A-GIS: A Tool for Assisting an Aging Population

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In 1999, the Virginia Department for the Aging (VDA) added a staff position for an "Aging Demographer" to provide internal planning and policy analysis and research data support for the Department and its oversight Commonwealth Council on Aging, as well as to the local service network of 25 Area Agencies on Aging designated throughout the Commonwealth. The focus of this new staff position provided ample justification to develop a geographic information system (GIS) to manage a variety of information to portray the story of Virginia's aging population in a manner most relevant to every policy maker, whether federal, state, regional or local.

GIS Description

The GIS software program selected for building the "Aging Geographical Information System (A-GIS)" was Maptitude™, a desktop GIS application developed and marketed by the Caliper Corporation. Maptitude™ was selected for several reasons, including:

- its low cost (relative to other desktop GIS programs),
- its supplied bundle of geographic and demographic data (at no additional cost),
- its flexibility to read and write data files compatible with a wide variety of GIS and database management programs (thereby facilitating data exchange with various outside agencies, regardless of which GIS or data management programs used),
- its versatility at geocoding addresses from a varity of formats and the native capability to read updated TIGER centerline files to build updated road layers with updated address and zip code centroid data from the Census Bureau on-going TIGER maintenance program,
- its capacity to manage very large database files (e.g. millions of records per file) and
- staff's existing familiarity with the program, the program's easy learning curve and helpful technical support team which helped expedite the development of the department's GIS.

Once the program was acquired and installed, VDA staff set out to build a collection of geographic data layers which could be anticipated as useful to the human and social service planning and policy analysis functions of the department and technical assistance role to play in support of local agencies throughout the state.

Sample Planning and Policy Applications

One of the earliest demonstrations of the GIS came in 2002 by providing the new VDA Commissioner and the Commonwealth Council on Aging with a comparative profile of the total population (used for political redistricting) vs. the aged (60 & over) population for a wide array of political geographies, including congressional districts, state senate and house districts, cities, counties and planning districts and various state agency administrative geographies (e.g. social service regions, local health districts, etc). This "political atlas" of the aging population, developed by merging block-level population data from the 2000 Census with the census block polygon coverage for the state so that areal aggregations could be made from the smallest census reporting unit, helped policy makers quickly see the wide differences in the demographic composition of various geographies throughout the state.

Among the most critical initial map layers related to the aging population that continue to serve many internal and external needs were the locations of all state-licensed nursing home facilities, assisted living facilities, adult day care centers, continuing care retirement centers and community-based senior centers. Collectively these facilities represent a large part of the infrastructure that cares for our Commonwealth's senior population. In 2003, when the Virginia Department of Emergency Management (VDEM) was tasked with the development of Virginia's National Pharmaceutical Stockpile plan, VDEM turned to VDA's A-GIS data for assistance to locate these facilities, resulting in VDEM's ability to incorporate appropriate plans for serving their special need populations after finding the relevant licensing authorities unable to supply the facility data in a relevant and user-friendly format for the time-sensitive stockpile plan.

In 2004, the General Assembly directed the Joint Legislative Audit and Review Commission (JLARC) to study the impact of the aging "BabyBoom" population on the provision and cost of state government operations. JLARC staff used maps produced from VDA's A-GIS program to display the geographic distribution of various aging program services provided through the network of local agencies on aging throughout the Commonwealth.

Following several public awareness programs carried out in partnership with the Virginia Department of Motor Vehicles focusing on the senior driver population, in 2005 VDA was able to acquire an "abbreviated" version of the driver's license file (stripped of personal identifier fields), which provided a rich database for identifying the locational patterns of Virginia's driving population (of all ages) and an ability to identify interstate migration trends on a sub-jurisdictional level of older pre- and post retirement populations moving into Virginia. The resulting geocoded file of 5.4 million drivers has assisted some local governments, and their supporting regional agency on aging, identify senior populations for purposes

(Continued on Page 8)

The VA Department of Aging

Continued from Page 5

of emergency contingency and evacuation planning. The same geocoded drivers license file has been been helpful for other area agencies' on aging evaluation of current and future alternative congregate meal centers and central kitchen sites for "meals on wheels" programs.

As a comprehensive snapshot of a large percentage of the adult population in each community, the geocoded drivers' license file has been useful in evaluating the mid-decade accuracy of federally-prepared local population estimates and providing insight to how future population projections prepared by federal and state agencies may be affected by community growth patterns that diverge from historical trends that affected the current population projection series.

Conclusion

This short article can only provide a few examples of the many ways that GIS technology has supported the aging services network in Virginia. Notwithstanding the benefits of larger GIS program operations elsewhere in State government, for VDA's small staff of 25, the modest investment in one desktop GIS system has had a significant impact on the public policy arena that affects older Virginians.

GIS Application Examples at the Virginia Department of Aging

1. Thematic mapping of geographic distribution of licensed senior care facilities
2. Service to AAAs with on-demand market estimation based on user-defined market radius
3. Geocoding of street address-based administrative records
4. Thematic mapping and spatial/market analysis of demographic trends in Virginia related to demand and supply of long-term care facilities and services

Save the Date!

Virginia Metadata Creators Workshops

- July 24th - **Harrisonburg, VA**
- July 27th - **Richmond, VA**
- July 28th - **Norfolk, VA**
- August 9th - **Blacksburg, VA**
- August 15th - **Abingdon, VA**
- August 16th - **Danville, VA**

Provided by the Virginia Geospatial Extension Program and ODU through a USGS/ FGDC 2006 CAP Grant

Additional information & registration:
http://www.conted.vt.edu/usgsmt

GPS For Loggers and Foresters
June 29th, Harrisonburg, VA
Provided by the VCE Northwest District Office in partnership with the Geospatial Extension Program. Contact Matthew Yancy 540-564-3080 / yancey@vt.edu for registration and additional information

The ESRI Educational User Conference
August 5-8: San Diego
http://www.esri.com/events/educ

The ESRI International User Conference
August 7-11: - San Diego
http://www.esri.com/events/uc

The Virginia GIS Conference
October 23-24: Roanoke
http://www.rvarc.org/vagis

GIS at the RVARC

Continued from Page 4

the 1960's to the present. Proposed new terrain roads, expressways and extensions were mapped and compared to deficiencies in the current 4-step transportation model network. The results of the analysis are designed to help feed into the Roanoke Valley Area MPO's long-range transportation planning process.

Thoroughfare Study: new terrain roadways proposed in past 30 years (red) and current model deficiencies (yellow)
Imagery © 2002 Commonwealth of Virginia

While many localities have their own GIS staff, the Regional Commission still provides technical support to many of the more urban governments. The training of other staff members at the RVARC has been critical in reducing the mapping and GIS workload of the primary GIS staff member at the Commission. The Commission now has four staff members trained in the use of ESRI software. For more information on the RVARC, please contact Matt Miller at 540-343-4417 or mmiller@rvarc.org