Software Requirements Specification

Wildlife Areas Habitat Conservation Plan

Activities Management Application

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1. Introduction

1.1. Purpose

This Software Requirements Specification (SRS) describes the functional and nonfunctional requirements for Release 1.0 of the Habitat Conservation Plan's (HCP) Activities Management Application. Members of the project team that will implement and verify correct functioning of the system will use this document as a guide. Unless otherwise noted all requirements specified here are Mandatory and committed for Release 1.0.

1.2. Project Scope

As part of the Habitat Conservation Plan development, this phase of the project activity focuses on the development and implementation of an activities management application. This application is needed by the WDFW to insure consistent collection and management of activity information associated with the HCP process. The application will utilize a standardized database schema and an easy to use interface for the collection of habitat activity data. This project represents the first phase of a series of applications and databases designed to interact with the HCP database model.

2. Overall Description

2.1. Product Perspective

The product developed will provide additional functionality working within the ArcMap environment allowing the user to query, create, edit, import and attribute Activity features.

The product will simplify and standardize the data management and maintenance associated with Activities. The goal is to provide a system where necessary information can be easily captured for use in future HCP related analysis.

2.2. Product Features

The main tasks the system will perform are to:

- Standardize the collection of Activities in a single enterprise database (Mandatory)
- Allow the easy collection of the Activities data (Mandatory)
- Help standardize data collection, management, and data entry (Mandatory)
- Create, Modify, Import, Delete Activity features (Mandatory)
- Create New Activity Classes (Mandatory)
- Compatible with Activities Database Model (Mandatory)
- Standardize projection system (Mandatory)
- Minimal attribution by user - Auto Populating Data (Mandatory)
- Feature class editing - Point, Line, Polygon (Mandatory)
- Associate Activity features with other Activity features (Mandatory)
- Track events (Mandatory)
- Easy navigation for the User (Mandatory)
- Define Associated Activities without mapping (unmapped activities) (Mandatory)
- Report if activity records are complete (Mandatory)
- Disconnected editing environment - Data export processes (Mandatory)
- User Auditing at Feature Level - Attribute level and historical Geodatabase tables (Highly Desirable)
- Search functionality - Attribute, Location (Highly Desirable)
- Analysis done by WDFW regions (Highly Desirable)
- Lookup tables for easy data entry (Highly Desirable)
- Export to Excel spreadsheets (Highly Desirable)

2.3. User Classes and Characteristics

User Class	Characteristics
GIS novices (favored)	This category of users is the most prominent in the Regions based on the interview results. The HCP Activities Management Application will need to consider the limited GIS training and experience of these users.
GIS professionals	Although the application will be mainly designed for the GIS novices, it will also need to allow the GIS professionals in these Regions to utilize their knowledge and GIS skills without being constrained by the HCP Activities Application functionalities.

2.4. Operating Environment

OE-1 The software application developed shall reside on the DFW desktop computers of the application's primary users.

OE-2 The system input data shall reside in the DFW SQL (SQL Server) database environment and in a detached user (ACCESS) database environment.

OE-3 The system shall operate within and be compatible with the DFW network environment.

OE-4 The system shall be compatible with the current DFW minimum desktop configuration hardware and software standards, as defined below:

Environment	**Standards**
Desktop Operating System:	Microsoft Windows 2000 SP4 or XP
Directory Services:	LDAP
GIS:	ArcGIS 9.2
GIS License:	ArcView or Better ArcGIS Editor
Disconnected Database Types:	Personal (MS Access)
Email:	Groupwise (Outlook soon)
Office Applications:	Microsoft Office (2000)
ArcSDE:	ArcSDE 9.1 (ArcSDE 9.2 soon)
SQL Server Version	2000 (Migrating to 2005 soon)

2.5. Design and Implementation Constraints

CO-1 The system shall be developed in ArcGIS 9.2 and available as an extension on the DFW network.

CO-2 The system shall be developed using VB.NET for .NET 2.0 framework with Windows user interfaces.

CO- 3 Application development will adhere to the model-view-controller architectural pattern. This pattern serves to separate data (model) and user interface (view) concerns, so that changes to the user interface do not affect the data handling, and that the data can be reorganized without changing the user interface. Adhereing to the model-view-controller pattern will decouple data access and business logic from data presentation and user interaction, by introducing an intermediate component: the controller.

CO- 4 Variables will be created using camel case (creating compound words or phrases in which the words are joined without spaces and are capitalized within the compound with the first letter of the variable lowercase).

CO- 5 Variables referencing ArcObjects com classes, interfaces, or objects will not be abbreviated and will be dimensioned using a camel case naming convention. Do not use pointers such as m_p or g_p as a prefix to ArcObjects classes/interfaces.

CO- 6 Do not use prefixes to variables such as int, str, lng, etc.

CO-7 In-line documentation for coding, flow chart and/or diagram – what each module does, who did it and when it was done

CO-8 Methods, procedures and functions will be sufficiently commented to support maintenance programmers with easily understanding the logic and purpose of the routines.

CO- 9 Once delivered, code will to be managed through WDFW's CVS repository

2.6. User Documentation and Technical Support

UD-1 The user documentation (Help and Tutorial) shall be available as a separate electronic document (PDF) which can be opened from within the system.

UD- 2 The user documentation will use screen captures of application interfaces to illustrate methods and procedures.

2.7. Assumptions and Dependencies

AD-1 The Department of Fish and Wildlife shall provide leadership and support to successfully implement the HCP Activities Management Tool in the department.

AD-2 The users of the HCP Activities Management Tool shall have basic knowledge/training of ArcGIS and its editing functions (spatial and tabular edits).

AD-3 Administrative tools for managing lookup tables will be provided (Based on budget approval).

AD-4 The initial application will allow users to only archive (not delete) records.

AD-5 The application will be developed to accommodate 3 Event types (O&M, Recreation, and E&R) for 3 feature types resulting in 9 Activity feature classes.

2.8. Transaction Environment

TE-1 The application will directly work with SQL server for tabular data transactions.

TE-2 The application will directly work with ArcSDE for Spatial Data transactions.

TE-3 The application will work in any ArcSDE versioning environment. Users will be required to use the appropriate SDE connection to be within the database's configured transactional environment.

3. Data Requirements

3.1. Data Requirements

DR-1 The system shall use corporate data located on SQLUSR1 (database) as the default data source location, unless specified otherwise by the user.

DR-2 The user or system administrator shall be responsible for managing data in lookup tables in the Activities Record Database.

DR-3 The database shall be stored in a SQL Server environment.

DR-4 The application must work with the database model specified in Appendix A.

4. Functional Requirements

The features listed below describe the functional requirements for the Activities Management Application, Release 1.0. The priority of each feature is identified as either Mandatory or Highly Desired. Highly Desired requirements will be implemented only if they are deemed feasible in the design phase and fit within the project time and cost constraints. As an aid to understand the system functionalities, please consult the WDFW Activities Data Model Description in ***Appendix C.***

4.1. Create Activity Features

4.1.1. Description and Priority

This section describes the processes involved with the creation of new activity feature classes in the Activities Management Tool. Users will choose the Activity Event Type, the Activity, and related activity types and features. (Mandatory)

4.1.2. Stimulus/Response Sequences

Stimulus:	User clicks on button to launch the Activity Feature Management Tool.
Response:	The system will load a window form for data entry. The form will auto fill dropdown tools with data stored in application lookup tables.
Stimulus:	User initiates the application for the first time.
Response:	The system will prompt the user to set the default values for confidence and methods sources.
Stimulus:	User uses query tools to navigate to a location on the map.
Response:	The system will navigate the user to the selected feature location.
Stimulus:	User chooses the activity edit type (tabular or spatial) prior to editing.
Response:	The system will set the edit environment based upon the type of activity edit.
Stimulus:	When a spatial edit is selected, the user digitizes the new activity from scratch or copies a feature from an existing layer. (See requirements)
Response:	System creates a new activity feature and prompts the user if he/she wants to digitize another.
Stimulus:	When a tabular edit is selected, the user creates an activity record without creating spatial data.
Response:	The system will create and track the pending activity record in the database.
Stimulus:	User chooses Event Type and creates a new activity record.
Response:	The system creates a new activity record based on the activity event type, sets the default values in the form.
Stimulus:	User enters data in the form using text boxes and dropdown boxes.
Response:	The system will require the confidence source to be set when entering data.
Stimulus:	The user adds occurrence data connected with an activity.
Response:	The tool will record and manage occurrence record connected to the activity record.
Stimulus:	The user creates an activity record prior to creating spatial data.
Response:	The tool will create a new activity record without linked spatial data.

Stimulus:	The user selects a spatial feature and then links existing spatial data to an activity record.
Response:	The tool will set the Activity Record Id in the selected spatial feature to the Activity Record Id creating a linked relationship.
Stimulus:	The user unlinks selected spatial data to an activity record.
Response:	The tool will set the Activity Record Id in the selected feature to NULL to unlink the spatial record with the activity record.
Stimulus:	User defines activity (ies) that are associated with the current editable activity record.
Response:	The system will store the list of activity (ies) associated with the activity feature in a database table. All currently selected features are unselected.
Stimulus:	The user optionally creates records for associated activities (if not completed already)
Response:	The system saves the current editable record and starts a new edit session for the new activity. For those associated activities that records are not created are displayed on the “To Do” list.
Stimulus:	The user associates activities that are recorded to the current editable Activity Record.
Response:	The tool will record the association of a activity records with the selected features on the map. In the case of coincidental features in a selection, the user will be required to use existing tools in ArcGIS to deselect unwanted records.
Stimulus:	The user unassociates activity records assign to an activity.
Response:	The tool will unassociate selected spatial activity records by archiving the spatial activity association records in the database.
Stimulus:	User edits the confidence source of the activity record.
Response:	The tool overrides the default value in the current record.
Stimulus:	User selects the option to duplicate the spatial feature and/or attributes of the activity record for the next new feature.
Response:	The system will create a new feature by duplicating spatial features and/or duplicate attribute records.
Stimulus:	User chooses which fields (attributes) to be propagated into a new record.
Response:	The system will propagate the selected field attribute values to the next record created.
Stimulus:	User clicks on the Edit Session close button.
Response:	The system will save all edits in the activity table, feature class, and related tables.

4.1.3. Functional Requirements

Create.Form	The tool shall provide an easy to use form for the attribution of an activity feature. This form should be used for querying (section 4.3) and editing (section 4.2) functionality as well.
Create.Type.Selection	The tool shall allow the selection of Activity Event Type.
Create.Data.Type	The tool shall allow the creation of point, line, or polygon features.

Create.Data.Multipart	The user shall not be allowed to create multi-part feature classes, only discreet features.
Create.Tools.Edit	The tool shall use the existing editing tools provided by ArcGIS Desktop.
Create.Tools.Add	The tool shall allow the user to create multiple feature types for an activity record.
Create.Tools.Copy	The tool shall provide the functionality to import existing spatial data features into the new activity feature.
Create.Dates.Calendar	The tool shall provide a calendar control for the selection of date attribute information.
Create.Metrics.Selection	The tool shall provide “smart” controls that only provide the appropriate metric denominator based upon a type.
Create.Feature.Duplicate	The tool shall provide the ability to duplicate spatial and attribute data from one feature/record to a new feature/record.
Create.Associations.Define	The tool shall provide the user the ability to define the activity features based upon the assigned activity associations.
Create.Associations.Assign	The tool shall provide the user the ability to assign subordinate activities (sub-activities) with the newly created feature.
Create.Associations.Unassign	The tool shall provide the user the ability to unassign subordinate activity relationships..
Create.Link.Assign	The tool shall allow the user to assign multiple spatial features with a single activity.
Create.Link.Unassign	The tool shall allow the user to unassociate spatial activity records that are associated with a single activity record.
Create.Occurences.Assign	The tool shall provide an interface for the user to assign occurrence information.
Create.Occurences.Frequency	The tool shall automate the creation of multiple records when dealing with frequency.
Create.Confidence.Enable	The tool shall require the confidence source (and if necessary names) be assigned anytime beginning and end dates, number of day, frequency and effort (e.g., lbs/acres) are entered.
Create.Dropdown.Values	The tool shall automatically complete dropdown forms in the tool with values stored in an application lookup tables.
Create.Creation.Date	The tool shall auto-populate the Creation Date field in the activity feature class.
Create.Creation.By	The tool shall auto-populate the Create By field in the activity feature class. The name should be retrieve from the system user name.
Create.Modification.Date	The tool shall auto-populate the Modification Date field in the activity feature class. This should be the same as the Creation Date field value when a feature is created.
Create.Modifcation.By	The tool shall auto-populate the Modification By field in the activity feature class. This should be the same as the Creation By field value when a feature is created.
Create.Confidence.Source	The tool shall auto-populate and/or provide functionality for the user to reference the confidence source for an activity record.
Create.Manage.Links	The tool shall provide the user with the ability to identify records that do not have spatial features linked to an activity record.
Create.Manage.Display	The tool shall provide the user with the ability to visual see in the map frame spatial features that do not have activity records associated with them.

Create.Manage.Attributes	The tool shall provide an easy to use interface (checkboxes) for the user to select attributes to propagate to a new record. When a new record is created with this option, the application will auto-fill the edit form. The application will only store this propagated information for the next record created.
Create.Requirement.Attributes	The tool shall only allow the user to save and complete an activity record if all the “Required” attributes are completed.

4.2. Edit Activity Features

4.2.1. Description and Priority

This section describes the editing of Activity features in the Activities Management Tool. Edit functionality found in the Create Activity features (Section 4.1) will also be available in an edit mode. (Mandatory)

4.2.2. Stimulus/Response Sequences

Stimulus:	The user selects the tabular Activity feature to edit.
Response:	The tool shall set the edit environment to the appropriate Activity tabular record, display the form with the current record information. In the event when more than one feature or record is selected, the form must provide a mechanism to navigate between records.
Stimulus:	The user selects a spatial Activity Feature to edit.
Response:	The tool should set the edit feature to the selected spatial Activity Feature.
Stimulus:	The user uses a standardized form to edit feature attribution.
Response:	The tool should allow the editing of a selected activity feature attribute data in a standard form.
Stimulus:	The user uses spatial tools to modify the spatial features of the activity record.
Response:	The tool should activate the ArcGIS Editing tools for the user.
Stimulus:	The user queries for the Activity Feature to edit.
Response:	The tool should provide tools for querying activity data and navigate to that query result. (See section 4.3)

4.2.3. Functional Requirements

Edit.Functionality.Other	The tool shall provide the same functionality found in the create feature functionality.(Section 4.1)
Edit.Form.Functionality	The tool shall allow the user to perform edits in the same form as adding and querying data.
Edit.Select.Spatially	The system shall provide the user with the ability to select activity features through a spatial enabled user interface.
Edit.Select.Attribute	The tool shall provide the user with a method to select an activity feature based upon its attribute values.
Edit.Modification.Date	The tool shall auto-populate the Modification Date field in the activity feature class.
Edit.Modifcation.By	The tool shall auto-populate the Modification By field in the activity feature class.

4.3. Query Activity Features

4.3.1. Description and Priority

This section describes the query functionality required by the Activities Management Tool. (Mandatory)

4.3.2. Stimulus/Response Sequences

Stimulus:	The user selects values in the edit form.
Response:	The system will automatically filter the activity feature database with values selected by the user.
Stimulus:	The user uses the location query tool to query data.
Response:	The system will automatically filter the activity form with the selected features.
Stimulus:	The user may use the ArcGIS attribute query tool to query data.
Response:	The system will automatically filter the activity form with the selected features.
Stimulus:	The user uses the ArcGIS spatial selection tool to query data.
Response:	The system will automatically filter the activity form with the selected features.
Stimulus:	The user selects more than one feature or activity record.
Response:	The tool should provide basic VCR style record navigation. (See section 4.3)

4.3.3. Functional Requirements

Query.Form.Functionality	The tool shall allow the user to perform edits in the same form as adding and querying data.
Query.Controls.Query	The tool shall perform a query of the activity data when a user selects a value from a dropdown list and when a user enters a value in a text box.
Query.Controls.Navigation	The tool shall provide controls that provide the easy navigation of a selected set of records.
Query.Controls.Feature	The tool shall zoom to and highlight the current activity record displayed in the query/edit form if linked to spatial data.

4.4. Delete/Archive Activity Features

4.4.1. Description and Priority

This section describes the deletion/archiving processes involved with the Activities Management Tool. For budget purposes, the tool will only provide archiving functionality. (Mandatory)

4.4.2. Stimulus/Response Sequences

Stimulus:	The user clicks on a button to delete a record.
Response:	The system shall set the archive flag for the Activity record, archives the associations, and archives the linked spatial features. The result will be to prevent the record/feature from drawing or be captured by spatial and tabular queries.
Stimulus:	The user deletes spatial feature during an edit session.
Response:	The system will set the archive flag for the spatial feature. The result will be to prevent the feature from drawing or be captured by spatial and tabular queries.

4.4.3. Functional Requirements

Delete.Feature.Archive	The tool shall change the archive field in the Activity Feature and other associated table records to TRUE.
Delete.Feature.Definition	All Feature Layers shall have a Definition Query setup with the Archive set to FALSE.
Delete.Feature.Unarchive	The tool shall allow the unarchiving of activity records that meet a specified criteria (i.e. not a mistake).

4.5. Navigation Features

4.5.1. Description and Priority

This section describes the navigation features provided with the Activity Management Tool. Mandatory)

4.5.2. Stimulus/Response Sequences

Stimulus:	The user navigates the map with spatial navigation tools.
Response:	The system will provide basic zoom and pan navigation.
Stimulus:	The user navigates to features through the Attribute Form.
Response:	The system will query and navigate to the queried feature. (See section4.3).

4.5.3 Functional Requirements

Navigate.Map.Tools	The tool shall provide access to basic navigation tools found in ArcGIS.
Navigate.Map.Query	The tool shall provide map navigation to select spatial features when a query is performed in the edit form.

4.6. Disconnect Activity Geodatabase

4.6.1. Description and Priority

This section describes the functionality of creating a “disconnected” Activity Geodatabase for field use. The tool should provide a disconnected Geodatabase, application specific database tables, and ArcGIS Map Document. (Mandatory)

4.6.2. Stimulus/Response Sequences

Stimulus:	User clicks on button to create a disconnected database.
Response:	The system will prompt the user for the file directory location of the exported database.
Stimulus:	User provides a name for the exported project.
Response:	The system will create a folder in the selected file directory with the name specified by the user.
Stimulus:	User selects the location and clicks ok.
Response:	The system will run processes that will generate a disconnected environment of the Activity Management tool based on the visual extent of the map displayed in ArcGIS.

4.6.3. Functional Requirements

Disconnect.Location.Directory	The tool shall prompt the user for the output directory.
Disconnect.Location.Folders	The tool shall create a new folder in the output directory. The directory will have the name specified by the user as well as a date stamp. (ex. MYPROJECT_041007)
Disconnect.Data.Geodatabase	The tool shall create a copy of the Geodatabase data in a personal Geodatabase in the output folder location.
Disconnect.Data.OtherTables	The tool shall copy the primary and lookup tables in the activities database to the disconnected database.
Disconnect.Data.BaseData	The tools will not clip or select out base data provided in the ArcGIS Map Document that is not part of the Activities Database. The user will be responsible for acquiring and copying base GIS data to the field work machine.
Disconnect.Data.Imagery	The user shall be responsible for acquiring and copying imagery (aerial photos) to the project directory.
Disconnect.Map.Document	The tool shall make a copy of the ArcGIS Map Document to the folder.
Disconnect.Map.Connections	The user shall reconnect map layers to the appropriate location of the disconnected data.
Disconnect.Date.CheckedOut	The tool shall track the checkout date when the database ha been disconnected.

4.7. Reconnect Activity Geodatabase

4.7.1. Description and Priority

This section describes the import process of data collected in a disconnected environment. (Mandatory)

4.7.2. Stimulus/Response Sequences

Stimulus:	User clicks on button to reconnect the disconnected database to the enterprise Activity Database.
Response:	The system will prompt the user for the location of the disconnect project.
Stimulus:	User selects the disconnected project directory.
Response:	The system will start the import process and prompt the user when complete.
Stimulus:	When the system detects identical record ids with different modification dates in spatial and/or tabular records, the user will be prompted to reconcile the modified records.
Response:	The system will post the selected data by the user to the enterprise database.

4.7.3. Functional Requirements

Reconnect.Folder.Location	The tool should prompt the user for the location of the disconnect database.
Reconnect.Data.Import	The tool shall import any record that has been modified in the disconnected database.
Reconnect.Data.Reconcile	The tool shall prompt the user when a record id in the disconnected database and enterprise database has been modified.
Reconnect.Data.Ids	The tool should reconcile the IDs stored in the disconnected database with the IDs in the enterprise database.
Reconnect.Data.Tables	The tool will reconcile all table data from the disconnected database. This includes lookup and relationship tables.
Reconnect.Data.Obselete	The tool will reconcile data that has been flagged obsolete.
Reconnect.Data.Spatial	The tool will import all modified spatial features into the enterprise Geodatabase. Spatial data will be reconciled the same as tabular records.

4.8. Lookup Table Management

4.8.1. Description and Priority

This section describes the management of lookup tables in the database. (Mandatory)

4.8.2. Stimulus/Response Sequences

Stimulus:	The user clicks on the lookup management interface button.
Response:	The system will load a lookup table editing form.
Stimulus:	The user selects from a list the lookup table to modify.
Response:	The system will load the appropriate lookup table into an edit form.
Stimulus:	The user edits the lookup values in the form (Add/Modify).
Response:	The system will modify the lookup table information.
Stimulus:	The user attempts to obsolete a lookup value.
Response:	The system will query the database for instances of the lookup value in use. If found, the obsolete request will not be allowed.

4.8.3. Functional Requirements

Lookup.Form.Edit	The tool shall provide a form for the editing of lookup table records.
Lookup.Record.Obselete	The tool shall query the database for instances of the lookup value in use. If found, the obsolete request will not be allowed.
Lookup.Modification.Config	The tool shall provide a configuration file which will control the access of modification of lookup tables.

5. Non-functional Requirements

5.1. User Interfaces

UI-1 The user interface design shall follow .NET Coding Standards and Windows User Interface Guidelines.

UI-2 Basic Windows Functions and Standards.

UI-3 The interface should be developed to work on a minimum screen resolution of 1280x1024.

UI-4 The interface must interact with the ArcGIS desktop as a dockable window.

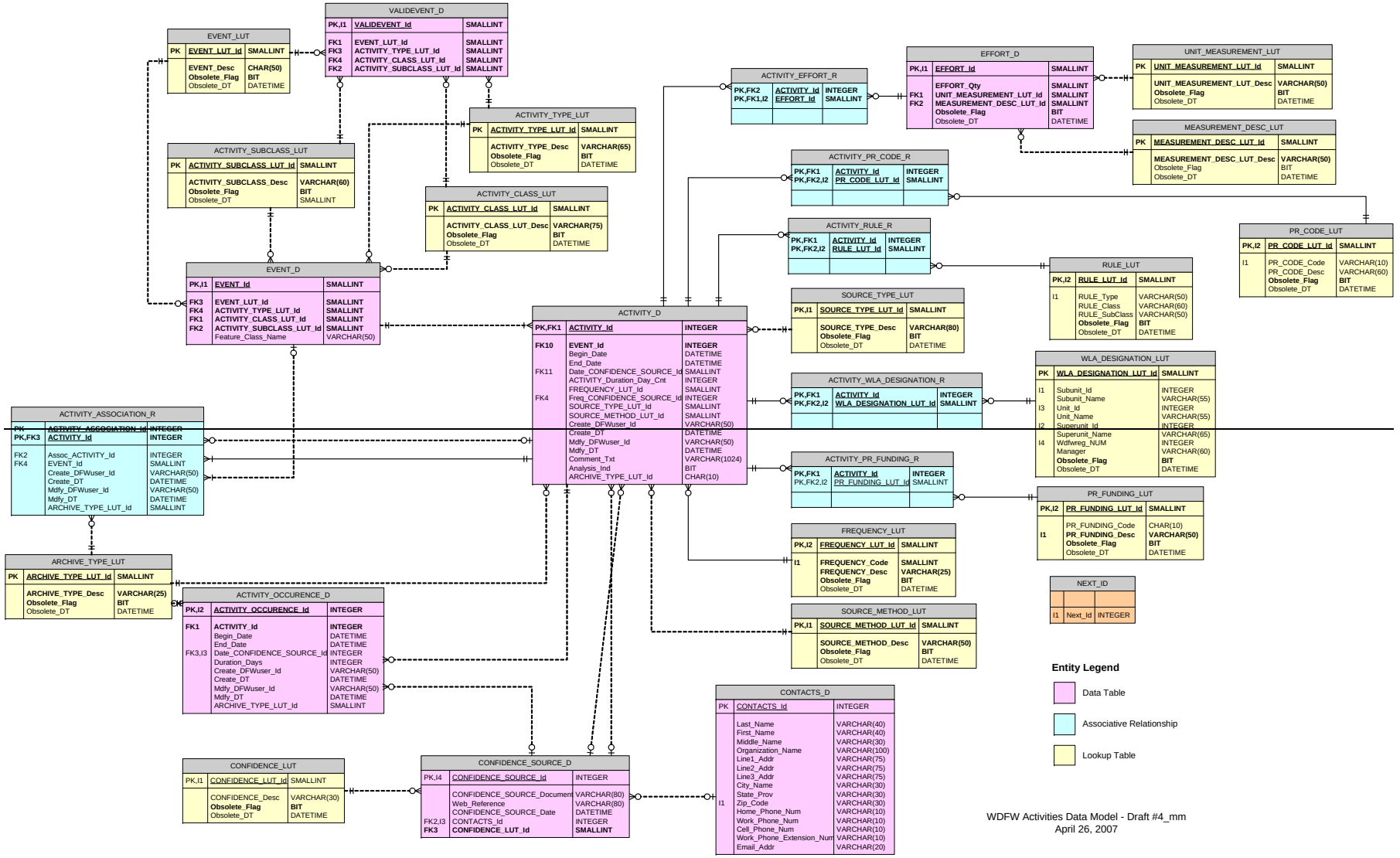
5.2. Performance Requirements

PR-1 Must meet standard DFW application performance standards.

PR-2 Must work within the operating parameters of ArcGIS.

Appendix A: Physical Database Model

The application will use the following Geodatabase Feature Classes and tables as per the following Physical Database model. Please refer to the Visio Document and Access Database provided with this document.



Appendix B: Requirements Identifiers

The following is a key to the codes that uniquely identify the requirements, except for the functional requirements in section 4 of the document.

AD Assumptions and Dependencies
CO Design and Implementation Constraint
DR Data Requirements
UD User Documentation
OE Operating Environment
PR Performance Requirement
QA Quality Attribute
UI User Interfaces

Appendix C: Activities Data Model Description

Description of the WDFW Activities Data Model

Many different types of activities occur on WDFW owned and managed lands. These activities can be classified as one of three broad types of activities: recreation, operation and maintenance, or enhancement and restoration. Each of the activities can be more specifically described as participating in a class of activities and a subclass of activities. Class and Subclass provide for a more detailed set of distinguishing characteristics.

Activities may optionally be identified as being subject to regulations or polices. This could include Washington Administrative Codes (WACs), Revised Code of Washington (RCW), WDFW Rules and Regulations, local government ordinances, and Federal Laws.

Activities can occur on either a regular or periodic basis, within a calendar year or across many years. The duration of an activity can be described by the number of days that each event of an activity occurs. The frequency of activity can be described by it annual reoccurrence. Activities can both occur individually or be associated with one or more other activities.

Information about activities will be collected from a variety of sources and will be based on a variety of data collection methods and procedures. Each may have higher or lower confidence associated with them.

Each confidence source may have some combination of the name of the source, document name, web reference, date, contact information and a source confidence designation of:

- A Legal Description
- Empirical Data
- Expert Opinion
- Best Professional Judgement
- Modeled Data

Each activity will be designated as occurring within a described WDFW administrative area. The designations will be hierarchical, going from Region to Complex; Complex to Wildlife Area; and Wildlife Area to Wildlife Area Unit. Some activity areas may not be currently assigned to the hierarchy and designated as being unassigned.

Each activity can be measured in terms of the intensity of effort that is applied. These metrics will be expressed in terms of the quantity, units, and measure. For instance 100 (quantity) pounds (unit) per acre (measure) or 10 (quantity) people (unit) per campsite (measure). An activity can have zero or more measured efforts. Metrics will only be collected at the Activity level. Individual occurrences of an activity will inherit the metrics of the parent activity. If it is important to apply a different level of effort, then a new activity will need to be created in order to capture a variance in the metrics. The system should support propagating existing core activity attributes into a new activity in order to minimize the need for new data entry when the only significant change is effort. A highly desired functional property of the application would be to allow the user to place checkboxes next to those fields that should be propagated into the new record.

Activities often are associated with other activities. Many activities can be associated with one activity and the one activity can be associated with one or more other activities. This results in a many-to-many relationship between activities. The system will need to support several workflows around the process of associating activities. This includes

- Creating activity records prior to creating spatial data
- Linking existing spatial data to an activity

- Un-linking spatial data to an activity
- Associating an activity to other activities
- Unassociating an activity from an activity

Each activity will be managed as both tabular data and spatial data. One requirement is that the system support creating tabular records for activities independent of the process of creating the spatial data that must be linked to the activities. This will allow for creating a placeholder for more specific information that will be collected during visits for satellite offices.

In order to reduce application development cost, a strategy has been identified for managing records that are no longer needed due to a change in information, methods, or mistakes. This application deals with both tabular and spatial data that is linked through an application assigned primary key, which is carried in both the tabular and spatial records. It would be costly to develop an application that manages deletions of both the tabular and spatial data. Not to mention that features could be deleted outside the application. Each record in the Activity, Activity Association, and Activity Occurrence tables will be attributed as being in some stage of archival state (e.g. Not Archived, Archived with Delete, Archived, etc). This level of attribution will support a better understanding on the reason for making a record inactive.

At beginning of a session (when application is first initiated) user will be prompted to set default options for confidence and methods sources.

Inventory sessions will occur in the field and be disconnected from the SQL database. The application and the tabular and spatial records will be “checked out” to the inventory biologist and used on a laptop. While data is “checked out” that particular data on the SQL database will be editable. When data is “checked in” the application will need to: 1) reconcile and update the SQL database with new additions to look up tables that may have occurred when disconnected, and 2) reconcile and update any new and/or modified activities records.

Appendix D: Issues List

#	Description	Due Date	Assigned To

Appendix E: Document Sign Off

The sign off of this document indicates that the Washington Department of Fish and Wildlife has agreed with described Software Requirements Specification in relation to the Wildlife Areas Habitat Conservation Plan project and approves of GeoNorth to start the development of a software Design Specification.

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Jennifer Quan, WADFW Date