

A STRAIGHT LINE

to EFFICIENCY

When identifying viable pipeline routes, access to accurate data can boost profitability

BY DR. HOWARD BOTTS, PH.D.

Building and maintaining the pipelines that carry natural gas and crude oil is vital to providing the energy that runs our world. While pipelines have proven to be the safest way to transport petrochemicals, an unwavering attention to detail is required at every step—from initial route planning to long-term pipeline maintenance.

To protect public safety and the environment, federal and state regulations place strict guidelines on pipeline placement. Restrictions are predictably stringent near high-consequence areas such as populated regions, drinking water sources and unusually sensitive ecological land. Companies that build natural gas transmission lines must calculate the potential impact radius and adhere to exceptionally tough safety standards near population-dense regions and areas.

The combination of risk and cost make identifying, and when possible, avoiding high-consequence areas an important aspect of pipeline planning. In establishing a viable pipeline route, planners have three top-priority needs. First is seeing an accurate view of the parcel fabric, which includes the continuous surface of connected parcels that lie between the well and pipeline destination, as well as topographic details. The second is getting parcel ownership details and understanding the property characteristics, and the third is gathering current oil and gas leasehold

data for the surrounding area. While the first two can help determine which route is most feasible, the third, leasehold data, opens the door for opportunity assessment.

Viewing the Parcel Fabric and Topography

Before the advent of map scanning, digitizing and geographic information system (GIS) technology, pipeline planning required trips to one of more county courthouses and acquiring parcel maps to determine the best route. The laborious process typically included rerouting when parcel maps revealed a problem or right of way negotiations hit a snag. Digitized maps eliminated some of the legwork, but the maps seldom fit together with the precision required.

GIS technology took mapping to the next level, at least theoretically. Assuming digitized maps and GIS data matched and that both were complete and current, GIS parcel data allowed planners to view the

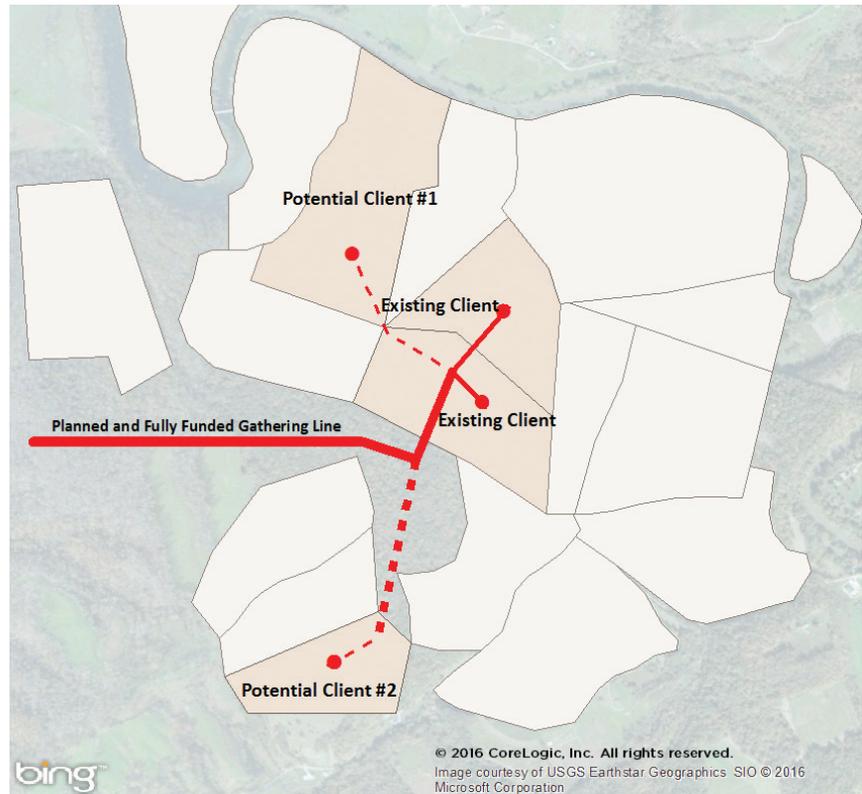
By analyzing leasehold data surrounding proposed or existing assets, companies can identify nearby producers to approach and sell services to, optimizing operational efficiency.

fabric of connecting parcels, identify obvious high-consequence areas and plan the best route. However, the pairing of digitized parcel maps and GIS technology worked better in theory than practice. There were a few too many assumptions required and not enough parcel-level GIS data available to eliminate courthouse trips.

To address concerns about mapping accuracy and completeness, my company, CoreLogic®, developed two geospatial products. ParcelPoint® was created to capture boundary and centroid data for over 145 million parcels in 2,775 counties, representing 97 percent of the properties in the United States. PxPoint™ Geocoder uses the ParcelPoint data set and other data sources to convert physical addresses or locations into precise geographic coordinates. Combining the elevation, slope and aspect layer provides a more realistic and useful parcel view.

However, companies were still spending too much time gathering the information needed to create actionable pipeline plans. While planners could look at the parcel sizes and layout to determine if it contained a body of water or was adjacent to high-consequence areas, they couldn't see enough details on property ownership or characteristics to establish next steps.

With one of the nation's largest property information databases, our firm incorporated its property data with ParcelPoint to create a niche product. In 2014, we introduced SpatialRecord, adding more than 120 new fields to the property data and enabling planners to see details about who owns the property, how many owners are on the deed, and whether the owner is a corporation or business. SpatialRecord also provides the number and size of structures on the property, when the original structure was built, structural details, current market value for the land and structures, as well as the utility services on or adjacent to the property.



Evaluating Leasehold Data

Pipeline construction costs mandate efficiency. By understanding what producers in an area are doing, companies can uncover opportunities. When it comes to opportunity assessment, especially for the midstream sector, the collaboration between CoreLogic and Western Land Services (WLS) provides a full data suite solution. Aligning with CoreLogic parcel boundaries and a part of the CoreLogic product catalogue, the WLS leasehold and unit database represents 10-15 years of publicly recorded oil and gas activity on a per tract level for various counties across the U.S.

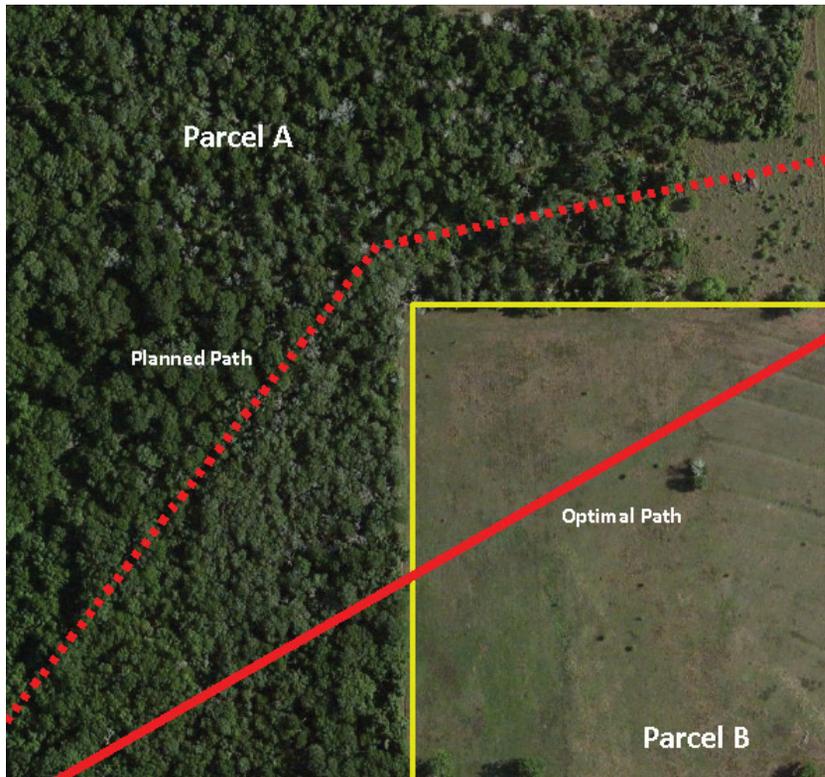
For example, if a midstream company plans to build a pipeline for one producer who agrees to subscribe to 50 percent of the pipeline's capacity, the company can use the leasehold data product to find neighboring producers to fill remaining capacity requirements.

Knowing which leases are expiring and when can also help protect pipeline investments, as the absence of this information could leave a midstream

company without a producer to fill its pipeline. By tracking new leases in conjunction with lease expirations, a company can proactively find new producers or negotiate a contract with a producer that is set to take over an expiring lease.

In many instances, midstream companies hold dedicated acreage through agreements that stipulate that the acreage stays with the midstream company for the duration of the lease conditions. A producer taking over a lease is still obligated to the acreage agreement, but it's up to the midstream company to stay current on lease exchanges in every area it holds assets. Having up-to-date leasehold data may also reduce the problem of pipeline gaps. If planning results in a two-mile gap that can't be filled in a cost-effective way, for example, the pipeline company may be able to take advantage of another company's existing pipeline to reduce inefficiencies.

While leasehold data is available to the public, locating it may require sorting through thousands of



Identifying optimal paths through remote data analysis can help our staff work around problems quickly.

parcel for a line that crossed a highly wooded area. With such a large number of trees on the property, the owner was unwilling to have the area bulldozed without additional payment. Once the cost to remove the trees was added, as well as additional compensation, it was decided that they should go back to the drawing board to find an alternative route. Using the parcel polygon data available, an adjacent parcel was identified that was not as heavily wooded. With fewer trees to bulldoze, clearing the right of way became much less expensive.

Without access to this GIS data, tracking down the owner could have been very time consuming, as the property was raw acreage without a resident located on the property. While the wooded parcel couldn't be avoided completely, about 300 yards of trees were able to be saved as well as the expense of removing them.

Conclusion

The complex, time-intensive processes underlying pipeline planning and right of way negotiations can lead to profit-draining delays. Streamlining information searches that must take place before planning can go forward provides a streamlined approach to increased efficiency and profitability for optimal performance and results. 🌐



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documents. Having immediate access to the WLS leasehold product, along with parcel boundaries and property information, companies can minimize the need to expend valuable resources on a search. Likewise, regular updates to both the parcel and leasehold datasets, allows for easy ongoing analysis.

Leveraging the Opportunities

New pipelines can be expensive, and the bidding process for new lines has always been highly competitive. The ability to quickly identify and analyze ownership and leasing data in areas where our clients have planned assets has helped them to become significantly more efficient. They have learned that, by working with production companies that are operating near their assets, they can leverage opportunities to expand the gathering network. By reaching out to nearby producers to see if they can serve them, the client has been able to spread the cost between producers and make bids more competitive.

Even in non-competitive situations, clients are able to leverage these data

resources to their advantage. For example, when bidding on one project that hooked up to a major transmission network, the client had contracted to build the line and had fully funded it. By using current lease data and analysis, the client was able to identify two other producers that were within range of this gathering line. Services were offered to both producers, and one of them accepted the offer. This allowed our client to efficiently expand the gathering network while minimizing the cost. At some point, they likely would have required some form of service. However, by proactively identifying this opportunity before it was needed, our client was able to secure the business despite competitors as they were already doing work in the area and could minimize the incremental expense.

Cutting Time and Costs

Remote data analysis has also been beneficial in helping land personnel to work around problems quickly. In one situation, a client was working on a key