U.S. Department of Agriculture, Farm Service Agency

Aerial Photography Field Office

USDA Farm Service Agency

APFO

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supporting the American Farmer and Rancher

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Agriculture is a vital sector of the U.S. economy. Every American benefits from a strong U.S. agricultural industry that provides the abundant food and fiber supply necessary to sustain a stable and prosperous country. The Farm Service Agency (FSA) of the U.S. Department of Agriculture (USDA) plays a critical role in maintain that strength. The Aerial Photography Field Office (APFO) supports the missions of the USDA and the FSA through various aerial imagery acquisitions and analysis programs.

One of the most successful agriculture information tools is the mass application of aerial photography. Pioneered in 1935 using hot air balloons, the original units combined two synchronized cameras, and each camera had five 6" lenses and took photos from 23,000 feet. Each photo captures 225 square miles. One of the first government contracts was an aerial survey of New Mexico to study soil erosion.

Through decades of development, USDA now acquires imagery with ground resolution at or below 1 meter. Many of APFO services such as Production, Quality Assurance and Geospatial Support Services are sought after and used by numerous agencies both within and outside the USDA. This underscores APFO's commitment to support the American Farmer and Rancher with relevant and up to date services while it also supports the USDA's Strategic Goals of supporting productive farms and ranches, supporting secure and affordable foods and fiber and conserving natural resources and enhancing the environment.

An American flag created on the landscape of a farm during the Dust Bowl days.

Office of the Director

Imagery and Geospatial Services for FSA

Since 1977 APFO has been supporting the USDA Strategic Mission by providing aerial imagery in support of the American Farmer and Rancher. Housing one of the largest collections of historical aerial imagery APFO can tell the story of American Agriculture dating back to 1954. But it is not all about the past, through our Geospatial Services we can tell you about what is happening to America's farmland today.

Aerial imagery programs managed by APFO provide up-to-date land use information, allow for accurate acreage measurements, and help maintain integrity in FSA programs. Imagery acquired by FSA is used by other federal agencies, commercial entities, state government and the general public. APFO is organized around our mission of acquiring and providing imagery to FSA. The staff includes experts in contract administration, quality assurance, photo production services, geospatial analysis and policy, data management, and data distribution. The organization is supported by an operations staff responsible for HR, facility management, security and purchasing.

APFO products can be used in a variety of ways such as cartography, land-use planning, archaeology, environmental studies, and community planning projects. APFO partners with various other federal agencies to enhance their programs and conserve valuable government resources. APFO serves the American People also, through our public ordering system (https://coes.apfo.usda.gov/index.html) where there can download images or have them printed in our Production Services Branch and mailed out through the Customer Service Center. Through these programs APFO facilitates the widest application of these wonderful technologies.

1989

2003

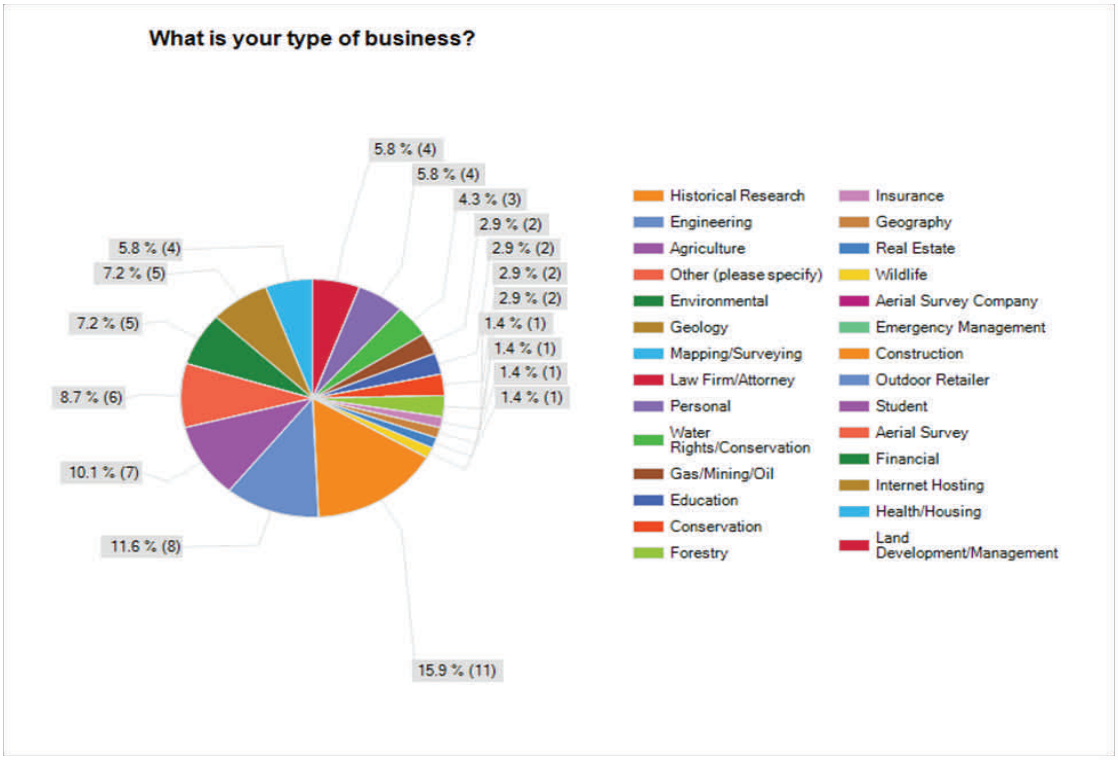
2008

Examples of Digital Imagery from APFO Image Archive with FSA CLU Boundaries

Aerial Imagery for the American People

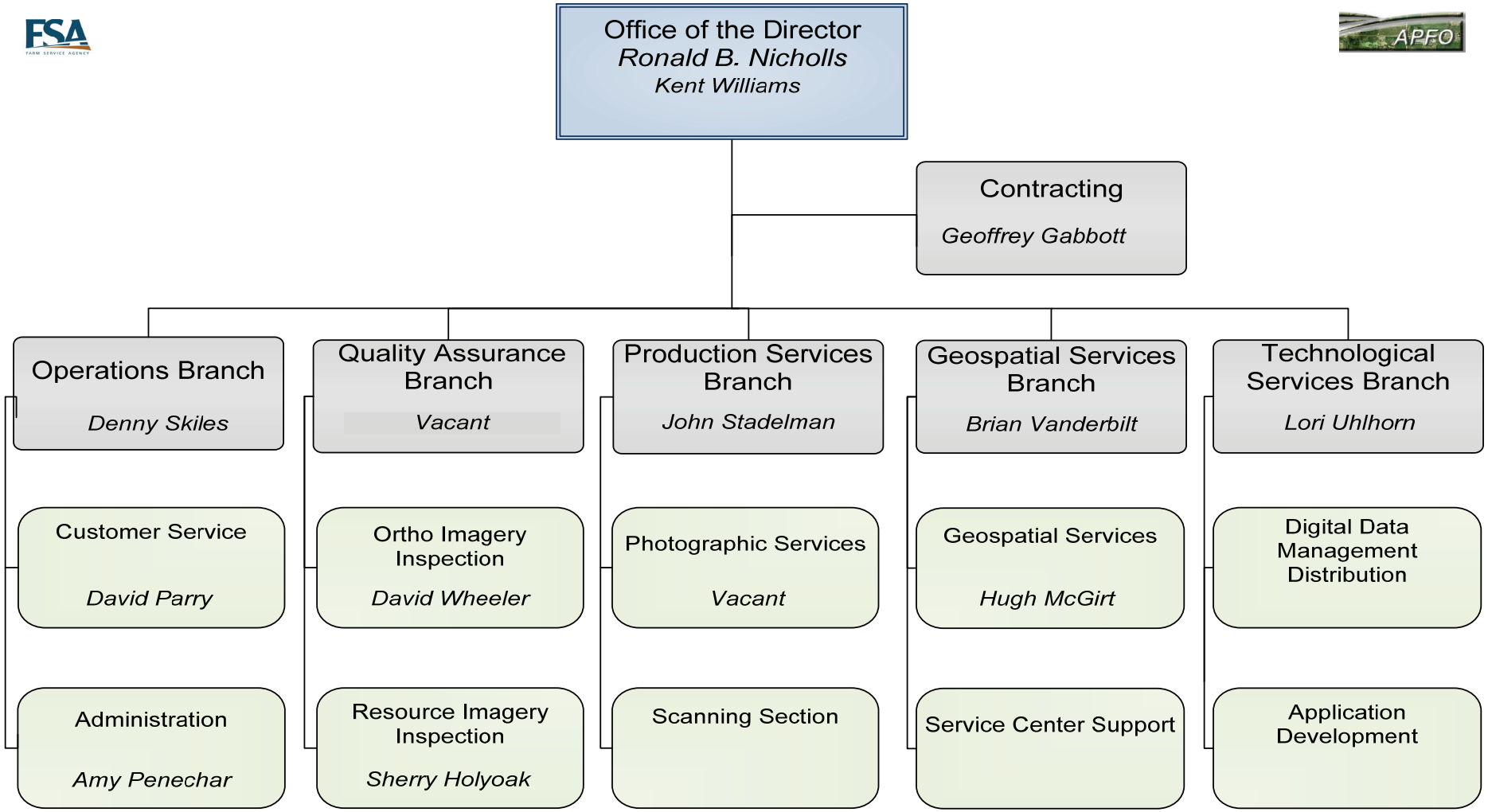
Imagery, pictures, and geo data are some of the names and formats for the images that are captured of America's farm and ranch lands. APFO has the largest collection of these images residing in a digital library containing over 8 million image files at 2.95 Terabytes, and a physical library of historical images (affectionately known as "the Vault") with 54,533 rolls of film and 83,875 photo indexes all stored in an environmentally monitored area to avoid excessive curl and brittleness or cause mold and ferrotyping. APFO's film vault exists because aerial photography has been used for over half a century in the service of the USDA Farm Programs, but has also shown its importance stretching through nearly every facet of American Life.

Imagery acquired by FSA has many uses by various sectors of the American general population. From Education to Emergency Management, Agriculture to Conservation, the uses for aerial imagery vary as much as the images themselves. This was exemplified in our 2011 Customer Survey which asked the end users themselves how they use the products APFO develops.



Office of the Director

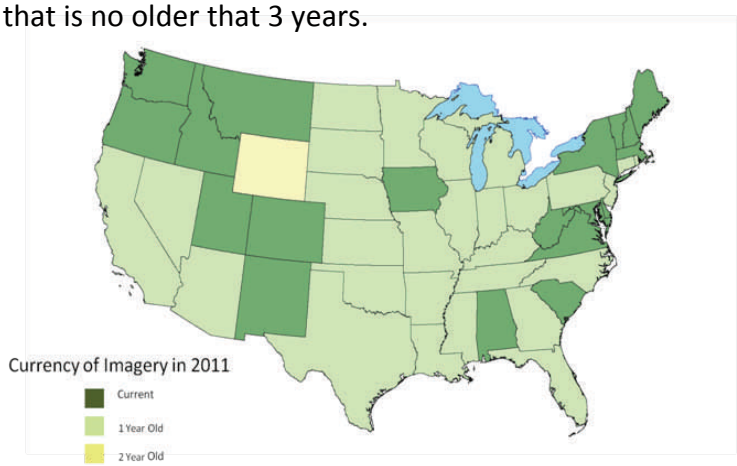
USDA – FSA Aerial Photography Field Office Salt Lake City, UT



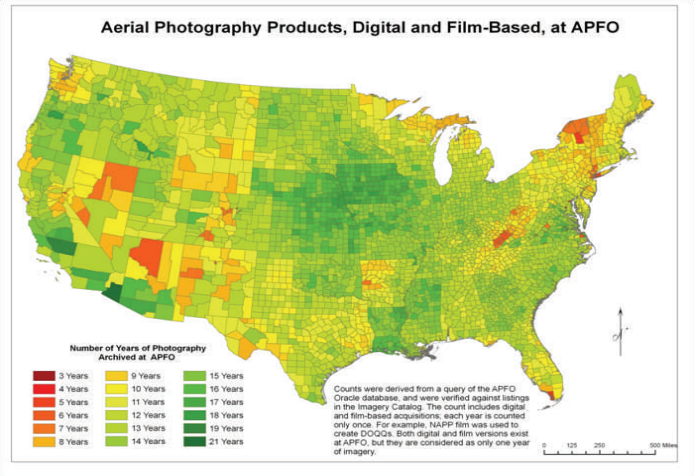
National Agriculture Imagery Program (NAIP)

Since 2003, the National Agriculture Imagery Program (NAIP) has been the primary vehicle for FSA to acquire aerial imagery. Since NAIP is primary funded by FSA, imagery is acquired to meet specific FSA needs such as collection of entire states within a single growing season, and image availability within 30 days of the growing season end. Having current imagery saves time in FSA Service Centers, shows change over time, and helps FSA keep CLU boundaries and other records current.

NAIP is funded through cost share partnerships, with FSA costs based on the percentage of agricultural land in the US (approximately 67%). Partners in other federal agencies, mainly NRCS, USDA Forest Service, and agencies within the Department of Interior, fund the remaining portion. In 2011, funding was $10.1 million from FSA, with an additional $5.6 million from partners. That amount funded imagery acquisition of 19 states, which results in all states within the Continental U.S. have imagery that is no older that 3 years.



Prior to NAIP, APFO has managed and cooperated in a number of image acquisition programs, and maintains a large film archive. Combined, the APFO archive contains digital imagery and film based photography that extends back to 1954.

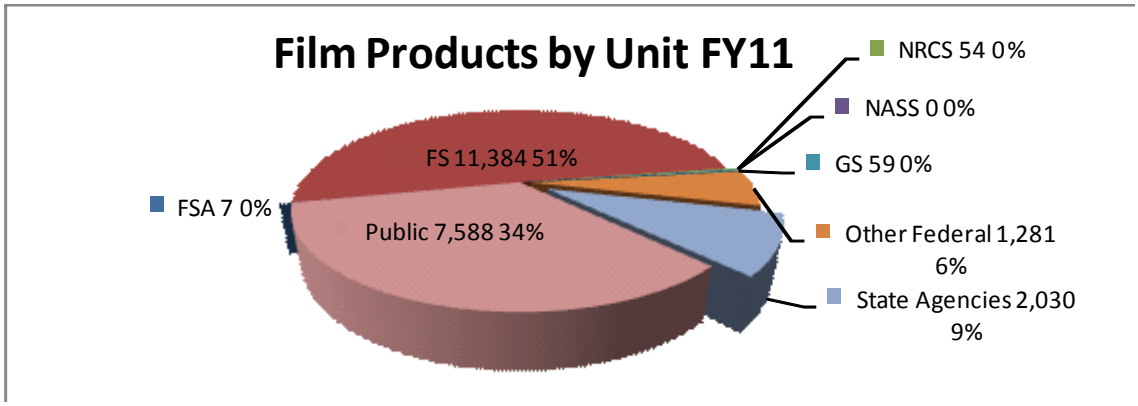


Operations

Supporting the mission that supports USDA

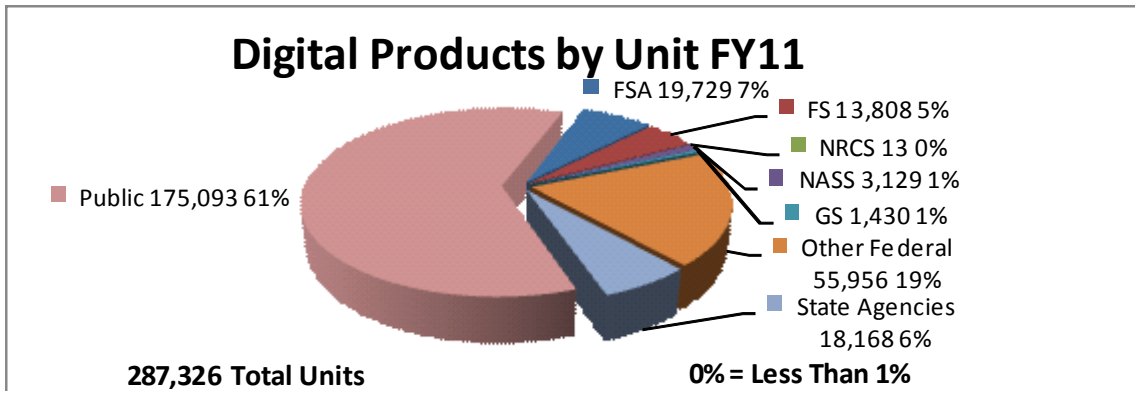
Taking care of the things that make APFO function smoothly is no small task. Under the Operations Branch are two major functions; Administration and Customer Service. The Administration Services Section provides administrative functions; facility management; maintains and tracks salaries and the expense budget; offers Human Resources management; supply property/shipping and receiving/warehouse management; various procurement actions and enforces physical security of the building.

FY 2011 was a year of substantial changes. Updates in technology systems, as well as changes in the trends for products, showed that standing still in this business is not an option. A steady increase in digital formatted products has forced some process updates in how we deliver products to customers. By comparison digital products outweighed film products 10 to 1 in FY 2011.



2011 saw many changes in the way budgetary functions were executed also. The introduction of the Financial Management Modernization Initiative (FMMI) was one way for USDA to modernize its financial systems with a state-of-the-art software package. FMMI will replace the Foundation Financial Information System (FFIS) and program financial systems as applicable. FMMI will enable APFO to be more financially accountable, transparent, and efficient.

Saving money became a major consideration in every aspect of APFO daily operations in FY 2011. From the organization wide recycling program to the reutilization of shipping supplies APFO is making every dollar count..

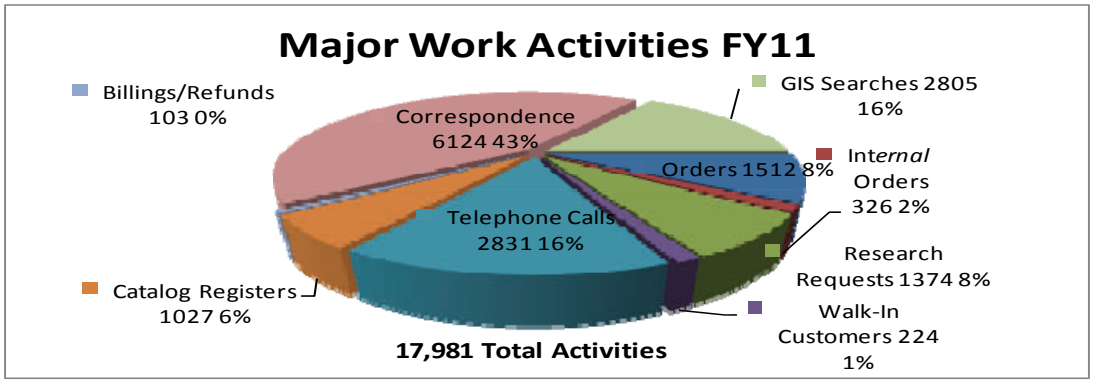


Supporting the mission that supports USDA

As a major part of the Operations Branch, the Customer Service Section (CSS) is responsible for the receipt, preparation, and releasing of work orders and coverage requests for aerial photography, digital imagery, and common land unit products and services. CSS is the liaison for the Aerial Photograph Field Office to outside government agencies and the general public.

Research is preformed utilizing Geographic Information System (GIS) tools to identify historical imagery and attributes needed for traditional and custom digital photographs. The CSS assists customers with and updates GIS content for maintaining the National Agriculture Imagery Program (NAIP) Coverage Viewer, Interactive Coverage Status Map, and downloadable quarter quad and film center shape files on the APFO website.

The most important asset we have at APFO is the employee, CSS Customer Service Representatives have consistently ranked well in satisfaction surveys because of the time they take with the customer and the level of service they provide. Each CSS representative makes themselves available as the primary source of technical information concerning USDA related aerial photography, digital imagery, and common land unit data of the United States and its territories. Additionally, CSS accounts for and reconciles funds from all government agencies and the general public while maintaining and monitoring all fiscal activity as it pertains to aerial photography and digital imagery. FY 2011 orders processed exceeded $1.2 million with digital products and service outselling film based by an average of 3 to 1. One highlight of the year came as CSS completed the **NAIP Film Center Coverage Map & Shape file** corrections which enabled thousands of NAIP images to be *accurately* identified.



Excellence through Support for Employees and the Environment

Government employees throughout the State of Utah and portions of the surrounding states are supported by APFO for their HSPD 12 requirements (ID cards). Homeland Security Presidential Directive 12 (HSPD 12) was issued on August 12, 2004 by President George W. Bush and calls for a mandatory, government-wide standard for secure and reliable forms of ID issued by the federal government to its employees and the employees of federal contractors for access to federally controlled facilities and networks. Based on this directive, USDA developed a HSPD-12 compliant ID called LincPass, and through a multi-stepped process is designed to link a persons identity to an ID credential and the credential to a person's ability to physically and logically access federally controlled buildings and information systems, respectively.

As part of the Inter-Mountain Region, APFO operates the region's largest HSPD-12 Activation and Enrollment Station. APFO LincPass Registrars assisted in over **850 transactions in FY 2011**, elevating the station to a Priority 1 Level Station, enabling regional government employees to become compliant with these standards.

Going "Green" makes good business sense. As natural resources become more scarce and costly, it benefits all of us to become more environmentally conscious. **APFO's GREEN TEAM** has implemented several sustainable practices that have made significant contributions.

- **Waste Prevention and Recycling**—employees recycled 49,350 lbs of material in FY 2011 diverting it from local landfills.

- **Acquisition and Material usage**—by purchasing refillable items and post consumer recycled items we save on waste as well as reutilizing shipping materials such as boxes and bubble wrap (this effort alone saves upwards of $1300 annually).

- **Electronic Stewardship**—through "e-certified" responsible vendors, APFO manages e-waste recycling efforts from end of lifecycle items saving countless tons of material from landfills and instead directs it to agencies that reuse the material.

- **Teleworking Program**—this initiative has many benefits for not only APFO employees (reduced transportation costs, inclement weather safety and a smaller carbon footprint) but our Wasatch Front Community as well. Among those benefits are fewer cars on the roads and less energy costs in government occupied facilities.

- **Mass Transit**—through various government and private efforts, over 25% of the APFO workforce takes part in reducing the carbon footprint.

Excellence through Support for Employees and the Environment

APFO **Contracting** is responsible for aerial imagery procurement and coordination of cost share agreements for the Farm Service Agency (FSA) and other USDA Agencies. Several national level programs are procured through the Contracting Section including the National Agriculture Imagery Program (NAIP) for FSA, USDA Service Center Agencies, and partnering agencies; the National Resource Inventory and Stewardship Lands Programs for the National Resources Conservation Service (NRCS); and the "Resource Imagery" Program for the US Forest Service.

APFO Contracting Service by the numbers:

$ 27,685229.40—Total dollar value of aerial photography % IT contracts awarded.
1,281,837—Total number of square miles of aerial photography contracted

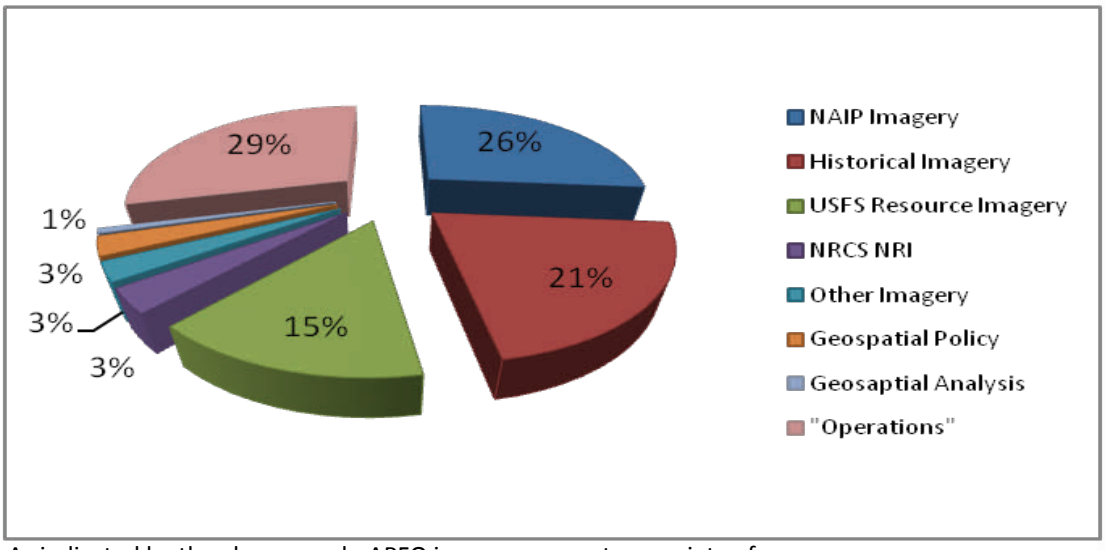
1,175,517 square miles of NAIP
91,507 square miles supporting NRCS programs
14,827 square miles of U.S. Forest Service lands

$317.061.93—Reveue generated through Administrative Fees

$266,744.38 from NRCS and $50,317.55 for the US Forest Service

30% of all contracts awarded went to small businesses.

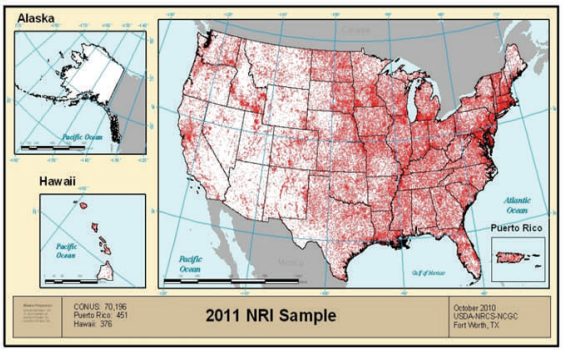
Solicited sources for procurement under a 100% set aside for Small Business Concerns were applicable. This resulted in Small Business Concerns receiving 30% of the total overall contract dollar amount, with Large Business Concerns receiving 51% and Canadian (NAFTA) Business Concerns receiving the remaining 19%.



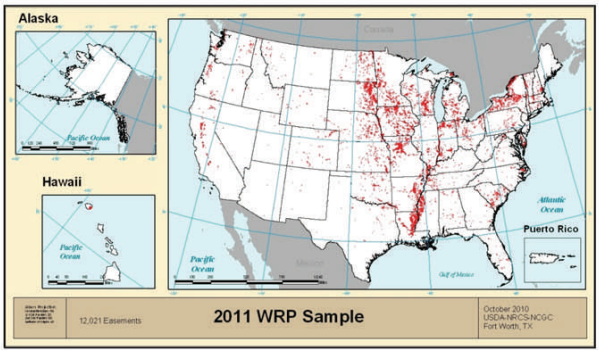
As indicated by the above graph, APFO imagery supports a variety of uses.

Contracting

National Resource Inventory (NRI) and Stewardship Lands Imagery (SLI)

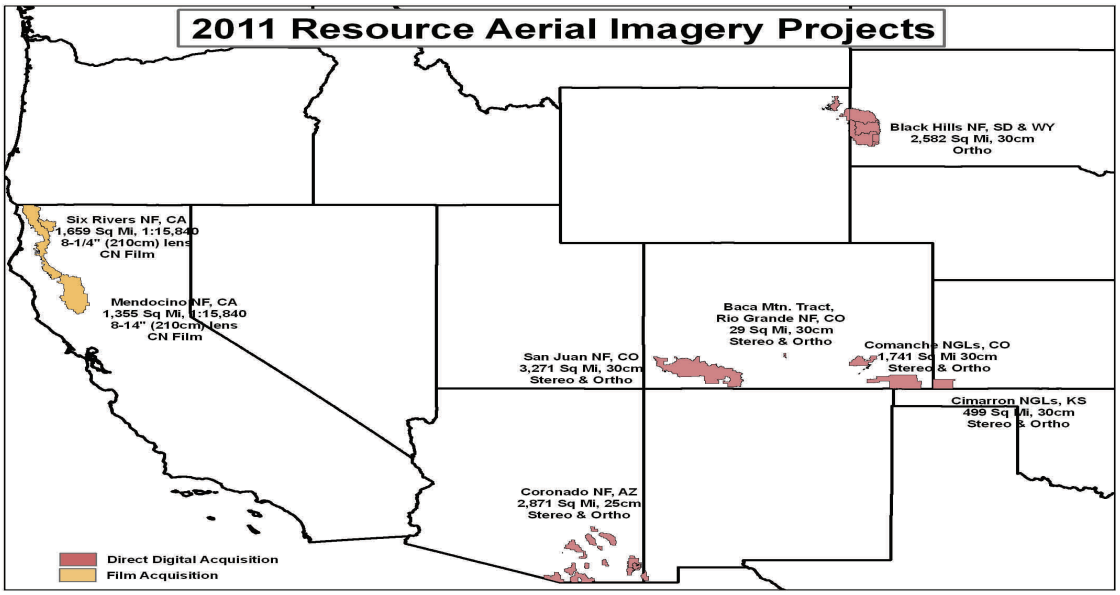


Provided contracting services to NRCS to acquire the National Resource Inventory (NRI) and Stewardship Lands Imagery (SLI) aerial photography related services for 91,507 sites and easements in the Continuous United States (CONUS), Hawaii, Puerto Rico & Virgin Islands. Contracted Services and products for film and scanning as well.

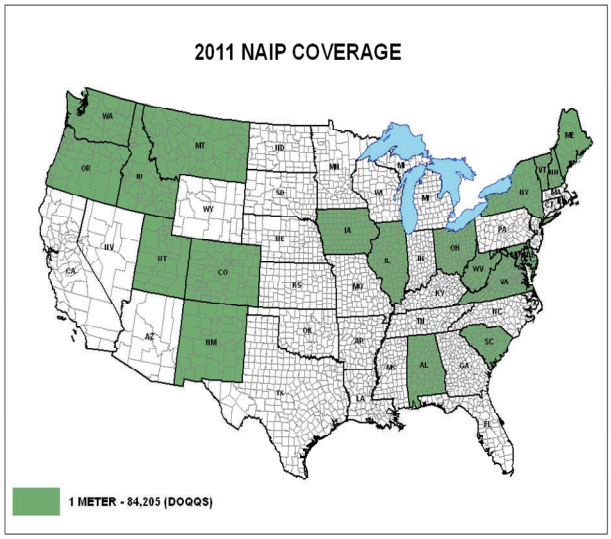


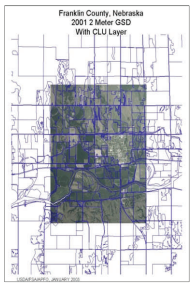
Resource Aerial Photography

Provided contracting services for a total of 14,827 square miles of resource aerial photography for the United States Forest Service (USFS), for a total value of $628,969.38. A combined total administrative charge of $ 50,317.55 was assessed. Contracted 6 digital aerial imagery projects, covering 10,993 square miles for the western national forests of San Juan, Comanche & Cimarron NGLs, CO, Coronado, AZ, Black Hills SD, and Rio Grande Baca Mtn., CO. Contracted 2 film based aerial photography projects covering 3, 834 square miles of Mendocino and Six Rivers NFs, CA.



APFO Contracted Programs





National Agriculture Imagery Program (NAIP)

Since 2003, the National Agriculture Imagery Program (NAIP) has been the primary vehicle for FSA to acquire aerial imagery. Since NAIP is primarily funded by FSA, imagery is acquired to meet specific FSA needs such as collection of entire states within a single growing season, and availability within 30 days of flying season end. Having current imagery saves time in FSA Service Centers, shows change over time, and helps FSA keep CLU boundaries and other critical records current.

NAIP is funded through cost share partnerships, with FSA cost based on the percentage of agricultural land in the US (approximately 67%) while partners in other federal agencies (NRCS, USFS and other DOI agencies) funding the remaining portion.

In 2011, funding was at $10.1 million from FSA with an additional $5.6 million for partners. That amount funded the acquisition of 19 states, with a result that all states in the Continental US have imagery that is no older that 3 years.

APFO Contracting provides acquisition services to FSA and other contributing partners for 1 meter digital orthoimagery covering 987 counties (1,175,517 square miles) in 20 states. A NAIP contract task order for a total of $16,454,443.63 was contracted with approximately $4.83 million contributed by state and federal agencies. Imagery was acquired by using precision large format digital mapping cameras which resulted in all states delivered as natural color and color infared (4 band) products. The 2011 contract task orders were awarded under the last of a 5 year IDIQNAIP contract. The NAIP Program is the largest civilian government contract in the country providing high quality imagery widely used by federal, state, and local agencies.

Quality Assurance

Ensuring we get what we asked for

The Quality Assurance (QA) Branch is comprised of three work centers (NAIP, Resource and Vault areas) which are directly responsible for the quality assurance inspection, monitoring, and storage of imagery and geospatial data for all contracted aerial photography programs. These programs include: the National Agricultural Imagery Program (NAIP), Resource Aerial Photography, Common Land Unit (CLU) updates, National Resources Inventory (NRI), Stewardship Lands Imagery (SLI), as well as APFO website update information including status maps and data for these programs. The service are designed to assure FSA and USDA customer requirements for high quality aerial photography and geospatial products are achieved.

QA maintains an archive of over 65,000 rolls of historic imagery. Additionally, QA is responsible for the project management of a multi-year Vault Index Preservation Project. When completed this project will make available over 119,000 digitized photos, line and point index reference maps for public use. This year alone QA reviewed 15,000 scanned indexes, making them a significant step closer to public access.

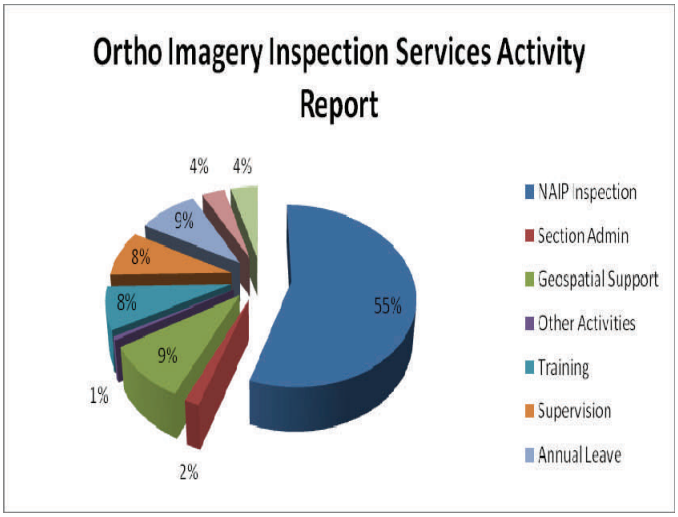
QA Supervisor Sherry Holyoak views stereo imagery.

QA has accomplished several cost saving and service improvement initiatives. QA has undertaken the modernization of the imagery acquisition flight planning for USDA agencies. Additionally, QA has leveraged the use of technology by implementing the use of geospatial information systems (GIS) tool to improve the narration of imagery inspection results that depict contractor performance. QA has integrated the use of stereo imagery analysis equipment used for Forest Service projects thus insuring the accuracy of stereo imagery, along with the development of improved imagery accuracy standards and the establishment of a study to determine imagery color saturation specifications.

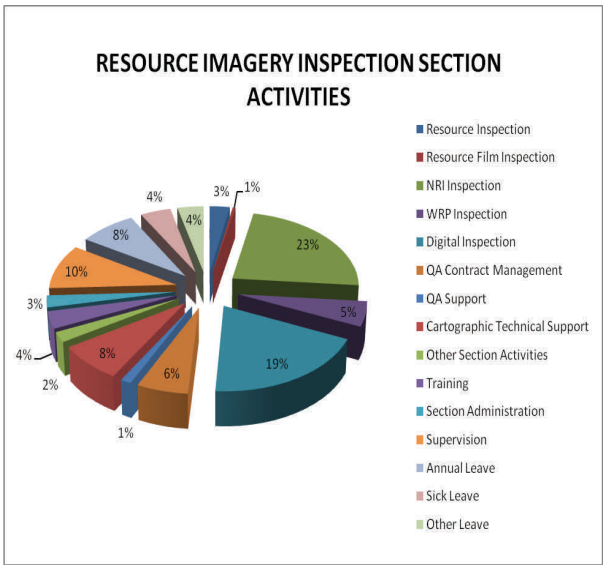
Divide and Conquer

The Quality Assurance Branch is divided into two sections to better capitalize on the special skill sets of the members and proper application to the projects they encounter.

The **ORTHO IMAGERY INSPECTION SECTION (OIIS)** emphasis is "Directly" responsible for the oversight and management for inspection, monitoring, and dissemination of imagery inspection results related to the National Agricultural Imagery Program (NAIP). This group inspected 2,279 Compressed County Mosaics (CCMs) and 184,827 Quarter Quads (QQs), along with the accomplishment of 7 major project initiatives. OIIS conducted research on NAIP imagery accuracy which resulted in the development of an approach with current academic and national standards to apply Root Mean Square Error calculations to determine image accuracy which aligns horizontal accuracy to a national standard.



The **RESOURCE IMAGERY INSPECTION SECTION** assures customers needs are met by providing quality assurance inspection of acquired imagery and geospatial data for the Resource Aerial Photography, National Resources Inventory (NRI) and Stewardship Lands Imagery (SLI). Areas of interest include Flight Planning for over 16,000 square miles of planned acquisition, inspection of 15 National Forests, 11 of which were completed along with additional work in Kodiak Island (total of 40,837 square miles consisting of 86 TB of data). NRI/SLI inspection support activities included 79,139 sites and 78,225 scans. Additionally the Resource Team developed a process to inspect stereo imagery using newly purchased Planar stereo mirror equipment. This allows the imagery to be viewed in 3D to insure stereo functionality for Forest Service Resource Projects.



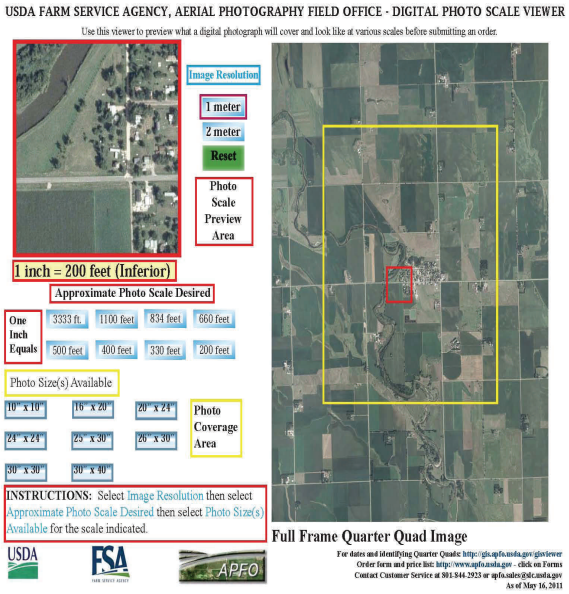
Geospatial

40,000 data points and growing

The **GEOSPATIAL SERVICES Branch (GSB)** ensures National Agricultural Imagery Program (NAIP) and other USDA imagery program technical specifications and standards are correct, and will produce products that meet FSA and USDA customers needs the first time around, saving countless dollars in both time and infrastructure resources by getting accurate, authoritative data to the customer as quickly as possible.

GSB researches changes and trends in geospatial technology, which translates into product enhancements over time, ensuring imagery products are leveraging the best available technologies and methodologies and are relevant to meet the customers' needs. GSB also builds historical imagery products based on FSA and other customer requests, ensuring historical imagery products are spatially enabled such that the State and County field offices may track and trend changes over time, offering real visual evidence of land use/land cover change in support of various programs. GSB is divided into two sections that ensure quality geospatial services across the spectrum.

The **Geospatial Service Section** is responsible for producing accurate and quality checked ortho imagery, from a variety of sources. Imagery is made available in soft and hard copy formats to meet the needs of GIS implementation in support of FSA Service Centers and other USDA agencies. In addition, the Geospatial Services Section flight planned the acquisition of the imagery for the NAIP 2011 year.



Cartographic features such as scales or legends accompany hard and soft copy digital products, thus enhancing the usability.

Responsibilities of the Geospatial Services Section include; County, State and National Status Maps containing geospatial information. Special projects including historic ortho generation, georeferencing, compressed imagery production, color balancing of county imagery, and reformatting of imagery to meet FSA specifications. Detailed Flight Planning Status maps by County and State.

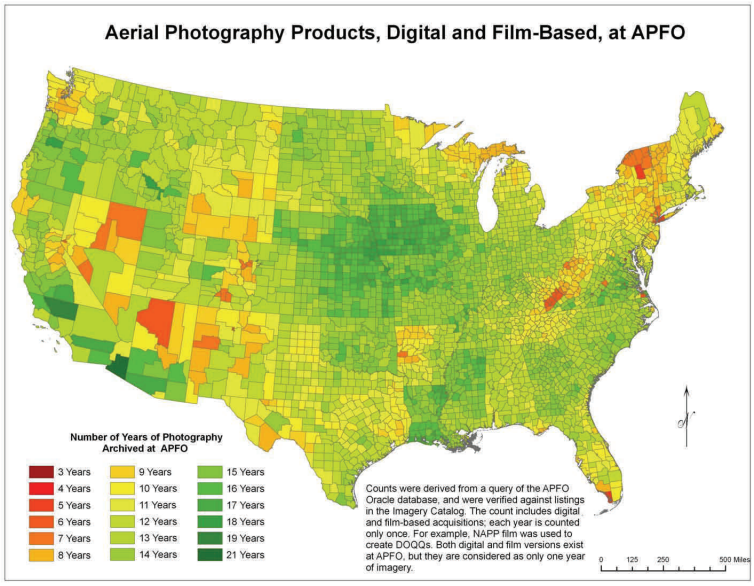
The **SERVICE CENTER SUPPORT SECTION (SCSS)** provides technical and programmatic support and assistance on geospatial related issues to Farm Service Agency (FSA) Service Centers, State Offices, and Headquarters offices as well as to other government agencies and the public. The Service Center Support Section supports APFO and FSA in research and analysis, procurement enhancement, and in the development of process and methodologies to improve efficiency in all aspects of geospatial business.

Notably, this section developed and administered the 2010 NAIP Survey, AP Notice, design, setup, distribution, analysis, and annual assessment report as well as designed, administered and reported on 2012 Imagery Requirements Surveys, which will become foundational information for 2012 and beyond NAIP specifications.

In regards to enhancing geospatial business, SCSS teamed with State and Federal Agencies to obtain 2011 Absolute Control Points and supplemental data then administered the database updates, maintenance, and assistance with automation of the database inspection process. This database is conservatively worth $12 million at present with over 44,000+ points, developed through partnerships and provided mostly on a gratis basis. Enhanced model in ArcGIS Model Builder to identify areas of control point needs in support of NAIP.

SCSS developed specifications and preformed quality assurance on first year submittals on enhancements to NAIP State based seam line shape files in support of thin client and NAIP image services.

SCSS further developed NAIP 1/2-meter specifications based on testing of compression ratios for 1-meter and 1/2-meter product lines for CCMs and DOQQs, and assessed the impact of the use of a 1/2-meter resolution product in the FSA filed.



250,000 data points

Other events/projects for Geospatial Services in FY 2011 included:

- Worked to develop and sustain APFO Image/Web Services for NAIP, NRI, Customer Service Section, QA, and the general public as well as FSA DC, State and County Office users in support of FSA thin client architecture

- Revised APFO NCGC Charter Document

- Completed 1AP Revision for APFO. The last update to this document was in 1996. A final version has been submitted to DC for review and issuance. At the time of issue, updates for the next revision will begin.

- 8CM—Participated on PECD lead team to update 8CMHandbook, working in close conjunction with the 1AP update work to ensure the two policies work in harmony without conflict or duplication

- Map published in 2011 ESRI Map Book
- Developed manual for repairing georeferenced photo index scans and shapefiles

- Produced a Web Feedback concept mockup and presentation with a focus on how APFO can obtain volunteered geographic information (VGI) as a form of reporting, QA, feedback, etc., from a variety of users.

- Formally implemented Telework for 4 SCSS employees

- Native Sod Remote Sensing Project for APFO; project scope is based on programmatic need to identify native sod versus newly broken ground utilizing remote sensing techniques and varied imagery datasets. Obtained ENVI licensing in support of this project as well as other historical imagery analysis work.

- Researched and assembled available imagery for HI and AL in support of FSA thin client services. Tested and processed HI 4-band 16-bit to 3-band 8-bit NC and CIR tiled products.

- Researching linear/non-linear stretches with regard to digital and analog data acquisition, for best image quality in 8 and 16-bit space.

- Georeferenced 881+ film scans

- Prepared CONUS extract from Control Point Database for USGS of non-licensed data, providing invaluable results through identifying errors in the database which then were corrected, and allowing for additional TSB automation of database report tools
- Submitted posters to “Mapping the Nation” publication

Computing Power

The **TECHNOLOGY SERVICES BRANCH (TSB)** act as the backbone of any APFO operation. By providing Information Technology Security and Support for agency specific applications TSB oversees all Data Management, Distribution and Application Development.

Under the Technology Services Branch are two sections:

The **Digital Data Management and Distribution Section** performs data ingestion, archiving, distribution and fills large custom digital product orders while the **Application Development Section** supplies specific production application development while providing support and/or development of custom applications including management and development of databases.

Additional responsibilities include management of APFO web based applications and services, solution and development research and coordination of requirements with a variety of CIO-ITS organizations.

TSB supports both business and GIS applications in direct support of APFO business requirements, managing approximately 400TB (terabytes) of data on behalf of FSA and an additional 200 TB of data in support of other USDA agencies (NRCS, FS).

Beginning with FY 2011, APFO TSB entered into partnership with FSA GISO Office, providing virtualized development environments, base layer imagery for the new Citrix services, and supporting CLU services to and from County Offices.

Project Management

- Lifecycle replacement of end of life UNIX based geospatial systems to Windows based systems to include testing of required geospatial applications

- Lifecycle replacement of two legacy plotters to large format 8 color printers

- Lifecycle replacement of 25 laptops

- Purchase of network equipment required to implement web farm security stack

- Oracle Catalog
  - ◊ Cataloged into the Oracle RDBMS and managed 2,654—2010 Compressed County Mosaics (CCMs) on the tape archive systems
  - ◊ Cataloged into the Oracle RDBMS and managed 115,430 NAIP 2010 QQs on the tape archive system

- Vault Film Exposure
  - ◊ Archived 25,044 vault film scans created by APFO
  - ◊ Archived 1,392,343 vault film exposures created by the APFO/USGS MOU

- TSB provided oversight and coordination for the successful migration of production servers, with minimal downtime.

- Established change management process for both internal (APFO) development and external hosting (ITS_AOB) requirements

- Initiated migration of Oracle from 9i to 11g, to include migration of legacy forms and reports

- Established new storage system for Resource Imagery

- Provided data center support and services to ITSD-GISO in support of Citrix rollout and pilot

- Assumed responsibility for management and imaging of ITSD-GISO training laptops

- Provided virtual server services to ITSD-GISO in support of their development and testing requirements

- Established procedures to ensure imagery is available during disaster situations

- Provided on site coordination and project management for the successful migration from legacy enterprise servers to more robust systems

Business and Geospatial Application Development/Implementation

In the last year, TSB developed and/or implemented several IT related actions to include redesigning NAIP inspection application for FY 2011, based on current business requirements, automating several new processes before the start of the FY 2011 imagery inspection. The 100% automation of the seam line inspection process, which was a complex manual process for each county, was engineered to take 30 seconds per county without any QA Inspector intervention resulting in a savings of both man-hours and resources. Many of the applications are being evaluated for use in the Resource Imagery area.

The CLU Replication process was re-designed to streamline ingestion related processing, and shorten the overall turnaround time for dataset availability. Working with the FSA GISO Office, the CLU county deliveries were modified to enable less transaction based on analysis to occur prior to ingesting the CLU county datasets in the GDW. The new received datasets required a re-work of the in place CLU ingestion processes to enable faster processing of the CLU datasets as they arrive from the county offices.

TSB developed several Python based scripts and ArcMap tools to enable Resource Imagery to be checked and formatted for use in downstream inspection workflows.

Cyber Security

- Certified and Accreditation for Consolidated Management System (CMS) has been completed for FY 2011 and reviewed quarterly.
- Disaster and Recovery is being reviewed and maintained by APFO.
- All APFO databases are continuously reviewed for appropriate security levels and user permissions and changes made as necessary.
- In collaboration with FSA ISO, TSB developed account management policy and procedures.

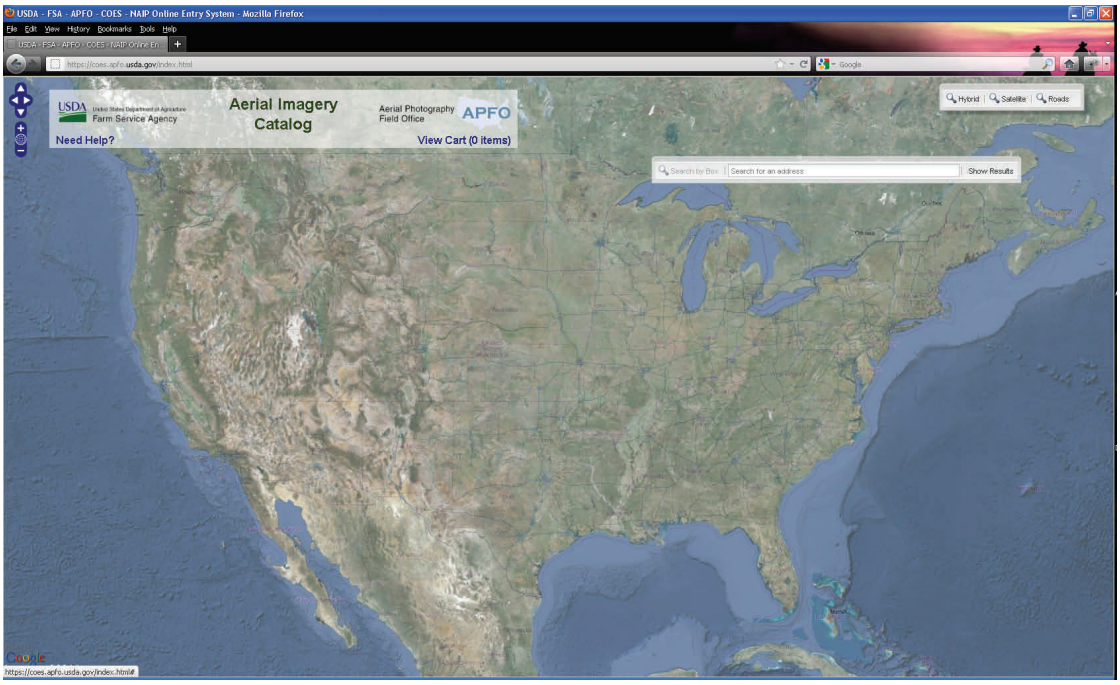
In support of projects that benefit the general public and agencies outside USDA TSB:

- Developed (and made available) state based web services.

- Completed APFO Work Order Entry and Pitney Bowes SendSuite Shipping Interface, batch process replaced by new table and 2 database triggers.

- Completed the repositioning of the entire suite of GDW hosed NAIP imagery services. Migrated hardware platform to newer servers and software platform to latest ESRI release. Shifted delivery paradigm from a UTM based set of images to state based image services to better meet the needs of FSA users in the field. Deployed state based services for all historical and current 1 meter state acquisitions for years 2005-2010, with 2003 and 2004 years currently in progress.

- Implemented Web based Customer Order Entry System (COES) to allow both public and Federal customers the ability to order geospatial data online.



- Geospatial Infrastructure Support—TSB continues to support and enhance existing websites to enable Federal and public customers to obtain status on CLU, NAIP, and NRI related projects.

- CLU Pilot Project— Assisted with the deployment of an integrated suite of CLU web services to enable national scale CLU data to be accessed by FSA web applications for use in Disaster Planning and related activities.

Data Management

Data Management of Vault Film Exposure Scan submitted from USGS, and created by APFO.

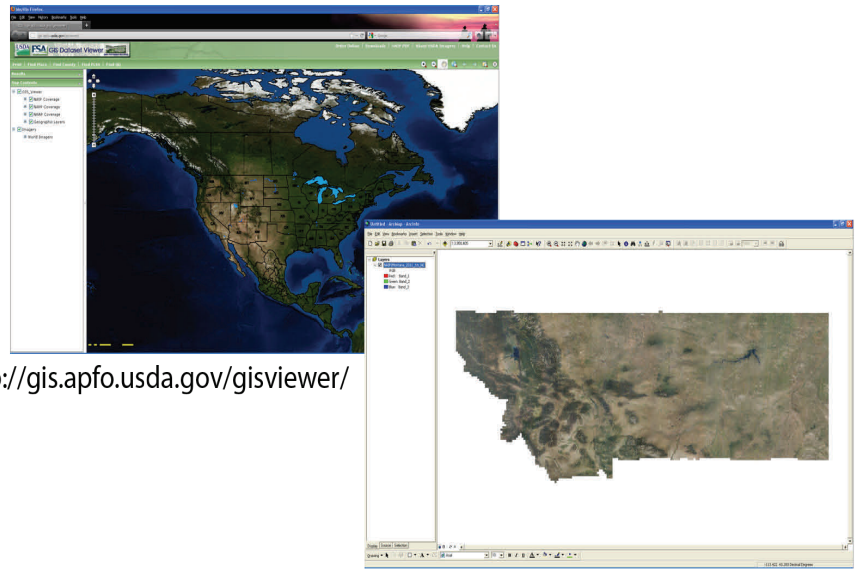
- Data Management of NAIP 2010 CCM and QQs submitted by NAIP vendors.

- ESRI Image server data set creation for the GDW Image services.

- Migrated 45 TB of archived imagery from the L700 tape library to the SL8500 tape library.

- Provided data management for 4ooTB of archived imagery on the SL8500 tape library.

- **Resource Data Gateway**
  - ◊ Cataloged and managed 15,386 CCM Data sets or 184,632 individual files for NAIP 2003 - 2010.
  - ◊ Cataloged and managed 26,664 CLU Data sets or 213,312 individual files.
  - ◊ Cataloged and managed 22,648 CRP Data Sets or 22,648 Individual files.
  - ◊ Cataloged and managed 20,962 WETLAND Data Sets or 83,848 individual files.
- **Earthware Catalog**



http://gis.apfo.usda.gov/gisviewer/

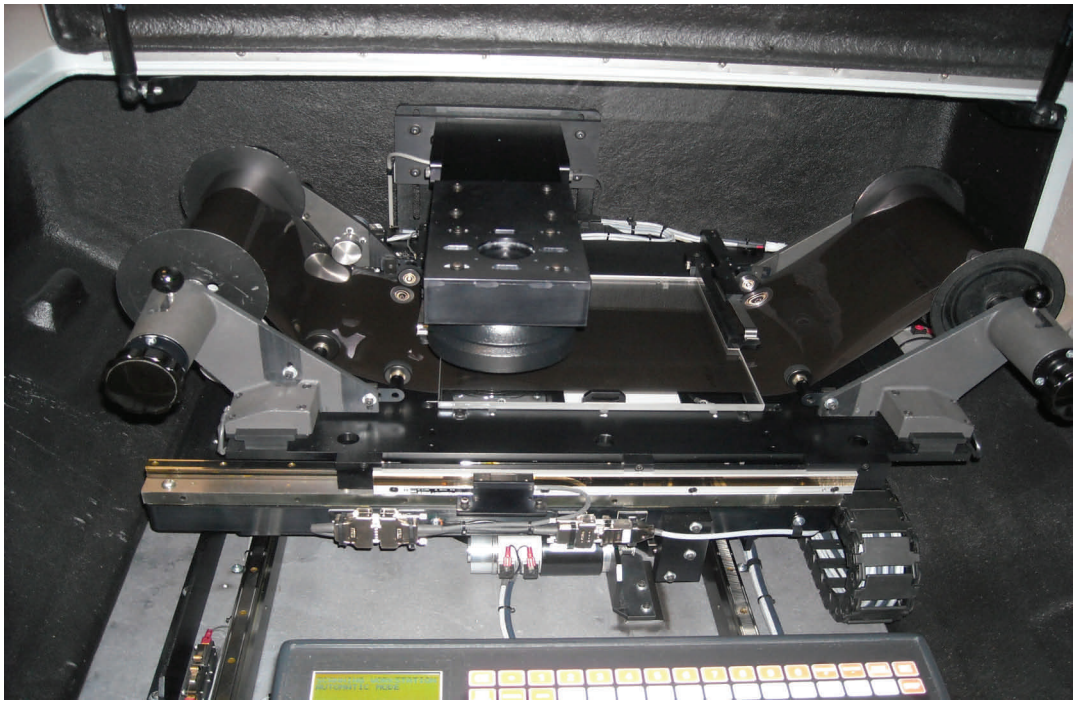
"...state based services can be added into ArcGIS Desktop by adding http://gis.apfo.usda.gov/arcgis/services to the Add ArcGIS Server connection."

  - ◊ Cataloged 374,478 1 meter 2003 – 2009 NAIP Quarter Quads (QQ's) into the APFO Data Provisioning System.
- **GDW**
  - ◊ Provided data management support to the GDW operations by cataloging and archiving 15,430 2010 1-meter NAIP quarter quadangles.

...and that's a print

APFO's Production Services Branch (PSB) is responsible for generating color and black and white aerial photographic products both from digital image files and film original source materials for various customers, including the Farm Service Agency (FSA), the National Resources Conservation Service (NRCS), and the U.S. Forest Service (USFS), as well as many other federal/non-federal agencies and the general public. The Branch is also responsible for photographic chemical mixing and chemical quality control as well as the electronic and mechanical maintenance of all production related equipment.

Perhaps the APFO entity with the most transformation in FY 11, PSB evaluated its work flows and production processes to determine the best methods for delivering its current array of products available to our customers while working to keep government costs down and waste levels reduced. Significant savings in time and money have been experienced in response to three equipment upgrades as well as using in-house talent to conduct repair and maintenance activities.

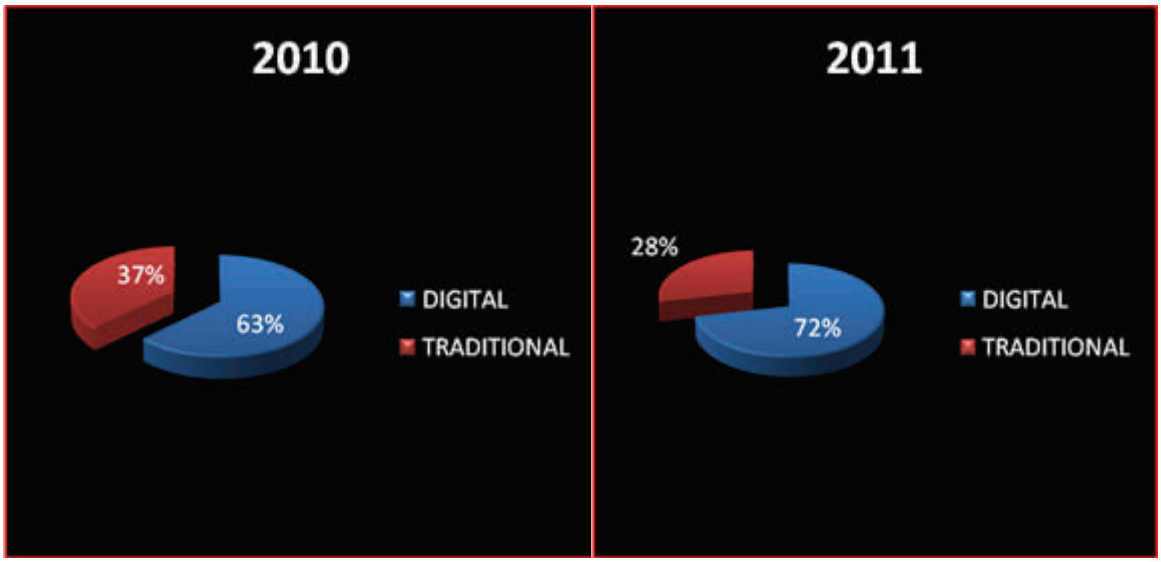


Two photogrametric film scanners were upgraded, resulting in a significant production capacity improvement. Color film image scan times averaged around 7 minutes per scan with the older system, the upgrade has reduced scan times to around 2 minutes per scan. B & W scan time performance has had a significant improvement as well. Formerly high resolution scans with the antiquated system were averaging somewhere around 2 minutes per scan, now scans created with the upgraded scanners are in some cases less than one minute per scan.

The third upgrade actually involved acquiring newer printing technology. APFO procured an integrated digital printing/processing system. This system uses laser technology to expose photographic paper and uses photographic chemistry to process that same paper for image production. The system is "washless" and is energy efficient, the smart energy characteristic of this processing machine will yield savings into the thousands resulting from a reduced electrical draw and the washless aspect allows for a tremendous reduction on the need for water in photographic print processing systems. The complete benefits of this printing system remain to be seen however, along with the cost savings in the smart energy technology, greatly reduced water cost, and a potential smaller HAZMAT footprint, improved worker productivity will be experienced because the printing component of the system is networkable which will allow for this device to be integrated within APFOs network system.

Other areas where savings were experienced were in utilizing our "in house" talent to conduct technical repairs, saving nearly $10K and hundreds of hours in contracted maintenance expense, and adjusting internal controls to facilitate improvements in consumable material supply accountability (2nd qtr FY10, 11.88% -2nd qtr FY11, 8.31%).

One noticeable trend. Last year digital production units accounted for 63% of all our production work and "traditional" analog production has had a remarkable and steady decline as a deliverable. Comparing FY10 vs. FY11 we see that digital production outputs increased by 9% from 63% to 72% respectfully. The trend gap between digital and traditional has become increasingly wider and is only expected to continue to widen. PSB recognizes the need to move with the trends in customer requests for products and is examining potential products and services that will better benefit the USDA and continue to make APFO relevant in the aerial imagery arena.



The above graphs reflect the movement from traditional photos to digital products.

Employee Activities

"Leading Change Every Day in Every Way" isn't a phrase but more a commitment to ensuring a more positive cultural environment at APFO. A multi–disciplined approach to enhancing our most valuable resource, our workforce, saw several activities and initiatives. Specific accomplishments in FY 2011 include:

Opportunities for employees to participate in charity events

A self governed Employee Association provided various family oriented events and employee training

Focus on diversity education through our "Lunch and Learn" program with topics:

- **Disability Awareness**
- **Native American Heritage**
- **Black History**

Some of the Employee Observance Activities included:

The Road Home * Hispanic Heritage Month *** Sub for Santa**

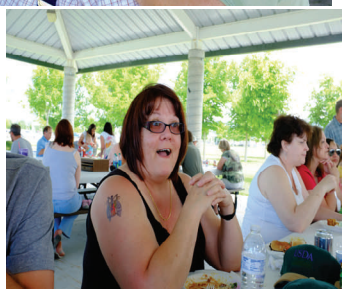
Utah Pet Adoption * 26th Annual Utah Women's Conference *** Veteran's Day**

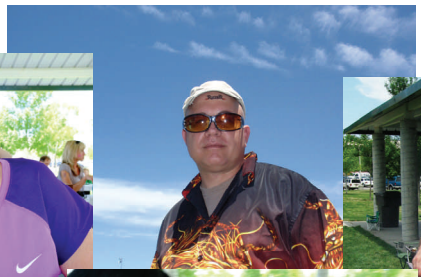
Breast Cancer Awareness Month * Women's History Month**

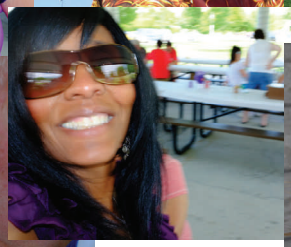
Asian/Pacific Heritage Month * Utah Food Bank**

APFO sons and daughters learn about cartography from Jerry Lohry in Customer Service

APFO 2011 PICNIC







Thanks to photographers: Brian Vanderbilt, Jon Boyden, Lori Uhlhorn, John Mootz

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