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Hello BAAMAnians and friends,

Welcome to this first issue of the BAAMA Journal.

There are some great sources for geospatial news at the national level. The Journal is the result of BAAMA’s desire to highlight geospatial projects and individuals throughout the greater Bay Area. We know there are many forward-thinking and dedicated individuals and organizations in our region planning and implementing visionary projects worth reading about.

The Journal Editorial Board labored hard so we could have this issue ready for release at the CalGIS Conference which BAAMA is hosting this year in Oakland. We have come a long way since my initial involvement with BAAMA prior to CalGIS 2 in San Francisco. From those early first meetings, BAAMA has stayed true to its vision of being [and remaining] a vital organization of GIS professionals that promotes partnerships and teamwork with users of GIS technology to improve our environment and community.

Like all BAAMA initiatives, the Journal is a result of volunteers bringing a concept to life. BAAMA wants to stay relevant to your geospatial needs. Please step forward and suggest Educational Meeting topics or Journal article topics. If you are/were involved in a project you feel should be highlighted notify us at editor@baama.org. We can work with you to help you author an article or can arrange to have you interviewed for an article. Step forward and help keep BAAMA relevant.

BAAMA: Connecting People Who Need GIS with Those Who Know GIS.

Ciao,
Malcolm

A NOTE FROM THE EDITOR

It's a great pleasure to present this inaugural issue of the BAAMA Journal. The Journal is your spotlight to the novel and ground-breaking work of Bay Area GIS professionals and will look outside our traditional boundaries to observe how the public is consuming geospatial technologies.

In this issue are articles about complex system integration, the current status of the California First Amendment Coalition v. County of Santa Clara lawsuit, and how the new generation is learning about and using geospatial technologies. Please let the BAAMA Journal know what you think and what topics you would like to see in these pages.

Stella Wotherspoon
Content Editor

UPCOMING BAAMA EVENTS

April 4-6, 2007 CalGIS, Oakland Marriot and Convention Center

May 24, 2007 Educational Session: Urban Planning and GIS, Metropolitan Transportation Commission

July 26, 2007 Educational Session: Transportation, Metropolitan Transportation Commission

For more, visit BAAMA.org.
Knights in White Tow Trucks?

Have you noticed the white tow trucks that seem to be Johnny-on-the-spot, assisting stranded motorists on Bay Area freeways, and wondered who they are and where did they come from? They are part of the Freeway Service Patrol (FSP), a publicly funded program with a goal of mitigating peak hour highway congestion through timely clearing of roadway hazards.

Contracted and managed by the FSP partners, the Metropolitan Transportation Commission Authority for Freeways and Expressways (MTC SAFE), the California Highway Patrol (CHP) and Caltrans, a fleet of over 80 tow trucks roam almost 550 miles during commute periods to assist over 120,000 stranded motorists each year with automobile problems, to clear traffic hazards, and to help keep traffic moving. With a cost benefit ratio of 8:1 and an average motorist assist wait time of 10 minutes, the FSP is an effective traffic congestion management program.

NEED FOR SEAMLESS INTEGRATION AMONG PARTNERS

The FSP, as a coordinated program managed by multiple partners, requires a seamless flow of data to operate. Utilizing geospatial technologies is not merely an enhancement to the FSP’s day-to-day operations and long-term management, but rather a necessity. The program started in 1994 and original equipment and systems require upgrades. The advent of new computer, geospatial, and telecommunication technologies presented opportunities to significantly improve and automate data processes.

The FSP requires tow truck incident data to determine the program’s effectiveness and to increase efficiency. Staff uses these data to justify program funding and to administer the operations. Examples of data include the GPS time during which tow truck operators sign on and off, incident status type (e.g., at scene fixing flat tire, towing, etc.), location and duration of incident.

The ideal data flow is for tow truck operators to enter incidents into on-board Mobile Data Computers (MDC). Then, these data are transmitted back to the FSP telecommunications system located in the Golden Gate Communications Center in Vallejo. These data are translated, stored, and forwarded to CHP’s Computer Aided Dispatch (CAD) system and FSP’s Automated Vehicle Locator (AVL) system. CHP dispatchers receive the whereabouts and availability of the tow trucks and MTC SAFE receives accurate invoicing data used to pay the privately contracted tow companies for service rendered.

CHALLENGES OF THE CURRENT SYSTEM

Geographic, operational and technical challenges limited staff from fully implementing this data flow, and over the course of the FSP program, staff resorted to collecting tow truck incident data via manually-entered paper Scantron forms and through voice calls between drivers and CHP officers and dispatchers. This process resulted in an increased load on the FSP partners and additional resources and staff time were required to field voice calls from the tow truck drivers, scan, and verify Scantron data, and confirm sign on/off times. The following challenges contributed to an increased workload:

- **Geographic** Due to the Bay Area’s varied terrain, the FSP’s wireless data system, in combination with available software and hardware, could not reliably ensure all communications were transferred between the tow trucks and the Golden Gate Communications Center. Some of the Bay Area dead spots included the Sunol Grade along I-680, Hwy 17, I-80 in Solano County, and I-580 past Livermore. Data communications to and from tow trucks covering these areas were virtually non-existent.

- **Operational** Each of the FSP partners requires access to real-time data from different locations, in specific formats,
and in various temporal frequencies. The CHP CAD needs information about a tow truck’s status so stranded freeway motorists can be matched with the closest available truck. Caltrans requires incident data to assess program performance. MTC SAFE requires incident data to justify payment, deductions, and rewards to the tow companies. However, the combination of FSP service area expansion and reduction in staff devoted to the FSP placed strain on resources and it was difficult to deliver timely data.

- **Technical** To ensure the FSP partners received data in their preferred formats required robust system integration. The most significant challenge was to maintain a direct and reliable two-way data connection between the FSP system and CHP’s legacy CAD system, which required vastly different data formats. To bridge this gap, staff developed an intermediate system to receive, translate, store, confirm and forward data. However, the complexity of the business rules and data flow resulted in undesirable system downtime.

### ASSESSING TODAY’S REQUIREMENTS

To address these challenges staff reassessed the program’s operations. The three agencies engaged in high-level and technical discussions to determine the requirements for a new, integrated system. A general outcome was to define how to reliably store, extract and summarize incident data using a centralized data store housed on a new, upgraded FSP server.

### THE REENGINEERING APPROACH

By reengineering the systems, the FSP partners will gain the ability to process live and archived information necessary to identify tow truck location and status, quantify program performance, and justify invoice data.

Staff is currently removing 8+ year old equipment and software, spanning from the tow truck MDCs to the servers and workstations where data is retrieved, and is replacing them with equipment that takes advantage of modern software development practices and technologies. Using an open source and systems engineering approach throughout most stages of the system upgrade, staff is implementing the following projects:

- **Data Portal** To enable staff access to incident data, a web-based data portal shall link to the centralized data store on the FSP server. FSP partners will access current data and summarize the results via the web and be able to immediately assess program performance down to the tow truck driver level for a specified hour. Farallon Geographics of San Francisco is building this component of the new FSP system.

- **Automated Vehicle Locator (AVL) System** Mentor Streets software will keep CHP dispatchers/officers and the FSP fleet manager aware of the tow trucks’ current locations and statuses for dispatching and remote supervision purposes. Staff in the office and officers in the field, via wireless laptops, can determine if, for example, a tow truck driver attempted to sign on outside their assigned roaming patrol area. A geofencing rule will automatically generate an alarm. Also, staff can identify which tow truck is closest to a stranded motorist using a call box.

- **Tow Truck MDCs** Mentor Ranger GPS-enabled on-board computers will reduce radio traffic between the tow truck drivers and CHP dispatch and replace Scantron forms as the primary data entry device at an incident. Time spent entering incident data will be reduced through an efficient software user interface design so tow truck drivers can concentrate on road safety.

The Mentor Streets AVL system and Mentor Ranger MDC units are from Mentor Engineering of Calgary, Canada. Mentor Streets’s mapping capabilities are built using ESRI Map Objects. Basemap data is TeleAtlas, Inc Dynamap / Transportation street database in addition to call box, and FSP service area feature overlays. Mentor Ranger is a fixed-mount Windows CE computer with a touch screen, measuring 8 x 5 inches. Telecommunications service is from Sprint Wireless.

- **Hardware/Software Redundancy** Issues caused by wireless telecommunication dead spots and backend data flow complexity will be mitigated through the implementation of an incident data store-and-forward process that uses VMWare which will enable a quick and seamless cut-over should a server go down.

- **Core System Integration** Code that interacts with Application Programming Interfaces of all systems and handles communications between the centralized data store on the FSP server, the CAD servers, and Mentor Ranger will be developed by AEKO Consulting of Oakland, CA, a solutions integration firm.

Benefits of this project extend beyond the Bay Area. This project will facilitate the Statewide FSP data gathering process for fair state funding allocation. Los Angeles and Orange County’s FSP programs are also in the process of upgrading their telecommunications systems, though see Freeway Patrol, p. 6
GIS basemap data, the digital parcels linked to Assessor Roll property characteristics and other files, are an essential part of city, county, and regional government operations, and thereby, are critical public records which must be shared with the public according to the California Public Records Act (Government Codes §6250 et. seq.). In enacting the CPRA, the Legislature determined that “access to information concerning the conduct of the people’s business is a fundamental and necessary right of every person in this state.”

CASE BACKGROUND

Several California counties currently sell GIS basemap data for more than the cost of duplication, the amount mandated by §6253. In 2004, a citizen who was prevented from access to these public records due to high cost filed a complaint with the Attorney General. The Attorney General issued an opinion in October 2005, stating that counties must provide digital parcel data according to the terms of the CPRA (See Sidebar.). After this opinion, approximately 7 counties changed their data access policy, significantly lowering the price for copies of their public record databases. While 40 California counties now provide their GIS basemap data at no cost or for the cost of duplication, approximately 12 counties remain steadfast in their contention that the CPRA does not apply to digital parcel or GIS basemap data. Santa Clara County sells their data at a price far higher than the cost of duplication (approximately $158,000), surpassed only by Orange County. The Attorney General’s opinion, however, is not a binding legal determination; that requires a judicial decision through a court of law.

On June 12, 2006, the California First Amendment Coalition (CFAC), www.cfac.org requested GIS basemap data from Santa Clara County’s GIS Manager. They requested the most current version of these data, including closed parcel polygons, each tagged with Assessor Parcel Number (APN) suitable for linking to corresponding Assessor parcel records, and the following descriptive attribute data: APN, Situs Address, Air Parcel status and address, and Annotation text illustrating the parcel’s address. Metadata describing the projection, datum, and state plane coordinate zone, date of data capture, and locational accuracy were requested, along with the database dictionary and description of geodatabase contents. CFAC requested the data be provided on CD disks, in both .shp format and in the County’s geodatabase format.

This was a formal request made pursuant to the CPRA §6250-6270 of the Government Code. CFAC requested that these GIS basemap data, which are public records, be provided at no more than the cost of duplication, and with no restrictions regarding their use.

On June 26, 2006, the County refused the request, claiming that these data are not subject to the CPRA: “The County does not believe the Attorney General’s opinion is persuasive, nor...applicable to a sophisticated, copyrighted GIS Basemap...” The County provides these data only in exchange for their sales price, along with a Non-Disclosure Agreement, signed by the requestor, which prohibits redistribution.

PETITION IS FILED

On October 11, 2006, CFAC filed a petition with the Superior Court of Santa Clara County to enforce the CPRA. Citing Santa Clara County’s GIS Strategic Plan, CFAC stated, “...the GIS basemap contains foundational data that supports most GIS application needs across most of the GIS users.” CFAC understood that GIS can be used to monitor government officials on important matters such as property tax assessments, issuance of permits or variances, deployment of public services, etc. Such monitoring uses GIS software, GIS basemap data, and other County datasets to compare geospatial relationships such as proximity, inclusion within a buffered area (e.g., parcels located within 1000 ft. of a school). These relationships cannot be determined without the GIS basemap data.

SANTA CLARA COUNTY’S COUNTER ARGUMENTS

Santa Clara County has raised several justifications for its position:

• The basemap is protected by copyright.
• The basemap is software.
• The public will be harmed by release of the basemap to the public.
• Basemap records are confidential.
• The basemap is protected as a trade secret.
• Duplicating the basemap puts an undue burden on the County.
• The facts outweigh basemap distribution.

REVIEW OF THE COUNTER ARGUMENTS

Let’s examine how the first three arguments hold up against...
the California Public Records Act.

Is the basemap protected by copyright?

The County asserted that it owns a copyright interest in the GIS basemap which entitles it to control the distribution and sales of this "product."

CFAC pointed out that copyright protection for public records would annul the CPRA. If the County can refuse to provide copies of its basemap on the basis of these exemptions (copyright and trade secrets), there will be nothing to prevent other governmental agencies from withholding the use of other information in electronic form, pertaining to the public’s business. If allowed, virtually any type of original work of authorship prepared by an employee of a state or local agency, including letters, emails, memos, reports, charts, photographs, graphic drawings, etc., could qualify for copyright protection.

By requiring in §6253(b) that government agencies make public records available for both inspection and copying, for a fee that does not exceed the direct costs of duplication, the legislature eliminated the ability of such agencies to rely on copyright as a basis for denying requests for copies of public records.

Is the basemap software?

CPRA §6254.9 exempts computer software developed by a state or local agency, and goes on to say, “‘computer software’ includes computer mapping systems, computer programs, and computer graphics systems.” This, of course, derives from the time in the 1980s when some public agencies developed their own GIS software along with their GIS basemaps.

The County contended that their GIS basemap and data elements constitute ‘computer software,’ asserting that “...‘applications software’ is understood to include the instructions that manipulate data and the databases on which those instructions operate.” The County went on to assert that the GIS basemap records consist entirely of computer software exempt from disclosure. The County’s Acting GIS Manager asserted in a sworn statement that the GIS basemap is a unique program that processes data using mapping functions. He further asserted that the GIS basemap is the instrument that instructs the hardware and databases to obtain and structure information, therefore, it qualifies as a computer mapping system and is exempt from the CPRA.

It appears to CFAC that the County is trying to blur the distinction between data and the software used to create, modify, or view the data. Trying to include ‘computer mapping system’ in the definition of GIS basemap parcel data was rejected by the Attorney General. CFAC explained that the GIS basemap is commonly understood as the set of data files upon which GIS software operates. Some of those files may include parameters that specify, for example, what color to display certain map features; nevertheless those parameters are not computer software. The GIS basemap is not software; it is data.

In a sworn statement, the County’s GIS Manager asserted that “the entirety of the records in .shp format constitute software” and, “the entirety of the records in geodatabase format constitute software.”

Upon CFAC’s request, ESRI’s Director of Software Products, Clint Brown, certified that the .shp file format and the geodatabase format are designed to enable the transfer of geospatial data; they are not software.

Will the public be harmed by release of the basemap?

Santa Clara County contended that provision of the GIS basemap would provide sensitive information that is not publicly available. For example, the location of the Hetch Hetchy water lines are generally known but not provided in any detail, in order to minimize the threat of terrorist attack on the water system. The County asserted that “the exact location of the Hetch Hetchy water lines is an integral part of the GIS Basemap and not easily segregable.”

CFAC observed that the lines identified by the County as Hetch Hetchy “water lines” are actually not the pipelines, but land easement areas or rights-of-way. The rights-of-way cover an area greater than the pipelines themselves, and do not indicate the specific location of pipes, which are buried underground. The right-of-way is approximately 80 feet wide; the width of the pipes is unknown; it may be 12 feet wide.

Santa Clara County’s basemap information is publicly available from the City of Milpitas basemap. So, withholding the County’s information would not reduce an alleged security risk. When parcel and right-of-way lines are displayed over an aerial photograph, it is obvious that there is a right-of-
to agency requirements and geography, technological and methodological approaches differ. Regardless, statewide data collection remains consistent.

Staff expects the Bay Area FSP system upgrades will be complete by the third quarter of 2007. For staff and consultants working on this project, the challenge is to fulfill three agencies’ functional requirements, integrate three systems, and address unique technical and geographic constraints. A well-coordinated team is working hard on these challenges and will soon bring improved FSP service to a highway near you.

ABOUT THE AUTHOR

Sze Lei Leong is Program Coordinator for FSP Telecommunications and has been happily working on the FSP program at MTC for five years.

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GET OUTSIDE WITH GEOCACHING!  
BY KARIN TUXEN

Get outside!

It was a beautiful summer afternoon and my friend and I were looking for something to do outside. We had recently moved to Cupertino and were not familiar with our neighborhood, except that it contained what we thought were only homes and sidewalks. We logged onto Geocaching.com, typed in our zip code, hit enter, and within seconds a few hundred results popped up on our screen. Following a few easy steps, we uploaded several geocaches onto our GPS unit, and set off to explore our neighborhood in search of the elusive treasures.

It was my first experience with geocaching, the Global Positioning Systems (GPS) treasure hunt that is sweeping the GPS and outdoor recreation industry, and providing a way for families – both children and parents alike – to explore new and familiar places while spending time together outdoors.

In addition, geocaching is a supremely enjoyable educational activity, teaching children awareness of their local geographies, use of geospatial technologies, and navigation skills.

WHAT IS GEOCACHING?

Geocaching uses GPS to hide and seek caches all over the world. A person builds a cache, usually with a waterproof container like a Tupperware container or ammunition box, hides it in a discrete place, and records the GPS coordinates of the cache location using a GPS unit, making it a geocache. Back at home, that person logs into Geocaching.com or another popular geocaching website, and logs the new geocache with its location.

Fellow geocachers later find that cache listed online, usually through a zip code or other geographic query, and use their GPS unit to locate the cache. Common geocaching etiquette states that if you take something from the cache, you should leave something new behind. In most geocaches, there is usually a logbook where geocachers write their name, the date, and perhaps an inspirational geo-message, before putting the cache back in the position they found it.

On the sunny afternoon when my friend and I went geocaching, we had perfect satellite reception – sometimes as many as six strong satellite signals. Our GPS unit informed us that the geocache was only a half-mile away as the bird flies. What a perfect afternoon stroll, we thought. Three miles later, we were within a few hundred feet of the geocache. Amazing how a convoluted suburban neighborhood can add miles to your geocaching experience.

We were very close, and as we rounded the corner, we enter McClellan Ranch, a community park that we never knew was there. The small ranch had two barns, farm animals, and an amazing community garden overflowing with fruiting vegetables and blooming flowers. It was such a beautiful and peaceful place to be; admittedly, we were shocked that such a place existed so close to our home.

As we followed our GPS unit through the garden and out of a gate on the other side, we felt like our afternoon outing was already a success. But as we made our way across a meadow adjacent to Stevens Creek, we saw that we were only 20 feet from the geocache! A frantic search ensued, but it wasn’t long before we realized the only place the geocache could be – hidden between the large branches of a mighty long oak in the middle of the meadow.

We signed the logged book, noting that fellow geocachers had already been there that morning. We searched through the cache goodies of bouncy balls, plastic picnic forks and knives, and comic books. While we didn’t take or leave anything, we promised ourselves we’d bring back some goodies to add at a later time – a promise that we knew we’d keep since geocaching had introduced us to such a beautiful place in our neighborhood.

THE EVER-INCREASING POPULARITY OF GEOCACHING

Geocaching began with the removal of selective availability of GPS on May 1, 2000, making it a relatively new activity. Selective availability was a system the US Government used to add random errors of up to 100 meters to GPS readings. Now, consumer GPS devices can obtain coordinates that
are accurate within approximately 5-10 meters, making the hunt for geocaches possible.

While geocaching is a 21st century pastime, its origins date back over a hundred years ago to a similar activity called letterboxing in which boxes, or caches, were hidden and clues were spread via magazines and word of mouth. With increasing affordability of GPS units, and the integration of GPS in daily activities through in-car navigation and exercise tracking, geocaching is taking off, and is taking various shapes.

Geocaching is becoming widely popular. For instance, in 2003, there were only a few hundred geocaches near our home in Cupertino. The same zip code results in over 5,600 today. If you search for your zip code at Geocaching.com, chances are you’ll also find thousands of geocaches within a few miles of your house. Already, there are several variations to geocaching. Travel Bugs™ are items similar to dogtags that are moved from cache to cache, and tracked online by fellow geocachers using a unique ID. Similarly, geocoins are collectable geocaching tokens that are collected and traded by fellow geocachers. Even other industries have geocaching fever, offering promotional travel bugs (also called “hitchhikers”), like those by the Unite for Diabetes Campaign and Jeep 4x4 Geocaching Challenge.

With geocaching organizations in over 40 U.S. states, and countless others all over the world, geocaching is a burgeoning universal pastime that perfectly blends our desire to use enabling technologies and our wish to spend leisure time outdoors. Now, you can even geocache using your cell phone.

WHAT DO YOU NEED TO GO GEOCACHING?

You will need a GPS unit, access to a computer with an Internet connection, and the desire to explore the great outdoors. If you plan on creating your own geocache, you will additionally need a cache box (ammo box or other waterproof container is recommended), log book, and fun geocache items.
The perfect GPS unit will vary depending on your needs. In general, the GPS unit you buy should be lightweight and compact and have a long battery life. Most compact GPS units, such as those by Garmin and Magellan, are somewhat waterproof and can hold an adequate number of geocache location waypoints. In addition, try to hold and use the GPS unit in the store before you buy it, to ensure that you like the user interface and button position on the unit.

Most GPS units used for recreation, such as Garmin or Magellan models, have an accuracy of 5-30 meters, depending on environmental conditions and the GPS model you buy. If higher accuracy is important to you (2-5m), buy the GPS units that possess the new SiRF chip, which not only picks up the satellite signals faster, but holds onto them better. Also, units that are WAAS-enabled will give you better accuracy, but since you need a constant view of the southern horizon in order to receive the WAAS satellite signals, it might not be useful for some environments.

Certain GPS unit models offer special features which make it even easier for you to find a cache. These include a built-in electronic compass, which helps when you get within 100 feet of your cache; an altimeter, which will help you know how high you – or how much higher you must climb to get to those vertically challenging geocaches; and mapping features, which allow you to load specialized data such as topographical and terrain data onto your unit.

BEFORE YOU VENTURE OUTSIDE...

Before you go out geocaching, keep in mind a few things:

- **Know your limits.**
  First, most GPS unit give distance to a geocache as the bird flies, which given various street network layouts doesn't always equate with the actual walking distance to the geocache location. It is not a good idea to venture off trail and enter private property in order to find a short-cut or get closer to a geocache. In addition, expect to not be able to find every geocache. After our first successful geocaching experience, we had three unsuccessful attempts, where we were led to (1) a locked gate in a county park, (2) private property, and (3) a missing cache.

- **Know your responsibilities.**
  Some geocaches are hidden on private property or in public areas that may have delicate vegetation and habitats. Use caution when you approach a geocache, as you and your fellow geocachers can have an unintended impact on our local natural resources due to trampled vegetation, dam-
aged habitats, and destruction of our parks’ historical and
cultural resources. In addition, it is illegal to place a geo-
cache on National Park Service lands without permission,
such as a special use permit. Some park areas are desig-
nated for geocaching.

Know your resources.

Geocaching.com (http://www.geocaching.com/) is one
of the most popular geocaching websites today. At Ge-
caching.com, you can search for geocaches by zip code,
county, or state, and upload the geocache coordinates to
your GPS unit. The site also contains a lot of information
about geocaching, including links to software and a geo-
caching discussion forum. Other popular websites include
Waymarking.com (http://www.waymarking.com/), where
you can hunt for unique and interesting places in the world.
Also, Buxley’s Geocaching Waypoint (http://www.brillig.
com/geocaching/) and Navicache.com (http://www.nav-
icache.com/) are other excellent resources where you can
search for geocaches. Finally, local geocaching websites
are very helpful, such as the Geocachers of the Bay Area’s
website (http://www.thebga.net/).

Now that you know all there is to know about geocaching,
go and experience it for yourself! Who knows? You (and
your kids) might even explore a new place and have fun.

ABOUT THE AUTHOR

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She sits on the BAAMA Board and the BAAMA Journal
Editorial Board.

ValueCAD is proud to announce an Autodesk MapGuide
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Background: ValueCAD had worked with the City in Bay Area, California to develop an Autodesk MapGuide®- based website as an intranet application for the city staff.

Challenge: The city needed a method to extend the reach of its web-based application to reach their true end users – the Citizens.

Solution:

✓ Autodesk’s recent announcement of the MapGuide® Enterprise platform provided an effective tool to meet this need.
✓ ValueCAD successfully collaborated to develop the application using Autodesk MapGuide® Enterprise, SQL Server 2005 and ArcSDE database.
✓ This site was created using ASP.net (C#) and Ajax technology.
✓ ValueCAD created a customized solution to enhance the capabilities of the generic MapGuide® Enterprise.
✓ The application uses a combination of spatial and database query techniques to create customized reports.
✓ Citizens can search for property information by Parcel Number or Address
✓ Thematic Map layers are available with scale dependency defined by user input.
✓ Dynamic tool tips including thumbnail images are provided.
✓ Detailed property reports include
  o Zoning, General Plan Land Use, Specific Plan Land Use
  o Alquist-Pirrolo Earthquake Zone, Flood Insurance Rate Map
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Last year, Harvard University proudly announced the resumption of a focus on geography and spatial analysis after an absence of decades. A new Center for Geographic Analysis was opened on Cambridge Street amidst lots of hoopla and fanfare, trumpeting the return of GIS to one of its roots. It seems that the Ivy Leaguers are a little out of step with the times, though. The Bay Area’s Diablo Valley College (DVC) has recognized the value of GIS education for several years.

Diablo Valley College is a two-year community college, part of the Contra Costa Community College District. DVC is located in Pleasant Hill, CA, nestled next to a pinnacle of East Bay life, the Sun Valley Mall. As a two-year school, the emphasis of most programs at DVC is to prepare students for transfer to four-year colleges and universities. But little DVC offers something that few other four-year schools in California do – an academic program that focuses on GIS and GPS technologies.

As the use of geospatial technology has skyrocketed, so has the need for people who are skilled in these disciplines. In response to this need, DVC launched a GIS/GPS program in June 2003. Students can earn an Associates degree in GIS/GPS, or one of two certificates. The certificate of completion is awarded to students who have completed 15 credits, 12 of which are in core curricula of GIS and GPS. The certificate of achievement is a state-approved certificate, awarded to students who, in addition to the core GIS/GPS curricula, have taken coursework in remote sensing, cartography, and additional computer science electives.

The program offers many courses for students interested in geospatial studies. Introductory and Advanced courses are offered for both GIS and GPS. Courses in Remote Sensing and Cartography are also offered. Students may take classes in Computer Science and possible applications for GIS technology. Some of the Computer Science courses are Java Programming, VBA, and UNIX/Linux installation. Courses in AutoCAD, marketing, and environmental science are also available. An additional feature of this program is the opportunity for internships. One unnamed writer had the opportunity to intern at the Central Contra Costa Sanitary District where he not only gained valuable experience, but also got the opportunity to work with Bill Clement, the chair of this year’s CalGIS conference.

Most of the students in the program are professionals who are seeking to update their skill set or switch careers. The vast majority of students who have completed the program have been awarded certificates and are not students seeking the two-year degree. Many of the alumni have subsequently entered the workplace, but some have gone on to complete undergraduate degrees and enter graduate programs, such as the Masters of Geography Program at UC Santa Barbara.

The U.S. Department of Labor sees a bright future for GIS, and the future’s pretty bright at DVC, too. Bright enough to wear shades?

Depends upon the weather, but it’s looking good. DVC recently opened the new Advanced Technology Center, a facility that’s full of powerful computers. DVC has upgraded to ArcInfo 9.1 within the last year (ok, so ESRI is up to 9.2 now, but keeping up with ESRI’s updates is harder than keeping up with the local music scene.) In addition to keeping up with the technology, the GIS/GPS program leaders seek to integrate the local GIS community into the program, by encouraging internships and feedback so DVC can continue to teach the skills employers need.

Interested yet? Take a break from myspacing, open a new tab, and enter http://www.dvc.edu/ct/gis/gis.htm. There’s all sorts of info there. In addition, you can speak with Binita Sinha, the coordinator and lead contact of the GIS/GPS program at DVC. She’s often at BAAMA meetings, and was kind enough to contribute all sorts of good info for this article. Or ask me questions. mjuges@gmail.com. I’m happy to answer questions (and accept fan mail).

Editor’s Note: Friendly inter-collegiate ribbing aside, Harvard’s many contributions to the development of GIS as we now know it are well detailed in Charting the Unknown: How Computer Mapping at Harvard became GIS, recently published by ESRI Press.

ABOUT THE AUTHOR

Michael Uges is a student at Diablo Valley College and will receive his certificate of completion in GIS/GPS in May 2007. When he isn’t busy missing journalistic deadlines and surfing the web, he can be found scouring job boards, wondering if there is any way he can avoid entering the real world. ☹️
way separating the normal urban fabric. The right-of-way location is obvious, with or without the County’s red lines.

The County declared further, “Google Maps, by contrast, does not display the location of the Hetch Hetchy water lines.” In fact, the location of a right-of-way (not water lines) can be easily inferred from other publicly-available sources, such as Google Earth orthophotographs.

Another publicly available source of the same information in the County’s GIS basemap is the County Assessor’s map pages. Two Assessor map pages cover the same area, and clearly identify the Hetch Hetchy right-of-way.

Do easement or right-of-way lines in the County’s basemap compromise public safety to the extent that the basemap should be withheld from the public? The answer is clearly “no” because this is not the kind of information that would uniquely aid terrorists. Three criteria that are recommended for deciding whether to remove information from the public record are not met: (1) the location of the easements is readily available from alternative data sources, (2) the specific location of the pipelines themselves is not shown, and (3) the location of infrastructure “choke points” is not shown.

GEOSPATIAL DATA SERVES THE PUBLIC INTEREST

Geospatial data have many public interest uses. For example, advocates for low-and-moderate-income housing in Washington DC, and Richmond, VA used GIS to analyze the dysfunctional concentration of such housing in poor, crime-ridden neighborhoods, and identified suitable housing sites throughout the city that would help to diffuse the concentration of poverty.

CONCLUSION: WHAT IS AT STAKE?

On February 21, 2007 Judge James P. Kleinberg heard this case. He asked, “what’s the public interest here?”

The public’s interest is in having unfettered access to its government’s information in order to ensure honest, accountable, transparent governmental decision-making. This is essential for a democracy to function. While the Attorney General’s opinion confirmed this, it is only advisory; a legal determination by the court is necessary to confirm the applicability of the Public Records Act. At present, Judge Kleinberg is deliberating and the Court’s decision is forthcoming.

ABOUT THE AUTHOR

Bruce Joffe, founder of GIS Consultants, Oakland, CA (GIS.Consultants@joffes.com), provides GIS implementation planning and management services to local and state governments, utilities, and private companies. Bruce is the organizer of the Open Data Consortium project (www.OpenDataConsortium.org), dedicated to equitable data distribution policy development. He served as Technical Advisor to CFAC on this case.

CFAC Executive Director is Peter Scheer.

CFAC Attorneys are Rachel Matteo-Boehm and Kyle Sbriner of Holme, Roberts & Owen LLP, San Francisco.

Editor’s Note: Opinions expressed in this article do not necessarily represent those of BAAMA-at-large, the BAAMA Board, or URISA.
Too little time to develop a killer web basemap? Thank mashups for coming to the rescue!

Read about how the City of San Mateo bolstered enterprise geodata through a mashed-up address file.

Read about how this technology can improve data standards and data mining for improved services and asset tracking.

Example of an oblique aerial image from Pictometry International overlaid with a parcel boundary and address.

MarinMap is a consortium of public agencies (local governments and special districts) organized under the legal authority of the Marin General Services Agency. MarinMap is dedicated to building and sharing a geographic information system (GIS), cooperating to improve each agency’s business processes, improving public service and providing a forum for collaborative decision making. MarinMap operates an Internet-accessible GIS and spatial data download site, bringing the best available information to the public via the Internet.

Visit MarinMap at http://www.marinmap.org

MarinMap is a National Spatial Data Infrastructure Site
This past fall, BAAMA hosted its inaugural Educational Scholarship competition for Bay Area students doing projects in GIS, remote sensing, and other geospatial technologies. We received numerous entries, all of which were of outstanding quality and represented significant contributions to the people and the landscape of the Bay Area.

Tanya Diamond, a graduate student from San Jose State University, was awarded the first place prize for her poster, “Using GIS to Identify Potential Corridors Utilized by North American Badgers in the San Francisco Bay Area and Monterey Counties.” Tanya used spatial analysis to study wildlife corridors and habitat suitability using least cost path analysis.

Catrina Christian, from Diablo Valley College, was awarded the second place prize for her map entry, “Contra Costa Emergency Services within Quake Zones.” Catrina used GIS buffering and overlay to investigate the relationship and the vulnerability of emergency services, including hospitals, fire stations, police and sheriff departments, ambulance stations, and the emergency medical helicopters, within Contra Costa County to earthquakes and fault lines.

Finally, Michael Webster, a senior from San Francisco State University, was awarded the third place prize for his project and poster, “An Urban Oasis in the Woods: A GIS Analysis,” a personal site suitability analysis, taking into account wineries, groceries, restaurants, bars, city locations, land use, land cover, vegetation, ownership, population density and elevation.

First-, second-, and third-place prizes included awards of $2500, $1500, and $1000, respectively. All three winners received a complementary registration for the CalGIS conference on April 4-6, 2007 at the Convention Center in Oakland. Award recipients will make a presentation at the conference about their work as part of the poster session/map gallery. In addition, all three awards include Individual Membership in BAAMA for the 2007-08 fiscal year.

BAAMA is very excited about and proud of all those who entered the inaugural BAAMA Educational Scholarship. Congratulations to every student who is doing his/her part to use GIS and other geospatial technologies to improve and enhance the understanding and management of our Bay Area landscapes. Look out for the next scholarship in Fall 2007! ☀️

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**ANNOUNCING THE WINNERS OF THE INAUGURAL BAAMA EDUCATIONAL SCHOLARSHIP**

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WHERE IN THE BAY AREA?

This picture was taken by UC Berkeley Professor of Architecture Charles C. Benton in Spring 1997 from a Canon 15-mm lens camera rigged on a kite flying 250 feet high.

Benton describes his hobby of Kite Aerial Photography (KAP) as his “outdoor activity of the moment,” and has been building a photo gallery of beautiful Bay Area aerial photos since 1995 (http://arch.ced.berkeley.edu/kap/). He was highlighted in Volume 01 of Make Magazine (http://make-magazine.com/01/), where he described how to build a device to take pictures from a kite, using three things: a kite, a camera, and a special rig that attaches the camera to the kiteline and activates the shutter button on the camera.

Identify this location and win a prize! Send your answers to editor@baama.org. One lucky winner will be selected from all correct entries received by June 30, 2007. The winner will be announced in the next issue.

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