

GIS for Media

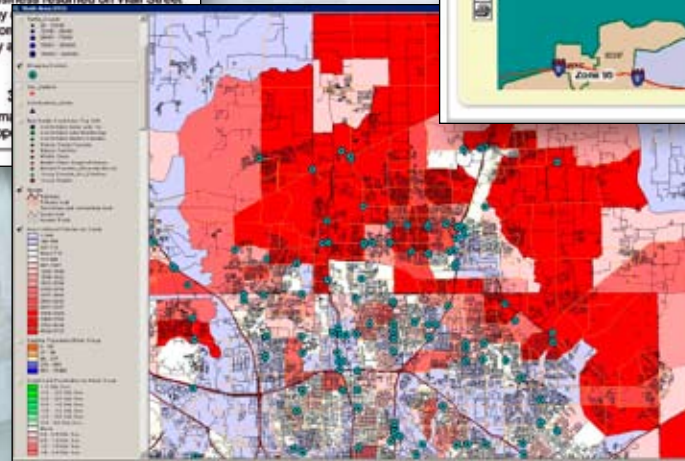
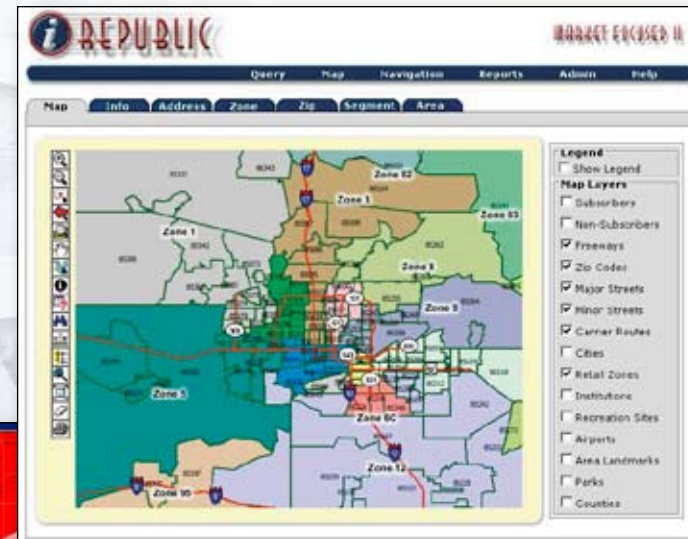


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What Is GIS?

Making decisions based on geography is basic to human thinking. Where shall we go, what will it be like, and what shall we do when we get there are applied to the simple event of going to the store or to the major event of launching a bathysphere into the ocean's depths. By understanding geography and people's relationship to location, we can make informed decisions about the way we live on our planet. A geographic information system (GIS) is a technological tool for comprehending geography and making intelligent decisions.

GIS organizes geographic data so that a person reading a map can select data necessary for a specific project or task. A thematic map has a table of contents that allows the reader to add layers of information to a basemap of real-world locations. For example, a social analyst might use the basemap of Eugene, Oregon, and select datasets from the U.S. Census Bureau to add data layers to a map that shows residents' education levels, ages, and employment status. With an ability to combine a variety of datasets in an infinite number of ways, GIS is a useful tool for nearly every field of knowledge from archaeology to zoology.

A good GIS program is able to process geographic data from a variety of sources and integrate it into a map project. Many countries have an abundance of geographic data for analysis, and governments often make GIS datasets publicly available. Map file databases often come included with GIS packages; others can be obtained from both commercial vendors and government agencies. Some data is gathered in the field by global positioning units that attach a location coordinate (latitude and longitude) to a feature such as a pump station.

GIS maps are interactive. On the computer screen, map users can scan a GIS map in any direction, zoom in or out, and change the nature of the information contained in the map. They can choose whether to see the roads, how many roads to see, and how roads should be depicted. Then they can select what other items they wish to view alongside these roads such as storm drains, gas lines, rare plants, or hospitals. Some GIS programs are designed to perform sophisticated calculations for tracking storms or predicting erosion patterns. GIS applications can be embedded into common activities such as verifying an address.

From routinely performing work-related tasks to scientifically exploring the complexities of our world, GIS gives people the geographic advantage to become more productive, more aware, and more responsive citizens of planet Earth.

GIS for Media

The Art of Media

Almost everyone understands a map. Visualization of data is an extremely important and powerful tool for representing and sharing information, especially in the business of media. Maps and the GIS software that makes them are important tools for understanding both the journalistic side of the industry as well as the business side.

Newspapers, online magazines, and television news shows have been using GIS to bring more in-depth reporting, timelier coverage, and easier comprehension of data to their audiences.

The Business of Media

The growth of the Internet has challenged publishers and producers to find new ways to grow and maintain profitability. Identifying new markets, increasing advertising revenue, and keeping distribution costs to a minimum are keys to success.

GIS is used for strategic planning, and it is an invaluable sales tool to advertisers when used to plot subscribers or client and competitor locations. Examining high-market growth areas, demographic lifestyle clustering, competitive circulation, and market share are much easier and more accurate thanks to the innovative use of GIS.

Canadian TV Documentary Producer Provides Web Site to Locate Shipwrecks

A Service for the Show's Viewers Built on GIS

By Victoria Castle, Shipwreck Central

The Eco-Nova Media Group is a producer of television documentaries. From its headquarters in Halifax, Nova Scotia, it has become the largest producer of underwater documentaries in Canada. Its most popular series, *The Sea Hunters*, airs in 172 countries on National Geographic International and History Television.



Shipwreck Central map shown at full size.

This team of documentary filmmakers, divers, and underwater archaeologists travels the globe in search of the world's lost ships. From the waters off Qeqertarsuaq, Greenland, to the Straits of Magellan, the team searches the oceans to bring never-before-seen footage to its ardent viewers while protecting and preserving these relics of the world's maritime past.



Mike Fletcher on the SMS Dresden checks his equipment as he prepares to dive into the Pacific Ocean off Chile. (Photo Images © Open Road Productions)

However, as seasons of *The Sea Hunters* unfolded, producer John Davis wanted more for the show's vast audience. He saw viewers forming a community with an interest in shipwrecks but with no central voice. He decided it would be up to Eco-Nova to give them that voice. Since the show has no direct contact with the audience, it was determined that the logical place for the community to unite was on the Web. Davis envisioned a site called Shipwreck Central where people could not only be more involved with *The Sea Hunters* but could also discuss the shipwrecks they felt passionate about. He imagined an interactive map with which members of the entire community could, on their own, explore the shipwrecks of the world. In fact, it would be more than that; viewers would be able to add shipwrecks to the map on their own.

Coincidentally, one of the consultants for the show was the Bedford Institute of Oceanography, Canada's largest center for ocean research, which is located on the shores of Bedford Basin

in Dartmouth, Nova Scotia. At the institute, Phil Sceviour, Eco-Nova chief financial officer, and other show staff became acquainted with GIS technology and ESRI software. They soon realized that the mapping technology the Shipwreck Central development team needed for its Web site already existed.

They then went to ESRI Canada Limited (Atlantic Region) to discuss options for smart solutions to their mapping needs. The team explained that they already had an existing PHP/mySQL database that contained information regarding each shipwreck, including latitude and longitude coordinates. The goal for Shipwreck Central was to use this information to display the wrecks on the map and have a profile on each wreck accessible at that point.

From the initial meeting with ESRI Canada in March 2004, development efforts began in earnest. ArcIMS software's open, documented Servlet Connector, running in conjunction with Apache Software Foundation's Tomcat Servlet Container, proved to be the gateway. PHP included libraries that made it easy for Tomcat to work with ArcXML, ArcIMS software's XML-based request/response language.

ArcIMS provided a wide array of options pertaining to the display information on the map, making it both user friendly and accessible. An important feature the Shipwreck Central team required was the ability to zoom in continually on a shipwreck; it didn't want the zoom set with a predetermined number of stages. Using a map based on both vector and satellite images, the team used ArcIMS to give users a series of tools to navigate the map, including a zoom tool, allowing them to pinpoint any spot and to view it at any distance.

Shipwreck Central was designed with broadband users in mind. *The Sea Hunters* team wanted to make its library of underwater footage accessible to its viewers, and the interactive Web map would be the portal to it all. Along with information on each vessel (name, measurements, history, and cause of sinking), users could also view images and video of the wreck, when available. All of this information, including video and images, is accessible via the map. Two icons were developed to make the map accessible: a yellow circle would represent shipwrecks, and shipwrecks with accompanying video would be represented by a "diver down" icon. This greatly increased usability by letting users delineate information at a glance.

Most important, the map was configured so that after new shipwreck data was entered into the database, a member from the Shipwreck Central team could quickly and easily update the map using ArcView.

When asked about the differences between this project and other ArcIMS projects that he'd been involved in, Cameron Fraser, Shipwreck Central's Web developer, says, "Shipwreck Central is a companion to a television show, and we wanted to make sure it was up to the same standard as the show. There were no compromises in the look and feel of the site; the last thing we wanted was for people to perceive any part of it as cheap or half-baked. So we wanted every aspect to be as smooth and friendly as we could make it. We also wanted it to be usable in as many browsers as we could, on both Windows and Mac OS X, so we ended up targeting Internet Explorer, Mozilla/Firefox, Netscape, and Safari. To make such a dynamic site is a challenge in itself, but to make it behave identically on all of those different browsers leaves me with a great sense of accomplishment."



The Sea Hunters team arrive by Zodiac on location in Chile (Photo Images © Open Road Productions).

Since its launching in July 2004, Shipwreck Central has had no trouble finding the audience Davis knew was there. It has been named Site of the Day by both Netscape and *USA TODAY*, both noting the impressive map. Davis says, "With global mapping as our frame of reference

and the Internet to create powerful new connections, my small company can now reach consumers directly and influence markets and decision makers around the world."

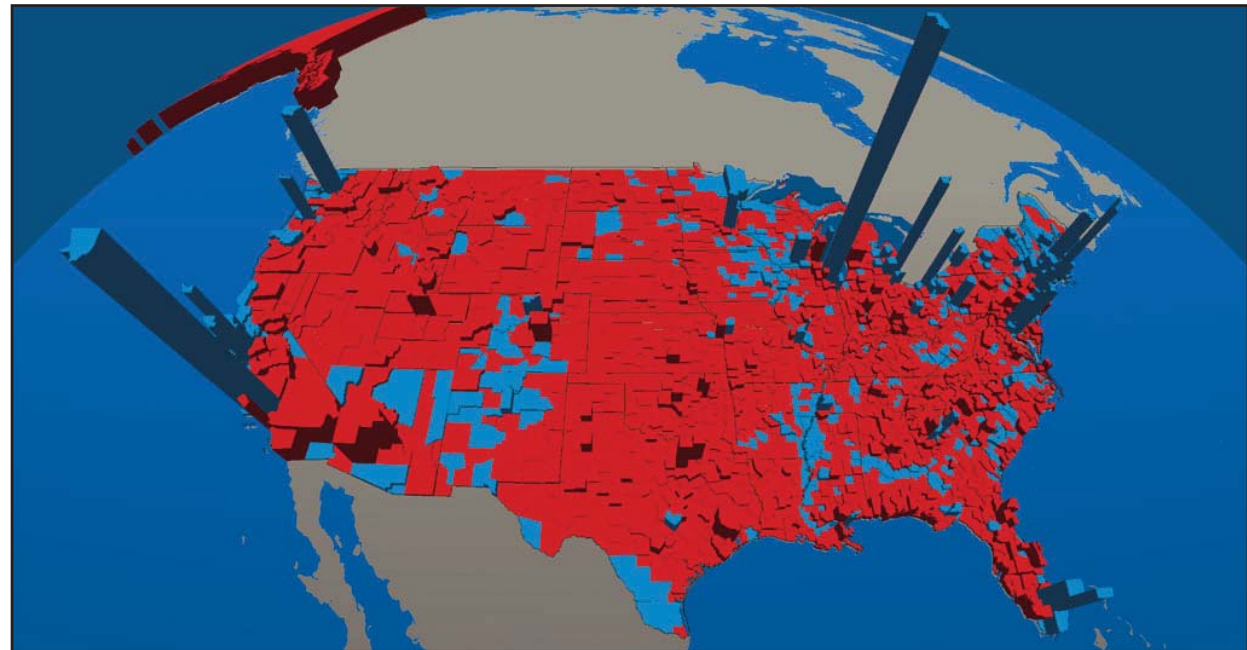
For more information, visit www.shipwreckcentral.com.

(Reprinted from the Spring 2005 issue of *ArcNews* magazine)

CBS News Headlines GIS Mapping

2004 Presidential Election Coverage

The power of GIS to tell stories and put information in context was demonstrated on election night, November 2, 2004, in the United States. CBS News used ArcGIS software to create and quickly update results maps for its coverage. The data driven maps provided the American public with a detailed look at voting patterns by county, while other maps showed the demographics of those counties.



Different mapping techniques gave CBS News a variety of ways to communicate complex information more quickly and easily to a wide audience. (Courtesy CBS News.)

The advanced system allowed CBS News to show which presidential candidate was leading in each county around the country. The maps were updated continuously. Three-dimensional, county-level maps were created every five minutes, and other products were created on demand and synchronized with the news coverage.

On election day, ESRI staff worked in the studio with CBS News directors, producers, and correspondents to support the story of the election as it unfolded.

"This was a landmark use of GIS for network broadcasting, and we're pleased with the results," says Dan Dubno, Emmy Award winning producer, technologist, and project lead for the CBS News election mapping project. "We worked with ESRI for more than a year to create a system architecture that would transform many different data variables into useful, understandable information for a nationwide audience. We met the challenge of providing fact maps that could be updated in a fast, efficient manner."

Chief White House correspondent John Roberts presented viewers with detailed digital maps based on demographic variables, such as race, income, and education, from his position at the CBS News Election Data Center. These different data sets gave insight into where certain groups are concentrated and how those areas voted in the presidential contest.

On a touch screen display with multimedia content software from Innovative Solutions International Inc., Roberts could pan from one demographic map to another. He could also switch from 2D to 3D views of the county results. The 3D maps depicted the number of votes by which a candidate was leading his opponent.

The results provided a qualitative leap forward in reporting on national voting patterns by CBS News and provided both a deeper analysis and more dynamic visual presentation.

"We were honored to work together with CBS News in this very important endeavor to enhance the ability to present information-rich graphics as part of its 2004 election coverage," says Jack Dangermond, president of ESRI. "CBS News is at the forefront of using computer mapping to enhance election coverage and visual presentation. ESRI worked long and hard to provide CBS News with the visualizations and data presentations it was looking for. We look forward to a continuing relationship that will provide powerful reporting tools."

Previous CBS News election reporting provided electronic map-graphic displays at the state and county levels, but these displays were not linked to the voting results database. The 2004 presidential coverage by CBS provided a much finer resolution of voter pattern visualization directly from the votes database and helped better communicate the where, how, and why of voting results.



Chief White House correspondent John Roberts presented viewers with detailed digital maps based on demographic variables, such as race, income, and education, from his position at the CBS News Election Data Center. These different data sets gave insight into where certain groups are concentrated and how those areas voted in the presidential contest.

"The GIS mapping and data system allowed us, for the first time, to show county-level election results integrated with demographic data using 3D digital maps," says Al Ortiz, executive producer and director, Special Events, CBS News. "The system enriched the presentation of results for our viewers."

ESRI used ArcGIS software to develop the CBS News election mapping capabilities. ArcGIS 3D Analyst (with ArcGlobe and ArcScene) and ArcGIS Engine were also used for various aspects of the CBS GIS solution. In addition to data collected by CBS News, the GIS used

data products from ESRI Community data, including more than a dozen different demographic characteristics.

"We prepared dozens of map layouts so that, on election night, data could be married with the map and output in minutes," says Kris Goodfellow, media industry manager, ESRI. "As election results poured in and the maps were updated, CBS News could look at the results compared with various demographic and other variables that might be influencing voting patterns, such as where the most money was spent on advertising by the candidates. The different mapping techniques gave CBS News a variety of ways to communicate complex information more quickly and easily to a wide audience. These maps had to be clear to viewers within a matter of seconds, so the presentation had to be clean."

For more information about how GIS software is used in elections, visit www.esri.com/elections.

(Reprinted from the Winter 2004/2005 issue of *ArcNews* magazine)

Preprint Publishing

Case Study

Background



PREPRINT
PUBLISHING

Does lowering a newspaper's circulation base improve a company's bottom line? Not usually, but according to Howard Tietjen, marketing and media manager for Preprint Publishing, it's possible—and profitable. "Most newspapers have general information about their readers. For example, some can tell you how much their readers earn each year and that they travel twice a year. At Preprint Publishing, we can tell you more about a newspaper's subscribers than the paper can."

In business for more than 27 years, Preprint Publishing is a national publisher of newspaper vacation and travel inserts. Over the years, Preprint Publishing's inserts have appeared in more than 400 markets. Each year, Preprint publishes and distributes nearly 40 inserts to an estimated

circulation of 110,000,000 readers in approximately 150–200 different U.S. markets. Preprint Publishing clients include state and travel offices, visitor bureaus, hotels, and major attractions such as theme parks and shopping centers. Preprint's main focus is to help its clients promote and attract more visitors to their destinations. Preprint targets each client market to reach only the types of people who enjoy travel.

Instead of saturating a market with newspaper inserts, Preprint Publishing wanted to target its circulation for specific ZIP Codes that most effectively targeted each client's preferred audiences. To segment preferred markets, Preprint hired third party vendors to perform media buys.

"There was no control over the process, and we became concerned that we weren't hitting the right audience," says Tietjen. "For example, we realized that we were marketing to only one or two specific markets—households with incomes of more than \$50,000 and households with

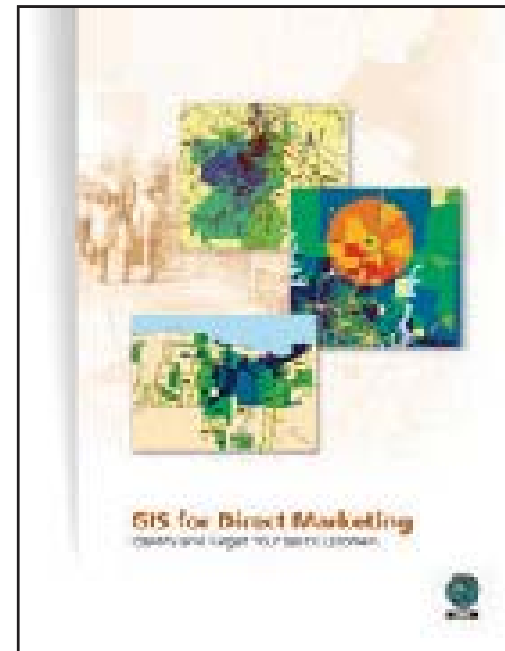
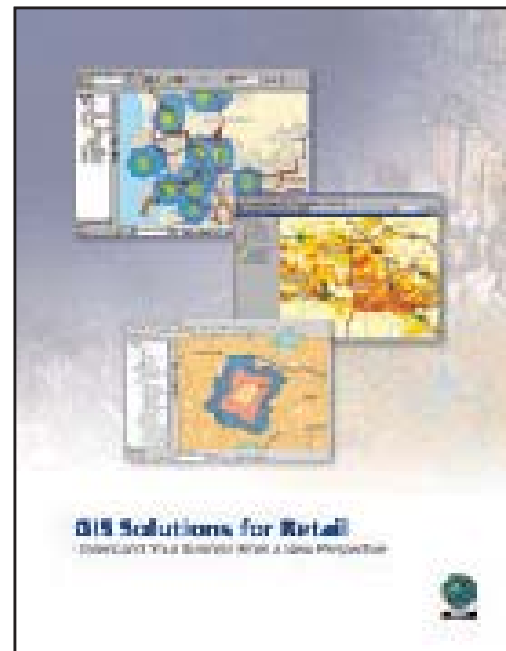
children. As expected, our inserts reached only the most affluent neighborhoods." Preprint wanted to expand its coverage to reach other potential markets.

Implementation

Preprint turned to ESRI for a new solution. Preprint used Community Coder software to append ESRI lifestyle segmentation data to newspaper subscriber records. This application enabled Preprint to show that people who were most likely to travel to vacation destinations were more middle-American families, not just the most affluent Americans.

"Attracting clients to purchase Preprint Publishing inserts is fairly easy," says Tietjen. "By appending ESRI segmentation data using Community Coder software, we can quickly and easily produce reports that help our clients see the types of consumers who are most likely to visit their areas. By matching segmentation clusters to the newspaper's distribution, we can also show prospects that want more information about a specific area. Depending on the destination, our profile results usually surprise our clients."

Business Industry Brochures from ESRI



Results "The use of Community Coder and ESRI segmentation data allows us to more effectively reduce production costs as well as reduce costs for our clients," says Tietjen. "We can generate just as many leads for less money."

"Ringing phones are a direct result of very effective advertising," says Tietjen. "To measure a campaign's effectiveness, Preprint coordinates a response coupon and a Web site that offers more information to consumers. Four months after a publication delivery, we conduct a follow-up survey. Our surveys show that 60–80 percent of survey respondents traveled to the advertised destination! By completely controlling the media process and not relying on third party media buyers, and by using data and software from ESRI, we are much more effective in demonstrating to our clients that we can find their best prospects. The services that we provide have allowed us to win several contracts with state travel offices around the country."

(Reprinted from Volume 8, 2004, issue of *BusinessSolutionNews* newsletter)

GIS Supports Market-Focused Selling at Newspaper

The Arizona Republic



The *Arizona Republic* brings news and information to approximately one-half million households and targeted advertising materials to 1.275 million households in Maricopa and Pinal counties in Arizona each week. Of the *Arizona Republic* subscribers, 800,000 receive advertisements by mail, and 475,000 are reached through an insert in the paper itself. The newspaper covers all its customers, subscribers or not, through an innovative total market coverage product called the Buyer's Edge that allows it to reach everyone throughout the Phoenix market.

The Challenge

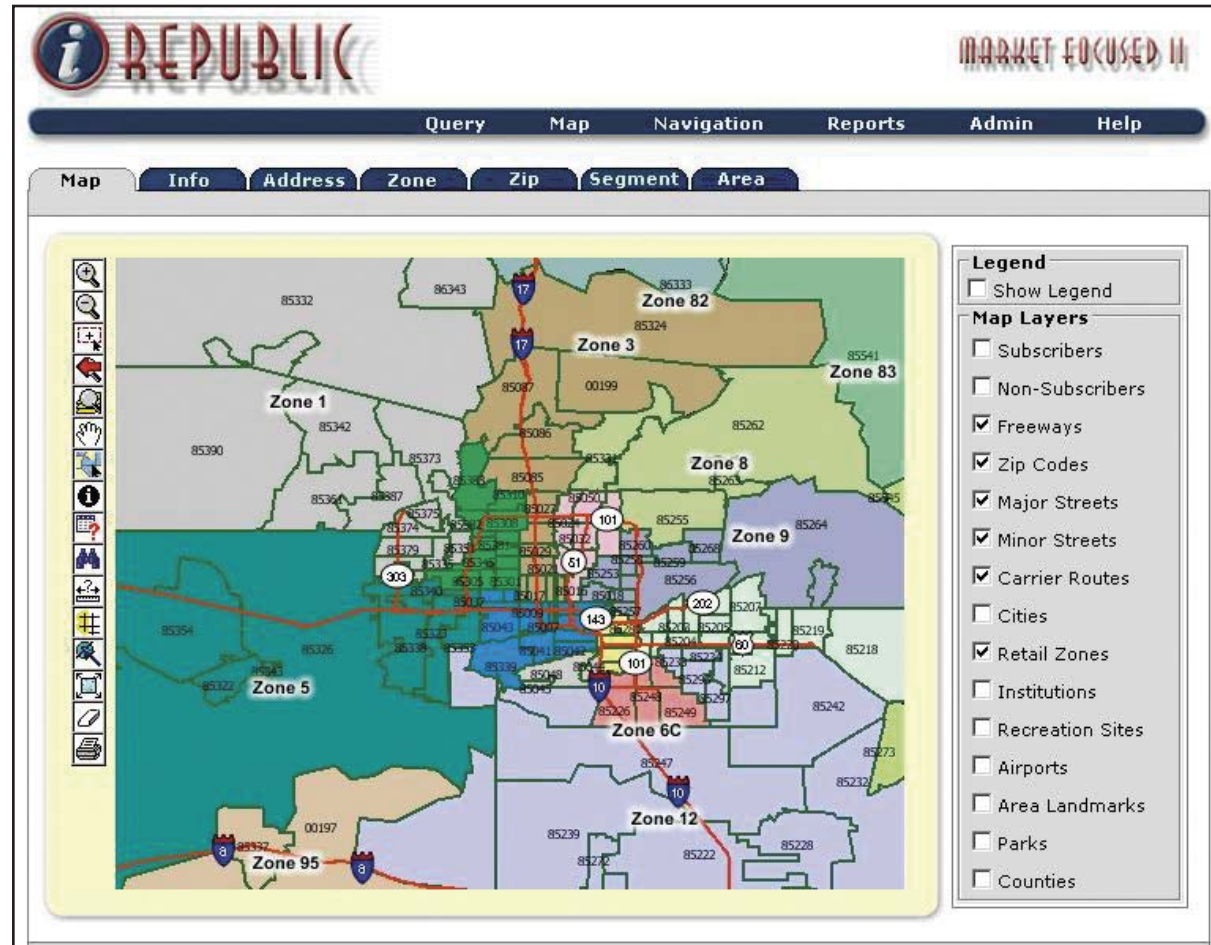
The *Arizona Republic* needed to fine-tune targeting of customers for its advertisers. Some advertisers wanted the ability to target their ads to certain segments of the population (for example, dog owners) or just to certain areas. A drugstore, for example, requested to target customers within a certain number of blocks near its storefront. The drugstore did not want to pay to advertise to people living on the other side of a bridge or on the opposite side of a major street, realizing these people will visit a store easier to access, though not necessarily as close.

Other chain merchants, including retail merchants and grocery stores that have multiple locations, also want to "version" their ads for different parts of their coverage territory. The owner wants to put one set of items on sale at one store and a different set of items on sale at another. This means advertising salespeople at the *Arizona Republic* needed to be able to produce the means for their customers to target ads precisely.

Problem

Newspaper needed to target customers more specifically for advertisers

- Goals**
- Target specific markets for individual advertisers.
 - Create different versions of inserts for various stores.
 - Select demographic criteria.
 - Target subscribers and nonsubscribers.



The initial screen at login shows the Phoenix metro area and the selling area.

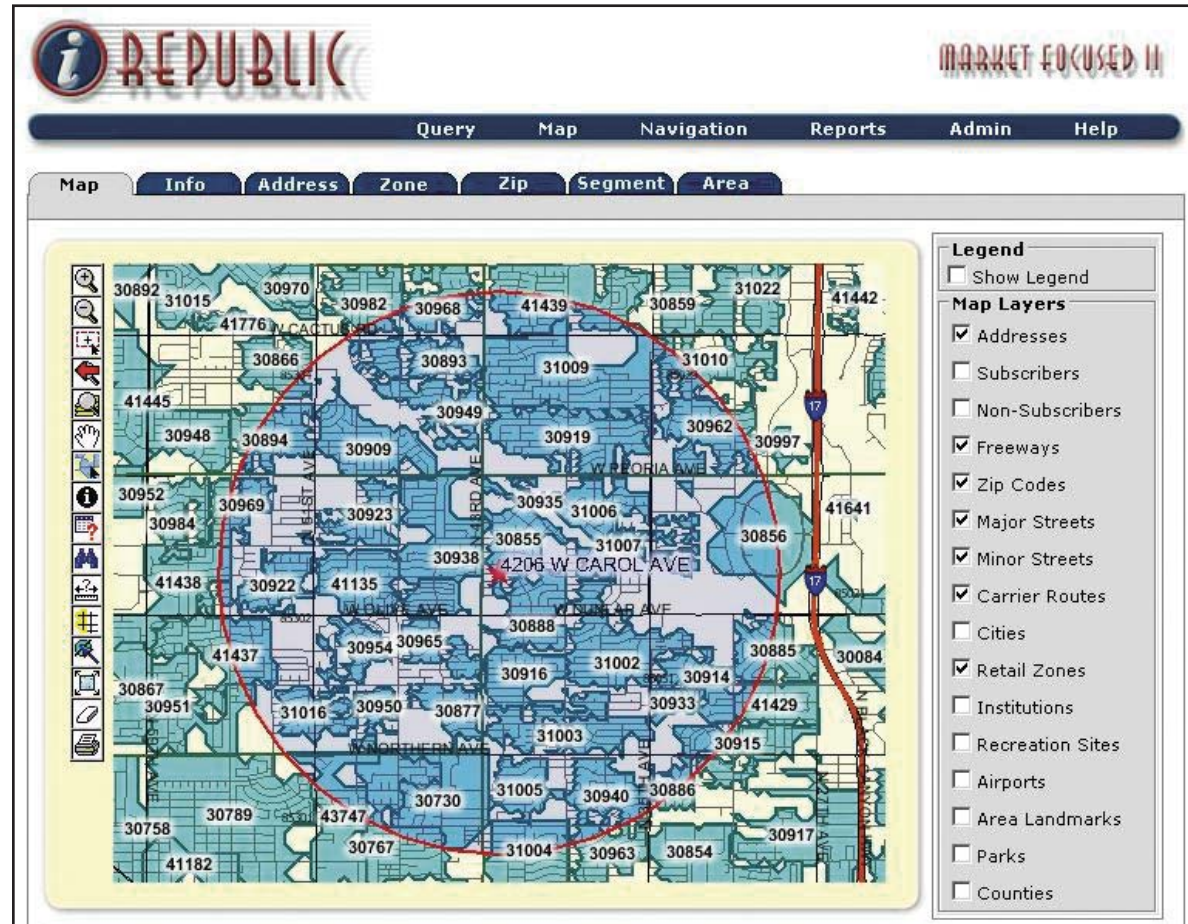
The Solution

Already a user of ESRI software, the *Arizona Republic* was looking for a solution that would allow it to query its customer base quickly, taking location into account. The company stayed with ESRI and selected ArcIMS, Web-based geographic information system (GIS) software; ArcSDE for maintaining its large datasets of customers and location information; and MapObjects for creating custom-built applications. Senior systems analyst Jay Visnansky and principal application analyst Karen Parrilla created applications ranging from newspaper route configuration to applications for easily viewing custom map layers. These layers consisted of information about subscribers, nonsubscribers, and carrier routes along with streets, retail zones, and area landmarks. One of the layers was created using ArcEditor. While the customer information is maintained by the *Arizona Republic*, the location information (streets, retail zones, etc.) is on a subscription basis from Tele Atlas and is updated quarterly.

The combination of ArcIMS and ArcSDE gives the *Arizona Republic* a thin-client architecture, making queries on the data very fast. By storing data in one central ArcSDE and Microsoft (MS) SQL Server, salespeople no longer need to download the entire marketing database to a PC or laptop. Instead they log on to the database and produce targeted marketing information for advertisers in just a few seconds. Before ArcSDE, this process could take up to an hour or more.

This system supports between 200 and 250 registered users across the Phoenix Valley. "It is easy to use, thanks to the open architecture of ESRI's software products," says Visnansky. "We were able to build custom forms for query, display, and reporting."

Today, a salesperson logs on and views a map interface of the *Arizona Republic's* coverage territory. A legend and the map layers are displayed, and tools for manipulating the map are available. A query can be created in a pop-up box chosen from the pull-down menu. For example, the salesperson can input the street address of a customer's storefront and the area radius (in miles) the customer would like to look at for potential advertising coverage. The software standardizes the address and calculates its latitude and longitude coordinates.



This map interface shows the store address that has been selected along with the newspaper carrier routes in the area. The radius indicates the one-mile selection that was made. The carrier route numbers are also displayed.

The radius is displayed on the map along with carrier routes, ZIP Codes, subscribers, and nonsubscribers. The software calculates how many and which subscribers and nonsubscribers are located in the radius. If an advertiser is interested, he/she can select a pull-down list of demographics to target customers even more precisely. Then, specific values for the demographic can be selected. For example, if an advertiser is interested in looking at income, he/she can choose that demographic variable, then the value such as income between \$50,000 and \$74,999. If requested, more demographic variables can be queried such as pool owners in the income bracket he/she selected. Using GIS, advertisers are able to specifically market to the customers they would like to target.



A One-Extent Zoomed-in View of the Selected Area with the Subscriber Layer Selected

Results By providing this information more quickly to advertisers, the newspaper company has been able to increase both the number of advertisers and the revenue from legacy advertisers.

The Buyer's Edge allows advertisers to hit every household in Maricopa County by U.S. mail and through delivery in the Arizona Republic. Advertisers also have the capability of picking ZIP Codes around their specific locations. This allows full saturation around store locations and provides versioning capabilities at the store level.

The screenshot shows the REPUBLIC MARKET FOCUSED II web application. The interface includes a navigation bar with links for Query, Map, Navigation, Reports, Admin, and Help. Below this is a secondary navigation bar with tabs for Map, Info, Address, Zone, Zip, Segment, and Area. The main content area features a data grid with columns for Zip, Boundary ID, % In Area, In Area, Total, % In Area, In Area, and Total. The data is organized into three pages, with the first page showing 20 rows of data.

Zip	Boundary ID	% In Area	In Area	Total	% In Area	In Area	Total
		Subscribers	Subscribers	Subscribers	Non	Non	Non
				in Route	Subscribers	Subscribers	Subscribers
85029	30859	0	1	200	0	0	600
85029	30919	92	270	291	99	1077	1081
85029	30962	78	189	240	84	422	497
85029	31009	92	235	253	99	786	789
85029	31010	23	51	215	34	186	545
85029	41439	39	110	282	49	425	865
85051	30855	93	186	199	99	424	427
85051	30856	74	43	58	99	868	873
85051	30885	39	45	113	44	243	547
85051	30886	32	49	153	33	79	237
85051	30888	92	213	231	99	719	724
85051	30914	93	104	111	99	473	476
85051	30915	18	17	91	34	333	963
85051	30916	93	178	191	99	667	671
85051	30933	76	70	91	96	936	971
85051	30935	90	55	61	99	735	740
85051	30940	90	137	151	92	322	347
85051	30963	13	19	142	11	46	415

The Data Grid with the Resultant Numbers Displayed for the Area Selected

Salespeople at the *Arizona Republic* can pinpoint customers even more by selecting carrier routes that deliver to the profile the advertiser is looking for. This gives the *Arizona Republic* the ability to target prime market areas demographically and also provide versioning capabilities at the store level.

For the most targeted market-focused selling, advertisers can target customers using criteria for their perfect customer by address-specific delivery. This gives advertisers the ability to get their message to the exact customer they want.

- Query time on data has been decreased from hours to minutes.
- Number of advertisers has increased.
- Amount of advertising from legacy accounts has increased.
- Overlapping advertising areas have been found.
- Analysis is performed more quickly.

"The GIS data that we can now show our advertising customers, along with raw numbers, has really made selling inserts easier. It has aided our customers' competitive edge."

Jay Visnansky
Senior Systems Analyst
The Arizona Republic

For more information, visit www.esri.com/business.

GIS Increases Newspaper Subscriptions

The Washington Times



For more than 22 years, the *Washington Times* has operated as a full-service, general-interest daily newspaper in the nation's capital. One of the nation's most quoted dailies, the *Washington Times* has a reputation for its hard-hitting investigative reporting and thorough coverage of politics and policy. Published by News World Communications, Inc., "America's Newspaper" has a daily circulation of 110,000 copies. Of these copies, 102,000 are paid subscriptions.

The Challenge

Like all daily newspapers, the *Washington Times* must provide timely, attention-grabbing news and compete for readers against a variety of media such as other newspapers, radio, television, and the Internet. It strives to be a market-driven publication that responds to the needs and interests of its readers. The *Times'* circulation base is a delicate balance of product, price, service, and promotion. The *Times* wanted to significantly increase its circulation but needed to know about the types of people who read the paper, where these readers were located, and the best method to reach them. This initiative would require a multiphased analysis using data and software.

Problem

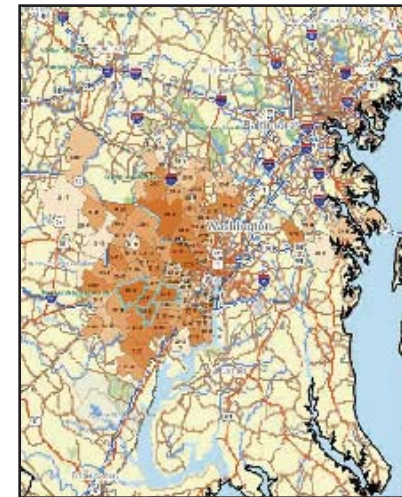
Increase subscription rate of daily newspaper

Goals

- Increase advertising revenue.
- Improve approach to the advertising sales process.
- Implement controlled program of circulation growth.

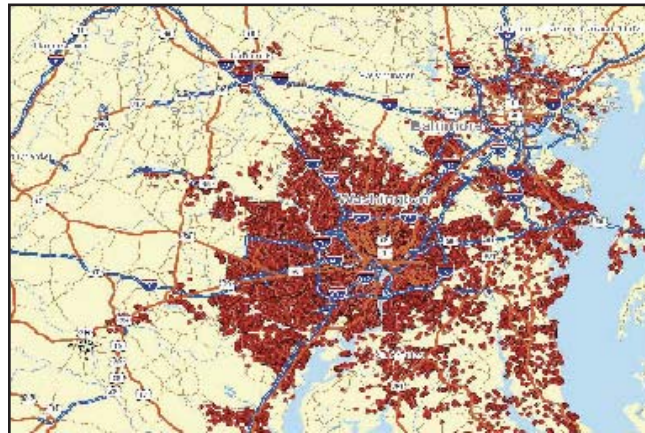
The Solution

The *Washington Times* chose ESRI's ArcGIS Business Analyst software integrated with ESRI's demographic data and



Community Tapestry. "This package gave us the most tools and data for the price on the market," says Bill Sutcliffe, marketing director at the *Washington Times*. "It was an obvious choice for us to enhance our data-mining capabilities and organize our in-house subscriber and advertiser information." Because newspaper circulation is inherently based on geography, phase one of the analysis profiled the location of reader types. The *Washington Times* analysts mapped the locations of paid subscribers with ArcGIS Business Analyst to find the zip codes with the highest concentrations of subscribers. Subscriber penetration rates were calculated by zip code and census block group. This analysis produced 89 zip codes to be targeted in the Washington-Baltimore metro areas.

To refine the subscriber and reader profiles, analysts used Community Coder geocoding software to append Community Tapestry segmentation codes to each subscriber record by zip code. These targeted zip codes were then aggregated into one of the 65 Tapestry segments based on demographic variables such as age, income, home value, occupation, household type, education, and other consumer behavior characteristics. Results of this detailed analysis showed that almost half of readers live in three of the 65 distinct Tapestry segments. Nearly 46 percent of all paid subscribers were classified as: *Connoisseurs*, *Suburban Splendor*, or *Wealthy Seaboard Suburbs*. Analysts at the *Times* discovered a great opportunity for customer acquisition within eight additional specific segments that were similar.



"ArcGIS Business Analyst was an obvious choice for us to enhance our data-mining capabilities and organize our in-house subscriber and advertiser information."

Bill Sutcliffe
Marketing Director
The Washington Times

For example, the *Connoisseurs* segment represented 17 percent of the paid subscribers. Identified as a strategic marketing area (SMA), with 81,494 households, *Connoisseurs* was also one of the largest segments. Analysts noted that a defining factor of residents in this segment was their love of coffee. *Connoisseurs'* residents prefer Starbucks coffees and beans and owning their own espresso/cappuccino machines. The *Washington Times* incorporated this data into ArcGIS Business Analyst to map coffee shops and coffee device repair shops. As a result of this analysis, the *Times* placed more newspaper box locations near these retail shops and subsequently raised the number of copies sold.

The subscription promotion designed by the marketing department included three separate brochures with different messages that would appeal to each of these Tapestry segments. Response results were impressive. Responses greatly increased in two of the three segments. Although the response rate in the third segment grew only slightly, the results showed the marketers how to refine the message to improve results in the next campaign and will allow the *Times* to respond quickly with a new campaign.

- Results**
- Improved quality of advertising campaigns
 - Targeted message to audience
 - Better selection of mailing list
 - Improved subscriber acquisition process
 - Better coordination of campaigns between departments

For more information, visit www.esri.com/businessanalyst.

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