Helping to Avert Catastrophe

How Real-Time Location Intelligence Can Mitigate Exposure and Better Manage Risk
Challenges: Over-Exposure and High Risk

“Location, location, location” has long been the real-estate agent’s mantra. But for property and casualty insurers trying to manage concentration of exposure in a post-Katrina age, the new axiom might be location intelligence, intelligence, intelligence.

Location intelligence links data to precise physical coordinates. It has been an essential analytical risk management tool for actuaries during the past decade. Now, next-generation catastrophe management initiatives are integrating location intelligence into real-time underwriting processes. The goals of these projects are to optimally manage exposure risk, reduce expenses and ensure financial stability.

This Pitney Bowes Group 1 Software white paper examines the migration of location intelligence processes from analytical to operational uses, and the critical role it can play in catastrophe management.

Property Development in High Risk Zones

While there may be debate about whether there are more catastrophic hurricanes now than in the past, or whether climate change is to blame, one fact is clear: never have so many high-value American homes been built so close to vulnerable shorelines.

Luxury developments can be found on the Katrina- and Rita-ravaged Gulf shores of Texas, Louisiana, Mississippi and Alabama, as well as all of Florida’s coast, and up the Atlantic seaboard all the way to Maine. The endangered coast includes some of America’s priciest real estate in New York City and on Long Island, which — according to some weather analysts — is due for a repeat cycle of the severe hurricane seasons of the mid-20th century.

In 2004, insured coastal exposure neared $2 trillion in both Florida and New York; $740 billion in Texas; $662 billion in Massachusetts; and over $500 billion in New Jersey. On the Gulf and Atlantic coasts, from Texas to Maine, insured coastal exposure totaled over $7.2 trillion1.

The population shift (see figure 1) to the Sun Belt has impacted coastal development in the Southeastern U.S. and spurred hyper-growth for inland centers from the Rocky Mountains to the Pacific. In the West, the housing boom has brought high-value property development to areas formerly left untouched: remote mountainsides prone to mud slides, forest land threatened by wild fires, and along fault lines where seismic activity is most likely.

For property and casualty insurers, the disastrous hurricanes of 2005 had a historic impact: $62 billion in insured losses were reported in the United States — 125 percent higher than in 2004, a year which set a short-lived, all-time record for losses. While 2006 saw fewer tropical storms, wild fires destroyed over ten million acres — the most devastating year for such damage in history.

Without question, implementing best-in-class catastrophe management for natural or manmade events has become one of the most critical strategic business drivers for the P&C industry.

1 SOURCE: TowerGroup.
ZIP Codes: For Mail Delivery, Not Risk Assessment

Legacy underwriting processes have traditionally used ZIP Code tables (and, in some cases, on-site inspection) to assign rating territories, manage risk and set premiums. But ZIP Codes were never designed to pinpoint physical addresses; their sole function is to optimize mail delivery.

ZIP Codes include many inconsistencies. They may cross municipal boundaries, cover many square miles of diverse terrain (and variable risk hazards), or accommodate “vanity addresses,” where a property physically located in one municipality is given a phantom address in a more desirable adjacent community.

ZIP Codes typically aren’t precise enough to accurately calculate proximity to risks, such as a property’s distance to an exposed coastline. They aren’t helpful in settings where a post-office box is the primary delivery point. And they may be least reliable in locating highest-value property. In the name of privacy and security, many exclusive enclaves – gated communities, or even the entire city of Carmel-by-the-Sea, Calif., where a little more than 4,000 people live in an area of almost three square miles – do not list a home’s physical location as the household’s delivery point.

“Inflexible legacy systems and legacy underwriting practices have left carriers with an enormous quantity of risks that lack specificity of location,” notes Karen Pauli, senior analyst with TowerGroup. “This has resulted in poor bottom-line results that carriers cannot tolerate.”
Geocoding: When Address Accuracy is Paramount

Geocoding is an essential component of location intelligence. The process of geocoding an address assigns a unique latitude and longitude to a physical location. It can pinpoint the location down to the building rooftop (parcel centroid) level – an unprecedented degree of “point-level” accuracy. Point-level geocoding can very precisely determine a property’s distance to the coast, for example, or its proximity to a fault line or an area prone to brush fires. Geocoding can also interpolate the location of an address on a street segment, for “street level” geocoding. Its technologies and processes are integral to any business where address accuracy and location intelligence are critically important.

Geocoding tools play a central role in address standardization, the process of verifying that each address component meets U.S. Postal Service guidelines to improve mail deliverability and overall efficiency. Up to 40 percent of manually entered address information contain errors. Tools that merge spatial data with regularly updated USPS address files – a process called conflation – provide a very high level of address integrity. Optimally, geocoding software tools are integrated with CASS-certified address standardization, which verifies that each address component meets U.S. Postal Service guidelines to improve mail deliverability and overall efficiency.

From the Back Office to the Forefront

In the P&C industry, geographic analysis traditionally has been a back-office function. It reviewed underwriting decisions “after the fact,” did not involve any real-time customer interaction, generated “what-if” scenarios, and was used in applications such as claims analysis, and in the creation of rating territories, rates and rules. Geographic analysis sometimes has been used in conjunction with modeling programs to monitor exposure and catastrophic risk.

But, after the catastrophes of 2005, carriers and reinsurers are demanding a vastly improved catastrophe risk management methodology. A.M. Best Co., in a 2006 report, called for a multi-phase overhaul of existing methods. Among its recommendations: improve data quality by geocoding all properties, and enhance controls by integrating catastrophe management into underwriting. These are two of the main drivers behind the need for operational geocoding.

A.M. Best’s Best-In-Class Risk Management Guidelines2

Data Quality
- Senior management’s firm commitment
- Proper coding of loss exposure
- All properties are geocoded
- Auditing of exposure coding
- Most current Insurance to Value Analysis

Monitoring Exposure
- One or more catastrophe modeling tools are used
- Aggregate loss exposure is monitored
- Potential loss scenarios are considered in addition to modeled output
- Monitoring of catastrophe exposure is a frequent and consistent process

Controls
- Specific aggregate limits are established using a reasonable and defensible bases
- Reinsurance program is based on an assessment of all available tools to ensure appropriate protection
- Catastrophe management is integrated into the underwriting process
- Management establishes levels of acceptable exposure and clearly articulates the company’s catastrophe risk-management program and how effective controls are

Making Good Decisions and Taking Action In Real Time

When used in operational activities such as underwriting, location intelligence applies the accuracy of geocoded information and the results of geographic analysis in tangible and powerful ways to allow P&C insurers to make better decisions in real time.

It supports intelligent underwriting, straight-through processing and best practices in catastrophe management, such as:

- Address standardization, including front-end address cleansing
- Universal geocoding of property
- Territory assignment
- Risk assignment
- Determining location in wind pool and premium tax zones
- Real-time PML (Probable Maximum Loss) exposure monitoring, which can determine if maximum risk limits have been reached or surpassed within a high-risk area.

In addition, operational location intelligence provides competitive differentiation against other less technically savvy carriers, enabling insurers to return accurate quotes more quickly. It improves productivity through an easier means of data integration for agents. Moreover, enhanced address quality yields superior mailing efficiency and is a foundation of customer communication management (CCM), a strategic framework of technologies and process improvements that optimize customer touch points across an organization.

“Both agents and customers want ‘my time, anytime’ service,” says TowerGroup’s Pauli. “Carriers are re-evaluating their service offerings with a pointed focus toward customer intimacy and a seamless customer experience.”

Integrating address quality with location intelligence into the front end of straight-through underwriting processes – before risk is assigned – is the necessary first step. Straight-through processing has traditionally sacrificed some accuracy in the name of speed and convenience. In addition, geographic risk was hard to quantify. But the advanced address quality and accuracy of today’s geocoding solutions – especially the use of conflated spatial and USPS address data – now can resolve those issues.

*Figure 2. A single geocoded address can be analyzed against hazard risks and multiple layers of geography. Integrating data from that level of detail into the underwriting process in real time is the essential value offered by operational location intelligence. (SOURCE: Group 1 Software)*
Best-in-Class Enabling Technology

Location intelligence has become a proven, business-critical technology for multiple industries during the past decade. For example, Group 1 Software’s location intelligence solutions are used tens of millions of times every day by leading online map services, national fast-food delivery chains, E-911 response units – and 75 percent of the leading P&C insurers in the U.S.

Yet the state of the art in geocoding is constantly advancing, providing higher levels of precision and performance to support real-time decision support and operational location intelligence. Address correction through a CASS-certified standardization engine and street network databases with addresses not served by the USPS delivers greater accuracy. Real-time address standardization and correction allow agents to resolve discrepancies in real time and improve the overall integrity of subscriber data.

The underlying technology for best-in-class geocoding solutions features very fast processing speeds and the ability to geocode and standardize an address in one pass for real-time decision support. It also features a flexible data-matching engine to conform to each insurer’s business rules, and an embeddable design and multiplatform support to incorporate these solutions into the underwriting IT environment.

Harnessing the Power of Location Intelligence

The losses of 2004-06 have not slowed property development in vulnerable coastal areas. Galveston, Texas, scene of three catastrophic storms since 1900, is the site of a planned 1,000+-acre project. “It’s very difficult to find the political will and sustain it long enough to develop new [public] policies for coastal development,” Karen Clark, founder of AIR Worldwide, a risk modeling company, told the Houston Chronicle in 2007.

“Economic development always seems to take precedence in policy, and that’s okay as long as there are some standards for what is being constructed and those standards are being enforced.”

Improved catastrophe management is imperative for a carrier’s success and survival. It depends on superior data quality and mitigating risk during the front end of the underwriting process. Geocoding and the ability to integrate its location intelligence into operational processes are crucial to those initiatives. In addition, superior address quality and straight-through processes support enhanced customer communication management and leverages the power of the mailstream – the documents (electronic and physical) and packages that flow within and between carriers and subscribers every day.

Pitney Bowes Group 1 Software provides location intelligence technology and end-to-end customer communication management solutions and consulting services for insurance carriers. We can explore with you how our mailstream solutions can help you better manage risk exposure, reduce expenses and improve your competitiveness. To find out more, contact Group 1 at 1-888-413-6763 or visit www.g1.com.