



THE SIDWELL COMPANY®

# map news



Assessor James W. Gillespie reviews one of Sterling Township's tax maps

## MODERN TOOLS FOR BETTER ASSESSMENTS—A CASE STUDY

*"I'm constantly amazed at how many assessors are not using the tools of their profession. You wouldn't think much of a carpenter who shows up without a hammer and yet, I've talked to many assessors who try to locate, inventory and appraise property without the most important tool their office can have—aerial based tax maps and a parcel numbering system."*

This statement, by Sterling Township, Illinois, Assessor, James W. Gillespie, underscores one of the most persistent problems faced by assessment officials—the job of keeping accurate, up-to-date assessment records.

### Outdated Methods Used

Many jurisdictions across the country have tried to keep up by perpetuating outdated assessment practices such as using maps produced during the W.P.A. days or crop surveillance photography taken by the Soil Conservation Service. While these are steps in the right direction and often represent the only mapping ever done, they were never designed to provide the kind of detailed information needed by today's assessors.

Sterling Township, Whiteside County, Illinois, is a jurisdiction with problems similar to those of thousands of other cities, towns, townships and counties. Although the township is located in the middle of prime Illinois farmland, the City of Sterling is a growing community, having opened four to five new residential subdivisions annually over the past few years. Sterling boasts of an enclosed shopping mall, a high-rise senior citi-

zen's apartment complex, and one of the world's leading steel mills.

### Assessment Records Modernized

Soon after being elected to the office of Assessor, Jim Gillespie proposed modernizing the record-keeping procedures so that the office would comply with guidelines recommended by the Illinois Department of Local Government Affairs. Jim, who holds the Illinois C.I.A.O. designation, realized that new aerial based tax maps and a permanent parcel numbering system would provide the most benefit by quickly establishing reliable property records.

The contract for the mapping was awarded to The Sidwell Company of West Chicago, Illinois. Also included was the development of a permanent parcel numbering system as a means of identification and control of all property records.

Sidwell designed the mapping program to meet the requirements for aerial photography and mapping outlined in the state's appraisal manual. The mapping is similar to that completed by Sidwell in Illinois and other states, covering over four million parcels of real estate.

### Maps Show Complete Property Information

Each 30" x 30" map contains complete property information including dimensions, acreage, subdivision names, lot numbers and parcel numbers. The tax map information is drawn on a separate Mylar overlay which matches the aerial photo base map. The overlay method allows inexpensive paper prints to be made of each map individually or in com-

ination with each other to produce a composite print. Periodic updating of each overlay can be done without costly redrafting of parcels or destroying the aerial image.

In addition to new aerial photography and tax maps, a completely new permanent parcel numbering system was designed and added to the maps. The parcel number is based on the geographic divisions of the Federal Rectangular Survey System and provides a means for identification between the tax map, the legal description and owner of record.

### Many Important Benefits

Although Sterling Township may be considered a small taxing jurisdiction with its 7,800 parcels by some, many important benefits have resulted from the mapping program.

The new maps represent the first complete inventory of all tax parcels in the township. It's also the first time a concerted effort was made to resolve problems in parcel boundaries and tax roll descriptions. This work uncovered over 150 parcels not listed on the assessment roll.

"In another case," says Jim, "we found a commercial building carrying a \$159,000 valuation listed on the wrong parcel of land."

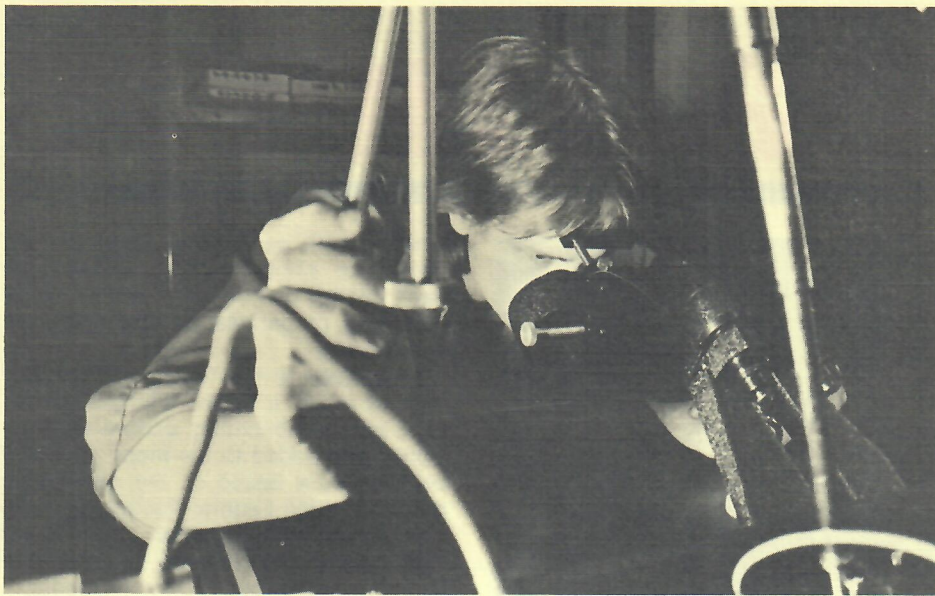
Another benefit of the new program is the ability of the assessor to document assessments. When a taxpayer comes into the office with a question about his property, he's shown a copy of the map covering the property he owns.

Jim says taxpayers may not understand maps, but when they see their house and property on the aerial photo, it answers a lot of questions. "They can see I've based my assessment on current, factual information."

### Maps Used for Reassessment

The maps will also be invaluable when it's time for the state's next quadrennial reassessment. Now every square foot of property in Sterling Township is accounted for and accurately located. And the maps have an aerial photo base to show improvements and land use. The numbering system also provides the key to identification and control of all property records. This number is expected to be used in the county's computer system. However, Jim cautions that, "Putting a fancy number on old maps just to get on the computer is a waste of time. There's no real value in faster processing of outdated information."

Jim Gillespie says he knew for certain that he had made the right decision in securing the new maps when the Township Trustees and his office and field staff kept telling him they didn't know how they got along all these years without them.



A Sidwell technician prepares the orthophotoscope for operation

### ORTHOPHOTOS FIND MANY APPLICATIONS

**PROBLEM:** "I need a photo accurate enough so I can make measurements."

**SOLUTION:** Use an orthophoto.

The use of precision photography is commonplace for engineers, assessors, planners and others who need up-to-date information. However, the value of seeing tremendous detail is often offset by not being able to make accurate measurements of distances, front footage and areas.

The solution to this problem is the orthophotograph. The orthophotograph combines the detail of a precision photographic enlargement with the accuracy of a compiled engineering map.

By definition, an orthophotograph is a photograph that has been corrected by removing distortions due to tilt and relief. This produces a corrected photo image just as if you had photographed level terrain with a truly vertical camera. The corrected photo image means that ground features are located in their proper horizontal position and that accurate measurements can be made.

The idea of producing accurate aerial photographs is hardly new. Robert Ferber, a Frenchman, patented a device in 1936 to produce orthophotos. The principle was sound, but unfortunately the instrument was not economically feasible. The real break came in 1955 when the U.S. Geological Survey began orthophoto production using an orthophotoscope they developed in the early 1950's. Today, orthophotos are economically produced on a variety of foreign and domestic instruments and utilized for every conceivable type of project.

As mentioned earlier, orthophotos are the result of rectifying distortions in the aerial negative. This can be accomplished two ways: through the use of plane rectification, or by differential rectification. Both methods produce acceptable orthophotos; however, the economics of plane rectification make this the preferred

choice when the project terrain is relatively flat.

The plane rectification process corrects distortions due to camera tilt by using a specially designed photo lab projector with a movable copy easel. Sidwell's three rectification projectors also adjust the enlargement to the correct horizontal scale.

Terrain distortions can be further minimized by using a long focal length camera, such as Sidwell's 12" focal length Zeiss, to take the photography.

The second method of producing orthophotos is by differential rectification using an orthophotoscope. This instrument works much the same as a stereoplotter used to compile topographic maps. The operator views overlapping aerial negatives as a three-dimensional image which is scanned using a slit .04" wide and .94" long. The operator makes corrections for terrain differences as the negatives are scanned. Light from the negative passes through the slit and is projected onto photo sensitive material where it is recorded as a corrected photo image. The scanning process corrects for terrain distortions and is the method used when there is substantial relief in the project area.

In addition to horizontal accuracy, the orthophoto can be enhanced by adding contours, property lines or other map information to produce a complete orthophoto map.

The mapping work completed by Sidwell was accomplished using both orthophoto processes. Relatively flat areas are mapped using plane rectification, while projects such as a recently completed transmission line in Colorado was completed using orthophotos produced on Sidwell's orthophotoscope. Regardless of which method is used, orthophotos are just one more way aerial photogrammetry fills the need for accurate map information.

### LAND SURVEY MAP CONTEST

From the response we received to our land description contest, it's evident that many readers of Map News have worked with old deeds.

Mr. Orwic A. Johnson, P.E., L.S. from Columbus, Indiana, went us one better by inquiring if we were familiar with the term "rood." He explains that a rood is a unit of area equal to a square rod.

For those who are still wondering about the terms "perch" and "arpent" we offer the following definitions as they apply to land descriptions:

Perch—Same as a rod or pole and equal to 16.5 feet.

Arpent—A unit of area equal to approximately 0.85 acres.

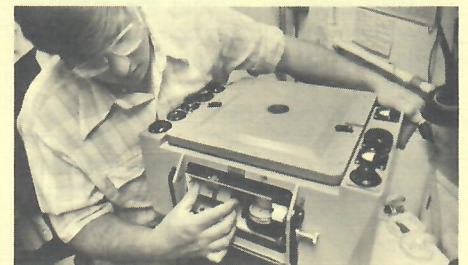


### UPDATED ATLASES AVAILABLE

Realtors, banks, lawyers and others needing up-to-date property information can now obtain the 1979 edition of the Champaign County tax map atlas.

The atlases contain reduced size copies of the official county tax maps and show complete property information including parcel boundaries, dimensions, subdivision names and permanent parcel numbers.

For more information, contact Mr. Harris, c/o The Sidwell Company.



### Photographer, Dale Baum, checks Zeiss camera SHORTEST SPRING PHOTO SEASON

The record snowfall of this winter, together with wetter than normal weather, combined to make the 1979 spring aerial photography season one of the shortest in the company's history.

Although some photography was taken in late March, large block areas, such as county-wide photography, could not be flown until after April 1.

Weather delays plus the usual mechanical difficulties put extra pressure this year on the flight crews and photo lab personnel. However, at season's end, over 29,000 feet of aerial film had been exposed, processed and edited using a variety of films, cameras and focal lengths.

### FOR FURTHER INFORMATION ON ANY SIDWELL MAPPING SERVICES . . .

Write to The Sidwell Company, 28W240 North Avenue, West Chicago, IL 60185 or phone (312) 231-0206