



COMMONWEALTH of VIRGINIA

*Joint Legislative Audit and Review Commission
Suite 1100, General Assembly Building, Capitol Square
Richmond, Virginia 23219*


*Philip A. Leone
Director*

(804) 786-1258

November 30, 2006

MEMORANDUM

TO: Internal Service Fund Subcommittee

FROM: Glen S. Tittermary 

SUBJECT: Approval of Rates for Geospatial Enterprise Services

On November 21, 2006, the Virginia Information Technologies Agency (VITA) submitted a request for the Commission's approval of new rates for geospatial information services provided by the Virginia Geographic Information Network (VGIN), a division of VITA. The VITA request is included as Attachment A. VITA was directed to create an internal service fund for these services by Item 421 C of the 2006 Appropriation Act. The services relate to the use of digital aerial photography and centerline road data for emergency response, economic development, transportation planning, and other activities. The services are used by State agencies and local governments.

Background

In 2001, the Wireless E-911 Services Board provided \$9.8 million to VGIN to acquire high resolution digital orthophotographic imagery for the entire Commonwealth. VGIN was able to fully fund the first digital photographic effort with a one-time fund balance. The Wireless E-911 Services Board needed the digital aerial photography as a resource for local public safety answering points which must be able to locate 911 callers with wireless devices. The Wireless E-911 Services Board also funded the development of a companion statewide digital road centerline (RCL) file that provides a single, integrated street file with addressing information compiled from more than 150 source agencies across the State.

The imagery and data files are created at a single point in time, while the landscape of Virginia changes continually. With growth and development, the imagery provides a less and less accurate view of the environment and thus must be repeated every four years. While the Wireless E-911 program has continued to support the geospatial program, it can no longer fully fund the cost of a statewide update. As a result, when it was time to repeat the digital orthophotography in 2006, general fund appropriations were approved by the General Assembly to augment the annual Wireless E-911 funding, with the understanding

that, via Item 421 C of the Appropriation Act, an internal service fund rate structure would be established to fund this effort in the future.

Service Costs and Rates

VITA has identified three major services to be funded from the new geospatial internal service fund. The current costs and anticipated improvements to be recovered through the proposed rates total \$3,081,330 annually, including VGIN overhead and coordination of services among users of the imagery and data files. The rates are fixed fees rather than consumption-based variable rates because user agencies have not budgeted these costs in prior years. Fixed fees should enable agencies to more easily plan for and budget the costs of services in future years as the rate structure is implemented.

Estimated revenues, totaling \$2,935,200, are based on historical usage patterns for the services. However, since agencies have not had to budget for these costs in the past, usage patterns may change as agencies perform cost benefit analyses. If agency participation declines, VITA reports that it is possible to reduce imagery resolution and frequency of acquisition to better match the requirements of the user agencies (including localities). Increased use by agencies would permit reductions in rates over time since the costs of providing the imagery and data files are fixed, and with more use the unit costs are lower.

Table 1: Costs, Rates, and Revenues for Geospatial Enterprise Services

Initiative	Total Costs	Requested Rates	Projected Revenue
Road Centerline (RCL)	\$578,924	\$350 per month per use	\$739,200
Digital Orthophotography (DO)	\$1,863,113	High Resolution: \$667 per month per use Low Resolution: \$2,500 per month per use (unlimited users)	\$1,920,000
Geospatial Enterprise Platform (GEP)	\$316,231	\$200 per month per use	\$276,000
Coordination Services	\$157,449	included	na
Overhead	\$165,613	included	na
Total	\$3,081,330		\$2,935,200

The proposed rates are to be phased in during FY 2008 (beginning July 1, 2007), with full implementation in FY 2009.

Agency Impact

Table 2 shows the estimated charges for services for those agencies expected to use products offered through the geospatial internal service fund. Though several agencies have indicated they were anticipating the imposition of fees, few agencies believe they have

sufficient funds available in their budgets to cover these costs and are planning on budget request amendments to support them. To accommodate the new costs to agencies, the Department of Planning and Budget reports that it will include the estimated total as a central account, and provide funding to agencies as they need it to purchase geospatial services from VITA.

Table 2: Estimated Annual Charges to Agencies

Agency	Total	RCL	DO	GEP
Department of Transportation	\$538,000	\$84,000	\$430,000	\$24,000
Department of Forestry	\$58,200	\$4,200	\$30,000	\$24,000
Mine, Minerals, Energy	\$58,200	\$4,200	\$30,000	\$24,000
Conservation & Recreation	\$58,200	\$4,200	\$30,000	\$24,000
Environmental Quality	\$58,200	\$4,200	\$30,000	\$24,000
Economic Development	\$58,200	\$4,200	\$30,000	\$24,000
Emergency Management	\$58,200	\$4,200	\$30,000	\$24,000
Department of Health	\$58,200	\$4,200	\$30,000	\$24,000
Game & Inland Fishery	\$58,200	\$4,200	\$30,000	\$24,000
Virginia State Police	\$160,000	\$42,000	\$94,000	\$24,000
State Board of Elections	\$41,400	\$4,200	\$30,000	\$7,200
COVF	\$4,800	\$0	\$0	\$4,800
Wireless E-911	\$1,725,400	\$575,400	\$1,126,000	\$24,000
Total	\$2,935,200	\$739,200	\$1,920,000	\$276,000

In the first phase of implementation for the new internal service fund rate structure, revenue would be collected for the statewide digital aerial imagery project to ensure that sufficient funding is available for the next acquisition of the imagery. Because the majority of the 2006 imagery acquisition was delayed until 2007, VITA has requested that the current budget language (Item 421.C.) be modified to indicate that the next update would be scheduled for 2011 instead of 2010. However, requested language changes would also permit a change in the approach to the acquisition allowing capture of the imagery for one-quarter of the Commonwealth each year for the next four (completing in 2011).

Conclusions

Based the review of the documentation submitted by VITA and interviews with VITA and DPB staff, JLARC staff draw the following conclusions:

1. The rates proposed by VITA appear to be based on measurable units of the services to be provided.
2. The projected revenue appears reasonably related to the costs of services provided and covers more than 95 percent of the costs of the services as proposed. Additional use of

the services by agencies would result in revenues fully covering costs. Increased use of services would also result in lower rates in future years.

3. The financial impact on agencies will be addressed by the Department of Planning and Budget through a central account, with funds allocated to agencies as they use the services.

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COMMONWEALTH of VIRGINIA

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Lemuel C. Stewart, Jr.
CIO of the Commonwealth
Email: cio@vita.virginia.gov

November 21, 2006

Mr. Phillip Leone, Director
Joint Legislative Audit and Review Commission
Suite 1100
General Assembly Building
Richmond, Virginia 23219

Dear Phil:

Attached you will find our request to establish a new Internal Service Fund chargeback rate for geographic information services. This proposal was developed in response to requirements in Item 421 C, Chapter 3.

We ask that the Commission consider this proposal for approval at the December 11 meeting. At the intervening ISF Subcommittee meeting that reviews the our rates proposal, we would appreciate also having an opportunity to provide a status update on Information Technology Investment Management (ITIM) rates (approved by JLARC on December 12, 2005, and implemented June 1, 2006).

If you have any questions, please give me a call at 343-9057. We look forward to working with you.

Sincerely,

A handwritten signature in black ink, appearing to read "James T. Roberts".

James T. Roberts
Director of Finance and Administration

Attachment

cc: Glen Tittermary
Lemuel C. Stewart, Jr.

Geospatial Enterprise Services Rates Proposal

Road Centerline, Digital Orthophotographic Imagery, and Geospatial Enterprise Platform

Implementation of rates for state agency users of geospatial enterprise services will (1) enable VITA to improve customer service by providing more timely and accurate data and (2) preclude future general fund appropriation requests for updates of the base map and road centerline files. The proposed rates are intended to be phased in during FY 2008, with full implementation beginning in FY 2009.

Background

In 2001, the Wireless E-911 Services Board provided \$9.8 million to the Virginia Geographic Information Network (VGIN), a division of one of VITA's predecessor agencies, to acquire high resolution digital orthophotographic imagery for the entire Commonwealth. VGIN was able to fully fund the first digital orthophotographic effort with a one-time fund balance.

The Wireless E-911 Services Board needed this digital orthophotography product as a resource for local public safety answering points (PSAPs) who must be able to locate 9-1-1 callers with wireless devices. For that reason, within its initial investment, the Wireless E-911 Services Board also funded the development of a companion statewide digital road centerline (RCL) file that provides a single, integrated street file with addressing information compiled from over 150 source agencies throughout the Commonwealth.

These data are created at a moment in time, while the landscape of Virginia changes continually. With growth and development, the imagery provides a less and less accurate view of the environment and thus must be repeated every four years. Population growth and migration are having unprecedented impacts on significant portions of Virginia affecting emergency response, economic development, transportation planning and much more. In addition, large portions of Virginia's landscape are affected by natural disasters like hurricanes (Isabel/2003, Floyd/2001), flooding and drought. As a result digital data that represent the landscape (i.e., imagery, roads, addresses) depreciate in value from the minute they are created. This impacts public and private products and services in three ways.

- The most direct impact is on the viability of products and services themselves. Hundreds of applications at every level of government (local, state, and federal) will lose value if data are allowed to go without update. This impacts citizens that rely on affected services that are diverse but critical including: responding to emergencies (E-911 - all local governments), determining tax credits (Department of Forestry), finding appropriate economic development sites (Virginia Economic Development Partnership), evaluating assessments (local government, and determining local polling places (local governments/State Board of Elections).
- Secondly, data that is depreciating in value is a strong disincentive directing both the public and private sector away from investments in new or improve products and services. Utilities in Virginia have limited their participation and contributions to the geospatial enterprise

initiatives based on the fact that they cannot make significant investments in geospatial products and services without the assurance that the critical data resources will remain current and up to date.

- Finally the services' digital foundation (i.e., imagery, centerlines, and addresses) has succeeded in establishing standards that facilitate the efficient and effective sharing of data, leveraging each individual geospatial investment to its highest and best use and in essence allowing all of the state's 500 plus organizations that develop geospatial products and services to benefit from each others work and investments.

While the Wireless E-911 program has continued to support the geospatial program, it can no longer fully fund the cost of a statewide update. As a result, when it was time to repeat the digital orthophotography in 2006, general fund appropriations were approved by the General Assembly to augment the annual Wireless E-911 funding, with the understanding that, via Item 421 C of the Appropriation Act, an ISF rate structure would be established to fund this effort in the future.

Rates Development Process

Chapter 3 directs VITA in Item 421 to “*in consultation with the state agencies that rely upon the products of the Virginia Base Mapping Program (VBMP), . . . develop an internal service fund providing for an equitable rate structure supporting updates to the Commonwealth's base map and digital centerline files*” and report on this by October 1, 2006. VITA has submitted the required status report to the General Assembly money committee chairs, JLARC, and the Governor.

To satisfy the legislative directive to consult with users, VITA's Integrated Services Program staff met with agency geospatial information services (GIS) representatives four times to discuss service requirements and different approaches to recovering program costs through rates. A survey asking the following questions was used to stimulate discussion and guide decision making:

- Would your agency prefer a rate structure with flat fixed rates or consumption-based rates that could vary?
- Should the rates take into consideration any of the following factors?
 - What services would your agency be willing to pay to consume?
 - Should costs vary by the number of data layers being accessed by your agency?
 - Do you currently have this type of cost factored into your budget?

There was no clear consensus on the answers, except that customers have not been budgeting for the costs of obtaining geospatial enterprise services. For that reason, VITA concluded that the most feasible approach is to employ fixed fees, so that customers can plan for the costs of obtaining these services, and request state funding support if necessary.

Service Costs

This proposal is intended to capture all of the costs associated with geospatial enterprise services, not just the Virginia Base Mapping Program (VBMP) and digital road centerline files referenced in the legislative study language. By consolidating all costs in the rate structure, a small amount of general fund base appropriations in the VGIN program can be returned to the state treasury. Projected annual costs to support the Commonwealth’s geospatial program are as follows:

Program Costs			
Initiative	Current Cost	Requested Improvements	Total Costs
Road Centerline (RCL)	\$432,761	\$146,163	\$578,924
Digital Orthophotography (DO)	\$1,814,450	\$48,663	\$1,863,113
Geospatial Enterprise Platform (GEP)	\$257,818	\$58,413	\$316,231
Coordination Services	\$89,373	\$68,076	\$157,449
Overhead	\$165,613	\$0	\$165,613
Total	\$2,760,015	\$321,315	\$3,081,330

*Overhead represents 6% of total existing costs

Funding sources for the current costs are the Wireless E-911 fund, GIS dedicated special fund revenue, and the general fund (for operating and one-time funding to update the base map and road centerline file).

Proposed Rates

The proposed rates to support the Commonwealth’s geospatial program can be broken down into four initiatives:

- Road Centerline (RCL) - \$350 per month per use or application
- Digital orthophotography (DO) imagery (Statewide): High-Resolution - \$667 per month per use or application; Low-Resolution - \$2,500 per month (unlimited users) – Areas less than the entire state would be charged based on the percentage of that area to the state at 10% increments.
- Geospatial Enterprise Platform (GEP) — i.e., the hardware, software and networking that provides the data to customer agencies - \$200 per month per use or application/data layer (10 uses/data layers maximum)
- Coordination of data sharing and development – cost included in other initiatives – no specific rate

A summary of the rate amounts produced by initiative follows:

Rated Services Revenue	
Initiative	Projected Revenue
Road Centerline (RCL)	\$739,200
Digital Orthophotography (DO)	\$1,920,000
Geospatial Enterprise Platform (GEP)	\$276,000
Coordination Services	included
Overhead	included
Total	\$2,935,200

These costs are calculated on projected agency use based on historical usage patterns. However, since agencies have not had to fund these initiatives in the past, usage patterns may change as agencies perform cost benefit analyses. If agency participation reduces, options exist to reduce imagery resolution and frequency of acquisition to better match the value shown to the user agencies (including localities).

Another potential is that additional agencies will choose to participate and will seek geospatial services from VITA. Additionally, there is some potential to market these initiatives to commercial entities. Expansions into new agencies and commercial entities will take time to evolve and additional funding will be necessary to expand the platform to meet demand. However, over the long term, greater participation will cause these rates to reduce.

The following is a list of expected agency participation:

Agency Breakdown				
Agency	Total	RCL	DO	GEP
Transportation	\$538,000	\$84,000	\$430,000	\$24,000
Forestry	\$58,200	\$4,200	\$30,000	\$24,000
Mine, Minerals, Energy	\$58,200	\$4,200	\$30,000	\$24,000
Conservation & Recreation	\$58,200	\$4,200	\$30,000	\$24,000
Environmental Quality	\$58,200	\$4,200	\$30,000	\$24,000
Economic Development	\$58,200	\$4,200	\$30,000	\$24,000
Emergency Management	\$58,200	\$4,200	\$30,000	\$24,000
Health	\$58,200	\$4,200	\$30,000	\$24,000
Game & Inland Fishery	\$58,200	\$4,200	\$30,000	\$24,000
VSP	\$160,000	\$42,000	\$94,000	\$24,000
SBE	\$41,400	\$4,200	\$30,000	\$7,200
COVF	\$4,800	\$0	\$0	\$4,800
E-911	\$1,725,400	\$575,400	\$1,126,000	\$24,000
Total	\$2,935,200	\$739,200	\$1,920,000	\$276,000

It should also be noted that the proposed rates are exclusive of fees for hosting agency-specific GIS applications and associated databases, which are covered, as with other applications, under other applicable VITA rate structures. The rate total shown for E-911 represents the contribution from the Wireless E-911 fund (which collects per-customer user fees from

wireless services providers), not an additional charge on top of associated revenue that is included in VITA's budget.

In the first phase of the new ISF rate structure, revenue would be collected for the statewide digital aerial imagery project to ensure that sufficient funding is available for the next acquisition of the imagery. Because the majority of the 2006 imagery acquisition was delayed until 2007, VITA has requested that the current budget language (Item 421.C.) be modified to indicate that the next update would be scheduled for 2011 instead of 2010. However, requested language changes would also permit a change in the approach to the acquisition allowing capture of the imagery for one-quarter of the Commonwealth each year for the next four (completing in 2011).

Customer Agency Benefits

In the past, VITA has provided GIS data and services at no cost to agencies due to the initial DO Imagery project being fully funded by the Wireless E-911 program (\$9.8 million), and the current DO Imagery project being funded by the Wireless E-911 program (\$1.6 million) and general fund appropriations (\$4.1 million). Additionally, VITA has had an annual general fund appropriation that covered the cost of the other initiatives up to this point. Since passage of Chapter 3 in June, VITA has consulted with state agencies using GIS data regarding the requirement to establish an Internal Service Fund rate for geospatial services.

Though several agencies have indicated they were anticipating the imposition of fees, few agencies believe they have any capacity in their budget to add these costs and are planning on budget request amendments to support them. Natural Resources agencies, which are large consumers, have relatively small budgets, relying heavily on grants that are not a consistent source of funding. Other agencies, such as those in Health and Human Resources and Public Safety, rely heavily on grants that may have been viewed in the past as more stable but recently have been subject to reduced funding from the federal level.

Though most costly, the DO Imagery is the core of the geospatial platform. It not only provides the visual context of the geographic features throughout the Commonwealth, but also serves as the base for all further geospatial development. Through the establishment of a common base for geospatial development, it provides a de facto standard that ensures that all new data will integrate and overlay properly.

Other benefits of the enterprise approach to geospatial data include:

1. Cost of entry and monthly recurring costs to agencies is minimal for the enterprise data layers.
2. VITA has a centralized, shared geospatial platform in place for hosting data and applications.
3. Costs to agencies for on-going maintenance of data and platform are significantly reduced over available commercial services.