



## Summary

**Customer:** The USDA maintains NRCS offices, that help landowners and communities improve soil, water, air, plants, wildlife, and energy use.

**Challenge:** Paper data processing takes time and involves extra costs and the risk of missing data.

**Solution:** Capturx Forms and Mapping Solutions for real-time field data capture with digital pens and ordinary paper forms and maps. Form and spatial map data is automatically integrated into the appropriate applications and databases.

**Results:** Teams no longer need to scan documents or do manual data entry, providing time and resource efficiency, and cost savings from unnecessary paper handling delays.

## USDA Streamlines Field Paperwork and Data Capture for NRCS Soil Surveys with Capturx

### Background:

The USDA maintains Natural Resources Conservation Service (NRCS) offices in nearly every county in the United States, to help landowners and communities improve soil, water, air, plants, wildlife, and energy use. The NRCS collects, analyzes, and makes soil data available, for example, to help a range of stakeholders determine soil suitability for farming, conservation, engineering, and other applications. Collecting and updating soil information involves a great deal of field work, capturing data on paper forms, and data synthesis. To automate the process, the NRCS deployed Capturx Forms and Mapping Solutions for digital pens to instantly capture handwritten field data from paper and integrate it into the agency's soil survey and GIS databases. Capturx is now available across the USDA through a Blanket Purchase Agreement.

### Challenges:

The Soil Scientists with the NRCS collect large amounts of data in the field on paper forms and maps in all terrain and environments. The flexibility and reliability of pen and paper make them ideal for surveyors quickly collecting different types of data on forms and maps. Unfortunately, getting the data off the paper and into survey and GIS databases was cumbersome. A great deal of time was consumed by scanning and manual data entry for both the forms-based data and the specialized GIS-database operations. The paper data processing involved extra costs, delays, and the risk of missing paperwork.

The NRCS set out to find ways to automate the paperwork processing, while retaining a simple, flexible, and reliable work flow for teams collecting data on forms and maps in the field. They explored deploying mobile computers, but the costs were high (training, support, deployment) and the forms factors were too limiting (keyhole view, form design, battery life, fragility).

***“Workflows using the digital pen are relatively simple: markups are accurately captured and displayed... with the benefits of efficiency and cost savings.”***

**DARRELL KAUTZ**

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## **Solution: Capturx Forms & Mapping Solutions**

The NRCS ultimately chose to deploy Capturx Forms and Mapping Solutions to automate data capture on paper forms and maps using durable and reliable digital pens. The digital pen records data as it's written on ordinary paper inspection forms and uses advanced character recognition to convert the data to structured digital text. Once the pen is docked the form data is instantly accessible in leading applications such as Microsoft Office Excel. Teams can also make notes and markups on paper maps, with the digital pen which integrates all markups into the appropriate feature class in their ESRI ArcGIS geodatabase.

*“The time it took for original mapping workflows is now cut in half,”* said Darrell Kautz from the Geospatial Research Unit, National Soil Survey Center, USDA-NRCS.

## **Benefits**

### **Streamlining Processes by Eliminating Data Entry**

Form and map data is accurately captured and displayed in Microsoft Excel and ESRI's ArcMAP. Since the digital pen records digital copies of the form and spatial map data in the field, scanning and data entry are avoided, providing time and resource efficiency, and cost savings from unnecessary paper handling delays.

*“Workflows using the digital pen are relatively simple: markups are accurately captured and displayed...with the benefits of efficiency and cost savings,”* said Darrell Kautz from the Geospatial Research Unit, National Soil Survey Center, USDA-NRCS.

### **Reduce Risk of Missing or Delayed Paperwork**

The digital pen scans paper form and map data as its written and digitally records it, as a result there's no risk of missing paper. The digital pen records data electronically as well as on paper simultaneously, therefore data is recoverable if pen is lost or damaged. As soon as the digital pen is docked the information is integrated into databases and shareable with the larger team and key stakeholders, minimizing delay between data collection and data sharing.

### **Works the Way they Work**

NRCS was able to streamline paper handling time without changing their reliable and simple workflow of collecting data in the field on paper forms and maps. The digital pen is durable, easy to carry, and well-suited for rough terrain or exposed environments. Teams saved on training and support as the pens are easy to use.

Based on success at the NRCS, a Blanket Purchase Agreement with the USDA now makes Capturx available across the USDA for a range of field paperwork scenarios including food and agriculture inspections, forest and natural resource surveys, and other processes.