



Oregon Cadastral Data Exchange Standard

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Please address comments to the Oregon Department of Revenue at OR.MAP@state.or.us.

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1.0 Introduction

Under the direction of the Oregon Geographic Information Council (OGIC), the Oregon Framework Implementation Team (FIT) has delegated the development of a Cadastral Framework Implementation Plan and a Cadastral Data Exchange Standard to the FIT Cadastral Subcommittee. The Oregon Map program (ORMAP) was created by the legislature to develop a base map system to improve the *ad valorem* property tax system. Attachment A recites ORMAP’s statutory authority. More information about ORMAP, the mapping methodology used, and the technical specifications required for ORMAP grants is at www.ormap.org. The Cadastral Framework Implementation Team relies on the ORMAP Technical Group for the creation of this standard. The Cadastral Framework theme is a collection of prioritized, spatially referenced digital representations of broadly defined cadastral feature sets for Oregon. The taxlot element includes all taxlots within the state of Oregon.

This document, the Oregon Cadastral Data Exchange Standard (Cadastral Standard), is the second major iteration of the standard and incorporates several *de facto* standards related to various aspects of the Oregon cadastre that have been in place and used by the cadastral community in Oregon for some time. This major amendment for December 2008 adds the MapIndex polygons in shapefile format to the exchange standard. Future iterations of this standard will incorporate additional components, such as a logical data model, that are currently being pursued collaboratively by the cadastral community. This standard is a living document that will be updated periodically.

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1.1 Mission and Goals of Standard

The goals for the Cadastral Standard are:

1. To provide common definitions for cadastral information found in public records, which will facilitate the effective use, understanding, and automation of land records;
2. To provide consistent attribute definitions and value ranges to enhance data sharing;
3. To resolve discrepancies related to the use of homonyms and synonyms in land record systems, which will minimize duplication within and among those systems;
4. To provide guidance and direction for land records and land surveying professionals on standardized definitions, which will improve land records automation, management, and use;
5. To provide a standard for the definition and structure of cadastral data that facilitates data sharing and protects and enhances the investments in cadastral data at all levels of government and in the private sector; and
6. To use participatory involvement in developing the standard by reaching out to organizations that will encourage broad-based application of the standard.

The Cadastral Standard is designed to work in conjunction with the ORMAP goals and objectives. The ORMAP program adopted the following vision on October 5, 2006.

“[ORS 306.132](#)(2) Moneys in the Oregon Land Information System Fund are continuously appropriated to the Department of Revenue for the purpose of funding a base map system to be used in administering the ad valorem property tax system.” [1999 c.701 §7]

The vision of ORMAP is to develop a statewide cadastral base map that is:

- Digital,
- Publicly accessible,
- Continually maintained,
- Supports the Oregon property tax system (A&T),
- Supports a multi-purpose land information system,
- Strives to comply with appropriate state and national standards, and
- Will continue to be improved over time.

1.2 Relationship to Existing Standards

Cadastral mapping standards were developed and have been overseen by the Department of Revenue (DOR) since 1953. The *Oregon Cadastral Map System* is actively followed in all 36 counties. This document is available by contacting the Department of Revenue at the following email address: map.manual@state.or.us.

The Cadastral Standard integrates with existing standards as much as possible. The Oregon Cadastral Map System has been reviewed and incorporated in this document. All geospatial data sets developed under the Cadastral Standard must adhere to the recently adopted *Oregon Metadata Standard* once the implementation plan for that standard is published.

Other interagency federal and State of Oregon standards, such as the Bureau of Land Management Public Land Survey System meridian definitions, were adopted where appropriate. Many local and state government standards were reviewed for inclusion. Furthermore, the Cadastral Standard has been written with consideration of other standards being developed through the Oregon geospatial data standards development process. Specifically, these include the *Oregon Road Centerline Data Standard*, the *Oregon Address Standard* and the *Governmental Unit Boundary Data Exchange Standard*. To find more information on Oregon geographic information systems (GIS) data standards and their development, please visit the Oregon Geospatial Enterprise Office standards page at: <http://www.oregon.gov/DAS/IRMD/GEO/standards/standards.shtml>.

The Cadastral Standard is an extension of the Federal Geographic Data Committee's *Cadastral Data Content Standard for the National Spatial Data Infrastructure* (version 1.3, May 2003). The federal standard is posted at: www.nationalcad.org.

The Cadastral Standard incorporates modifications to the federal standard in accordance with cadastral mapping goals and practices in Oregon.

1.3 Description of Standard

The Cadastral Standard forms the basis for automating the real property data found in public records. The standard defines attributes or elements that are in land transaction documents. It provides suggested domains for many elements and provides an interagency definition for each element. These two standardization efforts, domains and definitions, should increase the uniformity of cadastral records. The Cadastral Standard describes the essential elements and data structure necessary to adequately describe, produce, and use real property data in Oregon.

The Cadastral Standard does not limit or filter the information that can be included. Cadastral information in the public record is modeled, defined and included. For example, many types of legal descriptions, such as metes and bounds, subdivision plats, and the Public Land Survey System (PLSS), are included in

the model and definitions. This does not mean that every implementation of the standard has to include every entity and attribute; conversely, the standard provides relationships, definitions and attributes to be considered for automation.

The standard contains sufficient information to convert land records information to a common basis. For example, while it is possible to automate distances that have any unit of measure, the original measurements units must be indicated in a legal cadastre. This requirement adds a significant number of attributes to the standard. Within these added attributes there is an attempt to provide suggested domains to support future data conversions and migrations. These suggested domains are by no means an exhaustive list, and additional or expanded domains are encouraged.

The term “suggested domain” does not intend to indicate that this is a standardized list of domains. The rules and specifications for automating cadastral information into the Cadastral Standard depend in part on the information contained in the real property records. That is, it is not possible to automate information that is not available, but all information that is available could be automated. For example, if a taxlot described in a deed as Lot 2 of Green Acre Subdivision in Marion County and the bearings and distances around the taxlot are not included in the deed, it is not possible to automate the perimeter measurements.

1.4 Applicability and Intended Use of Standard

The Cadastral Standard is intended to support the automation and integration of publicly available land records information. It is intended to be useable by all levels of government and the private sector. The standard contains entity definitions and objects related to cadastral information, including survey measurements, transactions related to interests in land, general property descriptions, and boundary and corner evidence data. The standard supports the exchange of this information.

The intended geographic scope of the standard is the state of Oregon, including all onshore cadastral information, as well as marine cadastral information. Additions to this standard for other geographic areas and business processes shall be determined as the document and process evolve.

The standard is not intended to reflect an implementation design. An implementation design requires adapting the structure and form of these definitions to meet application requirements. The standard can be implemented as either a stand-alone data system for measurement-based systems, for transactional information systems, or as an attribute data system connected to a geographic information system. The standard does not contain the spatial and topological linkages and spatial features required to build and maintain a land records based geographic information system at this time. Those linkages and features shall be incorporated in a subsequent version of this standard if and when the cadastral data community in Oregon agrees upon the need and form of those linkages and features.

1.5 Standard Development Procedures

Participants

The FIT Cadastral Subcommittee is centered in the Department of Revenue which has relied on the ORMMap community for input. This community is composed of Oregon county assessment and taxation staff, county GIS and IT staff, county commissioners, Oregon Forest Industries Council, Department of Administrative Services, Department of Forestry, City of Springfield, Bureau of Land Management (BLM), utility companies, title companies, and software and other vendors. The Oregon surveying community has also contributed by assisting with the definition of accuracy as it relates to cadastral

mapping. All of these participants have combined requirements and industry perspectives to assist in creating this document and the ORMAP product. For more information on participants in the construction of this document, contact the Department of Revenue at the email address on the title page.

Comment Opportunities and Reviews

The Cadastral Standard has been circulated throughout the community for review and comment. This distribution is done by public meetings, email list servers, the GIS Program Leaders group (GPL), the ORMAP Technical Group and Advisory Committee, and the Oregon Geospatial Enterprise Office website (<http://www.oregon.gov/DAS/IRMD/GEO/index.shtml>). The initial review began with the distribution of version 0.1 on May 6, 2003. Following the adoption of this standard, additional reviews and comments shall be incorporated on a timely basis contingent on community approval. To make a comment, send email to the Oregon Department of Revenue at the email address on the title page.

1.6 Maintenance of Standard

The FIT Cadastral Subcommittee created this standard and shall manage the maintenance of it. It exists in an environment of rapidly evolving user needs and mission requirements. This standard shall be revised to incorporate the additions and revisions that are evaluated and validated during the first year following publication. Any user of the standard may submit requests for change. Requests shall contain:

- Title
- Date of Submission
- Version number and date of the Standard
- Page reference
- A description of the problem (with an example, if possible)
- The suggested change (with an example of its application)
- Point of contact (name and address)

Additions and suggestions are encouraged to make this a workable document. Suggestions should be sent to the email address on the title page.

2.0 Body of the Standard

2.1 Scope and Content of the Standard

The Cadastral Standard provides guidance for the development and integration of feature and attribute data of particular cadastre-related layers. Specifically, this document addresses accuracy, format and content.

2.2 Need for the Standard

The development and implementation of this data standard is required to facilitate Oregon cadastral data compilation and sharing. All 36 Oregon counties are required to maintain cadastral data, so a standard is needed to assure data developed by different organizations are built with the same criteria. This standard is needed so that geographical information, as well as attribute field names, definitions, and values codes, is similar across county data sets. It is the ORMAP goal to create a statewide seamless taxlot map for Oregon, and this standard will help achieve that goal.

2.3 Participation in Standards Development

Members of the FIT Cadastral Subcommittee who are members of the ORMAP administration team have included the ORMAP community as much as possible. The ORMAP program fosters collaboration from different cadastral mapping programs and stakeholders throughout Oregon. The entities involved in ORMAP and this standard development process include the Oregon Department of Revenue, Department of Administrative Services, Oregon Department of Forestry, Oregon Forest Industries Council, Oregon county commissioners, the Oregon GIS community, county assessor's offices and IT staff, title companies, select cities of Oregon, and other public and private organizations interested in the development of the statewide seamless property map. For more information, please visit www.ormap.org for ORMAP information, or <http://www.oregon.gov/DAS/IRMD/GEO/standards/standards.shtml> for a description of the standard development process.

2.4 Integration with Other Standards

Cadastral mapping standards were developed and have been overseen by the Department of Revenue since 1953. The *Oregon Cadastral Map System* is actively followed in all 36 counties as required by ORS 308.245. This has created a cadastral mapping system where the symbology representing cadastral information on assessor maps is uniform across the state. The *Oregon Cadastral Map System* is a critical standard that will work with the Cadastral Standard. This document is available on the ORMAP website at www.ormap.org. For information about the *Oregon Cadastral Map System*, please contact the Department of Revenue at the email address on the title page.

The Cadastral Standard follows the same format as other Oregon Framework standards as identified on the GEO website, <http://www.oregon.gov/DAS/IRMD/GEO/fit/FIT.shtml>. The FIT effort is closely aligned with the national framework initiative led by the Federal Geographic Data Committee and the President's Office of Management & Budget (OMB). Hence, the initial text for the Cadastral Standard was taken from the *Cadastral Data Content Standard for the National Spatial Data Infrastructure, Version 1.3*. The FIT Cadastral Subcommittee modified that document to produce a standard specific to cadastral mapping in Oregon. These modifications pertain primarily to the attribute data structure.

2.5 Technical and Operational Context

2.5.1 Data Environment

The data environment for cadastral data in Oregon is a vector model comprised of points, lines, and polygons and the topological relationships among those features. The exchange medium for cadastral data files is the shapefile, which is a public domain data structure relating points, lines, polygons and feature attribution. All known GIS software suites in use in Oregon support this exchange medium. Information about the technical specification for the shapefile can be found at www.esri.com/library/whitepapers/pdfs/shapefile.pdf.

2.5.2 Reference Systems

Reference systems are a critical component of cadastral mapping to assure accuracy to required levels. Cadastral reference systems include the Public Land Survey System (PLSS) locations, as well as the development of geodetic control points. PLSS locations include township and range corners and section corners. From these locations, geodetic control points are developed that allow cartographers to tie taxlot boundaries to highly accurate locations. Another source of reference is the BLM's Geographic Coordinate Data Base (GCDB). The coordinates in the GCDB are widely used to aid in cadastral mapping in Oregon. Projection definitions must

accompany all deliverables. The Oregon Lambert projection is preferred when shipping data for exchange with state agencies and is required for exchange between state agencies.

The coordinate reference systems typically used in Oregon are the Oregon State Plane system (divided into State Plane North and State Plane South along the county boundaries near 44 degrees north latitude), the custom Oregon Lambert projection described at: <http://egov.oregon.gov/DAS/IRMD/GEO/coordination/projections/projections.shtml>, and Universal Transverse Mercator (zone 10, which comprises all land in Oregon to the west of 120 degrees west longitude; and zone 11, which comprises all land to the east of 120 degrees west longitude).

2.5.3 Survey Tools

Land surveyors use survey tools, such as the Global Positioning System (GPS), in the acquisition of control points. Cartographers use control points gathered and created by surveyors as reference points to tie taxlot boundaries to real-world locations. This has increased the speed at which highly accurate cadastral maps are produced. When necessary to gather control points in the field, a licensed land surveyor will determine the appropriate tool.

2.5.4 Integration of Themes

The cadastral theme is often used as a base layer for many mapping applications. It is imperative that the cadastral theme be both accurate and complete to enable integration of other Framework themes. Other Framework themes that rely on accurate and complete cadastral data as a foundation include Administrative Boundaries, Cultural, Land Cover/Use, Utilities and Transportation. It is the goal of these standards that by following the recommendations, cadastral data can be used for the widest array of functions. Taxlot boundaries are often coincident with administrative boundaries and with changes in land use, so the cadastral theme must integrate spatially with both. Address points, building outlines, and most other features that comprise the Cultural Framework theme lie within the boundaries of individual taxlots, so these features must integrate spatially with the cadastral theme. Many features of the Utilities Framework are components of systems that are intended to provide products and services to individual taxlots. As such, the Utilities Framework must integrate spatially with the cadastral theme.

The primary Framework data themes required by the Cadastral theme are Geodetic Control and Orthoimagery. As noted in 2.5.2 above, geodetic survey control points provide highly accurate locations to which taxlot boundaries must be tied. Similarly, the Orthoimagery Framework theme is used to portray approximate boundary locations for taxlots. Geodetic control provides the key to integrating the cadastral and orthoimagery themes, as well as all other themes.

2.5.5 Encoding

Cadastral boundaries are encoded in points, lines, polygons, and attributes. These convey information about the location and descriptions of each feature. To date, no specific encoding scheme for cadastral data has been adopted. However, it is intended that this standard be in alignment with the encoding schema(s) developed through the FGDC's *Cadastral Data Content Standard* and the cadastral initiative being pursued by OMB's Geospatial One-Stop Initiative. Furthermore, the ORMAP program has recently undertaken a data modeling exercise that shall be incorporated in this standard when complete.

2.5.6 Resolution

As mentioned above, imagery is often used to aid in the placement of cadastral boundaries. Such is the case in areas heavily influenced by water boundaries as along rivers, canals, the ocean or any other dividing feature. These boundaries cannot be assumed to have survey-grade accuracy but can be more than adequate for taxlot mapping where surveying each boundary is cost

prohibitive. The resolution of the imagery is one factor that will determine the possible relative accuracy of taxlot lines created from imagery. The resolution of the taxlot polygons will depend on the resolution required for assessment purposes.

2.5.7 Accuracy

ORMAP has set relative accuracy standards for the phases of the ORMAP program, to be completed in two-year intervals. The phases are described as ORMAP Goals in Attachment B. This relative accuracy refers to the location of the taxlot boundaries in relation to control points identified by licensed surveyors. Cadastral taxlot line accuracy is not intended to represent positional accuracy. Licensed surveyors need to be consulted if statements about positional accuracy need to be made.

Content accuracy of the cadastral data is also important. Content accuracy has to do with the correctness and completeness of the attribute data associated with the points, lines, and polygons that comprise the cadastral database. There are three aspects of content correctness:

- 1) The attribute data must be correct for the taxlot in question.
- 2) The attribute data must contain all of the elements specified in Section 3.0 of this standard.
- 3) The individual components of the attribute data elements must be complete, as appropriate, and contain the correct information.

Temporal accuracy is another important aspect of data accuracy. Temporal accuracy pertains to how current the graphical and attribute data is in relationship to changing conditions. The most recent discussions of the ORMAP community evidence a strong inclination towards having annual published updates to synchronize the taxlot polygons, attributes, and associated assessor maps with the annual tax roll. This standard shall be updated to reflect any decisions made with regard to temporal accuracy.

2.5.8 Edge Matching

Edge matching is a critical component of cadastral mapping and has traditionally been one of the most difficult challenges. To attain the goal of a seamless cadastral map across the entire state, the ORMAP program promotes edge matching within and between neighboring counties. Agreed taxlot boundaries must be established within county boundaries, as well as between neighboring counties, to ensure seamless coverage and unique ownership. Taxlots shall be edge matched to a common boundary despite varying relative accuracy levels.

2.5.9 Feature Identification Code

Features shall be identified by a unique number. The number must be unique, not only within a county, but also within the state, in order to make a statewide cadastral theme useful. The unique identifier shall be used to link cadastral attributes and indexes with geospatial features, such as taxlot polygons, fire district polygons, or geodetic control points. A statewide unique taxlot identifier has been defined and is named *ORTaxLot*. For specifics, see Section 3.4 of this standard. Taxlot numbers are related to map scale and are subject to change as updating and remapping occur. They are unique and never reused, but they are not a permanent identifier. See Attachment C, Cadastral Exchange Standard Data Model.

2.5.10 Map Features

Map feature types are point, linear, and polygon features, each with associated attributes.

Point

Point features are geospatial objects that represent point map elements such as control, stationing, landmarks, etc. Points are optional at this time and are described in section 3.0.

Linear

Linear features are geospatial objects that represent single-line map elements such as historical lines. Linear features are not included in the Cadastral Data Exchange Standard at this time.

Polygon

Polygons are geospatial objects that represent taxlots, school districts, fire districts, tax code areas, etc. Polygons are uniquely identified using the feature identification codes described in section 3.0

Attributes

Attributes are any of the additional information that is collected and shared about a cadastral feature.

2.5.11 Transactional Updating

Counties determine the methods they wish to use for conducting updates. The standard for updating cadastral information is still in discussion. Initial discussions are focusing on annual updates of the taxlot polygons, attributes, and assessor map images to best synchronize these items with the tax roll. Because of varying processes, each county is to use knowledge of internal business practices to determine when these items are best synchronized. As an updating timeframe and process are agreed upon through ORMAP discussions, this standard shall be updated to reflect that process.

All 36 counties currently have an internal process in place to maintain their respective taxlots, and that process may differ from this standard. Additional internal county taxlot maintenance is outside the scope of this document. Twenty-two counties maintain their own maps, while 14 counties cost share with the Department of Revenue for their map maintenance.

2.5.12 Records Management

Property records information is a critical component to the functionality and usefulness of the taxlot layer. Records including deeds, permit information, and title information are linked to the taxlot layer allowing for value-added functionality and increases in the scope of the data set. It is important to plan for these additions during initial development in an attempt to minimize future costs. The data structure described in Section 3.4 will allow these records to be linked to the taxlot layer and images described in this standard. It is therefore important for cadastral data developers to follow the definitions and requirements set forth in this standard.

Data archiving is mandated under Oregon Statutes and Administrative Rules, and the cadastral data covered by this standard shall be archived. At a minimum, those mandates are to be satisfied; however, details of the archiving process have not been established.

2.5.13 Metadata

Minimum FGDC-compliant metadata shall be produced and maintained for each county's taxlot data. Taxlot data that follows the Cadastral Standard will be able to use a single set of metadata applicable to all 36 counties, with the exception of bounding coordinates, publish date, and developer contact information. The unique information will be customized for each county. Discussions are underway to post metadata on the OGIC website for review and query. This is in

line with other statewide metadata available on that site. The ORMAP website managed by the Department of Revenue will also list metadata for review and download. The stewardship of each taxlot layer shall reside with the counties who created it. The Department of Revenue through the ORMAP program shall serve as a central point for accessing information about available data and county contacts. This approach allows the end user to see what data is available for each county, as well as evaluate the progress of ORMAP toward its goals. Metadata must provide sufficient information to allow the user to determine whether the data will meet an intended purpose, as well as inform the user of how to access the data.

3.0 Data Attributes

The attributes for taxlots are presented here. The attributes specified are subject to revision based on the data modeling exercise currently underway by the Oregon cadastral community. Several related standards (e.g., Oregon Administrative Boundaries Data Content Standard, Oregon Geodetic Control Data Content Standard, and others) may supersede some of the existing attributes. The attributes listed in section 3.4 represent the minimum set required to comply with this standard.

3.1 History

During the years of 1995-1998 the Oregon GIS Association (OGISA), in partnership with the assessors' county cartographers, OGIC, and the Oregon Association of County Engineers and Surveys (OACES), developed a conceptual framework for land information and explored how a simple interchange standard could be established for sharing base property records.

A technical committee was formed to prototype the interchange format consisting of state, local and county government representatives. The committee developed the data standard, tested it using land records from several counties, and developed several simple demonstrations using the information.

3.2 Design Issues

The exchange data structure has to be:

- flexible;
- simple;
- easily made from ESRI software, AutoDesk software and Intergraph software;
- viewable by a wide variety of desktop viewing software;
- minimalist and agreeable to almost everyone;
- able to support basic viewing, querying and GIS/LIS functionality; and
- inclusive of enough attributes to be useful but not so many as to be controversial.

During the design process several data structures became too complex or exceeded the scope, including:

- map annotation because it was too complex and variable;
- map control as it would not be very meaningful and could be easily misinterpreted; and
- large tabular datasets because this information is available from other sources and is too difficult to standardize.

3.3 Conceptual Framework

The Cadastral Data Exchange Standard has three components:

1. Shapefiles of taxlots, tax codes and map indexes;
2. Digital images of the standard assessor's taxlot map; and
3. Real Property table.

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These components are described in sections 3.4 through 3.8.

3.4 Taxlot Shapefile

The taxlot shapefile contains polygons that describe real property as maintained by the county cartographer following DOR rules. Shapefiles are county-wide and must contain basic attributes which identify and describe each taxlot. The shapefile can serve as a set of primary keys to link the taxlots with other taxlot account information. Use the following file naming convention for the shapefile: "taxlot[*countynumber*]" (e.g., taxlot03.shp for Clackamas County). Shapefiles in the Oregon Lambert Projection are preferred, but the projection can be what is used in the county and must be defined. Taxlot geometry will extend only to the accepted county taxing district boundary.

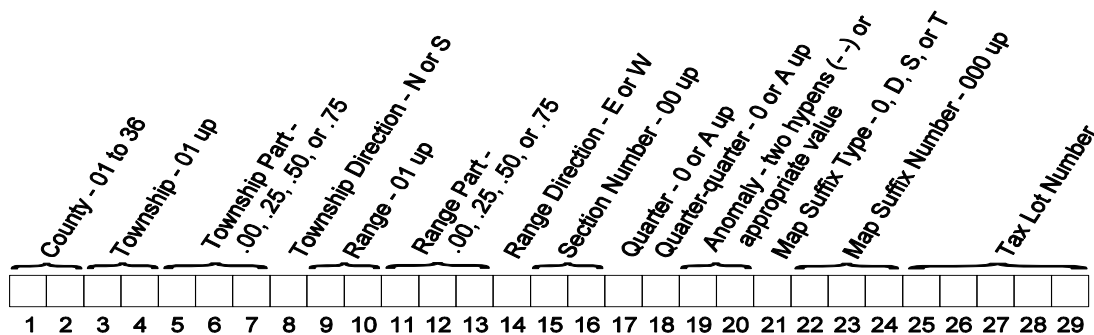
Following is a list of fields (attributes) used to describe each taxlot polygon; all fields must contain a value (no blanks). If no value exists, use the null value [value].

County	(Integer, Length = 2) County number ¹
Town	(Integer, Length = 2) Township number
TownPart	(Double, Length = 3) Partial township ([.00], .25, .50 or .75)
TownDir	(Text, Length = 1) Township direction (N or S)
Range	(Integer, Length = 2) Range number
RangePart	(Double, Length = 3) Partial range ([.00], .25, .50 or .75)
RangeDir	(Text, Length = 1) Range direction (E or W)
SecNumber	(Integer, Length = 2) Section number ([00] to 37)
Qtr	(Text, Length = 1) Quarter section ([0] or alpha character)
QtrQtr	(Text, Length = 1) Quarter-Quarter section ([0] or alpha character)
Anomaly	(Text, Length = 2) For irregular situations that are not otherwise categorized (e.g., split Townships, split sections) ([--], TN, TS, SN, SS,)
MapSufType	(Text, Length = 1) [0], Detail (D), Supplemental (S) or multi-sheet maps (T)
MapSufNum	(Integer, Length = 3) Sheet number for D, S, or T maps, [000]
MapNumber	(Text, Length = 20) Must use map number as stored in the County's Assessor's database
ORMapNum	(Text, Length = 24) Statewide standard map number ²
Taxlot	(Text, Length = 5) Taxlot number padded with leading zeros (00100, 00200, etc., or, for polygons without taxlot numbers, the allowable values are, ROADS, RAILS, WATER or [NONTL])
SpecialInt	(Text, Length = 1): Does a Special Interest taxlot number tie to the primary taxlot number? (Y, N, or [U] for unknown)
MapTaxlot	(Text, Length = 25) Map and taxlot number as stored in the assessor's database
ORTaxlot	(Text, Length = 29) Statewide standard map and taxlot number ³
TaxlotFeet	(Long Integer, Length = 9) Legal area of the taxlot in square feet ⁴

TaxlotAcre (Double, Length = 9) Legal area of the taxlot in acres to the nearest hundredth⁴
ReliaCode (Integer, Length = 2) Left blank, as a place holder
MapClass (Text, Length = 1) Map Classification reflecting the typical scale of the Assessor's taxmap used to map a region, as determined by the Cartographer. (U, R, or F).⁵
MapRelCode (Text, Length = 2) Identifies the relationship between the tax map and the current *ORMAP Technical Specifications* (01, 02, or 03).⁵

¹ The county numbers as defined by DOR are: 01-Baker, 02-Benton, 03-Clackamas, 04-Clatsop, 05-Columbia, 06-Coos, 07-Crook, 08-Curry, 09-Deschutes, 10-Douglas, 11-Gilliam, 12-Grant, 13-Harney, 14-Hood River, 15-Jackson, 16-Jefferson, 17-Josephine, 18-Klamath, 19-Lake, 20-Lane, 21-Lincoln, 22-Linn, 23-Malheur, 24-Marion, 25-Morrow, 26-Multnomah, 27-Polk, 28-Sherman, 29-Tillamook, 30-Umatilla, 31-Union, 32-Wallowa, 33-Wasco, 34-Washington, 35-Wheeler, and 36-Yamhill. To convert these numbers to Federal Information Processing Standards (FIPS) codes, multiply the number by two and subtract one. To convert FIPS codes to Oregon codes, add one to the FIPS code and divide by two.

² The *ORMapNum* field is the first 24 characters in the illustration below. Each position must be filled with the appropriate character or zeros (or hyphens in the case of *Anomaly*).



³ The *ORTaxlot* field includes the *taxlot* number at the end padded with leading zeros if it is less than five characters. In *ORTaxlot*, the *MapSufType* and *MapSufNum* fields are always zeros unless the county includes the supplemental map number as part of the taxlot number. In that case, S plus the *MapSufNum* is appropriate (S001, S002, etc.).

⁴ One or the other of these fields is used depending on how the assessor maintains the information for the taxlot. If there is no legal area measurement, as in the case of lot and block descriptions, both remain zero.

⁵ This table provides the possible values and definitions for MapClass and MapRelCode attributes for the taxlot shapefile. These will be determined by the professional judgment of a County Cartographer.

MapClass	MapRelCode
U = Urban	01= Meets or exceeds ORMAP Technical Specifications
R = Rural	02 = Technical Specifications not met
F = Farm/Forest (resource lands)	03 = Excepted from Technical Specifications

3.5 Tax Codes

Tax codes are maintained as part of the assessor's map and can be used to derive important information about the boundaries of taxing districts. Tax codes can be used to generate taxing districts. One of the uses of cadastral data is providing better information for tax districts.

The tax code shapefile represents polygons that describe each tax code area within a county as defined by the DOR map guidelines, when naming this shapefile use the following format:

“TXCode[*countynumber*]” (e.g., TXCode12 for Grant County). Tax codes are used by the assessor's office to manage overlapping taxing districts. Each tax code area represents one or many taxing districts. The fields (attributes) used to describe each tax code polygon are as follows:

County (Integer, Length = 2) County number (e.g., 11)
Taxcode (Text, Length = 8) Tax code value (e.g., 4-4)

3.6 Digital Map Images

Digital map images are representations of the standard assessor's maps that meet DOR mapping standards. Maps can be generated from software or created by scanning existing maps. Digital images should be in Tiff Group 4 or Portable Document Format (PDF). Optionally the images can be geo-referenced to the map base. File names should be the same as the *MapNumber* field identified in the taxlot description in section 3.4.

3.7 Real Property Table

The real property file contains information about land transactions. This file may contain single or multiple records for each taxlot. The *MapTaxlot* field connects the real property table to the taxlot shapefile. The primary account number (*PrimAccNum*) is the primary key for this file and could be used to link to other assessment information at the county. When exchanging this data use a DB IV format and the following naming convention: “RProp[*countynumber*].dbf” (e.g., RProp36.dbf for Yamhill County).

Deleted: The structure of the table is mandatory, but all values are optional.

County (Integer, Length = 2) County number (e.g., 11)
MapTaxlot (Text, Length = 25) See section 3.4 for a description of this field
SIMapTax (Text, Length = 28) *MapTaxlot* plus *SpecialInt* (A01, M01 and U01)
PrimAccNum (Text, Length = 30) Assessor's primary account or serial number for taxlot (e.g., 313300)
OwnerLine1 (Text, Length = 255) Primary owner's name
OwnerLine2 (Text, Length = 255) Secondary owner's name
OwnerLine3 (Text, Length = 255) Third owner's name
AgentName (Text, Length = 255) Agent name for the taxlot
MailAdd1 (Text, Length = 40) Mailing Address
MailAdd2 (Text, Length = 40) Second mailing address to support non-standard addresses
MailCity (Text, Length = 40) City for mailing address
MailState (Text, Length = 40) State for mailing address
MailCntry (Text, Length = 40) Country for mailing
MailZip (Text, Length = 10) Zip code for mailing address
SiteAddNam (Text, Length = 40) Name of street for situs address
SiteAddCty (Text, Length = 40) City name for situs address
SiteZip (Text, Length = 10) Zip code for situs address

Deleted: (optional)

Deleted: (optional)

Deleted: (optional)

InstYear	(Integer, Length = 4) Year last sold
InstMonth	(Integer, Length = 2) Month last sold
InstID	(Text, Length = 24) Instrument number of last sale such as book and page
InstType	(Text, Length = 16) Type of instrument
Dwelling	(Text, Length = 1) Occupied structure on taxlot (Y or N)
PrpClass	(Text, Length = 8) Property class number
PrpClsDsc	(Text, Length = 32) Property class description

3.8 MapIndex Shapefile

Many Counties have already created MapIndex polygons, or can generate them as part of the exchange process. Use the following file naming convention for the shapefile: “mapindex[*countynumber*]” (e.g., mapindex03.shp for Clackamas County). Shapefiles in the Oregon Lambert Projection are preferred, but the projection can be what is used in the county and must be defined.

Deleted: MapIndex is an optional shapefile provided as part of the Cadastral Data Exchange Standard.

Deleted: For this reason it is recommended that Counties provide this information whenever possible.

The MapIndex shapefile contains polygons that represent the map area that is the boundary of a group of taxlots. These polygons should be county-wide and must contain basic attributes which identify and describe each mapindex polygon.

County (Integer, Length = 2) 2-digit county id code – valid values described on page 14, footnote 1.

MapScale (Long Integer) Scale of map¹

MapNumber (Text, Length = 20) The map number as used in the assessor’s database

ORMapNum (Text, Length = 24) Statewide standard map number. Format shown on page 14, footnote 2.

CityName (Text, Length = 50) Name of incorporated city in which the map falls, when maintained.

PageNumber (Long Integer) *optional field for those that want to control page numbers in a map series*

MapRelCode (Text, Length = 2) Identifies the relationship between the tax map and the current ORMAP Technical Specifications (01, 02, or 03). Valid values described on page 14 in the table shown in footnote 5.

MapClass (Text, Length = 1) Map Classification reflecting the typical scale of the Assessor’s taxmap used to map a region, as determined by the Cartographer. (U, R, or F). Valid values described on page 14 in the table shown in footnote 5.

¹MapScale values are: 10 Scale, 20 Scale, 30 Scale, 40 Scale, 50 Scale, 100 Scale, 200 Scale, 400 Scale, 800 Scale, 1000 Scale, 2000 Scale, such that 10 Scale is 1”=10’, 20 Scale is 1”=20’, etc.

4.0 References

Cadastral Data Content Standard for the National Spatial Data Infrastructure Version 1.3 – Public Review Draft Subcommittee on Cadastral Data, Federal Geographic Data Committee, January 2003.

Oregon Cadastral Map System, Oregon Department of Revenue, Cartographic Unit, 1981, Revised 2002.

ORMAP Data Exchange Standard, ORMAP Technical Group, 1/13/2003, www.ormap.org.

Attachment A
ORMAP Statutes

306.132 Oregon Land Information System Fund. (1) The Oregon Land Information System Fund is created, separate and distinct from the General Fund.

(2) Moneys in the Oregon Land Information System Fund are continuously appropriated to the Department of Revenue for the purpose of funding a base map system to be used in administering the ad valorem property tax system. [1999 c.701 §7]

Note: 306.132 and 306.135 were enacted into law by the Legislative Assembly but were not added to or made a part of ORS chapter 306 or any series therein by legislative action. See Preface to Oregon Revised Statutes for further explanation.

306.135 Base map system; Oregon Land Information System Advisory Committee. (1) The Department of Revenue shall develop a base map system to facilitate and improve the administration of the ad valorem property tax system.

(2) In developing the base map system, the department shall be advised by an advisory committee that is hereby created and that shall be known as the Oregon Land Information System Advisory Committee. The advisory committee shall advise the department concerning the administrative and public needs related to the development of the base map system.

(3) The advisory committee shall consist of individuals appointed to the committee by the Director of the Department of Revenue. [1999 c.701 §8]

Note: See note under 306.132.

Note: Section 9, chapter 701, Oregon Laws 1999, provides:

Sec. 9. (1) The Department of Revenue, in consultation with the county governing bodies and the county assessors of this state, shall conduct a study of the appropriate level of funding for property assessment and taxation functions, and funding sources for property tax administration. In addition to a general review of the appropriate level of funding for property assessment and taxation functions, the study shall consider whether the level of funding in effect following enactment of this 1999 Act:

(a) Promotes stable tax administration and the development of high quality property appraisal data and mapping;

(b) Is sufficient to allow county assessors and the department to meet the service expectations of private sector users of property appraisal data and mapping; and

(c) Results in an appropriate sharing of costs between public and private sector users of property appraisal data and mapping.

(2) The study shall also consider various means to improve cost efficiency in the property assessment process including, but not limited to, consideration of the extent to which efficiency is improved through department assessment of property instead of county assessment of property.

(3) The department shall report the findings of the study to those interim committees of the Seventy-second Legislative Assembly having jurisdiction over property tax matters no later than December 31, 2004. [1999 c.701 §9]

Attachment B
ORMAP GOALS
(revised 9/25/2006)

Project Phases

GOAL 1

ORMAP Goal 1 establishes by April of 2002, Oregon will have a statewide easily accessible digital base map system that provides picture images of assessor maps and a limited amount of information.

- Primary Focus: Statewide system - citizen benefit (eliminate need to travel to courthouse for map)
 - Picture only (no GIS capability)
 - Good cartographic property descriptions
 - Access: statewide on Internet
 - Technical Design (Minimums)
 - Scanned maps: 400 dpi Group 4 (compressed)
 - Index: 1st by county; then by map number
 - Internet Server: single server at Oregon Department of Revenue (DOR)
 - Image type: tiff
 - Image updates: quarterly
-

GOAL 2

ORMAP Goal 2 establishes by October of 2004, Oregon will have a statewide digital tax map system that supports a limited number of GIS applications. The assessors use ten percent (10%) of the maps in production.

- Primary Focus: Develop [converting to] GIS base
- Use basic tax lot info available
- Accuracy: existing levels (depends on part of state)
- Applications: limited to existing accuracy levels
- Access: multi-levels
- Technical Design
 - Uses available control: requires inventory of existing control
 - Reliability: poor to excellent
 - File Formats: GIS shape files Database – DB4
 - Coordinate System: NAD 83 (N/S Zone) International feet
 - Web based
 - Minimum Attributes: [*Oregon Cadastral Data Exchange Standard*](#)
 - System updates: annually (at turn of tax roll)
 - Metadata: Compliant with the [*Oregon Metadata Standard*](#)
- Maintenance - Dual Systems
 - CAD produced
 - GIS produced
 - Manually produced
- User applications

- Updating
-

GOAL 3

ORMAP Goal 3 establishes that by October of 2006, Oregon will have a statewide digital tax map system that supports the needs of the Assessment & Taxation (A&T) function and may be useful for other public and private GIS applications. Fifty percent (50%) of the county tax maps produced using *ORMAP Map Methodology* and *ORMAP Technical Specifications*.

- Primary focus: Increased assessor map reliability to support the A&T function
 - Useable with other public and private data bases
 - Mapped county boundaries agreed upon by County Assessors
 - Maintenance: Single system
 - Minimum Attributes: *Oregon Cadastral Data Exchange Standard*
 - Metadata: Compliant with the *Oregon Metadata Standard*
 - Technical requirement
 - [ORMAP Technical Specifications](#)
 - [ORMAP Map Methodology](#)
-

GOAL 4

ORMAP Goal 4 establishes that by October of 2008, Oregon will have a statewide digital tax map system that supports the needs of the Assessment & Taxation (A&T) function and may be useful for other public and private GIS applications. Seventy percent (70%) of the county tax maps produced using *ORMAP Map Methodology* and *ORMAP Technical Specifications*.

- Primary focus: Increased assessor map reliability to support the A&T function
- Useable with other public and private data bases
- Mapped county boundaries agreed upon by County Assessors
- Maintenance: Single system
- Minimum Attributes: *Oregon Cadastral Data Exchange Standard*
- Metadata: Compliant with the *Oregon Metadata Standard*
- Technical requirement
 - [ORMAP Technical Specifications](#)
 - [ORMAP Map Methodology](#)

If surplus funds are available, ORMAP will consider funding projects that facilitate and improve the administration of the ad valorem property tax system. These projects could include, but not limited to the following:

1. Development or improvement of soils maps
 2. Development or improvement of other taxing layers that assist in property tax assessment (i.e. school districts, fire districts, etc.)
 3. Mapping of building footprints
-

GOAL 5

ORMAP Goal 5 establishes that by October of 2010, Oregon will have a statewide digital tax map system that supports the needs of the Assessment & Taxation (A&T) function and may be useful for other public and private GIS applications. Ninety percent (90%) of the county tax maps produced using *ORMAP Map Methodology* and *ORMAP Technical Specifications*.

- Primary focus: Increased assessor map reliability to support the A&T function
- Useable with other public and private data bases
- Mapped county boundaries agreed upon by County Assessors
- Maintenance: Single system
- Minimum Attributes: *Oregon Cadastral Data Exchange Standard*
- Metadata: Compliant with the *Oregon Metadata Standard*
- Technical requirement
 - *ORMAP Map Methodology*
 - *ORMAP Technical Specifications*

ORMAP will consider funding projects that facilitate and improve the administration of the ad valorem property tax system. These projects could include, but not limited to the following:

1. Development or improvement of soils maps
 2. Development or improvement of other taxing layers that assist in property tax assessment (i.e. school districts, fire districts, etc.)
 3. Mapping of building footprints
-

GOAL 6

ORMAP Goal 6 establishes that by October of 2012, Oregon will have a statewide digital tax map system that supports the needs of the Assessment & Taxation (A&T) function and may be useful for other public and private GIS applications. One hundred percent (100%) of the county tax maps produced using *ORMAP Map Methodology* and *ORMAP Technical Specifications*.

- Primary focus: Increased assessor map reliability to support the A&T function
- Useable with other public and private data bases
- Mapped county boundaries agreed upon by County Assessors
- Maintenance: Single system
- Minimum Attributes: *Oregon Cadastral Data Exchange Standard*
- Metadata: Compliant with the *Oregon Metadata Standard*
- Technical requirement
 - *ORMAP Technical Specifications*
 - *ORMAP Map Methodology*

ORMAP will fund projects that facilitate and improve the administration of the ad valorem property tax system. These projects could include, but not limited to the following:

1. Development or improvement of soils maps
2. Development or improvement of other taxing layers that assist in property tax assessment (i.e. school districts, fire districts, etc.)
3. Mapping of building footprints

Attachment C Data Model Diagram

Tax Lot shapefile contains
geometry and database

Tax Lots	
PK	MapTaxlot: [Set] <u> </u>
	County : [List] Town TownPart TownDir Range RangePart RangeDIR SecNumber Qtr QtrQtr Anomaly MapSufType MapSufNum MapNumber ORMapNum: [Set] Taxlot SpecialInt ORTaxlot: [Set] TaxlotFeet TaxlotAcre ReliaCode MapClass MapRelCode

Real Property	
FK1,U1 U1	MapTaxlot: [Set] PrimAccNum: [Set]
	County SIMapTax OwnerLine1 OwnerLine2 OwnerLine3 AgentName MailAdd1 MailAdd2 MailCity MailState MailCntry MailZip SiteAddNam SiteAddCty SiteZip InstYear InstMonth InstID InstType Dwelling PrpClass PrpClsDes

← one to many

↓ one
to
one

Tax Codes shapefile contains
geometry and database

Tax Codes	
	County Taxcode

Other County Data	
PK	PrimAccNum: [Set] <u> </u>
	Attribute1 Attribute2 Attribute3