



ADOA - ASET

Arizona Strategic Enterprise Technology

Project Investment Justification (PIJ)

*A Statewide Standard
Document for Information Technology Projects*

Project Title: Heritage Geographic Information System (HGIS) 2.0

Agency Name: Arizona Game and Fish Department

Date: 9/18/13 revised 10/9/2013 and 10/15/2013

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PROJECT INVESTMENT JUSTIFICATION (PIJ) TEMPLATE DECISION MATRIX

After determining the category of project, complete the sections of the PIJ or PIJ Lite document as indicated below. All projects with \$25,000 or more in development expense require that a PIJ or PIJ Lite be approved by ASET. All projects with \$1,000,000 or more in development expense require a PIJ to be approved by the Information Technology Authorization Committee (ITAC) as well.

ASET may request additional information or require completion of additional sections, if the project is deemed critical in nature.

Category	PIJ Lite	Pre PIJ *	PIJ	ITAC Review
Low Risk projects: Including Operational Infrastructure Upgrades (<i>i.e.</i> PC Replacement/Refresh, Network Upgrades)	●			
Medium Risk projects		Optional	●	
High Risk projects		Optional	●	
Very High Risk projects		Optional	●	
\$1.0M and Above projects		Optional	●	●

Section	Category	PIJ Lite	Pre PIJ *	PIJ	Add for ITAC \$1.0M+
I.	General Information				
I.A	General Information	●	●	●	
I.B	Special Funding Considerations		●	●	
II.	Project Overview				
II.A	Management Summary	●	●	●	
II.B	Existing Situation & Problem, "As Is"	●	●	●	
II.C	Proposed Changes & Objectives, "To Be"	●	●	●	
II.D	Proposed Technology Approach		●		
III.	Project Approach				
III.A	Proposed Technology	●		●	
III.B	Other Alternatives Considered			●	
III.C	Major Deliverables & Outcomes	●		●	
IV.	Policies, Standards & Procedures				
IV.A	Enterprise Architecture	●		●	
IV.B	Service Oriented Architecture Planning & Implementation			●	
IV.C	Disaster Recovery Plan & Business Continuity Plan			●	
IV.D	Project Operations			●	
IV.E	Web Development Initiative			●	
IV.F	IT State Goals			●	
V.	Roles and Responsibilities				
V.A	Roles and Responsibilities	●		●	
VI.	Project Benefits				
VI.A	Benefits to the State			●	
VI.B	Value to the Public			●	
VII.	Project Timeline				
VII.A	Project Schedule	●	●	●	
VIII.	Project Financials				
VIII.A	Pre-Assessment Project Financials		●		
VIII.B	Detailed Project Financials	●		●	
VIII.C	Funding Source	●	●	●	
VIII.D	Special Terms and Conditions (if required)	●	●	●	

VIII.E	Full Time Employee (FTE) Hours	●		●	
IX.	Project Classification & Risk Assessment				
IX.A	Project Classification & Risk Assessment Matrix	●		●	
X.	Project Approvals				
X.A	CIO Review	●	●	●	
X.B	Project Values	●	●	●	
X.C	Project Approvals	●	●	●	
Appendix					
A	Itemized List with Costs	●		●	
B	Connectivity Diagram				●
C	Gantt Chart, Project Management Summary				●
D	NOI (Web Projects Only)	●		●	

* **Pre PIJ** is optional for agencies seeking approval from external entities to contract for outside labor or resources to assess scope, technology and approach. After the assessment is completed, full project details will be added to the PIJ for final PIJ Approval.

NOTE: *Pre PIJ Assessments are not required for all projects but up to the discretion of the Agency.*

Document Instructions:

Double click on square Yes No and select “checked” for the appropriate box then select “OK”.

The screenshot shows a dialog box titled "Check Box Form Field Options". It has a close button in the top right corner. The dialog is divided into several sections:

- Check box size:** There are two radio buttons: "Auto" (which is selected) and "Exactly:". To the right of "Exactly:" is a text box containing "10 pt" and a small up/down arrow.
- Default value:** There are two radio buttons: "Not checked" (selected) and "Checked". The "Checked" radio button is highlighted with a blue rectangular box.
- Run macro on:** There are two dropdown menus labeled "Entry:" and "Exit:", both currently empty.
- Field settings:** There is a text box labeled "Bookmark:". Below it are two checkboxes: "Check box enabled" (checked) and "Calculate on exit" (unchecked).
- Buttons:** At the bottom, there are three buttons: "Add Help Text...", "OK" (highlighted with a blue rectangular box), and "Cancel".

ASET Forms:

Project forms are available on the ADOA ASET website – see links below

Project Investment Justification Documents - <http://aset.azdoa.gov/content/project-investment-justification>

Project Oversight Status Report and Change Request Form –
http://aset.azdoa.gov/sites/default/files/media/docs/StatusRpt%26ProjChangeForm_0.xls

Web Development Initiatives - Notice of Intent (NOI) form –
<http://aset.azdoa.gov/node/15>

I. General Information {A}

I.A General Information {A}

Agency CIO:	Doug Cummings	Contact Phone:	
Agency Contact Name:	Sabra Tonn	Contact Phone:	
Agency Contact Email:		Prepared Date:	09/18/2013

I.B Special Funding Considerations {A}

Yes No - Does this project require funding approved for a Pre PIJ Assessment phase?

If **YES**, provide details for the **Pre PIJ Assessment** funding needs by filling out the areas marked with {A} or {Required for Pre-PIJ Assessment only}. Further information and details will be required after the assessment for the Final PIJ approval.

If **NO**, provide details for the Final PIJ by filling out **all** areas **excluding** those sections marked with {Required for Pre-PIJ Assessment only}.

II. Project Overview

II.A Management Summary {A}

I. Problem Description

The Arizona Game and Fish Department (AZGFD) relies on the Heritage Geographic Information System 1.5 (HGIS 1.5; <http://www.azgfd.gov/hgis/>), a web-based Spatial Decision Support System (SDSS), to automatically process around 2,500 public and government projects a year as the first step in the Department's environmental compliance evaluation process. The current system relies on the discontinued ArcIMS 4.0 internet map server technology and the online tool's hosting & maintenance contract with Esri Inc expires in June, 2014. A maintenance and hosting contract renewal with the current technology is unlikely and the Department does not have the know-how and staff time to maintain and host it internally. In addition, the current tool implementation relies on poorly supported Java applets and lacks features and capabilities required or highly desired by customers and the Department.

II. Solution

The Departments seeks an external replacement solution through the RFP process. The Department also seeks to reduce replacement and hosting costs by broadening implementation solutions to include Software as Service (SAS) platforms as well as hosted solutions in addition to the more traditional custom software development.

The Department had initially submitted a Pre- PIJ (GF13001-Pre PIJ HGIS) to get agreement from ADOA-ASET for the Department to issue an RFP to solicit bids for the replacement of the Department's current HGIS 1.5 system.

- The Department created , released, obtained bids, and selected a selected vendor based on the RFP responses

The Department has now submitted to ADOA-ASET this full PIJ to:

- Notify ADOA-ASET of our selected vendor
- Communicate the information gained from the RFP for project cost, technology, scope of work, and implementation schedule
- Obtain approval/agreement of ADOA-ASST to move forward with this project and award a contract to our selected vendor.

III. Quantified Justification

Without a continuation of the current HGIS automated environmental review process, the Department would require an additional annual minimum of 2 FTE worth of manual analysis and processing at significantly reduced service quality to meet minimum customer demand and Department policy requirements.

In addition, HGIS provides public and Government customers with an explorative tool prior to formal project evaluation that could not be provided through a manual environmental review process.

II.B Existing Situation and Problem, “As Is” {A}

Business Problems:

- AZGFD’s policy is to respond to all environmental project evaluation requests within 30 days. A shut-down of the current HGIS 1.5 online tool would require a minimum of 2 FTE worth of manual labor to accomplish a similar completion rate but at significantly lower service quality.
- The Department cannot edit business rules, modify report content, and update Geographic Information System (GIS) analysis layers in the current tool and must rely on the contractor to implement the changes at limited intervals during a year.
- The web client requires Java Runtime Environment (JRE) which acts as an adoption hurdle for current and new users. Most tablet and mobile users are barred completely. Other issues with the current JRE implementation include incompatibility with various web browsers and issues with 32-bit vs. 64-bit operating systems.
- Several of our customers in government and big corporations are not authorized to download or use the JRE. We must enter all of their projects for them.
- Users can’t upload their own project boundary data and have to manually redraw them inside of the tool. This introduces inaccuracies.
- The administrative interface is too cumbersome to manage the increasing number of projects submitted per year.

System Problems:

- HGIS 1.5 relies on the discontinued Esri ArcIMS internet map server technology for analysis and display which has not received updates since 2004.
- A maintenance and hosting contract renewal for the current tool with the current Esri Inc contractor is unlikely and the Department does not have the know-how and staff-time to maintain and host it internally.
- The current tool cannot consume GIS data provided by AZGFD’s GIS services which leads to increased administrative overhead and to de-synchronized data problems.
- The current solution does not expose valuable project information as a GIS data service to the Department for further analysis. Instead, the Department relies on few data dumps by the contractor per year.
- The current system does not allow our partners to be able to view projects or special status species information in order to collaborate on project reviews.
- HGIS 1.5, a custom server side solution, is not in compliance with Department’s Enterprise Architecture technology framework: .NET programming languages, MS SQL Server RDBMS, DNN CMS, JavaScript client-side scripting, etc.

II.C Proposed Changes and Objectives, “To Be” {A}

The HGIS 2.0 tool will:

- Continue automating the Department’s environmental review process to meet our 30 day response time policy for over 2,500 submitted projects a year.
- Continue providing an exploratory environmental impact tool for public and government customers while protecting sensitive species data.
- Improve on performance, capability, and efficiency of the old HGIS 1.5 implementation.
- Use the latest geospatial services technology and engage with a vendor to supply that technology as a SaaS system in an Infrastructure as a Service (IaaS) environment.
- Allow the Department to directly edit business rules, modify report content, and update GIS analysis layers.
- Provide secured, ArcGIS Desktop compatible GIS data services on submitted project information to the Department.

- Provide multiple user levels for access to various data layers for collaboration amongst our partners while still protecting sensitive species data.
- Include user interface functionality improvements for tool users and administrators
- Create more streamlined system for taking data from the Heritage Data Management System and display it in the HGIS through better integration and web services.
- Only use JavaScript for client-side scripting
- Support project boundary GIS layer uploading by clients
- Consume Esri or OGC based GIS data services provided by AZGFD
- Scalable system to process and store more than 5,000 reports a year over 5 years

HGIS 2.0 hosting and maintenance will cover:

- 1 year hosting for the development period
- 2 years of hosting and support after deployment
- Optionally, an additional up to 2 years of hosting and maintenance
- Service Level Agreements on uptime, maintenance response, bug fixing, data updates, backups, performance, etc.

II.D Proposed Technology Approach {Required for Pre-PIJ Assessment Only}

III. Project Approach

III.A Proposed Technology {Required for PIJ Approval}

The proposed technology is a SaaS within an IaaS hosted solution that is based on adapting and expanding the existing online Heritage GIS solutions developed and maintained/hosted by NatureServe for Virginia (operational) and Louisiana (Beta). It is considered managed services. NatureServe will subcontract the IaaS to ESRI (the current hosting contract for the HGIS 1.5). ESRI is using Amazon VPC to currently host the HGIS 1.5. This would be the same technology used for the HGIS 2.0.

The current URL would be the same for the HGIS 2.0 as it is for the HGIS 1.5: www.azgfd.gov/hgis. All of the User Interface would be Department Standards: headers, footers, and information consistent with the Department's web site and follow the guidelines of the Department's standards for the web site. The User would not see the NatureServe or ESRI native web pages. It will appear as Department web pages.

Access to the servers will be limited to certified Esri staff only and no access to the environment will be given to either Arizona or NatureServe in order to comply with our hosting best practices and auditing requirements. Esri plans to use its partner Amazon Web Services as the cloud infrastructure provider to support this initiative. More information regarding Amazon's security mechanisms and processes can be found [here](#). Esri will configure the database to support daily incremental, weekly full backups of the database which will be retained in a highly available shared storage environment in the cloud. Esri will also maintain images after every major update as a backup to restore servers in the event that there is an outage.

A separate disaster recovery site for AZ HGIS 2.0 was not a requirement for the proposed solution and the State selected the option to have Esri support a system which will be configured to support 95% system availability. There will be a single tier of servers without failover in an Amazon data center. As part of our FEMA disaster preparedness, the Department went through the COOP Essential Process Workbook. At that time it was assessed that the Heritage Data Management System and HGIS 1.5 (and future 2.0) was not a 24 hour or 48 hour essential readiness. We are in the 30 day portion. With the backups performed as part of the hosting agreement we are confident we can restore what we need. There is redundancy with Development, Staging, and Production servers. Some of the data displayed will be via web services and hosted locally (green cloud in the diagram). The other layer for sensitive species data will have the backup locally as it is not a live service, but a copy that is included in the HGIS 2.0. The only part that is "live" and dynamic is the project boundaries that customers enter and the pdf project reports (analysis results). Those will be part of the backup mentioned above. The project boundaries will also be available for daily download by the Department and backup at a local Department system which will be included in tape backups as well. The web pages, help documents,

and all other business rules will be on multiple servers (Development, Staging, Production) which will be in different physical locations: Development in VA and Production in CA.

The proposed technology is comprised of a hosted server stack that partially relies on external web services (GIS feature and map services). The hosted stack can be duplicated to increase redundancy and performance. See connectivity diagrams in Appendix B.

- **Clients**
 - Any **web browser** developed in the last 2 years prior to deployment date that support HTML 4/5 and JavaScript API web applications (e.g. IE 9 and higher).
 - **ArcGIS Desktop** software used by AZGFD GIS analysts to consume secured HGIS 2.0 feature and map services through Esri's REST API.
 - **AZGFD web apps** consume secured HGIS 2.0 feature and map services through Esri's REST API.
- **Hosted Stack**
 - **Web Server:** PHP, Apache, Tomcat, Drupal Content Management System (CMS), Esri GIS JavaScript API, UI JavaScript libraries (Dojo, etc.)
 - **ArcGIS Server:** ArcGIS Server 10.2 (GIS map/feature services, ArcSDE, ArcGIS Web Adaptor)
 - **DB Server:** MS SQL Server (business logic, data, ArcSDE)
- **External Web Services**
 - AZGFD: **HabiMap.org** feature and map services for species distributions, habitat models, landscape connectivity models, etc.
 - Microsoft: **Bing** street map and aerial imagery map services for base maps
 - Esri: **ArcGIS Online** topography, etc. map services for base maps

There will be 5 user (customer) groups as outlined in the HGIS 2.0 Requirement document Section 6 pages 20-26:

- 1) Potential customer that uses web services (e.g., HabiMap.org and base data layers for map exploration. Projects will not be saved and no report generated.
- 2) Customer (project submission). Account created and project submission; editing of existing project of same customer. Cannot see sensitive species data.
- 3) Advanced Customer – includes all of 2, but can also view projects submitted by others and view and query sensitive species data layers.
- 4) Project Evaluators and Administrator. All of 3 plus can submit project on behalf of others (ADA compliance requirement), can lock or unlock a project for editing by others, can add notes for other evaluators, and can send communication to project submission customers.
- 5) HGIS Administrators – All of 4, but also has ability to replace sensitive species data layers (updates), add, edit, and change triggers for report language, update help documents, add/edit user profiles; grant various user levels.

This will be different from the administrator access to the development, staging, and deployment servers mentioned above.

III.B Other Alternatives Considered

Other alternatives considered:

- **Do nothing** – discontinue HGIS 1.5 in June 2014 without any replacement.
 - Not a valid option because the Department has a legal obligation to conduct environmental assessments on submitted projects in a timely manner.
- **HGIS 1.5 triage** – move the tool as-is in-house.
 - Pros: no PIJ and RFP needed
 - Con: AZGFD does not have the knowhow nor the staff to maintain the Java-based HGIS 1.5 tool, the discontinued ArcIMS internet map server software, or the Oracle RDBMS.
 - Con: Would not solve the tool's significant UI problems – especially the Java applet and administrative interface limitations
 - Con: No HGIS feature & map services for other AZGFD systems and tools (operational awareness webmap, etc.)
 - Con: May require creating new staff position(s)
- **Manual processing** – replace automated process with a manual one

- Pros: Least amount of IT dependencies
- Con: It would take two new full time staff positions process the projects.
- Con: Reduced service capability (no project exploration by customers), reduced quality (inconsistent due to manual process execution), and reduced efficiency (no automated prescreening)
- Con: No HGIS feature & map services for other AZGFD systems and tools (operational awareness webmap, etc.)
- **Insourcing HGIS 2.0** – develop software solution in-house
 - Pros: Invest in and increase in-house software development capability
 - Con: Not possible for a few years because the Department's software development capability is at capacity for the next years due to several critical projects and due to unfunded demands.
 - Con: Would require creating new staff position(s)
- **Insourcing HGIS 2.0 with consultants** – develop in-house solution with hired consultants
 - Pros: Invest in and increase in-house software development capability
 - Con: Not possible for a few years because the Department's software project management capability is at capacity for the next years due to several critical projects and due to unfunded demands.
 - Con: May require creating new staff position(s)

III.C Major Deliverables and Outcomes

See Gantt chart in Appendix Section C for milestones and timeframe

Major Milestones/Deliverables:

- Kickoff meeting and confirm design
- Set up development hosting infrastructure and test base application framework
- Develop Drupal front end
- Develop ArcGIS Server back end
- Develop Custom report generation
- Develop Administrator Workflow
- Set up Production Hosting Infrastructure, including test plan and tutorial
- Acceptance Testing and Training
- Test plan and tutorial documents will be a hard deliverable (not part of software)
- Design documents

Outcomes:

- Fully automated environmental review system that customers can access over the web
- Capacity for Department staff to be able to modify business rules, create and post help documents, and add project types (currently have to be done by contractor)
- Integration with other Department tools such as HabiMap.org through web services
- Better customer interface and functionality to allow customer to draw project areas through a web map, import from a Shapefile, or pass on geography from another online GIS tool such as HabiMap
- Modern technology that will not require customers to download a JRE application (several customers are prohibited by their organization to download this currently)
- Instant access to projects that have been entered (currently receive them quarterly under hosting contract)
- Various user level that will allow Federal partners to view different data layers for sensitive data
- Improved customer service user experience
- More data content available to customers for viewing
- Capacity to store up to 5000 projects per year.
- Allow customers to modify project boundaries as the project scope changes over time

IV. Policies, Standards & Procedures

IV.A Enterprise Architecture

Yes **No** - Does this project meet all standards and policies for Network, Security, Platform, Software/Application, and/or Data/Information as defined in <http://aset.azdoa.gov/security/policies-standards-and-procedures> as applicable for this project?

If NO please describe NEW or EXCEPTIONS to Standards {Network, Security, Platform, Software/Application and/or Data/Information}:

IV.B Service Oriented Architecture Planning and Implementation

Yes **No** - Does this project qualify as an SOA application by improving application delivery for technology reuse and /or application reuse and / or services reuse?

IV.C Disaster Recovery Plan and Business Continuity Plan

Yes **No** - Does this project require a Disaster Recovery Plan and Business Continuity Plan?

IV.D Project Operations

Yes **No** - Is there a written assessment of short-term and long-term effects the project will have on operations?

IV.E Web Development Initiative

Yes **No** - Is this a Web Development initiative? If **YES**, a Notice of Intent (**NOI**) must be provided.

Link: <http://aset.azdoa.gov/node/15>

AZGFD Note:

HGIS 2.0 is an online Spatial Decision Support System developed and hosted by a contractor with its own domain name. AZGFD will comply with NOI requirements to the best of the Department's ability but can't guarantee meeting all the following ADOA-ASET requirements due to HGIS 2.0 solution's process and technology requirements:

- **AZ.GOV Web Standards Style Guide**
- **Statewide Website Accessibility Policy. The use of HGIS is not mandatory and AZGFD offers an alternative service access via mail and phone.**
- **Target Security Architecture Document**

IV.F IT State Goals

Please check which goal the project is in support of; if more than one, indicate only the primary goal.

- Accelerate Statewide Enterprise Architecture Adoption
- Champion Governance, Transparency and Communication
- Invest in Core Enterprise Capabilities
- Proactively Manage Enterprise Risk
- Implement a Continuous Improvement Culture
- Adopt Innovative Sustainability Models
- Reduce Total Cost of Ownership
- Improve Quality, Capacity and Velocity of Business Services
- Strengthen Statewide Program and Project Management
- Build Innovative and Engaged Teams
- Other _____

V. Roles and Responsibilities

V.A Project Roles & Responsibilities:

Please identify Project Roles & Responsibilities:

- **Arizona Game and Fish Department (AZGFD)**
 - Project Sponsor – **Joyce Francis**, Habitat Branch Chief, WMHB
 - Project Manager - **Sabra Tonn**, HDMS Program Supervisor, WMHB
 - Primary point of contact for contractor; approves milestones and payments, tracks progress, adjusts deliverables, etc.
 - Business Analyst – **Ginger Ritter**, Project Evaluation Program Specialist, WMHB
 - Business process expert and usability testing
 - Technical Manager – **Ryan Nosek**, GIS Development Coordinator, WMHB
 - Technical lead at AZGFD; software and web services quality control; testing; etc.
- **NatureServe (Proposed contractor)**
 - Executive Lead – **Lori Scott**, CIO
 - Primary point of contact for AZGFD and executive lead on contract
 - Project Manager – **Frank McLean**, Software Engineer III
 - Project management and lead developer
 - GIS Software Developer – **Allen Anselmo**, Software Engineer
 - GIS software development
 - Drupal Software Developer – **Todd Parks**, Web Developer/Designer
 - Drupal CMS development and design
 - Software Support and Testing Lead, **Robert Solomon**, Software Support Program Manager
 - Support and testing lead
- **Esri (NatureServe's partner on proposed contract)**
 - Esri Project Manager – **Steve van Vliet**, Senior Project Manager
 - Primary point of contact and project management support to NatureServe
 - Esri Technical Lead – **Zinnong Zhou**, Senior Web Application Developer
 - Technical lead support to NatureServe
 - Esri Application Architect - **Selim Dissem**, Application Architect
 - Application architecture support to NatureServe

Please indicate Project Manager Certification:

The **project manager** assigned to the project is:

- Project Management Professional (PMP) Certified
- State of Arizona Certified
- PM Certification not required

PM is not required. Both ESRI and NatureServe are private entities that do not necessitate a PMP in their daily work. NatureServe staff has over 20+ years of experience and have successfully completed similar projects with Virginia and Louisiana. ESRI project manager and Department Program Manager have been working together for 10 years on the HGIS 1.0 and HGIS 1.5 and have established successful project management of the previous projects, as well as many others. Department PM has a Certified Public Management certificate which includes sections on Strategic Plans, Budgets, Coaching/mentoring, Managing programs and projects, collaboration in the Public Sector, Team technology, optimizing performance, decision making process, ethics, and implementation of systems concepts (among others). It is a very comprehensive management certification. "The ASU Certified Public Manager® Program is accredited by the National CPM Consortium and is designed to improve the quality and efficiency of government agencies by developing the effectiveness and professionalism of its managers." (https://ramseyexecutive.asu.edu/programs/cpm_program)

VI. Project Benefits

VI.A Benefits to the State

Score: 0=None, 1=Minor, 2=Moderate, 3=Considerable, 4=Substantial, 5=Extensive.

Description	Score
Agency Performance: The extent to which duties and processes will improve or positively affect business functions. Consider reduced redundancy and improved consistency for the agency.	1
Productivity Increase: The improvements in quantity or timeliness of services or deliverables. Consider improved turnaround time or expanded capacity of key processes.	2
Operational Efficiency: Efficiencies based on improved use of resources, greater flexibility in agency responses to stakeholder requests, reduction or elimination of paperwork, legacy systems, or manual tasks.	3
Accomplishment Probability: The extent to which this project is expected to have a high level of success in completing all requirements for the division or agency.	1
Functional Integration: The impact the project will have in eliminating redundancy or improve consistency. Consider the impact of information sharing between departments, divisions, or agencies in the State.	3
Technology Sensitive: The implementation of the right types of technology to meet clear and defined goals and to support key functions. Consider technologies and systems already proven within the agency, division, or other similar organizations.	3
Total	13
Additional Information (provide details on Benefits that score > 3)	
<i>Describe additional details on benefits > 3 score. Also provide details on any savings that may be applicable.</i>	

VI.B Value to the Public

Score: 0=None, 1=Minor, 2=Moderate, 3=Considerable, 4=Substantial, 5=Extensive.

Description	Score
Client Satisfaction: Rate how stakeholders may respond to anticipated improvements. This could apply to health and welfare services, quality of life or life safety functions.	3
Customer Service: Rate anticipated improvements to internal and external customer service delivery. Give consideration to faster response, greater access to information, elimination or reduction in client complaints.	3
Life Safety Functions: Applies to public protection, health, environment, and safety. Consider how this project will reduce risk in these functions.	4
Public Service Functions: Applies to licensing, maintenance, payments, and tax. Consider how this project will enhance services in these functions.	2
Legal Requirements: Consideration should be given to projects mandated by federal or state law. Other consideration could be given if there are interfaces with other federal, state, or local entities.	3
Total	15
Additional Information (provide details on Value to the Public scores > 3)	
<i>Describe additional details on scores > 3.</i>	
HGIS is an integral part of the Department's Project Evaluation Program which is in charged with evaluating development projects across Arizona and their impact on the environment and Arizona's wildlife resources.	

VII. Project Timeline {A}

VII.A Project Schedule

Provide estimated schedule for the development of this project. These dates are estimates only; more detailed dates will be required at project start up once the project schedule is established.

Project Start Date: **September 20, 2013** Project End Date: **June 30, 2014**

- FY14 – development and hosting of HGIS 2.0
- FY 15 & 16 - maintenance and hosting of HGIS 2.0 with an option for 2 more years of maintenance and hosting (FY17 & FY18).

VIII. Project Financials

Project Funding Details

Select One

- Pre PIJ Assessment Funding Details Only
 Full PIJ Project Funding Details

VIII.A Pre-Assessment Project Financials {Required for Pre-Assessment PIJ Only}

Project Funding Details for Pre-Assessment Project Investment Justification Only

(Double click on table below – add funding in **whole dollars** and then click outside the table to return to Word doc)

ESTIMATED COSTS						
Category	FY	FY	FY	FY	FY	Total
Assessment Costs	\$ -					\$ -
Development Costs	\$ -					\$ -
Total Development Costs (including Assessment)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Operational Costs (if estimate is available)						\$ -
Total Estimated Project Costs	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

VIII.B Detailed Project Financials {Required for PIJ Approval}

Development and Operational Project Funding Details

Funding Categories:

Professional and Outside Services: The dollars to be expended for all third-party consultants and contractors.

Hardware: All costs related to computer hardware and peripheral purchases for the project.

Software: All costs related to applications and systems related software purchases for the project.

Communications: All costs related to telecommunications equipment, i.e. switches, routers, leased lines, etc.

Facilities: All costs related to improvements or expansions of existing facilities required to support this project.

License & Maintenance Fees: All licensing and maintenance fees that might apply to hardware, software and any other products as up-front costs to the project (ongoing costs would be included under Operational expense).

Other: Other IT costs not included above, such as travel, training, documentation, etc.

NOTE: FTE costs may be included in section VIII.e below, as required.

s (Double click on table below – add funding in **whole dollars** and then click outside the table to return to Word doc)

DEVELOPMENT COSTS						
Category	FY 14	FY 15	FY 16	FY	FY	Total
Professional & Outside Services	\$					\$
Hardware						\$ -
Software	\$					\$
Communications						\$ -
Facilities						\$ -
License & Maintenance Fees						\$ -
Other	\$					\$
Total Development Costs	\$	\$ -	\$ -	\$ -	\$ -	\$

Enter Total Development Cost (above) in Project Values table on Approvals page.

OPERATIONAL COSTS						
Category	FY 14	FY 15	FY 16	FY	FY	Total
Professional & Outside Services		\$				
Hardware						\$ -
Software						\$ -
Communications						\$ -
Facilities						\$ -
License & Maintenance Fees		\$				
Other						\$ -
Total Operational Costs	\$ -	\$				

Enter Total Project Cost (below) in Project Values table on Approvals page.

	FY 14	FY 15	FY 16	FY	FY	Total*
TOTAL PROJECT COSTS * Includes development and operational costs	\$					

VIII.C Funding Source {A}

(Double click on table below – add funding in whole dollars and then click outside the table to return to Word doc)

Funding Source Category	Name of Funding Source	Currently Available (\$)		New Request (\$)		Total (\$)
		Development Budget	Operational Budget	Development Budget	Operational Budget	
General Fund						\$ -
Federal ARRA Fund						\$ -
Federal Fund						\$ -
Other Appropriated Funds		\$	\$		\$	\$
Other Non Appropriated Funds						\$ -
TOTAL PROJECT COSTS (Should = development and operational totals above)		\$	\$	\$ -	\$	\$

AZGFD Funding is allocated for a specific fiscal year and can't be carried over to the next fiscal year.

VIII.D Special Terms and Conditions (if required) {A}

Special Terms and Conditions (if required)

- All terms and conditions will be in accordance with State Procurement Office and the State's security protocol.
- Service Level Agreements (ASL) will be established.
- Terms for liquidated damages will be required.
- The Arizona Game and Fish Department will own all intellectual properties for new development.

VIII.E Full Time Employee Project (FTE) Hours

Provide estimated FTE Development hours that will be utilized for the duration of the project. Include IT as well as Business Unit FTE hours, if available. Enter into Project Values table on Approvals page. Enter FTE costs (if known) as well.

Table of estimated hours and costs by AZGFD staff. There are no FTE hours estimates for the contractor.

HGIS 2.0 Stages and AZGFD FTE Hours	AZGFD Project Manager	AZGFD Business Analyst	AZGFD GIS Dev. Coordinator & Admin	SUM
FY14 - development kickoff	50	30	30	
FY14 - development	125	70	70	
FY14 - testing & deployment	50	50	50	
FY15 - maintenance	100	25	25	
FY16 - maintenance	100	25	25	
Estimated Total Hours:	425	200	200	825
Estimated Total Cost:				

IX. Project Classification and Risk Assessment

IX.A Project Classification and Risk Assessment Matrix

Rate each question to determine risk level at Low (0), Medium (1), High (2), Very High (3).

Enter Risk Score into Project Values table on Approvals page.

RISK EVALUATION RANGES

- LOW RISK PROJECT 0 - 8
- MEDIUM RISK PROJECT 9 - 25
- HIGH RISK PROJECT 26 - 42
- VERY HIGH RISK PROJECT 43 +

Add Project Risk Details (if required)

PIJ Project Classification & Risk Evaluation					
Risk Factor	Low (0)	Medium (1)	High (2)	Very High (3)	Score
Project Management Complexity					
Project Team Size (# of people)	1-5	6-10	11-15	> 15	1
Project Manager (PM) Experience	Deep experience in this type of project	Some experience in this type of project and able to leverage subject matter experts	Some experience in this type of project and has limited support from subject matter experts	New to this type of project	1
Team Member Availability	Dedicated staff for project activities only as assigned	Staff is in place, few interrupts for non project tasks are expected and have been accounted for	Available, some turnover expected, some interrupts for non project issues likely	Dedicated team not available; staff will be assigned based on capacity	2
# of Agencies involved in Development activity	1	2	3	> 3	0
Vendor (if used)	No Vendor required	Vendor has been used previously with success	Vendor has been used previously with some management support required	New Vendor and/or multiple vendors	2
Project Schedule	Schedule is flexible	Schedule can handle minor variations, but deadlines are somewhat firm	Scope or budget can handle minor variations, but deadlines are firm	Scope, Budget and Deadlines are fixed and cannot be changed	3
Project Scope	Scope is defined and approved	Scope is defined and pending approval	Scope being defined	High level definition only at this point	0
Budget Constraints	Funds allocated	Funds pending approval	Allocation of funds in doubt or subject to change without notice	No funding allocated	0
Project Methodology	Defined methodology	Defined methodology, no templates	High level methodology framework only	No formal methodology	1
IT Solution Complexity					
Product Maturity (if purchased)	Product implemented & working in > 1 state agency or business of similar size	Product implemented & working in 1 agency or business of similar size	Product implemented & working only in an agency or business of smaller size	Product not implemented in any agency or business	0
Solution Dependencies	No dependencies or interrelated projects	Some minor dependencies or interrelated projects but considered low risk	Some major dependencies or interrelated projects but considered medium risk	Major high-risk dependencies or interrelated projects	2
System Interface Profile	No other system interfaces	1-2 required interfaces	3-4 required interfaces	> 4 required interfaces	1
IT Architectural Impact	Follows State IT approved design; principles, practice & standards	New to the State but follows established industry standards	Evolving "industry standard"	No standards, leading edge technology	2
Deployment Impact					
Process Impact	No business process changes	Agency wide process changes	Multi-State Agency process changes	State-wide process changes	1
Scope of End User Impact	Department or Division level only	Multiple Division or Agency wide impacts	Multi-Agency impacts	State-wide impacts	3
Training Impact	No training is required	Minimal training is required	Considerable training is required	Extensive training is required	1
Total Risk Score					20

X. Project Approvals

X.A CIO Review {A}

Key Management Information	Yes	No
1. Is this project for a mission critical application system?	X	
2. Is this project referenced in your agency's Strategic IT plan?		X
3. Is this project consistent with agency and State policies, standards and procedures?	X	
4. Is this project in compliance with the Arizona Revised Statutes and GRRRC rules?	X	
5. Is this project in compliance with the statewide policy regarding the Accessibility to Equipment and Information Technology for Citizens with Disabilities?	X	
6. Is this project mandated by law, court case or rule? If yes, cite the federal requirement, ARS Reference or Court Case.		X

Details: *Provide details related to technology as part of the requirement.*

X.B Project Values

The following table contains summary information taken from the other sections of the PIJ document.

Description	Section	Significance
Assessment Cost {A}	VIII. Project Financials {Required for Pre-Assessment PIJ Approval Only}	N/A
Economic Benefits	VI. Benefits to the State	13
Value Rating	VI. Value to the Public	15
Total Development Cost	VIII. Project Financials	\$680,888
Total Project Cost	VIII. Project Financials	\$840,888
FTE Hours	VIII. Project Financials	825 AZGFD staff hours
Project Risk Factors	IX. Risk Summary	Medium Risk (Score 20)

The PIJ must be transmitted to ASET by email as a Word document. Project approvals may be sent to ASET by email in PDF format. Include the Project Title below for identification. Send to your ASET Oversight Manager, or if not sure who is assigned to your Agency, PIJ docs can be sent to ASET_Projects@azdoa.gov.

X.C Project Approvals {A}

Select One Pre PIJ Assessment Approval Only PIJ Project Approval

Project Title: Heritage GIS 2.0
--

Responsibility	Printed Name	Approval Signature	Date
Project Manager:	Sabra Tonn		
Agency CIO:	Doug Cummings		
Project Sponsor:	Joyce Francis		
Agency Director:	Larry Voyles		

Appendix

A. Itemized List with Costs

Development costs by contractor are not to exceed \$450,000 in FY14. Creating detailed development costs, timelines, and milestones are part of the first development kick-off stage. See general timeline and milestones in Appendix C. Project Schedule.

Stage	Expense	Recipient	Time Frame	Cost
Development	Outside development service by NatureServe	For HGIS 2.0 hosted solution	FY14	
Development	MS SQL Server 2008 Standard 2-core license	For HGIS 2.0 hosted solution	FY14	
Development	MS SQL Server 2012 Standard 2-core license	For AZGFD ArcGIS Server Cluster	FY14	
Development	ArcGIS for Server 10.2 Standard license	For HGIS 2.0 hosted solution	FY14	
Development	AZGFD communication and travel costs	For AZGFD project management	FY14	
Operation	Outside hosting & maintenance service by NatureServe	For HGIS 2.0 hosted solution	FY15	
Operation	ArcGIS for Server 10.x Standard maintenance	For HGIS 2.0 hosted solution	FY15	
Operation	Outside hosting & maintenance service by NatureServe	For HGIS 2.0 hosted solution	FY16	
Operation	ArcGIS for Server 10.x Standard maintenance	For HGIS 2.0 hosted solution	FY16	

B. Connectivity Diagram

Figure 1. Logical connectivity diagram for the HGIS 2.0 spatial decision support system. New components are in a yellow font.

Option 1 Production Environment – 95% System Availability

Figure 2: Core technology stack for the HGIS 2.0 spatial decision support system. This stack can be doubled to increase performance and redundancy (uptime).

C. Project Schedule - Gantt Chart or Project Management Timeline

Activity/Milestone	Month										
	1	2	3	4	5	6	7	8	9	10	11
Project initiation											
<i>Kick-off meeting; confirm design with AGFD</i>	X										
Set up development hosting infrastructure											
Set up and test base ERT application framework											
<i>Obtain complete GIS layer details from AGFD</i>			X								
<i>AGFD review and feedback on milestone 1</i>				X							
<i>Development milestone 1 progress payment</i>				\$							
Develop Drupal front end											
<i>Obtain complete current report texts from AGFD</i>					X						
Develop ArcGIS Server back end											
<i>AGFD review and feedback on milestone 2</i>						X					
<i>Development milestone 2 progress payment</i>						\$					
Develop custom report generation											
<i>AGFD review and feedback on sample reports</i>							X				
Develop admin user workflow											
<i>AGFD review and feedback on milestone 3</i>								X			
<i>Development milestone 3 progress payment</i>								\$			
Set up production hosting infrastructure											
Documentation											
<i>AGFD review and feedback on test plan and tutorial</i>									X		
Acceptance Testing and Training											
<i>AGFD review and feedback on milestone 4</i>										X	
<i>Development milestone 4 progress payment</i>										\$	

SS

Figure 3: Proposed project timeline and milestones. Note that this chart will be adjusted to compensate for the delayed project start.

D. NOI (Web Projects Only)

AZGFD Note: ADOA ASET Oversight Manger Charles Revenew suggested not including an NOI in this RFP; because, “[a]t this time the NOI process is being redefined and use of the NOI document would be added work GM and/or bidding vendors would have to consider or fill out without benefit.” Email to wgrunberg@azgfd.gov on Fri 8/30/2013 11:11AM.

Glossary

Document Information

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<http://aset.azdoa.gov/webtools>