

COST - EFFECTIVE DIGITAL MAPPING:
BURNABY'S SUCCESS

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You will notice I have an accent - a Scottish accent - and as a true Scot I have learned the secret of squeezing the most out of every dollar entrusted to me. By the time I have finished speaking, you will realize that the solution to the problem of getting a system into your organization is "Hire a Scotsman".

I have to confess that I am not a computer person. Although I have a limited knowledge of computers, I have learned a few buzz words from Walt Little and Bill Folke of Synercom. Thus, I can give the impression that I know what I am talking about.

My function at Burnaby is that of a Drafting Supervisor. I have also been the Line Supervisor who was faced with the problem of keeping maps and records in the Engineering Department. When the computer people came to me and said we can solve your problems, I said sure, just the way you solve my monthly Chargex bill; however, we decided to give them a chance. We told our computer experts that if they had the solution to our problems then they had to give us something similar to what we were already using and not something that they had dreamed up and thought we might be happy with. We, the Municipal Engineering staff, were the customer, the end user and we had to be happy with the final product.

Let's go back now to the start of the project. If you look at a small scale map of British Columbia you will have difficulty finding Burnaby; however, if you look closely at the community between the cities of Vancouver and New Westminster, you will find us. The community is different from most communities in that it has grown from its outer boundaries towards the centre. With the population explosion in the urban centres of Canada from 1950 on, the demand for residential lots has increased to a point where we now find that a city lot, 60 feet by 120 feet is worth \$45,000 - \$50,000, and the need for accurate maps is of great importance. With today's requirements placed on local government officials by Aldermen, it is very difficult to produce an accurate report if we do not have accurate maps to start with.

We tried on several occasions to budget for a new set of maps but our requests were given a lower priority than the new fire truck or the new garbage trucks. Staff members kept insisting that we would need a new set of maps one day and we were told that we would get them - some day.

Our Federal government came to our aid. They suggested that we convert from Imperial measure to Metric, and if you don't think that compounds mapping problems wait until the U.S. government decides to make the switch.

While our Federal government was telling us to convert to metric, our Provincial government was advising government map users to band together with one agency accepting the responsibility for base creation. This seemed like a practical arrangement for the Municipality to create the base and have the facilities companies superimpose their services on the final project.

The Drafting Supervisors at the B.C. Hydro & Power Authority (electric and gas facilities) the B.C. Telephone Company (telephone) and the Corporation of Burnaby (water, sewer and drainage facilities) decided to explore the feasibility of becoming involved in a Joint Mapping Project in 1975. After examining our existing maps and records keeping systems, we realized that the amount of duplication in map maintenance was a costly on-going burden for our taxpayers. The creation of a simple two-lot subdivision of one parcel of land had to be reflected on over 100 sets of maps and record

cards. Not only was it a problem of duplication, but a problem of incompatibility existed - nothing matched. To add to the number of map users, we looked beyond the participants in the Joint Utilities Mapping Task Force and found that our Provincial Government kept many map series of our community. The Departments of Highways, Municipal Affairs, Health and Welfare, Water Rights, Pollution, Flood Control and the Recreation and Conservation sections spend periods of time each year updating maps of Burnaby. Other users included the Federal government with the Harbour Commission, Department of Transport and Revenue Canada to name but a few, and finally the private sector - the Cablevision company, and real estate companies.

At the third meeting of the Drafting Supervisors, there were some new faces in attendance and they were introduced as computer specialists. From that moment we planned the creation of a set of high quality maps.

It took almost 12 months of planning to convince our respective managements that the lease of a Synercom ST-700 mapping system was a wise move and that the technology had been perfected to the point where we could use a computer to store map related information.

On December 19, 1976, we acquired our system and for a period of time after the operator training program we experimented with the different mapping techniques. At the conclusion of the Pilot Project on February 28, 1978, we salvaged the better maps and set a schedule which would enable us to complete our base maps by February 28, 1980. This seemed like a realistic target date bearing in mind that we were creating a brand new set of maps at a scale of 1:1000 by going back to the original survey plans deposited in the Land Registry Office. We are pleased to report that the remapping project is on schedule and within budget.

The greater the degree of accuracy, the greater the cost. It is much less costly to digitize your existing maps than to go back to the legal plans, but we believed that the investment in a quality base would prove advantageous when it was time to reference our facilities to their true world position. You must also remember that a good map series will last 50 years and the cost per year will be small when the total price is amortized over an extended period of time.

At the conclusion of the Pilot Project, our associates in the project decided they would complete their facilities entry for the Municipality of Burnaby and entered into an agreement where they would lease time on the system they helped purchase. To date, the Corporation of Burnaby has received \$180,000 from the lease of the system to other users. Coupled with the fact that two draftspersons took early retirement, this assured us that we made the right decision to proceed with our computerized mapping project.

March 1980 signals the commencement of the second phase of our project. At that time we will start entering our water facility network to be followed by sanitary sewer, drainage, roads and ornamental street lighting networks. Hopefully by December 31, 1985 we will have converted our existing Engineering records to digital form. From remote terminals, it will then be possible for staff to give better service to the many questions asked by taxpayers each day.

Since the system was installed, we have had many visitors from all over the world and the question most of our guests ask is, "How did you convince your management that computerized mapping would be a wise investment?"

Local government employees who work with maps rarely have a chance to sit down with policy makers when they are deciding to spend \$300,000 to \$500,000 on a Computerized Mapping System. Thus, maps will almost always receive a lower priority rating to the more visible fire truck. However, by convincing our counterparts (Drafting Supervisors) in the other utility companies which serve our community that it is in our best interests to come together, we can possibly convince our management that it is in their interests to share the use of the system and pay a portion of the hardware cost.

When we look into the future it is our belief that mapping computers will be as common in government as data processing systems are today, and if we believe this, then we must convince management that it is in our community's interest to invest in a mapping system now.

The technology is available and when you look at the revenue generated on the Burnaby system and our ability

to reduce staff, it is a reasonable assumption that what we have done in Burnaby can be duplicated all over the continent. In closing may I offer these thoughts.

- The technology is available.
- Most major communities in North America will have access to a system by the year 2000.
- Revenue can be generated by leasing time on the system to other users or by selling the final product - hard copy maps.
- By reducing the duplication in base map maintenance, possible staff reductions could result.

After three years of operational experience with our computerized mapping system, I am convinced that there is no better way to maintain maps and map related records.