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An Effective Agreement -- Lane County Vertically Integrates Tax-Lot Maintenance

By Brandt Melick and Cress Bates

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Suppose you wanted to take several key data layers within a well-established, multi-agency GIS and change the rules, methods and timeframes for maintenance. Then you wanted to transfer stewardship to an agency with limited data maintenance experience and a history of minimal contact with its other GIS partners. In many local governments, this would be perceived as a formula for disaster.

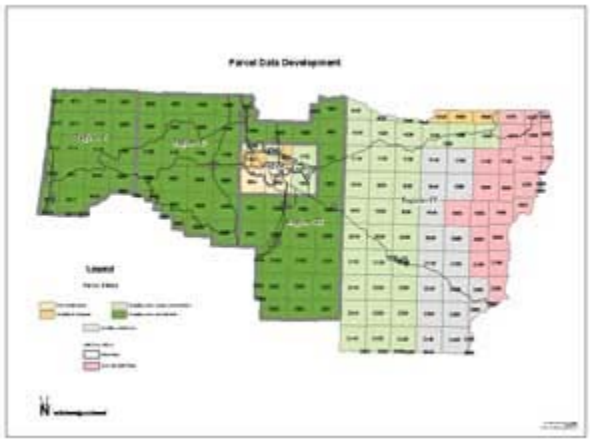
So how do local agencies overcome such situations, deploy an open design process and include user feedback? And how can they leverage new technologies to enhance product delivery and establish processes whereby each agency provides the correct input and oversight, and assumes the correct custodial role?

The Lane County, Ore., regional GIS partnership faced this situation when its key players decided to re-engineer the county's tax-lot layer and redistribute maintenance among participating agencies.

Regional Partnership

The Lane County regional GIS partnership is comprised of the city of Springfield, the city of Eugene, the Eugene Water & Electric Board, the Lane Council of Governments, and the Lane County Government. This multi-jurisdictional partnership has been building, maintaining and

managing a shared GIS for several decades.



Parcel data development in Lane County is divided into five regions.

A key asset within this system is the shared tax-lot layer, which serves as base information for dozens of other GIS layers and supports a variety of applications and GIS products. Uses include assessor-map publication, land-use planning, facilities planning and placement, and site selection as well as a host of routine business functions such as issuing building permits, reviewing site plans and helping the public with property questions. Maintenance of this valued asset is of high importance to all partners.

The new Regional Parcel Data Maintenance Plan and GIS Partner Agreement (Parcel Maintenance Agreement) is an outgrowth of these concerns and a regionally identified need to solidify partner roles to maintain the GIS tax-lot data. The region needed to reach agreement and standardize in the following areas:

• How to leverage computer-aided design maps to maintain more accurate tax-lot lines.

• How to deal with varying levels of experience and worrisome track records. Some agencies had no history of maintaining a shared data layer within the GIS partnership and others were woefully behind in processing changes to maps. This lack of experience and large work backlog raised concerns about abilities, commitments and new maintenance roles.

• How to address the full tax-lot lifecycle. Agencies lacked clarity on how to deal with tax-lot changes from start to finish and distribute maintenance responsibilities for the myriad information required to finalize a tax-lot change.

Diverse Needs

Crafting an effective Parcel Maintenance Agreement had to consider many diverse needs. It had to adopt a process that would 1) focus on subdivision and partition plats, plat features, tax-lot features and a shared tax-lot fabric; 2) allow each agency to plug into a workflow according to its unique custodial responsibilities; and 3) ensure that each agency understood its role and the importance of ongoing

involvement. An effective solution required adequate attention to process, technical detail and executive buy in.

Mapping for the tax-lot program includes the Eugene-Springfield urban area.

The agreement received executive approval from the Regional GIS Steering Committee and the Regional Executive Group. By approving this plan, regional executives agreed to commit adequate resources from each agency to perform described tasks. As a result, agencies agreed to sustain a current and complete enterprise tax-lot system that meets local, regional and state requirements for tax-lot information.

The agreement also addresses the full data flow lifecycle of tax-lot information from the platting process to the publication of a countywide tax-lot fabric geocoded with regional boundary files such as city limits, urban growth, land use and zoning designations. By accepting the terms of this agreement, GIS partner agencies agreed to common terminology, shared roles and responsibilities, common processes and procedures, and timeframes for maintaining the following:

1. Plat Warehouse and Plat Feature Dataset

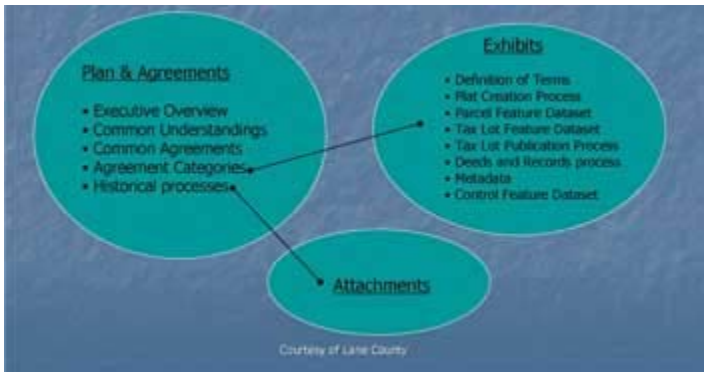
2. Parcel Feature Dataset

3. Tax-Lot Feature Dataset

4. Tax-Lot Publication Feature Dataset

5. Control Feature Dataset

The Parcel Maintenance Agreement supports high- and mid-level managers as well as technical staff. Language within the document provides a simple narrative to describe relevant agreements in the context of the data flow lifecycle.



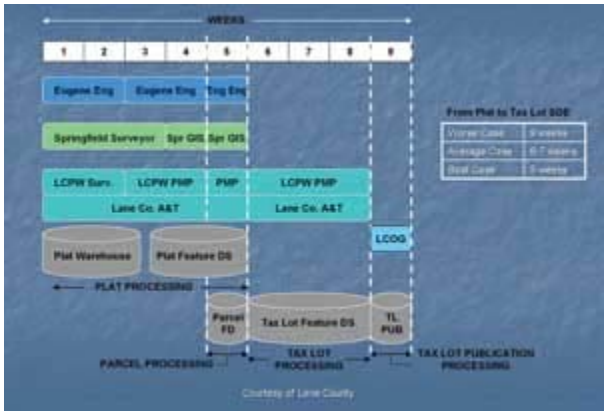
The 2007 Regional Parcel Maintenance Plan and GIS Partner Agreements also include attachments and exhibits.

Attachments provide background and historic information to establish context and describe relationships to external systems. Exhibits provide explicit detail to help technical staff perform the work as well as step-by-step instructions to ensure quality and consistency. Exhibits also help new employees learn how to become efficient and productive participants.

Group Consensus

This agreement was developed by the Tax Lot Subcommittee with Regional GIS Coordinator Subcommittee oversight. Core needs from Public Works, Surveying, Engineering, Land Management, and Assessment and Taxation (A&T) drove development efforts.

The Parcel Maintenance Agreement represents the accumulation of many years of planning, testing and refinement. The result is a synthesis of local, regional and state standards for the collection and distribution of tax-lot information.



By agreeing to a common infrastructure, the participating organizations are dramatically reducing the tax-lot lifecycyle.

One of the challenges was trying to build a process whereby multiple agencies could help maintain the tax-lot data as well as provide reviews and feedback to other agency changes. Although Lane County is recognized as the primary steward of the tax-lot layer, it was important that any process also take advantage of each city's plat-approval process.

Initial work involved trying to create a workflow that had each jurisdiction taking a tax-lot change from start to finish. This created

problems with tax-lot stewardship in Lane County, because each city isn't privy to all the information required to finalize a tax-lot change.

To solve this problem, a process was adopted that focused on each dataset: plat warehouse, plat features, parcel features and tax-lot features. This allows each agency to plug into a workflow based on the stewardship of its geographic area within the constraints of the layers to which they have edit access. Identifying each step in the plat-to-tax-lot process (as well as acceptable time limits) was crucial.

The goal was twofold: 1) improve the workflow, and 2) hold agencies accountable for getting their work done in a predictable amount of time. The result was a set of timelines that each agency agreed on, thereby reducing the average time from when a plat is recorded to when it appears in the GIS as a set of tax lots from 12 to nine weeks.

Fixing a Broken System

Before the Parcel Maintenance Agreement was written, member agencies maintained two tax-lot inventories: one for the GIS and another for A&T map production. Plats were processed multiple times by multiple agencies, and it could take months for new lots to reach inventories.

A&T cadastral maps were sometimes termed "cartoon maps" and could contain gross errors and/or conflicting information. Moreover, member agencies deployed unique and often redundant internal methods of data updates.

Although the region had been maintaining tax lots in a GIS since the mid-1970s, new orthophotos, planimetric data and road centerline data highlighted inaccuracies in the existing tax-lot information. In addition, ArcSDE geodatabase technology now made it possible to build a regional data model, store true-curve geometries and implement an easier system for managing multi-user, long-term transactions. Many participants also were eager to adopt modern processes and realize common goals such as those set forth by the National Spatial Data Infrastructure.

Extensive Effort

Early efforts began with lobbying. Operating under the auspice of the Tax-Lot Subcommittee, regional partners began meeting with key public officials. Committee members presented long-term diagrams to the county appraiser, county surveyor and regional public-works directors.

Proposals moved up through the regional GIS committee structure to receive refinement and guidance from regional executives. Bob Swank, an active member of the steering committee and a long-time champion of GIS in the region, advocated for Oregon Map Project (ORMAP) standards and worked at the state level to promote guidelines and funding.

Tax-Lot Subcommittee members joined ORMAP (see www.ormap.org) and assumed critical roles on the ORMAP Advisory Committee and the ORMAP Technical Group. The decision process involved input from line staff, mid managers and executives.

Efforts began gaining traction when Ollie Snowden, the Lane County Public Works director, drew in and secured resources for precision mapping of the entire county tax-lot base. Under his leadership, the Parcel Mapping Project team completed the work in approximately three years.

Securing a Shared Asset

The new tax-lot data are based on precise survey-control measurements provided by a team of surveyors working closely with cartographers and county GIS professionals. The new data cover all of Lane County (including the dense Eugene-Springfield urban area), comprising more than 483,000 tax-lot lines and 158,000 tax-lot polygons.

This key enabler resulted in a precise control network and an uncontested contemporary tax-lot base, establishing a seamless tax-lot fabric and facilitating the use of precise change orders. Georeferenced plats from surveyors now fit well in the new basemap.

Lane County also was successful in garnering sufficient ORMAP grant money to supplement county funds. ORMAP carried the idea of a seamless, statewide, tax-lot base a step further by proposing the Oregon Cadastral Data Exchange Standard, the detailed Technical Specifications and the Map Methodology.

These models help maintain parcel data as well as support the creation, maintenance and production of A&T cadastre maps. Following these guidelines, the Lane County GIS partnership crafted processes and agreements that form the basis of the Parcel Maintenance Agreement.

Operating under the new agreement, partner agencies streamline the production process, generate superior products and increase benefits to users throughout the region. Tangible results include the following:

• Duplicate efforts are cut in half.

• Proposed changes to the tax-lot fabric and related research now are carried through the change-order process, saving time and "closing the loop" on loose ends.

• Tax-lot inventories reflect precise geometries and survey-grade control.

• Attributes are transferred through the process, further increasing efficiencies and reducing the human-error factor with less manual entry.

• Codes are managed through shared domains by those who have a vested interest in correct values.

• Technicians, analysts, decision makers and casual users all use the new data with heightened levels of confidence.

• The agreement codifies a "best management practice" and helps ensure consistently reliable and timely results.

The agreement also plays a critical role in supporting Oregon Framework initiatives. Standardization throughout the product lifecycle provides ample opportunity to comply with local, regional and state standards. Preparing submittals for state inventories now requires less time and essentially consists of stripping off local detail before sending the data. Future plans include automated transactions with the state to facilitate data sharing.

Local governments are perhaps the greatest beneficiaries of the new process. In the city of Springfield, for example, local users have gained more with less effort. Rather than maintain a citywide tax-lot layer, the city merely has to create coordinate geometries for its plats, enter a few attributes and post the data to the plat warehouse. The rest of the work is handled professionally by others.

By following the current agreement, agencies reduce effort, shorten turnaround times and increase quality at each level of production. In 2006, for example, there were 164 plats recorded by Lane County, each taking about three hours to create. Under the old system, the same plat might be recreated by A&T, and the city of Eugene or Springfield, and then perhaps again by the Lane Council of Governments.

Before the agreement, 492 hours of work was ballooning to 1,476 hours at an additional cost of more than $44,000 per year in redundant effort. The cost savings alone are substantial.

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