

ORMAP Grant Application

Section I. County and Grant Information			
A. County: Multnomah	B. Funding Cycle: Fall 2008		
C. Project will help meet ORMAP Goal(s): 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input checked="" type="checkbox"/> 5 <input checked="" type="checkbox"/> 6 <input checked="" type="checkbox"/>	D. Fund Request: \$ 60,000		
Section II. Summary of Project			DOR Assessment
A. Brief Overview of the Request.			<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail
<p>Completion of Multnomah County ORMAP project that migrates our current CAD data to a seamless GIS database and supports Assessor Mapping that meets DOR standards</p>			
Scope and Deliverables			
Check	Deliverables	Brief description of the deliverables	
<input checked="" type="checkbox"/>	Taxlot Conversion	Taxlots in last 2 townships 1S2E and 1S3E	
<input checked="" type="checkbox"/>	Tax Map Conversion		
<input type="checkbox"/>	Control Points		
<input type="checkbox"/>	Scanning		
<input type="checkbox"/>	Reports		
<input type="checkbox"/>	Development		
<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)			
November 2008 – December 31, 2009			
C. Costs of Total Project (add lines as necessary)			
Deliverable	Number of Items	Cost per Item	Total Cost
Convert maps in last 2 townships to seamless database	779 maps, 76,554 taxlots	\$77.02 avg map \$.78 per taxlot	\$60,000
D. Partnerships and Contributions (add lines as necessary):			
Partner	Contribution		
A. Assessor's Signature & Date:	See File Copy		
F. Fiscal Coordinator – Name & Contact Number:	Debra Anderson 503-988-3345 Ext. 22355		

G. Project Coordinator – Name & Title:	Andrea Westersund, Senior DBA
E-mail address:	Andrea.i.westersund@co.multnomah.or.us
Phone Number:	(503)988-3749 Ext. 22217
Mailing Address:	501 SE Hawthorne Blvd, Suite 400 Portland, OR 97214

Section III. Detail Project Information –Answer all questions

A. Overview

1. Describe what the project is trying to accomplish.

Continue support of Multnomah County strategy to move from a Goal 2 “GIS Ready” stage towards full maintenance of Assessor Map data in a GIS environment.

We have made good progress moving CAD data to a seamless base in the rural areas of the county and have moved quickly through the dense urban areas of the county. We are on track to meet ORMAP Goal 4 by October 2008.

This grant completes the last two townships in the tax lot conversion process. Grant #1857 was for the 2008 calendar year. We will need the remaining dollars, \$35,460.18 to complete the work in township 1N2E. We were able to complete an additional township not included in Grant #1857, and chose to do so, because township 1N3E had unique issues (stroked arcs) that we wanted to address sooner rather than later.

Currently we still have a “dual system” of CAD and GIS. We received the latest release of GeoMedia Pro 6.1, our desktop tool, very recently. The dollars left in Grant #1765 are for plotting optimizations and other enhancements to production mapping based on the latest release. When we applied for the grant, we expected version 6.1 to be released much earlier. We used some consulting dollars on basic issues, and are currently evaluating version 6.1 to determine specific areas to be refined for production.

Funds Approved and Expended as of July 2008

	Amount Granted	Amount Expended	
Discretionary	\$ 64,500.00		
Regional	\$308,465.21		
Mixed	<u>\$219,022.00</u>		
Total	\$591,987.21	\$531,884.95	
Reverted		\$.80	
Remaining			\$60,101.46

Funds Available as of July 2008

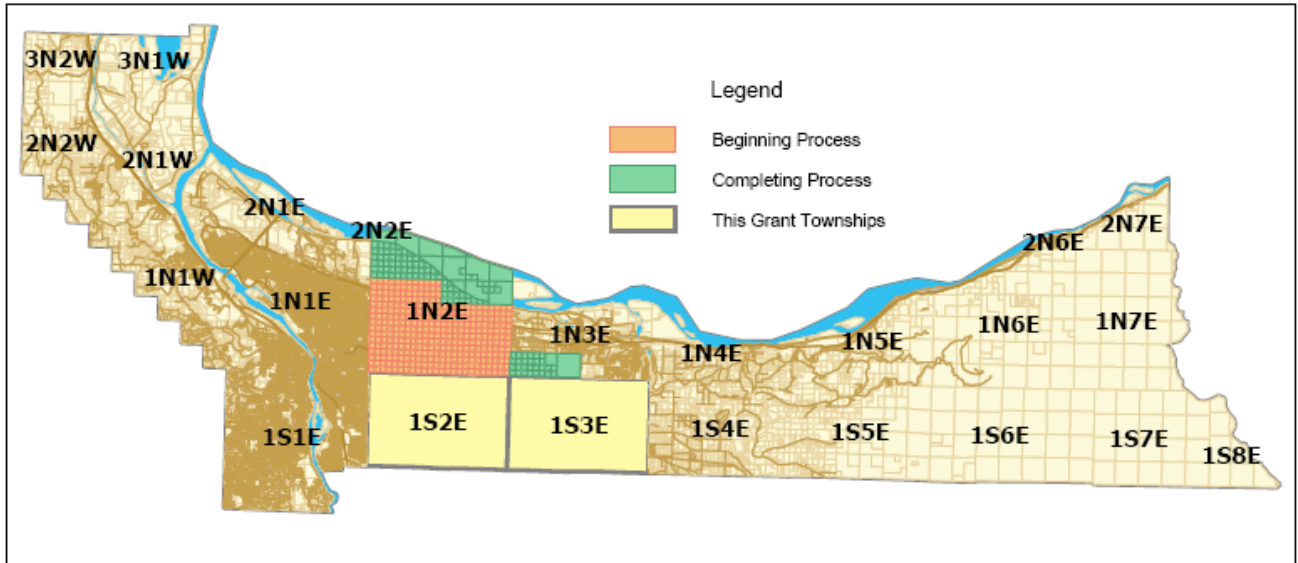
Grant	Amount Granted	Used	Remaining
DOR #1765	\$80,000.00	\$55,358.72	\$ 24,641.28
DOR #1857	\$60,000.00	\$24,539.82	\$ 35,460.18
			\$60,101.46

2. Does this project relate to any previous ORMAP-funded projects? If yes, please explain.

This request uses outcomes of all previous projects. The remaining funds from existing ORMAP grants are needed to pay for Cartography overtime through the end of 2008 and to complete contracts with consultants.

3. What is the status/outcome of the previous ORMAP-funded projects? (Please include contract numbers and a status map.)

Progress 7/27/2008	Townships	% Townships	Sections	% Sections	Maps	% Maps	Taxlots	%Taxlots
TOTAL	23	100%	374	100.00%	3360	100.00%	266,991	100.00%
In progress	1	4.3%	34	9.1%	379	11.3%	38,051	14.3%
Completed	20	87.0%	292	78.1%	2202	65.5%	152,386	57.1%
Remaining	2	8.7%	48	12.8%	779	23.2%	76,554	28.7%



B. Project Design – Current Proposal

1. Identify the ORMAP and the regional/county goal(s) that this project addresses.

Internal goal of maintaining Assessor Maps with a single system. ORMAP Goals 4-6

2. Describe in detail your technical approach to the project (mapping methodology).

This request funds overtime so that County Cartographers can continue the project as described in our historical business plan, which is available through the ORMAP web site. Below are selected extracts from that document to outline the migration process.

Multnomah County is in a unique position. We have the most tax lots of any county in the state. The geography represents dense urban areas, mixed with farm and forestlands. We have many unique condominium issues that may not occur in any other county in Oregon.

The assessor maps are 100% digital and created from millions of plats, deeds and other records. We were one of the first DOR Intergraph conversion projects and therefore have some unique CAD data issues. When Multnomah County was converted by DOR, survey control was used, but detailed records were not kept. Over time, the data has been projected and edited by many Cartographers.

The maps are in CAD format and are stored as files with levels of information within a specific map rather than as seamless GIS style themes over the entire county. Without editing and manipulation, the linework does not consistently generate closed polygons from the taxlot levels. There is no centroid to identify the polygons. Linework that is suppose to be identical at the edges of files, is not maintained consistently, and may overlap or gap somewhat at file edges. On paper, Multnomah County has extremely high quality maps.

As GIS data, however, creating taxlot polygons or other polygons from the CAD files requires much effort.

Our strategy gradually moves Cartography from a CAD maintenance environment into a GIS-based maintenance environment, moving from maintaining thousands of map files to maintaining a single, seamless intelligent integrated GIS database. We place high priority on retaining our investment in the integrity and relative correctness of the existing data.

Multi-Pass, Multi-Stage Plan

The first pass through the current CAD files focuses completely on creating taxlot polygons. Attention is focused on synchronizing the Assessor data file with the taxlot polygons so that the key field, MapTaxLot ID, matches. All polygons will have a real property assessor record and all real property assessor records will have a link to a taxlot polygon.

Diagram 1 shows the current A&T system and Stage 1 Conversion to GIS. At this stage, Assessor Maps are still maintained and created with Microstation. The ORMAP GOAL 1 and GOAL 2 deliverables can be created from the Microstation files with additional processes. Maintenance of Assessor maps and data is complex web of many different software pieces and processes. Manual efforts link the processes.

Subsequent passes through the files will fix specific layers, such as water boundaries, or make adjustments for edge matching, spatial accuracy, etc. The data will improve over time. As we note data that needs to be upgraded, an efficient plan will be made to either isolate the change or group the change with other processes as our experience dictates. All changes to the data will be made by Cartography staff that is familiar with the data and specific mapping issues.

Diagram 1

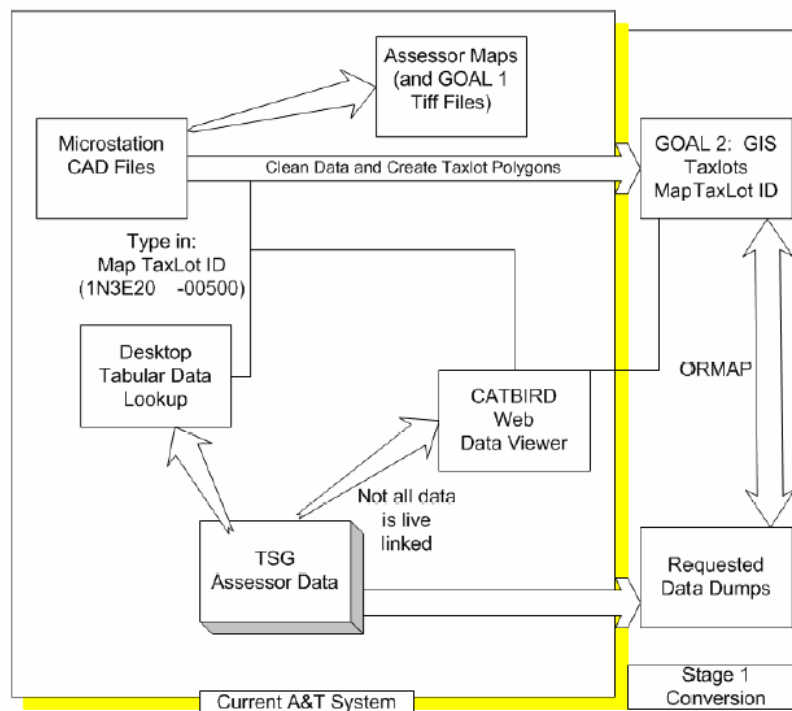
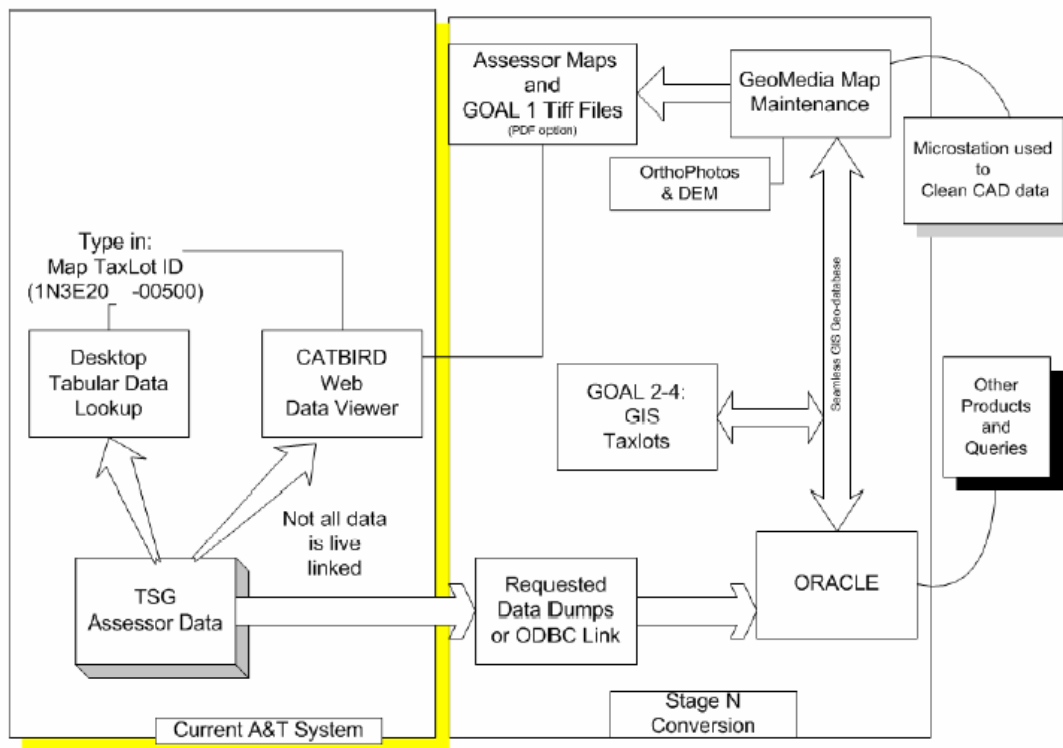


Diagram 2



Seamless linework is developed by the following steps. In rural areas, we worked a township at a time. As we move into urban areas, we work with a group of 3 sections. We start with raw CAD data, which was created with GOAL 4 methodology, but the edges of maps often have duplicate, near duplicate, conflicting and confusing data.

1. For a CAD file, expose the levels that form taxlot polygons (in general, LV 8, 14, 24, 32). Move each level to a working feature class.
2. From developed CONTROL files, select control lines that are within 5 feet of LV 32. Use these lines instead of LV 32 lines, if appropriate. This helps to remove gaps/overlaps that have built up over time at map edges.
3. As each CAD file is added, remove lines that are “scenery” or are from the adjacent map.
4. Inspect water boundaries that are taxlot boundaries against aerial photos and move as appropriate.
5. Using GeoMedia tools, Validate Geometry, Validate Connectivity for each feature class.
6. Add Mapindex lines to help create Map Polygons.
7. Create polygons from linework. Transfer attributes of GOAL2 polygons to new polygons. Assign not-taxlot polygons with the appropriate map and polygon type.
8. From polygons in step 6, dissolve by map name to create Mapindex polygon.
9. Transfer Mapindex polygons to Oracle.
10. Transfer each feature class to appropriate line feature class in Oracle.
11. Again Validate Geometry and Connectivity as the graphic tolerances in Oracle are tighter and more errors may need to be cleaned.
12. Create taxlot and non-taxlot polygons as a seamless fabric in Oracle, transferring attributes from polygons created in step 6.
13. Aggregate polygons to verify no gaps. Intersect polygons with themselves to verify no overlaps.
14. Join with current Assessor data to validate.
15. Using buffers around CAD or other previous developed data, code lines as LevyCode and Plat and create polygons as data from adjoining work completes polygons.

16. Move scenery linework (creeks, transmission lines, etc.) in the basically the same way, but without Validate Connectivity. All lines should have a visual, logical consistency.

The end result is seamless line work that can be reused for many maps. The coding of the line work creates various polygons which again are seamless and without gaps. Text and cells are transferred in bulk at a later time when map maintenance begins.

3. Describe the project deliverables. (DOR will bill against these deliverables)

Overtime hours will be billed, using the same process as we have done with previous ORMAP contracts. The charges include salary and internal financial operation amounts.

The deliverable is seamless taxlots in the specified townships of the county.

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.

County Cartographer overtime time will be tracked as a line item on time card.

5. Who will be doing the work (county staff, contractor, DOR staff, etc.)? Please define their role(s).

County Cartographers will work overtime to create seamless taxlots.

County GIS staff will be providing project coordination and oversight of contract.

6. Define the role of the County Cartographer in the project.

County Cartographers perform the work.

7. Describe the maintenance plan for this product.

County Cartographers maintain the work.

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

Yes, as we understand the current standard.

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

See below.

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

ORMAP Funding	Order	Twn	Sections	%Sections	Taxlots	%Taxlots	Maps	%Maps
DONE	1	1S8E	1	0.30%	9	0.00%	1	0.03%
DONE	2	1S7E	1	0.30%	24	0.00%	1	0.03%
DONE	3	1S6E	1	0.30%	29	0.00%	1	0.03%
DONE	4	1N7E	1	0.30%	31	0.00%	1	0.03%
DONE	5	1N6E	10	2.70%	117	0.00%	11	0.33%
DONE	6	2N7E	8	2.10%	46	0.00%	9	0.27%
DONE	7	2N6E	3	0.80%	178	0.10%	15	0.45%
DONE	8	1S5E	15	4.00%	347	0.10%	33	0.98%
DONE	9	1N5E	17	4.50%	482	0.20%	41	1.22%
DONE	10	3N2W	8	2.10%	228	0.10%	21	0.63%
DONE	11	3N1W	13	3.50%	90	0.00%	23	0.69%
DONE	12	2N2W	17	4.50%	743	0.30%	57	1.70%
DONE	13	1S4E	24	6.40%	2267	0.90%	212	6.32%
DONE	14	1N4E	15	4.00%	938	0.40%	103	3.07%
DONE	15	2N1E	9	2.40%	1024	0.60%	27	0.81%
DONE	16	2N1W	34	9.10%	1526	0.40%	130	3.88%

DONE	17	1N1W	21	5.60%	9031	3.40%	201	5.91%
DONE	18	1N1E	36	9.60%	64349	24.10%	546	16.23%
DONE	19	1S1E	36	9.60%	58074	21.30%	563	16.77%
DONE	20	1N3E	22	5.90%	12853	4.80%	206	6.15%
Fall 07 #1857	21	1N2E	34	9.10%	38051	14.30%	379	11.31%
THIS GRANT	22	1S2E	24	6.40%	49772	18.60%	411	12.23%
THIS GRANT	23	1S3E	24	6.40%	26782	10.40%	368	10.95%
TOTAL			374	100.00%	266,991	100.00%	3360	100.00%

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

No new partnerships are created with this project.

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

No new innovations are utilized by this project.

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

ORMAP is fully funding Cartography overtime.

For January 1, 2009 through December, 31 2009, overtime is calculated as follows:
 From historical actual work billed to ORMAP \$5,000 per month * 12 = \$60,000

Overtime is voluntary. Any unused money will be used on subsequent townships.

When a township is completed, the number of maps and the number of taxlots completed will be reported to DOR.

C. Quality Control

1. Who will be responsible for quality control?

Multnomah County GIS will run quality control checks for GIS data.
 Multnomah County A&T Cartography will correct Assessor map data

2. Will county cartography staff review the deliverables?

See above.

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

If requested.

4. Describe quality control procedures.

GIS queries will be used as tools for polygon and attribute quality control. Comparison with Assessor data or manual review of mapped results.

D. Data Availability

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

DAS data sharing license agreement has been signed.

E. Background Information

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

All online.

G. Other Issues - Please identify.

None.

Submit completed forms to:

Mail	Contact Information
ORMMap 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