ORMAP Technical Specifications

The ORMAP Vision

"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.

Given this vision, the following describes the way in which a county can determine when it has achieved it. Counties would assess their data tax map by tax map; and a tax map would be determined to meet the ORMAP Technical Specifications if the County Cartographer verifies that at least eighty percent (80%) of the features on the map met the specifications.

Disclaimer

Each county will include a disclaimer, within the metadata, for all data produced as part of the ORMAP program. Below is a suggested disclaimer for ORMAP produced data. Counties may include their own disclaimer if they prefer, but any disclaimer should include language addressed in the disclaimer below.

"This product is for Assessment and Taxation (A&T) purposes only and has not been prepared or is it suitable for legal, engineering, or surveying purposes."

Map Methodology

Tax Lot Base Construction

There are many ways to construct a reliable assessor's map base. The *ORMAP Map Methodology* outlines the minimum critical elements that a technically sound method of mapping will include.

The Four Components of a Tax Lot Base

1. Control
2. Geometry (Line Work)
3. Annotation (Text, Arrows, Symbols, Etc.)
4. Data Exchange

Mapping Control Points and PLSS

Control points represent government corners or other identifiable points on an assessor's map base. These points may be located with GPS, but other methodologies exist for determining control point locations. They can be calculated off subdivision surveys and right-of-way maps that reference and tie to government corners. They can be derived by relating subdivision surveys and right-of-way maps to the National Geodetic Survey (NGS) triangulation stations.

Control points can be shared or duplicated between adjacent maps. In areas where larger scale maps are expected, it may be necessary to develop improved control beyond the scale the area is currently mapped (e.g. an Urban Growth Boundary area planning for development).

Decisions whether maps are urban, rural or resource are up to the cartographer and will be stated in the metadata. Urban maps could be 1"=100' and mapped on 1"=200' as well. The same situation can occur with rural and resource lands being mapped on 1"=400' or 1"=2000' scale maps. The number of control points recommended per map is outlined in the chart below:

Typical Map Type or Scale	ORMAP Tax Lot Accuracy (Relative to Control)	**Recommended** Control Quality	**Recommended** Control points per Map (Points may be used for more than one map)	PLSS Corners Needed (If found, corners meet accuracy) (Calculated or Surveyed)
Urban (1"=100' or 1"=200')	+/- 2'	+/- 1 Foot or better	4	1/16 Section or 1/4 Section
Rural (1"=400' & sometimes 1"=200')	+/- 20'	+/- 10 Feet or better or matching GLO record	Up to 4 or GLO/GCDB	Section
Farm/Forest (Resource) (1"=400' and 1"=2000')	+/- 40'	+/- 20 Feet or better or matching GLO record	Up to 4 or GLO/GCDB	Township

There is also a hierarchy of usefulness for control points. Any control point acquired that is a government corner is the "first choice," since it can be used to refine the PLSS as well as provide corner ties for subdivision, survey and right-of-way maps.

"Second choice" points are still useful, but time must be taken to work back through subdivision, survey and right-of-way maps to determine a government corner location.

The PLSS cannot be refined until this process is complete. Metadata must accompany each control point. This will be developed as a part of a surveyor's duties in collecting data. In some cases, control was collected or determined before modern methods. In these cases, the cartographer will make an estimate of its suitability for ORMAP purposes. If the cartographer believes the control used to make the tax lot base meets these standards, no additional confirmation is needed.

Below are examples of "first choice" and "second choice" control points:

First Choice Control Points, Government Corners

- Angle Point
- Auxiliary Meander Corner
- Center Quarter Section Corner
- Crossing Closing Corner
- Donation Land Claim
- Homestead Survey

Intersection Point
Location Corner
Location Monument
Meander Corner
Mile Corner or Mile Post
Mineral Survey Corner
Point on Line
Quarter-Corner
Section Corner
Special Meander Corner
Subdivision of Section Corner
Township Corner
Witness Point

Second Choice Control Points, Identifiable Points on an Assessor's Map
Subdivision Lot Corners
Subdivision Block Corners
Street C/L Intersections
Right-of-Way Angle Points
Right-of-Way C/L Station Points
Tax lot Corners
Tax lot Boundary Angle Points

Recommendations for Geometry

There are four main confirmations required to determine mapping quality. These are listed below. The ORMAP accuracy determination is generally in line with the National Map Accuracy Standards. If conflicts exist between various tax lot locations based on legal descriptions, the legal description location takes priority over edge-match resolution. These four determinations need to be used together to achieve ORMAP accuracies as errors greater than our targets could occur if used individually.

1. Accuracy of the Geometry

Check to see that measured distances are within two percent of what is shown on the map. For example: A tax lot line is supposed to have a distance of 100 feet on an assessor's map with a scale of 1"=100'. When the digital version of that same feature is checked for length, it can measure from 98' to 102'. Whether it's longer or shorter, it's within two percent of the deed or survey length. This determination should be done to a sampling of features located in each map. Using this rule, acceptable error ranges and sample numbers are:

Map Type or Scale (Choose most appropriate)	Acceptable Feature Error Percentage	Acceptable Error Distance	Minimum recommended features to check per map area.
Urban	2%	1"=100' +/- 2 feet 1"=200' +/- 4 feet	10
Rural	2%	1"=400' +/- 8 feet	4
Farm/Forest (Resource)	2%	1"=2000' +/- 40 feet	4

2. Accuracy of the Location

If the geometry checks out, then confirm the location of tax lot features and polygons. Using the two percent amounts above, the tax lot corners can be checked against any control points that relate to features on the assessor's map.

For example, there is a tax lot polygon on a 1"=100' assessor's map. You know the tax lot corner should coincide with a section corner, and a surveyor has provided a GPS derived coordinate for that corner. That tax lot corner can be up to two feet away from that control point. In other words,

it can be anywhere within an imaginary circle with a radius of two feet from the control point and still be an ORMAP tax lot. If you are able to confirm this accuracy relative to known corner coordinates on four or more corners used in constructing the tax lots on the map, you can be assured of having an ORMAP compliant map.

3. Feature Area

The tax lot acres as calculated by mapping software should be within a certain percent of the correct acres. Differences in this area greater than the percentage recommended should be researched and corrected or flagged to indicate a large discrepancy. The percentages depend on map type or map scale.

Map Type or Scale (Choose most appropriate)	Recommended Area Error Percentages to Investigate
Urban	+/- 4 %
Rural	+/- 4 %
Farm/Forest (Resource)	+/- 8 %

4. Edge matching

- Gaps and overlaps need to be eliminated or documented as unresolved within and across county boundaries in the state.
- Features will be contiguous across map boundaries or documented as unresolved within and across county boundaries in the state.

Annotation

All assessor map content is outlined in the *Oregon Cadastral Map System Manual* and the *Oregon Department of Revenue Standard for Digital Cadastral Maps*. All features on an assessor's map must meet these requirements.

Data Exchange

All data produced under ORMAP projects delivered to the Oregon Department of Revenue will meet the *Oregon Cadastral Data Exchange Standard* and have metadata compliant with the *Oregon Metadata Standard*. The Cadastral Exchange Standard is reviewed and maintained by the Cadastral Framework Implementation Team (FIT).

Exception Areas

All tax maps will meet county A&T needs. Areas coded as "Excepted from Technical Specifications" (see *ORMAP Reliability Attribute Fields*) are areas within a county have no current business or economic need to be mapped to the current ORMAP Technical Specifications. Once an area is coded as such, it is ineligible for re-mapping funds until a future date specified by DOR.