FINAL

LAND HEALTH REPORTING IMPLEMENTATION GUIDELINES

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Version 1.5

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Bureau of Land Management
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Division of Resource Services
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Purpose of Implementation Guidelines

This document describes the physical design for the national data standard for the geospatial dataset. It is intended as a guideline for implementation. States may extend and expand upon this guideline in order to meet their specific needs, provided that when the data is pushed up to the national level, it will meet the minimum requirements as set forth in the Data Standard.

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INTRODUCTION

Data Structures Implemented

The data for inclusion in this data set shall be collected in a known datum and coordinate system. The data stored on the EGIS server in Denver shall be stored in geographic coordinates for national layers using the Bureau standard NAD 83 datum rather than in a specific projection. While the standard datum is NAD 83, there are multiple realizations of that datum in existence. The metadata for each data set shall contain more specific labeling of the datum as appropriate. Examples of this would include: NAD 83 (2007) or NAD 83 (CORS 96) (1997). Every effort should be made to be as specific as possible in delineating the appropriate datum.

	Data Structures Implemented	
	There are eight structures in this implementation. The information for both Land Health Standards and Land Health Fundamentals will exist within the Land Health Reporting dataset.	
A	*lhr_arc*	Represents the arc features that will define the polygons. These arcs will have the feature level metadata attributes shown assigned to them.
B	*lhr_poly*	Represents the polygon features that show the land health reporting areas.
C	*lhr_ln*	Represents the line features for lotic waterbodies for water quality land health and riparian land health reporting lines.
D	*lhr_sig_factors_tbl*	Is a non-spatial table where all significant factors are to be documented. This table is related to both the lhr_poly and lhr_ln feature classes. Polygons and lines that are assigned land health reporting categories 2b, 2c, 2d or 2e require one or more significant factors which will be recorded in this table.
	lhr_ln_sigfactors_rel	Is a relationship class which links the lhr_ln feature class to the lhr_sig_factors_tbl. Information from both the significant factors table and the line feature class can be accessed through the use of this relationship.
	lhr_poly_sigfactors_rel	Is a relationship class which links the lhr_poly feature class to the lhr_sig_factors_tbl. Information from both the significant factors table and the poly feature class can be accessed through the use of this relationship.
E	*lhr_std_id_tbl*	Is a non-spatial table documenting the land health standards along with any pertinent information relating to the effective and end dates for each standard. This table also lists the Fundamental that each standard

		conforms to. The majority of the attributes in this table have been pre-populated for each standard.
F	*lhr_rpt_ctgy_gde*	Is a non-spatial table with general information providing guidance relative to the various reporting categories.

Design Considerations

Background

Land Health Reporting polygons are identified within areas that have been evaluated for land health standards. Typical examples of areas evaluated for land health standards are pastures, allotments, and watersheds. Occasionally, reporting polygons can be a pasture, allotment, or watershed, and therefore be the same as an evaluation area. More often, the reporting polygons are smaller in size than an evaluation area. For example, soil map units are often used as the basis for reporting polygons. Land Health Reporting lines are identified for lotic riparian areas and lotic water bodies within an evaluation area. A land health standard evaluation must be completed in order to identify a reporting category score for all, or part of, the evaluation area. An administrative state has either one set of 3 to 8 land health standards, or an administrative state has two or more Resource Advisory Council (RAC) areas, each with a set of 3 to 5 land health standards. The Land Health Standard Identifier is a concatenated data element consisting of the Administrative State Code; the Land Health Standard Set Number (0 for those states that have one set of standards, 1-5 for those states with more than 1 set of standards); and the Land Health Standard Number (01-08).

Domains

This geodatabase does not include the following shared domains (common to other datasets). These domains are common with other data standards and feature classes, and as such they must be implemented differently than those domains that are specific to the data standard (reference Domain Information section at http://web.blm.gov/data_mgt/std_proc.htm). The domain names are included in the tables, in italic text.

- *DOM_COORD_SOURCE_TYPE*
- *DOM_DEF_FEATURE_TYPE*
- *DOM_ADMIN_ST*
- *DOM_ADM_UNIT_CD*

The following domains are unique to the dataset; therefore, they are associated in the geodatabase and are included in the XML schema. The domain names are included in the tables, in normal text.

- LHR_DOM_RPT_AREA
- LHR_DOM_RPT_LINE
- LHR_DOM_EVAL_TYPE
- LHR_DOM_RPT_CTGY
- LHR_DOM_STD_ID
- LHR_DOM_SIG_FCTR
- LHR_DOM_FNDMTL_NM

General Information About The Geodatabase

This data standard is intended as an interim solution in documenting the achievement or non-achievement of both Land Health Standards and Land Health Fundamentals. It is expected that this standard may evolve to address various needs of, all programs in BLM, the field offices and field personnel, the Bureau stakeholders and the general public.

Appendix A contains links to both the domain values specific to the Land Health data standard, and the feature level metadata domain values. Section 5 and Appendix D of the Land Health Reporting Data Standard Report contains Business Rules, portions of which will also reside as a table in the geodatabase with "GDE" suffix, which may be used to assist with assigning reporting categories to the standards, and in assigning reporting categories to the Fundamentals according to the Standards that conform to each Fundamental. Please refer to the Land Health Reporting Data Standard Report for the Business Rules, the Logical Data Model, and the names and definitions of all logical entities and their attributes.

This version of the data standard is being implemented with three feature classes and one related table. All attributes for both land health standards and land health fundamentals are contained in the same feature class. The majority of offices participating in the pilot of the geodatabase indicated that they use the same polygonal structures (based on a master dataset of Soil Map Units) for evaluating the achievement or non-achievement of all Standards and subsequent Fundamentals. Other offices may find that it is more appropriate to use multiple data sources, or to digitize land health polygons. All offices are encouraged to maintain a polygon data structure that consists of one polygonal layer. This will help to ensure that polygons don't overlap which would result in acreage being double counted. The Land Health Reporting Categories are recorded within the feature attribute table with the Significant Factors recorded in the related table. Significant Factors are required only for those polygons and lines representing areas that are not achieving the Land Health Standard for one of the following four reasons:

1. Public Land Not Achieving – Significant Factor is non-BLM or not BLM authorized (reporting category 2b)
2. Public Land Not Achieving – Current Management or Disturbances Affect Land Health (reporting category 2c)
3. Public Land Not Achieving – Current Management or Disturbances Affect Land Health, But Ways to Achieve Significant Progress Are Unknown (reporting category 2d)

4. Public Land Not Achieving – Current Management or Disturbances Changed – Significant Factors Addressed – To Result in Significant Progress Toward Achieving (reporting category 2e)

One related table is being implemented because any given polygon or line may have zero to many significant factors. Including the significant factors in the feature attribute table would require at least two additional attributes per standard, and these attributes would have to allow "null" values for those standards where a significant factor does not apply. This would unnecessarily increase the size of the database with many records holding a "null" value for those attributes. The related table does not allow "null" values, nor does it restrict the number of significant factors that may be recorded for a polygon or line that is not achieving land health for a particular standard. Additionally, the related table allows all significant factor information to be stored together.

Two relationship classes are being implemented. These relationship classes link the line and polygon feature classes to the table of Significant Factors. The relationships are defined as "simple" where the records in the related table exist independent of the features in the related feature class. This type of relationship is required where more than one feature class is related to only one table. Additionally, both relationships are one-to-many. Any one feature from a related feature class may have from zero to many records in the significant factors table. Should a geographic feature be modified or removed from the feature class, the corresponding records in the significant factors table must be modified or deleted manually.

One non-spatial table that is not related to a feature class is being implemented with the geodatabase. This table has pre-populated records that provide information on the 78 Standards for Land Health that are to be reported on within the geodatabase. The effective or end date should be populated by the office with jurisdiction should any new standards be established, or an existing standard retired. This table also contains information on the Fundamental that each Standard conforms to, and whether the Fundamental has one conforming Standard, or multiple conforming Standards.

One guidance table is being included with the geodatabase. This table provides supplemental information which may be useful when assigning a reporting category to a land area polygon or lotic riparian area or lotic waterbody. The data standard report contains detailed information that should be referenced for comprehensive information relative to evaluating land health.

Implementing The Geodatabase That Is Specific To Your Set Of Land Health Standards

Eighteen geodatabases are being distributed, one for each Administrative State or Resource Advisory Council (RAC). Each has a set of 3 to 8 standards, and each geodatabase will be specific to one of these sets. The GIS user will have to ensure that they have downloaded the appropriate geodatabase for their administrative state or RAC as the land health standards are not the same for all BLM lands. For example, Standard 3 for Alaska pertains to "Ecological Processes", Standard 3 for Idaho is "Stream Channel/Floodplain" and Standard 3 for Utah is "Desired Species".

If a specific standard can apply to both land areas and waterbodies, then it will be included in both the polygon and line feature

classes. If this standard is not evaluated for both land areas and waterbodies within your jurisdiction, then assign either "Category 3: Public Land Where Standard Does not Apply" or "Category 4: Public Land Not Evaluated" to the attribute that represents the standard within that feature class that was not evaluated for your jurisdiction. Do not delete the attribute. For example, a riparian standard may only be evaluated for line features within a field office because there are no waterbodies that would be represented as a polygon. However, other field offices have both lines and polygons that will be evaluated for the riparian standard. If the attribute is deleted from the polygon feature class for the first field office, then the schemas won't match which may create issues when consolidating these data into a larger dataset.

The following applies to the attribute tables for both line and polygon feature classes for all of the geodatabases:

- Fundamentals: The five Fundamentals of Land Health are listed in the tables first. These attributes will remain the same across any of the specific implementations for each administrative state or RAC. The aliases for the attributes representing the Fundamentals are based on the code which represents a short name for the Land Health Fundamentals as identified in 43 CFR §4180.1. The logical attribute for these is "Land Health Fundamental Name" with its values outlined in the domain table LHS_DOM_FNDMTL_NM. This table may be found in "Appendix A: Domain Values" within this document.
- Standards: The attribute names listed in the tables below will be replaced with the LHR_STD_ID corresponding to each specific Standard. Only those standards that conform to a fundamental are included in the geodatabase. The LHR_STD_ID values are outlined in the domain table LHR_DOM_STD_ID, which may be found in "Appendix A: Domain Values" within this document. The alias will be replaced with an abbreviated name for the Standard. The examples below demonstrate how the attributes will be named and aliased.
  1. For the Administrative state of Oregon, the listed table attribute STD1_CTGY will be replaced with OR001_CTGY and the alias "Standard1 Reporting Category" will be replaced with "Uplands Std Category".
  2. For the Mojave-Southern Great Basin Resource Advisory Council in Nevada, the listed table attribute STD2_CTGY will be replaced with NV102_CTGY and the alias "Standard2 Reporting Category" will be replaced with "Ecosystem Std Category"
  3. For the Administrative state of Idaho, the listed table attribute STD2_CTGY will be replaced with ID002_CTGY and the alias "Standard2 Reporting Category" will be replaced with "Riparian/Wetland Std Category"

The FGDC metadata for the dataset should include a reference to any data that was converted into this data standard from earlier land health evaluations (please see Business Rule #7 in the Land Health Reporting Data Standard Report). The reference should include information on when and how the conversion was conducted. For example, areas that were previously assigned "Category D: Rangelands not meeting all standards or making significant progress toward meeting the standards due to causes other than livestock grazing" may have a new assignment of "Category 2a: Public Land Not Achieving - Significant Factor is Undetermined". The metadata for the dataset needs to document the old assignment and the new assignment, and whether the conversion was uniformly applied across the entire dataset. Otherwise, please include some language addressing the different areas and how these area assignments were converted from the old reporting category to the new reporting category.

Cross-Walking The Reporting Categories From The Standards To The Fundamentals

A fundamental may be derived from one or more land health standards, and a land health standard can be applied to one or more of the five land health fundamentals. Therefore, a common methodology should be used in cross-walking the reporting categories from the standards to the fundamentals. This methodology should be documented in the FGDC metadata for the dataset. Please refer to the Land Health Reporting Data Standard Report (Business Rule #3) for a detailed accounting on how to assign a Fundamental Land Health reporting category where two or more standards conform to that Fundamental.

Annual Reporting of Land Health Achievement

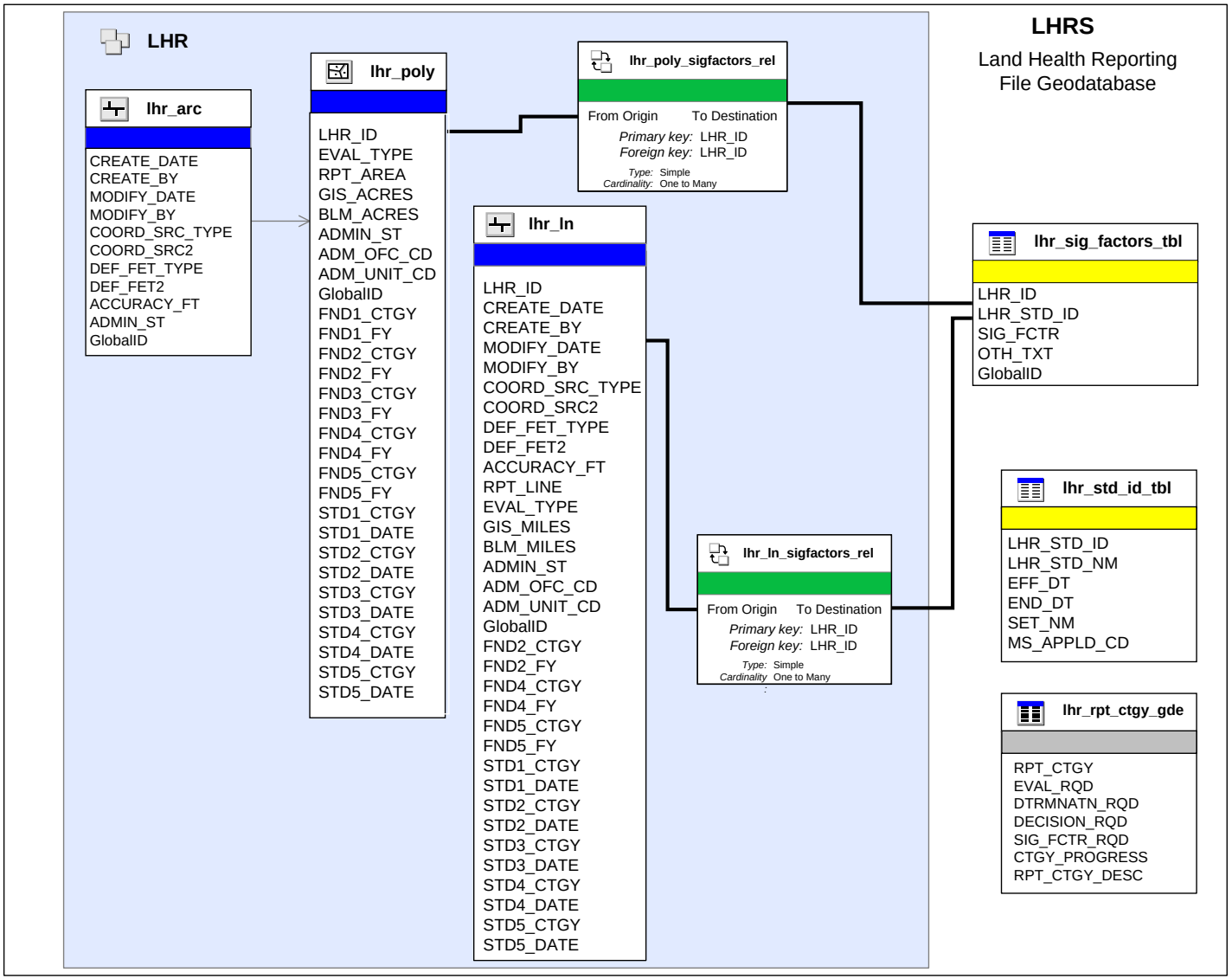
Annual reporting requires that the Fundamentals be reported upon across all BLM lands. This annual report indicates what percent of BLM land, at the administrative state level, falls within each of the nine reporting categories for each of the specific Fundamentals of Land Health. Therefore, reporting information in support of national reports should include numeric information on the total BLM acreage and miles that have been evaluated to date, and the acreage/miles by reporting category, for each Fundamental. Annual reporting also requires that the Land Health Standards be reported upon individually, by evaluation area, and by District Office. Please refer to Business Rule #4 in the Land Health Reporting Data Standard Report for the equations to be used in support of annual reporting.

Publication Vs. Edit Datasets

Publication dataset: national dataset showing the percent of BLM acreage and/or miles that is achieving or non-achieving each Fundamental. It is envisioned that this will be a thematic map with polygons that depict the percent of BLM land that falls within one of the reporting categories (regardless of significant causal factors.) The publication dataset will be a derived product based on the edit dataset and the annual tabular reporting data. Additionally, the publication dataset will be hosted on the BLM external data server.

Edit dataset: sub-national datasets that will be maintained by administrative state, district, and field offices. The edit datasets will be developed and maintained to support both national level land health reporting; and local level requirements for reporting, trend analysis or other uses. Any required reporting on the Standards will be based on the edit dataset. This dataset should contain the detailed polygons and attribute information detailed in this guide.

Physical Database Diagram



Topology

Geodatabase and map topologies will be established to relate the active feature classes together, to maintain feature geometry, and to aid in the editing of features. The implementation of this data standard requires that polygons be defined by bounding arcs. Therefore, a minimum set of geodatabase topology rules are defined as part of the geodatabase to verify the coincidence between these two feature classes.

Map topology shall be established during edit sessions. Edits to the polygon shape will be performed by modifying the bounding arc. (Historical or archived polygons will not be edited once they become inactive). For additional information, refer to the best practices document located at http://web.blm.gov/data_mgt/std_proc.htm. *It is recommended that these tools be used and implemented to improve data quality and integrity.*

Geodatabase Topology Rules

The following are the minimum that should be implemented. Additional topology rules may be added depending on data requirements for each office. Topology rules that are not applicable to this standard are not included in the table below.

Topology Rule	**Required?**
lhr_arc **Must Not Overlap** Arc features that represent the boundaries of the Land Health Standard reporting areas should not overlap. This topology rule will highlight different lines that occupy the same space.	Yes
lhr_arc **Must Be Covered By Boundary of** *lhr_poly* Arc features that represent the boundaries of the Land Health Standard reporting areas must be coincident with the boundaries of the polygon features. This topology rule will highlight any gaps in the bounding arcs.	Yes
lhr_arc **Must Not Self-Overlap** Arc features that represent the boundaries of the Land Health Standard reporting areas should not overlap with themselves. This topology rule will highlight different segments of the same line that occupy the same space.	Yes
lhr_poly **Boundary Must Be Covered By** *lhr_arc* The boundaries of the polygon features that represent the Land Health Standard reporting areas must be coincident with the bounding arcs. This topology rule will highlight any polygons that are either not closed, or not covered with a bounding arc.	Yes

lhr_poly **Must Not Overlap** Polygons within a Land Health Standard feature class must not overlap. This topology rule will highlight any polygons that occupy the same area. This will prevent double reporting of acres that would result from overlapping polygons.	Yes
lhr_poly **Must Not Have Gaps** Polygons within a Land Health Standard feature class must not have gaps between them. This topology rule will highlight any area not covered by a polygon. This will prevent acreage not being reported as a result of gaps between polygon boundaries.	Yes
lhr_ln **Must Not Overlap** Line features representing a lotic riparian area or lotic waterbody should not overlap. This topology rule will highlight different lines that occupy the same space. This will prevent double reporting of miles that would result from overlapping lines.	Yes
lhr_ln **Must Not Intersect** Line features representing a lotic riparian area or lotic waterbody should not intersect. This topology rule will highlight different lines that cross each other.	Yes
lhr_ln **Must Not Self-Overlap** Lotic riparian areas and lotic waterbodies do not overlap themselves on the ground. This topology rule will highlight different segments of the same line that occupy the same space. This rule will prevent double reporting of miles that would result from self-overlapping lines.	Yes
lhr_ln **Must Not Self-Intersect** Lotic waterbodies sometimes have wide meanders that get cut off from the mainstem of the waterbody, creating oxbow lakes. In the process of becoming detached, there is a time period where the waterbody intersects itself, and water flow occurs in the meander and the mainstem at the same time. There is a segment of the waterbody that represents the intersection of the waterbody upon itself. This topology rule will highlight different segments of the same line that intersect or cross themselves. This rule will prevent reporting of miles that would result from self-intersecting lines.	Yes

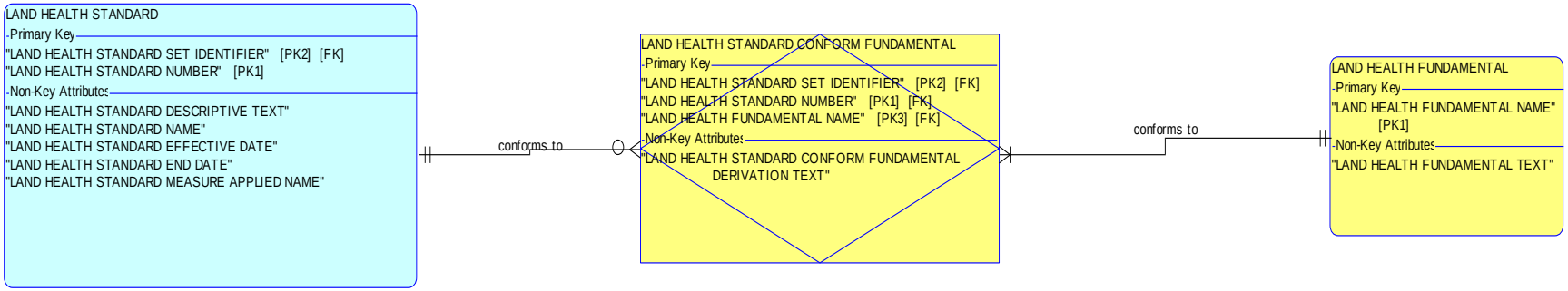
lhr_arc **Must Not Have Dangles** This topology rule is not required. This rule may be helpful where the polygons are derived from the bounding arcs. Eliminating any dangles before creating polygons will prevent any polygons that are not closed.	No
Other Topological Relationships	
For reporting purposes, Reporting Area polygon boundaries should be coincident with Evaluation Area boundaries where applicable. The reporting area boundary should be clipped at evaluation area boundaries when reporting area polygons cross evaluation boundaries. Likewise, reporting lines should be clipped at evaluation area boundaries when reporting area lines cross evaluation area boundaries.	

Relational Data Structures

In a relational database (RDB), tables are linked to each other through relationships. A Primary Key (PK), a single column or a group of several columns, is used to uniquely identify each row in a table. Once defined, no two rows in the table may contain the exact same values in the PK. When two tables are related, there is a parent/child relationship, where the primary key (PK) of one table, the parent, is a column (known as foreign key, FK) in the other, child table. The FK in the child table is how one can access the row(s) in the child table that are related to the PK row in the parent table.

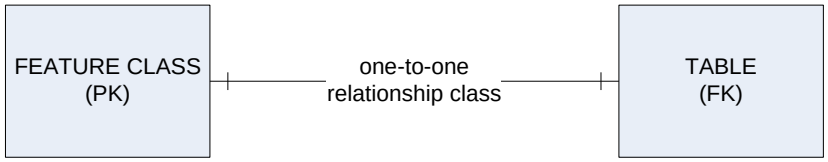
In the RDB, relationships can be mandatory or optional. If mandatory, there must always be a row in the child table with a FK that relates back to the parent table's PK. If optional, a child row does not need to exist. If the child row has a FK (parent), the child row cannot be deleted until the parent row is deleted (referential integrity).

In the RDB, the parent table can have a maximum of one child or many children. If a row in the parent table has many children, the PK for the parent can be a FK in more than 1 row in the child table. When there is a many to many relationship between 2 tables in a RDB, it can be resolved by a third, associative table. The associative table is a child of the 2 original parents and has 2 FKs, the PK from each of the 2 original entities.

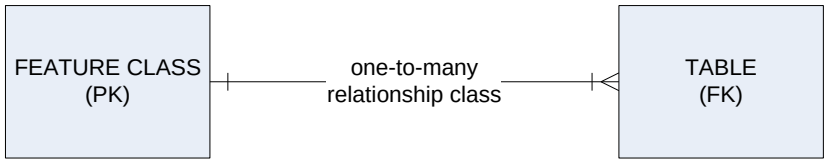


Many to Many Relationship, Resolved by Associative Table

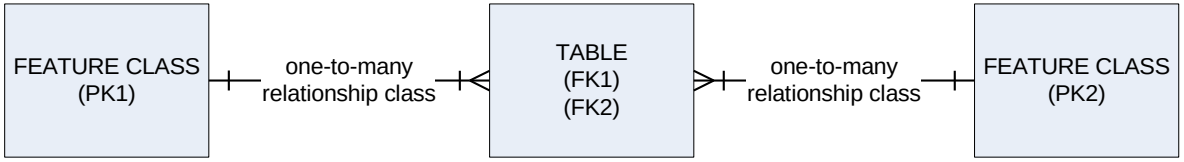
The ESRI solution to relationships is the relationship class. A relationship class associates geodatabase elements such as feature classes and tables to each other. For example, a non-spatial table may store information about the spatial objects in a feature class. The relationship class links the feature class and the table to each other, and allows for the selection of records from the table based on a query performed against the feature class. Likewise, the features may be selected through the relationship class according to the records that are selected in the related table. Relationship classes may be one-to-one, one-to-many, or many-to-many. Relationship classes may also be defined as "simple," where the elements participating in the relationship exist independent of each other; or "composite," where an element in the destination (child) is dependent upon the existence of its related origin (parent). The diagram below illustrates the basic concepts behind the relationship classes.



ONE-TO-ONE RELATE



ONE-TO-MANY RELATE

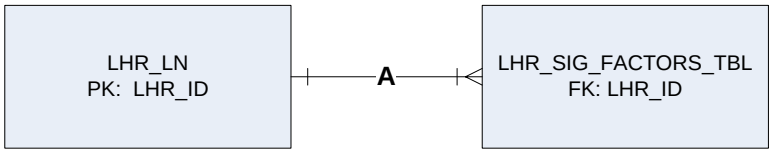


RESOLVES MANY-TO-MANY RELATE

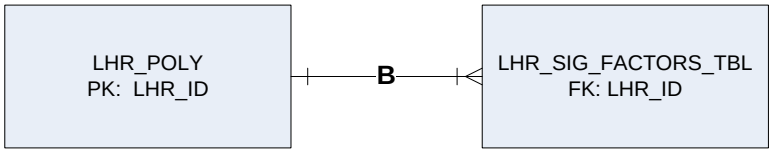
Relationship Classes for this Data Standard

The implementation of the geodatabase supporting this data standard includes two one-to-many simple relationship classes. One feature from either the polygon feature class or the line feature class may be related to one or more records in the related table that documents the significant factors. The records in the related table exist independent of the features in either feature class. Therefore, the records in the related table must be edited independently from the feature classes that participate in the relationship. The following lists the relationship classes and provides a brief description of each:

A. lhr_ln_sigfactors_rel: one-to-many relationship class linking each applicable feature in *lhr_ln* to a record in *lhr_sig_factors_tbl*, where the data are recorded. Only those line features representing lotic riparian areas or lotic waterbodies that are non-achieving with a reporting category of 2b, 2c, 2d, or 2e should have corresponding records documenting the significant factors in the related table.



B. lhr_poly_sigfactors_rel: one-to-many relationship class linking each applicable feature in *lhr_poly* to a record in *lhr_sig_factors_tbl*, where the data are recorded. Only those polygon features representing areas that are non-achieving with a reporting category of 2b, 2c, 2d, or 2e should have corresponding records documenting the significant factors in the related table.



Data Guidelines

Implementation of the data standards will occur at those organizational levels of the Bureau as appropriate. The standards are intended to be platform-independent.

There are some attributes that are intended to eventually become system generated when a system or application is developed to manage this dataset. At the present time there is no specific application for maintaining this data layer and therefore those attributes will currently need to be manually edited.

The attributes included in this implementation are those that have been established for the national data standard and cannot be modified except through the Data Standards Maintenance process. If additional attributes or domain values are desired by individual states/offices, create a new attribute and populate with a new attribute domain assignment. Metadata for the additional attributes must be documented by that office.

The format for entering the date in the geodatabase (GDB) will be MM/DD/YYYY. The ESRI software displays the date field according to how dates are formatted for display on the computer. The FGDC-compliant format for the date field is YYYYMMDD. There are two methods in which the FGDC format could be used for storing the date. The date format on the computer can be reset which may introduce unintended consequences within other programs, or the date field could be defined as a text field which would leave ample room for errors being introduced to the data. Although the National Data Standards are intended to be platform-independent, the ESRI GDB format is the current platform implemented throughout the BLM.

The Administrative State, District and Field Office codes were part of a three tier identification system, which has been replaced by the ten-character DOI FPPS Organization Code. For BLM national data standards, we will be using only the last eight characters of the FBMS organization code (the two-character BLM Administrative State Code and the six-character Administrative Office Code). While using these

codes in combination can contribute to the creation of a unique identifier, they are also listed as separate attributes so that if the codes change at a single level, the concatenated code can then be regenerated. However, if the 8 character code is used as part of a unique identifier, the unique identifier is not re-generated if the organization code changes.

To populate the field for the Administrative Unit Code attribute in the geodatabase (ADM_UNIT_CD), individual offices should download the Access database containing the common domains at the following website: http://web.blm.gov/data_mgt/std_proc.htm. Click on the link for "Shared Domain Values (Access DB)" to download the Access database. The field should be populated with the office code for the lowest level of the organization that has jurisdiction.

Review Cycle

New information for this dataset will be added each year, based on the number of land health standard evaluations conducted that year. The Land Health Reporting data that were created or modified during the fiscal year should be reviewed for completeness and correctness, with any necessary changes made to the metadata annually, at a minimum. This review should occur prior to any annual records retention or national level data update activities. The data standard itself will be reviewed annually or at the time of request by the users through the data steward.

National Dataset Update Cycle

The national level data for the Land Health Reporting standard should be updated on the NOC EGIS server annually in cycle with the records retention activities, at a minimum. State and local offices may perform a refresh of their data more frequently, at their discretion. This update shall occur through a process to be determined in coordination with the National Data Steward. A minimum FGDC metadata record shall be maintained for the national level data, with links to state metadata resources.

Records Retention

The entire geodatabase for Land Health Reporting will be archived on an annual basis, by October 15, for the previous fiscal year.
Note: Records issues will be handled according to official policy for Records Management.

DATA STANDARD IMPLEMENTATION DETAILS

A. Land Health Reporting (Polygon) Arcs (lhr_arc)

The arc features used to define the polygons are described in the following table. These attributes serve to store the feature level metadata information for the polygon boundaries. The last five attributes document the origin and characteristics of each arc.

This feature class and all of the attributes within this feature class are uniform across all of the eighteen geodatabases comprising the physical implementation of the data standard within the ESRI GIS environment.

Land Health Reporting (Polygon) Arcs Attributes

GIS NAME	ALIAS	DATA FORMAT	REQUIRED?	DEFAULT VALUE	DOMAIN NAME	DE-RIVED?
CREATE_DATE	Created Date	Date	YES	9/9/9999		No
CREATE_BY	Created By Name	Char(30)	YES	UNK		No
MODIFY_DATE	Modified Date	Date	YES	9/9/9999		No
MODIFY_BY	Modified By Name	Char(30)	YES	UNK		No
COORD_SRC_TYPE	Coordinate Source Type Code	Char(5)	YES	UNK	*DOM_COORD_SOURCE_TYPE*	No
COORD_SRC2	Coordinate Source Code	Char(25)	NO			No
DEF_FET_TYPE	Defining Feature Type Code	Char(15)	YES	UNK	*DOM_DEF_FEATURE_TYPE*	No
DEF_FET2	Defining Feature Code	Char(30)	NO			No
ACCURACY_FT	Accuracy Measure In Feet	Long Integer	YES	-1		No
ADMIN_ST	Administrative State Code	Char(2)	YES		*DOM_ADMIN_ST*	No
GlobalID	GlobalID	UUID	YES			No

GIS Name	Logical Name	Definition
CREATE_ DATE	Location Effective Date	**Logical Definition**: The date which is the calendar year, month, and day when the position of the Location was produced. **Design Considerations:** As a new feature is added to the system its creation date will be collected and maintained. The date will be in the format of MM/DD/YYYY. Default: 9/9/9999
CREATE_ BY	Not applicable	**Logical Definition**: Not on the logical model. **Design Considerations:** The UserID (BLM login ID) of the person who created or imported the data into the BLM GIS system. This attribute will be deleted before providing the data to the public. Default: UNK
MODIFY_ DATE	Location Modified Date	**Logical Definition**: The date which is the calendar year, month, and day when the position of the Location was last modified. **Design Considerations:** As a feature is edited or modified while in the system its modification date will be collected and maintained. The date will be in the format of MM/DD/YYYY. Default: 9/9/9999
MODIFY_BY	Not applicable	**Logical Definition**: Not on the logical model. **Design Considerations:** The UserID (BLM login ID) of the person who edited or modified data in the BLM GIS system will be collected and maintained. This attribute will be deleted before providing the data to the public. Default: UNK

GIS Name	Logical Name	Definition
COORD_ SRC_TYPE	Location Source Type Name	**Logical Definition** The name that identifies the general category for the origin of the location coordinate, representing a compilation of the state adopted source codes. The domain contains those values that would most likely be used in the determination of source codes for the data set. **Design Considerations:** Attribute Domain Assignment: *DOM_COORD_SOURCE_TYPE* Default: UNK
COORD_ SRC2	Location Source Description Specific Name	**Logical Definition**: The name that identifies a more specific description of the location (coordinate source). **Design Considerations:** Suggested values for codes appear in the domains appendix. The user may leave this value "null", choose one of the suggested codes, or enter another value appropriate to the data. This domain is not intended to be all inclusive but may be used as a starting point for state-level lists of domain values. This list is not intended to be a substitute for the accuracy values that are found in the 'Accuracy Measurement Table'. This is an optional attribute.
DEF_FET_ TYPE	Defining Feature Type Name	**Logical Definition**: The name that identifies the high-level category for the actual physical or mapping characteristics (features) from which the arcs are derived. **Design Considerations:** Attribute Domain Assignment: *DOM_DEF_FEATURE_TYPE* Default: UNK
DEF_FET2	Defining Feature Description Name	**Logical Definition**: The name that identifies a more specific description of the feature from which the arcs are derived to create polygon boundaries. This information further describes the physical or mapping feature that makes up the polygon boundary. **Design Considerations:** Suggested code values appear in the domains appendix. The user may leave this value "null", choose one of the suggested codes, or enter another value appropriate to the data. . This domain is not intended to be all inclusive but may be used as a starting point for state-level lists of domain values. This is an optional attribute.

<table>
<tr><th>GIS Name</th><th>Logical Name</th><th>Definition</th></tr>
<tr><td>ACCURACY_FT</td><td>Line Form Accuracy Measure</td><td>
Logical Definition: The measure that describes how close, in Line Form UOM Type Name the actual location is to the spatial depiction.

Design Considerations: The Accuracy Measurement defines how close, in feet, the actual ground location is to the spatial depiction in GIS. This value would typically be determined by one of three methods: 1) the map accuracy value, if a USGS map was used to define the boundary; 2) the expected spatial accuracy achieved with GPS; or 3) the measurement of that accuracy as is noted in the National Standard for Spatial Data Accuracy (NSSDA)[1] which is a data usability standard issued by the Federal Geographic Data Committee (FGDC).

Default: -1

A value of -1 indicates that the accuracy is unknown or that no reliable estimate can be made. Below is an example table of accuracy measurements. (Attempting to list all values in a domain table would produce an infinite list.)
<table>
<tr><th colspan="2">Accuracy Measurement Example Table</th></tr>
<tr><td>1</td><td>+/- 1 Feet</td></tr>
<tr><td>10</td><td>+/- 10 Feet</td></tr>
<tr><td>15</td><td>+/- 15 Feet</td></tr>
<tr><td>20</td><td>+/- 20 Feet</td></tr>
<tr><td>100</td><td>+/- 100 Feet</td></tr>
</table>
1 Federal Geographic Data Committee. 1998. Geospatial Positioning Accuracy Standards Part 3: National Standard for Spatial Data Accuracy, FGDC-STD-007.3-1998
</td></tr>
</table>

GIS Name	Logical Name	Definition
ADMIN_ST	State Alphabetic Code	**Logical Definition**: An administrative unit that identifies the state or geographic area which has administrative jurisdiction over lands and cases. The land for a case may or may not be physically located in the associated administrative state. Only those states that are BLM administrative states are in the domain for this entity. Example: Montana is the Administrative State for public lands in the geographic states of Montana, North Dakota and South Dakota. **Design Considerations:** Two letter, upper case abbreviation for the administrative state office. The current list of values is: AK, AZ, CA, CO, ES, ID, MT, NM, NV, OR, UT, and WY (with a default value of "XX" for "unknown"). In the FBMS Organization Codes, use the second two characters (after the LL) (e.g. LL**AK**030900) Attribute Domain Assignment: *DOM_ADMIN_ST* **Note:** This attribute is used for purposes of replication
GlobalID	Not Applicable	**Logical Definition**: Not on the logical model. **Design Considerations:** Software generated value used to derive the Unique Identifier LHR_RPT_ID. A field of type UUID (Universal Unique Identifier) in which values are automatically assigned by the geodatabase when a row is created. This field is not editable and is automatically populated when it is added for existing data. Note: This attribute is not used within this table as part of a unique identifier. The ESRI software creates a GlobalID attribute for every feature class within a feature data set.

B. Land Health Reporting Polygons (lhr_poly)

The land health reporting polygon features are defined in the following table. Overlapping polygons are not allowed within this feature class; this will ensure that acreage is not counted twice. Domain values are used when appropriate. These polygon features are to be used in reporting achievement and non-achievement status for the Land Health Fundamentals and their associated Standards. The five Fundamentals are the same throughout the BLM system; the Standards vary according to the Administrative State or RAC. Please ensure that you are populating the correct geodatabase for your specific Administrative State or RAC.

This feature class and several of the attributes within this feature class vary across the eighteen geodatabases comprising the physical implementation of the data standard within the ESRI GIS environment. Please refer to "Guidelines For Implementing The Geodatabase That Is Specific To Your Set Of Land Health Standards" within the Design Considerations Section for additional information. This is in the "Introduction – Data Structures Implemented" section. Additionally, please review the Business Rules which are detailed in the Land Health Reporting Data Standard Report.

Land Health Reporting Polygon Attributes

GIS NAME	ALIAS	DATA FORMAT	REQUIRED?	DEFAULT VALUE	DOMAIN NAME	DE-RIVED?
LHR_ID	LHR Unique ID	Char (50)	YES			Yes
RPT_AREA	Reporting Area Type	Char(10)	YES	New	LHR_DOM_RPT_AREA	No
EVAL_TYPE	Evaluation Area Type	Char(20)	YES	Allotment	LHR_DOM_EVAL_TYPE	No
GIS_ACRES	GIS Acres	Double(16.6)	YES	0		Yes
BLM_ACRES	BLM Acres	Double(16.6)	YES	0		No
FND1_CTGY	Upland Fndmtl Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	Yes
FND1_FY	FY Upland Fndmtl Reported	Short Integer	YES	9999		Yes
FND2_CTGY	Riparian Fndmtl Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	Yes
FND2_FY	FY Riparian Fndmtl Reported	Short Integer	YES	9999		Yes
FND3_CTGY	Ecological Fndmtl Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	Yes
FND3_FY	FY Ecological Fndmtl Reported	Short Integer	YES	9999		Yes

Land Health Reporting Polygon Attributes						
GIS NAME	ALIAS	DATA FORMAT	REQUIRED?	DEFAULT VALUE	DOMAIN NAME	DE-RIVED?
FND4_CTGY	Water Fndmtl Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	Yes
FND4_FY	FY Water Fndmtl Reported	Short Integer	YES	9999		Yes
FND5_CTGY	Habitat Fndmtl Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	Yes
FND5_FY	FY Habitat Fndmtl Reported	Short Integer	YES	9999		Yes
STD1_CTGY	Standard1 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD1_DATE	STD1 Evaluation Date	Date	YES	09/09/9999		No
STD2_CTGY	Standard2 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD2_DATE	STD2 Evaluation Date	Date	YES	09/09/9999		No
STD3_CTGY	Standard3 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD3_DATE	STD3 Evaluation Date	Date	YES	09/09/9999		No
STD4_CTGY	Standard4 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD4_DATE	STD4 Evaluation Date	Date	YES	09/09/9999		No
STD5_CTGY	Standard5 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD5_DATE	STD5 Evaluation Date	Date	YES	09/09/9999		No
STD6_CTGY	Standard6 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD6_DATE	STD6 Evaluation Date	Date	YES	09/09/9999		No
STD7_CTGY	Standard7 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD7_DATE	STD7 Evaluation Date	Date	YES	09/09/9999		No
STD8_CTGY	Standard8 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD8_DATE	STD8 Evaluation Date	Date	YES	09/09/9999		No
ADMIN_ST	Administrative State Code	Char(2)	YES		*DOM_ADMIN_ST*	No

Land Health Reporting Polygon Attributes						
GIS NAME	ALIAS	DATA FORMAT	REQUIRED?	DEFAULT VALUE	DOMAIN NAME	DE-RIVED?
ADM_OFC_CD	Administrative Office Code	Char(6)	YES			No
ADM_UNIT_CD	Administrative Unit Code	Char(8)	YES		*DOM_ADM_UNIT_CD*	No
GlobalID	GlobalID	Char(36)	YES			Yes

GIS Name	Logical Name	Definition
LHR_ID	Land Health Location Area Identifier	**Logical Definition**: The designed primary key that will uniquely identify a single occurrence of the entity. Entity: Land Health Location Area: The specific polygon and its acres, or specific line and its miles, that are assigned a land health reporting category **Design Considerations:** The unique identifier for the Land Health Reporting Polygon or Line feature. This primary key is a concatenation of: ▪ ADMIN_ST, the Administrative State Code (2 characters) ▪ ADM_OFC_CD, the Administrative Office Code (6 characters) ▪ Global ID (36 alpha-numeric characters) The value for this field can be obtained using the Field Calculator in ArcMap: [LHR_ID] = [ADMIN_ST] + [ADM_OFC_CD] + [GlobalID]
RPT_AREA	Not Applicable	**Logical Definition**: Not on the logical model. Entity: Land Health Location Area: The specific polygon and its acres, or specific line and its miles, that are assigned a land health reporting category **Design Considerations:** A code that represents the type of existing or new polygon that is assigned a specific reporting category. The reporting area falls within the evaluation area. Attribute Domain Assignment: LHR_DOM_RPT_AREA Default: New

GIS Name	Logical Name	Definition
EVAL_TYPE	Land Health Evaluation Area Type Name	**Logical Definition**: The name of the type of area that was evaluated for a set of land health standards. **Design Considerations:** A land health evaluation area is the complete location being evaluated for a set of land health standards, which is typically an allotment, pasture or watershed. During the evaluation, it may be found that different parts of the evaluation area can be assigned different reporting categories. Each of these smaller polygons or line features are assigned their own reporting category. Attribute Domain Assignment: LHR_DOM_EVAL_TYPE Default: Allotment
GIS_ACRES	Polygon Form Area Measure	**Logical Definition**: The area of the polygon described in the Polygon Form UOM Type Name. **Design Considerations:** The entire acreage of the polygon. Default: 0 This is a calculated value of area, in units of acres, based on the area field created by default within the ESRI Polygon data structure. For the purposes of a 'national data layer', the data are to be stored in geographic coordinates which do not correspond to ground values. This requires that there be a standard method for calculating this attribute. The method used for these data are as follows. The data are projected into a standard projection such as the ESRI default Albers projection for the continental United States, "US Albers NAD 1983." Once the data are projected, then a calculation of "SHAPE_Area (square meters) * 0.0002471044 = acres" is applied to the existing 'area' field that is default area created by the ESRI software resulting in the field (Attribute) 'SHAPE_Area'. Please note that the figure used in this calculation is the factor for converting the US Survey Foot value from the length of a meter, as opposed to the International Standard for converting meters and feet.
BLM_ACRES	Not Applicable	**Logical Definition**: Not on the logical model. **Design Considerations:** The acres within the polygon that are under BLM jurisdiction. Default: 0

GIS Name	Logical Name	Definition
FND1_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the *Watershed Function Uplands* Land Health Fundamental for the reporting area or line represented in the GIS . There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Fundamental, whether the area does not apply to the Fundamental, or for whether the area has not been evaluated for land health. This is either derived or manually entered by the user. If there is only one land health Standard that conforms to a Fundamental, then the FND(n)_CTGY will be the same as the Land Health Standard Reporting Category and Subcategory. If there are two or more Land Health Standards that conform to a Fundamental, then the FND(n)_CTGY will be derived based on the values of the Standards. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
FND1_FY	Not Applicable	**Logical Definition**: Not in the logical model. **Design Considerations:** The 4-digit fiscal year that the reporting category for the *Watershed Function Uplands* Land Health Fundamental was assigned. This should be derived from Land Health Reporting Assignment Date in which a reporting category was assigned to the corresponding Land Health Standard. If there are multiple Standards that roll into one Fundamental, use the most recent standard date when determining the fiscal year for the Fundamental. Default: 9999

GIS Name	Logical Name	Definition
FND2_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the *Watershed Function Riparian* Land Health Fundamental for the reporting area or line represented in the GIS . There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Fundamental, whether the area does not apply to the Fundamental, or for whether the area has not been evaluated for land health. This is either derived or manually entered by the user. If there is only one land health Standard that conforms to a Fundamental, then the FND(n)_CTGY will be the same as the Land Health Standard Reporting Category and Subcategory. If there are two or more Land Health Standards that conform to a Fundamental, then the FND(n)_CTGY will be derived based on the values of the Standards. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
FND2_FY	Not Applicable	**Logical Definition**: Not in the logical model. **Design Considerations:** The 4-digit fiscal year that the reporting category for the *Watershed Function Riparian* Land Health Fundamental was assigned. This should be derived from Land Health Reporting Assignment Date in which a reporting category was assigned to the corresponding Land Health Standard. If there are multiple Standards that roll into one Fundamental, use the most recent standard date when determining the fiscal year for the Fundamental. Default: 9999

GIS Name	Logical Name	Definition
FND3_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the *Ecological Processes* Land Health Fundamental for the reporting area or line represented in the GIS . There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Fundamental, whether the area does not apply to the Fundamental, or for whether the area has not been evaluated for land health. This is either derived or manually entered by the user. If there is only one land health Standard that conforms to a Fundamental, then the FND(n)_CTGY will be the same as the Land Health Standard Reporting Category and Subcategory. If there are two or more Land Health Standards that conform to a Fundamental, then the FND(n)_CTGY will be derived based on the values of the Standards. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
FND3_FY	Not Applicable	**Logical Definition**: Not in the logical model. **Design Considerations:** The 4-digit fiscal year that the reporting category for the *Ecological Processes* Land Health Fundamental was assigned. This should be derived from Land Health Reporting Assignment Date in which a reporting category was assigned to the corresponding Land Health Standard. If there are multiple Standards that roll into one Fundamental, use the most recent standard date when determining the fiscal year for the Fundamental. Default: 9999

GIS Name	Logical Name	Definition
FND4_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the *Water Quality* Land Health Fundamental for the reporting area or line represented in the GIS . There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Fundamental, whether the area does not apply to the Fundamental, or for whether the area has not been evaluated for land health. This is either derived or manually entered by the user. If there is only one land health Standard that conforms to a Fundamental, then the FND(n)_CTGY will be the same as the Land Health Standard Reporting Category and Subcategory. If there are two or more Land Health Standards that conform to a Fundamental, then the FND(n)_CTGY will be derived based on the values of the Standards. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
FND4_FY	Not Applicable	**Logical Definition:** Not in the logical model. **Design Considerations:** The 4-digit fiscal year that the reporting category for the *Water Quality* Land Health Fundamental was assigned. This should be derived from Land Health Reporting Assignment Date in which a reporting category was assigned to the corresponding Land Health Standard. If there are multiple Standards that roll into one Fundamental, use the most recent standard date when determining the fiscal year for the Fundamental. Default: 9999

GIS Name	Logical Name	Definition
FND5_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the *Habitat Quality for Threatened and Endangered and Special Status Species* Land Health Fundamental for the reporting area or line represented in the GIS . There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Fundamental, whether the area does not apply to the Fundamental, or for whether the area has not been evaluated for land health. This is either derived or manually entered by the user. If there is only one land health Standard that conforms to a Fundamental, then the FND(n)_CTGY will be the same as the Land Health Standard Reporting Category and Subcategory. If there are two or more Land Health Standards that conform to a Fundamental, then the FND(n)_CTGY will be derived based on the values of the Standards. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
FND5_FY	Not Applicable	**Logical Definition:** Not in the logical model. **Design Considerations:** The 4-digit fiscal year that the reporting category for the *Habitat Quality for Threatened and Endangered and Special Status Species* Land Health Fundamental was assigned. This should be derived from Land Health Reporting Assignment Date in which a reporting category was assigned to the corresponding Land Health Standard. If there are multiple Standards that roll into one Fundamental, use the most recent standard date when determining the fiscal year for the Fundamental. Default: 9999

GIS Name	Logical Name	Definition
STD1_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD1_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD2_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD2_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD3_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD3_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD4_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD4_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD5_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD5_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD6_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD6_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD7_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD7_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD8_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD8_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
ADMIN_ST	State Alphabetic Code	**Logical Definition**: An administrative unit that identifies the state or geographic area which has administrative jurisdiction over lands and cases. The land for a case may or may not be physically located in the associated administrative state. Only those states that are BLM administrative states are in the domain for this entity. Example: Montana is the Administrative State for public lands in the geographic states of Montana, North Dakota and South Dakota. **Design Considerations:** Two letter, upper case abbreviation for the administrative state office. The current list of values is: AK, AZ, CA, CO, ES, ID, MT, NM, NV, OR, UT, and WY (with a default value of "XX" for "unknown"). In the FBMS Organization Codes, use the second two characters (after the LL) (e.g. LL**AK**030900) Attribute Domain Assignment: *DOM_ADMIN_ST*
ADM_OFC_CD	Office.BLM Organization Code	**Logical Definition**: BLM Administrative office (which is subordinate to the state office) that has jurisdiction and/or management authority over lands within a geographic area. **Design Considerations:** This is a six digit code. In the FBMS Organization Codes, use the 6 characters after the State designators (e.g. LLAK030900)
ADM_UNIT_CD	Administrative Office + Office.BLM Organization Code	**Logical Definition**: The BLM administrative unit/office that is a combination of Administrative State Code and Administrative Office Code that fully identifies the geographic area which has jurisdiction over the lands **Design Considerations:** This is an eight-character code. In the FMBS Organization Codes, use the last eight characters (e.g. LL**AK030900**). Attribute Domain Assignment: *DOM_ADM_UNIT_CD*

GIS Name	Logical Name	Definition
GlobalID	Not Applicable	**Logical Definition**: Not on the logical model. **Design Considerations:** Software generated value used to derive the Unique Identifier LHR_RPT_ID. A field of type UUID (Universal Unique Identifier) in which values are automatically assigned by the geodatabase when a row is created. This field is not editable and is automatically populated when it is added for existing data. Note: Use the GlobalID and calculate the LHR_ID before performing any edits on the data. This will keep the LHR_ID unique even if the GlobalID for the original feature changes.

C. Land Health Reporting Lines (lhr_ln)

The land health reporting line features are defined in the following table. Domain values are used when appropriate. Overlapping lines are not allowed within this feature class; this will ensure that mileage is not counted twice. These line features are to be used in reporting achievement and non-achievement status for the Land Health Fundamentals and their associated Standards. Only Fundamentals two, four and five will require line features. The Fundamentals are the same throughout the BLM system; however, the standards vary according to the administrative state or RAC. Please ensure that you are populating the correct geodatabase for your specific Administrative State or RAC.

Feature level metadata information shall also be captured for each of the line features within the dataset. The 2nd through the 10th attributes shall be used to document the data collection method along with a description of the horizontal accuracy, in feet, for each feature.

This feature class and several of the attributes within this feature class vary across the eighteen geodatabases comprising the physical implementation of the data standard within the ESRI GIS environment. Please refer to "Guidelines For Implementing The Geodatabase That Is Specific To Your Set Of Land Health Standards" within the Design Considerations section for additional information. This is in the "Introduction – Data Structures Implemented" section. Additionally, please review the Business Rules which are detailed in the Land Health Reporting Data Standard Report.

Land Health Reporting Lines Attributes

GIS NAME	ALIAS	DATA FORMAT	REQUIRED?	DEFAULT VALUE	DOMAIN NAME	DE-RIVED?
LHR_ID	LHR Unique ID	Char (50)	YES			Yes
RPT_LINE	Reporting Line Type	Char(10)	YES	New	LHR_DOM_RPT_LINE	No
EVAL_TYPE	Evaluation Area Type	Char(20)	YES	Allotment	LHR_DOM_EVAL_TYPE	No
GIS_MILES	GIS Miles	Double(16.6)	YES	0		Yes
BLM_MILES	BLM Miles	Double(16.6)	YES	0		No
FND2_CTGY	Riparian Fndmtl Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	Yes
FND2_FY	FY Riparian Fndmtl Reported	Short Integer	YES	9999		Yes
FND4_CTGY	Water Fndmtl Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	Yes
FND4_FY	FY Water Fndmtl Reported	Short Integer	YES	9999		Yes
FND5_CTGY	Habitat Fndmtl Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	Yes

Land Health Reporting Lines Attributes						
GIS NAME	ALIAS	DATA FORMAT	REQUIRED?	DEFAULT VALUE	DOMAIN NAME	DE-RIVED?
FND5_FY	FY Habitat Fndmtl Reported	Short Integer	YES	9999		Yes
STD1_CTGY	Standard1 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD1_ DATE	STD1 Evaluation Date	Date	YES	09/09/9999		No
STD2_CTGY	Standard2 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD2_ DATE	STD2 Evaluation Date	Date	YES	09/09/9999		No
STD3_CTGY	Standard3 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD3_ DATE	STD3 Evaluation Date	Date	YES	09/09/9999		No
STD4_CTGY	Standard4 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD4_ DATE	STD4 Evaluation Date	Date	YES	09/09/9999		No
STD5_CTGY	Standard5 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD5_ DATE	STD5 Evaluation Date	Date	YES	09/09/9999		No
STD6_CTGY	Standard6 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD6_ DATE	STD6 Evaluation Date	Date	YES	09/09/9999		No
STD7_CTGY	Standard7 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD7_ DATE	STD7 Evaluation Date	Date	YES	09/09/9999		No
STD8_CTGY	Standard8 Reporting Category	Char(2)	YES	4	LHR_DOM_RPT_CTGY	No
STD8_ DATE	STD8 Evaluation Date	Date	YES	09/09/9999		No
ADMIN_ST	Administrative State Code	Char(2)	YES		*DOM_ADMIN_ST*	No
ADM_OFC_CD	Administrative Office Code	Char(6)	YES			No
ADM_UNIT_CD	Administrative Unit Code	Char(8)	YES		*DOM_ADM_UNIT_CD*	No
ACCURACY_FT	Accuracy Measure In Feet	Long Integer	YES	-1		No

Land Health Reporting Lines Attributes						
GIS NAME	ALIAS	DATA FORMAT	REQUIRED?	DEFAULT VALUE	DOMAIN NAME	DE-RIVED?
CREATE_DATE	Created Date	Date	YES	9/9/9999		No
CREATE_BY	Created By Name	Char(30)	YES	UNK		No
COORD_SRC_TYPE	Coordinate Source Type Code	Char(5)	YES	UNK	*DOM_COORD_SOURCE_TYPE*	No
COORD_SRC2	Coordinate Source Code	Char(25)	YES			Yes
DEF_FET_TYPE	Defining Feature Type Code	Char(15)	YES	UNK	*DOM_DEF_FEATURE_TYPE*	No
DEF_FET2	Defining Feature Code	Char(30)	YES			Yes
MODIFY_DATE	Modified Date	Date	YES	9/9/9999		No
MODIFY_BY	Modified By Name	Char(30)	YES	UNK		No
GlobalID	GlobalID	UUID	YES			Yes

GIS Name	Logical Name	Definition
LHR_ID	Land Health Location Area Identifier	**Logical Definition**: The designed primary key that will uniquely identify a single occurrence of the entity. Entity: Land Health Location Area: The specific polygon and its acres, or specific line and its miles, that are assigned a land health reporting category **Design Considerations:** The unique identifier for the Land Health Reporting Polygon or Line feature. This primary key is a concatenation of: ▪ ADMIN_ST, the Administrative State Code (2 characters) ▪ ADM_OFC_CD, the Administrative Office Code (6 characters) ▪ Global ID (36 alpha-numeric characters) The value for this field can be obtained using the Field Calculator in ArcMap: [LHR_ID] = [ADMIN_ST] + [ADM_OFC_CD] + [GlobalID]

GIS Name	Logical Name	Definition
RPT_LINE	Not Applicable	**Logical Definition**: Not on the logical model. Entity: Land Health Location Area: The specific polygon and its acres, or specific line and its miles, that are assigned a land health reporting category. **Design Considerations:** A code that represents the type of existing or new line (arc) that is assigned a specific reporting category. Attribute Domain Assignment: LHR_DOM_RPT_LINE
EVAL_TYPE	Land Health Evaluation Area Type Name	**Logical Definition**: The name of the type of area that was evaluated for a set of land health standards. **Design Considerations:** A land health evaluation area is the complete location being evaluated for a set of land health standards, which is typically an allotment, pasture or watershed. During the evaluation, it may be found that different parts of the evaluation area can be assigned different reporting categories. Each of these smaller polygons or line features are assigned their own reporting category. Attribute Domain Assignment: LHR_DOM_EVAL_TYPE Default: Allotment

GIS Name	Logical Name	Definition
GIS_MILES	Line Form Length Measure	**Logical Definition:** The measure of the length of the line described in the Line Form UOM Type Name. **Design Considerations**: The entire miles of the line. Default: 0 This is a calculated value of length in units of miles based on the length field created by default within the ESRI line data structure. For the purposes of a 'national data layer', the data are to be stored in geographic coordinates which do not correspond to ground values. This requires that there be a standard method for calculating this attribute. The method used for these data are as follows. The data are projected into a standard projection such as the ESRI default Albers equal-area projection for the continental United States, "US Albers NAD 1983." Once the data are projected, then a calculation of "SHAPE_Length (meters) * 0.000621371192 = miles" is applied to the existing 'length' field that is default area created by the ESRI software resulting in the field (Attribute) 'SHAPE_Length'. Please note that the figure used in this calculation is the factor for converting the US Survey Foot value from the length of a meter as opposed to the International Standard for converting meters and feet.
BLM_MILES	Not Applicable	**Logical Definition:** Not in logical data model. **Design Considerations:** The miles along the line that are under BLM jurisdiction. Default: 0

GIS Name	Logical Name	Definition
FND2_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the *Watershed Function Riparian* Land Health Fundamental for the reporting area or line represented in the GIS . There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Fundamental, whether the area does not apply to the Fundamental, or for whether the area has not been evaluated for land health. This is either derived or manually entered by the user. If there is only one land health Standard that conforms to a Fundamental, then the FND(n)_CTGY will be the same as the Land Health Standard Reporting Category and Subcategory. If there are two or more Land Health Standards that conform to a Fundamental, then the FND(n)_CTGY will be derived based on the values of the Standards. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
FND2_FY	Not Applicable	**Logical Definition**: Not in the logical model. **Design Considerations:** The 4-digit fiscal year that the reporting category for the *Watershed Function Riparian* Land Health Fundamental was assigned. This should be derived from Land Health Reporting Assignment Date in which a reporting category was assigned to the corresponding Land Health Standard. If there are multiple Standards that roll into one Fundamental, use the most recent standard date when determining the fiscal year for the Fundamental. Default: 9999

GIS Name	Logical Name	Definition
FND4_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition:** Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the *Water Quality* Land Health Fundamental for the reporting area or line represented in the GIS . There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Fundamental, whether the area does not apply to the Fundamental, or for whether the area has not been evaluated for land health. This is either derived or manually entered by the user. If there is only one land health Standard that conforms to a Fundamental, then the FND(n)_CTGY will be the same as the Land Health Standard Reporting Category and Subcategory. If there are two or more Land Health Standards that conform to a Fundamental, then the FND(n)_CTGY will be derived based on the values of the Standards. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
FND4_FY	Not Applicable	**Logical Definition:** Not in the logical model. **Design Considerations:** The 4-digit fiscal year that the reporting category for the *Water Quality* Land Health Fundamental was assigned. This should be derived from Land Health Reporting Assignment Date in which a reporting category was assigned to the corresponding Land Health Standard. If there are multiple Standards that roll into one Fundamental, use the most recent standard date when determining the fiscal year for the Fundamental. Default: 9999

GIS Name	Logical Name	Definition
FND5_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition:** Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the *Habitat Quality for Threatened and Endangered and Special Status Species* Land Health Fundamental for the reporting area or line represented in the GIS . There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Fundamental, whether the area does not apply to the Fundamental, or for whether the area has not been evaluated for land health. This is either derived or manually entered by the user. If there is only one land health Standard that conforms to a Fundamental, then the FND(n)_CTGY will be the same as the Land Health Standard Reporting Category and Subcategory. If there are two or more Land Health Standards that conform to a Fundamental, then the FND(n)_CTGY will be derived based on the values of the Standards.. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
FND5_FY	Not Applicable	**Logical Definition:** Not in the logical model. **Design Considerations:** The 4-digit fiscal year that the reporting category for the *Habitat Quality for Threatened and Endangered and Special Status Species* Land Health Fundamental was assigned. This should be derived from Land Health Reporting Assignment Date in which a reporting category was assigned to the corresponding Land Health Standard. If there are multiple Standards that roll into one Fundamental, use the most recent standard date when determining the fiscal year for the Fundamental. Default: 9999

GIS Name	Logical Name	Definition
STD1_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition:** Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD1_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD2_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition:** Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD2_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD3_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition:** Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD3_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD4_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition:** Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD4_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD5_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition:** Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD5_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD6_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD6_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD7_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD7_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
STD8_CTGY	Land Health Reporting Category Number + Land Health Reporting Subcategory Code	**Logical Definition**: Not on the logical model. The concatenation of: • LAND HEALTH REPORTING CATEGORY NUMBER. The number associated with the Land Health Reporting Category Name (the category for reporting on an area's land health specific to a land health standard or fundamental). • LAND HEALTH REPORTING SUBCATEGORY CODE. A code that describes additional information about the Land Health Reporting Category for an area **Design Considerations:** The category that designates the land health status for the specified Land Health Standard for the reporting area or reporting line represented in the GIS. There are categories for whether an area that has been evaluated for land health is achieving or non-achieving the Standard, whether the area does not apply to the Standard, or for whether the area has not been evaluated for land health. Attribute Domain Assignment: LHR_DOM_RPT_CTGY Default: 4
STD8_DATE	Land Health Reporting Assignment Date	**Logical Definition:** The date on which the land health reporting category was assigned to the location. **Design Considerations:** The date on which a reporting category was assigned to the specified standard for a reporting area or line. The date will be in the format of MM/DD/YYYY. Use the value of "01/01" for the month and day when these are not known. Default: 9/9/9999

GIS Name	Logical Name	Definition
ADMIN_ST	State Alphabetic Code	**Logical Definition**: An administrative unit that identifies the state or geographic area which has administrative jurisdiction over lands and cases. The land for a case may or may not be physically located in the associated administrative state. Only those states that are BLM administrative states are in the domain for this entity. Example: Montana is the Administrative State for public lands in the geographic states of Montana, North Dakota and South Dakota. **Design Considerations:** Two letter, upper case abbreviation for the administrative state office. The current list of values is: AK, AZ, CA, CO, ES, ID, MT, NM, NV, OR, UT, and WY (with a default value of "XX" for "unknown"). In the FBMS Organization Codes, use the second two characters (after the LL) (e.g. LL**AK**030900) Attribute Domain Assignment: *DOM_ADMIN_ST*
ADM_OFC_CD	Office.BLM Organization Code	**Logical Definition**: BLM Administrative office (which is subordinate to the state office) that has jurisdiction and/or management authority over lands within a geographic area. **Design Considerations:** This is a six digit code. In the FBMS Organization Codes, use the 6 characters after the State designators (e.g. LLAK030900)
ADM_UNIT_CD	Administrative Office + Office.BLM Organization Code	**Logical Definition**: The BLM administrative unit/office that is a combination of Administrative State Code and Administrative Office Code that fully identifies the geographic area which has jurisdiction over the lands **Design Considerations:** This is an eight-character code. In the FMBS Organization Codes, use the last eight characters (e.g. LL**AK030900**). Attribute Domain Assignment: *DOM_ADM_UNIT_CD*

<table>
<tr><th>GIS Name</th><th>Logical Name</th><th>Definition</th></tr>
<tr><td>ACCURACY_FT</td><td>Line Form Accuracy Measure</td><td>
Logical Definition: The measure that describes how close, in Line Form UOM Type Name the actual location is to the spatial depiction.

Design Considerations: The Accuracy Measurement defines how close, in feet, the actual ground location is to the spatial depiction in GIS. This value would typically be determined by one of three methods: 1) the map accuracy value, if a USGS map was used to define the boundary; 2) the expected spatial accuracy achieved with GPS; or 3) the measurement of that accuracy as is noted in the National Standard for Spatial Data Accuracy (NSSDA)[1] which is a data usability standard issued by the Federal Geographic Data Committee (FGDC).

Default: -1

A value of -1 indicates that the accuracy is unknown or that no reliable estimate can be made. Below is an example table of accuracy measurements. (Attempting to list all values in a domain table would produce an infinite list.)
<table>
<tr><th colspan="2">Accuracy Measurement Example Table</th></tr>
<tr><td>1</td><td>+/- 1 Feet</td></tr>
<tr><td>10</td><td>+/- 10 Feet</td></tr>
<tr><td>15</td><td>+/- 15 Feet</td></tr>
<tr><td>20</td><td>+/- 20 Feet</td></tr>
<tr><td>100</td><td>+/- 100 Feet</td></tr>
</table>
1 Federal Geographic Data Committee. 1998. Geospatial Positioning Accuracy Standards Part 3: National Standard for Spatial Data Accuracy, FGDC-STD-007.3-1998
</td></tr>
</table>

GIS Name	Logical Name	Definition
CREATE_ DATE	Location Effective Date	**Logical Definition**: The date which is the calendar year, month, and day when the position of the Location was produced.. **Design Considerations:** As a new feature is added to the system its creation date will be collected and maintained. The date will be in the format of MM/DD/YYYY. Default: 9/9/9999
CREATE_ BY	Not applicable	**Logical Definition**: Not on the logical model. **Design Considerations:** The UserID (BLM login ID) of the person who created or imported the data into the BLM GIS system. This attribute will be deleted before providing the data to the public. Default: UNK
COORD_ SRC_TYPE	Location Source Type Name	**Logical Definition** The name that identifies the general category for the origin of the location coordinate, representing a compilation of the state adopted source codes. The domain contains those values that would most likely be used in the determination of source codes for the data set. **Design Considerations:** Attribute Domain Assignment: *DOM_COORD_SOURCE_TYPE* Default: UNK
COORD_ SRC2	Location Source Description Specific Name	**Logical Definition**: The name that identifies a more specific description of the location (coordinate source). **Design Considerations:** Suggested values for codes appear in the domains appendix. The user may leave this value "null", choose one of the suggested codes, or enter another value appropriate to the data. This domain is not intended to be all inclusive but may be used as a starting point for state-level lists of domain values. This list is not intended to be a substitute for the accuracy values that are found in the 'Accuracy Measurement Table'. This is an optional attribute.

GIS Name	Logical Name	Definition
DEF_FET_ TYPE	Defining Feature Type Name	**Logical Definition**: The name that identifies the high-level category for the actual physical or mapping characteristics (features) from which the arcs are derived. **Design Considerations:** Attribute Domain Assignment: *DOM_DEF_FEATURE_TYPE* Default: UNK
DEF_FET2	Defining Feature Description Name	**Logical Definition**: The name that identifies a more specific description of the feature from which the arcs are derived to create polygon boundaries. This information further describes the physical or mapping feature that makes up the polygon boundary. **Design Considerations:** Suggested code values appear in the domains appendix. The user may leave this value "null", choose one of the suggested codes, or enter another value appropriate to the data. This domain is not intended to be all inclusive but may be used as a starting point for state-level lists of domain values. This is an optional attribute.
MODIFY_ DATE	Location Modified Date	**Logical Definition**: The date which is the calendar year, month, and day when the position of the Location was last modified. **Design Considerations:** As a feature is edited or modified while in the system its modification date will be collected and maintained. The date will be in the format of MM/DD/YYYY. Default: 9/9/9999
MODIFY_BY	Not applicable	**Logical Definition**: Not on the logical model. **Design Considerations:** The UserID (BLM login ID) of the person who edited or modified data in the BLM GIS system will be collected and maintained. This attribute will be deleted before providing the data to the public. Default: UNK

GIS Name	Logical Name	Definition
GlobalID	Not Applicable	**Logical Definition**: Not on the logical model. **Design Considerations:** Software generated value used to derive the Unique Identifier LHR_RPT_ID. A field of type UUID (Universal Unique Identifier) in which values are automatically assigned by the geodatabase when a row is created. This field is not editable and is automatically populated when it is added for existing data. Note: Use the GlobalID and calculate the LHR_ID before performing any edits on the data. This will keep the LHR_ID unique even if the GlobalID for the original feature changes.

D. Land Health Reporting Significant Factors Table (lhr_sig_factors_tbl)

This non-spatial table shows the significant causal factors that are associated with each Land Health Standard (and its subsequent Fundamental) that has a reporting category of 2b, 2c, 2d or 2e. There must be at least one Significant Factor associated with Reporting Categories 2b, 2c, 2d and 2e. This table is related to both the lhs_rpt_poly and the lhs_rpt_ln feature classes.

For any given standard, if the significant factor is "other", then use the text field "OTH_TXT" to provide an explanation for the value of "other". If an area is exempted from achieving a Land Health Standard, then the area will receive a reporting category of "2c", and at least two records will be required in this table for the specified Standard. The first record will have "exempt" selected as the Significant Factor, with subsequent records documenting the Significant Factor (or factors) causing the area to be non-achieving. Please refer to Business Rule #1 in the Land Health Reporting Data Standard Report. Refer to the instructional documents that are located on the Data Standards Web Page for general instructions on populating a related table from within an edit session of ArcMap.

Land Health Reporting Significant Factors Table Attributes						
GIS NAME	ALIAS	DATA FORMAT	REQUIRED?	DEFAULT VALUE	DOMAIN NAME	DERIVED?
LHR_ID	LHR_RPT Unique ID	Char (50)	YES			Yes
LHR_STD_ID	Land Health Standard Identifier	Char(5)	YES		LHR_DOM_STD_ID	Yes
SIG_FCTR	Significant Factor	Char(40)	YES		LHR_DOM_SIG_FCTR	No
OTH_TXT	"Other" Significant Factor Text	Char (40)	NO			No

GIS Name	Logical Name	Definition
LHR_ID	Land Health Location Area Identifier	**Logical Definition**: The designed primary key that will uniquely identify a single occurrence of the entity. Entity: Land Health Location Area: The specific polygon and its acres, or specific line and its miles, that are assigned a land health reporting category **Design Considerations:** The unique identifier for the Land Health Reporting Polygon or Line feature. The value for this field will be derived from the GIS feature (poly or line) that is participating in the relationship between the feature class (lhr_poly or lhr_line) and this table.

GIS Name	Logical Name	Definition
LHR_STD_ID	Land Health Standard Identifier	**Logical Definition**: The number assigned to each of the land health standards for an administrative state or RAC area. The concatenation of: ▪ The ADMINISTRATIVE STATE CODE (A two letter, upper case abbreviation for the administrative state office.) ▪ A number designating LAND HEALTH STANDARD SET IDENTIFIER (If the administrative state has only one set of standards, the value is 0, if there is more than one set of standards for the state, the value starts at 1 for the first set); ▪ The number assigned by the RAC or state for the LAND HEALTH STANDARD NUMBER (The number assigned to each of an administrative state land health standards, starting at 01.) **Design Considerations:** The value for this attribute should correspond to the Standard that the significant factor for non-achievement applies to. For example, if the reporting category for the attribute AZ001_CTGY (from the lhr_poly feature class) requires a significant factor, then the attribute for this record will list the LHR_STD_ID = "AZ001" Attribute Domain Assignment: LHR_DOM_STD_ID
SIG_FCTR	Significant Factor Name	**Logical Definition:** The name that designates the significant factor for why a location is not achieving land health. **Design Considerations:** One area (polygon or line) may have more than one significant causal factor. If an area is exempt from achieving a land health standard, then the corresponding polygon or line must have at least two records for significant factors in this table (for the standard identified in the "LHR_STD_ID" attribute). The first record will have "exempt" selected as the significant factor. The second and any subsequent records will have a valid significant factor for why the area is not achieving land health. Attribute Domain Assignment: LHR_DOM_SIG_FCTR

GIS Name	Logical Name	Definition
OTHER_TXT	Significant Factor Reporting Category Additional Text	**Logical Definition:** The text that describes any additional comments or information about the Significant Factor that contributes to the non-achievement. **Design Considerations:** If the value "Other" is selected for Significant Factor (SIG_FCTR), then an additional explanation can be provided in this attribute.

E. Land Health Reporting – Standards Identification Table (lhr_std_id_tbl)

This non-spatial table shows the listing of Land Health Standards for the BLM (current as of Fiscal Year 2010) that are accounted for in the geodatabase. Standards that do not conform to a Fundamental are not included. When a Standard is retired, the date that the standard is no longer in effect should be entered into this table. The value for the retired standard should then be removed from the LHR_DOM_STD_ID domain table. If a new Standard comes into effect, a new record should be added to this table with the appropriate information populated. Additionally, any new standard will also be added to the LHR_DOM_STD_ID domain table.

This table provides additional information about each Land Health Standard, including the Standard effective and end dates. This table also lists the Fundamental that the Standard conforms to; and whether the Fundamental has one, or more than one standard(s) that conform(s) to the Fundamental. This table is not related to any of the feature classes within the data standard.

Land Health Reporting – Standard Identification Table Attributes

GIS NAME	ALIAS	DATA FORMAT	REQUIRED?	DEFAULT VALUE	DOMAIN NAME	DERIVED?
LHR_STD_ID	LHR Standard Identifier	Char (5)	YES		LHR_DOM_STD_ID	No
LHR_STD_NM	Standard Name	Char(255)	YES			No
EFF_DT	Standard Effective Date	Date	NO			No
END_DT	Standard End Date	Date	NO			No
SET_NM	Standard Set Name	Char(25)	YES			
MS_APPLD_CD	Measure Applied Code	Char(4)	YES			
FNDMTL_SHT	Fundamental Short Name	Char(10)	YES		LHR_DOM_FNDMTL_NM	
STD_FNDMTL	Standard Conform to Fundamental	Char(8)	YES			

GIS Name	Logical Name	Definition
LHR_STD_ID	Land Health Standard Identifier	**Logical Definition**: The designed primary key that will uniquely identify a single occurrence of the entity. The number assigned to each of an administrative state or RAC area land health standards. The concatenation of: ▪ ADMINISTRATIVE STATE CODE (A two letter, upper case abbreviation for the administrative state office.) ▪ A number designating LAND HEALTH STANDARD SET IDENTIFIER (If the administrative state has only one set of standards, the value is 0, if there is more than one set of standards for the state, the value starts at 1 for the first set); ▪ The number assigned by the RAC or state for the LAND HEALTH STANDARD NUMBER (The number assigned to each of an administrative state land health standards, starting at 01.) **Design Considerations:** Attribute Domain Assignment: LHS_DOM_STD_ID
LHR_STD_NM	Land Health Standard Name	**Logical Definition**: A thematic name associated with a land health standard. **Design Considerations:**
EFF_DT	Land Health Standard Effective Date	**Logical Definition:** The date on which a land health standard becomes effective. **Design Considerations:** The date will be in the format of MM/DD/YYYY. The Month and Day should be 01/01 if only the year is known.
END_DT	Land Health Standard End Date	**Logical Definition:** The date on which a land health standard is no longer effective. **Design Considerations:** The date will be in the format of MM/DD/YYYY. The Month and Day should be 01/01 if only the year is known.
SET_NM	Land Health Standard Set Name	**Logical Definition**: The name associated with a group of Land Health Standards. **Design Considerations:** The region where the Standard applies.

GIS Name	Logical Name	Definition
MS_APPLD_CD	Land Health Standard Measure Applied Name	**Logical Definition**: The name that indicates the type of measure to which the standard applies. It can apply to an area, a line or both. **Design Considerations:** Indicates whether the Standard applies to area features, linear features, or both within the GIS.
FNDMTL_SHT	Not Applicable	**Logical Definition:** Not in the logical model. (Entity/Attribute: Land Health Fundamental/Land Health Fundamental Name: The names of the Land Health Fundamentals as identified in 43 CFR §4180.1. Valid names are: Watershed Function Uplands, Watershed Function Riparian, Ecological Processes, Water Quality, and Habitat Quality for Threatened and Endangered and Special Status Species. **Design Considerations:** Abbreviated name for the Land Health Fundamental Name. Attribute Domain Assignment: LHR_DOM_FNDMTL_NM
STD_FNDMTL	Land Health Standard Conform Fundamental Derivation Text	**Logical Definition**: The text that describes why the Land Health Standard conforms to a Fundamental. **Design Considerations:** Lists whether there is one (single) standard or more than one (multiple) standards that conform to the listed fundamental. If the value for this attribute is "single", then the listed standard (for that record) is the only standard conforming to the listed fundamental. If the value for this attribute is "multiple", then the listed standard (for that record) is one of several standards that conform to the listed fundamental.

APPENDIX A: DOMAIN VALUES

Domain values are maintained separately from the data standard. This is due to values being more likely to have an addition or change that would not affect the data standard. Domain values cannot be added to attributes specific to the standard (except thru the data standardization maintenance step). A state can extend the data standard with a new attribute which can have a state specific domain list. However, all attributes that are required as part of the standard must have a value from the data standard domain list. Any additional attributes and their associated domain values must be documented with metadata by that office.

For domain values specific to LHR, please go to: http://teamspace/sites/blmnds/est2010/default.aspx

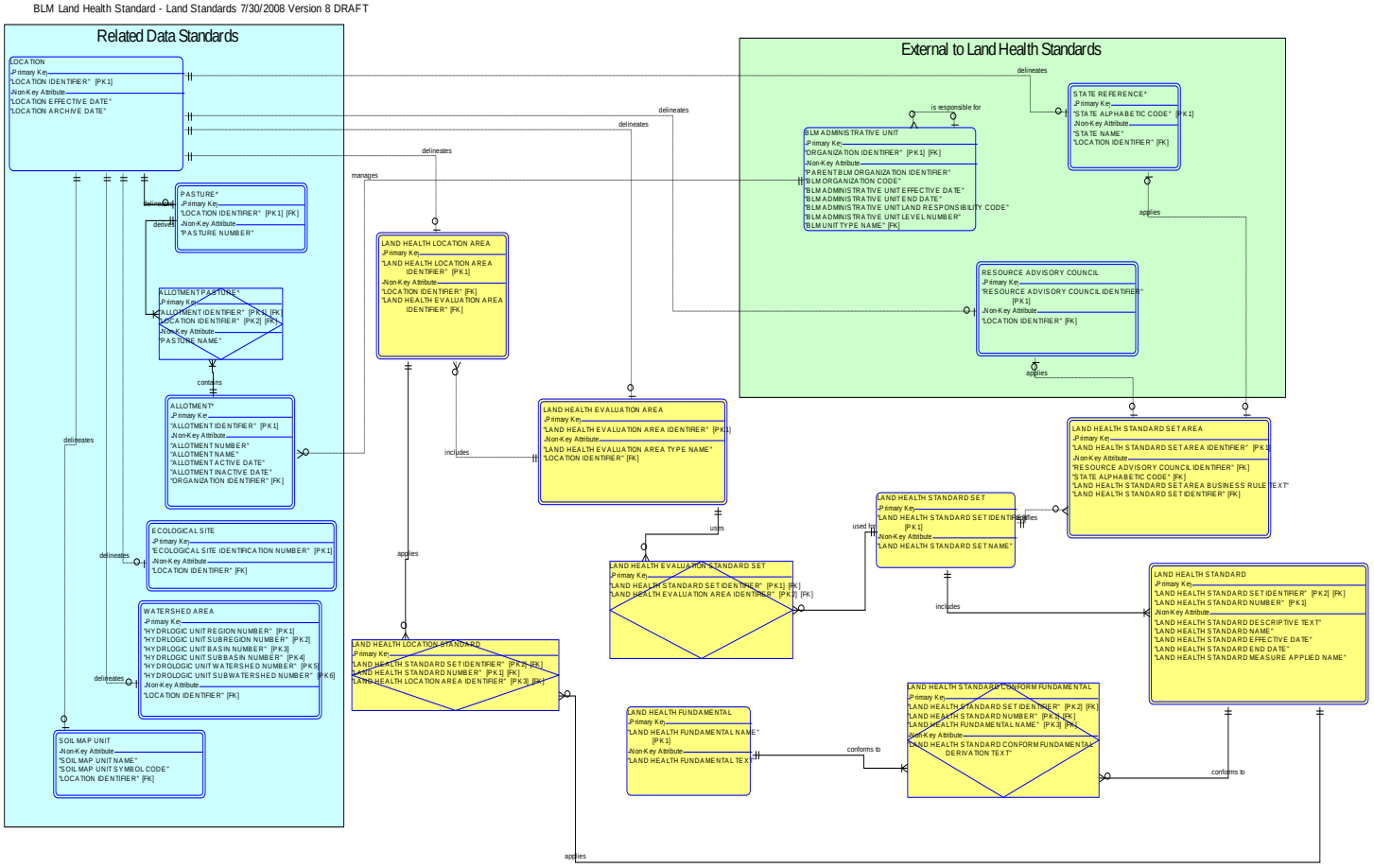
For Feature Level Metadata Domains, please see the Domain Information Section, located at http://web.blm.gov/data_mgt/std_proc.htm

APPENDIX B: LOGICAL DATA MODEL

The entities in green are not part of this standard and do not need to be reviewed. They are provided to show context and provide relationships to other data only. To improve viewing, zoom to 200%; to print a larger version, use the 11"x17" model on the same webpage as this document."

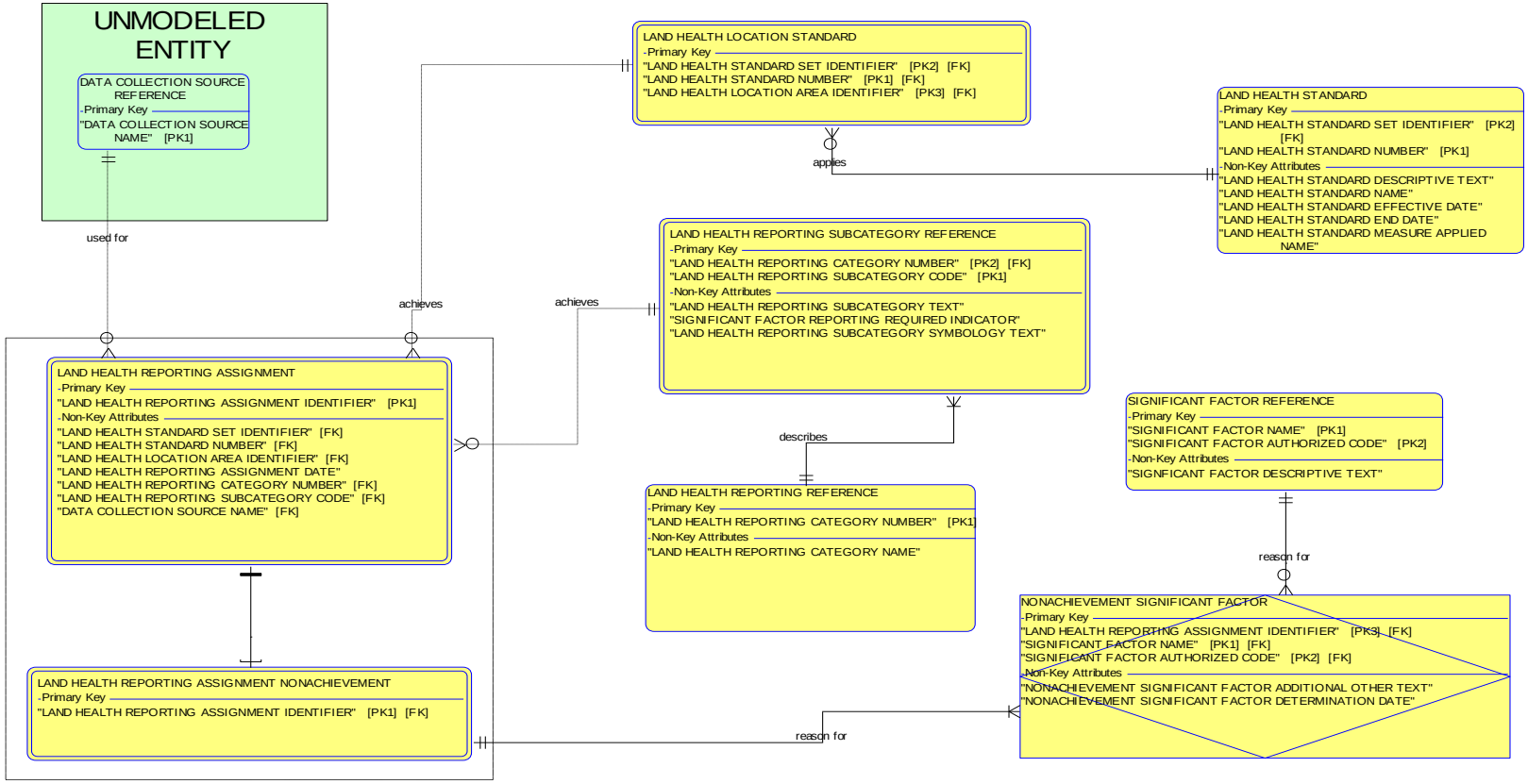
Land Health Reporting - Land Health Standards

This is a diagram of land health standards and their relationship to land health fundamentals.



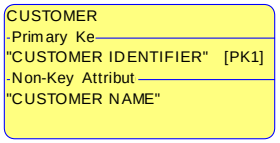
Land Health Reporting - Land Health Reporting

This is a diagram of reporting on the achievement or non-achievement of land health standards.



Legend: See Appendix C

APPENDIX C: READING A LOGICAL DATA MODEL

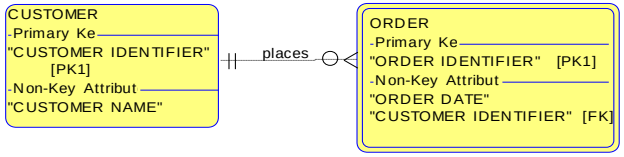


ENTITY

- *The noun or object on something of relevance to the business*
- *Shown as a box, with the name (singular in capital letters at the top, example below: ORDER)*

ATTRIBUTES

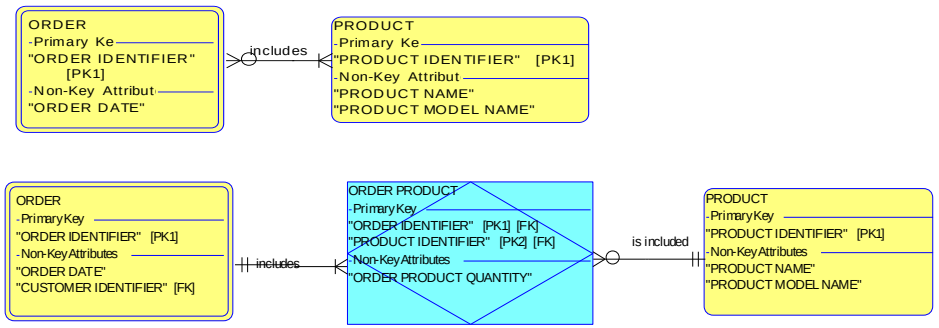
- *The adjective which is the data or information about an entity; describes an entity (ORDER NUMBER, ORDER DATE)*
- *Has **only one** valid value for an occurrence of an entity at any given time The same value of an attribute may describe more than one entity occurrence*
- *PK = Primary Key – uniquely identifies an occurrence of an entity (one customer may have same name as another customer, so CUSTOMER IDENTIFIER is unique for a customer)*
- *FK = Foreign Key – the primary key of the parent entity is a Foreign key in the child entity*
- *The Word Identifier indicates that this will be a designed key, its format is not known, but the modeling tool required a format and size. The actual content and size of the identifier will be determined during design.*



The line includes optionality (minimum occurrences, inner symbol) and cardinality (maximum occurrences, symbol next to entity) | = one 0 = zero < or > = many

RELATIONSHIP

- *The verb which shows an association between entities and represents business rules*
- *Represented by a line between two entities with active verb or verb phase (all small letters)*
- *Reading : Left to right (A CUSTOMER places zero to many ORDERs) and right to left (An ORDER is placed by one and only one CUSTOMER)*
- *Because a Customer can have many Orders, the Customer is considered the Parent Entity and the Order is considered the Child Entity). So the way you read it is normally from the Parent Entity to the Child Entity*



MANY-TO-MANY

- *In a logical data model, many to many relationships are resolved. In the example to the left an ORDER includes one to many PRODUCTs and a PRODUCT can be in zero or many ORDERs.*

ASSOCIATIVE ENTITY

- *resolves the many to many*
- *with the diamond symbol*

APPENDIX D: ATTRIBUTE METADATA TERMINOLOGY

The following matrix describes the metadata for the Data Standards Implementation Details.

Attribute Metadata Field	Metadata Definition	Example
GIS Name	*The abbreviated name of the field as it appears in the database*	*RCVR_TYPE*
Alias	*An alternative name that is more descriptive and user-friendly than the Logical or GIS Field Name*	*GPS RECEIVER TYPE*
Data Format	*Specific type of data allowed/# of characters or numbers/Precision & Scale*	*Char(15)*
Allow Nulls?	*If an attribute does not have to have a value. If "No", the attribute is required, if "Yes", the attribute is optional.*	*Yes (is optional)*
Default Value	*Value that will apply if no other value is specified; included in domain value list.*	*N/A*
Domain Name	*Name of the table for that attribute, containing the Code, Description, and Definition for each value in the table*	*DOM_RCVR_TYPE*
Derived?	*If the attribute value is derived from the value of one or more other attribute values (Yes) otherwise, (No) the value is not derived.*	*No*
Logical Attribute Name	*The business name of the attribute which includes the entity name, and representation term*	*Global Positioning System Receiver Type Name*