

# AERIAL MAPPING 2007



Supplement to

PROFESSIONAL

**SURVEYOR**  
*Magazine*



# Half Century of Aerial Mapping

WENDY FALLON

**B**ill Landis has had a unique relationship with the aerial photography industry, formed mainly just by growing up as a Landis. As the son of Jerry Landis, aerial photography pioneer since 1958, Bill was introduced to the family business before the age of five, when his father took him on photo shoots over Phoenix, Arizona. This has given the younger Landis a lifelong historical perspective on the field.

"When my father started Landis Aerial Surveys back in 1958, Jerry flew a Luscombe, a small two seat aircraft similar to a Piper Cub," Bill recalls. Jerry removed the door and seat and then mounted the camera on two rails that projected out the side of the aircraft. When arriving at the target area, he pushed the camera outside of the plane, shot the picture, and then pulled it back in. Eventually, he moved into a traditional vertical camera configuration, with a lens fitting through a hole cut in the bottom of the aircraft. Still, Jerry always had one hand on the yoke and the other rotating the camera to compensate for the airplane's crab as he flew flight lines.

The actual processing for the photography was no less intensive. A negative was placed into an enlarger that projected the image onto photographic paper, which was then bathed in chemicals in a dark room to produce the finished photo. Each photo was developed by hand. If a customer needed 20 prints, the lab had to hand-develop and print the photo 20 times.

Creating seamless coverage areas with the appropriate projection required another level of craftsmanship. As a solution, Jerry used a "tip and tilt" table consisting of small hand cranked jacks and a piece of plywood. He would carefully adjust these cranks and the enlarger until the projected photography matched a USGS topographic map taped to the plywood.

This process took time and care. A single metropolitan coverage often required Jerry and staff to repeat this process several hundred times. Additionally, the tonal balance between each photo was done by hand as well. "We combined the length of time you exposed the photographic paper to light with blocking out some of the light by dancing your hands around between the lens of the enlarger and the photographic paper," Bill says. The process

of communication of geographic ideas without distraction...this was and still is a primary expectation from imagery providers."

Taking quality aerial photography and effectively integrating it into cartographic and GIS applications was another source of learning for Bill Landis. In 1998, he began a six-year term as the director of mapping with CB Richard Ellis, the world's largest commercial real estate brokerage and services



*Bill Landis, president of Aerials Express*

is called "dodging and burning," and with practice, even a 200-photo mural looked as if it came from a single shot. "Not necessarily Ansel Adams," jokes Bill, "but the process certainly required patience and a sense of aesthetic."

Maintaining visual quality was important to clients. "People expect to experience the big picture with aerial photography," Bill explains. "This requires special attention to visual aesthetics. Quality imagery, uninterrupted balanced imagery, supports the com-

firm. While at CBRE, he created a centralized mapping facility that employed 40 mappers creating maps and aerials for the company's 2,500 U.S. brokers.

"My time at CBRE shaped my understanding of what professionals need from aerials and how they use them in business," Bill explains. "I made hundreds of presentations touting the sophisticated capabilities of GIS, including thematics, demographics, cluster modeling, contouring, and regression analysis as well as aerial photography.

# Brings a Unique Perspective

Nonetheless, the overwhelming majority of the requests from our offices were for basic site location maps. Despite all of the cartographic magic we could do, people want dots on a street map or an aerial photograph, nothing more. That was an important lesson I learned early and continue to preach today—keep it simple.”

“For twenty years, the GIS/mapping industry has prophesized that mapping would become as mainstream an application as word processing or spreadsheet software,” says Bill. MapQuest brought simple mapping functionality to the masses a decade ago. The appeal of MapQuest and similar websites is based on their simplicity. Users and developers have embraced mapping in an ever expanding range of applications because of the ease with which they can be used and incorporated into a website or solution.

Bill continues, “The Internet has increased the access to aerial photography by all market segments exponentially. Just two or three years ago only government agencies, engineers or large commercial firms could afford and access aerials as a resource. The free distribution of virtual globes like Google Earth in 2005 brought access to a world of high-resolution aerial photography and a true geographical information system (GIS) in the hands of every person. Granted it was not to the level of sophistication of what many of us use, but I recall one client telling me ‘I would like to be able to make my own maps without having a degree from MIT to do it,’ and virtual globes fit that requirement. It exposed a large population to aerial imagery and to a new way of looking at our world.

Oddly enough for Aerials Express, with the introduction of free imagery came an exponential increase in revenues. The new aerial resources met many of the needs of consumers but failed to deliver what the professional market required. As Bill explains, “In the 1970s my father began flying Phoenix

once a quarter to keep pace with new development, and that currency fueled the demand for his product. For 50 years, our business model has been founded on delivering current imagery.”

As he contemplates the future of his industry, and his company, Bill sees a number of forces at work that will shape things to come. “Industry consolidation will be a significant reality for the rest of the decade. Satellite operators and their customers are learning that satellites cannot fully meet the imagery needs of the marketplace. Similarly, the vast number of local aerial photography and mapping companies are going to find it increasingly difficult to compete with national players offering low-cost solu-

*“The Internet has increased the access to aerial photography by all market segments exponentially.”*

tions delivered across the Internet using proprietary platforms.”

The changing forces of technology are another factor. “The cost to compete in the near term will rise significantly without a significant increase in revenue,” continues Landis. “Much as the television industry has been forced to invest in HD technology without being able to charge consumers more for their capital expenditures, aerial photography firms that have traditionally used film will have to invest in digital cameras to compete. But they will have a difficult time getting customers to swallow higher prices.”

Landis points to their purchase of a Cessna 421 Golden Eagle equipped with a Leica ADS40 Airborne Digital Sensor. Based in Nashville, Tennessee, this “low altitude satellite” as Bill

calls it, is within a four-hour flight of every U.S. city east of Denver, Colorado. “Aerials Express was fortunate to be in the position in 2005 to invest in the latest technology. We chose to forgo short-term profits to gain experience in digital sensor technology and are now benefiting from the decision.”

Landis believes the current mapping race by the online portals will be short-lived as profits from their efforts fail to materialize in 2007 and 2008. “GIS is enormously expensive, and once you venture past dot maps, your consumer base narrows quickly while the data and developments costs skyrocket. There are two competing approaches to data acquisition by the dominant players in the online mapping market. Some are taking the traditional route of collecting and processing content themselves. While this guarantees some exclusivity it is a costly endeavor that has no record of profitability. Others are taking the community approach similar to eBay, Wikipedia, and YouTube. This model provides the basic tools, platform, and rules for creating content, then allowing users to add the data they deem valuable. While the latter does not have a record of profitability, it has created growing community as commercial and non-commercial users add ever increasing content to a standardized platform.”

Over the past fifty years, aerial imagery has moved from an exclusive, specialized art form to a highly accessible standard for mapping applications. If the past five decades are any measure, the production and use of aerial photography will continue to evolve at a significant pace. As Bill Landis suggests, “we still have only begun to see the potential of aerial imagery. Expect to see major inroads with the cell phone and navigation system industries within the near future along with improved currency, quality, and resolution.” □

**WENDY FALLON** is a Chandler, Arizona-based journalist.

7855 S. River Parkway, Suite 205, Tempe, AZ 85284  
 480-777-9909 • 888-482-2336 • Fax: 480-777-9966  
 info@Aerials-Express.com • www.Aerials-Express.com  
 Contact: Merle Miller, National Sales



**A**erials Express imagery is the GIS foundation used by surveyors, government entities, homebuilders, land developers, brokers and mapping professionals across the country. The Aerials Express solution starts with maintaining the most aggressive image acquisition schedule in the industry. We photographed over 276,000 square miles of US metros in 2006 and are scheduled to fly over 300,000 square miles in 2007. We provide affordable high-resolution color aerial images produced using the latest imagery collection technology. The imagery is color balanced producing exceptional print quality and ortho-rectified making it geographically accurate to USGS standards. The final product is delivered to clients through the Internet, on CD/DVD or hard drive, in a single seamless image covering an entire metropolitan area.

Aerials Express employs advanced image serving technology that delivers our photography directly into ArcExplorer™, MapGuide™, Skyline Globe™, Google Earth™ and Virtual Earth™. Additionally, our imagery can be utilized in desktop applications from ESRI™, AutoDesk™, MapInfo™ or with AEView™, our exclusive mapping software packaged free of charge with your imagery purchase.

AEView provides clients with research tools enabling them to search by address and view specific data for selected areas. Additional tools allow the use of custom decoration including radius rings, text, point symbols, lines and polygons to allow the user to print everything from letter sized maps to large poster presentations. AEView gives clients the capability to overlay their own data in Shape format or data available from Aerials Express, such as street centerlines, general plans, parcel data (where available) and elevation contours. Additionally, AEView gives clients the ability to accurately measure distance and area, query spatially, and batch geocode multiple addresses.

Aerials Express operates a Cessna 421 equipped with a Leica ADS40 Airborne Digital Sensor allowing us to capture **"Every City, Every Year."** Using this advanced digital technology, imagery is collected in true color and infra red simultaneously, and offered at 1.5 foot to 6 inch resolutions. Through the use of innovative technology, Aerials Express is committed to providing clients with the solutions they need, at a price all can afford. □

### 1967: Aerials Express founder Jerry Landis reviewing new company aircraft with CEO Bill Landis



Jerry Landis began shooting aerial photography over the modest desert city of Phoenix, Arizona back in 1957. It was not long after that Phoenix blossomed into the nation's fastest growing real estate market and Jerry's imagery became the quintessential resource for the booming development sector. Through the 70's and 80's he continued to push forward, successfully expanding into new metropolitan markets across the country and started his son Bill's career working summers at the office. Jerry and Bill's long-term customer relationships taught them that current imagery was necessary for clients to make informed decisions while quality allowed them to professionally communicate their ideas to others.

Today, the Landis' have instilled 50 years of knowledge and dedication into Aerials Express. Representing an unparalleled commitment to current imagery, Aerials Express photographs 300,000 square miles annually with the objective of flying "Every City, Every Year".

Our customers have come to expect the best aerial imagery along with the tools to effectively incorporate it into their businesses. We invite you to visit [www.aerials-express.com](http://www.aerials-express.com) and put the experience of Aerials Express to work for you.

*Experience*

IS THE FOUNDATION OF OUR COMMITMENT  
TO CURRENCY AND QUALITY

Aerials Express LLC | 7855 S. River Parkway | Suite 205 | Tempe, AZ 85284 | 888-482-2336 | [info@aerials-express.com](mailto:info@aerials-express.com) | [www.aerials-express.com](http://www.aerials-express.com)

Copyright © 2007 Aerials Express, LLC. All Rights Reserved.