



# State of Alabama Imagery Business Plan

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Unanimously Approved by the  
Alabama Geographic Information Advisory Committee

Developed by the  
Imagery/LiDAR Subcommittee

For Consideration of the  
Alabama GIS Executive Council

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## **1. Executive summary**

Recent years have seen the purchase of an increasing number of LIDAR surveys and digital ortho-photography acquisitions by municipalities and public agencies in Alabama. Uses for the data include Economic Development, Parcel Mapping, Emergency Planning and Response, Flood Map Modernization, Geologic Mapping, ground-water modeling and management, Highway Planning, and Urban and Suburban Infrastructure Engineering, just to name a few. The collection and maintenance of this data has taken place through individual, un-coordinated actions that often result in duplicated efforts at various levels of government. The majority of this data collection has taken place at the local level and it has become increasingly apparent that this is where the best data is collected, maintained, and resides. It is also apparent that local officials with intimate knowledge of local conditions are the best stewards of the data layers associated with their jurisdictions. State agencies typically collaborate with federal agencies, but prior to the 2010 flying season, these three groups did not collaborate, particularly at the local level. As budgets are being strained at all levels of government, the logical solution is to develop a system of partnerships across the three groups to share costs and ease the burden of funding. Large collaborations also have the added benefit of reduced costs per square mile of data thereby stretching those dollars further. Funding data over the past five years show that the sums of those amounts are nearly equal to the cost of a total statewide acquisition over the same time period. Acquiring data in this piecemeal fashion has resulted in local imagery in all 67 counties, and LIDAR in 16 counties – all with varying specifications, age, accuracy, and with a very small percentage of that data in the public domain which means that it cannot be widely used across all levels of government.

The GIS Executive Council has tasked the GIS Program Office to coordinate statewide aerial imagery and LiDAR activities. It is important that any aerial imagery that is sought through state contracts and which goes through purchasing is forwarded through the GIS Program Office so coordination of efforts can be made. As part of this coordination effort a Business Plan is needed and is being developed by the Technical Sub-Committee on Imagery and LIDAR which serves under the GIS Advisory Committee. This sub-committee was formed to develop a plan to meet the goals and objectives of the Alabama GIS Strategic Plan for imagery and elevation data. It will outline the steps to bring local, state, and federal agencies together to develop a comprehensive program to acquire imagery and elevation data for use by all government agencies and improve the Statewide Spatial Data Infrastructure (SSDI). The goal of this collaboration will be improved quality and quantity of accurate data, and improved partnerships that leverage funding in the most efficient manner. The primary benefactors of this program will be the government agencies that rely on the use of this data in their daily work. It will increase efficiency in data collection and will benefit the taxpayers of Alabama who demand that government utilize their tax dollars in a wise and efficient manner. This Plan is a “living” document and is expected to be revised from time to time as the committee receives more feedback from the stakeholder community.

This Business Plan will rely heavily on the existing infrastructure that exists within the Alabama Department of Revenue (ADOR). ADOR is legislatively responsible for managing the acquisition of mapping data for property appraisal purposes. ADOR has implemented a system of guidelines, specifications, and oversight for the planning and collection of imagery needed for the property appraisal process. This plan will expand those efforts to emphasize and reward partnerships at the local level,

promote partnerships at the state and federal level, and migrate the current single county collection efforts into regional collections.

This will result in a consistent product, reduced individual costs, and maximum return on the investment. This Business Plan will build upon those established guidelines and specifications to meet the goals and objectives of the Strategic Plan:

- Define the means by which to organize and route funding for the acquisition of data at the local level thereby leveraging federal, state, and local funds,
- Define the procedures to manage the inventory, collection, and maintenance of remote sensed data at every possible level of government
- Define the roles and responsibilities of all stakeholder agencies for the establishment and maintenance of this program to ensure its long term sustainability.

This Business Plan will enable the GIS Program Office to manage and act upon the directives in the plan. Providing this clearly defined leadership at the State level is crucial when dealing with all levels of government, but especially with federal agencies. Alabama has "lost" substantial funding in the past since federal agencies are required to collaborate with the defining authority within a state. An active GIS Council, Committee, and Program Office with a viable Business Plan gives federal agencies the assurance that they are dealing with a genuine authority that represents all levels of government within Alabama.

From the local perspective, city and county government look to the state for desperately needed guidance and funding. This provides the assurance that their efforts are part of the overall collaboration while assuring their constituents that tax dollars are wisely and efficiently utilized.

Funding will be a crucial aspect of this program and must be provided to ensure the state can adequately fulfill its role in this plan. Without adequate funding, local government will interpret the state's efforts as weak, and without substance. When dealing with federal agencies, providing a funding match is a prerequisite for most projects. For example, with the right amount of collaboration, \$500,000 in state and federal funds could possibly be leveraged into acquisitions totaling \$1.5 million or more in value further reducing the square mile costs of acquisition per agency.

In reality, the costs for each year under this project cannot be adequately calculated at this time. Since this project will rely on leveraging funds from existing programs within state government with funds expected (but not committed) from local and federal agencies, those costs cannot be determined until local and federal budgets have been approved. County government will begin drafting preliminary budgets in May of 2012 but will not receive final approval until October 1 of 2013. Federal funds reside in a nation-wide pool and are disbursed based on project proposals submitted for consideration after October 1 of 2013.

All potential funding sources should be explored and the results presented to the Executive Council for recommendations. One possible option for consideration is to have a shared percentage of the program costs provided by each agency/partners, or through State Legislation that will provide funds through the General Fund

Budget. A fully funded statewide program would require approximately \$4.5 million a year for the first three years, then \$2 million a year thereafter for annual maintenance. This would support the acquisition and maintenance of 1"=200' (1' pixel) imagery and two foot contour LIDAR data. These amounts could be a combination of federal, state, and local funds, and would rely on continued support of the project. This document will focus its efforts on voluntary funding from individual agencies until such time that a dedicated funding source can be obtained. The annual scope of this project will vary depending on the funds allocated from state and federal agencies.

## **2. PROGRAM GOALS**

Through the planning process to develop the Strategic Plan, discussions concluded that the State should implement a plan for the coordinated, cost-effective collection of key Framework Data that would support the widest needs of the stakeholders at all levels of government. The two key layers are ortho-imagery and elevation data since these two foundation layers are typically used to produce the other key framework layers. The biggest obstacle to complete these goals is funding. No single agency can bear the costs of developing this data on a state wide basis. Funding this effort will require partnerships with multiple agencies across multiple jurisdictions therefore the majority of the work required for this project will be the development of those partnerships.

**Programmatic Goal:** Define the scope, duration, specifications, and guidelines of the project to ensure the needs of the majority of the stakeholders are met.

**Objective 1:** Distribute USGS photography and LIDAR specifications for review to the stakeholders. Compile the results for review to ensure these specifications meet the needs of the stakeholders.

Success Factors:

- a. A clear and concise snapshot of the needs of the majority of the stakeholders.
- b. A final set of specifications that reflect those needs.

**Objective 2:** Modify existing ADOR Mapping Guidelines and Specifications to reflect the updated specifications, and provide an orderly process for guiding ADOR and County officials.

Success Factors:

- a. A final, revised document that meets the approval of ADOR and County Revenue Commissioners.

**Objective 3:** Outreach to Federal, State, and Local Government to communicate the Business Plan, enlist and encourage partnerships, receive feedback and comments from the stakeholder community, and determine possible funding sources for future partnerships.

Success Factors:

- a. Communication of Business Plan to key decision makers at the Federal, State, and Local levels.
- b. Positive feedback and participation from the stakeholder community.
- c. Revised Business Plan based on feedback and comments from stakeholder community.
- d. A Clear definition of those agencies and key personnel that have the need and funding to support this effort.

- e. Key contact information at those agencies to ensure the committee is dealing with a genuine authority.
- f. Outreach to those agencies to ensure they are aware of and understand the Business Plan.
- g. Compiled information about possible grant funding or other available resources.
- h. Commitments from Federal, State, and Local government to provide funding and/or resources to the project.

**Objective 4:** Establish policies and strategies which emphasize cooperation and coordination among state agencies, federal agencies, county agencies, environmental agencies, regional planning agencies, municipalities, academic institutions, nonprofit organizations, utilities, private companies, and individuals, and other states in order to maximize the cost efficiency.

Success Factors:

- a. Established policies and guidelines between state agencies with federal counter-parts, environmental agencies, academic institutions, state-wide private utility companies, and other states for coordination responsibilities.
- b. Established policies and guidelines between county agencies, regional planning agencies, municipalities, and nonprofit organizations for coordination responsibilities.
- c. Input from local government about needs and plans for the 2013-2014 flying season.

**Objective 5:** Develop acquisition plans for Imagery and LIDAR for the 2013-2014 flying season through existing partnerships with State and Local government.

Success Factors:

- a. Successful development of acquisition plans with state and local partners.
- b. Acquisition plans with sufficient coverage to begin taking advantage of cost savings through economy of scale.
- c. Acquisition plans that meet the priorities of the partnership and utilize all funding for current fiscal year.
- d. Successful development of secondary acquisition projects for any additional funding that may be secured later in the flying season.

**Objective 6:** Identify and develop funding sources for project implementation and long term maintenance.

Success Factors:

- a. Commitments from federal agencies for additional funding to increase acquisition plans for current fiscal year.
- b. Long term partnerships and commitments from Federal, State, and Local Government for maintenance future acquisitions.
- c. Sub-Committee established to compose grants and provide assistance to other agencies for grant writing and management.
- d. Establish yearly efforts to submit funding requests to Alabama's US Senators and/or Congressmen.

### **3. PROGRAM BENEFITS AND JUSTIFICATION**

There are many benefits in developing a statewide program to acquire digital ortho-photography and LIDAR with very few disadvantages. In other states and within the State of Alabama at regional levels, this has repeatedly been proven. One confirmed advantage is the reduction of overall costs. This can be accomplished in several ways including reducing duplication of data, utilizing economies of scale and leveraging costs among participants. Additionally, there are benefits derived from having standard information. These include uniform accuracy, and generally greater accuracy, better decision making capability and better collaboration capabilities. It then becomes easier to manage resources in business and land development, environmental management and emergency management.

At its core, this Business Plan will provide many opportunities to reduce duplication of data. As an example, a major city in Alabama has plans to fly a large portion of its city. This flight will be a direct duplication of the surrounding county. On the other hand a city to the south will coordinate efforts with at least two other counties. The city to the south has accomplished multiple tasks. It will effectively leverage its funds to provide more accurate data at a lower cost. It will be able to share data with its neighbors and it will have taken advantage of economies of scale by contributing to a larger land area to fly. Since certain costs are generally fixed, (putting a plane in the air and planning the flight, for example, costs about the same for a small land area or a larger area) these are reduced through using the economies of scale of the larger project. By using the economies of scale each cooperating community will benefit from the larger project. In general, because of the savings realized, groups are generally able to collect more accurate data. If this is the case more departments within an agency will be able to utilize the data thus providing greater benefits than might otherwise be derived.

In the example above, after data has been processed, the data developed through cooperation will be shared through those agencies and the departments within the agencies. All of the computer systems will be able to use the same applications and the cities will be able to share not just the data but also the technology surrounding the data. If one organization develops an application it too can be shared throughout the communities using the same data. If a web application is developed, it will be able to be used, with no modifications, thus once again leveraging costs even more.

Once the data and the software applications are in place, decision makers will be able to use this data to better manage resources. If this data is available to businesses, it allows companies to decide, for example, where would an industry optimally be placed in a community. This becomes a great advantage to communities competing to draw businesses into an area. Likewise this same information can be used for resource conservation and land use planning. In the event of a natural or man-made disaster, the agency has a record of what the land characteristics before the disaster. When combined with additional information, Property tax information for example, a very accurate estimate can be developed of how much property damage, in dollars, has been sustained. This information can then be provided to the federal government to begin to quickly provide relief for the community affected.

## **Examples of Cost Savings**

Richland County, South Carolina was asked by a technology company evaluating land in the county to construct a billion dollar production facility to provide a field survey of the property at a cost of \$140,000 to assess the elevation, slope and drainage characteristics. They had a short window to accomplish this request. Instead of a field survey, however, they were able to use a digital terrain model (DTM) derived from LIDAR and combined with digital aerial photos. The county was able to provide the company what was needed and the request was satisfied within 24 hours at no extra cost to the county.

Jefferson County, Alabama, GIS Division of the Department of Information Technology had been tracking the benefits of using digital aerial photography and LIDAR as well as GIS in general. In a ten year study, from 1996 to 2006 savings to the county were measured. It was found that the true value to the County is by savings through consolidation of data collection and therefore data redundancy and savings through the economies of scale. The data becomes accessible to all departments and is built upon. This data becomes the infrastructure of the overall system. The term infrastructure is not used lightly. It is used to describe the fundamental, interconnected components supporting an entire structure. Measurement components included revenues, grants derived specifically connected to having a GIS, reduction in duplication of data, and benefits incurred from other communities being able to use the data as well. Total savings in this time period was over \$61 million.

## **4. PROGRAM REQUIREMENTS AND COSTS**

### **4.1 Inventory of Existing Infrastructure and Suitability Assessment**

Over the past ten years, the Alabama Department of Revenue has been implementing GIS with digital imagery at the county level as a means to more efficiently manage the property appraisal process. As ADOR initiated these systems, budget provisions included the necessary hardware and software to support the digital photography and mapping data acquired in each county. To date all 67 counties have some type of imagery acquisition program along with the necessary hardware and software to support to it.

State offices that deal with large amounts of digital imagery and elevation data typically have the infrastructure to manage it as well. Most currently work with large data sets, but these data sets are old, and have inconsistent accuracies and specifications. Existing infrastructure to manage this data is not seen as a problem that needs addressing in this plan, just the fact that improved and more current data is needed.

### **4.2 Data Requirements**

Data requirements for imagery and elevation data are currently addressed in the USGS specifications. These documents describe the deliverables which include all relevant meta-data. Adhering to these standards bring the added benefit of meeting federal needs and with that comes additional funding. The specifications are geared to massage the data into the format required for ingestion into The National Map.

This will ensure that all Federal, State, and Local Government has access to the data at any time.

The USGS imagery specifications do not specify exactly what scale is required since this is often a function of population density and development. Current ADOR image scale requirements specify 1"=100' (0.5' pixel) in urban areas, 1"=200' (1.0' pixel) in light urban areas, and 1"=400' (2.0' pixel) in rural areas. This program will set the minimum scale for imagery at 1"=200' with local priorities for 1"=100' scale in urban areas.

USGS has recently released LIDAR standards in anticipation of increased data acquisitions that will be absorbed into the National Elevation Database. LIDAR data acquired through this project will be collected using the USGS standards as a minimum, with additional FEMA standards determined on a project by project basis or as funding permits. The primary intent of this specification is to create consistency across all LIDAR collections, in particular those undertaken in support of the National Elevation Dataset (NED). Unlike most other "LIDAR specs" which focus on the derived bare-earth DEM product, this specification places emphasis on the handling of the source LIDAR point cloud data. This is to assure that the source data collected remains intact and viable to support the wide variety of non-DEM science and mapping applications that can benefit from LIDAR technology.

FEMA LIDAR standards implemented in 2001 have typically been used to acquire elevation data for flood mapping purposes and focuses on the data requirements and formats needed for flood plain mapping. In September of 2010, FEMA released Project Memorandum 61 which revised its LIDAR standards and aligned the specifications with the USGS document.

The resulting LIDAR acquired under this program will meet a minimum two foot contour standard which meets the needs of the majority of the stakeholders. One foot contour LIDAR is attainable, but this accuracy is difficult to achieve in areas of dense trees and thick vegetation. The cost associated with uplifting to this scale on a statewide collection would not be efficient since the accuracy would be difficult to achieve consistently. Buy-ups to the one foot scale in heavy urban areas are typically acquired in municipalities and the decision to initiate the buy-up will be left in those hands.

Data sharing agreements throughout the state exist between a few agencies and the counties. Implementing new agreements at the time of funding would ensure all state and federal agencies are included in that agreement. Funding documents for the acquisition of all imagery, LIDAR, and resulting data acquired through this program will include those data sharing agreements. These data sharing arrangements between stakeholders groups will make data available to all levels of government for operational use of the core function areas of: business functions, modeling function, analysis function, and visualization.

### **4.3 Technology Requirements**

The technology infrastructure required to support this program exists within most State and Local Agencies. Reduced costs for hardware, storage, and software have

been implemented and are in use to effectively manage large data sets. Visualization technology has brought access to data to a new level by providing users the ability to discover, test, and evaluate existing datasets to determine suitability of use. Visualization assists by providing easy access to imagery, data assets and key metadata that agencies and departments already possess and more importantly what data it should focus on acquiring.

#### **4.4 Human Resource Requirements**

The resources needed to complete this project can be found at various county and state agencies. The Alabama Department of Revenue currently has the organizational structure that works with county government to coordinate county mapping projects across the state. These duties include coordination, budget review, contract review, support for specifications, and quality control review to ensure the final product meets the requirements. This program will rely on that existing organization to implement this plan by relying on existing lines of communication and processes.

At the local level, most counties have extensive experience managing imagery data sets. This experience includes developing scopes of work, contract negotiation and management, quality assurance and quality control. The primary changes in their process will be management of funding and data sharing agreements with the state.

Other State Agencies have personnel with expertise in contracting, geodesy, surveying, imagery acquisition, LIDAR acquisition, meta-data, and the quality assurance and quality control procedures. The Sub-Committee will manage resources for additional QA/QC and developing products from the source data that will be required to ensure the final products meet the goals of the project.

#### **4.5 Standards**

As referenced earlier, imagery and LIDAR specifications will use the latest USGS specifications which meet the broadest utility and ensures partnerships at the federal level. FEMA flood mapping specifications will be utilized in areas of 100 and 500 year flood zones to ensure the resulting data meets the flood mapping needs.

1. USGS Imagery Specifications  
Currently under development
2. USGS LIDAR Specifications  
See: <http://lidar.cr.usgs.gov/>
3. ADOR Mapping Specifications  
See: <http://revenue.alabama.gov/advalorem/sections/Mapspecs12.pdf>
4. FEMA Project Memorandum 61  
See: <http://www.fema.gov/library/viewRecord.do?id=4345>

## **4.6 Budget Requirements**

As previously stated in this document, this program does not have the luxury of established budgets to fully fund a statewide acquisition and will focus its efforts on dispersing available funds and resources across multiple counties. Funding from individual state agencies will be on a voluntary basis and federal funding will rely on grant applications and proposals. Federal and State agencies will also have priority areas which will dictate the amount and direction of their funding. For example, every three years, USGS obtains new imagery for the 133 Urban Area program. Their priorities in that funding year are focused on obtaining that imagery. Once those priorities are met, the remaining funding is made available for other projects. Other state agencies will have similar priorities and decision making processes.

County priorities will also dictate the amount of funding for their acquisitions as well. Those counties with increased development will likely have the need and funding to update imagery and elevation data on a more frequent basis. Smaller counties with smaller revenue streams are forced to balance need with scarce funding. Acquisitions are sometimes postponed a year or more until enough funding can be carried over to initiate an acquisition.

Due to the funding issue, this plan will rely on preliminary budgets estimated from state agencies and counties. Once preliminary acquisition plans have been developed, these proposals will be submitted to the various federal agencies for funding consideration. Unfortunately, this scenario will not determine final budget amounts until October or November of the year with federal commitments possibly as late as February of 2013. By preparing acquisition proposals to fall back on, excess work plans can be available in the event additional funding is acquired. This will allow excess funds to roll-over to lower priority acquisitions thus ensuring all available funding in a fiscal year is appropriately leveraged.

Formulating estimates for budgetary considerations are needed to move the dialog forward, but these estimates can vary. The acquisition of digital photography and LIDAR is a professional service that relies on other professions to complete the work. For this reason, it is not a service that can be bid out. Some factors that can affect pricing are mobilization costs, terrain, and the extent of the geodetic network in a county. For the sake of discussion, we have used an amount of \$250,000 to acquire 1"=200' digital imagery and two foot contour LIDAR for an average sized county (825 square miles). If there were \$750,000 in federal funds available for the 2013-2014 flying season this funding could be leveraged to cover 25% to 35% of acquisition costs with the remaining funds being derived from Local Government. This could possible be used to leverage approximately \$1.9 million to \$2.6 million of data which equates to an area the size of 8 to 10 average sized counties. This does not include any additional federal or state funding that could possibly be brought into the collaboration through these efforts.

A fully funded program would require approximately \$4.5 million a year for the first three years, then \$2 million a year thereafter for annual maintenance. These amounts could be a combination of federal, state, and local funds, and would rely on continued support of the program. These amounts can also vary based on the amount of LIDAR acquired in Alabama over the past three years.

Unfortunately the lack of funding required to fully implement a state wide acquisition have made this proposal the best available option. As this program develops and more data is made available to more agencies, it is the hopes of this sub-committee that the importance and necessity of updated imagery and LIDAR will become more apparent. This will provide the justification to develop a legislated, dedicated budget with the adequate funding required to implement a statewide acquisition plan.

#### **4.7 Assessing Risk**

As with any plan that involves so many moving "parts", the possibility of obstacles impeding progress is possible, and likely to occur. Specifically:

1. These "parts" are the various agencies, personnel, political processes, and funding needed to be successful; Agencies get new Directors and new priorities, personnel transfer/retire/move; the political process can lose interest in a project when other priorities arise; and most of all – funding is not always reliable.
2. The actual data acquisition and dissemination is well understood along with the problems that can occur during development. A typical acquisition problem is flying the imagery at the correct sun angle or higher, with no cloud cover, before the vegetation starts growing in the spring. In these cases, re-flights the following year is the only solution and is the responsibility of the vendor.

The worst possible obstacle is currently in progress – a recession which has dramatically reduced budgets. This obstacle can be countered by pursuing additional partners to spread costs, developing products from existing resources that exist within various agencies, and encouraging more vendor competition to drive costs down. It also has the potential to show leaders and constituents that goals can be accomplished even with reduced funding. This should strengthen any future justifications for funding in future years.

### **5. Organizational Approach**

#### **5.1 Who is behind this effort?**

The GIS Executive Council has tasked the GIS Program Office to coordinate statewide aerial imagery and LiDAR activities. ADOR has the statutory responsibility to manage the acquisition of mapping for the property tax appraisal process. ADOR has successfully implemented and managed the acquisition of digital imagery and the implementation of GIS in the county offices for the past ten years. The existing personnel and organizational structure are the logical components to support this program. The Program Office will solicit support from state, county, and local stakeholders and ADOR will continue its aerial imagery program. These efforts will completely coordinate and collaborate together to avoid duplication of efforts and to encourage economies of scale to save funds.

#### **5.2 What is the current state-of-affairs?**

Currently ADOR oversees the acquisition of imagery at the county level. Without substantial state and/or federal funding the imagery remains the property of the county. Providing state and federal funds for the acquisition of the data will move

that imagery and LIDAR data into the National Map and into the hands of other state and federal agencies.

Partnerships with federal agencies are rare other than the typical funding that flows from FEMA to ADECA, or from FHWA to ALDOT. As stated earlier, this goes back to the fact that federal agencies are required to deal with a genuine authority at the state level. The approval of this Business Plan by the Executive Council will provide the credentials needed to engage in serious dialog with the various federal agencies that typically provide funding for data.

## **6. IMPLEMENTATION PLAN**

This implementation plan will define the process that will bring federal, state, county, and other local stakeholders together to develop an economical data acquisition plan that meets the majority of the needs of all stakeholders. The State is the logical entity to bring these groups together and develop the process for collaboration because of the existing interaction between ADOR and County Government along with existing relationships between state agencies and key federal counterparts. Currently there is no funding to collect and develop a statewide data set and this initial plan was not developed with that purpose in mind. However, the initial steps taken, the lessons learned, and the partnerships developed will ensure that if funding becomes available, the organization and processes will be in place to facilitate a statewide collection. The small steps that we take in this initial acquisition plan will better prepare us for larger and more complex acquisitions in the future.

***Objective 1: Distribute USGS photography and LIDAR specifications for review to the stakeholders. Compile the results for review to ensure these specifications meet the needs of the stakeholders.***

The initial phase of the implementation plan has already been set in motion. To ensure the scope and specifications of the Business Plan meets the needs of the stakeholders, a survey was recently sent to the members of the GIS Advisory Committee. This survey will answer the following questions;

- Will the USGS Ortho Imagery and LIDAR specifications meet the needs of the majority of the stakeholders?
- Are there any agencies that have any knowledge about other potential federal stakeholders/partners other than USGS, FEMA, and FHWA?
- Are there any Advisory Committee member agencies that can contribute funding or other resources to the program?

The results of this survey will be used to make any necessary changes to the Business Plan

***Objective 2: Modify existing ADOR Mapping Guidelines and Specifications to reflect the updated specifications, and provide an orderly process for guiding ADOR and County officials.***

The final modifications to the USGS specifications will be used to modify the ADOR Mapping Guidelines and Specifications. When complete, a preliminary set of these new specifications will be delivered to the county officials for review and comments. The final document will be used for the 2013-2014 flying season.

***Objective 3: Outreach to Federal, State, and Local Government to communicate the Business Plan, enlist and encourage partnerships, receive feedback and comments from the stakeholder community, and determine possible funding sources for future partnerships.***

State Government

Creation of the Alabama GIS Executive Council, Program Office, and Advisory Committee has ushered in a new era of cooperation and collaboration in the State of Alabama. Advisory Committee membership represents every aspect of state and local government. Work is complete on the State's Strategic Plan which will guide the council in developing a robust and meaningful GIS. This unified effort has been the catalyst for the development of this Business Plan to further act upon the needs outlined in the Strategic Plan. The Program Office will coordinate with existing department heads, commissioner, and directors to incorporate partnerships and collaborative efforts.

Periodically surveys will be created to find available partners, funding, or other resources to reach as many stakeholders as possible. This will be done at least annually prior to each flying season. The surveys will be available on the [gis.alabama.gov](http://gis.alabama.gov) website. In addition, this website will be a strategic resource for information at all levels of government. There will be a status viewer that shows completed orthoimagery, current projects, and future imagery acquisitions.

Local Government

The existing relationships between the ADOR and the counties will be used as the foundation for this collaboration. Communication of standards, guidelines, and procedures from the state level will be incorporated into the existing county organizational structure. Modifications to this process will include incorporating data standards that meet a wider audiences needs, encouraging county government to collaborate with entities within and around their county, and modifying the existing contracting process to ensure all contracts include the requirements for the data standards, procedures, and scope of work needed to meet the goals of the program.

Federal Government

Federal agencies are increasingly moving toward the requirement of collaboration with one primary group at the state level to ensure there is no duplication of effort, dwindling funds are spent wisely, and that the collaboration process is not mired in a long list of partners. The state group for this collaboration will be the Program Office acting as the functional arm of the Alabama Geographic Executive Council with guidance from the Advisory Committee. Even with this move at the federal level to collaborate with a single state entity, we are seeing that some individual federal agencies still procure funding and determine priorities individually. This will require due diligence on the part of the state to ensure there is collaboration with these agencies.

Existing contacts at USGS will be provided a formal plan for this program. USGS typically deals with multiple federal agencies and can provide guidance and direction to begin presenting the material at the federal level. Other existing contacts through NRCS, NOAA, USACOE, USDA, FEMA, and FHWA will also be provided this information. The Advisory Committee survey may also reveal other federal sources that may have an interest in the program.

***Objective #4: Establish policies and strategies which emphasize cooperation and coordination among state agencies, federal agencies, county agencies, environmental agencies, regional planning agencies, municipalities, academic institutions, nonprofit organizations, utilities, private companies, and individuals, and other states in order to maximize the cost efficiency.***

Cooperation and communication among stakeholders will be critical for the success of this program. Although this document cannot fully define all of the processes or final details to answer all of these questions at this time, a course of action is needed to guide the development of the program. The following tasks have been identified to improve coordination and communication.

***Task:*** Begin the process of defining the relationships that exist between state and federal agencies. Coordination with stakeholders should take place within the agency that typically works with those counterparts to ensure good communication and coordination. Develop talking points and/or white papers describing the program and the potential benefits of collaboration for further outreach and discussions.

***Action*** - Reports from those state agencies about existing relationships and how those can be utilized for the benefit of the program. Determine those needs and lines of communication needed for the program for further communication.

***Goal*** - A clear definition of the existing relationship paths between state and federal agencies to include the communication that exists between the "go-to" people. Develop an outline of those agencies willing to participate along with specific information about their needs, and processes for funding approval.

***Action*** - Reach out through existing federal partnerships to communicate with those other agencies. Determine those needs that overlap. Develop talking points and/or white papers describing the program and the potential benefits of collaboration for further outreach and discussions.

***Goal*** - Obtain commitments from federal agencies for possible participation and/or funding. Develop pathways to share data, and/or collaborate in the collection of data.

***Objective 5: Develop acquisition plans for Imagery and LIDAR for the 2013/2014 flying season through existing partnerships with State and Local government.***

Response from County Government about current acquisition plans, local partnerships, and budgeting will be reviewed in July of 2013. These plans will be reviewed by all funding partners to develop preliminary plans for the upcoming flying season. Limited funds from State and Federal priorities will be matched to Local plans to begin shaping the areas that can be acquired without including unknown or uncommitted federal funding. These will be listed as the Tier 1 acquisitions which will have full funding and participation. Tier 2 acquisition plans will be developed

based on preliminary responses from federal agencies and other state agencies that have not made funding commitments. It is expected that these commitments will not be made until October 1 or later. These will be the plans "on the shelf" and ready to implement in the event additional funding is acquired.

Participation from federal agencies may not be approved until late in the year. All acquisition plans will be formally presented to any potential state, federal, or local partners as early as possible to encourage feedback, comments, and any information about potential funding.

***Objective 6: Identify and develop funding sources for project implementation and long term maintenance.***

Funding and long term maintenance of the program are two of the most critical items to be addressed. The downturn in the economy has strained state, local, and federal budgets. Discussions to include funding in the State General Fund Budget have been discouraged due to decreased revenues at the state level. Current funding for imagery has relied on local budgets derived from property tax appraisal budgets and limited federal funds. Although funding may not be consistent or reliable, there are steps that can be taken to ensure all opportunities are pursued.

**Federal Funding**

Some State agencies currently receive federal funding as part of their business model. ALDOT receives funding from FHWA for GIS framework data, ADECA receives FEMA funding for elevation data, and occasionally funding is set up in federal budgets to specifically target data acquisitions. The Technical Subcommittee will investigate other agencies to gauge interest in collaboration and funding for this program. This investigation will begin with inquiries to other state agencies to determine if any existing federal funding is suited for this purpose.

In addition, federal funding can be requested through Alabama's U.S. Senators. These funding requests are made annually to the Senators office where all requests are compiled and evaluated. If approved, the Senator includes it in his budget request through the appropriate committee. This process usually begins early in the year in hopes of including it in the final budget which is usually approved at the end of the year. Once the request is in the approved budget, the appropriate federal agency is notified and the grant process begins. Project summaries, proposals, details, and budgets are required to be submitted through the grants on line process. After approval, the grant is awarded and work typically begins at the beginning of the next fiscal year. This entire process can take as little as 18 months, or it could take years. Project proposals for this program will be developed and submitted for consideration before February of 2013 to be considered in the 2014 budget.

**Federal Grants**

Occasionally there are federal grants advertised for data acquisition. This process goes through the Federal Grants service which oversees all grant funding for the federal government. This office provides the notifications about the requirements and terms of the grant, oversees the application and review process, and manages the reporting and funding. Without prior notice, the time frame for submission of all material is usually short, so enlisting personnel with prior grant writing experience must be utilized to ensure deadlines are met and the state has a reasonable chance of securing grant funds. Existing personnel resources with grant writing experience within state government will be enlisted to provide assistance.

Federal funding that flows through USGS also goes through the federal grants office. After USGS accepts and approves any funding for data acquisition, the recipient is required to submit all required material through the Grants On Line process. Following these procedures to secure the grant is not an easy task for the inexperienced recipient. Assistance from personnel at Program Office and USGS to guide the recipients through this process will be used to secure the grant.

These budget hardships provide the motivation to develop partnerships and explore all funding possibilities to ensure the success of the program. As more data is provided to the user community, the value of this data will gain further recognition. Hopefully this will bring further support and funding to ensure the program has long term sustainability and success.

## **6.1 Lessons-learned**

Routing funding to the county level has been occurring since 2001 with good results, but with any process there have been problems along the way. One of the earliest lessons had to do with the funding agreements. Bringing attorneys into the process early complicated the formal agreement beyond what was reasonably needed. Once a standard, simplified agreement was developed, developing funding/data sharing agreements proved to be a very simple task. The following are some other examples of lessons learned over the past ten years.

Typically a county contracts with a vendor to acquire the data. When the county does not have experience, the vendor tries to step in and steer the scope of work and finalize any agreements. Vendors typically do not understand the government procurement and approval process and this can lead to delays in projects, unnecessary work, and in some cases cancelled acquisitions. Part of the answer to this problem is to communicate with the county early and often, and make sure the vendor understands the scope of work and does not drive the project.

Another lesson learned has to do with timing. The goal of any acquisition partnership is to start the communication process as early as possible, but sometimes the budget approval process can hinder these efforts. Typically the county is required to submit a preliminary budget in May, but the final budget is not approved by the County Commission until October 1. This schedule allows for enough time to revise scopes if needed. Coordinating project scopes with potential funding at the state level is flexible enough to allow acquisition plans to go late into the flying season, but the introduction of federal partnerships adds another uncertainty to the total funding amount. This can potentially push final approvals into a point in the flying season where it may be too late to proceed. Again, the emphasis is on early communication and coordination along with projects on the shelf to catch any unexpected funding.

Even with the experience and prior history of county mapping projects, problems **will** arise. With the addition of multiple partners, multiple priorities, and varying amounts of funding, learning opportunities will present themselves along the way. As the complication of the system increases, so does the chance of one or more of those components failing. It is expected that a recurring problem will be the funding, or lack thereof. A tremendous amount of time and effort can go into planning a project to have it all fall apart due to lack of funding. Unfortunately this is

the nature of the process and it is not unusual to acquire less data than originally planned or postpone acquisitions a year when this happens.

At the end of the flying season, gauging success or failure for this program will be determined by the number of good partnerships developed along the way and the square miles of data acquired. Un-used funds can dampen the spirits of those involved, especially when those funds must be used within that fiscal year or goes back to the federal government. The solution for this potential problem is the development of project proposals for lower priority counties that can be "pulled off the shelf" at a moments notice. These proposals will include project estimates, partners, scope, justifications, and implementation schedules. These project proposals must be developed early in the fiscal year and be an attainable project with a realistic scope and partners.