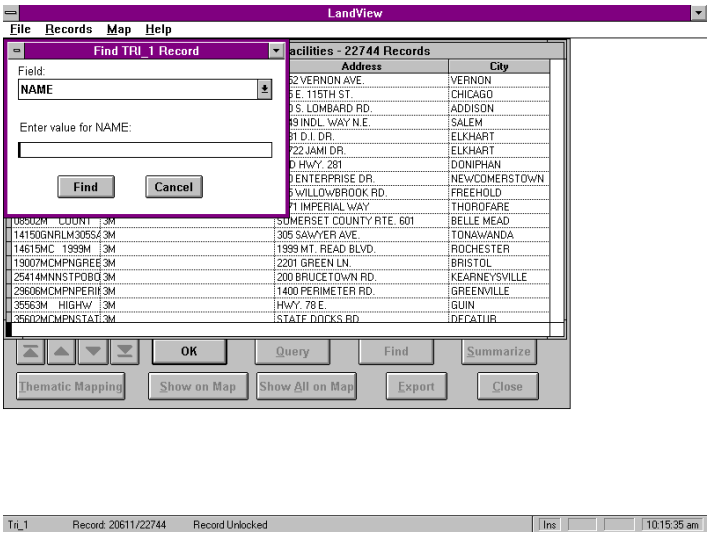

Figure 64: Find TRI_1 Record Dialog Box

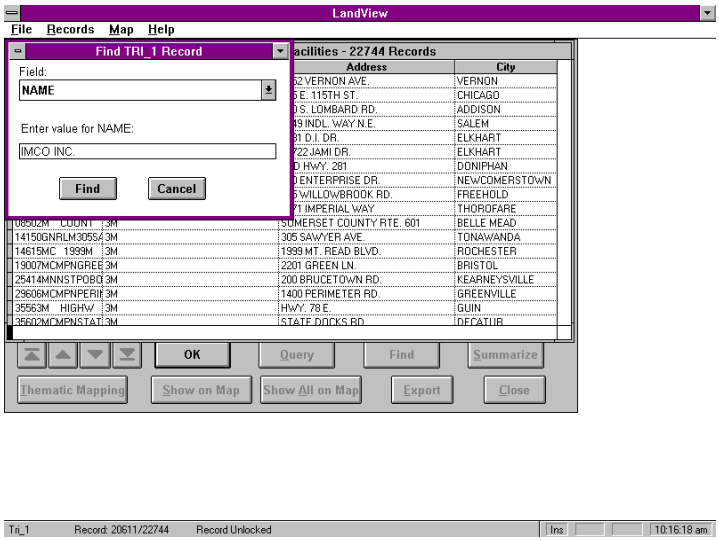

Figure 65: Typing in Imco Inc. to Find Its Record

5. Click **Find** and it brings up the TRI facilities dialog box with Imco Inc.'s record highlighted (Figure 66).

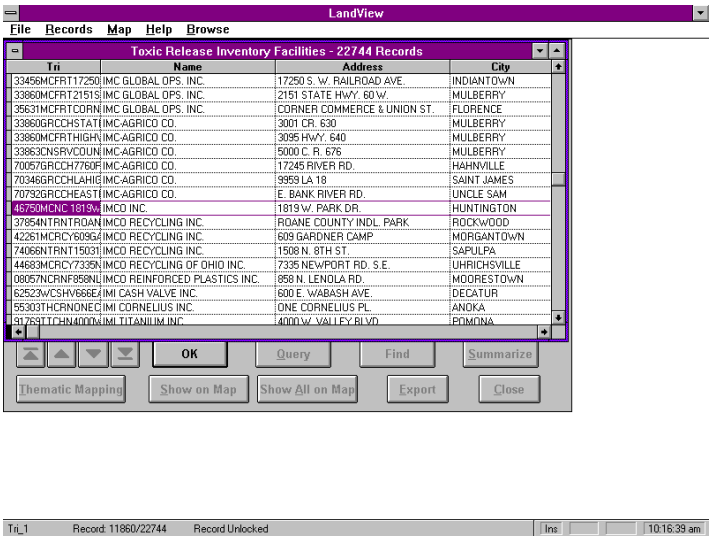

Figure 66: Imco Inc. Highlighted Record

3.6.2 Identify TRI Facilities in Prince William County

Now that you have seen how to use the TRI database, you may want to view these facilities on the map. In order to do so, double-click on the TRI Facilities dialog box that you currently see on your screen to close it. Once you see the LandView Summary for TRI window, click **Close** to get back to the starting window for LandView III (Figure 67).

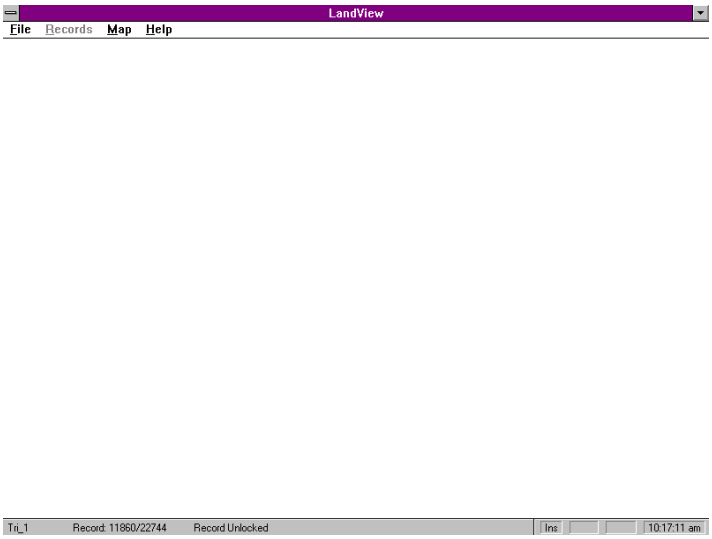

Figure 67: Starting Window in LandView III

Click the **Map** menu and then click on **Go to Map** to switch to MARPLOT. (Remember, MARPLOT contains all the maps with the different layers, while LandView III contains information in different databases.)

1. Once you are in MARPLOT, you will see the map of Prince William County being redrawn. (If you do not see the entire map of Prince William County, click on **View** and **Go to View**. Select PRINCE WILLIAM COUNTY, VA <entire county> and click **Go to View** button.) Remember that earlier you changed some of the layer settings, so this version may not be same as the one you had seen originally. Thus, you need to manipulate the layer list in order to see the TRI facilities. (As always, you can hit the ESC key to stop the map from drawing if it takes too long.)

2. Click on **List** and select **Layer List**. For this exercise, you want to see Counties and TRI layers all the time, while you will only want to see the Roads (Major) layer once you have zoomed in to the map. The other layers won't be needed for a while. So, to start, go to the Layer List dialog box and click on the button under the word "Hide," so that all Layers are in the Hide mode (Figure 68). From this point, it will be easy to change only those four layers that you are interested in viewing.

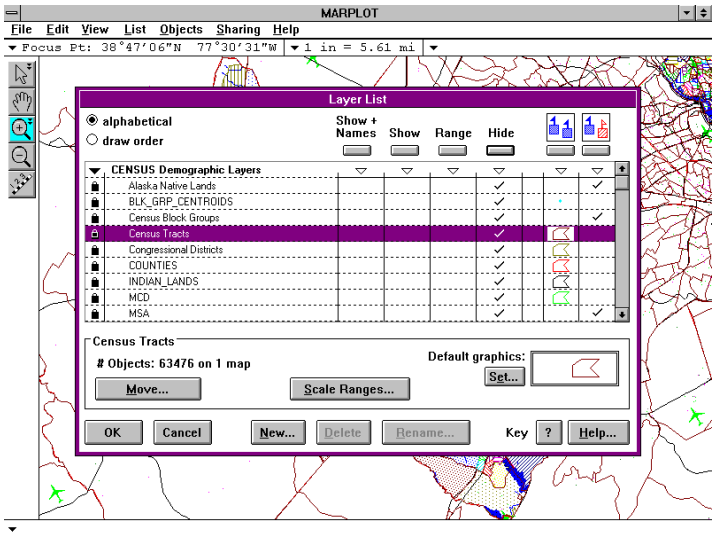

Figure 68: Hiding All the Layers in the Layer List

3. Scroll down the layers to find COUNTIES, and click on the Show + Names box for this selection (Figure 69). Click on the Show box for the TRI facilities under the EPA layers.

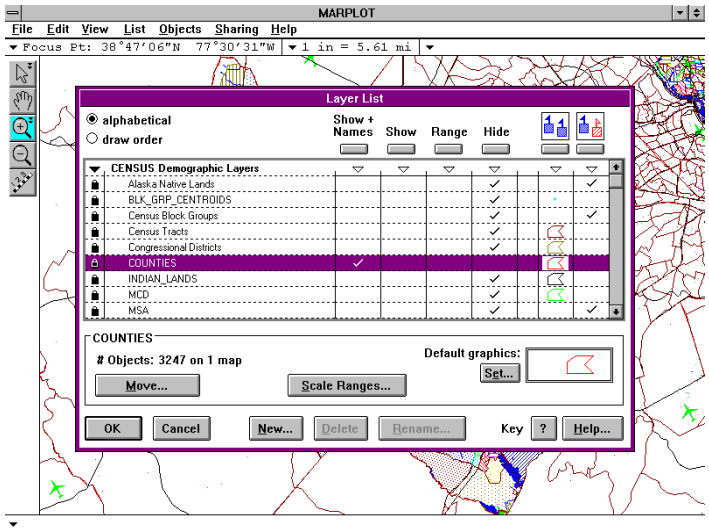

Figure 69: Selecting Show + Names Mode for Counties

4. Find the layers Roads and Roads (Major) on the layer list and click on Range for these two layers (Figure 70).

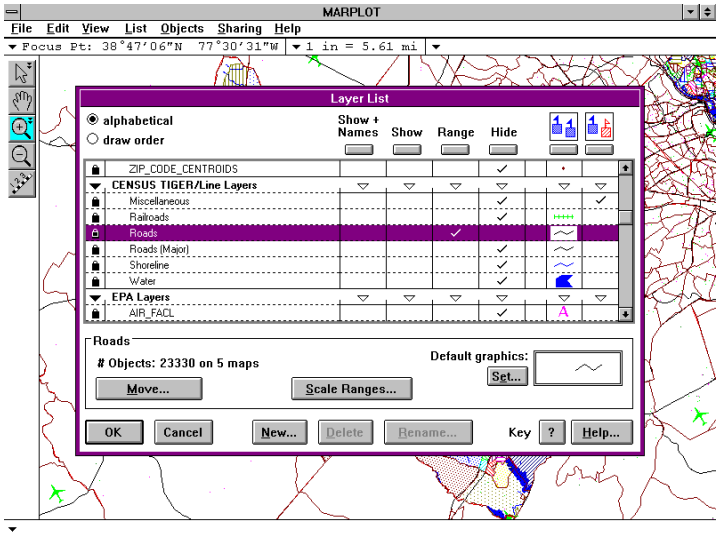

Figure 70: Selecting Range Mode for Roads

5. After you are finished, click **OK,** and MARPLOT will redraw the map with only the Counties and TRI layers showing (Figure 71). Neither Road layer will show until you zoom in to the range set to view these layers.

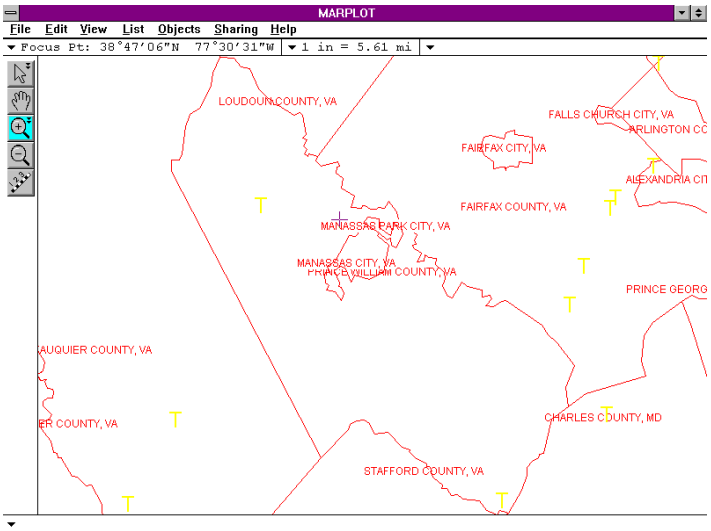

Figure 71: Map of the TRI Facility Locations

6. Remember, it is also possible to change the display of an individual layer to suit your needs. You can work with the Roads (Major) layer by highlighting this layer under the Layer List and clicking the Scale Ranges button. This opens up the Layer Scale Ranges dialog box for Roads (Major) (Figure 72).

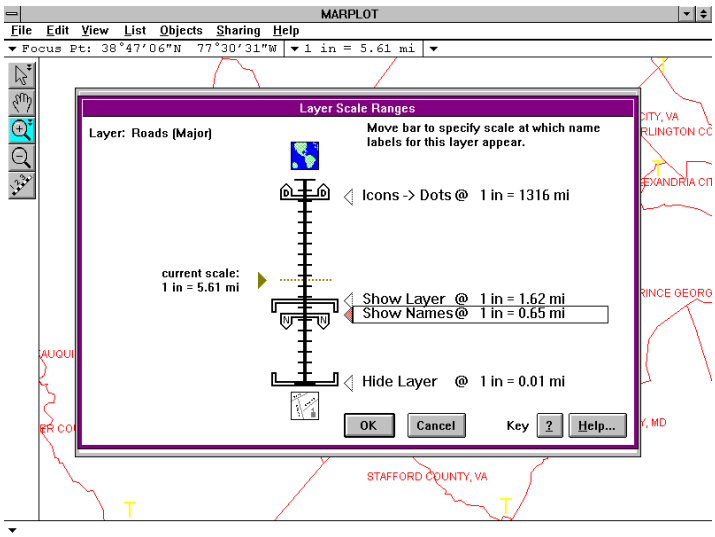

Figure 72: Layer Scale Ranges dialog box

7. The purpose of the Layer Scale Ranges dialog box is to allow you to set four scale values related to the display of the given layer. The dialog box presents a scale "ruler" that ranges from a largest (most zoomed-in) scale of "1 in = 0.01 mi" to a smallest (most zoomed-out) scale of "1 in = 1316 mi."

The four scale values that you can set for the given layer are:

- ❏ The "Show Layer" scale value, . This value applies only when the layer is in "Range" mode, as set in the Layer List dialog box. It specifies the smallest (most zoomed-out) scale at which the given layer is to be shown (turned on). At all smaller (more zoomed-out) scales, the layer will be hidden (turned off).
- ❏ The "Hide Layer" scale value, . This value applies only when the layer is in "Range" mode, as set in the Layer List dialog box. It specifies the largest (most zoomed-in) scale at which the given layer is to be shown (turned on). At all larger (more zoomed-in) scales, the layer will be hidden (turned off).
- ❏ The "Show Names" scale value, . This value applies only when the layer is in "Show" or "Range" mode, as set in the Layer List dialog box. (When the layer is in "Show + Names" mode, the names are shown regardless of the scale.) It specifies the scale at which name labels for objects on the layer are to be drawn on the map. The names appear at the given scale and at all larger (more zoomed-in) scales. The purpose of this scale setting is to allow you to show names of objects only at scales where they do not crowd each other out on the screen.
- ❏ The "Icons -> Dots" scale value, . This value specifies the scale at which symbol (point) objects on the layer are to be drawn as small dots instead of as their usual symbol icons. Symbols will be drawn as dots at the given scale and at all smaller (more zoomed-out) scales.

The purpose of this scale setting is to allow you to show symbols as dots at scales when the symbols icons would crowd each other out on the screen.

The four scale values are represented as lines to the right of the scale ruler. Each line has a small arrow pointing at a mark on the scale ruler, the name of the scale value to be set, and the current setting for that scale value.

You can change any of the four layer scale values by clicking on the name of the desired scale value and dragging up or down. The scale value follows the movement of the mouse until you release the button.

The scale of the current map is indicated with a dotted line and in writing to the left of the scale ruler. This is a useful reference point when setting scale values. For instance, you might be looking at a map and think, "At this scale, it takes too long to draw all of the objects on my Roads layer." You could then use the Layer Scale Ranges dialog box to change the scale ranges for the Roads layer. You would know to drag the "Show Layer" scale value somewhere below the current scale marker on the scale ruler.

8. You decide that you would like to see the major roads when the entire county is displayed. Remember, the scale of the main map window is currently set to show you the whole county in the map window. Thus, to change the layer's scale ranges so that major roads can be viewed when the entire county is displayed, you need to move the Show Layer bar above the current scale (1 in = 5.61 mi). You can do this by changing the scale range in the Layer List, and since you are already in the Scale Ranges dialog box, you can adjust the Show Layer scale. The Show Layer scale need to be above the current scale in order to be viewed on the map. Click on Show Layer and move it above the current scale (Figure 73). When you are satisfied with the scale values for the layer, click **OK** in the Scale Ranges dialog box.

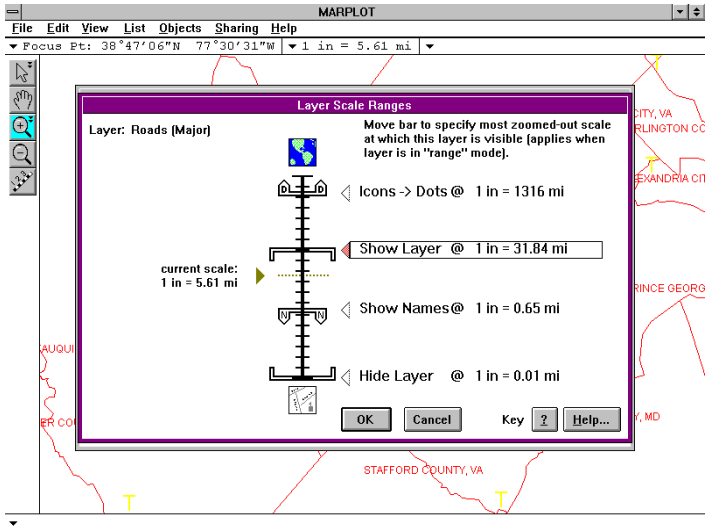

Figure 73: Adjusting Show Layer and Show Names Scale

9. Click **OK** in the Layer List dialog box, and MARPLOT now redraws the map of the county with major roads (Figure 74).

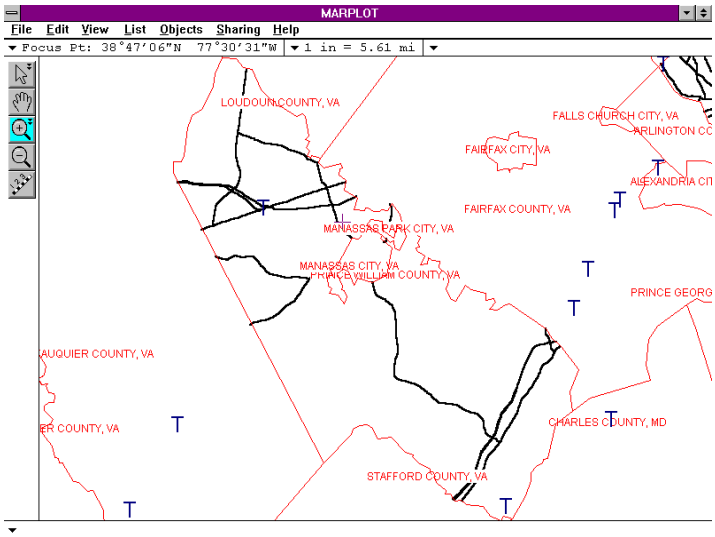

Figure 74: Map of Prince William County with Major Roads

10. Click with the arrow tool on the boundaries of Prince William County, and small boxes will outline the county if selected correctly (Figure 75). (If you do not see the entire map of Prince William County, click on **View** and **Go to View**. Select PRINCE WILLIAM COUNTY, VA < entire county> and click **Go to View** button.)

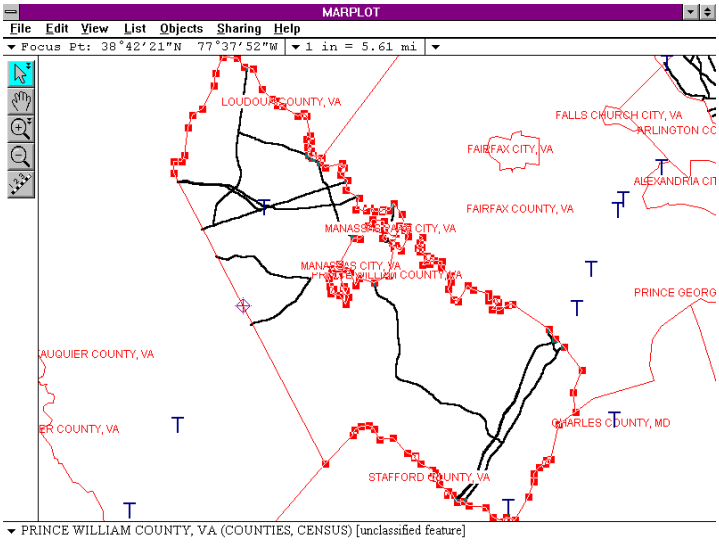

Figure 75: Prince William County Boundaries Highlighted

11. To search for the TRI facilities, click on **List** and then click on **Search**. This brings up the Search Criteria dialog box. In order to search for facilities inside of or touched by the boundaries of the county, you need to select "that are inside or touched by . . ." under the Search for objects pop-up box (Figure 76). Notice that the pop-up box to the right of this will automatically select "the currently selected object(s)."

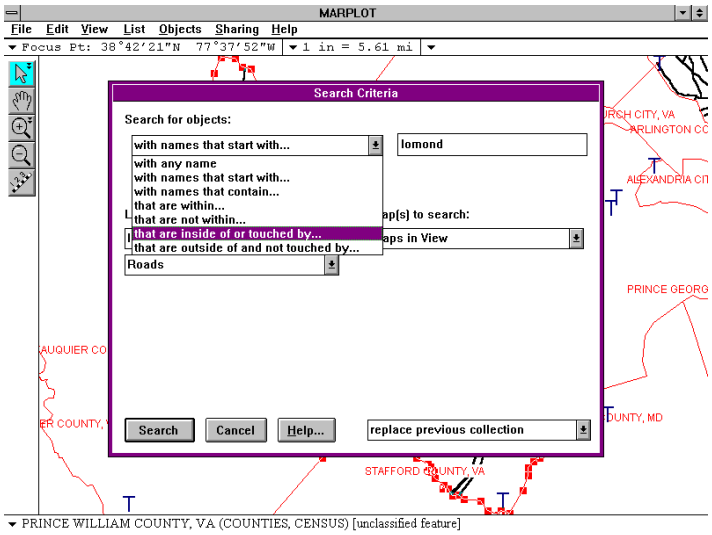

Figure 76: Selection of "that are inside or touched by . . ." under the Search for Objects Drop-down Box

12. Since you are searching for TRI facilities, you need to select TRI under the Layer(s) to search pop-up box (Figure 77). (Leave the "Individual Layer" pop-up box setting the same, because you only want to search in that specific layer.)

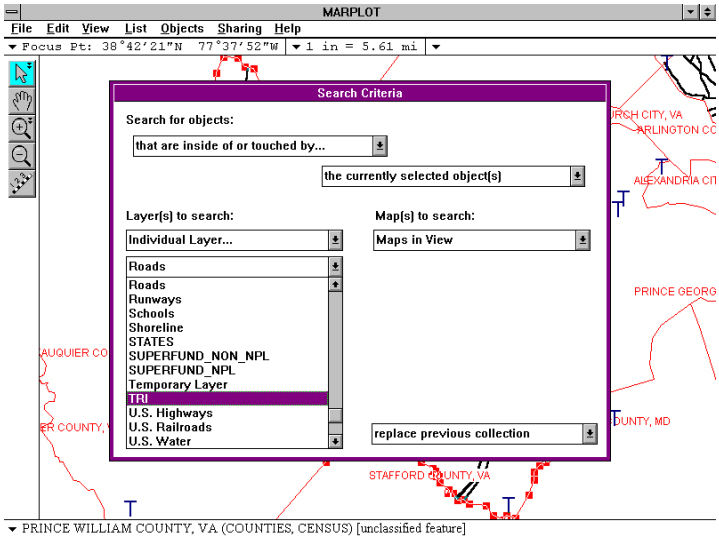

Figure 77: Selection of TRI under the Layer(s) to Search Drop-down Box

13. Make sure that the "Map(s) to search" category has Maps in View selected. Click on **Search** (Figure 78).

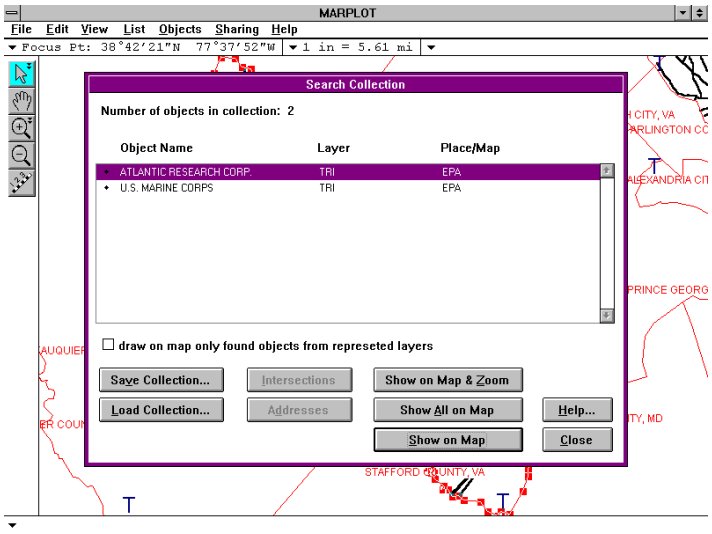

Figure 78: Results of the Search for TRI Facilities in Prince William County

14. The Search Collection shows two facilities in Prince William County. In order to see both facilities on the map, click on the "Show All on Map" button. On the map, these two facilities are now highlighted by four small boxes around each "T" icon (Figure 79). If you wanted, you could instead click on "Show on Map & Zoom" to zoom in to a magnified view of the map that includes only the TRI site that is highlighted.

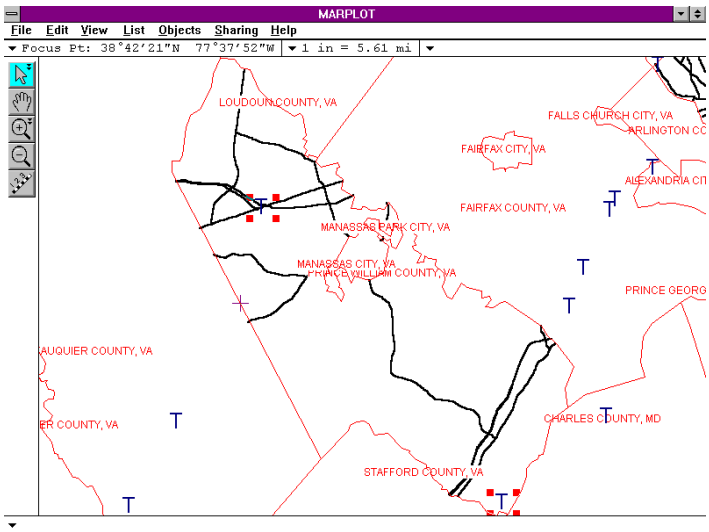

Figure 79: Two TRI Facilities in Prince William County

15. If you are interested in viewing information on these facilities, you can click on **Sharing** from the MARPLOT menu and click on **LandView Databases**, and then select **Get Info** (Figure 80). This function switches you over to LandView III to obtain information about selected MARPLOT objects.

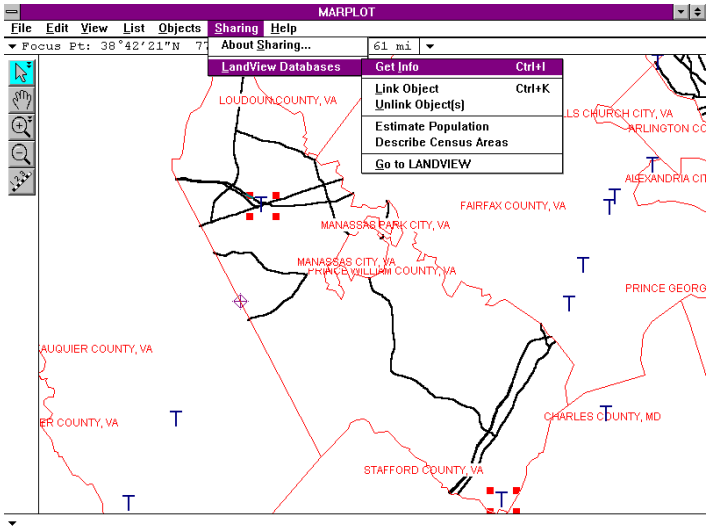

Figure 80: Selection of Get Info under Sharing Menu

16. LandView III displays the Get Info Request from Map dialog box (Figure 81).

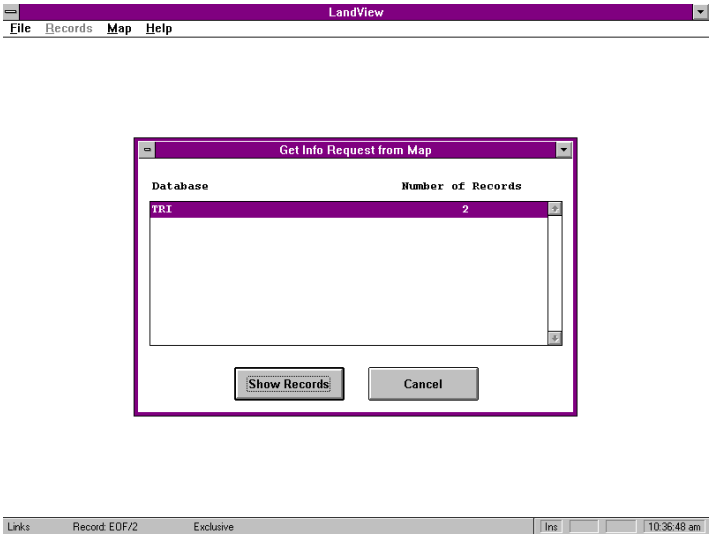

Figure 81: Get Info Request from Map Dialog Box

17. In order to see the information on each facility, click on the Show Records button and it will bring up the record of the first facility, Atlantic Research Corp (Figure 82). To see the other facility, scroll down to it by clicking on the arrow buttons located on the bottom left-hand corner.

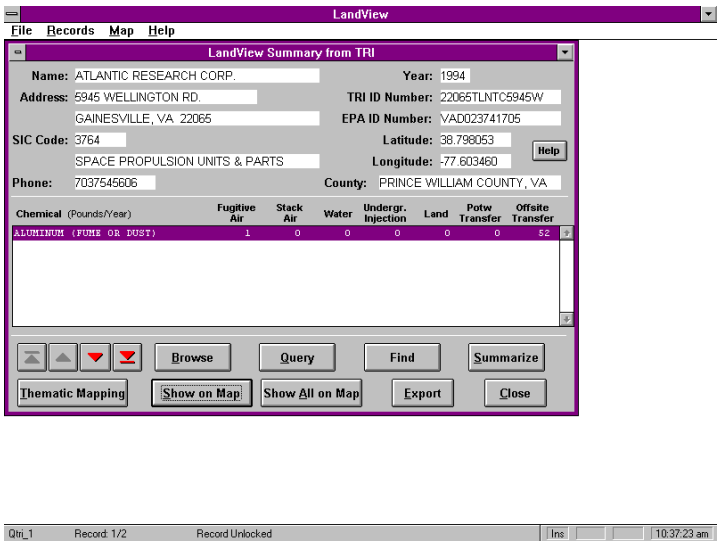

Figure 82: TRI Record of Atlantic Research Corp.

18. You can also click the **Summarize** button to view the summary information of the two TRI facilities (Figure 83). LandView III calculates the total amount of emissions in each category (e.g., fugitive air emissions, stack air emissions) that the TRI sites in Prince William county have reported to EPA for that year (1994).

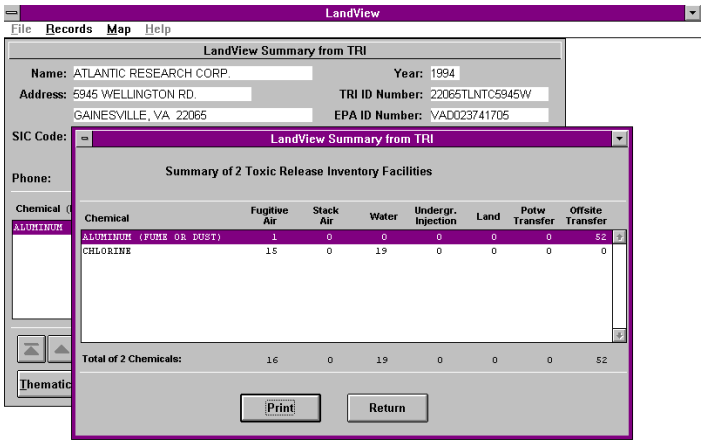

Figure 83: LandView Summary from TRI Dialog Box

19. Click **Return** and click **Close** when you are done viewing the records, and then click **Cancel** on the Get Info Request from Map dialog box.

3.7 Lesson 5 - Examining Environmental Justice Questions: Part One

The objective of this exercise is to:

- Use the thematic mapping feature to examine the differences among cities by educational attainment rates.

Using LandView III, you can learn about the people and their surroundings in an area. Census demographics from LandView III include information about race, ethnicity, age, income, and other fields that you can use to correlate with the layers found in MARPLOT. For example, you may be interested in finding out the percent of high school graduates in various communities throughout Prince William County. You may also want to correlate this information with the locations of hazardous waste facilities. In order to obtain these results, you can use thematic mapping in LandView III. Thematic mapping allows you to sort various areas of the map (in this case, Census groupings) by some characteristic (e.g., race, income, etc.) and to view the results of your sort on the map.

1. Begin in MARPLOT. Note that the map in MARPLOT should be the entirety of Prince William County; if it is not, click on **List** and click on **Map List**. Select the Prince William County Map and click Go to Map.

2. To develop this thematic set, you will need to have certain layers "on." Click on **List** and select **Layer List**. This brings up the Layer List dialog box. Make sure that under the CENSUS Demographic Layers, the State and Counties layers are in the Show + Names mode, and that the Places layer is in the Show mode (Figure 84). If they are not, highlight each one and click the Show box for each layer. It does not matter which other layers you have in the Show mode, except that the number of layers being drawn will affect the speed at which MARPLOT is able to draw the map.

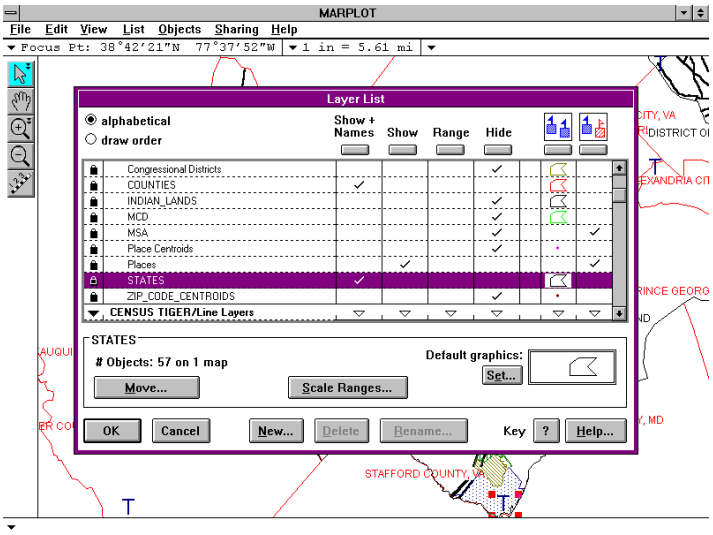

Figure 84: Selecting Show + Names Mode for the State and Counties Layers, and Show Mode for the Places Layer in the Layer List Dialog Box

3. Click **OK**. MARPLOT will redraw the map to include the places.

4. To obtain census information, you need to be in LandView III. In MARPLOT, click on **Sharing**; then click on **LandView Databases** and select **Go to LANDVIEW**.

5. Once you are in LandView III, click on **File** and click on **Census Data**. This brings up the "Extract from 1990 Census of Population and Housing" dialog box (Figure 85).

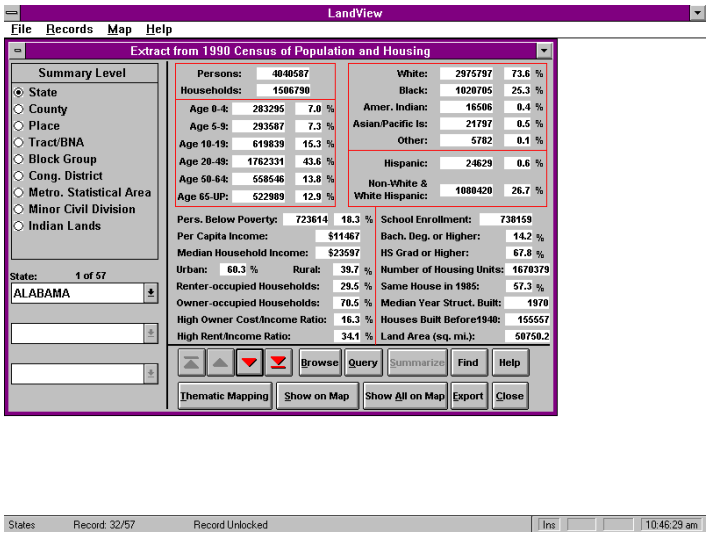

Figure 85: "Extract from 1990 Census of Population and Housing" Dialog Box

6. Currently, this dialog box displays information at the state level for ALABAMA. You want information on the Places in Prince William County, Virginia, so click on Place under Summary Level (Figure 86).

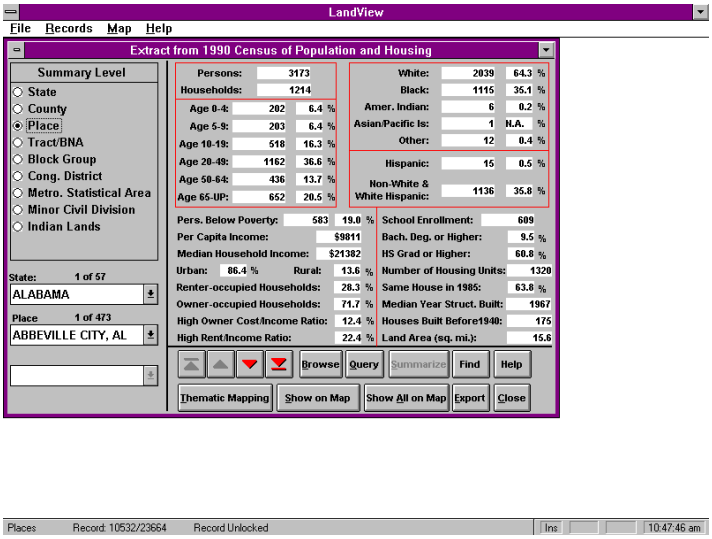

Figure 86: Selecting Place-level Data

7. Information for Alabama is still displayed, so click on the State drop-down box and select VIRGINIA. The selection under "Place:" should not be changed (Figure 87).

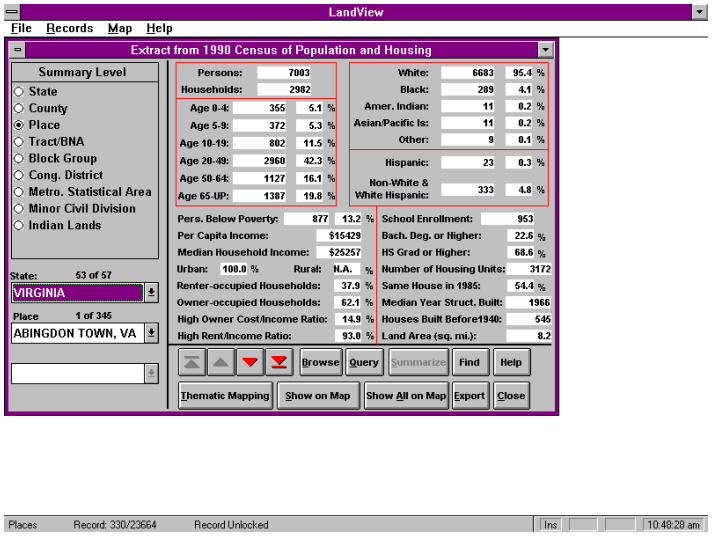

Figure 87: "Extract from 1990 Census of Population and Housing" Dialog Box (VIRGINIA)

8. Once you have the dialog box set up, click on the **Thematic Mapping** button to access the Thematic Mapping Sets for Place Centroids dialog box (Figure 88). The dialog box is currently empty because you have not yet created any thematic sets. Once you have created and saved thematic sets, their names will show in this dialog box so that you can access them again.

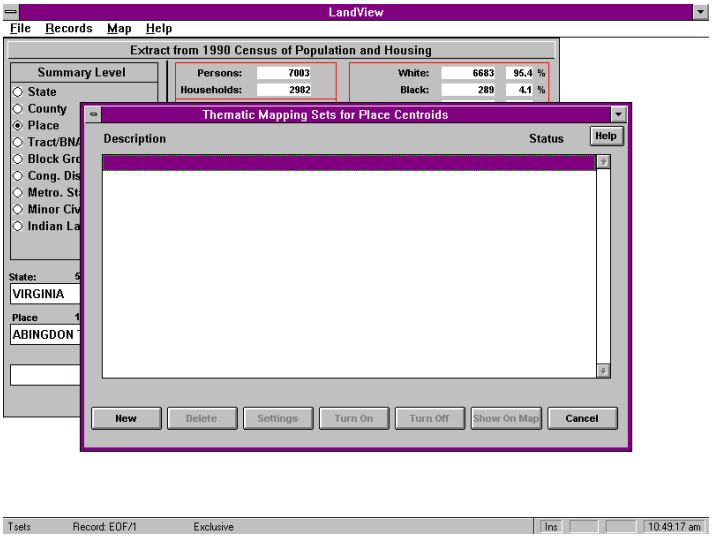

Figure 88: Thematic Mapping Sets for Place Centroids Dialog Box

9. This dialog box allows you to sort the data by a set of characteristics that you define. Click on **New** to bring up the LandView Thematic Mapping Setup dialog box (Figure 89).

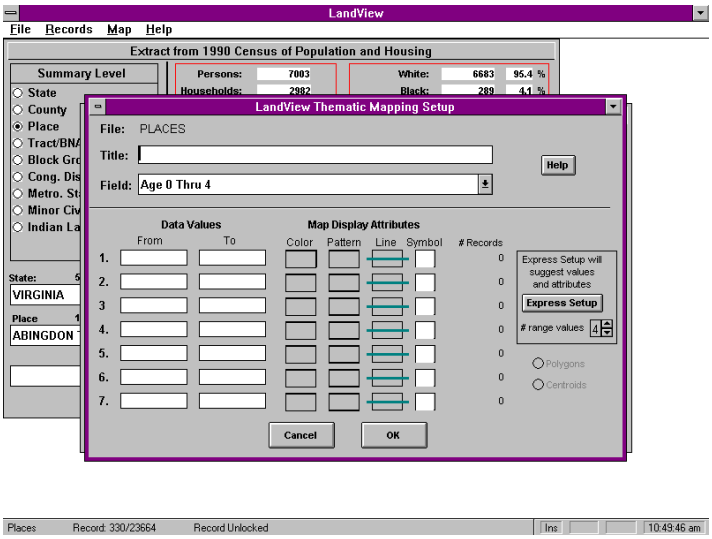

Figure 89: LandView Thematic Mapping Setup Dialog Box

10. You are interested in comparing the percentage of people in cities in Prince William County who have graduated from high school (in other words, you want to group cities in the county). You start by typing in a name for this data set. The name does not matter to LandView III; simply choose something that will help you to remember what the set contains. For this set, you will type "High School Graduates" in the Title box (Figure 90).

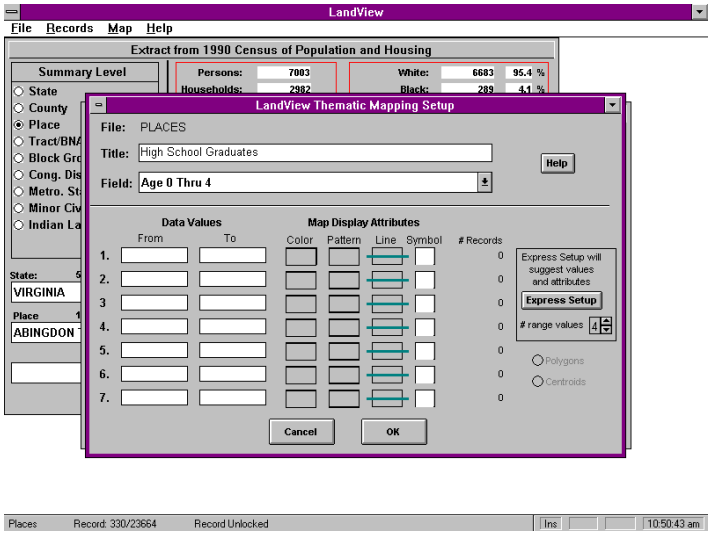

Figure 90: Typing "High School Graduates" in the Title Box

11. Since you are interested in the percentage of high school graduates, click on the “Field” pop-up box and select “Percent High School grad.” from the list (Figure 91). The list of Fields offers many different options for your data sets.

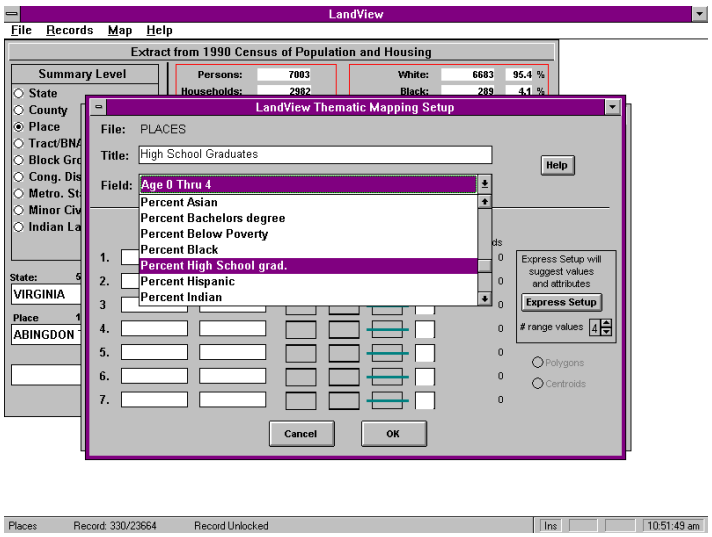

Figure 91: Selection of Percent High School Grad.

12. Once you have selected the Field, you need to set up the Data Values section by choosing the values you are interested in and the attributes for these values. An easy way to do this is to use Express Setup. Express Setup analyzes the field that you have chosen and automatically sets up the Data Values and the Map Display Attributes so that some data sets will be found within each grouping. Click on **Express Setup**. For numeric database fields, you can have the system enter range values for you by pressing the "Express Setup" button. The system allows the user to specify the range values number in the **Express Setup** window. The system will take a sample of the database records to come up with values that approximate an even distribution of records among the categories.

LandView III now displays the LandView Thematic Mapping Setup with suggested Data Values and Map Display Attributes (Figure 92).

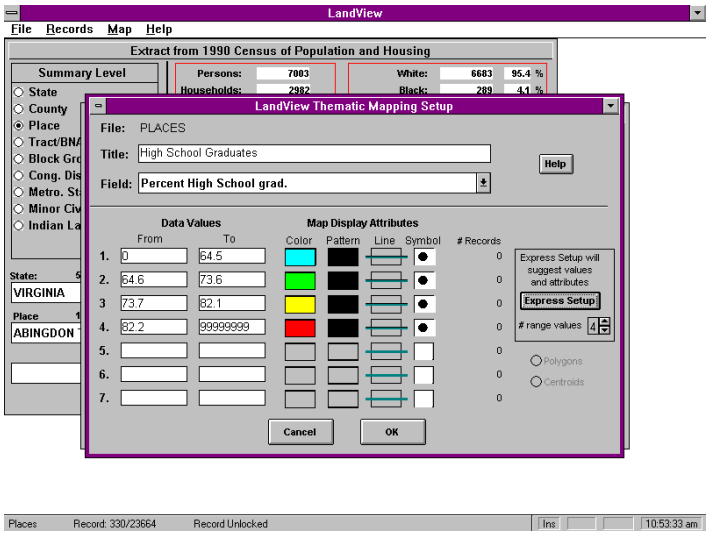

Figure 92: LandView Thematic Mapping Setup with Suggested Data Values and Attributes

13. Click **OK**. This accepts the suggested Data Values and Map Display Attributes and brings you back to the Thematic Mapping Sets for Place Centroids (Figure 93).

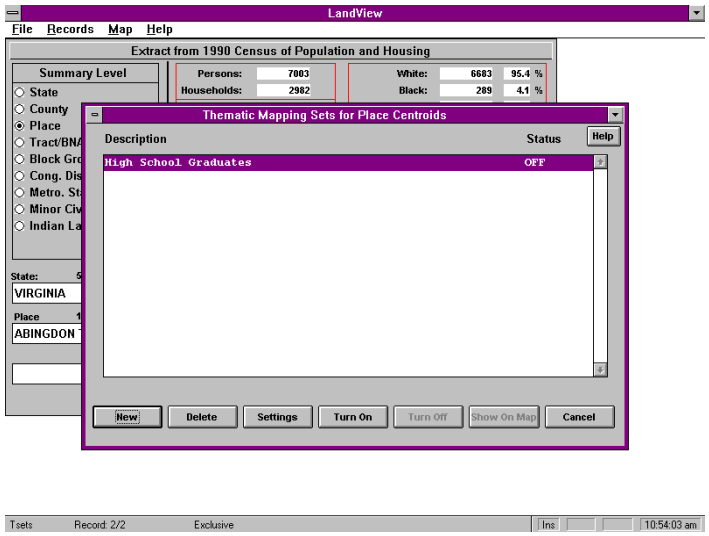

Figure 93: Thematic Mapping Sets for High School Graduates in Places

14. In the description of the Thematic Mapping Sets dialog box, you see the words "High School Graduates," along with the word “OFF” to indicate that the thematic set is turned off. You will not be able to view the thematic set on the map if the set is not turned on (while the thematic set is turned off, the lettering on the “Show On Map” button will have a gray shading to indicate that it is inaccessible). In order to view your mapping set, click **Turn On**. Once the thematic set is turned on, a pop-up box will indicate that processing is done. Click **OK**, and it will bring you back to the Census Data dialog box.

The thematic mapping set for high school graduates is now turned on. Click on **Show on Map** to view the results (Figure 94).

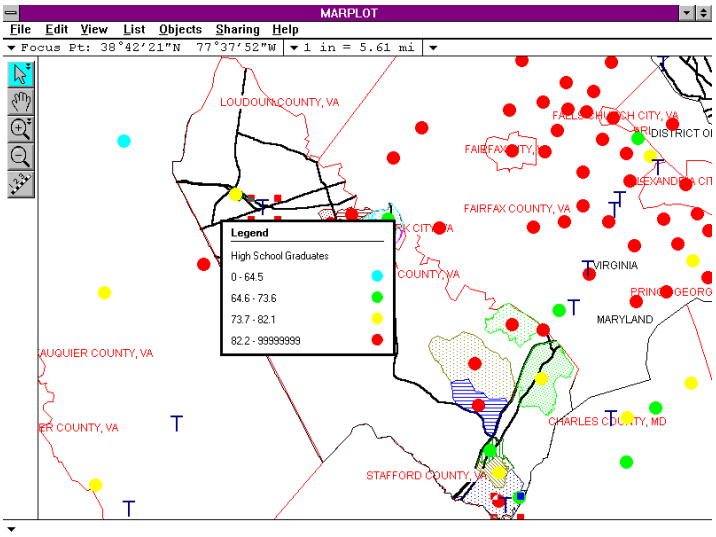

Figure 94: Results of Thematic Mapping Set for High School Graduation Rate

15. MARPLOT displays the map of the County with the data values and mapping attributes you have selected. A legend is also provided that lists the names and attributes displayed. Note that, depending on which layers you have open, your map may not appear exactly as shown in Figure 94.

16. You can also choose to define your thematic set manually, rather than using the Express Setup. Switch back to LandView III by clicking on **Sharing** in MARPLOT and clicking on **LandView Databases** and selecting **Go to LANDVIEW**.

17. Remember you are still in the Thematic Mapping dialog box. To develop a new thematic mapping set, you must turn off the previous mapping set, "High School Graduates." Highlight High School Graduates and click **Turn Off**.

18. Click on **New** and type in a title and the field you are interested in. (For the previous mapping set, the Title was "High School Graduates," and the field was "Percent High School grad.") Then for Data Values, select ranges to group subsets within that field (e.g., percentage ranges in the previous example). In the previous example, you used Express Setup to obtain suggested ranges for the graduation percentages. If you did not like the thematic sets that its suggestions provided, you can specify the exact percentages you are interested in (e.g., you can input 0 - 25% rather than 0 - 64.5% as suggested by Express Setup).

19. Once you type in these numbers, LandView III will automatically select Mapping Attributes for you. You can alter these, as well, by clicking once on the Attribute you are interested in changing. For example, to change the Color of a Data Value, click on the Color box of this Data Value. A palette of colors is displayed, and you can select any of the available colors. Once you are finished with all the value ranges, you click **OK** and click **Turn On**. Click **Show on Map** to see inputted values on the map. When you have finished, go back to LandView III and click on **Thematic Mapping in Census Data**, and turn off all the mapping sets by clicking on the **Turn Off** button and click on **Cancel**. To get back to LandView III, click **Close** on the "Extract from 1990 Census of Population and Housing" dialog box.

3.8 Lesson 6 - Query

There are several ways to search for information in LandView III. In the previous Lesson, you used Thematic Mapping to view the desired information visually on the map. The Query function offers you another way to perform complex searches. This function allows the database's records to be sorted, grouped, and summarized according to the data values you input. It displays those records that match your criteria and allows you to view those objects on the map. For instance, you may be interested in finding out the number of Superfund NPL sites in Prince William County by using the Query function.

The objective of this exercise is to:

- Use the Query function to perform a search.

1. You should have the entire map of Prince William County on the screen for this exercise. If this is not currently the case, click on **View** and click on **Go to View**. Select Prince William County, VA and click **Go to View**.

2. Note that, for this exercise, you need to make sure that the EPA-regulated site layers are in either the Show or Range mode. If the layers are in Hide mode, you will not be able to see the objects on the map. In MARPLOT, click on **List**, and then click on **Layer List**. Scroll down the layers menu to the EPA Layers section. Click on Range mode in the EPA Layers header row. You will also want to use Census Block Groups, so click on the Show mode for Census Block Groups. In the previous lesson, you turned on Places; because you will not need to see this layer in this lesson, click **Hide** for Places. Click **OK** when you are done.

3. You may also want to hide the legend if it is still shown. To do this, click on **File** and select **Preferences**. In **Preferences**, click on the Legend tab and un-check the "Show Legend" to hide it. Click **OK** when you are done.

4. To query a LandView III database, you must be in LandView III. To return to LandView III, click on **Sharing** in MARPLOT, select **LandView Databases**, and click on **Go to LANDVIEW**. Once you are in LandView III, click on **Superfund NPL Sites** under the **File** menu (Figure 95).

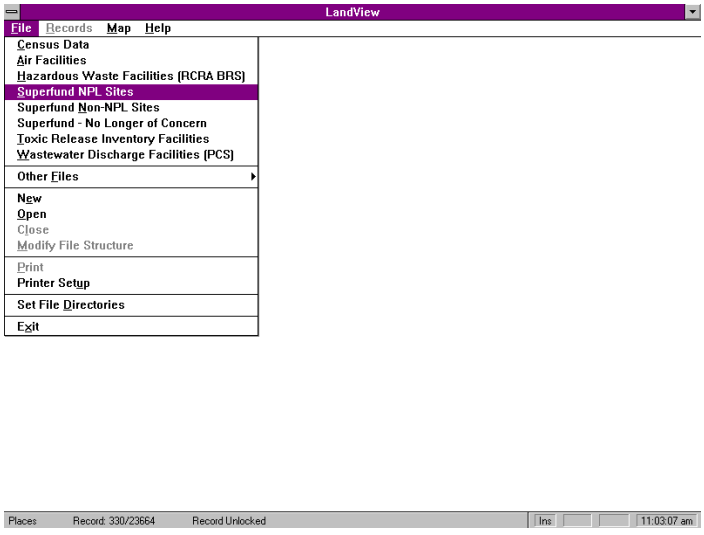

Figure 95: Selection of Superfund NPL Sites

5. LandView III now displays the Superfund NPL Sites module, called “LandView Summary from CERCLIS (NPL)” dialog box (Figure 96).

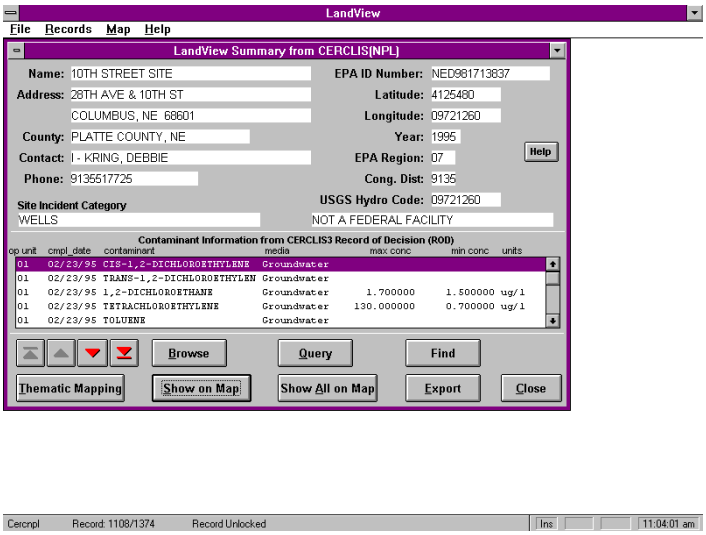

Figure 96: “LandView Summary from CERCLIS (NPL)” Dialog Box

6. Click on **Query**. This brings you to the LandView Query dialog box for Superfund NPL Sites (Figure 97).

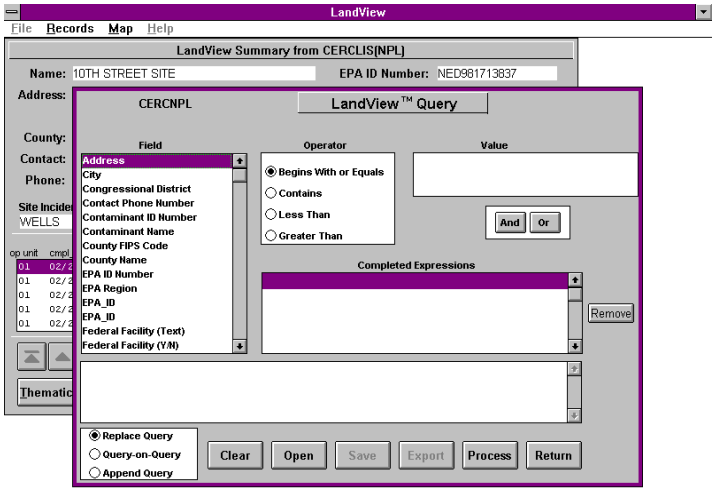

Figure 97: LandView Query Dialog Box for Superfund NPL Sites

7. Since you are interested in all Superfund NPL sites located in Prince William County, you highlight “County Name” for the Field category. The Operator category is okay as it stands, because when you enter “Prince William” for the Value category, you want the database to search for County Names that “Begin With or Equals” Prince William (Figure 98).

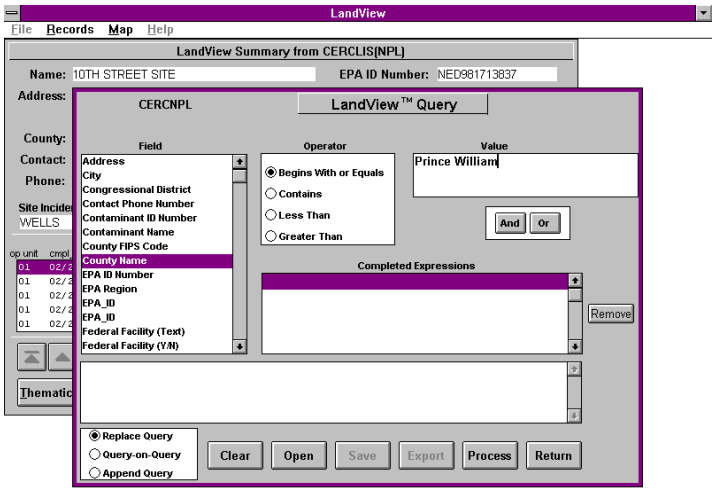

Figure 98: Query Dialog Box Filled with Desired Data Values

8. When you are done inputting the desired information, click on **Process**. LandView III analyzes the information and retrieves the records matching your data request. In this case, LandView III indicates that it has selected one record, so click OK. Click on Return to view this record (Figure 99). For other Query requests, you may get more than one record from your search. For those results, when you click Return, LandView III brings up the first record and allows you to scroll down to view the other records. LandView III will also allow you to summarize your results.

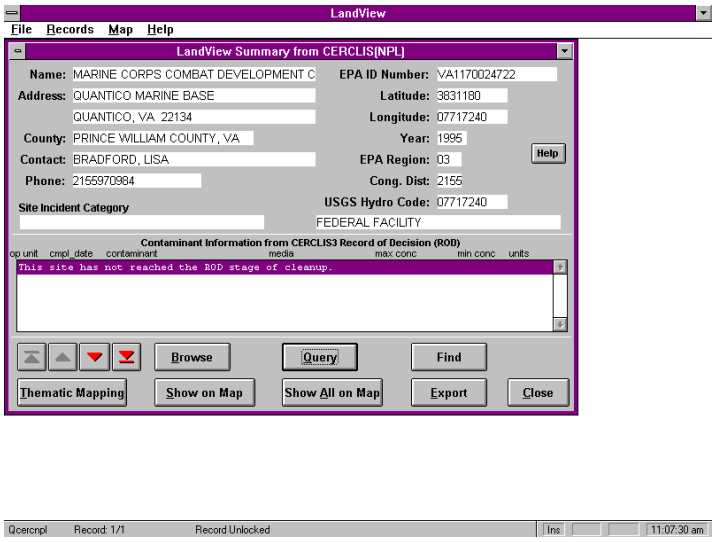

Figure 99: Selected Record Based on Query Search

9. You can also see the location of this site on the map. Click on **Show on Map**. (If you find more than one site with your query, you can to use Show All on Map to view all of the sites at once.)

10. LandView III displays the map with the Superfund NPL site at the bottom of the county. The icon "S" is marked with the flashing focus point and surrounded by four small boxes (Figure 100).

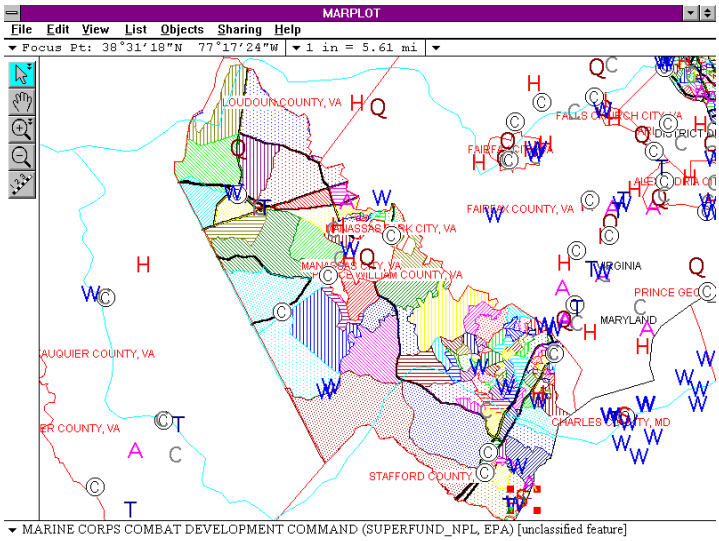

Figure 100: Highlighted Superfund NPL Site

11. Before leaving this Lesson, let's return to LandView III. Click on **Sharing**, then click on **LandView Databases** and select **Go to LANDVIEW**. Note that you are still viewing the Superfund NPL Site record from the previous example, because you did not close out of the record before entering MARPLOT. Click on **Close** to get out of Superfund NPL Sites.

3.9 Lesson 7 - Examining Environmental Justice Questions: Part Two

The objective of this exercise is to:

- Use Query, Search, and Thematic Mapping commands in combination.

Previously, you used the thematic set option to divide a census database (Places) into groupings according to a characteristic (percent high school graduates). You may also want to look at various data sets in relation to each other. For instance, you might be interested in finding out how many hazardous waste sites, if any, are located in the vicinity of schools or hospitals. Or, you might want to know whether there are any significant differences within your county in the neighborhoods surrounding EPA-regulated sites, rather than those not in the vicinity of such sites.

Now that you have learned how to use the Thematic Mapping, Search, and Query functions, you can use these three functions in combination to address these and other similar questions. For this example, you will search for the locations of hazardous waste facilities in Prince William County. This can be accomplished by using the Query function. Once you have these results, you will look at the minority population that surrounds these facilities. The latter part can be accomplished using the Thematic Mapping function.

1. You will need to begin in LandView III. Click on **File** and then select **Hazardous Waste Facilities**. This selection brings up the Hazardous Waste module (Figure 101).

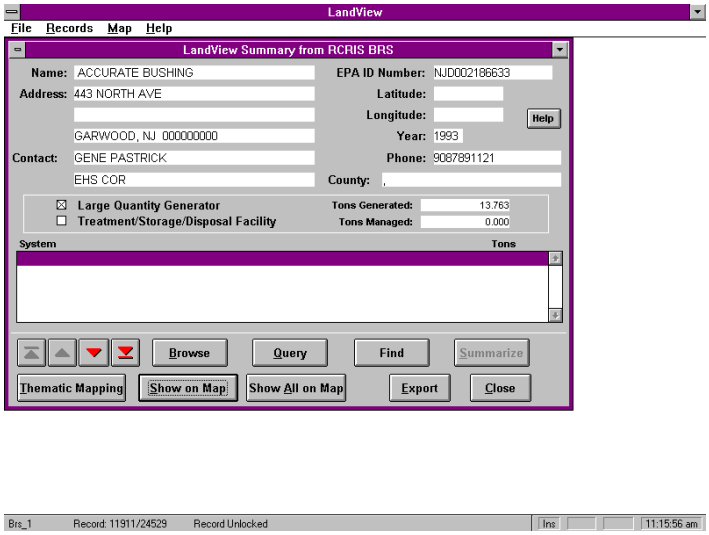

Figure 101: Hazardous Waste Facilities Module

2. In the Hazardous Waste Facilities module, select the **Query** function to begin your search for Hazardous Waste Facilities in Prince William County.

3. In the Field category, select FIPS_STATE COUNTY CODE. (Remember from Lesson 3 that FIPS is the Federal Information Processing Standards Place Code. FIPS codes are county and state codes established by the Federal government for the purpose of standardizing the coding of statistical information made available through various reference sources.) Note that you need to use this field because the Hazardous Waste Facilities module does not have a field for county name. As you also learned in Lesson 3, the county code for Prince William County is 51 (state code) and 153 (county code), so you will type 51153 in the Value category (Figure 102).

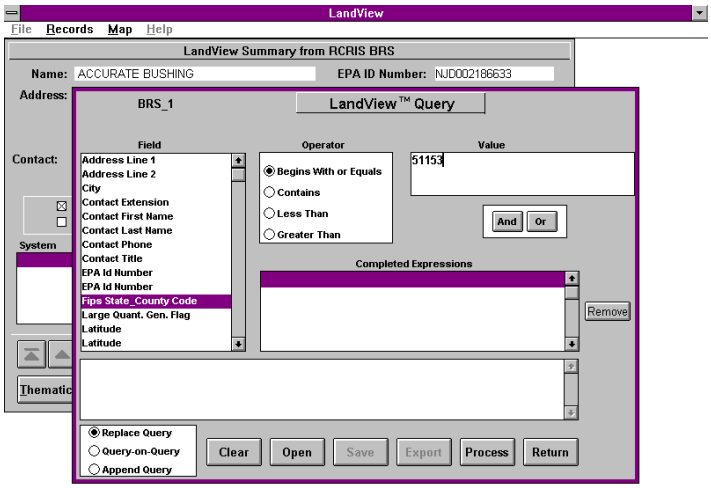

Figure 102: Inputting Data for Query on Hazardous Waste Sites

4. Click **Process**, and LandView III shows that nine records were selected. Click on **OK** in the pop-up box and then click **Return** to see the results. The first of the nine records is shown (Figure 103).

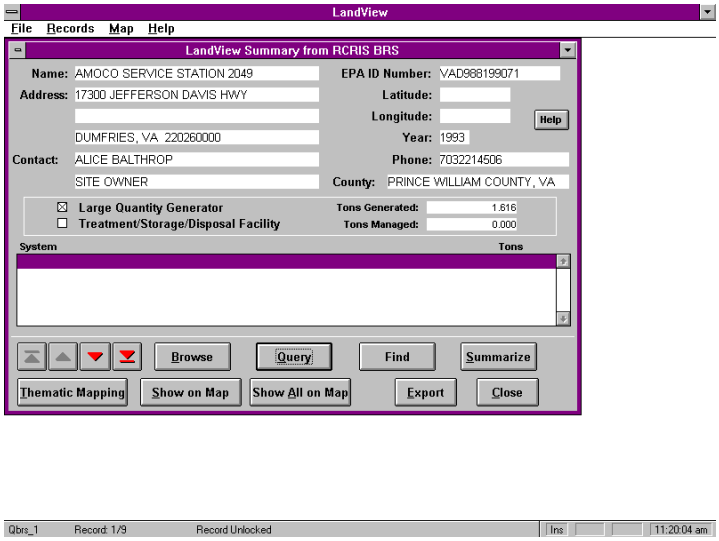

Figure 103: First Record of the Hazardous Waste Sites Found in Prince William County

5. To see the location of all nine sites, click on **Show All on Map**. The program will say that one or more objects are not found. (Note there is a possibility that MARPLOT may not have all the sites listed in LandView III, so it will only highlight the ones available. Some of the sites will not be shown because the EPA data might have no or inaccurate longitude or latitude coordinates for these sites. This occurs because much of the data in LandView III is self-reported by regulated facilities; because EPA does not regulate on the basis of latitude or longitude, such reporting errors may not have been corrected.) Click **OK**. This takes you into MARPLOT, and the map should display each site highlighted by four small boxes (Figure 104).

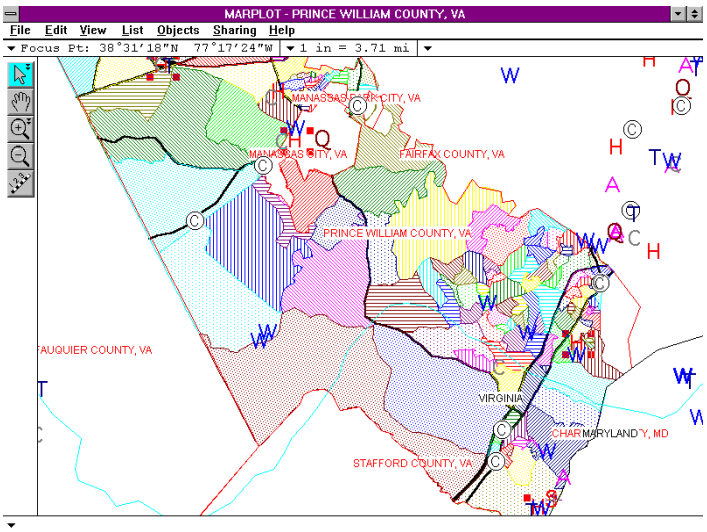

Figure 104: Map of All Hazardous Waste Sites

6. With the knowledge of where these Hazardous Waste Sites are located, you may now want to find out more about the population that surrounds a particular site. You can do this by performing a population analysis around a hazardous waste facility.

7. Start off by using the arrow tool and clicking once on the hazardous waste facility that is right above Manassas City. This places the Focus Point on the site; the bottom left corner will indicate that this is the IBM Corporation site (Figure 105). Note that the small boxes surrounding all the hazardous waste sites will still remain after you place the Focus Point on one site.

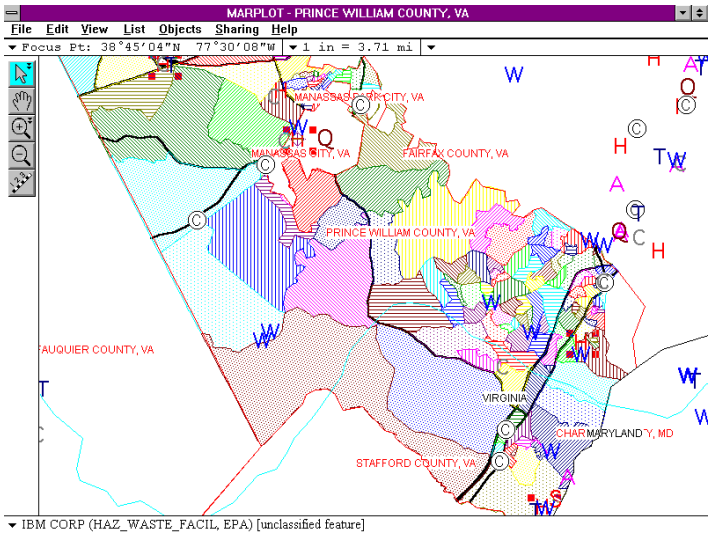

Figure 105: Placing the Focus Point on a Hazardous Waste Facility Site

8. In order to perform a population analysis, you will use the Search command to locate the census block groups in proximity to the hazardous waste site and to obtain a summary of the nearby population. To bring up the Search Criteria dialog box, click on **List** and select **Search** (Figure 106).

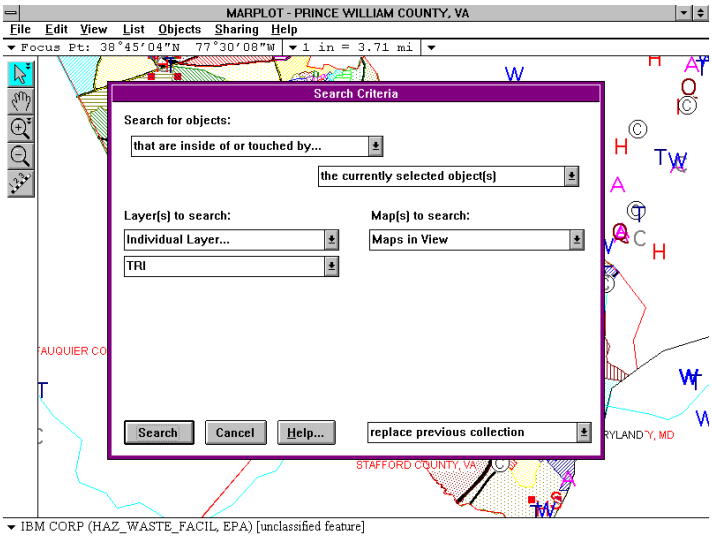

Figure 106: Search Criteria Dialog Box

9. You want to find information on the population within one mile of the hazardous waste site. Under Search for objects, highlight "that are within" (Figure 107).

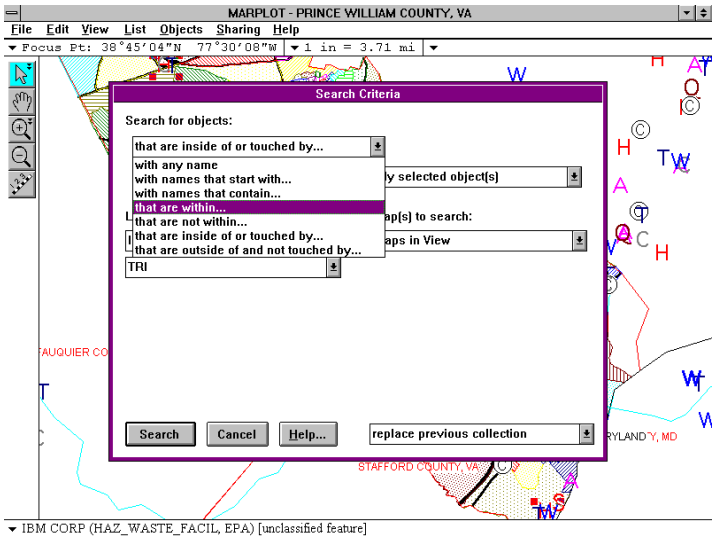

Figure 107: Selecting "that are within" under Search for Objects

10. With this selection, the dialog gives you an option to indicate which objects you are interested in and the distance from those objects. One mile is already selected, so you just need to select the objects of interest. Highlight the option "the Focus Point" (Figure 108).

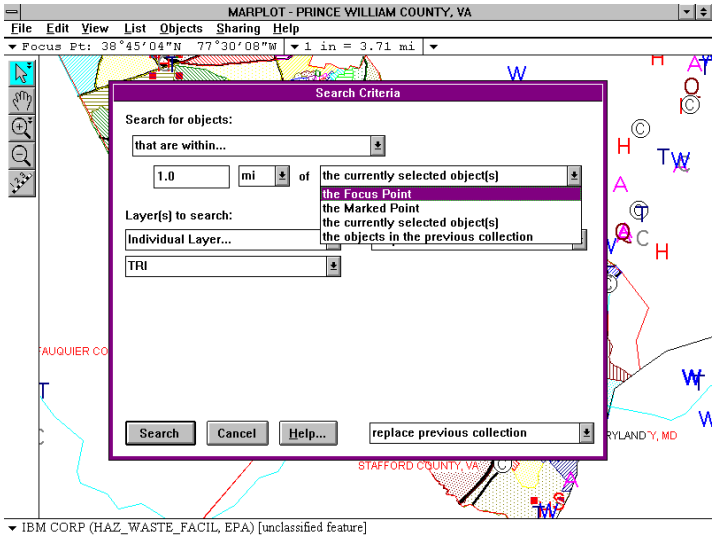

Figure 108: Selection of "the Focus Point"

11. Under Layer(s) to search, select Census Block Groups (Figure 109).

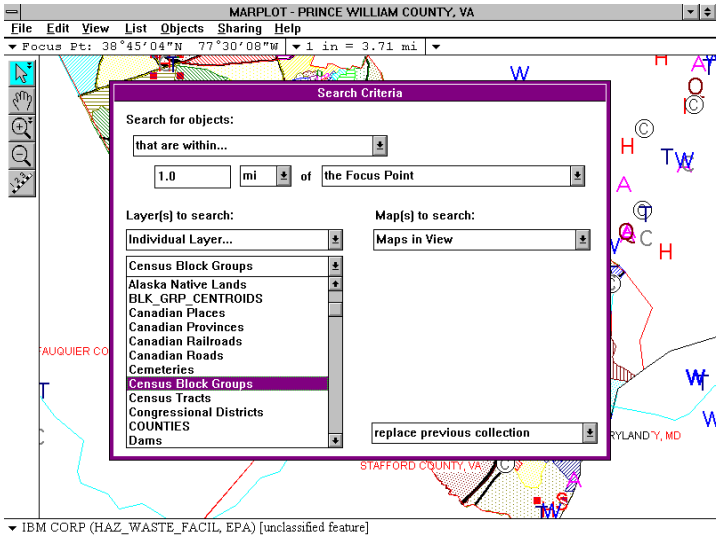

Figure 109: Selection of Census Block Groups under Layer(s) to Search

12. Click **Search** when you are finished. This brings up the Search Collection dialog box, which shows that there are three Census Block Groups within 1.0 mile of the site (Figure 110).

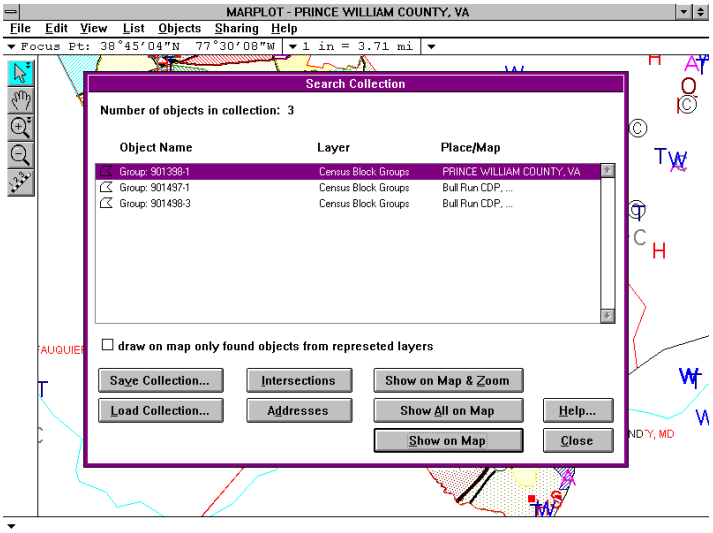

Figure 110: Placing Focus Point at Facility above Manassas City

13. Click on **Show All on Map** to see all the selected Census Blocks (Figure 111). The Census Block Groups will be highlighted by small boxes.

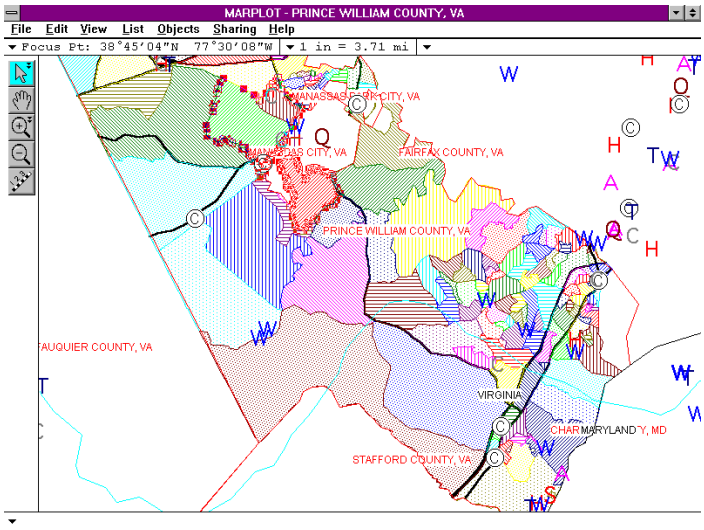

Figure 111: The Census Block Groups Selected by Search

14. To find out about the population in the block groups, you can click on **Sharing**, select **LandView Databases** and select **Get Info**. This brings you to the "Get Info Request from Map" dialog box in LandView III (Figure 112).

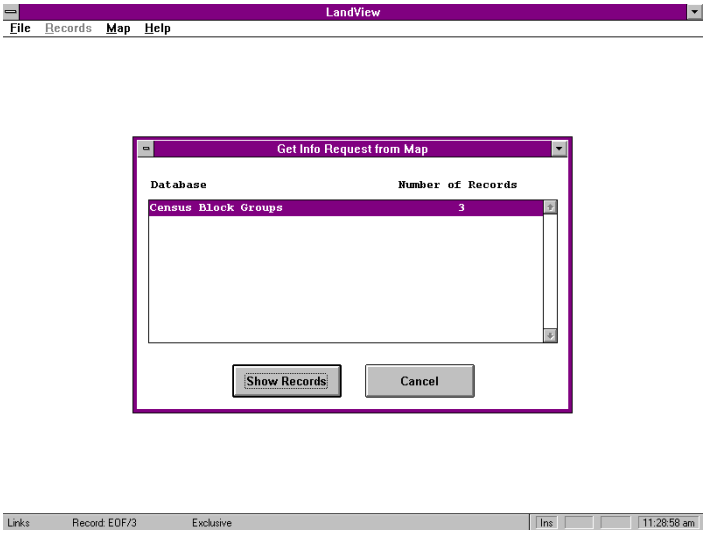

Figure 112: Get Info Request from Map Dialog Box

15. Click on **Show Records** to view the information on these Census Block Groups. The record of the first census block group selected is displayed (Figure 113).

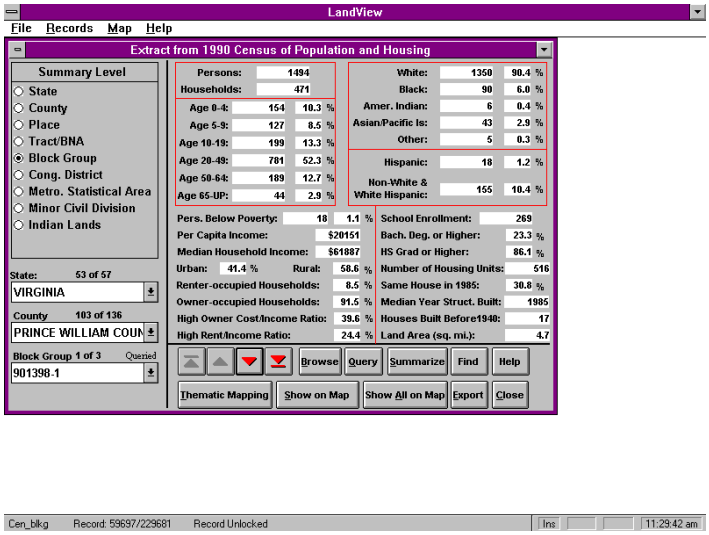

Figure 113: First Record of the Three Nearby Census Block Groups

16. To view the population information of all three block groups, click on **Summarize**. A summary of the demographics for the three block groups is displayed (Figure 114). Click on **Return** when you are done viewing.

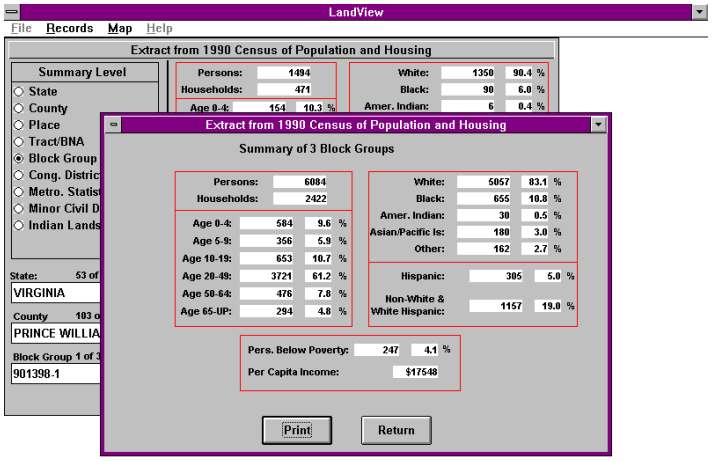

Figure 114: Summary of the Three Census Block Groups

17. This summary provides you with information about the race and ethnicity of the population around this one site. (Note that, as defined in LandView III, the term "minority population" includes all people who define themselves either as non-white or White Hispanic. Because Hispanic is a separate concept

from race, Hispanics can be members of any racial category. Therefore, you cannot add the LandView III minority population to the white population to get a total population, because the minority population may contain some persons identified as White Hispanics.)

18. Steps 6 through 17 allowed you to manually ask LandView III to summarize the population characteristics of several block groups. LandView III also gives you a simpler option. It is also possible to obtain population information quickly by using "Estimate Population Around Current Map Pointer" under the **Map** menu of LandView III. This brings up a dialog box and asks you to input the radius in order to estimate the population around the map pointer. LandView III will then perform the steps that you just walked through in order to give you the desired summary information.

19. As the last challenge in this Guided Tour, you will look at the percent of minorities that compose the communities surrounding each of the hazardous waste sites you identified in Prince William County. You could do this for each facility using the Search command, as outlined above. This would be possible, given that you only have four sites in the county, but it could become tedious. Fortunately, thematic mapping gives you a way to look at all of these sites at once.

To begin, you need to click **Close** to get out of the Census record and then click **Cancel** to get out of the Get Info dialog box. This function takes you back to MARPLOT. To view population statistics, you need to use the Census Data module in LandView III. Click on **Sharing** in MARPLOT, and then select **LandView Databases** and click on **Go to LANDVIEW**.

20. Once you are back to the main LandView III **File** menu, click on **File** and select **Census Data**. This brings up the "Extract from 1990 Census of Population and Housing" dialog box. Currently the dialog box is set at the State level. You want to look at Census Block Groups, so click Block Group under Summary Level. Then you will need to select VIRGINIA for the State (Figure 115).

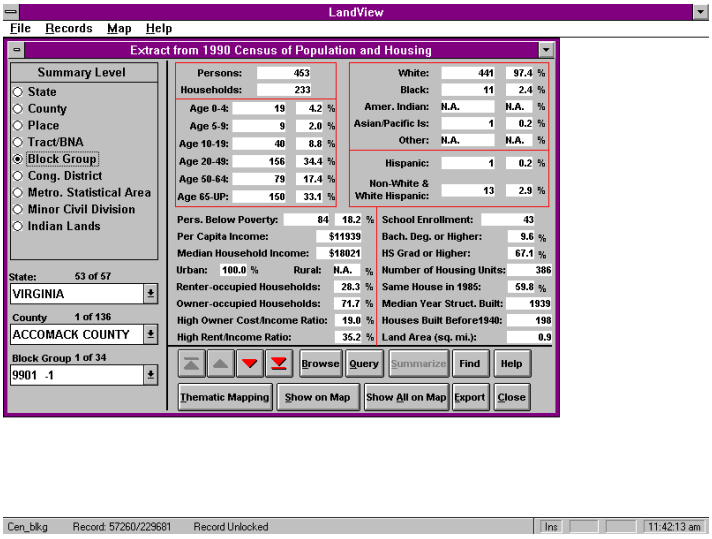

Figure 115: Selection of Block Group Level for Census Data Dialog Box

21. Click on **Thematic Mapping** to get to the Thematic Mapping Sets for Census Block Groups. Then click on “New” to input new data values. This brings up the LandView Thematic Mapping Setup dialog box. Again, your entry in the Title category is up to you; simply type in something that will help you

remember how you have defined your set. You will type in "Minority Populations." For the Field category, scroll down the menu and select Minority Population. Then click on **Express Setup**, and LandView III will analyze the information and select ranges for the data (Figure 116).

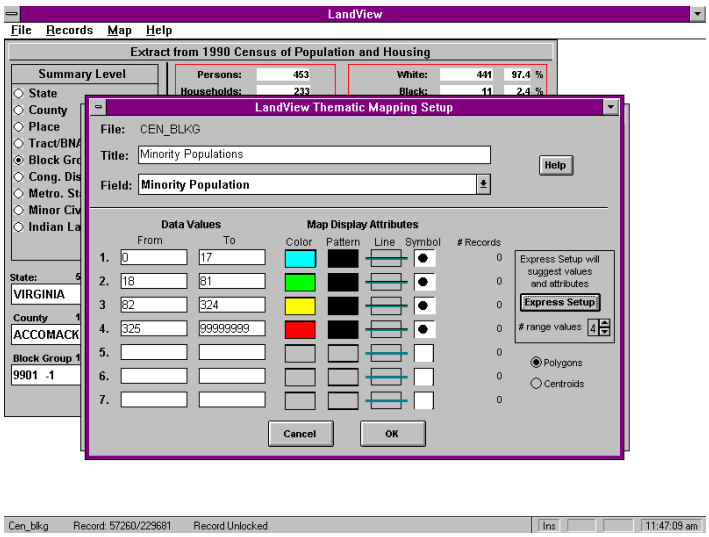

Figure 116: Values Selected for Minority Populations

22. Once you are finished with the setup, click **OK**. You are back in the Thematic Mapping Sets for Census Block Groups. The "Minority Populations" set is currently highlighted, but the Status is off. Click on **Turn On**, and then click on **Show on Map**. MARPLOT redraws the map to display the ranges of minority populations in Prince William County (Figure 117). The legend shows the minority populations with the corresponding colors.

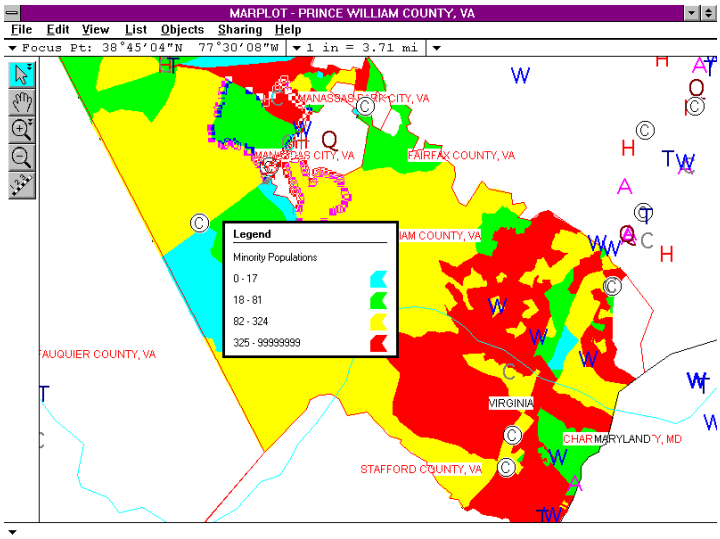

Figure 117: Map of Minority Populations in Prince William County

4 Learning More

For more information about any LandView III feature, see the help screens contained within the system.

5 Quitting LandView III

To quit LandView III, while any LandView III database is open, click the **File** menu, and then click **Exit**. LandView III closes.

To quit MARPLOT, click the **File** menu, and then click **Exit**.