

# USDA Imagery Planning Meeting – Minutes

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## Attendees

List Attached Separately

## December 8, 2009

1. Welcome and Introductions – Kent W.
  - a. Welcome and facility layout
  - b. Objectives of the meeting
    - i. Coordinating Image Acquisition
    - ii. APFO Meeting Your Needs
    - iii. Department Initiatives
    - iv. Final Review of NAIP Planning – we continually look to make adjustments to ensure we meet customer needs.
  - c. Office Location for Phone Calls
  - d. Dinner and Lunch Plans
  - e. Introductions
  
2. 2009 Contracting Report – Geoff G.
  - a. USDA
    - i. Contract awards approx. \$42mil (70% NAIP, 18% NRI/WRP, etc.)
    - ii. Admin fees (approx 8%) (\$400K in 2009)
  - b. NAIP
    - i. Complete 1-m coverage of lower 48 (mostly less than 2 years old)
    - ii. Challenges – inconsistent funding
    - iii. Starting in 2009 – NAIP 3-year cycle. Showed 3-year cycle map, but described how budget “adjusted” 3-year cycle for us. Bump in number of states in 2009 to 32 states. Showed split of 3-band and 4-band states in 2009. Showed buy-ups and secondary contracts (MI, OR, WY). 6 Contractors awarded based on technical merit and pricing (best value). Showed NAIP funding history with

partners (FSA, NRCS, USFS, USDI, States, and other). Glenn B. – Question related to DOI funding. Geoff G. – showed contributors to 2009 NAIP. DOI is not just USGS, but NPS etc. 2009 NAIP acquisition successful, few season extensions, but by Oct 22, reported 100% flown. Showed available CCMs.

- iv. A lot of interest in 4-band (FSA to obtain NC, buy-up to 4-band in the DOQQs)
- v. JP2 Compression format issues – a few questions on compression, image server, and some of the details, MG3, MG4, software compatibility, LizardTech and ESRI
- vi. Changes in delivery schedule (DOQQs due same time CCMs are).

c. NRI/WRP

- i. 10 years so far, very successful thus far, very specific requirements which help. Have been discussing digital acquisition and the transition to 100% digital. Being very cautious moving forward. Challenges – transition to digital for SACs. Comparing results from film to digital. History of SAC, sites range from 70-80k. Expect full sampling of WRP in 2010. Described selection criteria. Showed Contractor awarded states and graphic of all sites nationally (including HI and PR).

d. Resource

- i. Success in both film and digital acquisition. Specs for digital raw products, to meet needs of customer. Challenges – AK weather, transition to digital, and incorporating latest technologies. Showed total contracted miles and transition from film to digital. Basic overview of current projects by region, discussed their requirements as well as attempts to buy-up as part of the NAIP Contract. Discussed in more detail AK contracts (1-m DOQQ contracts). Discussed in detail the Boise contract (1/2-m DOQQ + stereo). See briefing for details on individual resource contracts.

e. APFO IT Purchases

- i. Showed IT expenditures to meet APFO, WDC, and NAIP requirements. Jacque L. – the DC purchase was equipment for KC at end of year. Approx \$3m. Lost Charlotte V. to USFS (upstairs with Region 4 Contracting). All resource contracts go to Cindy Sessions who is now a Contract Specialist. Contracting will be hiring COTR at some point to handle NRI/WRP receipt. Bridget COTR for NAIP. Glenn B. – Question – do you have the staff to support 1-m full acquisition NAIP? Geoff G. – Contracting can likely handle, may need to adjust QA. We are building our IT infrastructure to handle, and that's really the key to success. ½-meter data is another story, but trying to look ahead.

3. USFS Digital Resource Imagery – John M.

- a. Using different Contractors for acquisition and ortho production adds program risk; primes and subs. Example of converting GPS/IMU to different format. Can cause finger pointing between Contractors, and requires knowledge of ortho production process

before releasing the acquisition contract. The difference of defining a product for Remote Sensing (RS) applications versus to use in GIS. Transition to digital is difficult – if need for ortho, John suggests contract up front to one contractor. What are the pros/cons of getting ortho done as part of the contract? Melinda M.– we don't have money up front always to do both; have money for acquisition but not for ortho...final product is not always ortho in all cases. Conversation between Melinda M. and John M. about products and deliverables. Cannot just port film standards to digital, and we add risk to acquisition when there are multiple vendors, multi-products. A lot of details, camera types, product specifications, etc. Products vary from scans, GPS/IMU, to orthos, stereo, varied resolutions, bit-depth, or all of the above. Question is what is a “standard” product of the USFS regions? Is there a standard product? Or does each forest need something different to meeting their needs? Melinda M. – using stereo right now for hydro studies, construction, and pine beetle, etc., and can create 1 foot contours...also working in conjunction with USGS. Q – John M. – how does it work versus film? Melinda M. – it works very well, better than film. Kent W. – how do you actually use and distribute the data? Melinda M. – we work off of hard drives (HD) and distribution as we need to the other regions as needed. Use ArcMap and ERDAS Imagine to create block files and view stereo, etc.. Glenn B. – **It would be good to have brief on digital stereo, maybe next year? Melinda would be willing to share (soft action item)**... Glenn B. – have you done any classification? Melinda M. – not yet but we are planning to off the ortho. Jacques L – how do you use 35 TB of data? Melinda M. – swap a lot of drives. Glenn B. – important for Stephen Lowe to hear these stories, because he is going to be involved... John M. – yes, what is the requirement? From specs to delivery? Don E. – Can you describe the various cameras being used for resource? John M. – DMC, ADS40/80, Film, Ultracam, etc. discussion of no IMU deliverable with ADS scanning camera because the imagery products are “cut” from one big block. ADS can acquire the images 3 times in a single pass; forward, Nadir, and back looking...creating stereo from this. Discussed cookie cutting out the ADS images (big vs. small pieces which is large files versus many files). Cost reduction; with digital you may be able to work with lower sun angles, which means longer acquisition windows each day, lowers cost. Continuing conversation about file sizes. Kent W. – is USFS far enough along with digital resource to have enough experience to ID what you really want; products and specs? USFS – what are our minimum specs for hardware/software etc.? Melinda M. – incompatibility with Citrix and stereo. Region 4 – RS steering committee looking at resource and NAIP, where do they connect or meet related to specs, or do they? We'll discuss more when we go to regional reports. John M. - Is the data worth of the effort? USFS – yes, we are moving to digital. USFS – data center needs to be able to accommodate eventually. That is the direction USFS is going. The “GeoEDC should accommodate” is the message that the USFS is giving, and until they can, we'll continue “working around”. John M. additional discussion about data volumes current and future. Glenn B. – ideal NAIP is ½-m 16-bit stereo. But as far as sizing out the issues, that's what I would size out, just for this. Makes it look like what

we are doing pretty small. We have a lot of unanswered arch questions, Citrix, stereo, ingest, processing, etc. A lot we could be doing, but need to look at the architecture long term. Don Evans – ERDAS and Apollo discussion. Serving imagery in stereo based on an AOI. John M. – What really is the requirement for resource for storage/archive? Kent W. – At very least a copy of data must be somewhere else, whether it's backup or archive...what is the direction of USFS for local storage? Mark R. - Accommodate the data with local RAID, etc...so right now local is the answer. Maybe central locations should have the backup (e.g. APFO). Jim H. – sharing of data is difficult due to security measures (e.g. whole Disc Encryption (WDE)). We need to understand how to overcome. Jacque L – How do we get those that don't work with data to understand some of the encryption or security measures are not necessary? Laura S. – Cannot necessarily rely on connectivity, and need to realize that local info is still important. Jim H. – Stephen L. needs to hear these issues, local versus central access, security, etc. Don Evans – is APFO planning to archive resource? Lori – We are planning on it, but someone needs to flip the bill, and discussions with NITC are on-going, but at very least we need to have a backup. Glenn B. – do we need to exercise the data on backup (e.g. the HD)? Bart M. – are there vendor requirements to archive the data for a certain amount of years? John M. – you can spec it, but it will cost dearly...we do not have hard specs, other than keep the data until we have inspected and accepted. John M. – The real question continues to be, what type of archive or storage does resource need? What is the requirement? Should we do a survey to ask these questions and centralize the answers. Kent – Define level of backup for resource. Survey. **ACTION ITEM APFO-GSB – define level of backup or archive for resource based on customer requirements (maybe expand scope to seek an understanding of digital acquisition requirements).** Change of topic: IDIQ for Fire? APFO can issue an “open” contract for quick response to fire imagery; is there a requirement? Melinda M. – maybe not for fire specifically, but for other disasters – blow downs, hurricanes, etc. So for rapid response. John M. – so for rapid response? Yes or no? USFS – fire/GIS community upstairs are having meeting, may want to contact them. Sean triplet will host this...they may understand the requirements. Glenn B. - Some money for certain things. You have a mission and you have a need. We have an issue, when we think disaster we think FEMA, but they don't do very much...DHS is going out for disaster response, FEMA RFI. John M. - Good question for more discussion.

#### 4. Agency Reports

##### a. USFS – Bill B.

- i. Bill Went to ASPRS and discussed varied contracting mediums, in particular QBS. Interesting workshop. Fairly clear from training that QBS was not really ever intended for our type of work, aerial photography. Discussed the Brooks Acting in brief. Some discussion of GPS/IMU.

- ii. Discussed in brief the USFS organization. NAIP funding went to \$2m/year starting in 2010 from \$1.6m. \$1.6m will go into NAIP. Additional money will go to other projects such as Puerto Rico (PR) COE, MO IR, and a few other purchases. Will have approx \$360k remaining...maybe IR NAIP buy-up, maybe AK IDIQ contract addition. But really wants to focus on IR, and ½-m buy-ups. Discussed move to digital from film. USFS RFP for GIS Services Contract; base year plus 4 option years, two contracts to be awarded. We'd also like a better process to get NAIP from APFO to USFS...both CCMs and QQs.
- iii. Regional Updates
  - 1. Mark R. –AK is all direct digital. New DEM (20m DSM). Budget friendly DEM. Also have a public license for 8% of cost, not bad. Vertical accuracy assessment. Will be used for ortho, etc. Had a very good acquisition season for AK. File sizes are huge and will be using JP2; but the images are very nice, and are QQQ (sexadecimal). ArcMap and ERDAS for JP2. Using satellite for vegetation mapping. Have been using WorldView1, and can get the ortho. Obtaining through WARP. Glenn B. – good WARP user, pushing NGA to do a lot of AK because no imagery. Mark Riley – distribution, purchase many TB of storage and hardware to distribute at the regional level.
  - 2. Michael G. - Region 6 – Pac NW. Use Landsat TM, 24+ scenes downloaded for complete coverage for NF lands, mainly for IR. NAIP may change that. NAIP WA and OR both acquired in 2009. Did a ½-m buy-up for OR. CCMs all of WA and all in OR, mostly available. All OR hasn't been delivered, but will put on the network and see what happens. Waiting for USFS image server services. Ordering WorldView2. Bill B. – Are you using the FAS archive? Answer – not really yet, usually go straight to the source. Melinda M. – uses FAS for AWIFS data. Laura S. – what is the licensing? It depends. Bill B. – WorldView may be loosening up their licensing to say, all federal. Should take a look at that. Resource photo, last year we did 1 ranger district film. Why aren't we buying much imagery; really due to budget...went away from a cyclical type budget. No reason we haven't gone to digital; just haven't bought much. Susan Costa will be taking over resource photo. We actually did a photogrammetry project. Glenn B. – for USFS, if USFS has requirements on fire, we can get data through NGA. We should discuss more. This works if you have a short lead time; this may be a resource for you. Bart – WARP is not easy to use, but they will come to you and train. Mark back on Region 6 – have done 2 historical photo projects, very small project areas. Now Special Purpose Photography – things like stream surveys. Forest is doing their own scanning; and are creating ortho for 3 of the project areas. And will continue to offer this service. Lidar is very important to the future, and

it's here for the USFS. Major Lidar acquisitions have already been delivered. We are contracting for that actively to cover all the areas. Shows investments in Lidar on a regional level; demand from Forest. Forests have the money for Lidar, but maybe not aerial photography; this varies from forest to forest. Bill B. – how does Lidar fit into the datacenter model? Receiving classified point cloud, and DEM, etc. the rest of processing doing in house. Processing the Lidar in Fusion, eCognition, and ArcMap, etc. Formed regional Lidar Steering Committee with seed funding...unsure of outcome at this point.

3. Region 5 (CA) – gone through re-org. We are now under the info management organization. 2009 NAIP Collection, excellent work. Bought up for 4<sup>th</sup> band. NAIP delivery is very good via FSA (Ken Ogden). USDA Geospatial Gateway limitations on file sizes. Resource photo on 10 year cyclical program. Still collect 8 ¼ inch focal length, the last stand. Still in film; but thinking digital. Want to keep the 10 year program because funding is there, but budget questions rising. How do we best invest our resource dollars? Digital versus film, and NAIP, etc. Study the budget and cycles, handed off to RSAC for assistance. The question is how can we get the most value from our budget dollar? Much of the data will be collected via survey. Also have regional IDIQ, only had about 8 projects this year (e.g. post fire).
4. Region 4 – Roberta Q. – thanks to Contracting for your help. We've flown ID a lot recently. 1 foot product several forests. In 2009, we got ½-m for several forests, 4-band, and got a good deal. Will donate to NV in 2010 for buy-up. Working on a decision on Uinta Wasatch Cache to fly or not in 2010. RSSC proposals accepted. Had one photogrammetry project come in; campground development. One county in WY of Lidar. Bridger Teton Lidar for vegetation mapping in the future.
5. Region 3 – Southwest Region – Pete Joria and Bart Mathews. Our remote sensing is two-headed. Aerial photo is in GIS. RS is separate and focuses on satellite, lidar, and digital image processing (increasing overlap with aerial photography program). Two primary RS projects: mid-scale vegetation mapping of all forests/grasslands in the region, and Lidar. Vegetation Mapping – driving force is forest plan revision. Polygon based using eCognition for segmentation. Key participants are the Ecosystem Analysis and Planning and the Remote Sensing staffs (both from the Regional Office) and the forest/grassland staffs (important for their expertise and as stakeholders in the final products). Products are canopy cover, size class, and dominance type. Image sources range from Landsat 5, 7, resource photography, DOQs. Image interpretation, used a wide variety of variables (see briefing). Provided a status slide of this project. Will be completed early next calendar

year. The Lidar project is in the Pinaleños Mountains on the Coronado NF in southeast AZ. Southernmost extent of spruce/fir forest type, which is habitat for the Mt. Graham Red Squirrel, a federally listed endangered species. Decades of fire exclusion, plus more recent drought led to insect outbreaks and wildfires threatening remaining habitat. Also famous for international observatory construction and lawsuits. Showed phases of the Lidar project. Phase 1 report of the Lidar project has some detailed Lidar Specs for mapping forest structure, base on work done in the Pacific Northwest. Phase 2 report documents processes to QA Lidar deliverables and convert to raster layers to be used in modeling forest structure. Bart to discuss photogrammetry. – went over all projects. The Kaibab and Lincoln National Forest were collected summer 2009. Lincoln National Forest had rejections, so re-flight scheduled summer 2010. Working with GSTC for ortho production on the Kaibab NF. Projects you will see increase in demand for ortho photography. Planning on flying Santa Fe and Coronado next summer. Planning 1 foot or better resolution. Open end Indefinite Delivery Indefinite Quantity (IDIQ) contract for geospatial/mapping services should award this next week. This IDIQ were serve as a contract vehicle for photogrammetry/survey related projects such as campground work and new road construction projects. Also doing mine and pit mapping, photogrammetric projects. Several other projects to include rectifying older film, DEM, CAD/GIS large scale design standards, boarder mapping deployment, archiving film, inventory of ground control.

6. Rocky Mt. Region – Melinda M. – 2008 went digital piggy back Region 4. Progressive forest dealing with Mt. Pine Beetle. Sanborn did several forests in 2008. Received delivery of raw. Photo science using the stereo. DOT using it for corridors analysis, etc. A lot of use. Subbed for ortho the images. Ortho each frame then mosaic together. 16-bit data...large task, big files. QQ mosaics are around 3GB each. Frame orthos close to done. Sharing with Rocky Mountain NP. Mt. pine beetle epidemic, and need to manage mitigation; a big deal in the area. A NEMO is coming in to manage this; and will be using imagery for the projects. 2009 NAIP WY, CO, NE and were able to contribute significantly for the area of land in the area. This in conjunction with 2008 NAIP, region covered. Future contracts will attempt to bundle the ortho, if funding is available.

b. NRCS – Tony K./Dorsey P.

i. Dorsey P. – NRI/WRP – 70k plus NRI exposures/sites in 2009. Only data we couldn't get was due to restricted airspace. Where restricted, download from WARP. The whole sample set is 300k plus but only fly a portion each year. NRI

sites flown at different scales to meet how large the site is. 1 site = 1 photo. Also reviewed WRP sites. NRI is a stat trending change detection database. WRP is different; land owner gives easement to USDA – then use restrictions are applied. Showed prices, vary due to location. Digital imagery special study area in 2010. Deliver this data as 8-bit 4-band ortho. Statisticians will check against film product to ensure no unspecified error is getting into the data set. 2009 did do a small digital sensor test. Delayed the digital option until after 2010. Goal is what digital resolution mimics best the film. Showed specs. Awarded 2009 digital pilot to AR, CO, SD. 3 sensors used: DMC, Applanix DSS, and Geoscanner. Flew each pilot site at 12, 6, and 3 inches. Showed costs for various cameras. Several pilot tasks discussed...from conflation, cost, ortho, etc. Prelim findings – all sensors and resolutions met accuracy specs. Geoscanner cannot acquire stereo. Larger footprints work better because 1 image = 1 site. Some of the small format cameras cannot do this at a correct scale. DSS can fly stereo, but needs to be set up to do so. Questions about camera vendors and platforms answered by Geoff G.

- ii. Tony K. – NRCS funding priorities. Welcome to Dan Good. Discussed NAIP acquisition and upgrades to 4-band. Thanks to APFO for getting data getting through quicker. Showed last two years of coverage map. Showed map that identifies states that don't have 4-band already. Suggested that states that don't have CIR/4-band already to focus on for partnership. NRCS NAIP funding graphic. NRCS has always been a partner. AK discussion...finish Kodiak Island please. NRCS is working to fund medium resolution DEMs for AK. PR and Virgin Islands (VI) discussion. Likely do a high-res acquire of PR. \$800-900k, 1-ft ground resolution. Full coverage DOQQs in HI. .6 meter and -m data. Discussion of the Digital Globe QB2 enterprise license and the premium license should allow for data to go on public side of Gateway. All users should be able to access, except for "for profit" companies. USGS will also take the data and put it in Seamless. Can forest service access the HI Pac Basin NRCS Web Service. Having the right licensing is important, because it translates into access. Short discussion about acquiring imagery over water. One example, coral reef directive letter signed by Chief of NRCS. Worldview2, NRCS has submitted 2 sample AOIs, 8 band tests and analysis coming up. Worldview2 has 2 IR bands, and allows for seeing into water better, etc. Discussed briefly the Clear 30 initiative from Digital Globe, lower US, 2.5 years, 1 foot res. NRCS spent approx \$10m on geospatial in 2009.

c. RMA –

- i. Kirk B. –RMA to prevent waste, fraud and abuse. More than just working with underwriting. What is data mining (a description)? Then discussion of claim filing and national database. Do link analysis – link together groups of people by common activities or deviation detection. Schemes are very elaborate and hard to detect. Data mining process. Spot check list effort, required by statute.

Linking databases was a key. Broke the book of business down. Trying to determine who is good, what is accidental, and what is criminal. RMA list goes to FSA. FSA will send farmer letter on practices. Will also look at NAIP. We found most people were not hard core; and they stopped, all due to the letter writing effort from RMA and FSA to the customer. The cost savings were huge. It's about changing behavior of the producers. Summary list of scenarios and fraud schemes. Discussed the Data Mining Web Interface and use cases. Spyder interface which is link analysis database. They also use hydra analysis. Very useful to ID areas by use, loss, crop, etc. Now we are beginning to geospatially enable this data, using CLU and other data. Showed cause of loss hail demo. Other demos as well, such as WA apple claims, etc., multi-agency geospatial data integration. All of this is in the data mining appliance.

d. APHIS – Laura Stretch

- i. APHIS – Thanks to APFO for inviting us. APHIS world, name that pest. Varied activities, from animal welfare to animal infections, infestations, plant and pest issues, etc...went over 2009 pest management activities. Discuss create and publication of semi-custom web maps...about 30-35 GIS Pros and some power users. Local level build web map services that APHIS can then support. Power to GIS staff; don't need to program or know ArcServer. Just add server and add service, as well as standard tools and custom tools, and go.

5. Remote Sensing Update – Bethel

- a. GEO – 77 member governments + international. Benefit is to bring together organizations to study the earth. USGEO – support sustainable ag and forestry, and combat land degradation. Discussed USGEO staffing. USDA representation is Glenn on USGEO. Progress report in Nov 2009. U.S. does not currently have operational space-based capabilities optimized for monitoring global crop production and ag sustainability. Also discussed carbon markets and forests. Two issues from administration: support mitigating and adapting to climate change and to ag (see briefing). Ag and food are important to the U.S. infrastructure. What data in the archive is useful?
- b. (international charter) – History of Operations. A lot going on. What is our requirement? Do we know? International Charter Space and Major Disasters. Brenda Jones slides...she is lead on training people to use international charter. Member agencies are international in flavor. We want to be a recognized end user, for data for disaster response. Review of disaster types and use of various platforms. 2009 GA Flooding, first time USDA used this...Problems, imagery was not useful. Cannot rely on it, may not be the source you want or have used or need in the past. So what do I need? FSA request imagery support to assess...good enough. Getting free data is better than getting no data. What is Glenn's role? Just tell the group what we need via Glenn. If we use this imagery, group wants some type of product. How do we streamline getting

imagery out in a usable format, plug and play needs...Brenda Jones interview Q&A. Glenn – suggests COE for USDA to process the data and to archive the data.

- c. SOP Stafford Act Declaration – IRSCC. Part of the intelligence community. Activate when told to, when Stafford Act is invoked. Goal is to help obtain and create image derived products. Should say federal requirements, not DHS centric, but some issue there.
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6. Imagery for Disasters – Brian V.
    - a. Presenter was the meeting minute's taker. **ACTION ITEM – Imagery requirements from Agencies for disaster response? At a minimum a contact list... Glenn B.**

## December 9, 2009

1. Kent W. - Welcome and Logistics
  
2. USDA Geospatial – Stephen L., Kent W., Lori U.
  - a. Stephen L. (via telecon) – Geospatial Information Officer for the Department. Welcome and appreciate the time. Apologize couldn't make it in person. USDA GeoEDC topic. Involving public service views. Gov as business = new public management. We are moving to a new view – New Public Service (for the larger public good, engage the public, trust in collaboration, serve rather than steer, etc.). So we look at the administrations core values of Transparency, Accountability, Participation. The approach is to make the public interest the aim. Displayed and described the Government 2.0 Maturity Model. Concepts ranging from Institutionalized Service Delivery to Ecosystem Commodity Management. Glenn B. – Does USDA have the expertise to do Cloud Computing? Do we need to bring it in? Stephen L. – Good question, we need to look at that, because we need to know how to operationalize these concepts. 3<sup>rd</sup> party vendors do have a role. Melinda M. – What is the goal here? Stephen L. – I wouldn't think of this yet as a series of checkmarks. The intent is to think about the concepts; such as how would cloud computing change the way we do business? How do we think about adopting these new ideas? However, we can use these concepts to illicit industry response. New slide – four concepts of the new business model: crowdcasting, crowdsourcing, customization, connectivity. Now geospatial management has two concepts: strategic, structural. ID where we are strong right now and where there is demand to move forward. New slide – emerging business

requirements. Looking at the matrix and identifying where we can get the greatest ROI. Hoping that his (Stephen's) Office can step up if we have unfunded or unforeseen requirements. New slide – routine, modular, and customized type of customer responses. New slide – Cloud reference model. Infrastructure as a service, master data management, and integrated development environment (IDE). Glenn B. – tried to find department that succeeded with implementation of SOA, do you know anyone who has? Because a lot of the orientations don't work for USDA? NGA and DHS, etc., they have not had a lot of success... Stephen L. – In private sector, yes, firms have spent a lot of money and not implemented successfully. But the research says that you need to start with the processes, and connect the services to the processes, and think deliberately about all the components that need to be in place to execute. We are only in the exploration/discovery phase, and need to get through to operational stability, but not there yet. But you need to ask if the current development model works? I would think not, so we need to evolve, and what's the best source to do so? Kent W. – Data services to build applications upon? Are we somewhere in the model you showed? And we'll talk about the ESRI support later. Melinda M. – can this model support point "A" to point "B" (e.g. moving from film to digital for example). Stephen L. – that's fair, you have immediate operational needs...but part of the value of the reference model is to be able to look across USDA and look for solutions and patterns that can be used across the board. Kent W. – Something that needs to be accommodated are things like migration, because that's how we operate. So how do we accommodate what we are doing now and migrate to the future as well? How do we do both; current work and future configuration? Stephen L. – Ideas that need to be grounded, I'd like to help with resources and solutions. I want to think operationally. New Slide – GeoEDC Architecture Considerations – SLC Geo COE (APFO), and Virtualization. For the SLC Geo COE – Ag requirements normalization, data standards management, applications development, innovation sandbox. For virtualization – production management, Data lifecycle management, social media tools. New Slide – EGMO roadmap. Dreamweaver, acquisition strategy, and charter documents... Invite for 30-90 day details to Stephen's Office, probably will show up second quarter. Ron N. – Can you go back to the first slide? Approach – currently the approach to the people in this meeting; that we ID program requirements related to the programs and ultimately the customer. Are you suggesting something different when you say that the public interest is a byproduct? Stephen L. – it is not exclusive, I'm saying that your role has an evolving nature to it, where you will be cast in light of strategist and provisioner of these services. But now our admin is asking us to think of a place based policy, think geographically, so what I'm saying is that there is a tsunami on placed based efforts... Melinda M. – A lot of people in this room have done this for our careers, place based. The policy has not kept up with the advances, and actually these policies get in the way of implementation tactically and strategically. So we are already doing this... Kent W. – it comes down to mission and funding. We put money towards farm programs and others put money towards fire; we are not ignoring the public, but funding model addresses? The funding

model is not necessarily set up to support. Stephen L. – that’s encouraging, sounds like we are thinking about it. Based on data call, what came back was description of programs, not a document of innovations; but how do we document that? Legitimacy of the geospatial community is in question; can we respond to the question of need. We need to document the proof... reshape the form of government to respond. We need to emphasize this, brand USDA, show the story. Glenn B. – Even with the SCA, CLU and Farm Records Program. That is a huge place based, person based program. We work on that now to pull more info into it. We need to manage programs and protect agriculture. So we are looking at putting together the common ag spatial infrastructure. Stephen L. – there is a lot of opportunity here, can we work together on this, so the stories are ready to present. I have to go, apologize, another meeting. Email me if you have questions or concerns (Steven is off telecon). Mark R. – some component of our current arch will fit into this business model. Laura – what we made needs to work on is the place based – we are doing this, and it’s not just a map, its hitting the data sources. Glenn B. – our focus is place based. Discussion continued on how we can communicate and span the gap between our place based foundation to the concepts Stephen has...Ron, Glenn, Laura, Shirley, Kent, Jim, etc. Discussion that some of the barriers are policy or purchase obstacles. We can move at certain speed we need to be able to implement the resources to do so, and that is what is slow, not necessarily the ideas. Example – MOUs, architecture in place. Sounds like we are not short of ideas or concepts of what we need, we are short on implementation capabilities; too slow or not there or not politically supported. Discussed 12906 and White House Directive letter (M-10-06). Discussion about Data.gov and GOS. Memo reads like the early FOIA documents.

- b. Kent W. – Overview of ESRI Pro Services and USDA GeoEDC. We all struggle on making the data work for us, then for everyone else. ESRI to assist hopefully. Site visits from ESRI to understand and focus on data management and distribution. Showed project objectives; and the concept of GeoEDC. Shirley H. – Are the ESRI folks going to document roadblocks and the as-is stuff, so Stephen can see the issues we are running into? Shirley – showing the roadblocks is important to document. Glenn discussed time series analysis and monitoring. Melinda M. – We went through this exercise with ESRI (USFS), and papers and documents were written. Their solutions did not help. Large gaps and wrote up report and hid the gaps. Let’s not do that this time. Kent showed the project scope: themes, infrastructure gaps, migration strategies, support, integrate findings, core themes, training and support, pilot areas, etc.
- c. Jim H. – ESRI BPA , we are in the second year. Payment forms will be coming out of EGMO (Stephen L.) directly to the agency head. Payments were intended to be quarterly, but forms (672) have not gone out yet. Same payment should be every year through 2013. Call or email Jim with questions. The BPA is a huge cost savings, 65k licenses utilized via BPA versus paying for licenses individually. Tony K. – can we use this for update of aps. Jim H. – yes, the pro services portion certainly.

- d. Lori U. – Discussed infrastructure and key infra failures, and key hardware, software, network, security upgrades, migration of data, etc... See briefing for details. Glenn B. Raid 5? Lori U. – Already in place. Questions about FTP limitations... Bill – how do we fix passing data up and down stairs so we can do it? Lori – to be discussed this PM.

3. IFTN Update – Shirley H.

- a. Been in the works for several years, so just giving a status right now. We'll give Digital Globe (DG) status as well. Reviewed vision of IFTN – national imagery program. Provided a brief history. Discussed specifications that have been developed; and some of the sub groups that primarily, but not exclusively, derived from NDOP members. Did a survey, what are your federal requirements. Results supported basic IFTN concept. Spent some time working on decision mechanism. Record of decision was supported by FGDC X-Comm. We are now revising the report but are essentially done. General assumptions on record of decision – National program, address needs of federal enterprise. Some discussion about licensing of satellite. Building on NAIP as a base product. Frustration is that it take a long time to go through this process because things change/technology changes. Two basic components – high res and very high res. Some buy-up options. Discussed cycles in lower 48, AK, and HI. Various priority setting/funding models discussed, depending on funding levels. Discussion of Governance Structure (involves FGDC and NDOP). Note that a lot of this is recommendation; no funding to support. Discussed USGS and FSA management of current programs, but would coordinate and put in place other plans/requirements to support additional requirements. Discussed Contracting Strategy. Both QBS and Best Value could be used. Discussed hosting and archiving and funding to support. Draft IFTN report has been completed, but waiting on USGS/NGA input, and needs review, and DG and Microsoft (MS) model are not in the plan. See briefing for details.
- b. Digital Globe – Clear 30 program – should be fully funding by MS and DG, full acquisition 1-ft for lower 48 in natural color (NC) 2010. Priority blocks are dense urban areas, then high value blocks, etc...but are supposed to collect everything. Showed specs. Discussion about MS purposes, Bill, Tony, Shirley. Bill B. - There is a market for this product. Shirley – yes, several agencies will be looking at this. Bill B. – DHS proposed this. New Slide – discussed licensing. Provided summary slide. Ron N. – Would this alleviate high res for IFTN. Bill B. – intent is for the government to buy it and use it. Licensing model – sell once then it is in the public domain. Sample data potentially to be provided this December.

4. Satellite Imagery – Glenn B./Jim H.

- a. Glenn. B

- i. Business case – carbon cap. Multi-sensor approach. No system right now to provide this image data to use to support carbon programs. Question is, why are current satellites inadequate? Propose USDA leads the operation and funding of the carbon satellite. <7 day temporal resolution, 11 or so bands to meet specific agricultural needs. Shirley H. – where is this proposal coming from? Glenn B. – FAS, ARS, and NRCS, but FAS is taking lead. Not presented yet to anyone. Landsat science team does not care what USDA requirements are; so we need to likely build our own. NOAA directed to build microsats, maybe fund through FAS, etc... Ask for our requirements but then don't implement. We have a monitoring mission that is not being supported. Ron N. – what are the initial costs. Glenn B. – I have them, but it's complicated, launch cost, construction costs, spec costs, processing, support structure, etc.. Jim H. – microsats you can pepper the sky with these for the cost of one Landsat. Shirley – Cost seems reasonable; do we have a champion on the Hill? Glenn B. – All that is being worked on.
  - ii. USGS Spot Coverage ground receiving station potential for spot 4/5. If USGS to host that station, then data would be all you can eat. May or may not go through. If not SPOT, USDA will likely pull money out because it won't be what we need.
  - iii. USDA Satellite imagery archive discussion. Will have WebEx on the USDA satellite imagery archive quarterly. This is essentially get the word out about what's available, and imagery contracts, and other topics. Discussed RMA funding for Conus coverage. Turn around on sat acquisition and delivery, 3 days. Discussed AWiFS collects. Discussed SIA contract mechanism. There are prices for various satellite platforms. Glenn B. – if you are not on the Sat archive WebEx list, email me and I'll try to get you on the list.
  - iv. Discussed global MODIS on line availability.
- b. Jim H.
- i. USDA Satellite Imagery Archive – DataDoors Access - Mechanisms to get the data out. IT issues. DataDoors solution. All AWiFS and other prime vendor data has been loaded. So if member of USDA sat image archive will have access to this data. WebEx will cover how to use data doors. i3 will pull the data and you can access this; it is a cloud environment. DataDoors for ArcMap interface discussion, based on geographic extent and temporal range. Clips out the data and sends email for you download that data in whatever format and band combination you want. Tony K – Archive will be hosted by i3/ft Collins. What about licensing. Jim H. – this imagery is not licensed for i3 to use. Some they can make available to us from other datasets, but they are not to use the data for themselves outside of the service they are providing. Jim would hope that disaster sheet data Glenn sends out would then go into this system, and our users could just go to one archive for their needs, for access or download. There is both an ArcMap and web interface.

5. Hardcopy Options/Alternatives – Stadelman

- a. Hard copy options or alternatives. Discussed difference between inkjet system versus true photographic process using Light Emitting Diodes (LED). Provided costs to startup print shop and maintenance. Imagery example and scanning resolutions. Digital versus contact prints in reproduction; degradation of your image. Still several customers need 10x10 contact prints. Discussed lamination services and some pricing schemes. On standard price sheets. Melinda M. – we need the pricing information up front. We don't have that. Some discussion on scanning resolution and size of contact prints or digital prints to meet USFS requirements. **ACTION ITEM –Cindy S. Send sample prints to each region + price sheets. CC Bill B. and Karen N. May want some samples of various camera formats, as well as some stereo coverage where possible.** Set some pricing up for digital resource.

6. APFO GIS Projects – Pugh/Adkins

- a. Ron introduction. FSA contract with knowledge bank. 52 recommendations. Discussion of Administrator's requests, and formally the DAFP requests. John S. put together photo of images over time. Where's my house? Photo display. Time series photo. Administrator really like this change concept. So then he asked the questions; how do we improve accountability and delivery. Really these projects are just a proof of concept.
  - i. Zack – projects deal with land use change over time (slide deck). Request from WDC. Show land use change in urban sprawl. Discussed the project and the process. Initial projects, tight deadline. Area of Interest (AOI) from us with the Administrator. Discussed the scanning, georef, etc. and processing. Did most heads up digitizing for area because of issues with automated classifications on 1-band, higher res, etc. Described the projects outputs (e.g. presentation, prints, reports). Sacramento example (see briefings for details and analysis). Did comparisons to FSA tabular data, DCP, ACRES, etc.
  - ii. Nathan – Dallas example (see briefings for details and analysis). Did manual classifications because could not get results in automated. Did comparisons to FSA tabular data, CRP, DCP, ACRES, etc. Example of using imagery to check use based on program enrollments. Melinda M. – Is administrator using these on the Hill? Ron N. – proof of concept to help with concepts, expects that each one of the areas will be expanded to the future. Jim H. – Trade magazines? ASPRS, ArcNews? Nathan P. – Thought about it. **ACTION ITEM – Article in other pubs, about this type of project...expand past just geospatial world.** Ron – Admin, from an accountability point of view, can we go back in time and be sure we are making payments, over time, record keeping. What can we do now and what

can we do in the future, to better manage our data, so we can answer these types of questions.

7. NAIP Review/Discussion – Williams, Uhlhorn, Davis, Gabbott, Mootz, Simpson, Wheeler
  - a. Kent W. - Discussed 2010 plans, challenges, changes, etc. We never know until the day the contract is let how many states we will be acquiring. NAIP is about getting imagery quickly, at a low cost; that meets the requirements of FSA and other Agencies. Discussed funding for 2010, states not flown last year “guaranteed” funding (tier 1). Shirley – budget discussion and administrator commitment. Map displays funding commitment but funds aren’t there yet...these are tier 2. Budget is still pending. Kent W. – full state coverage, no holes. Administrator supports this. It is a national standard base. Not enough funds, but the goal is annual coverage of lower 48...so we move that direction (tier 3 states exemplify this on the graphic). Slides of Tier 1, 2, and 3 states. Cost share numbers based on cost estimates. Cost share is one heck of a deal. Discussed with state partners, etc., such as NISGIC. Candice B. – When do you have to know about partnership? Geoff G.– Agreement must be signed by end of January. Bill B. – why so soon? Geoff – due to need to know for planning for 4-band states for RFP. So partnerships must beat the RFP out the door. Kent discussed specifications changes (absolute, full coverage lakes, QQs available to partners sooner this year, jp2). Whole strategy is to maximize coverage. Showed timeline for NAIP acquisition and delivery. Sensible fast delivery of QQs because of low remake rate. Discussed the unlicensed nature of NAIP. NAIP is everywhere; Google earth, NASA WorldWind, ArcGIS Online, etc. But now MOUs credit in place of the data. Working on agreements to help collect stats on usage which should intern help with partnership with other federal and state agencies. Ron N. – you know the FSA Administrator really does understand the value of sharing the data widely like this. Melinda M. – joined state partnership of WY for CIR upgrade. DVDs to Randy Wiggins. I have counties I cannot load because of DVD copy...I don’t even have the 2008 NAIP data. How do I get it? Kent – web services are part of the answer. But infrastructure is part of the problem, and we are trying to correct. Bill B. – get the data from Mike Hadly. Conversation between Mike and Melinda. McGowan described the process of getting NAIP to USFS Regions via GSTC process. Kent displayed the 2009 NAIP status website. Geoff – described difference in inspection process now for receipt and delivery of QQs and CCMs, before full inspection.
  - b. Issues with deliverables – David D. – 4-band discussion. 4-band both CCM and DOQQ would be our preference, but CCM issues. Review of compression formats and positives and negatives. McGowan - image server seems to like JP2 more than SID. Bill – forest service business, if tiles are delivered same time as CCM, then do we need CCM spinning on the ImageServer. Kind of a consensus no, but still big reason to receive the CCMs in the field. David – discussed a new proposal; the CCM pro and con discussion. Is there a better way? Discussion on higher compression, a (compressed DOQQ) CDQ with raster catalog, premade areas, or single compressed DOQQs. May also help with server space. These are just ideas, would these meet requirements of users? Lots of discussion of

formats ensued. **ACTION ITEM – Review Deliver Formats of NAIP Deliverables, and the Delivery System. Formulate Team, David Davis/Kent Williams**

- c. Feasibility studies – David - New slide – high res feasibility study. Discussed results from costs to delivery schedules to formats, etc. Pilot projects and impact studies. David – does this meet user needs? Well of course, but match infrastructure versus higher resolution. Bill – there is absolutely a need/requirement. Need to do the feasibility study. Pilot ok, but making a move is a risk...Shirley H. – base imagery, thin client comments. Jim Heald. – the storage issue doesn't go away, still will have larger files, just central. Shirley H. – how does this change the entire cost of the program? And how does this affect partnering and commitment of the primary partnership. Ron N. – GDW is a USDA asset, so costs will go up for USDA just based on increased storage...
- d. Distribution services – Lori – Gateway, our downtime, GDW, EarthWhere distribution, work with Citrix client, globe project (2 and 3d), and delivery on media (See briefing for details). Discussed costs that we (APFO) does not recoup. Looking into blue ray disc, things like Encourse. What network is USFS GSTC on? **ACTION ITEM - Bill B. and Lori U. – sharing data or transmitting data to GSTC. Solve this problem; Encourse?** Ron N. – but what was the reason for GeoEDC? Not to duplicate the effort. We need to look at what services to support them, not duplicating the data. Bill B. – Agrees, but in the short term, still need to solve the issue.
- e. Geoff G. – NAIP buy-ups – Oregon Issues. TX successes. Other secondary contracts, WY, stereo raw plus a CCM. Also MI 4-band. General – secondary contracts seems to work fairly well. But there are limitations; camera types for high res could increase risk significantly. Haven't heard too much on 2010 NAIP, NV, OR. Melinda M. – Did DOI or Gretchen create some sort of partnership...does DOI have a vehicle to add money? Geoff G. – we don't get involved with secondary contracts. Shirley H. – Contractor came in with no changed flight plan, and Contractor said that was figured in...who paid for that? Geoff – Contractor proposed a flight plan which allowed for .7 meter acquisition. Flight plan looked good, and the aircraft they used would not fly high enough. But would seem to be a benefit for partner buy-up... Don E. – what is the buy-up versus secondary? Geoff – buy-up is 4-band as part of our contract. Secondary contracts are completely separate from the NAIP contracting mechanism, and we do not get involved.
- f. David Wheeler – NAIP is a feel good story. Accomplishments in QA – developed a quantitative approach to quality assessment. Established DB of inspection results. Adjusted radiometric standards. Developed high level inspection process. Aligned inspection more closely to contract specs, etc. See details for slides. Tony K. – Do you feel that digital versus film changed these quality assessment specs? Dave W. – you are asking about quality processing, and we don't know because the contractors don't openly share their processes. Digital is different than film, but that is all we know. Discussed phasing of inspection process...phase 1, 2, 3. Try to provide the information back to Contracting in a meaningful manner, and help us weight, grade, trend from year to year. Grading is on 15 point scale and a normalization process based on geographic extent, etc... there is debate on this. Shirley – who gets to use this data? Dave – give to

Geoff... But the consensus is that it could be utilized more.. Future challenges – CIR standards and NC saturation standards. We need to tackle this as a community, what are the standards. Some discussion about pre –production sample. Tony K. – Start with film and digital, now mostly digital. Is part of the consistency due to digital versus film? Dave W. – maybe more consistent if all digital, but really has to do with their processes. Film versus digital shouldn't matter as far as quality. Ron – is there any correlation of quality between film acquisition and digital acquisition. Dave W. – haven't done that yet. New Slide – Horizontal accuracy overview. Showed inspection slides. Average offset is 1.6m. We are taking a look at the number to see if that is too tight...discussed outliers. Asking of the field that if you see 10+ meter offset, let Brenda Simpson know.

- g. David P. – NAIP Coverage Viewer (Question about partners noticing possible offset. These should be reported to APFO) David P. displayed the NAIP Coverage Viewer on the screen. He showed the help documents that are available on the website. He also showed the NAIP 2003-2009 PDF document that is available from the APFO website. He showed how you can find the coverage information for a specific county. Showed how one can click on the identify button and then click on a specific state on the map to see the available imagery products by year for that state. On the left side of the Coverage Viewer screen you can expand the information shown by clicking on the + sign next to the particular data layer. He showed how you can also display photo center information, DOQQ boundaries, and other information. Can view the file name, image, date, QQ name, roll and exposure number, and other information for each image. Can also display PLSS, federal lands, and index information. There is also an ArcGIS Server connection of this information available for ArcGIS use. The URL for this site is shown on the website. Glenn B. – List film holdings? David P. – the PDF can list film holdings within NAIP. Glenn B. – outside of NAIP? David – yes need to do this for historical, request NAPP and NHAP photo centers....maybe from the index scanning shapefiles. Candice B. – NAPP and NHAP timeframe? David P. – Will take a while, would need to pull the data somehow either from USGS EarthExplorer or maybe from index scanning and georef project. Melinda M. – would you like our resource photo center points? David P. – would you like us to? Melinda M. – yes. David – handed out custom digital print forms and described. Custom products are possible. Photo types, metallic versus standard type paper.
- h. Brenda S. – Problem tracking and recording. One point of contact for all problem issues. Will set up an email for these issues to be sent to. Also recording by phone. Sharepoint site for NAIP problem tracking. Recorded and tracked from inception to resolution, can assign to people and track through resolution. Brenda is the only one who can close these issues. Shirley H. – Query capability? Brenda S. – Trend analysis...yes likely but haven't done it yet. Kent W. – trending quality issues, David is recording issues spatially, so we can also spatially query the errors or information. Brenda S.– please contact me if you have issues. Tony K. – Add into minutes sharepoint site info? Kent W. – Noted, but info is not accessible yet to others outside of APFO.

### SUMMARY OF ACTION ITEMS

- (SOFT ACTION ITEM) - It would be good to have brief on digital stereo from the USFS, maybe next year? Melinda would be willing to share.
- ACTION ITEM (APFO-GSB) – define level of backup or archive for resource based on customer requirements (maybe expand scope to seek an understanding of digital acquisition requirements).
- ACTION ITEM (Glenn Bethel) – Imagery requirements from Agencies for disaster response? At a minimum a contact list.
- ACTION ITEM (Cindy Sessions) – Send sample prints to each region + price sheets. CC Bill Belton and Karen Nabity. May want some samples of various camera formats, as well as some stereo coverage where possible. Specifics on bands and histogram stretch from Forest.
- ACTION ITEM (APFO) – Article in other pubs, about land use change, historical imagery and agriculture projects...expand past just geospatial world.
- ACTION ITEM (David Davis, Kent Williams) – Review Deliver Formats of NAIP Deliverables, and the Delivery System. Formulate Team.
- ACTION ITEM (Bill Belton and Lori Uhlhorn) – sharing data or transmitting data to GSTC.
- ACTION ITEM (Lori Uhlhorn) – Gateway Big County Solution – 4GB limit
- ACTION ITEMS (Bridget Barlow) – Provide Status Map for NAIP Projects Receive and Release.
- ACTION ITEM (Melinda McGann) – Photo Center Points for Resource photography to David Parry.
- ACTION ITEM (Geoffrey Gabbott) – Provide Unit Cost for Digital Acquisition to the Forrest.
- ACTION ITEM (Glenn Bethel) – Provide Contact to USFS for WARP Training.