

Norway Land Consolidation Court's Use of Survey Grade Accuracy Data Collection

Esri—based software provides state-of-the-art field tool for resolving land use and property disputes

By Mike Schwartz
Esri Writer

Among the many needs of surveyors worldwide who use Esri maps, *seeing* map features in the field has been a major challenge. Until recently, the exporting of “shapefiles” from ArcMap documents provided attribute information along with map entities. However the process lacked direct communication or “real-time” field updating of the map. Rather, shapefiles first had to be recorded, then exported.

All that changed two years ago for one land mapping agency—The Norway Land Consolidation Court (NLCC) —when it adopted the SurvPC Esri OEM ArcGIS Engine from Carlson Software as its field solution in resolving property rights issues.

“It’s organized as an actual court,” said Per Terje Mortenson, GIS Supervisor for the NLCC. “We are the judges and we also have technical personnel.” According to Mortenson, the NLCC has 32 independent offices and 85 field crews across the Scandinavian nation responsible for gathering measurement data used in resolving land parcel and borderline rights disputes.

“If you and your neighbors disagree, come to us and we’ll establish the borderlines,” explained Mortenson.

Long Land Consolidation History in Norway

Serious land consolidation work in Norway began when the Land Consolidation Act was passed in 1859. Since then, land consolidation courts have resolved disputes, clarified obscure boundaries, and corrected inefficient property structures. During this time, land consolidation has been confined to agricultural and rural areas. However, today the courts also handle cases in urban, industrial, and preserved areas. In 1979, the courts’ legal authority was enlarged to include jurisdiction over areas for public roads and railways, then enlarged again in 1999.

The NLCC carries out all necessary technical and judicial pre-trial review such as inspection of maps and titles. It also clarifies boundaries, land tenure and legal statuses once there is a decision to proceed with a case. If a mediated settlement isn’t reached during a dispute, the court will render a verdict.

Successful Initial Field Testing, Deployment

Founded in 1983, Maysville, Kentucky-based Carlson Software specializes in CAD design software, field data collection, and machine control products for the land surveying, civil engineering, construction, accident/crime reconstruction, agriculture, and mining industries worldwide. Carlson is well-known in its industry for one-source technology solutions, tight collaboration with users, and dedication to customer service.

“Carlson SurvPC provides our surveyors with a seamless GIS work environment with no translation issues between field data collector and ArcGIS office solutions,” said Morten Strand, NLCC Senior Adviser, Geographic Information Technology. “The software is very user friendly and offers sophisticated functionality for data collection and field editing.”

Mortensen, agreed. "On the field computer, we have the exact same map we have in the office. Same symbology and we have access to all the feature classes."

The NLCC first purchased SurvPC Esri OEM in December 2012, participating in initial field testing of the "breakthrough" software. The agency has since used it extensively across Norway.

The NLCC staff have found that SurvPC Esri OEM works native in the ArcMap environment and allows for feature and map entity creation or revision. The Esri map appears identically in the field as it was last saved in the office, and all features with edit-permission can be revised or resurveyed based on field conditions, with updating of attributes. Others without edit permission can be blocked.

"Oh, I like it very much," said field worker Håvard Hustad. "I can do everything on it, every type of form I can do inside when I'm on the Desktop. So, when I'm out and measuring, I can analyze all the data and make sure everything is correct when I come inside. I don't have to go back there again."

Carlson Software touts the Esri engine for creating a distinctly sharp and colorful display in the field—unmatched by other field survey software. The bright colors of ESRI maps, their ability to include image overlays, the entire library of symbols (nodes), line types, and polygon types are all made available to the field user. It is as if SurvPC were acting as a TV set and you had turned the channel to the ESRI map—it appears in all its detail and intelligence.

SurvPC "learns" the feature codes and attribute prompts automatically, by simply loading the ESRI map with no advance field or office "prep" time required. Any consultant or agency surveyor can ask for the map (.mxd file) and geodatabase, in whatever form, take it to the field, and begin work immediately.

Gary Rosen, Carlson's sales director, Canada, pointed out that the company's existing data collection software, SurvCE, has a driver library that supports more than 400 survey instruments, including GPS, GNSS, and robotic total stations. But it runs on Windows Mobile, not full Windows.

"The difference is that the newer SurvPC runs in full Windows, supports Esri map loading, and has the same extensive driver library," Rosen said.

The NLCC also selected Altus GNSS receivers after a review of alternatives, and the statistical analysis uses the SurvPC vector storage feature (base to rover) which Altus makes available.

"Of course you can do high-accuracy measurements using other software," said Mortensen. "But we don't want to do post-surveys of GNSS data. We do the processing in the field, so we want the result in the field. We will measure a point and when we go from that point we are certain that this is correct."

Collaboration on Major New GNSS Feature

SurvPC incorporates a major new feature developed by the agency's staff for averaging Global Navigation Satellite System (GNSS) measurements. These are taken over a period of time to tap different satellite constellations, with advanced statistical analysis, allowing for full compliance with Norwegian survey requirements.

"SurvPC supports a variety of surveying brands making it possible to combine different hardware, resulting in a very cost effective solution for NLCC," added Strand.

"Carlson Software has a track record of collaboration with its users, but is extremely appreciative of the input provided by the Norway Land Consolidation Court leading to new features and GIS capabilities within SurvPC Esri OEM," said Bruce Carlson, president of Carlson Software in a recent press release.

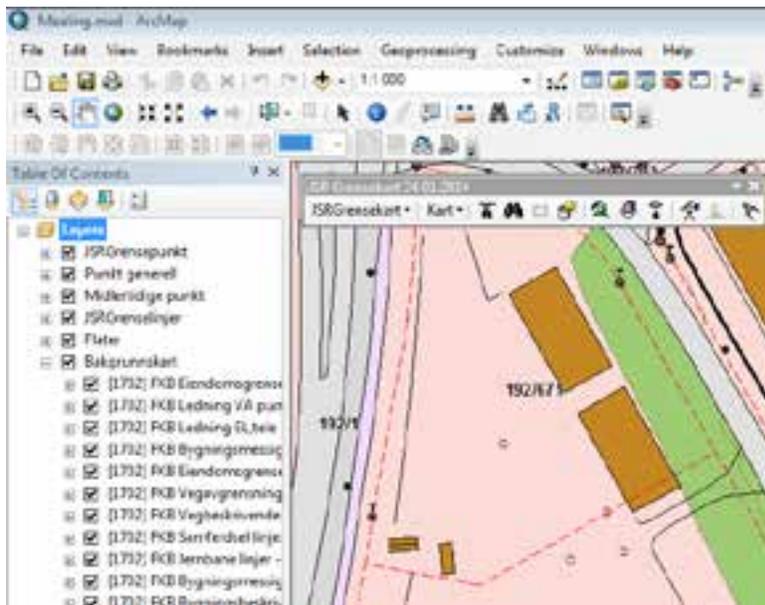
“The newly released product sets a new standard for precision GIS data collection while working live in the familiar and popular Esri map environment.”

Rosen considers the advent of SurvPC a “transformative” experience “We’re able to do things we just could never do before. It’s not like a slight change, but a dramatically new capability that just wasn’t there before.”

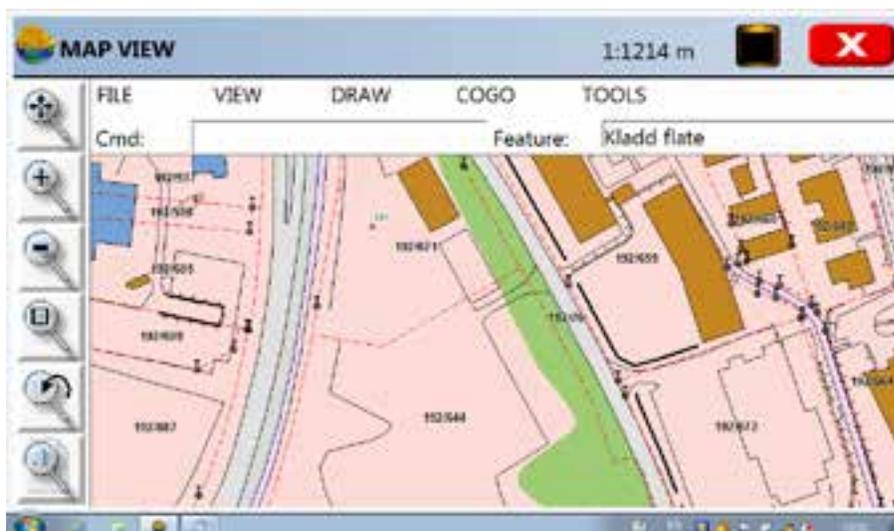
For more information on SurvPC with the ESRI OEM engine visit www.carlsonsw.com; contact Carlson Software at 606-564-5028 in the U.S. or +31 36 750 1781 elsewhere.

####

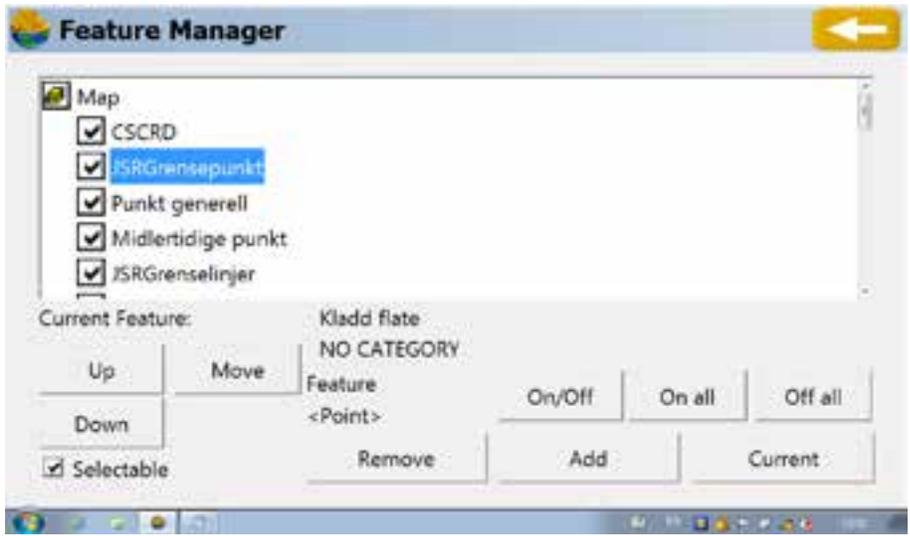
Screen shot of ArcMap in the office – preparing a job:



Screen shot of the map as it shows in SurvPC:



Screen shot of the Feature Manager in SurvPC:



Screen shot of a polyline and a polygon created in SurvPC:

