



ArcView StreetMap 1.1—Nationwide Street Mapping and Address Matching on a Single CD-ROM

An ESRI White Paper • September 1999

Copyright © 1999 Environmental Systems Research Institute, Inc.
All rights reserved.
Printed in the United States of America.

The information contained in this document is the exclusive property of Environmental Systems Research Institute, Inc. This work is protected under United States copyright law and other international copyright treaties and conventions. No part of this work may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system, except as expressly permitted in writing by Environmental Systems Research Institute, Inc. All requests should be sent to Attention: Contracts Manager, Environmental Systems Research Institute, Inc., 380 New York Street, Redlands, CA 92373-8100, USA.

The information contained in this document is subject to change without notice.

U.S. GOVERNMENT RESTRICTED/LIMITED RIGHTS

Any software, documentation, and/or data delivered hereunder is subject to the terms of the License Agreement. In no event shall the Government acquire greater than RESTRICTED/LIMITED RIGHTS. At a minimum, use, duplication, or disclosure by the Government is subject to restrictions as set forth in FAR §52.227-14 Alternates I, II, and III (JUN 1987); FAR §52.227-19 (JUN 1987) and/or FAR §12.211/12.212 (Commercial Technical Data/Computer Software); and DFARS §252.227-7015 (NOV 1995) (Technical Data) and/or DFARS §227.7202 (Computer Software), as applicable. Contractor/Manufacturer is Environmental Systems Research Institute, Inc., 380 New York Street, Redlands, CA 92373-8100, USA.

ARC/INFO, ArcCAD, ArcView, *BusinessMAP*, ESRI, the ESRI globe logo, MapObjects, and PC ARC/INFO are trademarks of Environmental Systems Research Institute, Inc., registered in the United States and certain other countries; registration is pending in the European Community. 3D Analyst, ADF, ARC COGO, the ARC COGO logo, ARC GRID, the ARC GRID logo, AML, ARC NETWORK, the ARC NETWORK logo, *ARC News*, ARC TIN, the ARC TIN logo, the ARC/INFO logo, ArcInfo LIBRARIAN, ARC/INFO—Professional GIS, ARC/INFO—The World's GIS, ArcAtlas, the ArcAtlas logo, ArcBrowser, the ArcCAD logo, the ArcCAD WorkBench logo, ArcCatalog, ArcCensus, ArcCity, the ArcData logo, the ArcData Online logo, ArcDoc, ARCEDIT, the ARCEDIT logo, ArcExplorer, the ArcExplorer logo, ArcExpress, the ArcExpress logo, ArcFM, the ArcFM logo, the ArcFM Viewer logo, ArcIMS, the ArcIMS logo, ArcInfo, ArcLogistics, the ArcLogistics Route logo, ArcMap, ArcObjects, ARCPLOT, the ARCPLOT logo, ArcPress, the ArcPress logo, the ArcPress for ArcView logo, ArcScan, the ArcScan logo, ArcScene, the ArcScene logo, ArcSchool, ArcSDE, the ArcSDE logo, ArcSdl, ARCSHELL, ArcStorm, the ArcStorm logo, ArcToolbox, ArcTools, the ArcTools logo, ArcUSA, the ArcUSA logo, *ArcUser*, the ArcView GIS logo, the ArcView 3D Analyst logo, the ArcView Business Analyst logo, the ArcView Data Publisher logo, the ArcView Image Analysis logo, the ArcView Internet Map Server logo, the ArcView Network Analyst logo, the ArcView Spatial Analyst logo, the ArcView StreetMap logo, the ArcView StreetMap 2000 logo, the ArcView Tracking Analyst logo, *ArcVoyager*, ArcWorld, the ArcWorld logo, Atlas GIS, the Atlas GIS logo, AtlasWare, Avenue, the Avenue logo, the *BusinessMAP* logo, DAK, the DAK logo, DATABASE INTEGRATOR, DBI Kit, the Digital Chart of the World logo, the ESRI corporate logo, ESRI—Team GIS, ESRI—The GIS People, FormEdit, Geographic Design System, Geography Matters, GIS by ESRI, GIS for Everyone, GISData Server, IMAGE INTEGRATOR, *InsiteMAP*, MapBeans, MapCafé, the MapCafé logo, the MapObjects logo, the MapObjects Internet Map Server logo, NetEngine, the NetEngine logo, the PC ARC/INFO logo, PC ARCEDIT, PC ARCPLOT, PC ARCSHELL, PC DATA CONVERSION, PC NETWORK, PC OVERLAY, PC STARTER KIT, PC TABLES, the Production Line Tool Set logo, Spatial Database Engine, SDE, the SDE logo, the SDE CAD Client logo, SML, StreetMap, TABLES, The World's Leading Desktop GIS, ViewMaker, *Water Writes*, and Your Personal Geographic Information System are trademarks and ArcData, ARCMail, ArcOpen, ArcQuest, *ArcWatch*, ArcWeb, Rent-a-Tech, @esri.com, and www.esri.com are service marks of Environmental Systems Research Institute, Inc.

The names of other companies and products herein are trademarks or registered trademarks of their respective trademark owners.

ArcView StreetMap 1.1— Nationwide Street Mapping and Address Matching on a Single CD-ROM

An ESRI White Paper

Contents	Page
Overview	1
ArcView StreetMap Data	1
What Can I Do with ArcView StreetMap?	2
Mapping Capabilities	2
Nationwide Address Geocoding or Address Matching	3
Working with a Particular Area: Creating Shapefiles	3
Creating Custom Applications with Avenue	4
Supported Platforms	4
For More Information	4

ArcView StreetMap 1.1—Nationwide Street Mapping and Address Matching on a Single CD-ROM

Overview ArcView® GIS software gives you the tools you need for visualizing, analyzing, and presenting your data. The optional ArcView StreetMap™ extension to ArcView GIS provides additional capabilities that can help solve problems you encounter every day. ArcView StreetMap provides nationwide street mapping for, and the ability to locate addresses anywhere in, the United States.

ArcView StreetMap Data

The ArcView StreetMap CD includes street and landmark data for the United States in a highly compressed format. The street database was derived from Wessex* Streets 6.0. Wessex Streets 6.0 is an enhanced street database based on TIGER 1997 files with improved address range information and more current five-digit ZIP Codes. Wessex Streets 6.0 contains about thirty-one million street records and is 1997 current. The data are georeferenced in latitude/longitude, six decimal degree accurate based on NAD 83 datum. StreetMap also provides a nationwide landmark data set. In total, you receive

- World Countries
 - Countries 1995
 - Map background

- United States
 - States
 - States (detailed)
 - Cities
 - Populated places
 - Roads
 - Interstates
 - Major roads
 - Airports
 - Hospitals
 - Lakes and rivers
 - Major water bodies
 - National parks
 - Parks
 - Streets

* Wessex is a division of ESRI business partner Geographic Data Technology.

What Can I Do with ArcView StreetMap?

Reading directly from the CD-ROM, ArcView StreetMap automatically creates attractive local, state, regional, and even national street maps.

ArcView StreetMap solves problems associated with address and point of interest locations.

- Find an address and zoom to its location.
- Find the locations of many addresses at the same time.
- Zoom to any area in the United States to display state boundaries, roads, lakes, rivers, parks, airports, and hospitals.
- Click on any feature to display information about it.
- Perform detailed analysis of a particular area and create a customized local street data set.
- Extract any street data to a local shapefile for further analysis.

With ArcView StreetMap you can zoom to any area in the United States to display state boundaries, roads, lakes, rivers, parks, airports, and hospitals. You can click on any feature to display information about it.

Detailed analysis of a particular area can be performed by creating a customized local street data set. The data set can be used in routing applications (using ArcView Network Analyst) or to study the relationships between streets and other features using the powerful analysis capabilities of ArcView GIS.

ArcView StreetMap also provides additional Avenue™ (ArcView GIS software's object-oriented scripting language) classes and requests. Use them to customize how ArcView StreetMap data are displayed and managed in your application.

Mapping Capabilities

ArcView StreetMap can automatically create local, regional, state, or national street maps of any area in the United States. StreetMap will also classify, symbolize, and label map features to create attractive maps right out of the box.

The ArcView StreetMap extension introduces a new theme type called StreetMap. The StreetMap theme manages different layers, grouped into one of four levels: national, state, regional, and local. StreetMap themes read and display the compressed data right from the ArcView StreetMap CD.

StreetMap themes use predefined legends to display the data from the CD and also have predefined scale-dependent display thresholds to control how much of the data are displayed at any given scale. National and state levels display when you're viewing larger areas; regional and local levels display when you're viewing smaller areas. The more you zoom in, the more detail you see. You can retrieve detailed information about any feature by clicking ArcView GIS software's Identify tool and then clicking on the feature. The following table shows the features displayed at different scales.

Scale	Level	Features Displayed
1:24,000,000 or smaller	National	Major cities, interstate highways, bodies of water, state boundaries
1:23,999,999 to 1:1,400,000	State	Major cities, state capitals, interstate highways, bodies of water, parks, state boundaries
1:1,399,999 to 1:200,000	Regional	Airports, highways, primary roads, secondary and connecting roads, bodies of water, parks, state boundaries
1:199,999 or larger	Local	Airports, hospitals, highways, primary roads, secondary and connecting roads, local roads, access roads, bodies of water, parks, state boundaries

You can easily change the scale at which a particular level displays using the theme properties dialog box. You can also control how the data layers display with ArcView StreetMap. Using the ArcView StreetMap legend editor, you have the freedom to decide

- Which layers are displayed
- The order in which layers are drawn
- Which symbols are used
- Layer names
- The number of text labels drawn

Nationwide Address Geocoding or Address Matching

ArcView StreetMap lets you find nearly any U.S. address easily using the software's Locate button. If the address is located, ArcView StreetMap will zoom to its location and display a graphic symbol there. Because ArcView StreetMap locates addresses using a national database, you must provide either the ZIP Code or the city and state, along with the street address.

You can also add your own table of addresses to your project. An address table should contain fields for street address, city, state, and ZIP Code. You can use a batch process to instruct ArcView StreetMap to search for your list of addresses in the database. If StreetMap is unable to locate some addresses due to incorrect spelling or other errors, options such as spelling sensitivity or minimum match score can be relaxed. You can also manually correct address errors using an editor dialog box. When you have completed the address match, you can add a theme of points to your view.

Working with a Particular Area: Creating Shapefiles

You will often want to work with a specific area in a StreetMap theme. For example, you may be developing a geocoding application that deals with a particular city, or you may want to use ArcView GIS software's analytic capabilities to study the relationship between city streets and other information. With the ArcView StreetMap extension, you can create local street shapefiles of any area in the United States. The shapefile format stores the location, shape, and attribute information of geographic features.

Creating Custom Applications with Avenue

Once created, these shapefiles contain address range and road category information based on Wessex Streets 6.0 street data.

Should you require more control over data display and address geocoding in your StreetMap theme, you can create and run Avenue scripts. ArcView StreetMap comes with Avenue classes and requests that let you build your own StreetMap applications.

Using Avenue, you can

- Add or remove custom levels or layers. For example, you could write a script that adds a fifth level called neighborhood. It could be visible at scales larger than 1:100,000 and show such features as parks, schools, churches, and major buildings. You could also write a script that adds a river layer to the regional and local levels.
- Set the scale at which a layer is visible. For example, the state detail level contains urban interstates that are visible when the scale is between 1:23,999,000 and 1:1,400,000. You could make urban interstates visible only when the scale is between 1:10,000,000 and 1:1,400,000.
- Change the text size and font used to label a layer.

Supported Platforms

The ArcView StreetMap extension is available for Windows operating environments (NT, 95, and 3.1 or higher) and requires ArcView GIS 3.x software.

For More Information

To purchase ArcView GIS and the ArcView StreetMap extension, or to obtain additional information on ESRI's GIS software solutions, please contact your local distributor or ESRI.

- Telephone: 1-800-447-9778
- E-mail: info@esri.com