Pitney Bowes
GROUP 1 SOFTWARE

Precise Location, Identification and Analysis:

The Value of Parcel Data

WHITE PAPER

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INTRODUCTION

LAND OWNERSHIP IS A FUNDAMENTAL ELEMENT OF OUR ECONOMIC AND LEGAL SYSTEMS IN THE UNITED STATES. IT HAS BEEN SUGGESTED THAT THE ABILITY TO SECURE TITLE TO LAND IS THE PRIMARY FACTOR IN BUILDING A NATION'S CAPITAL, SETTING FIRST-WORLD COUNTRIES APART FROM THE REST (DE SOTO 2000).

AN ESSENTIAL REQUIREMENT FOR SECURING TITLE TO A PARCEL OF LAND IS A SYSTEM FOR RECORDING EVIDENCE OF OWNERSHIP. PARCEL INFORMATION REFERS TO THE MULTITUDE OF RECORDS AND MAPS USED TO DOCUMENT THOSE RIGHTS AND INTERESTS IN LAND. FOR EACH PROPERTY, PARCEL INFORMATION IS USED TO DESCRIBE ITS SHAPE AND EXTENT, ITS VALUE, ITS USAGE AND ITS ADDRESS-BASED LOCATION.

OUR RELATIONSHIP TO LAND IS, TO A LARGE EXTENT, EXPRESSED IN THE VARIOUS COMPONENTS OF PARCEL INFORMATION. IT FOLLOWS THAT A PARCEL IS THE APPROPRIATE UNIT OF GEOGRAPHY TO CONSIDER FOR ACCURATE DECISIONS INVOLVING DEVELOPMENT, BUSINESS ACTIVITIES, REGULATORY COMPLIANCE, LOGISTICS, HAZARDS, EMERGENCY RESPONSE AND A HOST OF RELATED ACTIVITIES.

IN THE UNITED STATES, LOCAL GOVERNMENTS ARE TASKED WITH THE RESPONSIBILITY TO MAINTAIN PARCEL INFORMATION. COUNTIES, AS WELL AS MANY TOWNS AND CITIES, HAVE DEVELOPED INFRASTRUCTURES FOR STORING AND RETRIEVING THE VAST ARRAY OF DEEDS, PLATS, MAPS AND OTHER DOCUMENTS THAT DESCRIBE SPECIFIC PARCELS. BEYOND THIS RECORD KEEPING FUNCTION, LOCAL GOVERNMENTS ARE ALSO USERS OF PARCEL INFORMATION, ESPECIALLY WITH REGARD TO PLANNING, ZONING AND ASSESSMENT. IN NEARLY EVERY LOCALE, THE ASSESSOR MAINTAINS A VISUAL REPRESENTATION OF PARCEL INFORMATION FOR THE PURPOSE OF TAXING PROPERTIES. WHILE NOT SURVEY-QUALITY, THESE MAPS ARE GENERALLY ACCURATE DEPICTIONS OF THE ACTUAL PARCEL BOUNDARIES. NEARLY ONE-THIRD OF LOCAL GOVERNMENTS STORE THESE MAPS IN A DIGITAL FORM, OFTEN WITHIN A GEOGRAPHIC INFORMATION SYSTEM (GIS), ALLOWING THE HIGHEST LEVEL OF FLEXIBILITY FOR DATA ANALYSIS, MAP DISPLAY AND INTEGRATION AMONG DEPARTMENTS. PARCEL DATA IS A TERM COMMONLY USED TO REFER TO THE COMPUTER-BASED FILES THAT STORE THE PARCEL BOUNDARY INFORMATION USED WITHIN A GIS.

BEING MAP-BASED, PARCEL DATA IS WELL SUITED TO VISUALIZATION AND GEOSPATIAL ANALYSES.

Private property has always been a local matter in the United States. An early distrust of federal oversight gave the power to tax and administer property to state and local governments. As a result, over 3,500 local units of government now manage property information in the United States. While the general principals for recording property transactions may be similar, the actual manner in which parcel information is stored and managed has followed a unique path over time within each government body. As a result, a great variation exists in the quality, content and format of parcel data. Combining parcel data for regional analysis can present difficult challenges.

Needs and Benefits

Despite these peculiarities, businesses and government agencies alike are realizing the tremendous advantage provided by parcel-level information.

Unlike a single address point, a parcel has defined boundaries encompassing an area of land-an important consideration when examining factors of a continuous nature such as flood zones, impact areas, easements, rights-of-way, land use and the like. In most cases, the representation of parcel boundaries is very detailed, making parcel data the most accurate base for a range of inquires. Being map-based, parcel data is well suited to visualization and geospatial analyses that include distance, adjacency and overlap functions.

Property boundaries are also being used to develop the next generation of address geocoding tools. Compared to traditional geocoders which rely on road segments to locate an address through interpolation, parcel data allows address locations to be linked to specific properties. By locating an address at the center of a parcel, spatial accuracy can often by improved by 1000 feet or more.

Parcel data provides more than just the geometry of property boundaries, it is also a spatial database that can be linked to innumerable important variables. Each parcel has a unique identifier which allows it to be joined to property information that can include valuation, sales history, owner information, legal descriptions, tax rates, school districts, zoning and more. This allows even undeveloped properties lacking a site address to be included in analyses.

Both public and private industries find that incorporating parcel data into their daily operations and processes result in enhanced capabilities, additional services and reduced operating costs.

Digital parcel data allows property information to be analyzed and displayed with other map-based data.

Even the best available street segment data can yield inaccurate geocoding results, in this case, over 900 feet.

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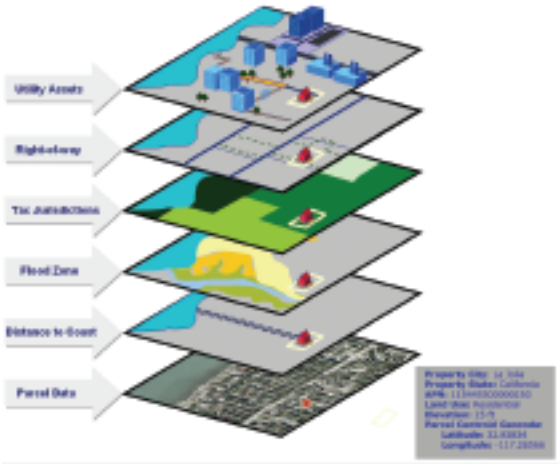


Parcel boundaries provide better context and greater accuracy for a range of critical applications

Applications

FINANCIAL SERVICES

• Loan Processing

Parcel data is essential in the automation of loan processing. By providing a wealth of information, the data set enables the pre-filling of applications and the pre-qualifying of applicants. Accurate parcel boundary data saves companies both time and money by speeding data entry, validating information, eliminating user errors, utilizing location comparables based on radius analysis and determining exposure of loans in the area.

• Tax Assignment and Determination

Tax districts are notorious for their level of detail, but they are also frequently parcel specific. Geocoding to the center-point of the parcel improves the accuracy of tax jurisdiction assignments and reduces compliance costs and risks by ensuring superior levels of accuracy for property tax, sales tax and special tax assignment and determination.

INSURANCE

• Underwriting and Claims Management

Parcel boundary data is useful in several insurance applications, including underwriting and claims management. Used in combination with hazard data, insurance underwriters determine the precise location of a policy holder and understand the relative risk for the parcel. Additionally, following a catastrophic event, claims management can assess damage and accurately identify policy holders by overlaying parcel data with aerial satellite imagery.

• Flood Certification

Flood zones are highly detailed areas of geography that are sensitive to even the smallest change in accuracy. Using parcel data in combination with elevation information, insurance companies are able to anticipate and control risk by automating flood certifications to accurately determine the likelihood of flood risk for an entire parcel.

• Risk Assessment

Parcel data provides precise information about the distance from the target location to the coast. This determination is critical in making quick and accurate underwriting decisions for hurricane and tropical storm risk.

RETAIL, RESTAURANT AND REAL ESTATE

• Property Information

Parcel boundary data allows buyers to accurately locate property for sale and learn more about the surrounding geography. Land use designations assigned by local government entities enable users to understand the full value of the property and whether it fits their intended uses.

• Service Territories

Service providers align service territories with parcel boundaries to more precisely define their customer base and service target areas.

THE FULL VALUE OF PARCEL DATA IS REALIZED WHEN IT BECOMES INTEGRATED INTO DAILY BUSINESS OPERATIONS.

• Online Mapping Using Aerial Imagery

Parcel data provides the exact location centroid information associated with the target address. This type of accuracy is critical to businesses providing delivery services, location mapping and house valuation services.

UTILITIES/TELECOMMUNICATIONS

• Asset Management

Parcel data allows utility and telecommunication companies to manage assets, such as meters, pipelines, cables and equipment, across multiple properties without the need for physical mailing addresses. By plotting customers on a service grid, utility companies more efficiently and effectively respond to power outages, thereby reducing customer pain and improving customer satisfaction.

• Right-of-Way Identification

A right-of-way is a parcel of land where assets such as pipelines, cables and utilities are located. Companies acquire the rights to these parcels to provide various services — natural gas, cable, water, phone, electric — to customers and to allow the permanent location of assets on public and private land. Rights-of-way and easements are perpetual interests in real property that are generally formalized by written agreement and recorded against property titles. A change in property ownership does not alter the company's rights, as these interests remain when property ownership changes. Parcel boundary information allows companies to effectively manage rights-of-way for maintenance of assets and, more importantly, successful communication with property owners.

• Call-Before-You-Dig Applications and Automated Meter Reading Systems

Up-to-date parcel boundary information saves time and money by pin-pointing the exact property location in relation to the utility in question — be it gas, water, electric, phone or cable. A nationwide parcel data set, combining data from county and third party property databases, accurately identifies property ownership and allows vital customer notification and communication.

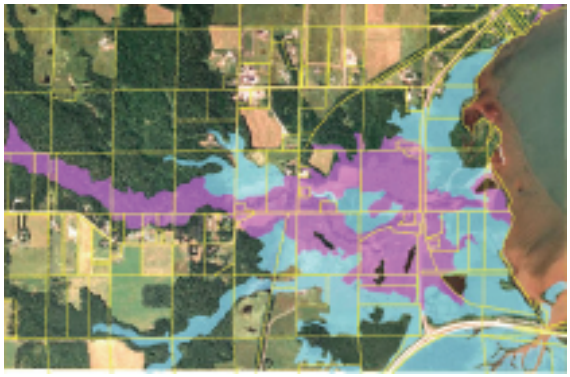
GOVERNMENT

• Law Enforcement

A geo-fence is a virtual boundary surrounding a specific geographic area. Parcel data enables the monitoring of activity in and around the selected boundary, notifying the authorities when the boundary is compromised. This same parcel data is useful in accurately reverse-geocoding to verify compliance with restraining orders and parole conditions.

• Homeland Security

Parcel data information enables the location and identification of the precise locations of office buildings, hospitals and industrial facilities. The pin-point accuracy assists in the immediate planning and response to attacks, disasters and catastrophes — both natural and man-made.



Parcel data provides the most accurate information available for analyzing property characteristics

Current Status

The full value of parcel data is realized when it becomes integrated into daily business operations. For that, the data must be consistent, comprehensive and current. Unfortunately, there is no single source to obtain parcel data since it is developed and maintained only at the local government level. It is well beyond the normal scope of any business to attempt to collect, assemble and maintain the thousands of individual parcel databases that exist across the nation, solely for their internal use.

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Recognizing its clients' need for parcel-level detail, Pitney Bowes Group 1 Software established a data development division for the purpose of building and maintaining a national parcel database. Staffed by industry experts in cadastral data management, Group 1 Software has been able to bring disparate data sources together to create a cohesive database of parcel data from across the nation. From this database, Group 1 Software is developing a range of robust data products and services.

It is estimated that the United States encompasses approximately 144-million parcels. A third of these are in a digital form, most of which cover more urbanized areas, or approximately 75% of the population of the United States. As Group 1 Software moves forward, the focus will be on expanding coverage to include the remaining areas that do not currently have digital data.

Challenges

COVERAGE

The proposition of building and maintaining a national parcel database is an extraordinarily costly and resource intensive undertaking. It takes a long-term commitment to fund and staff a project of this magnitude. With the bulk of existing digital parcel data now integrated, the next steps will be undoubtedly even more challenging. With its customer-first focus, Group 1 Software is committed to completing the national database in a timely manner. Its team of cadastral data specialists is comprised of industry experts in the conversion of paper parcel information to robust digital parcel data. The team's expertise and scalable methodologies will ensure that Group 1 Software will succeed in its quest to have nationwide coverage by 2010.

ACCURACY

While parcel-level detail provides the most accurate base for mapping, the accuracy of the parcel data itself can vary from place to place. It is not uncommon to observe a parcel boundary extending over a road edge or across a rooftop. These apparent discrepancies can usually be attributed to variations in the methods used to create the parcel data.

Boundary lines may be derived from scanned tax maps, from digitizing above aerial imagery or from coordinates used by surveyors. Each of these will result in a different quality product. The level of accuracy may also be related to the original usage intent of the data; tax assessors generally do not require precise boundary measurements as long as the relative size and position of parcels is adequate. It is also possible that the map base used to view the parcel data (e.g. aerial imagery, road centerlines) is not positionally accurate, making the parcel boundaries appear incorrect. In practice, inaccurate parcel boundaries are not generally an issue for most applications. Through time, parcel data tends to become more and more accurate as new survey data replaces older boundary information.

EDGEMATCHING

While parcel boundary accuracy is an issue within each county, the spatial coincidence of boundaries between counties is an even more complicated issue. Since each county has its own criteria for developing parcel data, the resulting variations in accuracy may have profound ramifications for boundaries between neighboring counties. Often there are gaps and overlaps along borders. These errors are not generally witnessed by individual counties since few have the opportunity to compare their data with that of their neighbors. Building a national parcel database allows these discrepancies to be discovered, providing counties feedback for future data updates.

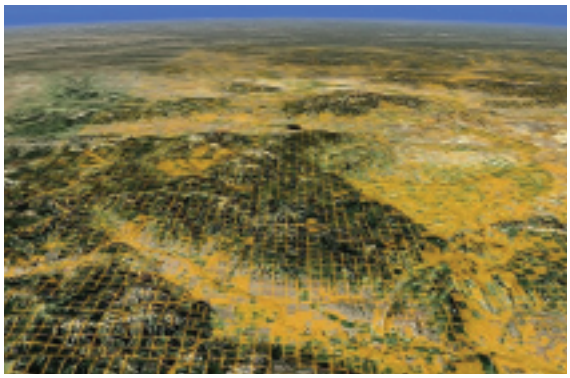
MAINTENANCE

Land transactions occur every day, many of which involve subdividing land into smaller parcels. Each time this occurs, counties must make the corresponding changes in their digital parcel data. Depending on the availability of local resources, these changes may be reflected daily, monthly, quarterly or just once each year. While it is impractical at this time to integrate frequent updates into end-user data products, it is imperative to keep data in a national parcel database updated, at least on a quarterly basis. Group 1 Software has developed a scheduling model that optimizes updates in order to provide the best value to its customers. In the future, Group 1 Software will explore procedures for providing updates as quickly as possible to its end users.

GROUP 1 SOFTWARE HAS BEEN ABLE TO BRING DISPARATE DATA SOURCES TOGETHER TO CREATE A COHESIVE DATABASE OF PARCEL DATA.

Vision

Group 1 Software understands its customers' need for comprehensive, accurate and current parcel-based information and is committed to completing a nationwide parcel database. Once completed, Group 1 Software will continue to improve the accuracy and currency of the database using innovative maintenance protocols and update scenarios. It is Group 1 Software's vision to have its national parcel database become the industry's de facto standard for all parcel-level business information and location intelligence activities.



Comprehensive coverage will provide consistent analytical capabilities across the nation

ABOUT MAPINFO AND GROUP 1 SOFTWARE

Pitney Bowes MapInfo and Pitney Bowes Group 1 Software bring together a unique combination of location intelligence and communication intelligence software, data and services. This powerful combination improves your business today, builds the path for future growth and allows you to leverage your customer data and communications in unique new ways for more insightful decision-making.

MapInfo location intelligence solutions range from powerful demographic and site analysis research tools to custom predictive analysis models. These tools help businesses more intelligently forecast sales and prioritize locations and markets for strategic development and profitable growth.

Predictive analytic models help organizations prioritize capital expenditures and market deployment based on defensible, scientific methods. These models utilize real world customer and market data and proven methodologies to create a strategic blueprint for successful expansion.

MapInfo combines real world customer transaction and sales data, demographics, psychographics, competitive intelligence, spatial analysis and more than 40 years of experience helping customers solve mission critical needs, such as:

- Making optimal site selections
- Maximizing market share and per-unit performance simultaneously
- Mitigating cannibalization between stores
- Determining which stores to close and which to renovate
- Identifying and improving under-performing stores
- Translating a concept from one market to another

Group 1 Software communication intelligence solutions range from the design and management of high-volume, on-demand and interactive personalized business documents for multi-channel delivery, to the creation and management of all forms of digital information. We offer the only end-to-end customer communication management solution that is highly scalable, easy to integrate and deploy and has multiple entry points.

The Group 1 Software mailing efficiency solutions transform data running through a client's operation into actionable information. By managing, analyzing, cleansing and distributing communications effectively, we help organizations improve profitability and strengthen customer relationships. In addition, our customer data quality solutions enable consolidation of customer information across the enterprise into a single system for more effective decision-making.

Pitney Bowes MapInfo and Pitney Bowes Group 1 Software enable you to be location and customer intelligent—for more profitable results and more cost efficient operations.

REFERNECES

De Soto, H. 2000. The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else. New York: Basic Books.

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