

**April 2006**

Welcome to the nineteenth edition (and the 3<sup>rd</sup> year anniversary) of the **MassGIS GISette**, a bi-monthly newsletter e-mailed to over 1100 of our users and partner agencies to keep them informed of data updates, GIS events, and on-going technology developments. This newsletter will not replace more focused e-mails that many of you currently receive. A page on our website has been created for the [GISette](#). There you will find back issues of the GISette and an [online subscription form](#).

While our primary intent in publishing the GISette is to disseminate information related to MassGIS initiatives and data development in particular, we also see the GISette as a means of communicating public agency GIS news. So we encourage readers to send in updates or announcements concerning public agencies that they would like included in the GISette. We particularly want to encourage submission of announcements concerning data development projects. Announcements should be sent to Paul Nutting at [paul.nutting@state.ma.us](mailto:paul.nutting@state.ma.us).

### **Massachusetts Geographic Information Council (MGIC) Meeting Recap**

An April 27 meeting of the Massachusetts Geographic Information Council was attended by more than 60 people from a variety of municipalities, including New Bedford, Westwood, Weymouth and several others. The format deviated from the normal array of speakers discussing their GIS projects, in favor of a vendor fair with ten companies that create software and systems for permit and asset tracking linked to GIS. Many municipalities are looking for ways to integrate a lot of disparate data into their GIS and this was a great opportunity for them to meet some companies that do this type of work. Several vendors were from distant locations, such as Iowa, Montreal, and New Jersey. A thank you goes out to the Town of Weston for hosting us in its historical town hall.

Please watch the website for an announcement regarding a June MGIC session or [sign up](#) for notification.

### **Orthophoto Project Update**

Many are anxiously awaiting the digital color ortho imagery from last April's flyover. You are perhaps wondering why it is taking so long for these new images to become available. This article briefly describes some of the behind-the-scenes activity of this project and associated schedule delays.

A key decision in the project specification was allowing vendors to propose either a conventional film or a digital camera for image acquisition. Providing vendors a choice of

camera options, along with the rest of the specification, was based on experience with two previous statewide orthophoto projects, a pilot project in 2004 involving imagery acquired using a digital camera, and extensive research. We selected a vendor using a digital camera because we expected to end up with better imagery. We were right. As some of you have seen, the new images are crisper and more detailed; they also have a fourth infrared reflectance band. In short, these images contain more information. However, when you travel with new technologies, the road can be a little bumpy. This has been true for this project and these bumps are affecting the project schedule. Other unexpected problems with existing hardware and software have added additional hurdles.

A broad and deep constituency relies on the statewide digital orthophoto data as a GIS base map, including all levels of government in Massachusetts. Because of this, we are committed to providing a high quality base map with a consistent accuracy. That standard was achieved with the original black-and-white orthophotos from the 1990s, and its successors in 2001/2003, and we are committed to sustaining it with the 2005 digital ortho imagery. Ensuring that we achieve this standard requires a significant quality assurance (QA) effort. MassGIS staff checks the horizontal and vertical accuracy and the radiometric quality (the “look”) of the images. Compliance with the original specification is checked using more accurate and independently acquired elevation data and the coordinates of photo-visible features acquired from field work performed across the state. Evaluating the look of the images is partly subjective, but also involves examining reflectance values in each of the color bands (red, green, blue, and infrared) to make sure they are acceptable. Time for QA by MassGIS’ staff was factored into the original schedule, but problems with the digital camera, hardware failures at MassGIS, and software bugs were not.

MassGIS’ QA process uncovered errors in the digital elevation data created to rectify the imagery. The problem was eventually traced to thermal contraction and expansion in the camera that introduced distortion into the digital image. This problem may have existed in other projects completed with this camera, but it had not been previously identified. The camera problem has been solved by the camera’s manufacturer and correctly modeled in the digital image rectification process by the contractor. This has required reprocessing of some imagery. Additionally, we recently asked the vendor to reprocess some imagery so that it more correctly displays image reflectance values; this change will improve the quality of the information available from the images. Besides these delays, we have had a storage server fail and a bug with software used to compress the imagery, both of which have resulted in additional schedule delays.

Finally, these images are large (each of the more than 1,500 files are 250Mb) and so we process them into various formats more suitable for distribution. These include compressed formats (MrSID lossy, JPEG 2000, both lossy -15Mb/tile - and lossless – 125Mb/tile) as well as regional mosaics. These steps have been slowed by the various problems with the images. So, while we are disappointed that it is taking so long to obtain and distribute the final imagery, we are confident that we will soon deliver a next-generation base map and other products that will be as accurate and “good looking” as its predecessors while providing more information.

## Mapping Under the Golden Dome

MassGIS has developed a Senate and House district viewer, which allows Legislators to add a URL to their Web sites that will open an on-line map browser hosted at MassGIS. A visitor to a Legislator's website will click on the URL and then a separate window opens to a standard MassGIS viewer that is centered on the legislator's district; the viewer shows ortho images, district boundaries and roads, and contains labels for the name of the Legislator and the district. The user can use all of the standard tools to zoom and pan anywhere in the State. [Check out this sample district.](#)

## Database Updates

- **State House District Layer Updated - 4/25/2006**  
The [Massachusetts House Legislative Districts](#) layer has been updated for attribute edits.
- **DEP Solid Waste Facilities Updated - 3/30/2006**  
Updates include: 76 polygons added, 5 polygons deleted, 140 refined polygons, and 54 attribute records edited. See the [Datalayer Description](#) for details.
- **DEP Wetlands (1:12,000) Data Updated - 3/16/2006**  
Data have been added and updated (as of March 1, 2006) to the Chicopee, Connecticut, Deerfield, Hoosic, Housatonic and Westfield watersheds. For more information, please see the [Datalayer Description](#) and, for areas with completed data development, the [Status Map](#).
- **[Title 5 Layer Updated](#) - 3/16/06**  
Tiles for the Chicopee, Connecticut, Deerfield, Hoosic, Housatonic and Westfield watersheds were modified to reflect updates to the DEP Wetlands (1:12,000) layer.
- **New [Public Utility Service Providers](#) Layer - 3/13/2006**  
Changes include setting Belmont to 'KeySpan' and Millville to 'None' for Natural Gas providers. This data table, initially released in January and which may be joined to community boundary polygon layers, contains the public Electric, Natural Gas, and Cable utility providers for each Massachusetts municipality.
- **C21e Layer Updated - 2/23/2006**  
The DEP GIS Group has updated the [Tier Classified Chapter 21E Sites](#) datalayer. 115 sites were added and 217 sites were removed. There were 15 RTN changes due to a DEP regional boundary shift in the Western and Central Regions.
- **[MassDEP Oil and/or Hazardous Material Sites with Activity and Use Limitations \(AUL\) Layer Updated](#) - 2/23/2006**  
Minor edits were made in conjunction with the Tier Classified Chapter 21E Sites datalayer. This statewide point dataset, released in November, 2005, contains the approximate location of oil or hazardous material release/disposal sites where an AUL has been filed. An AUL provides notice of the presence of oil and/or hazardous

material contamination remaining at the location after a cleanup has been conducted pursuant to Chapter 21E and the MCP. The sites mapped in this datalayer represent only a subset of the total reported release sites tracked by MassDEP BWSC.

### **Website News**

- [February 22, 2006, MGIC Meeting Presentations Now Online](#) - 2/28/2006  
Full PowerPoint presentations are available from the February 22 meeting on "The Challenges to Mapping in the Marine Environment".
- [Digital Parcel Grants Program](#) - 3/10/2006  
MassGIS is pleased to announce grant awards for parcel data development in Plymouth and Bristol Counties.
- [2005 Orthophoto Browser](#)  
The new 2005 orthophotos (where they are available) can be seen in an HTML viewer.

### **Open Space Corner**

Greetings Open Space Users!

More edits, more editing. OpenSpace is always improving. Extensive updates to Newbury were completed (available online in the next week) with special thanks to MVPC (Merrimack Valley Planning Commission), ECGB (Essex County Greenbelt Alliance) and our own Department of Fish and Game (DFG). This town was a bear to revise as there are major conflicts in the title records due to the massive Federal acquisition program predating WWII and subsequent buyback to landowners. More revisions to come from DFG this summer, but OpenSpace looks much better now. Many other edits were completed across the state including Conservation Restrictions and coastal lands in Buzzards Bay for the CZM Coast Guide.

The NEARC meeting at Smith College a few weeks ago gave me a chance to showcase the initiative with DCS to streamline its data entry and tracking process. Naturally, my goal for the program is to improve the process of getting DCS projects entered into OpenSpace. Where previously it could take years to get a parcel into OpenSpace, we managed to get a CR into OpenSpace in just over two weeks from its being recorded at the registry! We'll see how well it operates for the upcoming grant season for DCS that just opened for the Self-Help/Urban Self-Help programs.

Editing of OpenSpace is on a weeklong hiatus as I revise and improve the data schema. This involves sub-typing arcs, revising topology rules, improving domains and lots of other little tweaks to the data. These changes will be available in about two weeks.

Did you see something in our Open Space data that isn't quite right? Let me know so I can fix it. If you need help in submitting a revision and/or addition, I'll aid you any way I can.

Spring is in the air – Enjoy it!

Scott Costello, MassGIS Open Space Coordinator, [scott.costello@state.ma.us](mailto:scott.costello@state.ma.us), 617-626-1076.

## **New MassGIS Staff**

MassGIS welcomes two new staff members, Gregory Booma and Sean Sweeney. They are filling positions funded under an arrangement with the Statewide Emergency Telecommunications Board (E911). Greg and Sean will be working on finding street data omissions and mistakes, thus increasing the accuracy of the NAVTEQ street and address data, which is licensed for use by any political subdivision of the Commonwealth.

Greg's previous job was as a Research Associate in the Earth Institute at Columbia University, where he developed and analyzed data for large-scale population-environment research initiatives. Prior to that he worked as a GIS Specialist at USGS Woods Hole and worked on natural hazards and terrestrial carbon cycle projects. He holds a Master's degree in regional planning from the University of North Carolina at Chapel Hill.

Sean comes to us from Tighe & Bond, where he worked in the municipal utilities mapping division. He holds a master's degree in computer engineering from Rensselaer and a graduate certificate in GIS from Northeastern, where he teaches night classes and continues his studies. When not at work he likes to hike, camp, run, or anything else that gets him outside.

## **Events and Announcements**

### **Biodiversity Days** – June 3-11

MassGIS is again supporting Biodiversity Days (formerly an EOE A program, now managed by the MACC). MassGIS maintains the database and website and has recently integrated web mapping services into the site. The events this year (the sixth year of activities) will take place June 3 – 11

In addition, result lists and maps can be pulled from the database at this [Web page](#).

**New England GIS Conference** - May 9 & 10, 2006, Sheraton Ferncroft, Danvers, MA  
NEGIS is the largest vendor-neutral gathering of GIS professionals in New England. Besides the strong program, there will also be over 40 exhibitors and opportunities for hands-on equipment testing. Several MassGIS Staff will be making presentations:

Tuesday May 9th:

2-3:30 – “The Trials and Tribulations of Field Data Collection” - Philip John

2-3:30 – “Developments in Web Mapping, Open Source Software, and Standards” - Saul Farber

Wednesday May 10th:

9-10:30 – “State of the States” - Christian Jacqz

11-12 – “Fundamentals of Database Design and File Organization in SDE” - Scott Costello

11-12 – “The MassGIS Standard for Digital Plan Submission to Municipalities” - Neil MacGaffey  
12-2 – Hands-On Demo of MassGIS' Web-site - Aleda Freeman

Our friends at Baystate Health's Health Geographics Program have recently published a white paper that might be of interest to you, titled "[Making the Case for an Interoperable, Multi-scale Hospital/Healthcare Knowledge Domain](#)".

We frequently receive requests from people eager to take some GIS courses. Many of the major colleges and Universities have programs, and there are several companies that provide training. We will publish links to specific programs upon request, here is one such link for [Boston University's Corporate Education Center](#).

---

Any comments or suggestions about the GISette are welcomed; email [paul.nutting@state.ma.us](mailto:paul.nutting@state.ma.us).

MassGIS-The Commonwealth's Office of Geographic and Environmental Information is located within the Executive Office of Environmental Affairs and is charged with the collection, enhancement, storage and dissemination of the Commonwealth's geographic data.

**Massachusetts Geographic Information System (MassGIS)**  
**251 Causeway St., Suite 500**  
**Boston, MA 02114**

Phone: (617) 626-1000  
Fax: (617) 626-1249



Christian Jacqz, Director  
Stephen R. Pritchard, Secretary  
Kerry Healey, Lt. Governor  
Mitt Romney, Governor



Office of  
Geographic and  
Environmental  
Information

Massachusetts Executive Office of Environmental Affairs - 2006

