TREINEN

Washington State Department of Natural Resources

Forest Practices Division

Forest Practices
Integrated Business Information System Project

Deliverable 7: Roadmap for Implementation

Date: **June 20, 2017**
Revision Level: **2.0**

Treinen Associates, Inc.
204 Pear Street North East
Olympia, WA 98506

Phone: 360.455.5168
Fax: 360.292.7484

www.Treinen.com

Revision History

Revision Level	Date	Description	Change Summary
1.0	6/13/2017	Initial Draft	
1.1	6/15/2017	Updated draft	Incorporated changes from internal review
2.0	6/20/2017	Final	Incorporated changes from external review

Table of Contents

1   Background

The Washington State Department of Natural Resources Forest Practices Division is charged with working with the public, landowners, operators and consultants for their interests in harvesting timber, building or repairing forest roads or culverts, thinning the forest, aerial spraying or other forest practices. Certain of these activities requires a permit that Forest Practices reviews and has to approve prior to the initiation of those specific activities.

Forest Practices receives thousands of new applications for permits each year, renews permits every year and manages the on-going activity from each approved permit. Permits may also include post-activity work that entails Forest Practices involvement for periods of time even beyond the actual expiration of the permit. This requires that information for thousands of permits be reviewed and managed each year.

The Forest Practices Division has a desire to develop and implement automation to improve the customer experience, aid in their mission, improve their ability to report to the public and management and respond to requests for information from regulatory and legislative authorities. To achieve this goal, Forest Practices has undertaken the Forest Practices Integrated Business Information Systems (fpIBIS) project to connect Forest Practices systems, databases and mapping tools.

Forest Practices desires to undertake the Forest Practices Integrated Business Information Systems (fpIBIS) project to connect Forest Practices systems, databases and mapping tools in a manner that achieves a single point of access for all internal staff, external agency support, public, applicants, and external support for all Forest Practices products, services and work. They also desire to achieve improvements and enhancements in the following areas:

- efficiencies in operations
- ease-of-use for the public, applicants and other proponents
- provide mobile access capabilities
- more efficient data entry
- more complete data collection
- enhanced mapping capabilities
- electronic signature capabilities
- electronic payment capabilities
- elimination of redundancies
- single source of data
- integration of and interfacing to other systems and functions
- on-line capability for applications, forms and maps
- automation of processes through workflow management
- access and update capability for external agency and partners
- enhanced reporting capability

The first phase of the fpIBIS project is a Discovery phase to assess feasible options to meet Forest Practices project objectives. The four options considered are:

a)   a COTS/MOTS/SaaS solution,
b)   a FPARS enhancement solution,
c)   a custom-built solution, and
d)   a hybrid enhancement/custom-built/COTS/MOTS/SaaS solution

The factors evaluated for each option include capability, feasibility, technologies employed, ability to meet requirements, ability to fill identified gaps, cost, benefits and risks. Treinen's recommendation is to use the hybrid solution option.

2   Approach

Each option required a different approach to gathering and understanding the data to adequately analyze each option. Several tasks were undertaken to gather the necessary and applicable information to complete this analysis. Those tasks included:

➢ Review existing documentation
➢ Gap analysis
➢ Documenting current business processes
➢ Define high-level requirements
➢ Market research of applicable products/services

An initial scoping workshop was conducted with management to identify the scope and systems involved in the discovery effort. This established the framework and scope against which each option would then be evaluated.

The first evaluation step in this Discovery phase was to review existing documentation. This review included all documentation Forest Practices had for the existing systems and processes and went as far back as 1998. Although some of the old information is no longer valid due to changes that have been made, it still provided context supporting the project objective.

Treinen employed its Requirements Elicitation and Validation (REV) process to document current processes, identify gaps and determine requirements. The REV process is a formalized method to solicit information and provide a standardized and consistent approach to gathering and documenting information across various processes.

In addition to the REV sessions, Treinen conducted additional workshops, interviews and review sessions to solicit information to document diagram business processes, document gaps, opportunities, issues and challenges and to gather requirements. with business and technical staff from DNR Forest Practices. These sessions included participants from Headquarters business and technical groups, as well as, Regional Staff (Regional Managers, Assistant Regional Managers, Coordinators, Technicians and Foresters), Geologists and Engineers.

Based on the information gathered, analysis and previous Forest Practices efforts to enhance productivity, the need and desire for change is well established. After review of all of the options, DNR Forest Practices will benefit from the implementation of any of these options described in more detail below.

Part of the market research was to prepare and release a Request for Information (RFI). The RFI was published on the Washington State WEBS site. Five responses were received and inform as to what products and services are available to achieve the fpIBIS project goals.

3   Overview

The recommendation for the integration solution for the fpIBIS project is based on the analysis completed through the review of documentation, interviews with DNR business and technical staff, identification of gaps, issues and opportunities, REV sessions, review of RFI responses and the understanding of the key success factors. Forest Practices has already been provided some of this information from previous deliverables.

As a result of this approach, the **recommendation is a hybrid solution**. The recommendation anticipates a combination of COTS with some modifications and a pairing of resources from the solution provider with existing DNR resources. By using an agile approach, this will greatly improve the ability to deliver functionality more quickly while providing a more comprehensive transfer of knowledge and managing the costs.

This solution option will include some level of modification or development but good planning will keep the risks and costs manageable. There will be interface additions/changes to allow the efficient flow of information to other systems.

Also, some level of business process change may be necessary to use the acquired software effectively while still achieving acceptable business practices. The intent should be to use acquired software without much modification to avoid reduced efficiencies and unnecessary costs.

To realize the hybrid solution recommended, there are several activities that need to be completed before a final decision can be made. Additional information will be uncovered through some of these activities that may influence the direction, what and how components of the decision are handled or may even cause a change in the final solution decision.

The activities include:

- ➢ **Sponsorship** – identify and document
- ➢ **Requirements** – refine and prioritize
- ➢ **Scope and Approach** – document
- ➢ **Funding** – identify strategy and source
- ➢ **RFP** – prepare and release
- ➢ **Response Evaluation** – review responses and determine vendor and solution
- ➢ **Solution Implementation**

Further details on each of the above listed activities and the related timeline can be found later in this report in Section 6 – Workstreams and Activities.

4   Summary of DNR Organization, Resources and Processes

The Forest Practices Integrated Business Information System project will impact several of the divisions within the Washington State Department of Natural Resources. The degree of impact to each group will be dependent on the final solution. However, the most significant impacts to groups other than Forest Practices are the IT group and the Regional offices.

The Forest Practices Division utilizes several systems to serve and manage their customers and to fulfill their mission of managing forest practices across the state. The Forest Practices Application and Review System (FPARS) was identified as the primary system. However, after an initial scoping workshop was conducted with management to identify the scope and systems involved, several other systems were identified for inclusion.

The other systems that are being included with FPARS are:

- Forest Practices Application Mapping Tool (FPAMT)
- Water Type Modification Form Tracking Application (WTA)
- Forest Practices Enforcement Tracking System (FPETS)
- Forest Practices Risk Assessment Mapping (FPRAM)

These systems actually represent the business processes that are included in the fpIBIS project and are to be included in the final solution.

In addition to these actual systems, there are several other tools or 'systems' used by Regional Office staff, Foresters and others, generally referred to as Regional Office shadow systems, that provide functionality to different offices and/or groups. It was important to identify and include these 'systems' because their purpose and functionality must be incorporated if the solution is to be comprehensive and allow Forest Practices to achieve their goals for the fpIBIS project of a consistent process for gathering, recording, viewing and managing data.

Following is the list of 'shadow systems' that were identified during the review process. Information on the users and the purpose/function of each can be found in the Gap Analysis report. These 'shadow systems' include:

- Master Log – an Excel file
- Small Forest Landowner RMAP checklists – an Excel file
- Road Abandonment Log – an Excel file
- SEPA Tracking Log – an Excel file
- Continuing Landowner Obligation Log – an Excel file
- Forester Checklist – a Word document
- Forester Log – an Excel file
- Compliance Log – an Excel file
- Monitoring Database – an Access database

- Forest Practices Deliverables – an Excel file
- Enforcement Database – an Excel file
- The Box / Sync Toy – a two-way sync system to synchronize the FPA network folders and GIS data with the forester's laptop and other devices.
- Forest Practices Engineers Report Tracker – an Excel file
- FP Geologists Deliverables for Unstable Slopes, CMZ and Wetlands – a SharePoint site
- Geologist Landslide Inventory Spreadsheet – an Excel file

Although these may technically not be 'systems' in the traditional sense, they still support or extend business processes that are important to the completion of other business processes.

Resourcing is the greatest impact for this project and one of the greatest risks. There are limited resources in all the primary groups, Forest Practices operations, the Regional offices and the IT group.

The IT group resourcing requirements will vary the most dependent on the final solution decision. The more components available from a COTS vendor offering and the less modification necessary to fulfill the project requirements, the lesser the impact on IT resources. The tasks and activities supported by the IT group can be augmented to a large degree by vendor or contract resources.

The Forest Practices operations group will likely be the most heavily impacted. This is due to the smaller numbers of resources from which to choose. This group will have the bulk of the initiation and planning tasks and activities so the resource demands will not be significantly impacted by the final solution decision. There may be some resource flexibility as the project moves to the implementation phase. The tasks and activities supported by this group can be augmented to a large degree by vendor or contract resources.

The Regional office resources play a significant role from a Subject Matter Expert (SME) role. The requirements for these resources are critical in the planning and implementation project phases. The limitation for this resource pool is their location. Some of this limitation can be managed and will vary to a smaller degree based on the final solution decision. The tasks and activities supported by this group generally cannot be augmented by vendor or contract resources.

5   Long and Short Term Roadmap Activities

As identified earlier, there are several activities that need to be addressed to complete this project. These activities can be broken into long and short-term activities.

Creating a timeline for these activities can only be an approximation based on rather broad assumptions. The purpose of this timeline illustration is to identify the phases, Initiation, Planning, Implementation and Post-Implementation, and demonstrate the relationship between the activities.

Although an approximate relative duration is displayed for each activity, the objective here is not to establish a specific timeline with anticipated start and end dates. Depending on the direction from management, an aggressive approach versus a more measured approach can be employed and individual activity durations can be compressed or expanded as appropriate. The urgency, sizing, staffing and degree of effort necessary to complete each activity must be decided and worked accordingly.

It is also important to note that some of these activities can overlap. A timeline does not, and should not, be a waterfall type timeline. For example, once the sponsorship has been identified and a direction established, work can and should begin on requirements. More detailed requirements will be necessary for the RFP and because it will take time to create this requirements documentation, work should begin as early as possible.
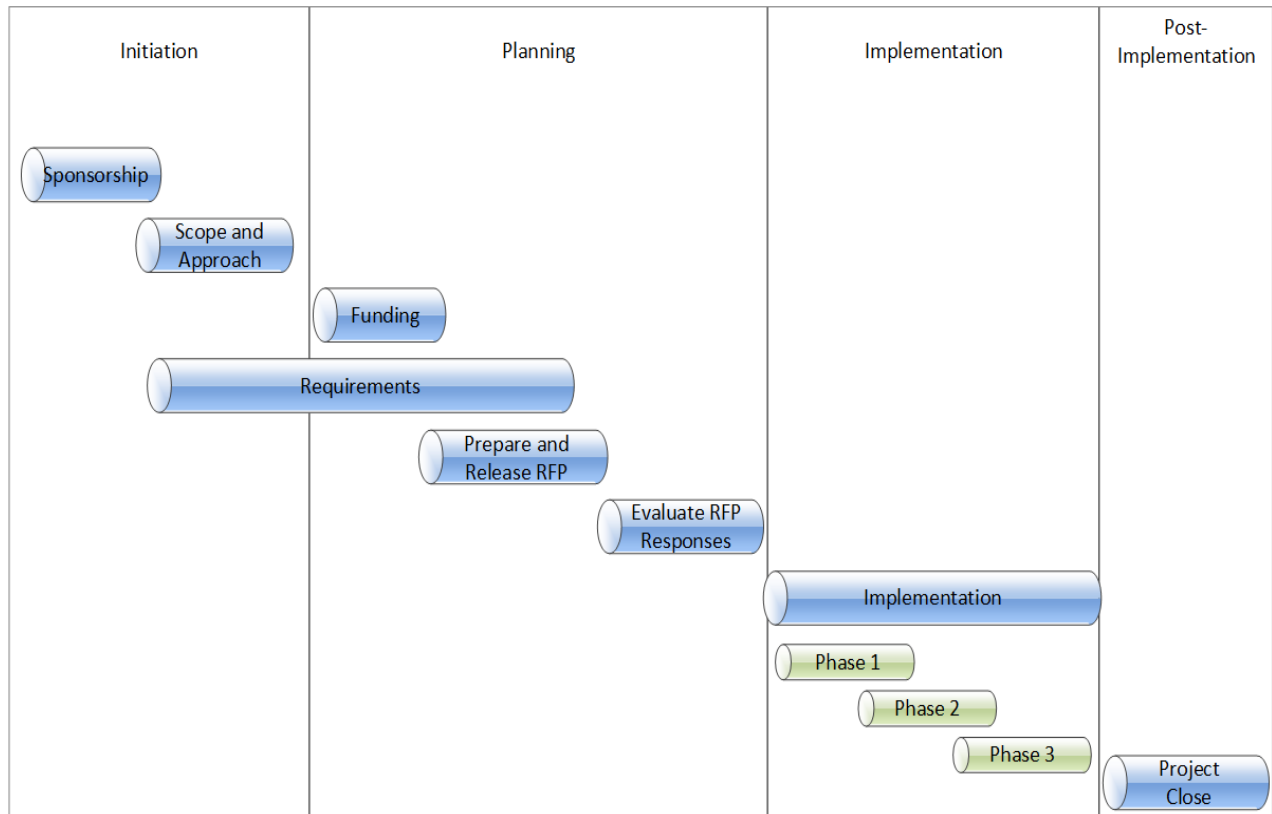

Figure 1 – Implementation Timeline

The diagram of the phases does not provide all the detailed activities that occur in a specific project but provide a guide for the type of activities for each phase. The types of activities for each phase will include different activities and deliverables based on the organizational needs and the project.

Initiation

- Develop business case
- Feasibility study
- Establish project charter
- Appoint project team
- Set up project office
- Establish scope
- Define approach

Planning

- Create a project plan
- Validate scope and approach
- Create financial plan (budget)
- Create resource plan and schedule
- Create communication plan
- Create RFP
- Establish agreed solution
- Contract vendors and suppliers
- Establish roles and responsibilities

Implementation

- Construction
- Testing
- Training
- Implementation preparation
- Execution of new or changed code and processes

Post-implementation

- Turnover from project to production
- Provide process documentation
- Release project resources
- Project review (post mortem)
- Reporting

6   Workstreams and Activities

As mentioned above, there are several workstreams and activities involved in the fpIBIS project. Since workstreams can have very differing meanings to different people and groups, we will focus on activities to avoid any confusion.

As expected, activities begin at a higher level and are refined and defined in more detail as that additional detail emerges. The following list of activities may or may not apply and may be modified as the shape of the fpIBIS project develops.

Sponsorship

One of the most important attributes of a successful project is ownership. From that ownership, there is a shared vision of benefits expected. It is generally acknowledged that executive management of Forest Practices views fpIBIS as a priority. However, it is important that it is clear who the sponsor is. The project should begin by creating a Project Charter which clearly identifies the sponsorship, the vision of the project and the responsibility structure responsible for that vision. The executive sponsor, project sponsor and program/project champions need to be included.

Planning

Planning has different sub-tasks at various points in the project. In the planning phase, a master project plan is created. Part of the master project plan are the risk plan, change management plan, communication plan, resource plan and schedule, quality assurance plan, deliverable acceptance plan ad roles and responsibilities. Forest Practices may choose to add or remove specific items from the master plan based on the needs of the organization.

In addition to the master plan, planning also includes the validation of the project scope and approach. As the initiation and planning phases of the project progress, additional information may impact the initial scope and approach so it is important to establish a clear understanding and agreement of the project, its goals and benefits.

Another consideration in the approach is the implementation approach. The needs of the business, what functions to address first, what areas are impacted and how is the change to be delivered and what interfaces to other systems. This will in turn help identify the changes necessary to existing business processes.

Governance

Project governance is a formalized management framework for determining how project decisions are made. One of the key governance structures is a Steering Committee which oversees the project, provides direction and decision-making. Governance also identifies all stakeholders and defines their interest in the project.

Resource Management

The planning activities will identify the resource requirements so this resource management is necessary to ensure the best approach for allocating those resources, that there are resources available with the required skillset or if resources must be hired or contracted to meet the project needs. A critical aspect of resource management is the handling of those situations where resource conflicts arise. A plan should be created to deal with any resource conflicts, loss of project resources and identifying needs for changes in resources (potentially from under or over-staffed situations or from clarification of tasks).

Stakeholder Management

Stakeholders are identified in the initiation phase. Stakeholder Management involves creating a plan that defines the processes, techniques and requirements for engaging those stakeholders. The plan is based on the stakeholders defined needs, interests, how they are impacted by the project and their ability to influence or impact the project.

Requirements

The requirements definition at this Discovery phase are only high-level requirements. These requirements will need further refinement for the RFP and eventually they will be refined to User Stories for development, configuration, testing and training.

Refinement of the requirements will continue until you achieve the level of detail necessary to support the implementation of the feature supporting the need. It is also likely that additional requirements will be added that were not included in these initial high-level requirements.

A critical facet of the refinement process is the prioritization of each requirement. Not all requirements are created equally and without prioritization it is assumed all requirements are equally necessary. Each requirement should be viewed from the perspective of its significance and benefit. If the requirement is driven by regulation or has a large benefit to the organization, it will have a higher priority. The high-level requirements were prioritized in three categories and these categories are sufficient for the continued refinement. They are:

- **Must Have** – These are mandatory and must be provided in the final solution.
- **Should Have** – These requirements should be provided but the final solution can still be delivered if they are not provided.
- **Desirable** – These requirements are optional and are considered a bonus if they are included in the final solution.

Once the solution has been decided, the final refinement of requirements can actually be done via User Stories. User stories are a tool used, more commonly in Agile software development, to describe a system feature from a user's perspective. Each user story details the type of user, what they want from the feature and why. It is a much simpler, less formalized method to describe what the user needs from the feature.

Funding

There will be a variety of ways to finance this project. Executive management will need to determine the funding strategy, associated timeline and expectations. Although certain project activities cannot be scheduled until the funding issue is determined, there are activities, such as requirements refinement, gathering information and preparing for the RFP, that can be done while funding is resolved.

Procurement

There will be two major aspects to the procurement activity. The first is the preparation and release of a Request for Proposal. Based on the information gathered from the Request for Information, there are capabilities is the marketplace that could benefit fpIBIS. The requirements will need to be refined from the current high-level to more clearly communicate the needs and desires.

The second major aspect of procurement is the review and evaluation of the RFP responses. Since this leads to a decision, it is also advised to get a software demonstration, if possible, to better understand each potential finalist solution. The evaluation should also consider and determine if a Software-as-a-Solution (SaaS) option is available and practical. A detailed scoring process that evaluates the solution against the refined requirements, along with other criteria such as interface capability, vendor qualifications and references, will result in the identification of the best solution for Forest Practices on the fpIBIS project.

Policy and Regulations

As with any project, the implications from policies and regulations is a key driver for requirements and what is in the final solution and how it is managed. Generally, a 'policy-responsible' resource is assigned to review requirements and ascertain alignment of the requirements and solution to the applicable policies and regulations. This is commonly assigned to a resource from the 'policy/regulation' area but can be assigned to other project resources based on the level of policy and regulation involvement in the project and the desires of the organization to establish or update policies within processes.

Training

Due to the large number of people that will need to be trained, a detailed training plan is necessary. This plan will include all the various types of training, classroom, computer based training (CBT), train-the-trainer and sandbox training. Another aspect that must be addressed is how instructions for untrained users, such as the public, will be written and delivered.

Implementation

Following the selection of the successful vendor and contract negotiations the actual implementation can begin. Depending on the solution, the vendor will likely have a specific approach and methodology for implementation. This needs to be combined with Forest Practices' implementation requirements before starting the project. A plan needs to be created regarding how to roll-out the solution to each group.

If an Agile approach is employed, implementation will occur in stages as iterations of the systems are ready to be deployed. Just because a development iteration is complete and tested, it should not automatically be assumed that the iteration will be implemented. As part of the implementation strategy, the identification of what parts of the organization will need to change, how they are impacted, how that impact relates to other groups or systems and making sure they are ready for implementation and change.

Since this will be an enterprise-wide solution a good communications program should be implemented to keep all current and future participants apprised of the project direction, status and impact on the organization.

Ongoing Maintenance and Operations

As the project matures and the implementation timeline has been established, this activity will then be necessary to determine how, when and under what structure the maintenance of the new solution is provided. It will also include how the day-to-day operation of the solution will be managed and executed and how future maintenance will be provided.

7 Roles and Responsibilities

There are roles that are critical to the success of the fpIBIS project. There are other roles that could be very valuable to the project but are not required. The critical roles, with a definition of the responsibility, are listed under the Primary grouping below. Those other roles, with a definition of the responsibility, that may be considered but not required are listed under the Secondary roles.

It is possible to combine certain roles. For example, the training manager may also write and deliver the actual training. Some roles are best filled from specific groups. An example is the best trainers are generally from a business unit and are a SME for that feature or function.

The availability of resources is a critical factor not only in the determination what roles are included in the project but also what responsibilities will be included in each role. The Project Sponsor and Project Manager will need to make decisions on how each responsibility will be handled based on what resources are available to the project.

Primary Project Role	Responsibility
Executive Sponsor	Person ultimately responsible for project, approves scope and deliverables, provides funding
Steering Committee	Group leadership for project, resolves issues brought forward by Project Sponsor
Project Sponsor	Person who makes business decisions for project, is a major champion and resolves issues and changes, makes user resources available
Project Manager	Person responsible for overall delivery of the project
Quality Assurance	Person responsible for defining the QA strategy, implement reviews or tests, reports results

Organizational Change Management Analyst	Person responsible for identifying skills match, need for training, communicating readiness for change activity
Training Team Manager	Person responsible for training approach, oversight of development of training materials, oversight of training delivery and effectiveness
Trainer	Person responsible for performing the training delivery for the new features as defined in the training plan
Technology Resources Manager	Person responsible for identifying technical resources, monitoring availability of technical resources, escalating technical resource issues to Project Manager
Lead Developer	Person responsible for overseeing assigned developers and code meets standards
Developer	Person involved in the configuration and coding of the system
Test Lead	Person responsible for oversight of assigned testers, creation of test scenarios, validation of test results to requirements
Tester	Person responsible for creating and executing test scenarios, validates results to requirements
Business Analyst	Person responsible for providing business analysis of processes, develops business requirements/user stories, active participant in unit, system and regression testing

Secondary Project Role	Responsibility
Contracts Manager	Person responsible for managing all contracts relative to the project, report contract performance and resolve contract issues
Budget Manager	Person responsible for managing all aspects of project budget, reporting on budget status
Implementation Project Manager	Person responsible for developing implementation strategy, directing and report implementation status and results

Project Coordinator	Person responsible for supporting the Project Manager, maintaining project plan, produces reports
Lead Data Engineer	Person responsible for leading data engineers and approves database and/or other data repository architectures
Data Engineer	Person responsible for developing, constructing, testing and maintaining architectures such as databases and large-scale data processing systems
Solution Architect	Person responsible for defining service architecture of project, align technology to enterprise architecture