

ORMAP Grant Application

Section I. County and Grant Information			
A. County: Morrow County		B. Funding Cycle: Spring 2009	
C. Project will help meet ORMAP Goal(s): 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> 4 <input checked="" type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/>		D. Fund Request: \$99,163	
Section II. Summary of Project			DOR Assessment
A. Brief Overview of the Request.			<input type="checkbox"/> Pass <input type="checkbox"/> Fail
<p>Morrow County is seeking funding for a mapping project covering 1688 tax lots in 05N25E, 05N26E, and 05N27E referred to as <i>Phase 1(Pilot)</i>. The tax lots have been approved for maintenance by DOR and will be added by DOR-CISU for mapping before the township wide geodatabase is created. Section B.3 outlines the precise area, # of tax maps and # of tax lots to be included in Phase 1. This request will cover project planning, data gathering, control input, COGO, control base assembly, line-work, text entry, QC, format conversion and delivery for the areas listed in B.3. Also this request will cover project planning, data gathering and control points for Phase 2 and Phase 3.</p>			
Scope and Deliverables			
Check	Deliverables	Brief description of the deliverables	
<input checked="" type="checkbox"/>	Taxlot Conversion	1,688 tax lots (Phase 1)	
<input checked="" type="checkbox"/>	Tax Map Conversion	73 tax maps + additional to be determined by DOR-CISU	
<input checked="" type="checkbox"/>	Control Points	80 control points required in Phase 2 and Phase 3	
<input type="checkbox"/>	Scanning		
<input type="checkbox"/>	Reports		
<input checked="" type="checkbox"/>	Development	Project development, conversion and QA/QC	
<input type="checkbox"/>	Other Assistance		
<input type="checkbox"/>	Other Deliverable		
<input type="checkbox"/>	Hardware/Software		
B. Timeline (funding not to exceed one year from award date)			
The project will be completed on or before March 1, 2010.			
C. Costs of Total Project (add lines as necessary)			
Deliverable	Number of Items	Cost per Item	Total Cost
DOR-CISU Tax lot Remapping	1688	\$26.40	\$44,563
Control Points (80 on PLSS in Phases 2 & 3).	80	\$600.00	\$48,000
Control Point Acquisition Research & Prospective Corners Plan	200 hours	\$33.00	\$6,600
D. Partnerships and Contributions (add lines as necessary):			
Partner	Contribution		
Morrow County Surveyor	Approximately \$800 to record Control data collected and \$2,160 for 24 hours to bring necessary control to Phase II. Additional hours may be required to survey missing or required necessary points.		
Morrow County Staff	Staff time for gathering information, QA and QC. 200-300 hours are estimated at \$35 per hour, or \$7,000 to \$10,500.		
A. Assessor's Signature & Date:		See File Copy	

F. Fiscal Coordinator – Name & Contact Number:	Becky Doherty
G. Project Coordinator – Name & Title:	Becky Doherty Data Analyst
E-mail address:	bdoherty@co.morrow.us
Phone Number:	541-676-5611
Mailing Address:	100 N. Court P.O. Box 247 Heppner, OR 97836

Section III. Detail Project Information –Answer all questions

A. Overview

- 1. Describe what the project is trying to accomplish.**
This project will accomplish the remapping of 1,688 tax lots falling within 05N25E, 05N26E and 05N27E. We are also gathering control data in preparation for Phases 2 & 3 of the remapping Project.
- 2. Does this project relate to any previous ORMAP-funded projects? If yes, please explain.**
Yes. The Spring '07 grant allowed us to gather surveys for all Phases and control data for Phase 1.
- 3. What is the status/outcome of the previous ORMAP-funded projects? (Please include contract numbers and a status map.)**
Contract #1281: A plotter has been purchased and installed on site. ArcInfo was purchased and installed.
Contract #1357: Employees have received training in the fundamentals Arc.
Contract #1809: Gather control on 80 points in 5N25, 26 and 27. Provide copies of surveys and plat to the DOR CISU in preparation for the remapping project.

B. Project Design – Current Proposal

- 1. Identify the ORMAP and the regional/county goal(s) that this project addresses.**
We are trying to reach goal 6 as identified by ORMAP. We are working with DOR remapping project. This project will complete the first of four phases.
- 2. Describe in detail your technical approach to the project (mapping methodology).**
Our current maps are only digitized versions of the Assessor’s maps (goal 2). We will be working with the DOR to gather data to facilitate the “remapping” project. The ORMAP Mapping Methodology will be followed (see ORMAP Mapping Methodology attached).
- 3. Describe the project deliverables. (DOR will bill against these deliverables)**
80 control points at \$600 per point.
Conversion of 73, or more, maps. (5N25, 5N26, 5N27)
- 4. Will this proposal fund staff that is doing work other than ORMAP projects? If so, describe how the time and cost will be tracked for the different projects.**
No
- 5. Who will be doing the work (county staff, contractor, DOR staff, etc.)? Please define their role(s).**
The DOR CISU staff will be creating the maps. The Morrow County Assessor’s Office staff will be reviewing the maps. The control data will probably be gathered by the Morrow County Surveyor.
- 6. Define the role of the County Cartographer in the project.**
Morrow County does not have a cartographer. The DOR CISU updates and maintains our maps and will be doing the mapping on this project.

7. Describe the maintenance plan for this product.

Morrow County contracts with the DOR CISU for map maintenance.

8. Will this comply with *Oregon Cadastral Data Exchange Standard*?

Yes.

9. Describe where this project fits within the County's overall mapping/GIS work plan.

Becoming a Goal 6 county is our primary goal. Having our data tied to control points will allow us to make better use of the GIS systems within the county. The continued growth in the North end of the county (Phases 1 and 2) makes the need for accurate taxlots and surveys, based on the additional control, more important.

10. Provide a project timeline with milestones or phase-completion dates

Phase 1: Spring-'09 thru Spring-'10

Phase 2: Spring-'10 thru Spring-'11

Phase 3: Spring-'11 thru Spring-'12

Phase 4: Spring-'12 thru Spring-'13

11. Does this project promote partnerships, if so, with whom?

The Morrow County Assessor's Office has worked closely with the County Surveyor and with the DOR CISU in the test phase of the remapping project. As our data and maps become more accurate there will be increased opportunities for obtaining data from other sources. Once our county is edge-matched with our neighbors there will be more likelihood of exchanging cadastral data.

12. Describe any innovations that will be utilized by this project.

The control data in the test area was gathered using current GPS technology and the maps are maintained by the DOR using MicroStation and ArcGIS.

13. Detail Costs (who is paying for what).

The ORMAP grant will pay for the entire cost of this phase of the remapping project.

C. Quality Control

1. Who will be responsible for quality control?

Staff of the Morrow County Assessor's Office and the DOR CISU. The surveyor will review his data for control for accuracy.

2. Will county cartography staff review the deliverables?

The Morrow County Assessor's Office staff will review all maps provided by the DOR.

3. Will there be a review by Department of Revenue cartography staff?

The Department will review the work done by their CISU according to their current CQ standards.

4. Describe quality control procedures.

County staff will review each map as provided by the DOR by visually inspecting the map. It will be compared to previous maps and inconsistencies will be investigated. Control data will be collected using 83/91 standards, a geocentric datum and graphic coordinate system based on the Geodetic Reference System 1908 ellipsoid, with the 1991 re-adjustment.

D. Data Availability

Identify this product's restrictions on data sharing or licensing issues.

There are none known.

E. Background Information

Any other information that you feel may help support the project. Please attach an updated copy of your county's ORMAP business plan if it has not been updated on the ORMAP website.

The remapping is required to meet the ORMAP goal standards.

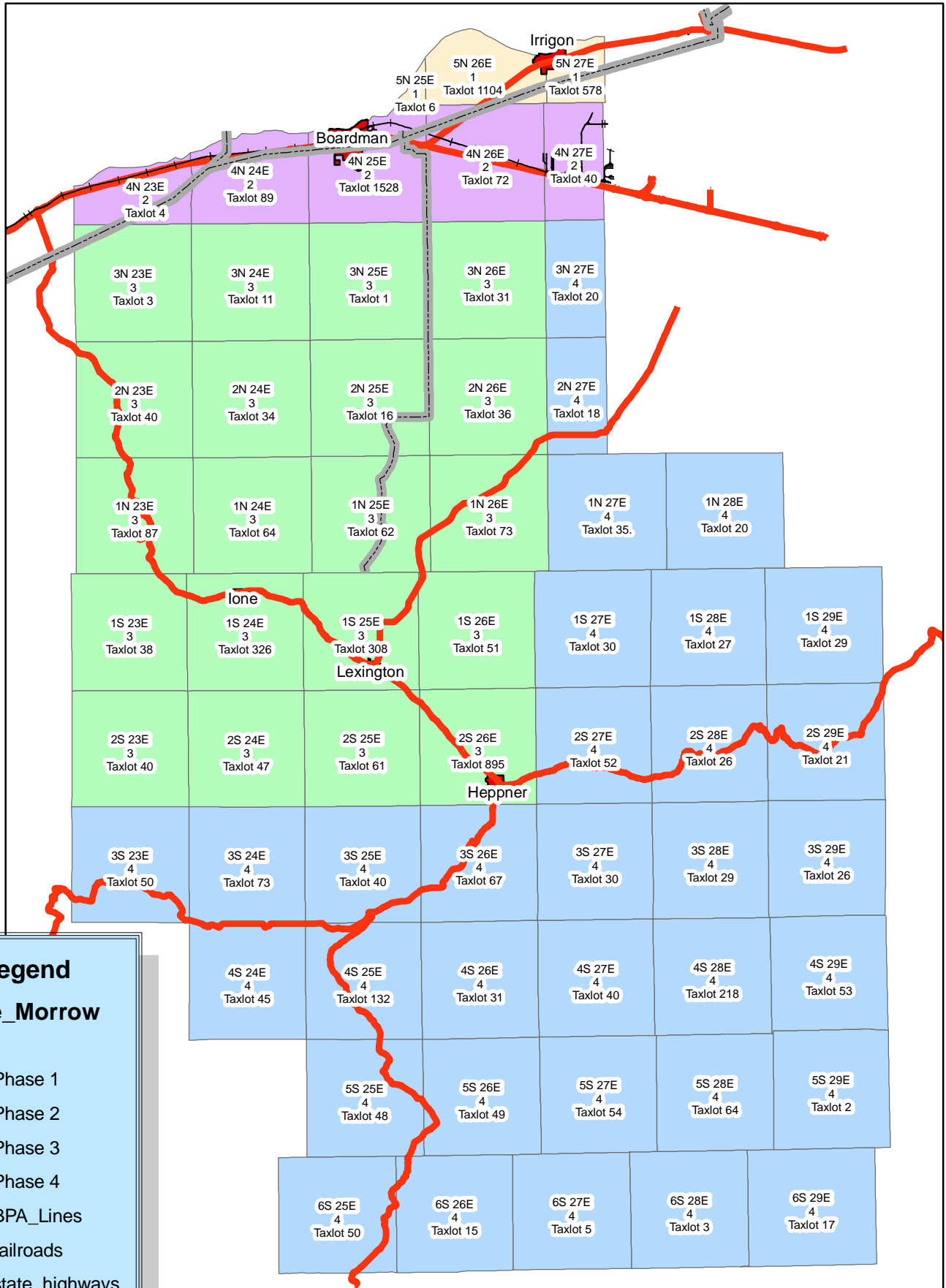
G. Other Issues - Please identify.

None

Submit completed forms to:

Mail	Contact Information
ORMAP Project Coordinator Oregon Department of Revenue Property Tax Division - CDOT 955 Center St. NE Salem OR 97301-2555	Tel: 503-945-8493 Fax: 503-945-8737 or.map@state.or.us

Morrow County Phases



Legend

Phase_Morrow

Phase

- Phase 1
- Phase 2
- Phase 3
- Phase 4
- BPA_Lines
- railroads
- state_highways
- City_Limits

ORMAP Map Methodology

Tax Lot Base Construction

An assessment of the methodology and the amount and type of information used to construct an assessor's map base can help in determining whether the final product is a reliable assessor taxmap. Any number of methods for developing a taxmap may be acceptable and achieve the desired product, a taxmap that meets the [ORMAP Technical Specifications](#). In order for a taxmap to be considered ORMAP compliant, counties will be required to document their "method of mapping." The methodology used must include the eight minimum critical elements of mapping identified below.

1. There is County Assessor and Surveyor involvement
2. All the Surveys, Subdivision maps, and digital orthoimagery that can be found in a re-mapping area are evaluated.
3. All Surveys and Subdivision maps used in the re-mapping area are reproduced using COGO (Coordinate Geometry) methods or other methods that produce the same results and are tied to PLSS (Public Land Survey System) features.
4. No COGO features are warped (rubber sheeted) from the surveyed geometry.
5. All mapping is reviewed and approved by a professional cadastral cartographer and, if necessary, in consultation with the DOR's Cadastral Information Systems Unit.
6. A reliability level for all assessor taxmaps is determined by a test and is reviewed by a professional cadastral cartographer and included in the "MapRelCode" and "MapClass" fields.
7. All counties must be able to produce a countywide shapefile that meets the [Oregon Cadastral Data Exchange Standards](#).
8. Metadata must be developed and meet the [Oregon Metadata Standard](#).

Using sound mapping methods and meeting the minimum critical elements of mapping will improve the likelihood that a county will achieve the ORMAP technical specifications. Even if all of the minimum critical elements are considered in a mapping project, the ORMAP technical specifications may not be achievable for a variety of reasons. One of the goals of the ORMAP program is to improve the accuracy over time, and the maximum scope of the program is to meet the technical specifications.

As new and more reliable survey information becomes available, a county may request that ORMAP fund re-mapping of an area to the *ORMAP Technical Specifications*. All ORMAP proposals will be judged and evaluated to include the minimum critical elements of *ORMAP Map Methodology*. Due to funding constraints, ORMAP is unable to fund projects that would exceed these specifications. A county would always be free to exceed the targets, but any additional time and expense would be paid by the county and/or its partners.

Exhibit A is an example of the methodology that the Cadastral Information Systems Unit at the Oregon Department of Revenue uses to produce ORMAP tax maps. It is not meant to exclude other methods that produce the same results.

EXHIBIT A:
DEPARTMENT OF REVENUE
ORMAP MAP METHODOLOGY
12-15-04

1. Project Planning Phase (2%): Begin coordination of resources and key personnel

- ✓ Establish communications with all of the key players at the Federal, State, County and local levels. Conduct stakeholder meetings to define the scope of the proposed mapping process and what the deliverable(s) will be.
- ✓ Estimate time to complete the project and project cost based on the number of parcels, maps, type of files and complexity of the areas to be mapped. Communicate this to all stakeholders.
- ✓ Determine project start/completion dates based on other work in progress and resources available.
- ✓ Develop a measurable time-line with benchmarks.

2. Data Gathering Phase (2%): Research and gather as much existing digital data as possible.

- ✓ Obtain USGS Digital Orthophoto Quads, Digital Line Graphs and Digital Raster Graphics.
- ✓ Aerial mapping that may be available from other Federal, State or local agencies.
- ✓ City public works engineering base maps.
- ✓ Check for larger scale (more detailed) orthophotos done locally.
- ✓ Most current higher resolution conventional aerial photos.
- ✓ Obtain text files of the GCDB (Geographic Coordinate Data Base) from BLM (U.S. Bureau of Land Management).
- ✓ Obtain state plane coordinate data from the county surveyor for any monuments that they may have GPS (Global Positioning System) data and or calculated positions.
- ✓ Obtain copies of the county surveyor's survey index maps and/or his recorded survey database.
- ✓ Obtain county surveys, partition plats and subdivisions.
- ✓ Get a copy of the county road department's county road index map.
- ✓ Using ODOT (Oregon Department of Transportation) right of way map indexes, order strip maps of the entire project.
- ✓ Contact BPA (Bonneville Power Administration) for strip maps of powerline right of ways (check for digital versions).

- ✓ If mapping around major hydroelectric reservoirs, check with USCE (U.S. Corps of Engineers) for water line maps. These may already be in raster form.

3. Control Input & COGO Phase (14%): Obtain corner control point information and perform COGO (CoOrdinate GeOmetry) work on county surveys, subdivision plats and right-of-way drawings.

- ✓ Create control point files to cover the entire county.
 - Converted GCDB points.
 - City mapping control monuments.
 - County surveyor GPS points.
 - Published NGS control stations.
- ✓ Create a countywide PLSS (Public Land Survey System) file for rebuilding the GLO (General Land Office) plats of each township from the BLM GCDB supplemented with any additional GPS points.
- ✓ COGO (Coordinate Geometry) entry of the highway strip maps from ODOT making sure to include all of the PLSS corner ties.
- ✓ COGO all other strip map data from power and gas companies, railroads and county road departments.
- ✓ COGO the subdivisions, partition plats and surveys furnished by the county, again being careful to include all of the PLSS corner ties.

4. Control Base Assembly Phase (16%): Use control points gathered and COGO (Coordinate Geometry) data to assemble a map and countywide base control network.

- ✓ The first and primary building block is the GLO sectionizing or PLSS. This file may start with the GCDB corner coordinates but it is constantly subjected to revisions as other data gets plugged in, such as GPS points and other mapping control points.
- ✓ The individual ODOT strip map graphic groups are copied into the countywide highway file and fit to the orthophoto, PLSS and photogrammetric maps.
- ✓ The remaining strip maps are also copied into countywide files. One being the railroad file and the other is the utility file.
- ✓ Subdivision, partition plat and survey COGO work is copied into and positioned in the "Township Control" file while retaining their graphic group status for possible future adjustment.
- ✓ The PLSS file is now adjusted to fit the corner ties of the previous COGO work (if necessary).

5. Line Work Phase (30%): Complete the line work to Department of Revenue cadastral mapping standards.

- ✓ The mapping process now proceeds to a single “Taxlotting Master” file per township. All of the previous work is now copied into this “master” file and includes sectionizing, highways, railroads, power lines, subdivisions and surveys.
- ✓ Some public road right of ways as well as major private access roads will still be missing and we map these from other digital sources. The DLG (Digital Line Graph) of the transportation layer of the Baseline 97 project gives us an approximate location for the roads. Generally these are accurate enough for the 1” = 2000’ scale but not for larger scales. We then have to verify the road locations using the orthophoto reference file. For the public roads that had no surveys, digitize those using precision tools.
- ✓ Water features are copied into the master file from the hydrography DLG files and here again they are generally accurate enough for the township map but not the “blowups”. The stream courses (shorelines for wider streams) must be digitized from the orthophoto image. When there are traverses of the stream they will be paramount and digitized line strings tied into them.
- ✓ The remaining “holes” in the parcel map are filled in by plotting the legal descriptions on the instruments of conveyance. This process has historically been called “taxlotting”. The exception is that we do not assign new parcel numbers to complicate the records. Time is required on the counties behalf for pulling deeds, researching records, mailing etc. and more time by the Cartography Unit to COGO the fill-in deeds; but the results will yield the most accurate map possible at this time.
- ✓ Make sure that all taxlot polygons are made only by a combination of road R/W’s, railroad R/W’s, and taxlot boundaries and that all polygons are closed.
- ✓ Make all map boundaries exactly match the taxlot lines that make up the edge of an assessor’s map. Use the center of a road R/W if appropriate. The map boundaries should be township wide with no gaps or overlaps and there should only be one line between two separate map polygons and all map boundary intersections must be broken.
- ✓ Make sure Code boundaries exactly match the taxlot lines, PLSS lines or road R/W centerlines. Try to replicate the old mylar map as closely as possible. Edge match problems will need to be resolved on a case by case basis. Zone lines will be treated in the same manner if those features are included on a county’s assessor’s maps.
- ✓ When the linework is complete the township line work file is then run through a series of linework cleanup procedures. All errors will be found and resolved.

6. Text Entry Phase (20%): Complete the text work to Department of Revenue cadastral mapping standards.

- ✓ Essentially all text is entered onto the new map just as it appears on the old map. Care is taken however to include all of the county survey numbers that were used in the process as well as verifying spelling, street names, county road numbers and the completeness of the hydrography and road access layers. Street names are verified from the ODOT city maps. The county road names and numbers are verified from the county road index map. The hydrography location and

naming is verified against the published USGS (United States Geological Survey) quadrangle maps.

- ✓ The township files are edge matched to all of the surrounding files for accuracy and continuity.
- ✓ Parcel centroids are placed, map coverage and tax code boundaries are digitized, associated text is entered and graphic grouped as required to produce polygon feature classes.
- ✓ Section corner crosses and text are added.

7. Quality Control & Map Plotting Phase (7%): Map work is checked for accuracy, completeness and edge matched to adjacent maps.

- ✓ Check plots are run and reviewed for accuracy and completeness.
- ✓ Files are checked for duplicate elements and are deleted.
- ✓ Check map boundary line for exact match to the parcel lines and adjacent map boundaries.
- ✓ Check code lines for exact match to parcel lines and edge match to code lines of adjacent townships.

8. Format Conversion Phase (7%): Migrating data from a Microstation file to a geodatabase.

- ✓ Run through cleanup procedures in Microstation.
- ✓ Run conversions on Microstation data to arc & polygon coverages.
- ✓ Check for un-attributed polygons.
- ✓ Convert the township tile coverages to township tile geodatabases and feature classes.
- ✓ Produce an ArcMap plot
- ✓ Map plot Quality Control check
- ✓ Final Quality Control check
- ✓ Convert feature classes to shapefiles for ORMAP

9. Delivery Phase (2%): A seamless county taxlot base, all other cartographic lines and annotation that make an assessment map.

- ✓ County boundary must match adjacent counties or state boundaries. A shared agreement statement is required.
- ✓ All polygons must be free from slivers, overlaps and gaps unless gaps are taxlotted and topology is run on all appropriate feature classes.

- ✓ All data must be able to be updated and maintained following standard DOR procedures.
- ✓ The countywide database must link to the Assessors database records.
- ✓ All land within the county must be accounted for and properly attributed including Roads, Rails & Water.
- ✓ Must produce a standardized digital file and paper Assessment Map.
- ✓ Must have the proper DOR spatial domain and correct projection
- ✓ Hard copy assessor maps are produced.
- ✓ Data will be delivered in the county's software of choice.
- ✓ Maps will meet *ORMAP Technical Specifications*.