Historic Aerial Images and Maps

Meeting
Maryland State Archives
Annapolis, MD
December 15, 2010

MINUTES

Attendance
Contact information for the 30 people who attended the meeting is in Appendix 1.

Introductions
All present introduced themselves, stating their interest in attending the meeting, their agency's holdings, and the services they might be able to contribute to the effort.

Expectations/interests of attendees:
Inventory:
- Learn about what other agencies hold – survey/inventory of what is out there
- Capture more aerial imagery of Maryland state-owned properties

Access:
- Make images widely available to the public by putting technology to work
- Overcome the difficulty of finding old aerial photos of good quality
- Replace photos battered by handling and use; improve the scanned images of battered photos
- Create a one-stop shop, for example, at the Maryland State Archives (MSA), where aerial photos for the entire state would be available
- Expand GIS systems (e.g., StateStat) to include historical information

Preservation:
- Recognize the value of the aerial photos, and the value of keeping them permanently archived
- Preserve old records of permanent value in the possession of state and local government agencies; interest in "every aspect of how to document land, the possession of land, and how it has changed over time"
- Improve the storage conditions of certain agency-held collections
- Provide guidance in scanning/archiving/sharing

Funding:
- Use funds more effectively – certain agencies invest a great deal of time and money in acquisition; possibility of economies of scale
- Find funding sources for scanning – sharing the (very expensive) costs of preservation; limited resources; technological difficulties (e.g., scanning rolls of negatives)

Cooperation:
- Coordinate efforts
- Meld current agency efforts with larger effort
- Discover what various agencies represented on the Committee might be able to contribute
  - USDA – Maryland office – usually fly leaf-on for farming and conservation programs; possible funding source; APFO has a catalog for all aerial photos for every state in US
- Avoid duplication of effort when it comes to scanning and georeferencing photos, and funding those activities
- Pursue private-public partnerships (e.g., to rescue/acquire and preserve privately-held collections of historical aerial photographs)
- Explore the possibility of acquiring digital images of photos directly from the U.S. Department of Agriculture (USDA)

General:
- Improve outcomes of this committee, compared to the previous committee
- Develop strategies for handling photos as go forward

Current users and uses to which air photos are put:
- MSA – uses aerial photos in conjunction with historical title searches to understand the lay of the land from an aerial standpoint
- MDP – tracking historical change over time, statewide
- County departments of planning
- Private land planning group – used for titles and land patents
- Understanding land use and the built environment, particularly in the 1930s and 1950s
- Use of 1970s aerial photos to relocate former archeological sites
- Maryland Port Admin. – forensic work
- Litigation (e.g., court cases having to do with building sewers in Baltimore City)
- For GIS users, feature extraction based not only on recent photography, but on historical as well
- Land use/land cover mapping
- Important in documenting the land, the history/possession of the land

What should be included as "historic" "aerial" photos:
- Traditional 9" x 9" photos
- Ground-shot photos, which show what is happening in the background; can be used in 3-D modeling, in addition to aerials
- Keep in mind that as soon as a photo is flown, it is, by the very nature of time, "historic"

Expertise of attendees:
- Logistics

- Labor
- Familiarity with vendors (e.g., Air Photographics, a company in West Virginia that still flies film)
- Catalog management (e.g., new ways of cataloging large collections, avoiding item-by-item data entry, employed by MSA)
- Negotiating private-public partnerships
- Familiarity with Web technology
- Familiarity with archiving practices

<u>Beginnings of an inventory:</u>
Based on the reports of attendees, the Committee is now aware of certain holdings of aerial imagery, as reported in Table 1.

Table 1: Who has what…the start of an inventory of aerial imagery		
Area	**Representative**	**Holdings**
COUNTY-WIDE		
Anne Arundel County	Eric Wilson	Aerial photos, going back to 1950s; scanned and indexed, but not georeferenced
Baltimore City & County	Jim Gillispie	1937-38 and 1952-53 aerial photos from Maryland Geological Survey (MGS) collection, scanned and accessible to public through Johns Hopkins University website, JScholarship; interested in scanning more of the MGS collection
Calvert County	Eric Benson	15 years of aerials, going back to 1938
Howard County	Jeff Hobbs	large collection of historical aerial photos
Kent County	Stewart Bruce	processing photos
Queen Anne's County		
STATEWIDE		
Maryland Department of Planning	Jim Cannistra	
State Highway Administration/Maryland Environmental Service	Larry Swift	1980s leaf-on aerial photos held by Maryland State Highway Administration; scanned and georeferenced by Maryland Environmental Service
Maryland Environmental Trust	Jon Chapman	25 years of exhibits having to do with conservation easements – NAPP photos with easement boundaries transposed on them; scanned
Maryland Geological Survey	Lamere Hennessee	~20,000 9"x9" aerial photos for six time periods, beginning in 1937-1938; SHA tourist maps
Maryland Port Administration	Patricia Gaynor Justin Wilk	Baltimore Harbor and shoreline; historical imagery dating back to 1918

Maryland State Archives	Rob Schoeberlein	~500 canisters of negatives, dating from ~1960-1990

<u>Overview of Efforts to Date</u>
In September 2008, Larry Swift convened a similar meeting, hoping to galvanize attendees into inventorying their collections of aerial photographs. The outcome was disappointing; few people made an effort to catalog their collections, and the group did not met again. Since then, a few agencies have acted independently to catalog their holdings and, in some cases, make digital versions available over the Internet. In one such effort, the Maryland Environmental Service scanned and georeferenced 1980s aerial photos held by the State Highway Administration.

Recently, the Maryland Geological Survey (MGS) has been awarded several federal grants to preserve its geological collections, including a collection of ~20,000 aerial photos dating from 1937-1938. As part of this data preservation effort, MGS established an advisory panel to help prioritize documentation and disposition of the Survey's collections. This year, panel members were unanimous in their recommendation that MGS pursue funding to create item metadata for part of its aerial photo collection. Documentation entails describing each aerial photo, including its geographic coordinates. The panel chair, Tim Baker, also suggested that the Survey contact Larry Swift, which led, in part, to the revival of this Committee.

Richard Richardson and Rob Schoeberlein of MSA spoke briefly about how MSA tracks its government records and special collections, respectively. In terms of government records, MSA has a sizable collection of non-electronic photographic prints from the Maryland Department of Natural Resources (DNR), available upon patron request. From the Archives website, querying the Guide to Government Records (keywords: "aerial" or "photograph" or "ortho") produces a list of all of the state and county agencies that have generated photos over the years, but not the images themselves.

In a private-public partnership, MSA recently completed negotiations with Photo Science to acquire a collection of 400-500 canisters of negatives from flights throughout the region (mainly Maryland (all counties), but also Virginia, Pennsylvania, and Ohio). Canisters are labeled with the general location of the flight. In terms of access, users view the rolls using a light table, with the option of making a contact print. Digitizing and georeferencing these images would be a difficult undertaking or, if a private photogrammetric firm were hired to produce 9" x 9" images from the negatives, an expensive one.

The Archives' Marion E. Warren collection of 4" x 5" negatives is another source of oblique photographic images, consisting of ~40,000 items. Many of these are views of institutions, buildings, and industrial sites shot from helicopter in the 1970s. The negatives are currently indexed at the box level, not the item level, and so would require searching for images of interest.

One of MSA's biggest concerns is that many government agencies that create GIS data tend to keep only the most recent version of that data; older versions are lost to posterity. Alternatively, the data are stored on obsolete media, like laser disk, which are difficult or impossible to read. MSA has established mirrored sites at Annapolis and UMBC (networkMaryland) which are media agnostic, in the hopes of ensuring that data are transmittable into the future. Questions arose as to the amount of space digital aerial imagery would occupy, how this work might fit in with Maryland iMap

Inventory of Aerial Photos
The Committee's first undertaking will be an inventory of aerial photos held by state, county, and local agencies, as well as by private companies. To that end, a subcommittee will meet to develop an easy-to-complete, high-level inventory form and use Survey Monkey to conduct the survey. The Committee members who volunteered to serve on this subcommittee are shown on the contact sheet in Appendix 1. Some agencies, such as the Maryland State Archives, have already conducted such a survey. It would be useful to have access to those forms.

At a minimum, the survey should collect information about the following:
- Status of collection – photos only, scanned photos, georeferenced photos, photos available on Web
- Areas covered by collection (county-level, as well as localized subsets, such as watersheds or the 1960 photos flown by NRCS over Germantown)
- Dates of collection – time of year (leaf off/on)
- Format of photos – 9"x9", film negatives, glass slides; contact prints; large contact prints; historical satellite imagery from 1960s onward
- Information about the flight (e.g., altitude of flight; camera settings; sensors, in the case of remote sensing, such as visible light vs. infrared)
- Quality/condition of photos
- Uses made of collection (will help garner funding for various phases of making photos available online as digital, georeferenced images)
- Existing standards (e.g., for inventorying photos, for tracking, for scanning – dpi, for preserving)
- Is there an existing catalog or index (e.g., of rolls of film); without this, rolls of negatives not as useful – need to scroll through rolls to find area of interest; in many cases, an index, vs. georeferencing, is adequate – someone familiar with the area can locate the area of interest; costly to georeference maps
- Are the images georeferenced?
- Are you willing/able to share your photography?
- Consider including an inventory of resources as well as photographs, e.g., storage resources, human resources

Who should receive the survey?
- All county planning departments
- Committee members
- MSGIC members

<u>Timetable for the survey</u>
The next quarterly meeting of the Maryland State Geographic Information Committee (MSGIC) is scheduled for January 26, 2011 at the U.S. Geological Survey office in Catonsville. Ideally, the survey will be ready for distribution at that meeting. (The first meeting of the subcommittee formed to develop the survey is scheduled for January 6, 2011 at 1:00 p.m. at MSA.) By the following quarterly MSGIC meeting in April 2011, the results of the inventory will be compiled and presented. The results should lead the Committee to the next step – what is needed to develop a search engine?

Other Issues
In a discussion of the desirability of georeferenced images, while everyone agreed that georeferenced images were ideal, the group also acknowledged that creating such a product was a very expensive undertaking. At a minimum, the images should be indexed in some fashion, such as a georeferenced index map or by a list of place names within a county. Otherwise a canister of negatives is no more than that. If they can find the digital images they need, users can always georeference them themselves and, ideally, upload the georeferencing for others to use.

The Committee should explore and learn from the work of other states (e.g., Pennsylvania Pilot Project through Penn State Univ.) and of the Maryland counties and state agencies that have already posted digital imagery online. Google Map applications are one avenue to make imagery available online.

<u>Action Items</u>:
<u>All Committee Members</u>
- For agencies that already make their photos available over the Internet and wish to advertise the fact, give Larry Swift a link to your page, so that he can post them to a Committee website
- Provide Larry Swift with thoughts/items to be included in the survey of agencies holding aerial imagery
- Similarly, if your agency has already conducted an inventory of your aerial imagery, provide Larry Swift with the questions used in that inventory.

<u>Inventory Subcommittee</u>
- By January 26, 2011, develop a survey instrument to be used by MSGIC members and others to inventory their collections of aerial photos. Launch the survey at the MSGIC meeting scheduled for that date.

<u>Larry Swift, Tim Baker, Gretta Luedeke</u>
- Explore acquiring digital aerial photos directly from USDA. (The two earliest collections have been transferred to the National Archives.)

<u>Tim Baker</u>
- Post meeting minutes, including contact list of attendees, on MappingMaryland.net website

APPENDIX 1
Meeting Attendance
December 15, 2010

Survey Committee	Name	Organization	Phone	E-mail
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