Section Two

Process

Section Two

1) Watershed Analysis Process

This section describes the specific watershed analysis process that will be employed by ODF though a contractor, and is designed primarily for an audience of ODF staff and the contractor. It includes specifics detailing how each watershed analysis will be conducted, the questions to be answered, the analysis goals to be completed, and the public involvement process. The specific data-collection and analysis methods that will be used to complete the assessment and analysis questions are not detailed here. Some of these specifics are either described in the OWEB watershed assessment manual, or will be determined by ODF and the contractor during the project design and contract administration phase of each watershed analysis project. This section describes each of the three phases of a watershed analysis project, and how they will be conducted. It also contains a checklist and timeline for completion of tasks associated with each watershed analysis project. An expanded checklist is attached in Appendix G.

2) Watershed Analysis Goals

As outlined in Section One, ODF watershed analyses are not intended to analyze all past and current information on all potential biological and ecological processes and natural resources on State Forests. Rather, specific to the policy direction from the NWO and SWO FMPs, the analyses focus on those issues that tie most directly to aquatic and riparian conservation and the current management strategies intended to address those issues. The biological and ecological objective of the FMP strategies is to maintain or restore the key ecological functions of aquatic and riparian areas as well as upland areas that directly influence aquatic and riparian areas. The intention of strategies that address aquatic and riparian habitat conditions is to manage for "properly functioning" aquatic systems. Providing diverse aquatic and riparian conditions over time and space is intended to more closely emulate the historical conditions maintained by the natural disturbance regimes under which native species evolved.

The overall goal of watershed analysis under the FMP is to identify if properly functioning conditions exist along streams. If the aquatic system is not properly functioning, watershed analysis should identify the limiting factors. If the limiting factors can be remedied through management by ODF then the question to be answered is, "Are the existing strategies under the FMP likely to achieve properly functioning aquatic systems and remedy the limiting factor, or are there other management activities or protection measures that are more likely to remedy the limiting factor?" If the factor cannot be remedied through management by ODF, then the watershed analysis should identify other avenues that can be pursued to help remedy the limiting factor (i.e. work with watershed councils, adjacent landowner, DEQ, ODFW, etc.).

The goals of watershed analysis will be met primarily through the examination of watershed processes. Where a significant portion of the watershed is in ODF ownership and the aquatic system is influenced at a watershed scale by ODF management practices, the examination of watershed processes is appropriate. There will be cases, however, where the percent of ODF ownership in a given watershed will be relatively small, and management activities that occur on that ownership are unlikely to have a significant influence on larger watershed processes. In

these cases ODF intends to achieve the goals of watershed analysis through a site-specific limiting factors approach, conducting the analysis with the same technical approach and rigor. This will still allow for ODF to evaluate the likelihood of achieving properly functioning aquatic systems, but the tools and techniques will be applied to reach-scale evaluations of the parcels. The specific details on how this will occur are determined during the project design phase of each watershed analysis project.

In order to avoid duplicative efforts and remain consistent with the direction in the FMPs, this manual does not employ specific methods to examine upland ecosystem and wildlife habitat issues independent of aquatic and riparian conditions. However, this manual does include the opportunity to include an examination of these issues where it is warranted. During the initial stage of a watershed analysis project, the manual includes a process for the ODF districts and other stakeholders to review the assessment and analysis questions (see "project design" below) and evaluate whether modifications and or additions are needed. Modifications could occur for several reasons, among them are that specific assessment needs of stakeholders are not addressed in the OWEB manual; or that the manual does not address certain watershed-specific analysis needed because of conditions unique to that watershed.

3) Public Involvement

Opportunities for public involvement will take place throughout a watershed analysis project and include the following goals:

- Identify public concerns related to specific watersheds
- Incorporate local knowledge
- Build public awareness of local ODF activities

During project design, ODF will involve interested stakeholders (e.g. local landowners and watershed groups). Meetings will be held with these stakeholders to identify technical issues and incorporate local knowledge. Other involvement could include providing watershed groups and local landowners with drafts of watershed analysis chapters to review for technical content, as well as periodic informational meetings to watershed groups and the interested public. (See Appendix D for an expanded discussion of this topic.)

4) Project Overview

Each project will go through three stages, 1) **Project design** (this includes advertising and awarding the contract), 2) **Contract administration** (made up of an Assessment phase and an Analysis phase, both with review), 3) **Application of Analysis results**. Below are descriptions of each step.

5) Project Design

Project design is a joint exercise by ODF Salem staff, area staff and district staff (the ODF group) with input from local groups like watershed councils. The purpose of this exercise is to confirm that the assessment and analysis questions to be answered are sufficient to meet the watershed analysis goals, and to clarify the availability of specific data-sets that will be used to

answer those questions. The project design phase should begin with the group clarifying the roles and responsibilities of all participants.

After reviewing the standard OWEB and ODF assessment questions and ODF analysis questions listed below, ODF will evaluate whether modifications and or additions are needed for that watershed in order to complete the watershed analysis goals. Modifications to questions during this step could occur because specific assessment or analysis needs are not addressed in the OWEB manual or ODF questions. This may result in questions for a project that differ from the standard questions in the manual.

ODF will then determine what data are needed to answer the assessment and analysis questions. ODF, with contributions from other stakeholders, will assemble relevant data and the ODF group will perform quality control checks to determine whether the available data are sufficient to answer the questions. If data are insufficient to answer OWEB and ODF questions, a determination is made whether to include additional data collection prior to the analysis project, pursue supplementary contracts to gather data, or to acknowledge that data gaps exist and some questions will not be answered. When data gathering is deemed necessary the group will contribute to the design of the method.

ODF expects to reference or summarize part or all of past OWEB watershed assessments when their data is robust enough to be useful in answering the analysis questions. As noted below, it is possible that ODF needs may require that some standard modifications be made to the OWEB components. In all cases, additional work will be needed to answer the ODF assessment questions and perform the ODF analysis.

The scale of the analysis units will be defined. Generally the analysis stage of each project is conducted at the 6th-field HUC scale. The results will be organized by management basins as delineated in the Implementation Plan of the applicable ODF district. Where ODF ownership in a given watershed is relatively small, and management activities that occur on that ownership are unlikely to have a significant influence on larger watershed processes, the analysis will be applied to reach-scale evaluations of the parcels. Modifications to the analysis units (at either the watershed or reach-scale) will occur on a watershed-by-watershed basis as a result of issues and key questions identified in the Project Design phase.

After knowing all of the above information the group can define the deliverables. These definitions will be as specific as possible in terms of units of measure, scale of maps, and acceptable statistics for data. The deliverables will also be defined with enough flexibility to permit the contractor to draw upon their expertise and develop the best product to answer ODF's analysis goals. The ODF group will decide on a review process for the deliverables with a timeline.

When the project design is finalized Salem staff will use it as a basis for writing a request for proposal (RFP). Salem staff will lead the process to advertise for contractors. Through methods such as pre-proposal meetings, the project administrator educates potential contractors to ensure that they are familiar with the objectives and design of the project. Salem staff will lead the selection and awarding process with district involvement. The selection process is outlined in

appendix H. After selection of a contractor, Salem staff will write the contract with district review and award the contract.

6) Contract Administration

A contractor will work through the assessment and analysis phases outlined below to prepare a product that answers the assessment questions and performs the needed analysis. The contract administrator will work closely with the contractor to meet desired objectives. Several times during the project the administrator conducts meetings between resource specialists, district personnel and the contractor to review interim products to ensure quality and applicability. (See Appendix D for an expanded discussion of this topic.)

As stated before, ODF watershed analyses will build off of the OWEB process. To accomplish this, the assessment phase contains Critical Questions from the OWEB watershed manual as well as additional ODF assessment questions. The OWEB questions and the ODF assessment questions are needed in the analysis phase that follows. The analysis phase also has specific ODF analysis questions. These analysis questions focus on four core analysis goals that come directly from the FMP strategies related to aquatic and riparian conservation. They will also give a greater understanding of conditions in the watershed that can be used in the management process. When engaged in a project the contractors should review and use prior documents when possible. For example, in watersheds that have completed OWEB assessments much of the assessment phase is already completed. If after review, the OWEB assessment is robust enough for the ODF analysis questions the contractor will only need to complete the additional ODF assessment questions and ODF analysis.

7. Product Outline

Below is a product outline arranged as an assessment phase and then an analysis phase. Each component has a short description, followed by the OWEB critical questions and by the ODF assessment questions. This is followed by the ODF analysis questions.

7.1) Assessment Phase

Watershed Overview

This chapter will contain a short introduction that describes the purpose and approach of the project. It will then give an overview of the watershed and area. The overview will give descriptions of the following: geographic boundaries of the project; physical features (e.g. Ecoregions, geology, landforms, soils, climate patterns, hydrological systems); biological features (e.g. types and range of native vegetation types on hill slopes and riparian areas, types of fish and wildlife resource issues); social context (e.g. population and demographics, economy, recreation, etc.); and types and range of land uses in the area. Examples of this can be found in the *ODF Trask River Watershed Analysis* and the *ODF Elliot State Forest Watershed Analysis.*

Historical Conditions

The chapter will use a methodology consistent with that described in OWEB component II to describe the historical conditions across the watershed. It is not the intent of this section to define conditions at some single point in the past for ODF to use as a target for the future. The purpose of this section is to provide a comprehensive description of major historical disturbance events for the analysis area and to characterize historical management trends. Understanding these conditions is helpful when managing for aquatic and riparian species that have adapted to their environment over thousands of years. Historical conditions are described in the context of the dynamic nature of forest environments, with recurring cycles of both disturbance and recovery. The descriptions of watershed conditions through time are based on evidence from written and first-hand accounts, reports, land survey records, resource inventories, maps, drawings, and photographs. The following questions will be answered:

OWEB Critical questions for component II - Historical Assessment

- What were the characteristics of the watershed's resources at the time of the European exploration/settlement?
- What are the historical trends and locations of land use and other management impacts?
- What are the historical accounts of fish populations and distributions?

ODF questions for Historical Assessment

- What are the natural disturbances (floods, windstorms, fires, etc.) and their impact on the aquatic ecosystem prior to and shortly after European settlement, as well as through recent times?
- What is the early management history of the forestland in the watershed (this would include things like descriptions of salvage logging or replanting of burned areas)?

Current Conditions

Current conditions are displayed below by topic.

Stream Channel

The ODF project will combine OWEB component III, channel habitat type, and component VII, channel modification in this section. The Contractor will supply answers and supporting information to the OWEB critical questions below. The supporting information needs to identify the relevance of various channel types in the context of habitat and restoration potential. This will require more ground-truthing, and probably a more intensive ground-truthing protocol, than indicated in OWEB. The OWEB classifications are too regionally generalized for ODF use so some modification of the classifications will take place. When working on the channel modification portion the emphasis will be on ODF lands, but some information on other lands are needed to address effects on anadromous fish runs.

OWEB list of critical questions Component III - Channel Habitat Type Classification

- What is the distribution of CHT's throughout the watershed?
- What is the location of CHT's that are likely to provide specific aquatic habitat features?
- What is the location of areas that may be the most sensitive to changes in the watershed condition?

OWEB list of critical questions Component VII – Channel Modification Assessment

- Where are channel modifications located?
- Where are historic channel disturbances located (for example: splash dams, stream cleaning)?
- What CHT's have been impacted by channel modification?
- What are the types and relative magnitude of the past and current channel modification?

Hydrology & Water Use

The Contractor will supply answers to the critical questions and supporting information to OWEB component IV below. The OWEB methodology is sufficient in most cases. During the project design step the group may decide to explore other flow modification issues. Most questions below are written in the context of streams but it is understood that other water bodies like ponds, springs and wetlands are also included.

OWEB critical questions for Component IV – Hydrology and Water Use

- What land uses are present in your watershed?
- What is the flood history in your watershed?
- Is there a probability that land uses in the basin have a significant effect on peak flows?
- Is there a probability that land uses in the basin have a significant effect on low flows?
- For what beneficial use is water primarily used in your watershed?
- Is water derived from a groundwater or surface water source?
- What type of storage has been constructed in the basin?
- Are there any withdrawals of water for use in another basin (inter-basin transfer)?
- Is any water being imported for use in this basin?
- Are there any illegal uses of water occurring in the basin?
- Do water uses in the basin have an effect on peak flow?
- Do water uses in the basin have an effect on low flow?

Riparian/Wetlands

The Contractor will supply answers and supporting information to the critical questions of OWEB component V and the ODF questions below. The assessment will also include a description of stand characteristics more detailed than that provided in the OWEB methodology. Specific descriptions can be developed during the project design step, but they will be similar to the vegetation classes used in the Elliott report. It will be important to capture the variability in riparian stands, although ODF purposes should be more oriented toward description than hypothesis testing.

OWEB list of critical questions Component V – Riparian/wetlands Assessment

- What are the current conditions of the riparian areas in the watershed?
- How do the current conditions compare to those potentially present or typically present for this Ecoregion?
- How can the current riparian areas be grouped within the watershed to increase our understanding of what areas need protection and what the appropriate restoration/enhancement opportunities might be?
- Where are the wetlands in this watershed?

- What are the general characteristics of wetlands in the watershed?
- What opportunities exist to restore wetlands in the watershed?

ODF questions for Riparian/Wetlands
- What are the locations of debris-flow prone channels?
- What are the current riparian vegetation characteristics on state forests lands within the watershed using methodology similar to the Elliot State Forest Watershed Analysis?
- What riparian areas currently have high, moderate, and low large wood input potential for key conifer pieces (>20-inch conifer)?

Sediment Sources

The Contractor will supply answers and supporting information to the critical questions of OWEB component VI below. The decision to answer the ODF questions below will be made during the project design phase based on information on that specific watershed.

OWEB list of critical questions Component VI – Sediment Sources Assessment
- What are the important current sediment sources in the watershed?
  - To determine this; use information on current slope and road instability, road runoff, surface erosion and other discrete sources.
- What are important future sources of sediment in the watershed?
- Where are erosion problems most severe and qualify as high priority for remedying conditions in the watershed?

ODF questions for Sediment Sources
- What is the distribution of shallow, rapidly moving landslide-prone slopes on state forests lands within the watershed? Map high, moderate and low hazard areas, as defined by the Department of Forestry geotechnical specialists.
- What is the distribution of debris flow-prone channels on state forests lands within the watershed? Map high, moderate and low hazard channels, as defined by the Department of Forestry geotechnical specialists.
- Are there locations with gullies or other active surface erosion areas in the watershed? Map any locations.
- Are there deep-seated, actively or recently actively moving landslides? Map any locations.
- Are there any unusually erosion prone soils on steep slopes in the watershed? Map any locations.
- What is the road length in the basin within 100 feet of streams, by stream type and size? Express this as a percentage of total road length within the watershed, by 6th-field HUCs and management basins. Map the location of these road segments.
- Are road sidecast/fill landslides common? If so, where in the watershed? Map the location of road segments where sidecast/fill landslides occur. For each site show whether it is considered to have a high, moderate, and low risk to the aquatic resource.
- Are road washouts (of stream crossing fills, or diversion of streams down roads) common? If so, where in the watershed? Map the location of road segments where road washouts occur with a high, moderate, and low risk to the aquatic resource.
- Do any recreation trails contribute to sediment or erosion problems? If so, map these locations.

- In what percentage of the road system is the ditch directly connected to streams? Express this as a percentage of total road length within the watershed, by 6th-field HUCs and management basins. Map the location of these road segments.

Water Quality

The Contractor will supply answers and supporting information to the critical questions of OWEB component VIII and the ODF questions below. Most of the questions below are in the context of streams but it is understood that other water bodies like lakes, ponds, springs and wetlands are also considered.

OWEB list of critical questions Component VIII – Water Quality Assessment

- What are the designated beneficial uses of water for the stream segment?
- What are the water quality criteria that apply to the stream reaches?
- Are the stream reaches identified as water quality limited segments on the 303(d) list by the state?
- Are any stream reaches identified as high-quality water or Outstanding Resource Waters?
- Do water quality studies or evaluations indicate that water quality has been degraded or is limiting the beneficial uses?

ODF questions for Water Quality

- What stream temperatures are reasonably achievable? Provide answer by sub-watershed.
- How do the current shade levels along streams compare to historic levels by sub-watershed and stream size?
- How do the current stream temperature levels compare to historic levels by sub-watershed and stream size?
- How do water temperatures compare to other nearby basins with similar flows and geology?

Fish & Fish Habitat

The Contractor will supply answers and supporting information to critical questions of OWEB component IX and the ODF questions below. The use of ODFW habitat surveys, one of many choices in OWEB, should be standard. However, these data should be diligently checked for Quality Control. On occasion, the ODFW data will be supplemented. This module will also include information about amphibians and other aquatic obligate terrestrials. A decision to map the potential distribution and a discussion of needs of sensitive amphibian species will be determined during the project design phase of each project. Where available, this can be supplemented with field-based population and habitat quality data.

OWEB list of critical questions Component IX – Fish and fish habitat assessment

- What fish species are documented in the watershed? Are any of these currently state- or federally listed as endangered, threatened or candidate species? Are there any fish species that historically occurred in the watershed that no longer occur there?
- What is the distribution, relative abundance and population status of salmonid species in the watershed?
- Which salmonid species are native to the watershed, and which have been introduced to the watershed?

- Are there potential interactions between native and introduced species?
- What is the condition of the fish habitat in the watershed (by sub-basin) according to existing habitat data?
- Where are the potential barriers to fish migration?

ODF questions for Fish & Fish Habitat

- What stream reaches have high, moderate, and low levels of key pieces of large wood (>20-inch conifer) in the channel?
- Was there significant historical wood removal in the watershed? Where did this removal occur?
- Did any splash damming occur in the watershed? Where did this splash damming occur? Are the effects still apparent?
- What is the distribution of fish species, by life stage, in the watershed?
- Provide a map of the distribution based on fish surveys documenting fish presence.
- Provide a map of the distribution estimating historical fish presence.
- How many miles of fish-bearing or potentially fish-bearing streams are blocked by culverts, and where are these blockages? Categorize and map blockages as either impeding fish passage or blocking fish passage (consistent with the criteria in the Fish and Fish Habitat component of the OWEB assessment manual), and associated length of stream affected.
- Are sensitive amphibian species present in the watershed? Map distribution (or in some cases, potential distribution) and discuss needs of sensitive amphibian species. Where available, this can be supplemented with field-based population and habitat quality data.

7.2) Analysis phase

The analyses will be conducted at the 6th-field HUC scale for each of the core analysis goals below. The results will be organized by Implementation Plan management basins of the applicable ODF district. The contractor will answer the key analysis questions below along with supporting information. Some analyses will invariably involve interpretation and professional judgement, and these cases should be clearly described. Also, in the supporting information the contractor should give an indication of the confidence/reliability of the results. This can take many forms but should give the reader a level of certainty by providing amounts and type of data supporting the conclusion. For example, the contractor could specify that there is either a 'high' or 'moderate' confidence in the results of the analysis. Results with a 'low' confidence would not be included, but described instead in the context of uncertainty.

Limiting Factors: Identify specific conditions within the watershed that are limiting the achievement of properly functioning conditions of aquatic habitats; and then evaluate whether stream restoration projects or other management activities (for example, those related to slope stability, recreation trails, roads, or upland conditions) are likely to remedy the limiting factor(s).

Key Analysis Questions for Limiting Factors

- Are there sub-basins where the current level of in-stream wood is a limiting factor for achieving properly functioning aquatic systems?

- Are there sub-basins where stream sediment deposition (associated with hillslopes and/or road erosion) is a limiting factor for achieving properly functioning aquatic systems?
- Given the distribution and abundance of fish species, and the stream temperatures that are reasonably achievable, what is the likelihood (rate as high, moderate, low, or unknown) that stream temperatures and/or shade conditions are a limiting factor for achieving properly functioning aquatic systems?
- Are there any other conditions limiting the achievement of properly functioning conditions?
- If limiting factors are identified, what management options and/or stream restoration activities have the potential to remedy the limiting factor, and where specifically should they occur?

This action will examine resource concerns that are directly related to the key functions and processes of aquatic and riparian habitats and determine what, if any, limiting factors exist within the watershed. The overall goal of watershed analysis is to identify if properly functioning aquatic systems exist along streams managed under the FMP. If the aquatic system is not properly functioning, the limiting factors need to be identified. The analysis questions below focus on those factors that are currently understood to be the most relevant in terms of maintaining and recovering properly functioning aquatic systems. Once there is a better understanding of the limiting factors for a specific watershed or parcel of ODF land, the next analysis goal (alternative vegetation management) examines the management measures that are likely to remedy the limiting factor.

Alternative Vegetation Management: Identify where in the watershed the management standards for aquatic and riparian areas are likely to achieve properly functioning aquatic habitat conditions, and if they are not, then identify the alternative vegetation management needed to achieve this condition.

Key Analysis Questions for Alternative Vegetation Management

- Are conditions suitable for development of Aquatic & Riparian properly functioning conditions (PFC) in a reasonable timeframe using current FMP strategies? At the sub-basin scale (6th-field HUCs), map riparian areas in terms of whether there is a high, moderate, or low likelihood that the PFC will develop.
- What sub-basins should be priorities (rank high, medium, and low) for conifer retention to provide in-stream key pieces of large wood from adjacent riparian management areas in order to achieve properly functioning aquatic systems? Identify specific stream reaches and the level of conifer retention that would achieve PFC, or achieve conditions suitable for the development of PFC in a reasonable timeframe.
- What sub-basins should be priorities (rank high, medium, and low) for long term conifer establishment and management to provide future in-stream key pieces of large wood from adjacent riparian management areas in order to achieve properly functioning aquatic systems? Identify specific stream reaches and the alternative vegetation management recommended.

This analysis goal makes a determination about how likely the current FMP strategies are to achieve the properly functioning condition where limiting factors are identified. If it is determined that the current strategies are unlikely to achieve the properly functioning condition, alternative vegetation management measures are to be identified that are more likely to achieve the condition. The answers to the questions above should either provide a basis for continuing with the current strategies, or describe other management options in lieu of the current strategies. The intent is to ensure that management activities and protection measures in and around riparian areas are appropriate given current conditions and the goal of achieving properly functioning conditions.

Slope Stability: Produce a map of the watershed that categorizes landslide hazards into high, moderate, and low hazard categories, as defined by the Department. Identify if the watershed is unusually prone to landslides. If so, identify where these landslides occur and there effect on delivery of wood and sediment to streams, channel scour and aggradation.

Key Analysis Questions for Slope Stability

- Are there landslide-prone hillslopes that pose a high risk of downstream sediment or scour impacts? If so, identify the specific hillslopes and stream reaches, describe why they pose a high risk to streams, and describe how management will affect possible stream sediment or scour impacts?
- What is the relative input of stream sediment from shallow, rapidly moving landslides, deep seated landslides, soil creep and other sediment sources, and has management had a long term effect on sediment production or channel scour?
- What sub-watersheds should be priorities (rank high, medium, and low) for conifer retention? This ranking is based on the ability to provide in-stream key pieces of large wood from debris flow-prone channels delivered by shallow, rapidly moving landslides. Identify specific stream reaches and the level of conifer retention recommended.
- What specific locations should be priorities (rank high, medium, and low) for long term conifer establishment and management? Again, this ranking is based on the ability to provide future in-stream key pieces of large wood from debris flow-prone channels delivered by shallow, rapidly moving landslides. Identify specific stream reaches and the vegetation management recommended.

This analysis goal is intended to provide information that will ensure that landslide and debris-flow events are likely to occur in a way that does not limit the achievement of properly functioning aquatic systems. These analysis question are not designed to be used in the context of public safety, and the rules and regulations that must be followed under the Forest Practices Act related to public safety. These questions are designed to help ensure that when a landslide or debris flow does occur on State Forests, the material that is delivered to the stream and the impact upon the stream is consistent with what historically occurred under natural disturbance regimes. This includes providing desirable levels of large wood and coarse sediment (cobbles and gravels) that are delivered to fish-bearing streams, and minimizing the amount of fine sediments being delivered. This analysis also is specific to non-road related landslides. Road-related issues are addressed in the next analysis goal.

Roads: Review, and where necessary, improve road system data to provide the district with critical information in a format needed to assist the District in making more effective road management decisions.

Key Analysis Questions for Roads—

- What road issues are the highest priority for repair, and why? What are the specific locations of the road issues?
- What road segments are a high priority for vacation or relocation, and why?
- What stream crossings that impair or block fish migration should be priorities for replacement (rank high, medium, and low), and why?

This analysis goal will be achieved primarily through the road information management system (RIMS) currently under development in State Forests. Once the limiting factors are identified, this analysis goal will identify what road management activities are likely to remedy the limiting factor(s), and where specifically those activities should occur. The answers to the analysis questions above will also provide specific documentation on where the highest priority issues are and will provide a rationale for these priorities. The districts will then be able to utilize this information in their planning processes to help determine how best to utilize their road management resources.

8) Application of Analysis Results

The analyses will be conducted at the 6th-field HUC scale for each of the core analysis goals above. Management basins as delineated in the Implementation Plan of the applicable ODF district will organize the results. The results of the analysis will be presented as follows:

District-specific IP Management Basin "X"

- Limiting Factors

  Compose a narrative for each 6th-field HUC, or portion of 6th-field HUC, that occurs in this management basin. This narrative will describe the answers to the analysis questions. This narrative will reference the ArcView shape files that contain the complete results of the analysis. There will be one or more separate narratives for "limiting factors" depending on how many 6th field HUCs are in the management basin.

- Alternative Vegetation Management

  Same as above, but specific to this core analysis goal and associated analysis questions.

- Slope Stability

  Same as above, but specific to this core analysis goal and associated analysis questions.

- Roads

  Same as above, but specific to this core analysis goal and associated analysis questions.

It is anticipated that there will be a category of results where specific assessment or analysis questions could not be answered due to information and/or data gaps that could not be addressed through the watershed analysis process. These results will be just as valuable to ODF managers as those analysis results that do include specific answers. The contractors conducting the analysis are encouraged to clarify where the analysis is not conclusive, and include details on what kind of data and/or analysis methodologies would be needed in order to answer those questions. This will be valuable to ODF decision-makers when management decisions require making assumptions, and understanding what will be needed to evaluate those assumptions in the future. These 'inconclusive' results will be summarized and organized by core analysis goal topic.

The 'application of results' phase of the project will integrate the analysis results into the appropriate ODF planning process and management efforts for State Forests. These results will typically be used during the annual operation plan (AOP) process. When the results warrant it they will be applied to other State Forest planning processes. Upon completion of the contract administration stage of the project, Salem staff, Area staff and District staff will convene to determine how the results will be utilized. The results will generally fall into two categories:

1) Identification of important issues and key aquatic-riparian areas in the watershed that need to be addressed in order to manage for properly functioning aquatic systems.

2) Identification of information and/or data gaps in the assessment and/or analysis process.

The first category will be addressed through the use of the analysis results organized by management basins. The format of these results will allow the narratives to be added directly to the annual AOP process.

The second category of results may need to be addressed through research and monitoring efforts, or through a future iteration of watershed analyses. Applicable analysis results will be forwarded to the research and monitoring program where they will be reviewed in light of current research and monitoring planning efforts.

9) Checklist

A short checklist is provided here to assist staff and Contractors with project tracking. Additionally, it is useful for providing an overview of the various steps associated with each watershed analysis project. An expanded version is in appendix G "Project Action Plan". The expanded version lists all actions in a project, the products from each action and all personnel typically assigned to that responsibility. Actual time requirements will vary by project, based on such considerations as project size and data availability. The checklist is followed by an outline of personnel and their typical responsibilities.

	Activity	**Lead Responsibility**	**App. Time required**
	PROJECT DESIGN PHASE		
	Conduct all project design meeting(s).	Contract administrator	Within 2 months of start
	Define team members, roles, and responsibilities	Design group	Within 1st month
	Gather local concerns and knowledge.	Design group	Within 1st month
	Review assessment and analysis questions ; modify as necessary	Design group	Within 1st month
	Conduct preparatory data assembly.	Contract Administrator	Within 2nd month
	Perform data QC.	Design group	Within 2nd month
	Determine what further data collection is necessary.	Design group	Within 2nd month
	Determine if data is collected within this project or separately.	Design group	Within 2nd month
	Prepare and award supplementary data acquisition contracts.	Contract Administrator	Varies
	Identify analysis scale	Design group	Within 2nd month
	Define deliverables	Design group	Within 2nd month
	Define review process.	Design group	Within 2nd month
	Prepare and advertise RFP	Contract Administrator	Within 3rd month
	Evaluate proposals and select Contractor.	Contract Administrator	Within 3rd month
	Write and award the contract	Contract Administrator	3rd or 4th month
	CONTRACT ADMINISTRATION PHASE		
	Conduct project kick-off meeting, transfer data to Contractor	Contract Administrator	4th month
	Perform project oversight and logistical duties	Contract Administrator	Life of contract
	Answer assessment and analysis questions, give supporting information and perform analysis.	Contractor	Life of contract
	Conduct collaborative meetings to facilitate contract.	Contract Administrator	Life of contract
	Review draft documents	Review team	Life of contract
	Accept completed products	Contract Administrator	9-12 months from start of contract
	Conduct debrief meetings.	Contract Administrator	10-13 months
	APPLICATION OF RESULTS	ODF staff	During and after contract

10) ODF Roles and Responsibilities

Various factors will affect district involvement and it is expected that the level of district involvement will differ between projects. The process is designed for Salem staff to perform the majority of the work. Generally the district will have a large involvement in the design phase, provide a small amount of miscellaneous support during contract work and then a larger amount of time during the review of products. Because the district has the greatest amount of local knowledge, experience has shown the more a district is involved in the project then the more useful the results are to the district. Below is a list of typical responsibilities for a project.

Salem Watershed Specialist

- Primary overall contact for an individual project as ODF project manager
- Lead project design
- Lead contract writing and awarding
- Lead in administering the contract
- Lead in providing data to contractors
- Lead or assist public presentations with watershed councils or other outside groups
- Contribute to internal ODF discussion about various watershed topics as needed

Salem Watershed Coordinator

- Lead any coordination needed between districts/Salem staff/external entities
- Lead or assist public presentations with watershed councils or other outside groups
- Lead on resolving any across project issues
- Assist on project design
- Lead contract administration in Watershed Specialist's absence
- Assist in administering the contract when needed
- Lead internal ODF discussion about various watershed topics as needed

Salem Operations Manager

- Contribute to internal ODF discussion about various watershed topics as needed
- Provide general oversight both between projects and within a project

District Forester and Assistant District Forester

- Designate primary district contact
- Assist in project design
- Assist in product review
- Lead implementation of any recommendations
- Contribute to internal ODF discussion about various watershed topics as needed
- Provide general oversight within a project

Unit Forester(s)

- Assist in project design
- Assist in product review
- Contribute to internal ODF discussion about various watershed topics as needed

Primary district contact (person designated by the district forester for a project)

- Primary contact on district for all issues on a watershed project
- Assist with designing project
- Assist in providing data to contractors
- Assist in coordination among district personnel during design and review phases
- Assist in public presentations with watershed councils or other outside groups
- Contribute to internal ODF discussion about various watershed topics as needed

District Specialists (e.g. GIS, engineering, planning) will work through primary district contact

- Assist with designing project
- Assist in providing information/data to contractors
- Assist in review phase
- Contribute to internal ODF discussion about various topics as needed

Area and Salem Staff Specialists: (e.g. Geotech, Biologist)

- Assist in designing project
- Assist in providing information/data to contractors
- Assist in review phase
- Contribute to internal ODF discussion about various topics as needed