

ESRI UC 2003 Paper 494

Enterprise ArcGIS. This presentation has four parts. Parts one; two, and three will be brief. Part four is the main focus of this presentation.

Part one summarizes the technical and functional architecture implemented at the Maine DEP for enterprise GIS. This will discuss our implementation of ArcGIS using Citrix.

Topics covered:

- Enterprise GIS requirements
- Hardware infrastructure
- Software infrastructure
- Custom training

Part two discusses the testing environment; hardware and software policies, testing scenarios, documentation, and evaluation. The MDEP has over 100 staff using GIS to support their daily work. It is not acceptable to have the GIS servers' down/off line/crashed during working hours.

The MDEP has implemented a testing environment and a set of policies and procedures to software and applications before they are placed into production. This part of the talk will discuss the testing program at MDEP.

Part three focuses on deployment, scalability, implementing standards for data management and analysis, and preparing for storing files in the geodatabase.

Part four focuses on using the Provision Enterprise Modeling software to model enterprise GIS user requirements. This will be the primary focus of this presentation.

This paper will discuss using Provision Workbench modeling software to conduct a requirements analysis to capture licensing, compliance, and enforcement information for the following program areas:

- AIR facilities
- Hazardous waste facilities
- Solid waste facilities
- National Pollution Discharge Eliminate System Facilities (water discharges)
- Over board discharges
- Pollution Prevention projects
- Toxic use reduction

The information gathered in this analysis will be incorporated into the Maine Suitability for development model to enable users to see the impacts of state and federal regulations on the area under study.

I have included the initial project plan for this project. If you would like a current version of the plan contact the authors.

Scope Of Work for Spatial Requirements

1.0 Introduction

The Maine Department of Environmental Protection (MDEP) is in the process of a major integration of many of its Information Systems under the general auspices of the EPA One Stop program. One of the central tenets of the One Stop program is that environmental regulation information should be organized for a “facility” and that all affected media (land, water, air) information should be accessible through a single “Facility ID.” This approach to information management also implies a geographic focus to information management, enabling regulators to easily visualize and understand the spatial relationships between and among the various regulated facilities.

MDEP has invested a significant amount of time, energy, and financial resources in developing one of the finest enterprise GIS systems in the country for a state environmental organization. These excellent systems should provide great power to an enterprise One Stop system. Before this power can be fully realized, however, much analytical work must be done to better understand all of the ways the MDEP staff are currently using spatial analysis in their daily work flows, and how these workflows might be made more effective and more efficient with modern GIS capabilities, including the potential expansion and/or refinement of the Department's existing GIS database holdings.

The objectives of this analysis project are:

- To better understand and fully document the existing spatial workflows currently in use at MDEP
- To identify all of the spatial data sets required to fully implement these workflows
- To identify any required spatial data sets that are currently missing or inadequate
- To identify any relationships between spatial datasets (towns must be fully within counties, towns must fully cover counties, etc.)
- To identify any relationships between spatial datasets and MDEP “business” datasets (the feature class Response_Spill_Points is related to the Oracle table SPILLS.REPORT_SPILL_POINT by the field SPILL_NUMBER for example)
- To assist MDEP in developing Standard Operating Procedures (SOPs) for the acquisition or development of any missing spatial datasets
- To assist MDEP in refining a methodology for documenting workflows, SOPs, and spatial / relational data models

It will be necessary for MDEP to invest a significant amount of time and energy in this process in order to fulfill the stated requirements.

In the near term, this project will assist MDEP in identifying workflows that can be enhanced immediately with the application of modern GIS tools. It will also help to identify missing or inadequate GIS data sets that could help to make MDEP workflows more efficient and effective immediately with their acquisition or improvement. We anticipate that there will be substantial improvements in workflows and data integration as a result of this project.

2.0 MDEP staff resources required

The table below describes the level of effort that will be required for each of the listed MDEP staff.

Personnel	Time
Program Staff	48 hours
Christopher Kroot	12 weeks
Michael Smith	9 weeks
John Lynam	8 weeks

Janet Parker	8 weeks
Chris Halsted	8 weeks
Oracle DBA (Laurie Langlois) or Systems Analyst (TBA)	10 weeks
Operations personnel	6 weeks
Carmel Rubin	2 weeks

MDEP will provide CONTRACTOR staff with access to two temporary workspaces with telephones and network access. The Contractor will provide their own computers for use on this project.

3.0 Required Technology

We require that the documentation of this project be enhanced by the addition of two pieces of technology:

1. For enterprise modeling and associated knowledge management, the ProVision Workbench product will be employed to help capture the workflows and associated information described in the interviews, to conduct various data and functional requirement analyses, and to generate documentation. This tool will help to add consistency of organization, content, and style to each of the interviews. It will greatly speed the creation of MS Word documentation and/or reports documenting each of the business processes discussed by the users. ProVision Workbench will be used to capture and analyze the wide range of information that will be needed to conduct this project. While the textual and graphical information that will be loaded in ProVision can be exported to MS Word and graphical format external to the software, the MDEP has opted to evaluate this software and determine whether it may be more expedient to maintain this information directly in the ProVision environment. ProVision is specifically designed as an enterprise modeling and associated knowledge management environment that may be directly useful to the current project and beyond. The MDEP will purchase the Provision Workbench software. The purchase of the Provision Workbench software is not part of this contract.
2. For information sharing and communication, the Department and the Contractor will utilize the PBM Project Portal as a clearinghouse for all project documentation and change management. Contractor will not bill the MDEP for the use of the PBM Project Portal. A separate user account will be set up for each of the MDEP personnel involved in this project. They will be able to either view site content or add new site content depending on their permissions. Contractor will host this portal for the duration of the project and for six months after the project has been completed. After that time, the Portal and its contents will be exported for MDEP to implement at such time as they choose to create an Oracle 9i AS infrastructure.

4.0 Scope of Work

The following summarizes the scope of work to be carried out by the Contractor Project Team, inclusive of both the MDEP and Contractor staff to carry out the Enterprise Facilities Spatial Requirements Analysis. The approach described here is consistent with the basic principles and strengths of the Universal Software Development Process (USDP), but also incorporates some value-added methods and tools that can increase expediency, completeness, flexibility, spatial-issue awareness, and added effectiveness to how user requirements are collected and analyzed.

The Contractor will work with MDEP to continue on an ongoing basis to apply, evaluate and refine the MDEP version of the USDP methodology. The particular configuration of methods, analysis, and documentation tools (Pen Bay Media Project Portal, Provision Workbench, MS Visio, MS Word) will need to consider the short and long-term needs of this project. The MDEP and the Contractor will work together via the phone and email during the initial project planning to determine the appropriate methods and configurations for the above mentioned tools. A critical consideration in this regard is the transfer of these methods and tools to MDEP staff as an integral part of carrying out the work. The Contractor will

provide three days of technology transfer immediately following the joint MDEP and Contractor Kickoff meeting. The technology transfer will continue for the duration of the project. The technology transfer will build the MDEP staff capacity that will be needed to carry out significant portions of the present project, while supporting the development of skill sets and an institutional knowledge-base that can be used to further this project and support others in the future.

While the present effort will focus specifically on the spatial data requirements of the One Stop environmental permitting project, to be effective we recognize that this must be accomplished with full appreciation of the operational context, workflow and business requirements of each permit type, the associated workflows, required analysis, decisions that must be made, and the associations, interrelationships, and commonalities among permit-related workflows, analysis needs and data requirements. The methods and tools specified in this contract will enable the capture of that information in-process during the interview sessions, and to analyze and synthesize that information to determine spatial data and GIS-related application needs. It will also capture all the contextual business information in a "knowledge-base" form that can be used, expanded and refined in the future beyond the purposes and needs of the current project.

The interview method proposed will allow users to describe their workflows/tasks in their own language and in a form that is common to their everyday jobs. Through a collaborative facilitation technique, this information is captured and structured in process during interview workshops, with the full and immediate input and corroboration of the involved stakeholders. This is critical to ensuring that the collected information is as complete and accurate as possible the first time around, by providing the users with a clear and structured format for rationalizing and describing what they do and what information they use, and recording this information immediately to a structure that the user participates directly in formulating, and can therefore easily understand and "own". This provides the foundation for the iterative review and refinement procedures that are inevitably required to fill in missing information following the first set of interviews.

Task 1 - Initial Project Planning

In this first task, the Contractor and the MDEP Project Manager, The MDEP ATO, and the One Stop Program Manager will create an outline of a project orientation document to be provided to users prior to the interviews, and to discuss the purpose and form of the Kickoff Meeting to be conducted later. This task will also cover overall organization of the project team, mobilization of MDEP staff, methods for communicating and resolving any issues that may arise, project status tracking and reporting, and other issues related to the operation and management of the project effort.

The project orientation document referenced above will provide users with a brief overview of the project goals, the general process to be followed, and a description of the type of information that will be asked of them in the interviews. It will include a questionnaire that will guide users in describing their workflows in a form that will most effectively dovetail into the Contractor-led interview process later on.

Tasks to be completed:

- Prepare initial ideas for and produce a project overview document
- Prepare Questionnaire to be sent to users to assist them in describing their workflows
- Produce a document that provides an overview of the Provision Workbench software to be used in this project.
- Prepare framework for and produce project plan, communications and status tracking
- Prepare a project schedule
- Send MDEP staff involved in the project:
 1. Project overview document
 2. Questionnaire
 3. Overview of the Provision Workbench software
 4. Project Schedule

- Prepare draft agenda for Planning Meeting #1
- Contractor will begin scheduling interviews with MDEP users.
- Contractor will setup up Project Portal web site and load all current information
- Prepare and distribute minutes from meetings and associated phone calls and emails.

Task 2 - Planning Meeting #1

MDEP GIS Manager (Christopher Kroot), MDEP One Stop Project Manager (Carmel Rubin) and Contractor team will conduct a planning meeting. This will be accomplished through a conference call, to be initiated by the Contractor. Focus of the conference call will be:

- To discuss the questionnaires received to date and how many questionnaires have not been received. Stuart Rich and Carmel Rubin will work together to get the staff that have not completed their questionnaires to complete them.
- Review Schedule and revise as required
- The contractor will prepare a draft checklist and an explanation of what the purpose of the checklist list is for. This list will be reviewed and edited as required during this conference call. This checklist will detail the types of information the users will be asked about during the interviews that will happen later. This will assist users in preparing for the interviews.
- Review future tasks and responsibilities
- Contractor will document the minutes of the meeting and post to Project Portal web site

Task 3 - Contractor completes checklist and emails to MDEP users

The contractor will complete the checklist to be sent to users incorporating comments and issues discussed in Planning Meeting #1.

Contractor will complete the explanation of the purpose of the checklist.

Contractor will email the checklist to the MDEP staff involved in this project.

The Contractor will take the initial questionnaire results provided by the users, and will synthesize and load it to the ProVision framework. This will be structured in a form that will be very recognizable to the authors, and that the Contractor-led team will use as an initial point of departure and facilitation tool for conducting the interview sessions.

Task 4 - Planning Meeting #2

The contractor project manager Stuart Rich will facilitate a 4 hour planning meeting at the MDEP. The MDEP Computer Services staff involved in the project will participate along with Carmel Rubin. The contractor team members Mark Sorenson and Jim McKibben will participate via videoconference.

Objectives for this meeting:

- Project overview
- Project task status review
 - Review of questionnaire results
 - Contractor will provide draft agenda for Kickoff meeting
 - Discussion of draft agenda for kickoff meeting
 - Contractor will make changes to agenda as required
 - Contractor will provide draft outline for how interviews will be conducted and what questions will be asked.
 - Discussion of interview outline & questions

- Contractor will make changes to outline and questions as required
- ProVision software demonstration
- Project Portal web site demonstration
- Discussion of interview schedules
- Discussion of roles and responsibilities of all on team(contractor and MDEP staff)
- Videoconferencing testing
- Contractor will document minutes of meeting and load into Project Portal web site

Task 5 - Kickoff meeting with contractor and MDEP

Contractor will be overall facilitator of this meeting. All MDEP staff involved in this project will attend this meeting including: Computer Services Staff, Data Management Unit Staff, Staff to be interviewed, and the One Stop Project Manager. All contractor staff assigned to this project will attend.

- Project overview
 - Carmel Rubin & David Blocher MDEP - General One Stop overview
 - Mark Sorenson provide overview of this project
 - Christopher Kroot overview of Computer Services and GIS unit support for this project
- Project task status review provided by contractor
 - Review of questionnaire results
 - ProVision software demonstration
 - Contractor will provide draft outline for how interviews will be conducted and what questions will be asked.
 - Discussion of interview outline & questions
 - Question and answer session with participants
 - Contractor will make changes to outline and questions as required
- Contractor provide Project Portal web site demonstration
- Contractor will provide overview of interview schedules
 - Questions and answer session regarding schedule
- Discussion of roles and responsibilities of all on team(contractor and MDEP staff)
- Contractor will document minutes of meeting.

Task 6 - Preparation for First Round Interview Sessions

Prior to conducting interviews with MDEP staff, the Contractor will work with the GIS Manager and the One Stop Program Manager to review workflow documentation developed by MDEP staff.

The questionnaire results from each group of MDEP users will be reviewed with the MDEP GIS Unit, and assessed as to the likely breadth and complexity of each group. Linkages and dependencies among different groups within the broader environmental licensing, enforcement, and compliance function of the MDEP will also be discussed.

During the interview preparation meeting, the Contractor will also work with the GIS Manager to review the objectives and principles of the Provision Workbench modeling tool and how it may be used with a Visio-based stencil palette and the spatial modeling it is intended to support.

Task 7 - Technology Transfer

The contractor will use the ProVision enterprise-modeling tool set as the basic knowledge framework for the entire project. Use of this framework by MDEP staff during and following this project will require that they understand the underlying principles and the use of the tools.

Prior to beginning the interview process, the Contractor will have three days of technology transfer meetings with MDEP staff that will be involved with the project to review the ProVision framework and provide training in how to use it. The contractor will demonstrate how Provision will be used as for modeling workflow, spatial data inventories, SOPs, conceptual spatial data models, and infrastructure information

It is expected that this will provide staff with a conceptual grounding to understand how the tools will be used to support the current project, while more detailed skills in actually using the software themselves can be picked up through the on-the-job experience of conducting this project.

Task 8 - Conduct First Round Interviews

In this task, a Contractor-led team will conduct the first round of interviews with all the identified MDEP staff. The objective of these interviews is to create a description of the workflows currently in use at MDEP. For example, we will want to identify the various processes that are completed, the description of the products of these processes, identify who is responsible for completing the processes, the data that is used to complete the processes, the data that is generated and saved by the processes, the interactions with others outside the organization, the systems that are used to complete the processes, and the sequence of events that are completed.

These interviews will be conducted in a facilitated workshop fashion, utilizing the ProVision framework as a foundation for guiding interactive discussions and simultaneously capturing the basic workflow and associated information. Initial interviews will be conducted individually, or where desirable in small groups. This will allow the Consultant to extract maximum information from each individual, and to understand each person's special needs, issues, and capabilities. It is expected that interview information will be additive, especially within operational units, thus information from one interview may be used as dynamic feedback to the next.

It is expected that most individual interviews can be conducted in 2 hours, while more broadly defined group interviews may require 3-4 hours. These distinctions will be discussed during the interview preparation stage described previously.

As each interview is conducted, the associated information will be interactively loaded to the ProVision framework. A projection system is used so that participants can contribute directly to how their information is being recorded, including in-process corrections, refinements and qualifications. This not only helps them to think about their work in a comprehensive and holistic manner, but also helps them to understand how their information is being captured and structured for later analysis and reporting.

After each interview session, the Contractor team will further elaborate and synthesize the captured information to a level suitable for draft reporting back to the users. This review process with the users will require several iterations.

The ProVision reporting tools will then be used to create draft reports for review by the interview participants. These reports will be generated in Portable Document Format (PDF), and distributed to the

stakeholders in electronic form. The reports will also be posted to the Project Portal web site for access as needed by the participants. The stakeholders will be asked to review the reports and provide comments back within a two-week period. MDEP CSU staff will be responsible to follow up with the stakeholders to ensure that this review is conducted, and for collating comments to a consolidated form before turning them over to the Contractor.

Objectives

- Contractor will lead interview sessions with individuals and/or small groups;
- Contractor will document interview information to ProVision;
- Contractor will generate reports and distribute to stakeholders in electronic form, including posting the information to the Project Portal web site;
- Contractor will incorporate review comments and refinements;
- If desired, export selected textual information out of ProVision for incorporation to MS Word 2000 documents, and diagrammatic information to a graphical output that can be used for re-modeling the information into Visio by MDEP staff.
- MDEP collate review results for submission to the Contractor
- MDEP Staff will work on the following objectives:
 - Refine or remodel diagrammatic information in ProVision and/or Visio
 1. Spatial Data Inventories
 2. SOPs
 3. Conceptual Data Model
 4. Deployment Diagrams - Hardware and Software Architecture

Task 9 - Group Meetings to Review First Round Interviews

A series of 4 group meetings (one for each Bureau, AIR, BRWM, L&W, and TUR) will be held to present and explain the results of the first round interviews, and to solicit further group discussion and comment. The results of the individual and small group interviews will be presented, and their commonalities and differences pointed out. The Contractor team will actively solicit additional discussion to identify any important deficiencies or omissions in the captured information.

This session will be led onsite at the MDEP facilities by the Contractor Project Manager. The California contingent of the Contractor team will participate by videoconference. Information collected during these sessions will be used to update the ProVision framework. Final reports will be generated and distributed to the stakeholders in electronic form, and will also be posted to the Project Portal web site for common access and reference.

Objectives

- Contractor lead overview presentations with each of the 3 Bureaus and Office of the Commissioner(TUR)
- Contractor will record comments and incorporate to ProVision framework;
- Contractor will re-generate final reports, distribute them to stakeholders in electronic form;
- Contractor will post-final reports to the Project Portal web site.
- Appropriate MDEP staff will attend overview presentations
- MDEP GIS Unit Incorporate changes to Visio diagrams, if necessary.
 1. Spatial Data Inventories
 2. SOPs
 3. Conceptual Data Model
 4. Deployment Diagrams - Hardware and Software Architecture

Task 10 - Conduct Preliminary Enterprise Requirements Analysis

In this task, the Contractor will conduct a preliminary analysis of the workflow situation for each individual or group, and will synthesize this information to be used as part of the dialog with the users to identify potential efficiencies and innovations in the next task.

The ProVision tool set will be used to model and analyze all the information that will have been collected during the interviews. These analyses will support the identification of commonalities in spatial data and analysis functionality, inefficiencies and redundancies in business process flows, and linkages and dependencies among business units and/or external entities. This analysis will be conducted by the Contractor and synthesized to a level that can be used to support further discussion with the individual users in the next task.

Objectives

- Contractor will conduct preliminary requirements analysis;
- Contractor will synthesize requirement information in Provision Workbench and create reports and diagrams that can be used to support further discussions with the users in the next task.
- Appropriate MDEP CSU staff will provide as-needed support and feedback to preliminary requirements analysis.

Task 11 - Discuss Future Needs and Opportunities with Users

In this task, the Contractor/MDEP interview teams will meet with individuals or small groups to review the findings of the requirements analysis, and to solicit their ideas about future ways that GIS data and applications can be used to assist them in their daily work. This discussion will be held as an open forum for maximum creativity and expression, further supported by the analysis results from the previous task and the past experience of the Contractor and MDEP GIS staff. The results of these meetings will be recorded back into the ProVision knowledge management framework in a form that can be used to support further requirements analysis and prioritization that will be needed in subsequent tasks.

Objectives

- Contractor will conduct future needs and opportunities meetings with users
- Contractor will compile feedback to the ProVision framework and generate reports and diagrams to communicate this information to users
- Appropriate MDEP CSU staff will participate in the future needs and opportunities meetings with users.

Task 12 - Assist MDEP in Conducting Data Inventory and Assessment

This task will involve the development of a data inventory, an assessment of this information to determine applicability to the identified One Stop requirements, enhancements to existing data that may be needed, as well as data gaps, and data compilation, integration and automation needs for filling any necessary gaps from manual or other sources. It will also identify any institutional linkages that may be needed to build and/or maintain needed data in the future. The Contractor will provide as-needed support to this activity.

Data topics and requirement specifications can be derived out of the ProVision framework, including listings of the specific applications and associated detailed content and accuracy requirements for each topic. This information will then be compared against the existing GIS databases at the MDEP to determine their appropriateness to support such applications, or to identify needed enhancements. This information will also be used to assess other information that may exist currently in a variety of media such as paper maps, sketches, excel spreadsheets, CAD files, standalone databases, and other forms.

The inventory of existing data stores will be captured in the form of a minimalist set of metadata, with a few additional fields that can help to expedite the data assessment task. Topical classifications derived

from the Proforma-based requirements analysis will be used to codify existing sources as metadata elements. Once the data inventory and assessment database has been used to record all the identified data stores, this information will be used to identify clusters of like topics. These clusters can then be used as the basis for conducting a detailed assessment of each group of related information, which can then support:

- Identification of existing spatial data sets that can be used as-is to support the One Stop Program;
- Identification of existing spatial data sets that will require enhancement to meet the specified needs;
- Identification of data gaps that can be filled by one or the compilation and integration of several other sources;
- Identify data gaps that will require original data collection;
- Identify potential institutional linkages and partnerships that might be established to build and maintain required databases.
- Identify and assess prioritization criteria for each required data topic;
- Develop conceptual compilation strategies for each new data topic.

Once developed, the above information will be documented to a data inventory and assessment (DIA) document to support the development of detailed SOPs in the next task. This information will be coded into the Proforma framework as a living portion of the knowledge base that can be updated as new insights and information becomes available in the future. The MDEP may use MS Word and Visio to assist in this task.

Objective

- MDEP GIS staff prepare and document data inventory and assessment with assistance from contractor.

Task 13 - Assist MDEP GIS Unit Staff in the Development of SOPs

Data acquisition SOPs will be developed by MDEP GIS Unit staff for the refinement of existing spatial data maintenance procedures, data enhancement, and the development or acquisition of new data sets. In this task, Contractor staff will provide as-needed support in designing and documenting SOPs. The ProVision tools will be used to support both. The Contractor will work with MDEP staff to establish techniques and templates for accomplishing this within the ProVision framework. The MDEP may use MS Word and Visio to assist in this task.

Objectives

- MDEP GIS Unit staff prepare SOPs with assistance from contractor.

Task 14 - Provide Assistance in the Development of a Draft Conceptual Spatial Data Model

The contractor will assist the MDEP GIS Unit in the development of a conceptual spatial data model, including any necessary associations/relationships etc to non-spatial data. The contractor will also assist the MDEP systems analyst in the development of a conceptual model of a high-level non-spatial data model, as needed to support the One Stop Program requirements identified in the earlier tasks. This information will be added to the ProVision framework. The MDEP may use MS Word and Visio to assist in this task.

Objectives

- MDEP GIS Unit and Oracle Group prepare draft conceptual data models for spatial and non-spatial information with assistance from contractor.

Task 15- Conduct Project Wrap-Up Seminar

As a final task, the Contractor will conduct a project wrap-up seminar to highlight the process and results that came out of the project, and the road ahead. This will be an Internet-based live forum that would allow participants to log into the session from their desktop or a conference room. The detailed agenda for this, and the assignment of roles and responsibilities for carrying this out will be defined as the project progresses.

5.0 Primary Contractor Team Roles

All contractor staff will attend the kickoff meeting.

Stuart Rich of Penobscot Bay Media will serve as the overall project manager and primary point of contact for this engagement. In addition, he will conduct all of the staff interviews and will be primarily responsible for creating the process model documentation and making sure that all appropriate information is posted to the Project Portal for easy access by the project team. Mr. Rich will assist the MDEP Spatial Data Administrator with the task of developing the spatial data inventory and gap analysis and will assist the MDEP GIS manager in developing a conceptual spatial data model for those business units involved in this analysis process. He will also assist MDEP staff in developing Standard Operating Procedures for data acquisition and development.

Mr. Mark Sorensen of Americec will serve as overall project consultant. He will participate in planning meetings, often remotely, and review key documentation to ensure that the project is achieving its stated objectives. Mr. Sorensen will facilitate the overall project kickoff meeting as well as the initial technology transfer sessions to ensure that the appropriate technologies are applied to our information collection processes. He will also facilitate the final web-based workshop designed to communicate the overall results of the project and highlight any areas that will require further follow-up and modeling by MDEP going forward.

Mr. Jim McKibben will serve as a subject matter expert in the use of the ProVision software. He will spend 3 days of technology transfer teaching Mr. Rich and MDEP staff the finer points of business process modeling with the ProVision tools. He will then assist in the first three days of interview sessions as the team learns on the job by using the ProVision tools to document the first round of interview sessions.

Christopher Kroot will serve as the project manager for MDEP and serve as the central point of contact for this project. Mr. Kroot will be responsible for assisting the contractor with scheduling and logistics of MDEP resources. This individual will also be responsible for managing MDEP obligations for this project including MDEP document review, and collating MDEP staff responses to interviews and process documentation.

Schedule

This project will begin the first week of May 2003 and be complete by the end of March 2004.

The Budget

Task	Americec Hours	PenBay Hours	Total Dollars
Initial Project Team Meeting	4	4	\$ 900
Prepare Introductory Materials	8	16	\$ 2,600
Program Staff Creates 1st Workflow Iterations			\$ -
Review of first workflows	16	16	\$ 3,600
MDEP Kickoff Meeting	16	16	\$ 3,600
Preparation for first round of staff interviews	24	24	\$ 5,400
First round of staff interviews	24	96	\$ 12,600
Group meetings to review first interview	8	16	\$ 2,600
Prepare Final documentation for first interview	16	16	\$ 3,600
Prepare for second round of interviews	8	16	\$ 2,600
Conduct second round of interviews	24	80	\$ 11,000
Group meetings to review second interviews	8	16	\$ 2,600
Assist in developing a spatial data inventory and gap analysis	8	40	\$ 5,000
Assist in the development of SOPs	16	24	\$ 4,400
Assist in developing draft conceptual data model	16	40	\$ 6,000
Preparation for final analysis workshop	32	32	\$ 7,200
Final Analysis Workshop	16	16	\$ 3,600
Total Costs	244	468	\$ 77,300

To receive complete documentation on the MDEP Enterprise GIS please contact the authors:

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