PROPERTY APPRAISER'S MAPPING PROJECT
PINELLAS COUNTY, FLORIDA

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Introduction

The Pinellas County Property Appraiser's Office has
been working on the complete automated re-mapping of
Pinellas County, Florida. The Project is an outgrowth
of the Geo-Code/911 Emergency Telephone System that
was legislated several years ago. The Property Ap-
praiser Mapping (PAM) Project involves 25 technicians
working on photo interpretation, Base Map preparation,
ownership compilation, digitizing, plotting, and asso-
ciated data base creation. The size of the data base
(302,000 ownership parcels on 1200 map sheets), hard-
ware, software, "turnkey" operation, and budget have
caused some delays, and results are a little less
than we had initially expected. The Project is final-
ly on track; we expect that it will take 2-3 years to
complete and implement all of the system changes we
have planned. One of the unique features of this Pro-
ject is the financing and personnel that have been
provided through CETA Grants. Approximately 70% of
the financing and some highly qualified employees have
been found and utilized on the Project through CETA.
This Project will not only bring the County's Mapping
Program into the 20th century, but will also help meet
the social needs of some of our citizens.

Historical Background

The Pinellas County Project began in the early part of
1975 when the Pinellas County Criminal Justice System

established the need for Geo-Coding to support a 911
Emergency Telephone System. At the same time the Coun-
ty Planning Department was contemplating a computer-
ized Urban Information System. Because of the inter-
est of both Departments and the importance of develop-
ing a Geo Base in the shortest possible period of
time to support Project 911 and the Urban Information
System, it was recommended that a "turnkey" digitiz-
ing system, equipped with one CRT station and a low
speed plotter, be selected and purchased.

In 1977, after 2 years and many studies, the "turnkey"
system was finally purchased and delivered to the
County. A system much larger and more sophisticated
than initially recommended was obtained because of
the "tremendous potential" for large scale mapping
that existed in the County. An understanding was
reached that after digitizing for Project 911 was
complete, a County Base Map and Property Appraiser
overlay would be produced jointly by the Planning
Department and the Property Appraiser.

The graphics equipment selected for that Project was
an H. Dell Foster (K&E) IGS 330 Interactive Graphic
System, complete with a Data General 32K Nova Com-
puter with disk and tape drive, Tektronix 4010 CRT,
35" X 62" back-lighted gantry type digitizer, a
42" X 54" Foster EDP 11/75 Flatbed Plotter, and all
associated software. I might note at this point that
the system was substantially enlarged within 6 months
of purchase with an additional Free Cursor Digitizer,
a larger Tektronix 4014 CRT, and an additional 32K of
Memory.

The priority project for this new system was to de-
velop XY Coordinates for the Geographic Base File
(911). It was estimated that more than 100,000 seg-
ments and nodes would have to be digitized and put
into the computer system, and that it would take 36
man/months to complete this portion of the Project be-
fore actual base mapping could begin. The coordinate
gathering portion of the Geographic Base File Program
worked extremely well. The County was not only able
to complete the skeleton Geo-Code File in a very short
period of time, but it was also able to begin develop-
ing a Procedures' Manual and to begin training Auto-
mated Mapping Technicians on relatively simple tasks,

keeping in mind that much more difficult operations
would become necessary as soon as Base mapping began.

Property Appraiser Mapping (PAM) Project

The primary purpose of the PAM Project was to develop
a set of assessment maps with sufficient data and ac-
curacy to provide the Property Appraiser with a tool
to adequately fulfill his Constitutional duty of eq-
uitable valuation of all real property in Pinellas
County.

The Property Appraiser's existing Cadastral Maps were
in such condition that a new set of maps was abso-
lutely necessary.

The advantages of the new computer maps would be many;
the new maps would be uniform in appearance, could be
easily updated and reproduced, and would be most
adaptable for use by many other agencies. Therefore,
the decision was made to computer map rather than
hand draft.

The PAM Project began in the early part of 1978. The
Project was divided into three distinct phases: Base
Map Compilation, Digitization, and Property Appraiser
Overlays.

A one-year Comprehensive Education Training Act
(CETA) Grant in the amount of $185,000 was obtained to
begin the Base Map Compilation and Digitization.
These Funds were used to hire and train 18 local per-
sons in map compilation and digitizing. After the one-
year Project was completed, an 18-month Property Ap-
praiser Overlay CETA Grant was obtained in the amount
of $460,000 to complete all phases of the Project.
This new Grant would support up to 35 CETA employees,
the catch being that maximum wages would be reduced
from $4.87 per hour to $3.29 per hour. This shift in
financing caused a much longer training period and a
doubling of our edit time. I might add at this time
that the Project has been most fortunate in the qual-
ity of employees that we have been able to hire at
salaries just slightly above minimum wage ($3.17 to
$4.87). No one thought that we would be able to find
qualified people at these rates of pay; the success
of the Project has proven them wrong.

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Before the actual processes of the PAM Project could begin, a tremendous amount of time and effort went into the new Project planning. We found that a lot of people talked about the ease of doing cadastral maps on a computer, but few people actually had any experience with the mundane problems of inking on Mylar, line types and sizes, scales, annotation styles, level setups, and a myriad of other details. Certainly our "turnkey" system's designers had no conception of the complexity of multi-layered property appraiser maps. Our task was to produce a map that would untimately be many different things to many people - so simple that the general public could use it, yet accurate and detailed enough for surveyors and abstractors.

As the design and training portion of the Project was being worked on, a detailed Procedures' Manual was being completed at the same time. This Manual dealt with every conceivable work phase of the Project - from Procedure writing to CRT editing - all in plain English, with "computereze". This is a very dynamic Manual; it is updated, changed and added to almost daily.

Base Map Compilation

The Base Map compilation began approximately 6 months before the first maps were digitized. The magnitude of this phase of the Project can be understood when you realize that we have more than 1200 maps containing over 302,000 parcels of property in the County. The Base Map was constructed on a paper base by taking semi-rectified photography and comparing the visual placement of major property lines, roads, subdivision boundaries, and physical features with their location on our original paper based cadastral maps. Areas distorted more than 3% were re-compiled using plats, deeds, surveys, and photo interpretation to ensure their accurate, exact placement.

The Base Map was compiled in two individual, distinct phases because of the enormous size of the entire Project. We initially estimated that some 25-30 man/ years of time would be necessary for this portion of PAM.

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Phase I Compilation involves the initial setup of the Base Map, which includes checking and locating State Plane Coordinate values, subdivision boundaries, section lines, road right-of-ways, and physical features. Phase II Compilation involves the actual process of property ownership mapping. This is accomplished by photo interpretation, field checking, reading deeds and plats, and checking the tax roll. Every piece of property is being checked and delineated on the Base Map, and just to add some excitement to this whole process, our 18 digit property identifier is being revised and changed in this Phase of the Project.

As of this date, Base Mapping Phase I, is 95% complete and Phase II is approximately 10% complete.

Digitization

The PAM digitizing portion of the Project has paralled the Base Map Compilation - except that it was 6 months later in starting. The PAM Project has utilized two Digitizers for data entry. These machines are in operation 24 hours per day, five days per week. Production in this area has been somewhat less than anticipated. This can be explained in part by the amount of detail included on the maps and because of the length of time a CETA employee can work for the County. It seems that at just about the time we get someone well-trained, his CETA eligibility expires.

We have also experienced a high turnover rate of digitizer Operators, perhaps because computer mapping sounds exciting. When you get right down to it, however, digitizing can be a tedious, boring task, which people do not enjoy after a short period of time.

The data input Base Map is edited and standardized with regard to dimensions, annotation placement, coordinate values, and symbol location before the Automated Mapping Technican begins digitizing and locating the information on one of the 16 assigned levels.

The PAM Project has not discovered any revolutionary data entry methods. However, there are several ideas we have found that increased work throughput. One idea is to have Digitizer Operators only work at the Digitizer and not alternate between CRT editing to

digitizing. We have also found that by covering our
Base Map with acetate and checking off entered data
information with grease pencil as it is entered we are
able to keep our input documents in excellent condi-
tion, thus making them easy to read and understand in
case re-editing or re-digitization is required. We
also use two people instead of one to add our annota-
tion. One person actually aligns the annotation, sets
its rotation angle, reads off the data, and spells it.
The second person, more proficient at a keyboard, ac-
tually enters the data. We have also developed a set
of precision templates for exact information location.
These templates have really increased the accuracy of
our product, taking some burden off of our CRT edit.

The digitizing portion of PAM will take 15 man/years
to complete and is approximately 40% finished at this
time.

Edit and Plotting

The edit and plotting portion of PAM runs one or two
weeks behind digitizing, except for the liquid ink
plots, which may not be completed for several months.

The edit is done on 2 graphic CRTs and on hard copy
ballpoint pen plots. A quick preliminary check is
done on the CRTs to verify that the information has
been placed on the correct levels and to see if any
levels are missed. Then a check plot is produced
using a ballpoint pen on tracing paper for a more de-
tailed visual inspection. Necessary corrections are
indicated on the tracing and the correct information
is entered on the CRT.

After the tracings are checked and the corrections
made in the machine, the map is then re-arranged in a
plot file. Two tapes of each map are kept; one tape
is kept for Data Processing purposes and data base
association, and the other tape is strictly for plot-
ting where levels are grouped into pen size.

The final plotting is done on a Flatbed Plotter using
Leroy Font, liquid ink, and mylar. This particular
area is where we have experienced much difficulty.
The biggest problem is that the Plotter is not a stand
alone model and comes to a complete halt in a pen-
down position when other peripherals are accessing

the CPU. Other problems we have with plotting in-
clude mylar, ink, pen points, and drafting speed.

The goal of our CRT edit/digitizing function is to
produce a quality product from the digitizer that will
require slightly less time to edit than to digitize.
We continually strive for more production, always
being mindful of the increase in edit when this oc-
curs.

The CRT Editors are our most higly skilled Automated
Mapping Technicians and must understand the objec-
tives of the entire Project and be fully versed in the
use of some 70 edit commands and plotter operations.
Editing and plotting will require 20 man/years to com-
plete and at this time is approximately 35% finished.

Conclusion

In conclusion I would like to say that the ultimate
beneficiary of Pinellas County's Automated Mapping
Program will be the taxpayer, and in a time of shrink-
ing budget dollars and Proposition 13s, this is most
appropriate.

This Project is definitely cost effective and will
produce so many valuable by-products that I am totall
amazed that more political jurisdictions have not
undertaken projects of this nature.

The hidden social benefit of the PAM Project has been
the employment of over 50 individuals who have con-
tributed and gained from their involvement.

What more can one ask for? A cost effective Project
that is technically beneficial to so many and is
meeting a social need. A PANACEA at last!