Oregon Administrative Boundary Standard

Version 2.0

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1.0 Introduction

Under the direction of the Oregon Geographic Information Council (OGIC), the Oregon Framework Implementation Team has delegated the development of an Administrative Boundaries Framework Implementation Plan and an Administrative Boundary Data Content Standard to the Framework Implementation Team Administrative Boundary Subcommittee (Admin-FIT). The Administrative Boundaries Framework is a collection of prioritized, spatially referenced digital representations of broadly defined boundary feature sets for Oregon. The Administrative Boundaries Framework Theme currently comprises almost 100 elements used for defining service territories, administrating programs, delineating jurisdictions for governments and elections, generating revenue, and managing natural resource areas.

This document, the Oregon Administrative Boundary Standard (OABS), specifies a common content model for geographic area boundary data. The common content model is intended to facilitate integration and sharing of boundary data and to increase dissemination and public use of accurate, up-to-date geographic area boundary information. The common content model can decrease costs that agencies incur to acquire and exchange geographic area boundary data.

This standard is the result of review and consideration of the *Geographic Information Framework Data Content Standard, Part 5: Governmental Unit and Other Geographic Area Boundaries* (Draft, January 2006), and informed by the Admin-FIT pilot projects conducted around the state.

1.1 Mission and Goals of Standard

The Oregon Administrative Boundary Standard (OABS) will provide a consistent and maintainable structure for boundary data producers and users, which will help to ensure the compatibility of datasets within the same theme and between other Framework elements and themes. Specifically, this standard will assist agencies responsible for the creation, maintenance, and distribution of administrative boundary datasets by reducing the costs of data sharing, data development, and data maintenance among custodial and integration stewards. It will also help to ensure that administrative boundary attribution (including geometry) is as current as possible by relying on custodial stewards' expertise and their local mandates for data quality (e.g., completeness, positional accuracy, attribute accuracy). Furthermore, the OABS will ensure that mapping applications are able to acquire data from disparate sources and use and display the results in an appropriate manner for the need. Examples of applications that will use data developed with or compiled under this standard are mapping, emergency management, resource allocation, election services, and program management.

1.2 Relationship to Existing Standards

This standard integrates with existing standards as much as possible. Several resources were used to develop this standard, along with the working knowledge of Admin-FIT participants. It has been written with consideration towards other standards being developed by the Federal Geographic Data Committee (FGDC), especially the *Geographic Information Framework Data Content Standard, Part 5: Governmental Unit and Other Geographic Area Boundaries* (Draft,

January 2006), which serves as a reference for the Oregon standard. This standard adopts many of the terms and definitions described in Part 5. Other parts of the FGDC Framework Data Content Standard affecting this standard are Cadastral, Addressing and Transportation.

In addition, the OABS has been written with consideration towards other standards being developed through the Oregon Geospatial Data Standards Development Process. Specifically, these include the *Cadastral Data Exchange Standard, Road Centerline Data Content Standard,* and the *Addressing Standard.* As with all Oregon Framework datasets, those developed under the OABS must adhere to the *Oregon Metadata Standard*.

This standard also acknowledges the existence of a variety of federal agency standards addressing management area boundaries, such as *National Landscape Conservation System GIS Boundary Data Standards* promulgated by BLM.

1.3 Description of Standard

This Oregon Administrative Boundary Standard (OABS) sets forth the essential elements and data structure necessary to adequately describe, develop, exchange, and use administrative boundary data produced in Oregon. The OABS is primarily concerned with a core set of geospatial information to support the need for an accurate and current representation of the extent and spatial relationship of an array of administrative boundaries. This standard is intended to support a single type of boundary per dataset.

The types of administrative boundaries addressed in this standard are (see Appendix A for definitions):

- Governmental units
- Administrative units
- Statistical units
- Other units.

This standard is devised to be

- Simple, easy to understand, and logical
- Uniformly applicable, whenever possible
- Flexible and capable of accommodating future expansions
- Dynamic in terms of continuous review.

1.4 Applicability and Intended Use of Standard

The OABS is applicable to the feature sets that represent the extents and boundaries of a variety of geographic areas in Oregon. The feature sets identified to date are listed as elements in the Administrative Boundaries theme detailed in the Oregon Framework database posted on the website maintained by the Geospatial Enterprise Office and updated periodically. Each type of boundary dataset may require an extension of this umbrella standard to meet its needs.

This standard is intended to support the automation, integration, and sharing of publicly available boundary information. It is intended to be usable by all levels of government, industry, and the general public to achieve consistency in the graphic representation of geographic area boundaries, as well as the attributes associated with those boundaries. This standard will be relied on to provide a naming convention and method of generating unique identifiers that are stable and consistent.

This standard does not preclude agencies from developing and maintaining boundary data differently for internal purposes. However, shared versions of the datasets must meet the requirements set forth in this standard.

1.5 Standard Development Procedures

The Oregon Framework Implementation Team Administrative Boundaries Subcommittee (Admin-FIT) is comprised of representatives from federal, state, regional, and local governmental agencies. This team created the draft of a minimal administrative boundary data structure and published that draft standard via email lists, open meetings, and through the Oregon Geospatial Enterprise Office website (Appendix D). The data structure (Appendix B) will be included as a component of any Admin-FIT data development pilot projects authorized by the Oregon Geographic Information Council. The public review and comment period will commence with the publication of the fourth draft (May 10, 2006) and will continue until the Seventh Oregon Standards Forum (June 28, 2006). A brief description of issues and outcomes discussed by the Admin-FIT are contained in Appendix C.

1.6 Maintenance of Standard

The OABS will be revised on an as-needed basis, initiated by members of the standards process or through a logical expansion based on further attainment of broad participation in the creation of administrative boundaries. It is anticipated that as boundary data are collected at higher spatial accuracies, as geospatial applications mature, and as technology for capturing that higher resolution data improves, this standard will need to be updated. The range of attributes or the refinement of attribute quality in the existing standard may also need revision.

2.0 Body of the Standard

2.1 Scope and Content of the Standard

The scope of the OABS is for publicly available vector data which defines the boundaries of governmental units, administrative units, statistical units and other units as defined in Part 5 of the *Framework Data Content Standard.* The unique identification of geographic areas and the boundaries that delineate them is also within the scope of this standard (as identified and discussed in the data structure in Appendix B). The content is focused on the essential data and metadata elements required for the locally maintained datasets, as well as the regional or statewide datasets.

2.2 Need for the Standard

The Oregon administrative boundary community has for some time discussed the need for a straightforward means by which to share administrative boundary geometry and attribution among agencies and the public. The exchange of this valuable information (including the geometry of a given jurisdiction's boundary and the many operational and descriptive attributes routinely collected and related to those geometries) will be greatly simplified through the adoption of a minimum data specification.

2.3 Participation in Standards Development

The development of standards for administrative boundary geospatial data has been underway in many places for several years. Federal, tribal, state, and local agencies have developed some standards for administrative boundaries used by them for management of lands or activities for which they are responsible. The FGDC leads the federal effort with a draft standard now undergoing a process to be established as an American National Standard. The draft is Part 5 of the *Framework Data Content Standard*: *Governmental Unit and Other Geographic Area Boundaries*, dated January 2006, and was created to fulfill objectives of the National Spatial Data Infrastructure (NSDI). The current draft standard replaces two earlier drafts, dated September 2003 and February 1999, and provides a general data model for broadly defined governmental units and other boundary datasets and specifies content and organization necessary for the successful exchange of that data.

This standard, and the process by which it will be updated or enhanced, is open to all agencies concerned with the development, maintenance, and application of administrative boundary data to the resolution of related business functions. As with all Oregon framework standards, public review of and comment on the OABS is encouraged. An outline of Oregon's process for the development and extension of a geospatial data standard can be found at the website listed in Appendix D.

Participation in the Admin-FIT spans the spectrum of governmental agencies in Oregon. Currently, Admin-FIT is led by the Oregon Department of Agriculture, with important time and resource commitments from the Oregon Department of Transportation, Oregon Department of Revenue, METRO, Lane Council of Governments, Linn County, the US Bureau of Land Management, the US Geological Survey, the US Census Bureau, and the Regional Ecosystem Office. We have also had participation by Oregon Department of Employment, Oregon Department of Land Conservation and Development and Douglas County.

2.4 Integration with Other Standards

The OABS follows the same format as other Oregon geospatial data standards. The specifics of this standard are related to the cadastral and metadata standards, mainly in relation to the position of land ownership boundaries and in the type and extent of data source specifications, respectively. The draft *Part 5: Governmental Unit and Other Geographic Area Boundaries* provides guidance on the spatial and maintenance relationships between and among boundary features and datasets and the metadata schema required to share them. The relationship with

other non-boundary data standards is primarily georeferencing for spatial analysis; this is the responsibility of the vertical steward.

2.5 Technical and Operation Context

2.5.1 Data Environment

The data environment for OABS is a vector model, comprised of areas (polygons) and boundaries (lines) and spatial and maintenance relationships between areas. The exchange medium for administrative boundary data files is the ESRI shapefile, which is a public domain data structure relating feature geometry and feature attributes. This exchange medium is supported by all known GIS software suites in use in Oregon. Information about the technical specification for the ESRI shapefile can be found on ESRI's website (Appendix D). In designating the shapefile as the exchange format, this standard has been designed to accommodate its limitations, such as limiting attribute (field) names to ten characters. In a future version of this standard, we will investigate other formats for data exchange which are able to preserve a more flexible data model.

2.5.2 Reference Systems

Three coordinate reference systems are typically used within Oregon: the Oregon State Plane system (divided into State Plane North and State Plane South along the county boundaries near 44 degrees north latitude), Universal Transverse Mercator (divided into UTM Zone 10 and UTM Zone 11 along the meridian at 120 degrees west longitude), and Oregon Lambert (website describing projection cited in Appendix D).

Custodial stewards may provide boundary data in native coordinate reference systems. Oregon Lambert is preferred. The horizontal steward will assemble and distribute Framework datasets in Oregon Lambert. The reference system and datum **must** be clearly documented in the metadata accompanying the dataset and a projection defined in the shapefile.

2.5.3 Integration of Themes

Many information resource technologies and funding authorities rely on state, county, region, district, and municipal boundaries to determine the appropriate allocation of funds. It is essential that the boundaries used to determine ownership can be integrated with the administrative boundary datasets.

The greatest integration issues arise from within the administrative boundaries theme. There are many instances where boundaries of different types are coincident and a change to one boundary necessitates changes to one or more others. For instance, boundaries defining taxing districts can be comprised of section lines, property ownership lines, water courses, railroads and street centerlines. For areas that share a boundary, such as neighboring counties, any change along the border affects the area of both counties. These are examples of dependent relationships, and integration is accomplished through design of the data model. Relationships cannot be preserved in the shapefile format.

In addition to dependencies, rules need to be defined for determining issues such as which jurisdiction's data is used where more than one version exists or where a jurisdiction maps

beyond its limits. The general rule is that the jurisdiction in possession of the best representation of the boundary should take precedence. In most cases this will be the jurisdiction in which the boundary occurs. The specific arrangements implementing the general rule will be set forth in the stewardship agreements for each jurisdiction and organization contributing boundary data to the Framework.

2.5.4 Encoding

Encoding translates user formats into standard formats, like the shapefile specified here for exchange. All GIS software used in Oregon has the capability of encoding its format to the shapefile format.

2.5.5 Resolution

Boundary datasets have different resolutions depending on scope (national, statewide or local), data capture methods, and the business applications that those data support. It is the intention of this standard to allow regional, county, and municipal datasets to nest within the data collected at a statewide scale, and ultimately this intention will be facilitated by defining spatial relationships within the data model. Some, mostly federal, datasets will not nest entirely within Oregon, and these spatial relationships may also be defined in the data model. Resolution will be tracked as a metadata element, and it is intended to reflect the best available attribution related to geographic area boundaries. Resolution issues will be addressed more specifically within data standards developed under this umbrella, and resolution will be documented in the metadata.

2.5.6 Accuracy

As with resolution, the intention of the OABS is to support varying levels of positional and attribute accuracy. However, it is essential to the success of the data standard that all aspects of boundary data be completely documented in the associated metadata (either at the feature or dataset level). The target positional accuracy is 40 feet or less, reported by the method set forth in *Part 3: National Standard for Spatial Data Accuracy* (NSSDA) (see Appendix D). Each boundary dataset should employ a single measurement unit, such as feet or meters (but not both).

2.5.7 Edge Matching

The OABS is intended to support seamless datasets across Oregon. Similar datasets from adjacent states using the same projection and horizontal/vertical datum should merge with the OABS data without gaps. Data resulting in gaps and overlaps between adjacent jurisdictions submitted to a horizontal steward will be referred back to the boundary authorities for resolution. Some disagreements may be difficult to resolve, and horizontal stewards may have to accept some gaps or overlaps as exceptions. This will be a long-term, iterative process.

2.5.8 Feature Identifier

A unique feature identifier is necessary to link geographic areas and associated boundaries to their attributes and to external databases. The identifier may be a simple number or formed from the concatenation of two or more numbers, codes or abbreviations. For instance, some features may require an agency identifier and an instance code to assure uniqueness.

2.5.8.1 Geographic Areas (polygons)

The unique feature identifier for geographic areas governed by this standard should conform to standard naming conventions, permitting generalization to a regional or statewide extent. FGDC codes or code schemas should be followed wherever possible or a conversion table to the FGDC identifier should be provided. Where FGDC codes or coding schemas are not available or specific enough, conventions for generating unique identifiers must be established and followed. The horizontal steward has responsibility for assigning unique feature identifiers.

2.5.8.2 Boundaries (lines)

Lines are geospatial objects that represent the extent of the geographic area that is being digitally captured in compliance with this standard. In the future it will be necessary to develop a standard set of common line feature codes. Since the designated exchange format is the shapefile, polygons are the feature type shared under this standard. Later versions of this standard may specify linear features.

2.5.9 Attributes

Administrative boundaries and other geographic areas are commonly used to show the location of authority or responsibility for some activity. Attributes for each boundary type vary widely and do not lend themselves to complete standardization. Where appropriate, a minimum set of attributes typically expected to be associated with specific boundary types will be defined in type-specific extensions promulgated under this umbrella standard. The attributes set forth in paragraph 3.0 of this standard will be included at a minimum.

2.5.10 Transactional Updating

Maintenance of boundary data is a particular challenge because there is no one central authority that exists to assure consistency, completeness and currency among all the datasets. It is recommended that an update process be defined for each boundary type and each sub-geography within a boundary type, where appropriate.

2.5.11 Records Management

The nature of digital records is such that new expectations for records management are likely, and at the very least, consistent practices for retention of dynamic files is needed. To further complicate matters, each boundary type may have different requirements. To address this dynamic and custom environment, the extensions under this umbrella standard addressing each boundary type will specify the appropriate requirements. Information about each boundary dataset will be maintained in the Framework database as it becomes known to the vertical steward for administrative boundaries. That information will include the boundary name, agency in authority, the custodial steward, frequency of update, and reference to similar data at other resolutions.

Archiving is mandated under Oregon Revised Statutes (ORS) and Oregon Administrative Rules (OAR). At the minimum, those mandates will be satisfied. Past versions of the administrative boundary elements will be available through the respective custodial stewards, and an annual version of Framework boundary elements will be saved indefinitely by the horizontal steward. It is recommended that the custodial stewards become conversant with industry standards for

archival information and retention policies, such as the standards of good practice published by the American Records Management Association (ARMA).

2.5.12 Metadata

The OABS follows the Oregon Metadata Standard for geospatial data (see Appendix D). Metadata detailing the characteristics and quality of submitted administrative boundary data must be provided. Metadata should make every effort to meet the more rigorous standards set forth in the Federal Metadata Content Standard, where feasible. Metadata must provide sufficient information to allow the user to determine whether the dataset is appropriate for an intended purpose, as well as telling the user how to access the data.

3.0 Data Characteristics

The data characteristics for geometry and attribute content defining governmental units are areas and boundaries. Given the current exchange format (shapefile), only areas (polygons) are defined at this time. The minimum data elements will support only one type of boundary per dataset. See Appendix D for link to FIPS codes assigned to Oregon jurisdictions and for link to query the GNIS database. Appendix B contains a cross-walk table for a variety of standard codes for Oregon counties. Each of the attributes listed below is described more completely in Appendix B, Data Dictionary.

3.1 Minimum Data Elements

3.1.1 Geographic Areas (polygons)

ITEM NAME	*TYPE*	*WIDTH*	*Description*
FID	Object ID		feature id (generated internally)
shape	Polygon		geographic area feature (generated internally)
area	Number	17	feature area (internally generated in units of the coordinate system)
perimeter	Number	17	length of boundary delineating area (internally generated in units of the coordinate system)
unitID	String	17	Framework unique identifier (formed from concatenating unitOwner and instCode)
instName	String	99	Name of the specific instance of the geographic area
altName	String	99	Alternate name of the geographic area, if any
descriptn	String	255	Description of the geographic area or a reference to it
instCode	String	9	Instance code for geographic area (generated by boundary authority)
codeRef	String	25	Coding system reference (e.g., ANSI, FIPS)
effDate	String	8	Effective date in the form YYYYMMDD
unitOwner	String	8	Organization to which the unit belongs (GNIS code preferred; FIPS code if GNIS code not established)
cSteward	String	5	Organization responsible for maintaining the geospatial feature

3.1.2 Boundaries (lines)

ITEM NAME	*TYPE*	*WIDTH*	*Description*
FID	Object ID		feature id (generated internally)
shape	Line		geographic line feature (generated internally)
defFeature	String	25	Defining feature
defFeatureNote	String	25	Critical additional information about the defining feature (i.e. fixed date, source type)

defFeatureType	String	25	Additional descriptive defining element of individual feature (e.g. bearing, fixed coordinates)
accuracy	String	10	Feature accuracy in feet
source	String	99	Feature geometry source (e.g. DLG, survey)
sourceLayer	String	25	Feature geometry source layer name
instCode	String	9	Instance code for geographic area (generated by boundary authority)
codeRef	String	25	Coding system reference (e.g., ANSI, FIPS)
effDate	String	8	Effective date in the form YYYYMMDD
unitOwner	String	8	Organization to which the unit belongs (GNIS code preferred; FIPS code if GNIS code not established)
cSteward	String	5	Organization responsible for maintaining the geospatial feature

3.2 Optional Data Elements

3.2.1 Geographic Areas (polygons)

None specified at this time.

3.2.2 Boundaries (lines)

None specified at this time.

Appendix A
Definitions of Terms

(Contains extractions from Parts 0 and 5 of the
Geographic Information Framework Data Content Standard)

Term	Definition
Accuracy	**Absolute** - A measure of the location of features on a map compared to their true position on the face of the earth. **Relative** - A measure of the accuracy of individual features on a map when compared to other features on the same map.
Administrative Unit	Area established by rule or regulation of a legislative, executive or judicial governmental authority, a not-for-profit organization or private industry for the execution of some function.
Areal	Two-dimensional.
Attribute	Attributes are the characteristics of **features**.
Boundary	Set that represents the limit of a **feature**.
Boundary Authority	The organization under whose authority the geographic area is created and maintained. Frequently this will be the same as the **custodial steward**.
Co-determined	Changes to a boundary segment by either geographic area that shares the boundary segment impose the same changes to the boundary of another geographic area that shares the same boundary segment.
Contains	Interior of one geographic area completely includes and encompasses the interior and boundary of the other geographic area so that their boundaries do not intersect. Reciprocal condition to **inside**.
Covered by	Interior of one geographic area is completely included in the interior of the boundary of the other geographic area and their boundaries intersect. Reciprocal condition to **covers**.

Covers	Interior and boundary of one geographic area completely includes the interior of the other geographic area and their boundaries intersect. Reciprocal condition to **covered by**.
Custodial Steward	Agency or organization responsible for specific tasks relating to maintaining certain geospatial data.
Determined by	Changes to a boundary segment by another geographic area require the same changes to the boundary of a particular geographic area that shares the same boundary segment. Reciprocal condition to **determines**.
Determines	Changes to a boundary segment by one geographic area require the same changes to the boundary of another geographic area that shares the boundary segment. Reciprocal condition to **determined by**.
Disjoint	Boundaries and interiors of two geographic areas do not intersect.
Equal	Two geographic areas have the same boundary and interior.
Feature	Abstraction (point, line or polygon) of a real world phenomenon stored within geospatial software.
Feature Delineation	Criteria or rules for defining the limits of a **feature** and how it will be represented geometrically in a dataset.
FGDC	Federal Geographic Data Committee
GNIS	Geographic Names Information System. The official repository of geographic names in the United States, managed by US Geological Survey.
Geospatial Software	Mapping software with analytical capabilities.
Governmental Unit	Geographic area with legally defined boundaries established under federal, tribal, state or local law, and with the authority to elect or appoint officials and raise revenues through taxes.

Horizontal Steward	The agency or organization responsible for assembling and providing access to a statewide boundary dataset of a particular **type**.
Independent of	Changes to a boundary segment by one geographic area creates a new, unshared boundary segment in the boundary of that geographic area and imposes no changes to the boundary of another geographic area that shared the boundary segment by coincidence.
Inside	Interior and boundary of one geographic area is completely included in the interior of the other geographic area so that their boundaries do not intersect. Reciprocal condition to **contains**.
Instance	One real world occurrence of a particular **type**.
Line	A feature built of vectors connecting at least two points.
Maintenance Relationship	Relative dependency between two or more geographic areas for maintaining common boundary or area information.
Metadata	Data about data.
NSDI	National Spatial Data Infrastructure. The effort of the FGDC to create and implement a shared data collection and maintenance resource for geospatial datasets.
Other Unit	Geographic area that is not a **governmental unit, administrative unit** or **statistical unit**, and that is not an area defined or described in other framework parts.
Overlap	Boundaries and interiors of two geographic areas intersect.
Parcel	In land ownership mapping, a parcel is a tract of land under one ownership. It may be a combination of two or more tracts acquired by separate deeds.
Polygon	Bounded surface for which the interior configuration is not directly specified

Spatial Relationship	Relative spatial location of a geographic area in terms of one or more geographic areas.
Statistical Unit	Geographic area defined for the collection, tabulation and/or publication of demographic or other statistical data.
Touch	Boundaries of two geographic areas intersect, but the interiors do not intersect.
Type	Class of real world occurrences with common characteristics.
Unique Identifier	Every feature is assigned an identifier that is unique to it.
Vertical Steward	The agency or organization responsible for assuring that a boundary dataset of a particular **type** can be used with other boundary datasets and other Framework themes.

Appendix B
Data Dictionary

accuracy: How close, in feet, the spatial GIS depiction is to the actual location on the ground. There are several factors to consider in GIS error: scale and accuracy of map-based sources, accuracy of GPS equipment, and the skill level of the data manipulators. A value of '0' indicates no entry was made. This is the correct value when the COORD_SOURCE is another GIS theme (DLG, GCD, DEM) because the accuracy is determined by that theme. If COORD_SOURCE is MAP or GPS, however, a value of '0' indicates a missing value that should be filled in either with a non-zero number or '-1'. A value of '-1' indicates that the accuracy is unknown and no reliable estimate can be made.

altName: "Unofficial" or variant feature name, if any.

area: Internally generated number representing the area of each polygon feature (in units specified in the projection parameters).

codeRef: Citation, reference, or documentation identifying the instance code.

cSteward: Organization responsible for maintaining the geospatial feature. The codes to identify the unit owner will be used for custodial stewards as well.

defFeature: This field lists the officially described physical feature that forms the boundary. Features may be discernible objects (e.g. ridge, stream), relative points (e.g. point to point description or section line), or abstract features derived from physical objects (e.g. 3 Mile limit).

defFeatureNote: This field provides individual feature anomalies affecting the application of defFeature. Boundaries may follow natural features as they move over time, while others are fixed. This field also allows notation of specific source layer types (e.g. PLSS vs GCDB) where options exist for the feature listed in defFeature.

defFeatureType: This field further describes the general feature type in defFeature.

descriptn: Phrases, coordinates, metes and bounds, or other authoritative information describing the geographic area or providing a reference to it, such as a URL or legal document.

effDate: The date on which a geographic area change took effect (not when the GIS change took place).

FID: Feature ID internally assigned to each feature by the geospatial software.

instCode: This field represents the local area identifier for the instance of a geographic area feature. This field will serve as a crosswalk between locally maintained feature attribution that is not part of the minimum data structure.

instName: "Official" feature name. If available, the instance name is the name of the geographic area feature from the GNIS. This should be a complete text representation of the common name rather than a reference to internal naming conventions.

perimeter: Internally generated number representing the length of the boundary delineating the polygon feature (in units specified in the projection parameters).

shape: This field represents the collection of vertices that comprise the boundary of the geographic area feature. It is considered an "internal" field, since it is captured by proprietary digitizing software in a manner consistent with its topological algorithms. This topology generally takes the form of Cartesian coordinates (matched x-y-z pairs) in the projection units specified. For Admin-FIT pilot projects, the OGIC exchange standard projection (a customized Lambert conical projection) is required for the final implementation.

source: The actual source steward of the GIS coordinates for the line segments.

sourceLayer: This field lists the source layer for the individual feature.

unitID: This field represents the unique boundary identifier for the Admin-FIT framework theme. This identifier will be the concatenation of two fields: an agency identifier (unitOwner) and an instance code (instCode).

unitOwner: Organization responsible for administering the unit (aka boundary authority). GNIS codes are preferred; use FIPS codes if GNIS codes not assigned. If no FIPS code exists, use DOR codes. If none of those exist, use other established lists, such as the index of road authorities. If no existing entity code exists, then one will be assigned by the horizontal steward. A crosswalk table for Oregon counties follows:

COUNTY	FIPS	DOR	GNIS
Baker	41001	1	1135845
Benton	41003	2	1155126
Clackamas	41005	3	1155127
Clatsop	41007	4	1135846
Columbia	41009	5	1135847
Coos	41011	6	1135848
Crook	41013	7	1155128
Curry	41015	8	1155129
Deschutes	41017	9	1155130
Douglas	41019	10	1135849
Gilliam	41021	11	1135850
Grant	41023	12	1135851
Harney	41025	13	1135852
Hood River	41027	14	1155131
Jackson	41029	15	1135853
Jefferson	41031	16	1155132
Josephine	41033	17	1155133
Klamath	41035	18	1155134

COUNTY	FIPS	DOR	GNIS
Lake	41037	19	1135854
Lane	41039	20	1135855
Lincoln	41041	21	1135856
Linn	41043	22	1135857
Malheur	41045	23	1135858
Marion	41047	24	1135859
Morrow	41049	25	1135860
Multnomah	41051	26	1135861
Polk	41053	27	1135862
Sherman	41055	28	1135863
Tillamook	41057	29	1135864
Umatilla	41059	30	1156673
Union	41061	31	1164165
Wallowa	41063	32	1155135
Wasco	41065	33	1155136
Washington	41067	34	1155137
Wheeler	41069	35	1135865
Yamhill	41071	36	1135866

Appendix C
Issues Addressed and Resolved

(Notes)
Version 2:
7/17/08: At 4/21/08 Admin Bdy FIT Meeting the group identified the need to address line attributes in the standard. Corey Plank (BLM) provided suggested elements from BLM documents. These line attributes have been added, new items added to the data dictionary, the version changed from 1.0 to 2.0.

Version 1:
User issues vs. data structure packaged for exchange
To facilitate all appropriate uses and make it easy on horizontal stewards, only one type of boundary will be in each dataset.
Name of standard

Appendix D
Referenced Documents and Web Links

Environmental Systems Research Institute. *ESRI shapefile technical description: An ESRI white paper* (July 1998) – http://www.esri.com/library/whitepapers/pdfs/shapefile.pdf.

Federal Geographic Data Committee. *Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy* (1998) – http://www.fgdc.gov/standards/standards_publications/index_html

Information Technology Industry Council. *Framework Data Content Standard, Part 0: Base* - http://www.fgdc.gov/standards/projects/incits-l1-standards-projects/framework/draft-documents/.

Information Technology Industry Council. *Framework Data Content Standard, Part 5: Governmental unit and other geographic area boundaries* - http://www.fgdc.gov/standards/projects/incits-l1-standards-projects/framework/draft-documents/.

Oregon GIS Standards. *Procedures for Amending GIS Standards* (2006) - http://gis.oregon.gov/DAS/EISPD/GEO/docs/standards/ProceduresforAmendingStandards012207.pdf

Oregon Geographic Information Council. Oregon Coordinate Reference System Standard. http://gis.oregon.gov/DAS/EISPD/GEO/coordination/projections/projections.shtml.

Oregon Geographic Information Council. *Oregon Metadata Standard.* 2002. http://gis.oregon.gov/DAS/EISPD/GEO/standards/standards.shtml.

Oregon Geographic Information Council. *Oregon Standards Development Efforts.* n.d. http://gis.oregon.gov/DAS/EISPD/GEO/standards/docs/Standards_Development_Effort.pdf.

State of Kansas. *Kansas Geospatial Data Standards: Jurisdictional and Administrative Boundaries, ver 1.1*, draft, March 2001.

US Census Bureau. FIPS codes. http://www.census.gov/geo/www/fips/fips65/index.html.

US Geological Survey. GNIS database lookup: http://geonames.usgs.gov.