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GIS Clips Hassles in Vegetation Management

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In a move to track and analyze its right of way line clearing program, Habersham Electric Membership Corporation recently implemented Vegetation Management Solution by Clearion Software, built with ESRI's ArcGIS Engine Developer Kit. The application uses land-base and electrical facilities data from existing GIS as a reference for vegetation management records and then stores data in a familiar enterprise Geodatabase.

Vegetation control, essential for infrastructure safety and reliability, is one of the largest operational expenses for companies that manage rights-of-way. Prior to the software upgrade the Georgia co-op's right of way (ROW) supervisor tracked line clearing work on a paper wall map using colored highlighters to indicate different years. With this method all analysis was manual making it virtually impossible to measure progress throughout the year or to evaluate crew productivity. Habersham faced the impending retirement of its ROW supervisor and the vice president of operations. Without a means of measuring and storing data, the utility risked losing details about the ROW program – a situation that could adversely impact customer service, environmental compliance, and system reliability.

More risk is something Habersham could not abide. The co-op maintains 1,800 miles of overhead primary lines including the service area of Rabun County which receives more rainfall on average than almost any other county in the eastern United States. Proximity to the southern end of the Appalachian Mountains increases the likelihood of ice storms and other inclement winter weather.

By using Clearion's solution Habersham is able to quickly and accurately track, plan, and analyze ROW line clearing and vegetation management information. Clearion developers rely on ArcGIS Engine SDK to build stand-alone applications and extend existing ESRI applications to provide utility-focused spatial solutions for GIS and non-GIS users alike. Developers reported that the ArcGIS Engine Developer Kit – equipped with diagrams, utilities, add-ins, samples, and documentation – was fundamental to creating fast, comprehensive, and cost-effective electric and gas applications.

The co-op put its new software solution to work immediately with the data entry of weekly line clearing records. Templates allow the ROW manager to input date, crew, and other attributes once and then simply highlight lines that were cleared. The system also works in a mobile, disconnected environment facilitating data entry in the field at the time of the work audit. With support for GPS devices, the software can automatically center the map on the present location to speed up navigation. Data conversion is not required. The ROW information can be shared with all users, not just the GIS savvy thereby reducing cost and training.

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Habersham pays contractors for time and materials to perform ground-to-sky line clearing. It attempts to clear each circuit every five years with the exception of the rainy Rabun County circuits that are trimmed every three years. The ROW manager reviews the work of the contract line clearing crews at the end of each week. Weekly reports go into the vegetation management software using overhead primary lines as a ROW centerline reference. In addition to recording the ground-to-sky, or "Full Cut" activities, the ROW manager inputs other line clearing activities, such as service trims, cycle busters, and tree removals. All activities are stamped with a date, crew, feeder ID, and other relevant information. Managers enter invoice information into a table in the GIS database linked to individual line clearing activity records.

In addition to helping meet the long term objective of knowledge transfer to the next generation of management, Habersham EMC's efforts are providing more immediate benefits. By entering weekly line clearing records and invoice information into the GIS, the utility can take advantage of the vegetation management reporting tools developed by Clearion Software. These reports provide insights into many aspects of the co-op's line clearing program, including weekly, monthly, and yearly work summaries, work progress by feeder, crew productivity comparisons, and average cost per mile. Habersham also is mapping their "Cycle Busters", vegetation requiring more frequent treatment, to ensure that these fast-growth or customer-sensitive areas can be tracked and managed more effectively.

With these software tools and a commitment to GIS-based ROW work tracking, Habersham is building an information system that will aid them in managing one of it costliest ongoing operational expenses. The co-op is also fulfilling the vision for its GIS by leveraging the GIS hardware, software, data, and training to enable the vegetation software initiative. And because the cost of the Clearion system was a fraction of the initial GIS investment, the co-op is accelerating ROI for this mission critical business system.