United States Department of the Interior
Fish & Wildlife Service

Habitat Conservation Plan (HCP)

Spatial Data Specifications

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Prepared By:

Fish & Wildlife Service

HCP Data Task Group

Contents

FWS Habitat Conservation Plan

Spatial Data Specifications and Business Processes

1. Introduction

Habitat Conservation Plans (HCPs) are planning documents required as part of an application for an incidental take permit under section 10(a)(1)(B) of the Endangered Species Act (ESA) of 1973. They describe the anticipated effects of the proposed project, how those impacts will be minimized, or mitigated; and how the HCP is to be funded.

HCPs can apply to both federally listed and non-listed species, including those that are candidates or have been proposed for listing. Conserving species before they are in danger of extinction or are likely to become so can provide early benefits and prevent the need for listing.

1.1. Purpose

The HCP spatial data specifications standards content was developed to provide a standardized data architecture and methods for creation, management and dissemination of HCP data. It is intended to achieve the following objectives:

- **Confidence:** It is crucial that those who evaluate and use HCP data have confidence in its quality and accuracy. One way of fostering this confidence is by implementing standards by which quality and accuracy can be measured.
- **Efficiency:** Standards make it possible to create tools to automate the uploading, maintenance, and display processes.
- **Consistency:** Standards make it possible for us to commonly share HCP data within the Service and to integrate it with other products.
- **Improve Landscape Level Species Assessments:** Understanding the locational information associated with HCPs such as species covered or project types, helps the Service evaluate at both a landscape and individual species level where and how to improve species conservation.
- **Evaluate and monitor HCP success:** Standards help both the Service and cooperators monitor conservation activities progress and make adjustments as needed.

1.2. Scope

This standard was developed for use by both HCP applicants and FWS staff for use as the primary tool for developing and exchanging HCP spatial data. This initial standard applies only to identifying and mapping planned HCP or permitted HCP boundaries. This standard

applies to all HCPs. There are no size or minimum mapping units associated with HCPs and this standard. An HCP can range from a small single five acre parcel to a geographic area that encompasses millions of acres. Every HCP will be represented by a single or multi-part polygon and a centroid point to represent the geometric center of that single or multi-part polygon. This standard is considered the first step towards developing a more comprehensive approach to mapping and managing HCP data including future conservation and impact tracking and transactions.

1.3. HCP Terminology

Appendix A – *HCP Geospatial Standards Framework* defines all the terminology and related data categories. The key terminology for HCP data is described below.

- **HCP Planning Area:** This includes the planning area for proposed or issued permit, including subunit planning areas (where applicable). Size of planning area will be highly variable from a small single property parcel to very large multistate areas. Plan area boundaries may be one or more areas, but should include all of the lands enrolled in the HCP, including area where mitigation is or will occur.
- **Covered Species:** Includes both ESA listed and non-listed species the HCP addresses and implementation of the plan will likely impact. Non ESA listed species are addressed in HCPs as though they are listed, and are added to the permit if listed. Covered species are subject to the assurances of the "No Surprises" policy.

1.4. Roles and Responsibilities

- **HCP applicants on low impact projects:** Applicants are responsible for developing the HCP, and sharing spatial information with the FWS HCP field office lead. In most situations on low impact HCP development, the Service will be responsible for developing the spatial data.
- **HCP applicants on high impact projects:** Applicants are responsible for developing and delivering data that conforms to the data standards and requirements.
- **USFWS HCP project coordinators:** Field office coordinators are responsible for assisting applicants develop their plans, delivering applicants the HCP GIS standards and requirements upon the initiation of an HCP, for low impact plans are responsible for working with the applicant and their office's GIS staff to develop GIS data that conform to the GIS standards, and for ensuring the applicants understand and deliver the required GIS data.
- **USFWS HCP regional coordinators:** Regional HCP coordinators need to work with field office staff to help them understand the standards and provide support in the development of HCPs and the associated data.

- **USFWS ECOS office:** Ensure effectiveness and reliability of the HCP data by maintaining a national data set in ECOS. ECOS staff will also be involved with quality standards and instituted quality assurance and quality control protocols. The goal of these protocols is to ensure that the data collection, analysis, verification and reporting methods are used to produce uniform information. The information collected using these requirements and procedures are intended to support the decision-making process.

1.5. Types of HCPs

For the purposes of developing GIS standards, we defined HCPs into two basic types that correlate with the typical resources that go into developing GIS data. The first is referred to as a low impact HCP where the applicant is not required under National Environmental Policy Act (NEPA) to perform an Environmental Assessment (EA) or Environmental Impact Statement (EIS). These types of plans would meet the requirements to be considered a Categorical Exclusion (CE) under NEPA policy. These plans typically produce very little to no spatial data, and therefore the standard for this type reflect a very low level of GIS output anticipated. **As a GIS data requirement, only the planned or permitted HCP boundary is required for low impact HCPs**.

The other type of HCPs are high impact and those that also fall under the NEPA policy and require an applicant to perform an EA or EIS before the Service will issue an incidental take permit. High impact HCPs normally produce significant development and use of spatial data however, this standard only addresses the applicant requirement to develop a planned or permitted HCP GIS boundary.

These data specifications provide two conceptual workflow models, one for each type of HCP that shows how an applicant and FWS develop and exchange spatial data. ***Appendix B*** summarizes the workflow for a Low Impact HCP and ***Appendix C*** summarizes the workflow for a High Impact HCP.

2. Spatial Data Content

2.1. Accuracy Standards and Best Practices

These data are intended to answer questions across the nation, and as such, geometries should be digitized so that they seamlessly (topologically) fit within nationally available data (e.g. NHD, 3DEP elevation, NAIP imagery, etc.). All data sources need to be cited within feature's metadata and should be identified within the appropriate processing step. Snapping should be used whenever possible while creating features and snapping tolerance should be minimally set to 10 pixels.

Priority	Data Availability	Minimal Scale
1	National	Any
2	State	Any
3	Municipal	Any
4	Imagery	1:1,000
5	Topographic Map	1:24,000

2.2. HCP Data Templates

Implementation guidance and a resource support package are provided at the IRTM Habitat Conservation Plan Spatial Data Specifications website.

2.3. Data Submission and Feature Type Requirement

The requirement is to develop and submit an HCP Planning Area. The feature types accepted for submission of HCP spatial data are multi-polygons. ServCat will serve as the repository for, at a minimum, a spatial record, a machine readable FGDC or ISO 19115 compliant metadata XML record, and a data management plan. It's encouraged that files associated with the spatial representation are stored with the ServCat reference. There are four possible types of HCP Plan Areas that are reflected as subtypes. These types simplify the phases described in the HCP Handbook in order capture pre-application work being done and visualize distinct phases of the HCP lifecycle.

- **1 – Plan Development Phase:** The application and development phases leading up to permitting.
- **2 – Implementation Phase:** An approved plan wherein the permitee and the Service are actively fulfilling their roles and obligations.
- **3 – Post Permit Phase:** A permitted plan that requires amendment or is in the renewal process.
- **4 – Inactive:** A plan that's been terminated, regardless of the cause.

For HCPs created under the Categorical Exclusion (CE) or low impact workflow, the applicant may work with FWS who can generate the required data for submission. Generally, the FWS will be developing and managing the geospatial data associated with low impact HCPs.

Note: The FWS may require that the applicant complete and maintain all source data and processing products used at the time the PlanAreas feature class.

2.3.1. Feature Class

Name: **PlanAreas**
Alias: HCP Plan Areas
Geometry: Multi-polygon
Subtype: 1 – Plan Development Phase
2 – Implementation Phase
3 – Post Permit Phase
4 – Inactive
Layer: HCPPlanArea.lyr
Description: Single or Multipart polygon providing a boundary representing the HCP planning area. Centroid coordinate fields (*CENTLAT*, *CENTLONG*) are represented within a single polygon or a group of multi-part polygons.

2.3.2. Tables

Name: **HCP_FedList_Species**
Alias: HCP Federally Listed Species
Subtype: 1 – Animal
2 – Plants
Description: This table is related to the PlanAreas feature class and allows the user to input one or more federally listed species that are associated or covered by an individual HCP. To do this the user selects the correct Kingdom subtype (e.g. plant or animal) that will unveil the acceptable valid values provided by Environmental Conservation Online System (ECOS) Threatened and Endangered List. This table needs to be periodically updated inside the file geodatabase (http://ecos.fws.gov/ecos/indexPublic.do) in the SPNAME field. This update to the template file geodatabase should occur NO LESS than annually. Refer to implementation guide for description of the technical process for updating domain tables inside the file geodatabase.

Name: **HCP_ NonList_Species**
Alias: HCP NonList Species
Subtype: 1 – Animal
2 – Plant
Description: This table is also related to the PlanAreas feature class and allows the user to input one or more species that are not federally listed but still associated or covered by an HCP. To do this the user selects the correct Kingdom subtype (e.g. plant or animal) that will unveil the acceptable valid values as taken from Integrated Taxonomic Information System (ITIS) species tables and from ECOS. This update to the template file geodatabase should occur NO LESS

than annually. Refer to implementation guide for description of the technical process for updating domain tables inside the file geodatabase.

Name: **HCP_ ProjectType**
Alias: HCP ProjectType
Subtype: (See Appendix D and project type categories.)
Description: This table is also related to the PlanAreas feature class and allows the user to input multiple project types that are associated with an individual HCP. To do this the user selects the correct Tier 1 project subtype that will unveil the acceptable valid values as taken from the FWS Tracking and Integrated Logging System (TAILS) in the PROJECT_T2 field. This table should be updated as needed.

2.4. Naming Standard

Use the prefix "HCP" followed by an underscore, the name of the HCP followed by an underscore, and then the publish date in year, month, day format. The entire name should be in caps and underscores should be used as a space delimiter for the pre-fix HCP, the name of HCP and the publish date. The file name should not normally exceed 35 total characters not including file extension. Use abbreviations in the name where appropriate. See examples below.

HCP_<NAME OF HCP>_<YYYYMMDD> (DATE PUBLISHED)

Example: HCP_TERRASPRINGS_20130526

2.5. Coordinate Systems and Projections

The HCP template feature classes use Geographic Coordinate System, WGS 1984 datum.

2.6. Field Definitions and Domains

2.6.1. PlanAreas

Feature Class/Table: PlanAreas

Field: GLOBALID
Alias: Global ID
Description: Unique identification code specific to an HCP Area.
Type: GUID (NA) – Primary Key
Required: Yes
Domain: Auto-Generate

Feature Class/Table: PlanAreas

Field: PLAN_ID
Alias: Plan ID
Description: HCP ECOS plan ID number.
Type: Double (NA)
Required: Yes
Domain: Unrestricted

Feature Class/Table: PlanAreas

Field: CENTLAT
Alias: Centroid Latitude
Description: Centroid Y coordinate of HCP area in decimal degrees.
Type: Double (NA)
Required: Yes
Domain: -90 to 90

Feature Class/Table: PlanAreas

Field: CENTLONG
Alias: Centroid Longitude
Description: Centroid X coordinate of HCP area in decimal degrees.
Type: Double (NA)
Required: Yes
Domain: -180 to 180

Feature Class/Table: PlanAreas

Field: STATUS
Alias: HCP Status
Description: HCP project phase of project.
Type: Enumerated Domain
Required: Yes
Domain: Long

Value: 1 – Plan Development Phase
Description: Plan is in the application and development phases.
Value: 2 – Implementation Phase
Description: Plan is in the implementation phase.
Value: 3 – Post Permit Phase
Description: Plan is undergoing amendment or renewal.
Value: 4 – Inactive
Description: Plan is terminated.

Feature Class/Table: PlanAreas

Field: HCPNAME
Alias: HCP Name
Description: Unique name specific to a single HCP.
Type: Text (100)
Required: Yes
Domain: Unrestricted

Feature Class/Table: PlanAreas

Field: PERMSTART
Alias: Permit Start Date
Description: Permit issuance date.
Type: Date (NA)
Required: No
Domain: Unrestricted

Feature Class/Table: PlanAreas

Field: PERMEND
Alias: Permit Expiration Date
Description: Permit expiration date.
Type: Date (NA)
Required: No
Domain: Unrestricted

Feature Class/Table: PlanAreas

Field: REGION
Alias: Lead FWS Region
Description: FWS Region of the lead office for the HCP.
Type: Enumerated Domain
Required: Yes
Domain: Long

- Value: 1 – Region 1
- Description: Pacific Region
- Value: 2 – Region 2
- Description: Southwest Region
- Value: 3 – Region 3
- Description: Midwest Region
- Value: 4 – Region 4
- Description: Southeast Region
- Value: 5 – Region 5

Description: Northeast Region
Value: 6 – Region 6
Description: Mountain-Prairie Region
Value: 7 – Region 7
Description: Alaska Region
Value: 8 – Region 8
Description: Pacific Southwest Region
Value: 9 – Region 9
Description: Washington D.C.

Feature Class/Table: PlanAreas

Field: OFFICE
Alias: Lead FWS Office
Description: Lead office for the HCP.
Type: Text (200)
Required: Yes
Domain: Unrestricted

Feature Class/Table: PlanAreas

Field: FWSCONTACT
Alias: FWS Point of Contact
Description: Name of FWS point of contact.
Type: Text (200)
Required: Yes
Domain: Unrestricted

Feature Class/Table: PlanAreas

Field: FWSEMAIL
Alias: Contact Email
Description: Email address of FWS point of contact.
Type: Text (200)
Required: Yes
Domain: Unrestricted

Feature Class/Table: PlanAreas

Field: CREATOR
Alias: Created By
Description: Windows user name of person who created the HCP plan area.
Type: Text (100)
Required: Yes
Domain: Auto-Generate

Feature Class/Table:	PlanAreas
Field:	CREATEDATE
Alias:	Created On
Description:	Date Area was created in the feature class.
Type:	Date (NA)
Required:	Yes
Domain:	Auto-Generate
Feature Class/Table:	PlanAreas
Field:	LASTMODBY
Alias:	Last Modified By
Description:	Windows username of person who last edited a feature.
Type:	Text (50)
Required:	Yes
Domain:	Auto-Generate
Feature Class/Table:	PlanAreas
Field:	MODDATE
Alias:	Last Modified On
Description:	Date Feature was last edited.
Type:	Date (NA)
Required:	Yes
Domain:	Auto-Generate

2.6.2. HCP Federally Listed Species Table

Feature Class/Table:	HCP_ProjectType
Field:	GLOBALID
Description:	Unique identification code specific to the table HCP_NonList_Species.
Type:	GUID (NA)
Required:	No
Domain:	Auto-Generate
Feature Class/Table:	HCP_FedList_Species
Field:	HCP_GUID
Alias:	HCP Global ID
Description:	Unique identification code specific to a plan area. Used in this case to relate ECOS listed species to the plan area.

	Note: Can be automatically added by right clicking the table in the attributes edit window while editing the PlanAreas and adding new.
Type:	GUID (NA) – Foreign Key
Required:	Yes
Domain:	Auto-Generate
Feature Class/Table:	HCP_FedList_Species
Field:	KINGDOM
Alias:	Species Kingdom
Description:	Subtype field that allows the user to specify which kingdom a species is in, which then unveils the domain for the field SPNAME.
Type:	Long (4)
Required:	Yes
Domain:	Enumerated Subtype Domain
Feature Class/Table:	HCP_FedList_Species
Field:	SPNAME
Alias:	Species Details
Description:	Common name, scientific name and population (if designated) of single ECOS Federally listed species that is associated with the HCP. Species domain list source is ECOS.
Type:	Long (4)
Required:	Yes
Domain:	Enumerated Domain

2.6.3. HCP Non-Listed Species Table

Feature Class/Table:	HCP_ProjectType
Field:	GLOBALID
Description:	Unique identification code specific to the table HCP_NonList_Species.
Type:	GUID (NA)
Required:	No
Domain:	Auto-Generate
Feature Class/Table:	HCP_NonList_Species
Field:	HCP_GUID
Alias:	HCP Global ID

Description:	Unique identification code specific to a plan area. Used to relate ITIS named non-listed, but covered species to the HCP plan area. *Note: Can be automatically added by right clicking the table in the attributes edit window while editing the PlanAreas and adding new.*
Type:	GUID (NA) – Foreign Key
Required:	Yes
Domain:	Auto-Generate
Feature Class/Table:	HCP_NonList_Species
Field:	KINGDOM
Alias:	Species Kingdom
Description:	Subtype field that allows the user to specify which kingdom a species is in, this then unveils the domain for the field SPNAME.
Type:	Long (4)
Required:	Yes
Domain:	Enumerated Subtype Domain
Feature Class/Table:	HCP_NonList_Species
Field:	SPNAME
Alias:	Species Details
Description:	Common name of single non-Federally listed species that is associated or covered by the HCP.
Type:	Long (4)
Required:	Yes
Domain:	Enumerated Domain Descriptions
Feature Class/Table:	HCP_NonList_Species
Field:	NOTE
Alias:	Notes
Description:	A species name that cannot be found in the domain list.
Type:	Text (250)
Required:	Yes
Domain:	Unrestricted

2.6.4. HCP Project Type Table

Feature Class/Table:	HCP_ProjectType
Field:	GLOBALID
Description:	Unique identification code specific to the table HCP_NonList_Species.

Type:	GUID (NA)
Required:	No
Domain:	Auto-Generate
Feature Class/Table:	HCP_ProjectType
Field:	HCP_GUID
Alias:	HCP Global ID
Description:	Unique identification code specific to a plan area. Used in this case to relate TAILS or ECOS project types to the plan area. *Note: Can be automatically added by right clicking the table in the attributes edit window while editing the PlanAreas and adding new.*
Type:	GUID (NA) – Foreign Key
Required:	Yes
Domain:	Auto-Generate
Feature Class/Table:	HCP_ProjectType
Field:	PROJECT_T1
Alias:	Tier 1 Project Type
Description:	Subtype field that allows the user to specify which broader category Tier 1 project type the HCP is according to the FWS TAILS tracking system which will then unveil the domain for the field PROJECT_T2.
Type:	Long (4)
Required:	Yes
Domain:	Enumerated Subtype Domain (See APPENDIX D. for Codes and Descriptions)
Feature Class/Table:	HCP_ProjectType
Field:	PROJECT_T2
Alias:	Tier 2 Project Type
Description:	Tier 2, or more detailed, project type of the HCP that unveils certain project types based on the selected PROJECT_T1 domain.
Type:	Text (10)
Required:	Yes
Domain:	Enumerated Subtype Domain (See APPENDIX D. for Codes and Descriptions)

3. Metadata

Federal Geographic Data Committee (FGDC) or International Organization for Standardization (ISO) 19115 compliant metadata is required for all HCP geospatial data submittals.

Any HCP datasets submitted without compliant metadata will not be accepted by the FWS. An applicant should use this documentation to develop the metadata as it relates to their specific project. There are many metadata tools available for developing metadata including free and commercial tools. As an example, an ESRI ArcGIS user could use ArcCatalog and its metadata functionality or other metadata plugin tools such as EPA metadata editor (free) or Xtools (commercial).

3.1. Metadata References:

ISO 19115 (NAP) Metadata Profile – This document describes the ISO 19115 (NAP) metadata standard.

http://www.fgdc.gov/standards/projects/incits-l1-standards-projects/NAP-Metadata/napMetadataProfileV101.pdf/view

Content Standard for Digital Geospatial Metadata (CSDGM) – This document describes in detail the FGDC metadata standards.

http://www.fgdc.gov/metadata/documents/workbook_0501_bmk.pdf

4. Data Management

There must be a data management and sharing plan for any HCPs where the Services and the applicant develop maps, conduct analyses, or collect data. A data management plan describes the data that will be authored, what will be shared, how it will be shared, and how the data will be managed throughout its lifetime. For small plans, where there's very little or no mapping is done, or where the Service prepares the maps and analyses, a data management plan is not required. The data management plan should include:

- The types of data to be created.
- The data standards that will be used.
- How the data will be stored.
- Who will have access to the data.
- Plans for the eventual transition of termination of the data in the long-term future.
- How data will be shared between the permittee and the Service.

5. Appendices

5.1. Appendix A: HCP Geospatial Standards Framework

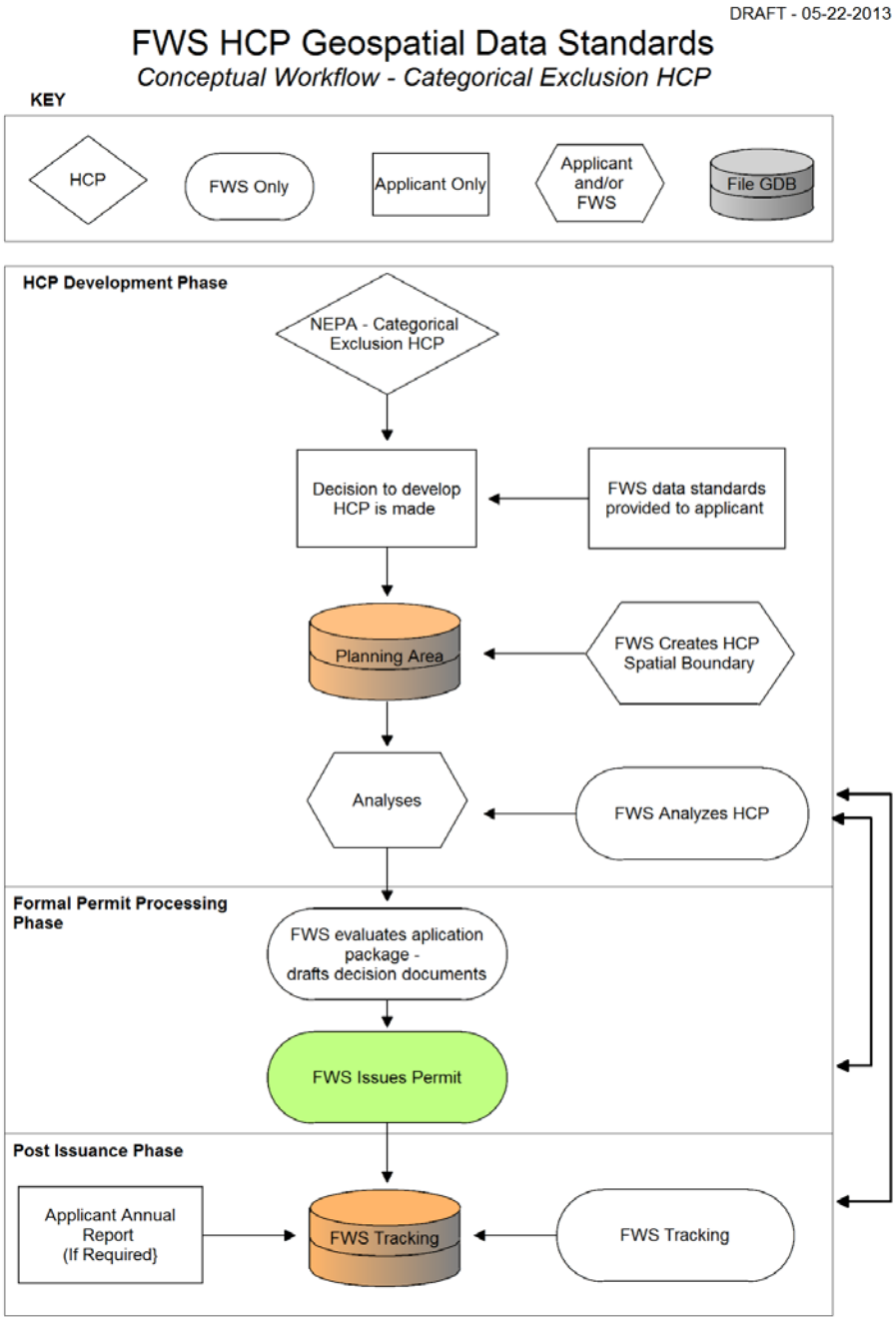
Habitat Conservation Plan (HCP) Geospatial Standards Framework [9/09/2015]

	Data Category*		
HCP Complexity Guidelines (informed by NEPA guidance including HCP area size, T&E species impacts, and project type)	Data Responsibility	HCP Planning Area(s)	Data Responsibility: **R**= required **NA**= not applicable
Small or Low Impact HCP (example: < 20 acres and Categorical Exclusion)	Applicant FWS	R R	
Large or High Impact HCP (example: > 20 acres and EA or EIS required)	Applicant FWS	R NA	
FWS geospatial standards under development	R		
Type of Data (**bold** indicates most common geographic features for that data category)	point, line, **poly**		

* Data Category Terms Defined:

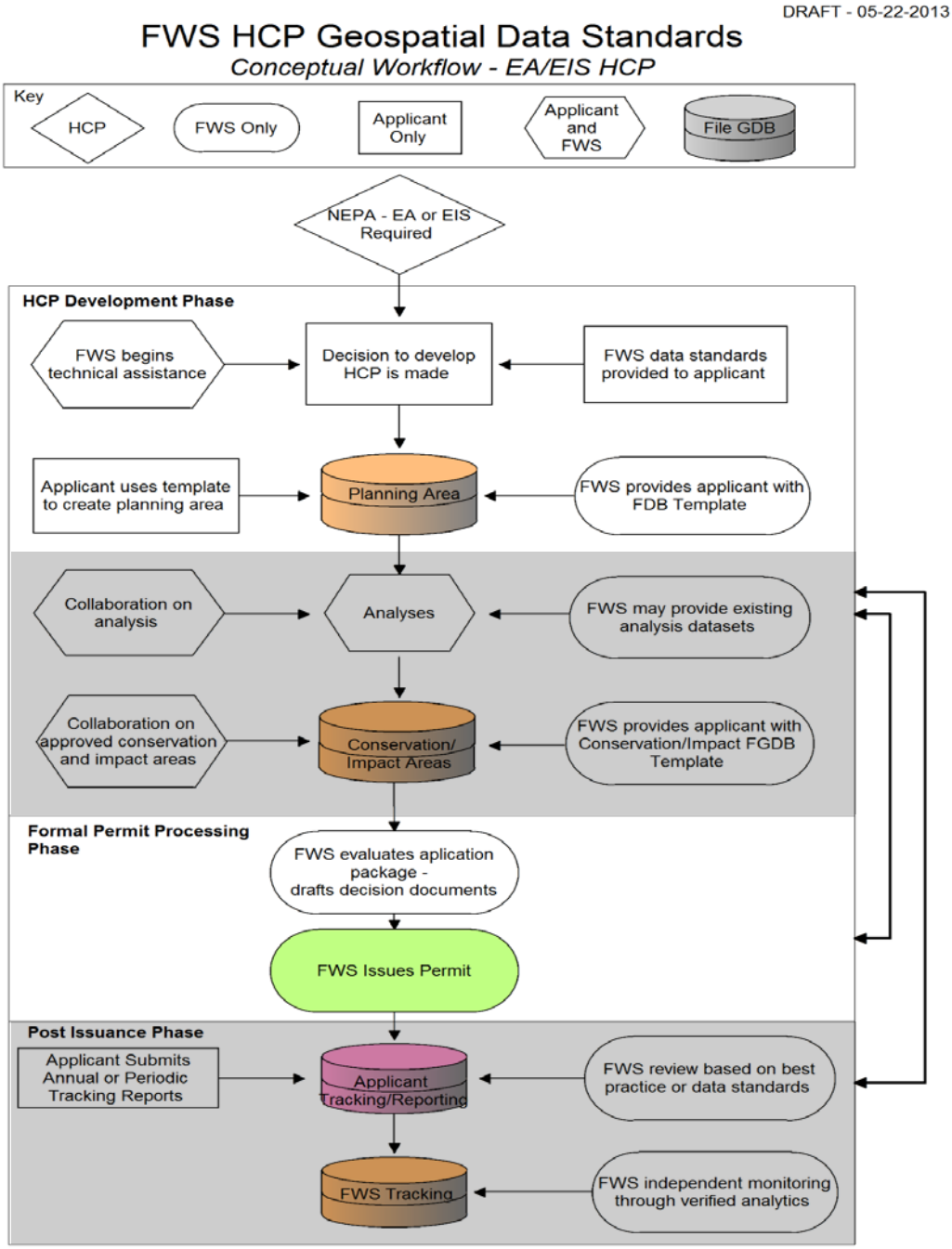
Category	Description
HCP Planning Area	This includes the planning area for proposed or issued permit, including subunit planning areas (where applicable). Size of planning area will be highly variable from a small single property parcel to very large multistate areas. Plan area boundaries may be one or more areas, but should include all of the lands enrolled in the HCP, including area where mitigation is or will occur.
Covered Species	Includes **both ESA listed and non-listed species** the HCP addresses and implementation of the plan will likely impact. Non ESA listed species are addressed in HCPs as though they are listed, and are added to the permit if listed. *Covered species* are subject to the assurances of the "No Surprises" policy.

5.2. Appendix B: Low Impact HCP Conceptual Workflow



5.3. Appendix C: High Impact HCP Conceptual Workflow

(Shaded areas are proposed future functionalities)



5.4. Appendix D: Project Type Tier 1 and Tier 2 Categories (Date: 20150830)

AGRICULTURE
- Agriculture - Conc Animal Feeding Operation (CAFO)
- Agriculture - Crop Planting
- Agriculture - Crop Production
- Agriculture - Crop Maintenance
- Agriculture - Grazing - Ongoing Activities
- Agriculture - Grazing - Permit Renewal
- Agriculture - Irrigation
- Agriculture - Pesticide Use
- Agriculture - Weed Control / Vegetation Mgmt
- Agriculture - Other
- Animal Control
- Aquaculture
- Biological Control

BRIDGE CONSTRUCTION / MAINTENANCE
- Bridge - Maint / Mod / Replace / Upgrade - Federal
- Bridge - Maint / Mod / Replace / Upgrade - Non Federal
- Bridge - New Construction - Federal
- Bridge - New Construction - Non Federal

COMMUNICATIONS TOWER
- Communications Tower - Co-location
- Communications Tower - Maint / Mod / Replace / Upgrade
- Communications Tower - New Construction

DAM
- Dam - Maint / Mod / Replace / Upgrade - Federal
- Dam - Maint / Mod / Replace / Upgrade - Non Federal
- Dam - New Construction - Federal
- Dam - New Construction - Non Federal
- Dam - Operations - Federal
- Dam - Operations - Non Federal
- Dam - Removal - Federal
- Dam - Removal - Non Federal

Department of Energy Operations

DEVELOPMENT
- Development - Commercial
- Development - Government / Military
- Development - Government / Municipal
- Development - Residential
- Development - Tribal

DREDGE / EXCAVATION
- Dredge / Excavation - Backwaters
- Dredge / Excavation - Borrow Pit
- Dredge / Excavation - Disposal
- Dredge / Excavation - Disposal - Beneficial Use
- Dredge / Excavation - Gravel / Sand
- Dredge / Excavation - Other

Federal Grant / Loan Related

FILL
- Fill - Floodplain
- Fill - Intertidal / Subtidal
- Fill - Lake / Reservoir
- Fill - Stream
- Fill - Wetland

FIRE
- Fire - Burned Area Emergency Rehabilitation (BAER)
- Fire - Control / Suppression
- Fire - Prescribed Burn
- Fire - Wildland Fire Use

FORESTRY
- Forestry - Clearing
- Forestry - Harvest
- Forestry - Pesticide Use
- Forestry - Planting / Silviculture
- Forestry - Timber Sale
- Forestry - Weed Control / Vegetation Management
- Forestry - Wildland Urban Interface (WUI)
- Forestry - Other

Guidance

INVASIVE SPECIES CONTROL
- Invasive Animal Control
- Invasive Plant Control

LAND - ACQUISITION
- Land Acquisition - Agricultural
- Land Acquisition - Forest
- Land Acquisition - Grassland
- Land Acquisition - Upland
- Land Acquisition - Wetland
- Land Acquisition - Other

LAND - CLEARING
- Land Clearing - Agricultural
- Land Clearing - Forest
- Land Clearing - Grassland
- Land Clearing - Upland
- Land Clearing - Wetland
- Land Clearing - Other

LAND - CREATION
- Land Creation - Agriculture
- Land Creation - Forest
- Land Creation - Grassland
- Land Creation - Upland
- Land Creation - Wetland
- Land Creation - Other

LAND - DISPOSAL / TRANSFER
- Land Disposal / Transfer - Agricultural
- Land Disposal / Transfer - Forest
- Land Disposal / Transfer - Grassland
- Land Disposal / Transfer - Upland

. Land Disposal / Transfer - Wetland
. Land Disposal / Transfer - Other
LAND - DRAINAGE
. Land Drainage - Agricultural
. Land Drainage - Forest
. Land Drainage - Grassland
. Land Drainage - Upland
. Land Drainage - Wetland
. Land Drainage - Other
LAND - EASEMENT / RIGHT-OF-WAY
. Land Easement / Right-of-Way - Agricultural
. Land Easement / Right-of-Way - Forest
. Land Easement / Right-of-Way - Grassland
. Land Easement / Right-of-Way - Upland
. Land Easement / Right-of-Way - Wetland
. Land Easement / Right-of-Way - Other
LAND - FLOODING
. Land Flooding - Agricultural
. Land Flooding - Forest
. Land Flooding - Grassland
. Land Flooding - Upland
. Land Flooding - Wetland
. Land Flooding - Other
LAND - MANAGEMENT PLANS
. Land Management Plans - Agricultural
. Land Management Plans - Forest
. Land Management Plans - Grassland
. Land Management Plans - NWR
. Land Management Plans - Upland
. Land Management Plans - Watershed
. Land Management Plans - Wetland
. Land Management Plans - Other
LAND - PRESERVATION
. Land Preservation - Agricultural
. Land Preservation - Forest
. Land Preservation - Grassland
. Land Preservation - Upland
. Land Preservation - Wetland
. Land Preservation - Other
LAND - RESTORATION / ENHANCEMENT
. Land Restoration / Enhancement - Agricultural
. Land Restoration / Enhancement - Forest
. Land Restoration / Enhancement - Grassland
. Land Restoration / Enhancement - Upland
. Land Restoration / Enhancement - Wetland
. Land Restoration / Enhancement - Other
Landfill
MILITARY OPERATIONS / MANEUVERS
. Military - Maneuvers
. Military - Operations
. Military - Unexploded Ordnance Removal
MINING
. Mining - Subsurface
. Mining - Surface
OIL OR GAS
. OIL OR GAS EXPLORATION / PRODUCTION
. OIL OR GAS PIPELINE
POWER GENERATION
. Power Gen - Coal
. Power Gen - Geothermal
. Power Gen - Hydropower
. Power Gen - Natural Gas
. Power Gen - Nuclear
. Power Gen - Solar
. Power Gen - Tidal
. Power Gen - Wave
. Power Gen – Wind
. Power Gen - Other
RECOVERY PERMIT
. Recovery Permit - Non-research - salvage/handling
. Recovery Permit - Non-research - other
. Recovery Permit - Research - collection/handling
. Recovery Permit - Research - other
RECREATION CONSTRUCTION / MAINTENANCE
. Recreation - Maint / Mod / Replace / Upgrade
. Recreation - New Construction
REFINING
. Refining - Biodiesel
. Refining - Ethanol
. Refining - Oil
. Refining - Other - Energy
. Refining - Other - Non Energy
Regulation Promulgation
Remote Video Surveillance
SHORELINE / BEACH PROTECTION / RENOURISHMENT
. Shoreline / Beach Protect - Breakwaters
. Shoreline / Beach Protect - Bulkhead
. Shoreline / Beach Protect - Debris Removal
. Shoreline / Beach Protect - Groins
. Shoreline / Beach Protect - Renourishment
. Shoreline / Beach Protect - Rip-rap
. Shoreline / Beach Protect - Other
SHORELINE USAGE FACILITIES / DEVELOPMENT
. Shoreline Development - Large Scale
. Shoreline Development - Private / Small Scale
SPECIAL USE PERMIT
. Special Use Permit - Recreation Event / Activities
. Special Use Permit - Research
SPILL / RELEASE
. Spill / Release - Oil
. Spill / Release - Oil - Cleanup Operations
. Spill / Release - Chemical
. Spill / Release - Chemical - Cleanup Operations
. Spill / Release - Other
. Spill / Release - Other - Cleanup Operations

STREAM / WATERBODY / CANALS / LEVEES / DIKES
. Levees / Dikes
. Stream Acquisition
. Stream Creation
. Stream Drainage
. Stream Easement / Right-of-Way
. Stream Flooding / Overfill
. Stream Preservation
. Stream Restoration / Enhancement
. Stream/Waterbody - Modification
. Stream/Waterbody - Channel/Diversion Structures
. Waterbody Acquisition
. Waterbody Creation
. Waterbody Drainage
. Waterbody Easement / Right-of-Way
. Waterbody Flooding / Overfill
. Waterbody Preservation
. Waterbody Restoration / Enhancement
Superfund Site Remediation
TRANSMISSION LINE
. Transmission Line - Electrical
. Transmission Line - Telephone
. Transmission Line - Other
TRANSPORTATION
. Transportation - Airport
. Transportation - Railroad
. Transportation - Road / Highway
. Transportation - Shipping
. Transportation – Other
VEGETATION MANAGEMENT
. Veg Management - Fire
. Veg Management - Mechanical
. Veg Management - Pesticide / Chem
. Veg Management – Other
WASTEWATER FACILITY
. Wastewater Facility - Maint / Mod / Replace / Upgrade
. Wastewater Facility - New Construction
. Wastewater Facility - Plant Operations
WASTEWATER PIPELINE
. Wastewater Pipeline - M / M / R / U - Above Ground
. Wastewater Pipeline - M / M / R / U - Below Ground
. Wastewater Pipeline - New Constr - Above Ground
. Wastewater Pipeline - New Constr - Below Ground
WATER QUALITY MODIFICATION
. Water Quality Mod - Stormwater Discharge
. Water Quality Mod - Stormwater Discharge with NPDES Permit
. Water Quality Mod - Wastewater Discharge
WATER SUPPLY / DELIVERY
. Water Supply Facility
. Water Supply Pipeline
Water Withdrawal / Depletion
** OTHER **

5.5. Appendix E: Style Guide

The following style guide is accessibility compliant and has been tested against the ESRI basemap collection to ensure viability. It's not recommended to go beyond 30% transparency for production purposes.

5.5.1. Color

Color	PlanAreas Type	RGB Codes	Hex Code
	Plan Development Phase	253,184,99	#fdb863
	Implementation Phase	230,97,1	#e66101
	Post Permit Phase	178,171,210	#b2abd2
	Inactive	94,60,153	#5e3c99

5.5.2. Symbology

Symbol	PlanAreas Type	Specifications
	Plan Development Phase	Hex Color: #000000 RGB Color: 0,0,0 Width: 2 pts (~ 0.8mm)
	Implementation Phase	Hex Color: #000000 RGB Color: 0,0,0 Width: 2 pts (~ 0.8mm)
	Post Permit Phase	Hex Color: #000000 RGB Color: 0,0,0 Width: 2 pts (~ 0.8mm)
	Inactive	Hex Color: #000000 RGB Color: 0,0,0 Width: 2 pts (~ 0.8mm)
	Centroid Points	Color: Same as PlanAreas Type. Size: 10 pts (~3.5mm) Line Style: Solid Line Color: #000000 Line Size: 1 pt (~0.4mm)