MICROCOMPUTER COMMUNICATIONS & PLANNING

by

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We accept this thesis as conforming
to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

OCTOBER 1992

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ABSTRACT

Contemporary planning literature is comprised of many different sub-sections, including one that considers the application of computer technology. Within this sub-section, topics such as expert systems, geographic information systems and database management have all been covered. One subject yet to be addressed however, is microcomputer communications, an industry which is growing rapidly. The purpose of this thesis is to conduct an initial exploration and description of microcomputer communications within a planning context.

Following a definition of the subject, a terminology review and a historical perspective, the paper addresses the basic considerations for using the technology. The paper then moves to a synopsis of products and services available in the online industry. A discussion on professional use follows with medicine, education, law and civil engineering highlighted. A review of MC's existing place in the planning profession is offered. The paper then ends by summarizing the research process and findings.

The methodology for this paper evolved as a result of a lack of traditional planning sources. Therefore, the paper relies on collateral references and hands-on experimentation to introduce MC technology and to discuss it from a planning perspective. It is interesting to speculate how MC could most benefit planning, such as the establishment of a national online data service featuring a library for document storage, e-mail for communication and online conferences for current issues. Despite this speculation, the primary conclusion to be drawn from this paper is that to effectively incorporate MC into a planning application, planners must be familiar with the technology and its inherent strengths and weaknesses.
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1.0 INTRODUCTION

The development of the microcomputer represents the democratization of computing power in society (Brail 1987, 1).

The democratization of computing power alluded to by Brail refers to the very recent past. But before the development of the microcomputer, computing power was available only to large businesses and government. For planners, this meant that only large communities could afford computer time and then, usually only for large scale urban information systems or grandiose modelling projects. The results of such projects were often less than adequate despite the time (computer and human) and money spent on them (Klosterman 1992).

With the advent of the microcomputer, the field of planning has been altered permanently. Microcomputers have enabled planners to utilize computer power that was formerly cumbersome or unattainable at an efficient, individual level. While only having been a fixture in planning offices for a short time, microcomputers have already proven themselves invaluable tools in today’s demanding planning environment (Yeh 1989).

Articles on word processing, electronic spreadsheets, data base managers, computer aided design (CAD), and the pervasive geographic information system (GIS) are commonplace in contemporary planning journals. However other computer based applications have not been adequately investigated. One unexplored subject is microcomputer communications and its potential for the planning profession.
1.1 Purpose

Isolated computers are useful. Connected computers are more useful and in new ways. The metanetwork of connected computer networks ... is the prototype of a new communications infrastructure that will be as pervasive as the international telephone network. This Matrix of technology and society promises to have effects as important and far-reaching as those of the postal service, the telephone system, or television (Quarterman 1990, 3).

This thesis is an descriptive exploration of microcomputer communications and its services and related products, with the purpose of introducing this topic in a planning context.

The emergence of the microcomputer has ushered in a new market for computer communications. Just as personal computer growth boomed once the public recognized the value of this revolutionary product, the field of online communications is now rapidly developing because of the recognition by users of its value. This boom has also been aided by such improved technology as fibre-optic telephone lines, which allow for enhanced transmission reliability, and error-checking high-speed modems, which facilitate higher data transmission speeds.

The objective of this paper is to investigate microcomputer communications (MC), from a planning perspective. Given the fact that little existing work is available on this subject, the main aim of this paper will be to address the basic issues involved with the successful operation of MC technology. This thesis will therefore:

1. Provide background information regarding MC operations.

2. Probe the practical requirements for MC use.
3. Outline MC products and services.

4. Discuss MC use by professionals.

5. Investigate MC use in planning.

6. Speculate how MC may benefit planning.

1.2 **Scope**

The scope of this project is limited to that section of technology dealing with microcomputers and communications, with the main focus on online microcomputer communications and related developments. A genuine effort will, however, be made to pursue the practical planning potential of these subjects and not dwell on the wonder of the technology.

1.3 **Audience**

Planners come from a variety of academic and professional backgrounds which, although usually an advantage, does cause difficulties when discussing the subject of microcomputers and related technology due to the wide discrepancies in computer education and experience. Some planners have little, if any, computer knowledge, while others are well advanced and treat this technology as an everyday item. This is not intended as a judgement of any kind, but merely as a statement of fact, and so an effort will be made to make this material easily understandable to the lay-planner.
1.4 Methodology

Taking into consideration the lack of specific data on computer communications and planning, several methods of inquiry were selected:

1. A review of pertinent literature from planning and computer fields.
2. Informal interviews, through various modes, with information users, MC-literate planners and planners unfamiliar with MC use.
3. Practical participation and hands-on experimentation with several online services and products.

The first step in exploring the topic was a review of the existing literature on computer communications in planning; this, however, proved fruitless, as there are no significant sources on this specific topic in the current planning documentation. And what little literature there is has often dated badly, due to the rapidly evolving nature of the topic. Since much of the traditional library-based material often relied upon for academic research was not appropriate, due primarily to its age, other sources were required. The most useful references proved to be related planning journal articles, computer magazines and information industry news publications.

Another important line of inquiry involved discussions with individuals familiar with various forms of information technology and their application to planning. These consultations were done in person, by phone, and through international information services.

The third portion of the investigation involved several exercises in the actual use of
some of the technology in question, including the CompuServe information service (CIS) in the United States and the I-NET network. These exercises, for the most part, involved the use of the above networks to send and receive messages, as well as to access specific pieces of data. Several database inquiries were also made using well-known information banks, such as Med-Line, and several local Bulletin Board Systems (BBSs) in the Maritime region and Metropolitan Vancouver. After investigating the cost and usefulness of these local systems, a BBS system for planners was briefly set up as a hands-on project, and, indeed, experiment.

1.9 Organization

This paper will investigate the use of microcomputer communications and its potential for use within the planning profession in five additional chapters. Since this paper does not build on a significant amount of existing work concerning microcomputer communications and planning, much of the presentation will deal with the fundamentals of the technology. The second chapter begins this approach by providing some working definitions and offering subject specific terminology which may be unfamiliar to some planners. A brief historical perspective on the growth of microcomputers in planning and the development of the microcomputer communications industry is also provided.

The third chapter delves into the practical considerations for microcomputer communications, including the physical setup required to communicate, the training requirements and the cost of use. This section is a simplified overview of a complex
subject, but it does provide a foundation from which to understand the remaining portions of the paper.

In the fourth chapter a review of several online services is provided, along with a brief overview of selected topics connected with online operations, which may be helpful for those inexperienced with MC.

Chapter five examines how MC technology is currently being used in other selected professions, and explores situations in which MC has been employed in the planning field.

The sixth and final chapter reviews the research, discusses its findings and draws some conclusions about the possible planning use of MC before commenting on the direction of future research into that potential.
2.0 MICROCOMPUTER COMMUNICATIONS : BACKGROUND

The second chapter will explore some of the background required to appreciate the topic. After a brief definition, an introduction to selected terminology and a discussion of computer growth in the planning profession, a dialogue on the development of the microcomputer communications industry will be presented.

2.1 Microcomputer Communications: A Definition

To thoroughly define microcomputer communications one must briefly trace the history of modern computers. Some computer historians are of the opinion that Stonehenge may have been the first computer. They concluded, with the help of a modern computer, that the large stone structure was a stone-age computer used to forecast astrological events such as eclipses (Brail 1987). Although this is still debatable, most computer historians do agree that a critical step towards the development of the technology was taken by Blaise Pascal in the 17th century with the development of his calculating machine. Developments by a host of inventors followed Pascal’s work, and these advanced the notion of having a program or series of commands to instruct a machine to complete a selected task.

The first real application of this technology was in the United States Census of 1890, although similar methods had been used earlier to allow certain cloth patterns to be coded for work on a loom. Following this punch card based initiative, development
progressed towards the use of a fully electronic computer during the early part of this
century (PBS 1992).

The most famous of the pioneer totally electronic computers was
ENIAC (Electronic Numerical Integrator and Calculator), developed
at the University of Pennsylvania and completed in 1946. This
machine weighed 30 tons, contained 19,000 vacuum tubes and used
150,000 watts of power, dimming the lights of northern Philadelphia
when turned on (Brail 1987, 13).

To demonstrate how monumentally cumbersome this computer was, there are now
computers which can fit into a shirt pocket that are more powerful than the 30 ton ENIAC.
However, for its time, the ENIAC was state of the art, and another important step in the
development of the computer.

Following developments like transistors and integrated circuits, the shape of today’s
computers began to form. Research has been ongoing, and current investigations into the
use of light and laser technology may make our current assortment of computers the
ENIACs of the future.

It was in this competitive and fast-moving environment that the microcomputer was
developed and it quickly began to find a niche for itself. Before the advent of the
microcomputer, most of the practical use of computers had been limited to government
departments and large corporate bodies, due primarily to the large expense and expertise
required to operate these units. But with the development and marketplace success of the
microcomputer, which began in earnest during the early to mid 1980s, the number of
applications or uses for this new technology have continued to expand.
But what, exactly, is a microcomputer? Wester’s New Riverside Dictionary, whose advertising claims that it contains all the latest computer terms, defines a microcomputer as "a computer using a microprocessor" (Wester’s 1984). A microprocessor is defined as "a semiconductor processing unit contained on an integrated-circuit chip" (Wester’s 1984). This definition is perhaps most useful to those interested in the actual machine or hardware. But, the average user is mainly involved with software, which can be described as programs, routines and languages essential for the operation of the computer. An understanding of this, of course, aids in the next step, discovering what tasks can be performed with a microcomputer.

Figure 2.1 graphically illustrates, from a planning perspective, the common microcomputer uses or applications, which include word processing, spreadsheets, analytical models, graphic production, desktop publishing, mapping and database management. The application that will be the primary focus of this paper, however, is microcomputer communications, one of the late blossoming microcomputer applications. This involves the exchange of ideas, messages and information, using microcomputer technology and the existing communications infrastructure, such as the telephone network.

While the phrase ‘microcomputer communications’ will be used throughout this paper, it is fully acknowledged that, without other larger computers, there would be little such activity to write about. The term is used, however, because technological advances in storage capacity, processing speeds and other areas are creating the potential for placing the power of a mainframe in a micro’s case. The microcomputer is also emphasized because
Figure 2.1

Microcomputer Uses In Planning

- Geographic Information Systems
- Database Management
- Word Processing
- Spreadsheet Analysis
- Modeling
- Graphic Production
- Desktop Publishing
smaller planning offices either have now, or have a good chance of obtaining, a microcomputer, whereas mainframes remain possible only for larger departments and firms.

The label 'microcomputer communications' is really nothing more than a practical term to describe a process. Tiger Li, in his article on the Chinese student’s uprising, labels the process as computer-mediated communication or (CMC) (Li 1990). Another publication in that same year, John Quarterman’s The Matrix, also uses the term CMC to describe a process where computers allow users to communicate with each other. Quarterman also distinguishes another function of computer communication, resource sharing, which refers specifically to one user being able to use the resources of another computer. Examples of shared resources could include the sharing of storage space, processing speed, databases or even hardware (Quarterman 1990).

This is a relatively new field, with a limited amount of published material specifically addressing these processes. Therefore, since there appears to be no universally accepted name-tag for both of these online activities, the term microcomputer communications will be employed to describe both CMC and resource sharing, although these terms will be used again, as they are helpful in bringing some order to a complex assortment of MC products and services.
2.2 Selected MC Terminology

While there will be an effort to reduce the amount of technospeak or computer jargon in this paper, it is necessary to use some of the 'jargon' terms as they have no simple equivalent. Those with no computer experience may be assisted by some of the straight-forward definitions listed below:

MICROCOMPUTER  This term refers to a smaller independent computer; it is also referred to as a personal computer. Within this group are a number of defining sub-terms such as notebook computers, laptop computers and desktop computers. The secondary or sub-terms usually describe the size of the microcomputer unit. Therefore a notebook unit is usually smaller than a laptop unit and a laptop model is usually smaller than a desktop model.

ASCII  American Standard Code for Information Interchange. A set of numbers from 0 through 127 assigned to letters, numerals, punctuation marks, and special characters.

MODEM  Modulator demodulator, a device for converting to and from a form appropriate to the telephone network.

SERIAL COMMUNICATIONS  The transmission of data as a sequence of bits

BBS  The simplest of electronic databases. Usually operated by individuals, BBSs can hold messages, files and other items which can be read and received by a number of users.

DOWNLOAD  To cause a file of data to be transmitted by a remote computer and saved locally.
UPLOAD To transmit a file to a remote computer

BAUD RATE The length of the signalling event, divided into 1 second intervals.

DATABASE An organized collection of data, often with a common theme, that can be accessed.

LAN Local Area Network. A system connecting a number of communications devices in one location

VIRUS A computer program written to interfere with normal operations, these programs are often transmitted along with legitimate programs and are often timed to occur on a certain date.

PROTOCOL A set of standards covering data communications. Examples of protocols include xmodem, kermit and x.25

HARDWARE The physical machinery of the system.

SOFTWARE The program or series of commands that allows the machinery (hardware) to function

SIGS SIG or (Special Interest Group) is a group dedicated to the promotion, discussion or development of one particular subject or interest. This is also the name of selected areas on the CompuServe Information Service where members meet electronically to exchange ideas and data.

FORUMS FORUMS are areas on information services dedicated to the promotion, discussion or development of one particular subject or interest. These members meet electronically to exchange ideas and data.
CONFERENCES

Online events that are specifically timed to occur on information services. During these events participants can send messages in real time to other participants. These events often occur around a specific topic or a special guest (Stokes 1985).

This is certainly not an exhaustive list of all computer and communications phrases used, but it is a basic foundation that may assist those not already familiar with these selected computer terms.

2.3 The Growth of Computer Use In The Planning Profession

When trying to measure any trend it is helpful to look at several different sources, and attempting to gauge the growth of computers in the planning profession is no exception. Several surveys have been done during the past decade, one of the most recent being the 1989 survey of California Planning Agencies conducted by Steven French and Lyna Wiggins. In the survey, conducted by mail, a wide range of California planning agencies were polled regarding their adoption and use of computers. The study team, which was able to achieve a response rate of 80% of those surveyed, cautions that the survey may overestimate the computer adoption rate by planning agencies. This was a result of under-representation of the small cities sector in the survey results and this category is the one most likely to have little or no computing resources at their disposal (French & Wiggins 1989).

While the specific rate of adoption is a hard item to quantify, the French & Wiggins study has data from a previous study which can be used as a base point. Using this data it appears that there has been a dramatic increase in microcomputer ownership in just two
years, from 43% in 1986 to 65% in 1988. These statistics seem credible as they appear to echo results from a brief survey of Ontario planning agencies during 1983/84 (Ontario 1985).

While neither survey attempts to discover the reasons for this increase in the use of microcomputers, one is likely safe in assuming that, for the most part, planning departments are mirroring what is taking place in society as a whole. The reasons most frequently given for the huge expansion in microcomputer ownership are declining prices and increasing utility. A comparison has been made to the publishing industry, in which the mainframes and minis are likened to hardcover products and the microcomputer labelled the "paperback computer". This analogy is apt, for one gets the same substance, but in a size and package more suitable for mass consumption (PBS 1992).

The use of computers, or more specifically microcomputers, has grown steadily since their introduction in the mid-1980's. The widespread availability of such low cost computing power has ushered in many new applications for the use of microcomputers within the planning profession (Harris 1989).

The types of applications used are themselves a worthy point of study, for they can signal shifts in the way planners use the microcomputers in their day-to-day practice. The Ontario Department of Municipal Affairs survey noted an increase of some 70 commercial packages from the 1981/82 period to the 1983/84 period, which coincides with the boom in microcomputers that began during the mid-1980s. The Ontario study also noted that some packages were in much more demand than others, and Table 2.2 illustrates a breakdown of the packages used by 31 Ontario planning departments surveyed. This information, although
somewhat dated, is important as it provides a breakdown of planning applications at a given point in time. Certainly there have been changes since then, but it is worthwhile to note the weight of the application spread and compare it to other examples that follow.

TABLE 2.1

Microcomputer Packages Used By 31 Selected Ontario Municipalities In 1983/84

<table>
<thead>
<tr>
<th>APPLICATIONS</th>
<th>NUMBER</th>
</tr>
</thead>
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<tr>
<td>Data Banking</td>
<td>29</td>
</tr>
<tr>
<td>Data Analysis</td>
<td>18</td>
</tr>
<tr>
<td>Modelling &amp; Forecasting</td>
<td>19</td>
</tr>
<tr>
<td>Mapping</td>
<td>4</td>
</tr>
<tr>
<td>Graphic</td>
<td>10</td>
</tr>
<tr>
<td>Development Control</td>
<td>22</td>
</tr>
<tr>
<td>Administration &amp; Budget</td>
<td>18</td>
</tr>
<tr>
<td>Word Processing</td>
<td>27</td>
</tr>
</tbody>
</table>

Source: (Ontario 1985)

The Ontario documentation was one of the earliest attempts at examining the computer habits of planners. While not exhaustive in detail it does provide clues as to what tasks planners might employ computers to complete. The survey assembled by French &
Wiggins contains more data, some of which concerns the level of computer sophistication. The study was done using two type of planning agencies: county planning groups and city planning departments. The county groups were usually larger and had better access to personnel and funding. As well, the county departments had more access to sophisticated applications such as Mapping\GIS and telecommunications. The results for application software are presented in Table 2.2, and it should be noted that, like the Ontario study, this represents a point in time for those agencies surveyed and can not be simply extrapolated over the entire planning profession.
### TABLE 2.2

**Software Usage By Selected California Planning Agencies In 1988**

<table>
<thead>
<tr>
<th>SOFTWARE TYPE</th>
<th>% CITIES USING</th>
<th>% COUNTIES USING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Processing</td>
<td>83.4</td>
<td>91.8</td>
</tr>
<tr>
<td>Spreadsheets</td>
<td>56.3</td>
<td>77.3</td>
</tr>
<tr>
<td>Database Manager</td>
<td>44.9</td>
<td>69.4</td>
</tr>
<tr>
<td>Business Graphics</td>
<td>11.9</td>
<td>22.5</td>
</tr>
<tr>
<td>Telecommunications</td>
<td>9.3</td>
<td>26.5</td>
</tr>
<tr>
<td>Mapping/GIS</td>
<td>6.7</td>
<td>24.5</td>
</tr>
<tr>
<td>Project Management</td>
<td>12.2</td>
<td>28.6</td>
</tr>
<tr>
<td>Statistical Analysis</td>
<td>10.7</td>
<td>20.4</td>
</tr>
<tr>
<td>Computer-Aided Design</td>
<td>6.1</td>
<td>8.2</td>
</tr>
</tbody>
</table>

Source: (French & Wiggins 1989)

It is tempting to conclude that the more funding and personnel, the greater the extent to which microcomputers will be used. But it requires more than one study to confirm such trends in planning agencies. Other trends have been noted when planners themselves have been asked about what skills are important for them to possess.
In 1986 a survey of planners was conducted concerning the skills planners themselves felt were important in planning. This survey was then compared to a similar exercise conducted some 10 years earlier. In the 1976 survey the ability to interact effectively with a computer was considered very important by only 11.5% of those planners surveyed, but by 1986 this skill had risen to being very important for 34.8% of the planners surveyed (Forkenbrock 1986).

This study is significant as it directly chronicles the value planners themselves put on computer skills. This same study also discovered that 82.3% of those agencies surveyed had in-house microcomputers. The study also provides reported application percentages, which are listed as word processing (78.3%), database management (66.7%), spread sheet analyses (56.5%), statistical analyses (52.2%), and mapping or graphics (26.1%) (Forkenbrock 1986). The application percentages match up quite well with the work done by French & Wiggins even though there is a two-year gap in surveys.

In examining the growth of computer use in planning environments, it would appear that significant change has occurred in two areas. The first is the growth in microcomputer use in planning offices as suggested by the surveys. The second, and perhaps more important, is the increased emphasis being placed on the ability of planners to use this technology.
2.4 Development of Microcomputer Communications

The development and growth of microcomputer communications (MC) can be linked almost directly to the development of the microcomputer itself. But, unfortunately for the MC industry, one of the last computer peripherals normally added to a microcomputer is a modem, which of course is the backbone of this industry. The 1988 French & Wiggins survey discovered that only 20 % of those planning agencies surveyed had modems while almost all agencies (84.2 %) had access to some form of computing power (French & Wiggins 1989). This indicates that the use of telecommunications is an exercise which is not seen as one of the initial uses, but a function that may be added after other primary assignments, such as word processing and spreadsheet calculations, are mastered. The rankings in both surveys support this notion, and it would appear that, both in California in 1988 and in Ontario in 1983/84, many planning departments and planners just had not reached the point at which telecommunications or MC was a viable computer function.

When discussing the use of microcomputer communications the issue of online product availability inevitably arises. How can planners be enticed to use MC when there is nothing for them to effectively use once they learn how to go online? This question, which is often debated where online planners gather, seems to be the typical chicken and egg debate: Should products for online planners come first, or online planners? Planners, however, should know better than perhaps any other profession that the lines between the various professions are rapidly disappearing and what tasks he or she performed 15 years ago are not necessarily the tasks a planner will perform 15 years from now.
Therefore, while there are not large numbers of specific databases and online services devoted specifically to the needs of urban planners, there are few existing services and products that could not be useful to planners. This distinction is important, as the industry as a whole is growing rapidly, and to continue waiting for profession specific products may result in planners being on the MC sidelines for some time to come. This is especially true as planners as a profession just do not have a large enough membership to warrant development of specific products in the current marketplace. This point is supported in some respects by a recent evaluation of the past few years of microcomputer utilization in the fields of urban and regional planning.

The lack of planning applications software reflects the diversity of planning tasks and breadth of application areas that make the demand for planning software extremely broad and shallow. In addition, the small and nonlucrative market for public sector software and lack of academic rewards and research grants for software development provide few incentives for developing and supporting microcomputer software (Klosterman 1990, 179).

Despite this, there is still reason for planners to have a healthy curiosity about the world of microcomputer communications. For there has been an explosion in the area of computer product availability, and some of these products, although not designed specifically for planners, could be useful to them.

The emergence of the microcomputer has ushered in a new market for computer communications. Just as personal computer sales boomed once the public recognized the value of this revolutionary product, the field of online communications is now rapidly developing because of the recognition by the growing number of computer users of the value of this computing service. This boom has been aided by the availability of higher data
transmission speeds, improved technologies such as error checking and enhanced transmission reliability resulting from greater use of advances like fibre optic telephone lines.

The increase in online databases and online services is truly remarkable, and the following Table 2.3 illustrates approximately the last 10 years of growth in selected computer communication products. A significant amount of this development was spurred on by the rapid expansion in the microcomputer industry. What this table does not indicate, however, is that, while the number of data bases and online services has been increasing, so too has the use and number of users for related products and services. Services like e-mail were once considered novelties, but now in many firms they are an essential part of the corporate information network.
### TABLE 2.3
**Growth In Online Services**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NUMBER OF DATABASES</th>
<th>NUMBER OF ONLINE SERVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td>400</td>
<td>59</td>
</tr>
<tr>
<td>1982</td>
<td>965</td>
<td>93</td>
</tr>
<tr>
<td>1983</td>
<td>1350</td>
<td>213</td>
</tr>
<tr>
<td>1984</td>
<td>1878</td>
<td>272</td>
</tr>
<tr>
<td>1985</td>
<td>2453</td>
<td>362</td>
</tr>
<tr>
<td>1986</td>
<td>2901</td>
<td>454</td>
</tr>
<tr>
<td>1987</td>
<td>3369</td>
<td>528</td>
</tr>
<tr>
<td>1988</td>
<td>3699</td>
<td>555</td>
</tr>
<tr>
<td>1989</td>
<td>4065</td>
<td>645</td>
</tr>
<tr>
<td>1990</td>
<td>4615</td>
<td>654</td>
</tr>
</tbody>
</table>

Source: (Mayer, Jensen & Jensen 1991)

The above table also cannot show the exact level of growth in the online industry, but a recent report by SIMBA Information Inc. addresses that issue exactly. It revealed that the online industry had become a $9 billion business, with revenues increasing an impressive 87% for the period 1986 to 1990. SIMBA indicated in the report that an average of one new online information provider became active each week with the current total of companies involved in online services now over 650 (McCabe 1992).

What may however be of more significance to planners is that registered online subscribers now number more than 4.2 million, with some 800,000 being signed up during 1990 alone. These statistics are even more impressive when one considers the fact that this
data does not include BBS use, which is by far the most common form of online activity (McCabe 1992).

It is now more than apparent that the development and growth of MC is increasing at a staggering pace, which indicates that users are finding something worthwhile to spend their online dollars on and are signing up in record numbers. Certainly this type of emerging trend is something planners should at least be knowledgable about, if not with an eye toward using the technology in planning practice, then at least with some professional curiosity towards what appears to be a significant communications movement.
The growing presence of computers and computer driven technology in our society means different things to different people. To a banker watching the bottom line, an ABM or automated banking machine means less expensive and yet extended service to the bank's customers. To a retail grocery chain the code scanners at the checkout mean fewer keying errors and better inventory control. What then do the rapid advances in computer technology mean to the planning profession? To fully discuss this question is a major work in itself, but it is reasonable to make educated guesses based on several key sources. By scrutinizing planning journals, conference agendas and recent surveys, it is possible to gain some understanding about use of the technology within the profession.

In the past several years one topic has dominated the planning computer spotlight: Geographic Information Systems, or GIS. It is virtually impossible to pick up any planning journal dealing with technology without having to wade through at least several articles on GIS or its application to one type of planning problem or another. The only planning technology issue that threatens, if space content at recent URISA (Urban and Regional Information Systems Association) conferences and planning journal article space are any indication, to topple GIS from its lofty perch at the top of the ladder is 'expert systems'.

In 1987, with the release of his book Microcomputers In Urban Planning and Management Richard Brail identified three major developments in the microcomputer revolution that he expected would have an impact on the practice of urban planning in the next decade.
First, there will be an increasing focus on the development and use of expert systems... The second area of development is computer mapping and information systems... Finally, we shall look at the emerging electronic office in urban planning and management. The electronic office will utilize a wide range of technical innovations to assist the management function including microcomputers and communications networks (Brail 1987, 249).

Now, with the advantage of half a decade's experience, we can acknowledge that Brail's predictions with regard to computer mapping or GIS and expert systems have been proved amazingly accurate. But while there is still five years remaining in the prediction period, it is plain to see that the third prediction, at least in planning circles, is far from being realized. In fact, no article solely on this subject has ever been published in any recognized North American planning journal!

3.1 Technical Requirements

The term 'microcomputer communications', refers, straightforwardly enough, to one particular computer function: communications. More specifically, it refers to a process of using a combination of computing device, modem and telephone line to access a distant information source. This process, which could also be described as online communications, can also be used with mainframe, mini or some other computing system. The term microcomputer is used because the microcomputer makes up the majority of the online product market and it represents the type of machine which is currently available in almost all planning environments. The field of online communications involves many rather complex electronic and engineering matters, the "how to" of the technology, which will be
covered during this paper, but only at a relatively rudimentary level.

The history of online services is recent, many of the established online services are only about 20 years old at most. CompuServe, one the larger computer-service companies, is a case in point. "CompuServe began in 1969 in Columbus, Ohio, when a small insurance holding company toyed with the idea of using computers to help manage its business" (Bowen & Peyton 1986, 14).

Another example is that of LEXIS, a online information retrieval system for lawyers. " The service today called LEXIS, a service of Mead Data Central, is a direct descendant of OBAR-Ohio Bar Automated Research. OBAR was the name of a not-for-profit corporation formed by the Ohio State Bar Association in 1967 to raise funds and develop a computer-assisted legal-research service for Ohio lawyers." (Harrington 1987, 14)

The fact that these two are among the older information services emphasizes the relative youth of this form of information technology, which is growing at a rapid pace. In 1981 there were 400 machine-readable databases worldwide; there are now over 4600 (Mayer, Jensen & Jensen 1991). This growth rate is staggering when one considers the vast amount of information that can exist in only one database. Alfred Glossbrenner points out, as an example, that a single database can cover hundreds of magazines, each of which produces thousands of articles and reviews over a 10 or 15 year period. Now imagine being able to search through all that material in a matter of a few minutes. This is only one of the many exercises available to those who have been introduced to the world of online communications (Glossbrenner 1987).
There are several necessities for online communications. One of which is, of course, hardware. Hardware is the physical machinery required to access a distant database. There are several methods which could produce the same required results, only a couple of the more common situations will be described here. One way to access online information is through the use of a dumb terminal, which is a computer workstation that by itself has little or no general purpose computing power, but is hooked up to a larger and more powerful central computer. The central computer is then responsible for providing the link to the online facility.

For most people, and indeed for most planning offices, the next option is probably the most practical connection solution. This option involves the use of a personal computer, many of which already exist in planning offices across the country. In addition to the personal computer, hardware requirements include a modem (a device to translate the information into a form acceptable to the database being accessed) and an open phone line, which acts as the path for the outgoing signals and the incoming data. Although some firms designate lines as being strictly for online activity, most voice lines are usually sufficient to handle most online communications. There are hundreds of considerations regarding the integrity of phone lines and the quality of the line involved, but these matters are better left to engineers who concern themselves daily with packet switching and fibre optic lines.

With the hardware requirements in place, the software must be obtained to communicate with the database. This is fairly easy, as there are several good communications packages available on the market. If budget dollars are scarce, then there are some public domain and share-ware programs that should meet most online
communication needs. Experience in using the communications program and the database is not necessary, but it can save hours of frustrations. And with commercial databases that can mean considerable amounts of money. Everyone must start somewhere, but most communications software packages, and many of the major commercial databases, offer extensive manuals and guides to accessing the information available online. Examples of widely used, and thus usually well supported, communications software are Procomm or Crosstalk.

Apart from the proper hardware and software, one item that will be important as users gain more experience is the linkage to and from large networks. This topic is complex and warrants much more consideration than is possible in a general approach to MC. A small sampling of the complex nature of inter-connecting networks is included in Appendix D but the definitive work on this subject is John Quarterman's *The Matrix*.

Larger commercial online systems like CompuServe, one of the largest, have special programs that automate functions and allow users to bypass menus that are common to this form of system. In the case of CompuServe, two programs, CIS Navigator and Tapsicis, allow users to both cut down on online time and use the service more effectively. In real terms, this means writing messages off-line and selecting library downloads before signing on to the system. These types of programs cost just under $90 and are generally thought to save about two thirds of online time for regular functions.

A final impediment to accessing the online world exists only with some of the services that the user will be accessing; there may be a subscription to a particular online
service. This, however, is a minor problem, and many services can, in fact, be joined via the online process.
3.2 Liveware: Training & Education

As previously noted, the use of microcomputer communications is dependant on several requirements. Earlier we discussed prerequisites such as software and hardware. One of these prerequisites is appropriate knowledge or training. The term "liveware" is borrowed from A Gar-On Yeh and is often overlooked by those who concern themselves only with hardware and software. Liveware represents perhaps the greatest variable in any computer setup, the user (Yeh 1988).

According to several computer training firm instructors, the jump to easy use of MC is not a large one for those already familiar with basic computer operations. These same trainers acknowledge that for a non-computer user or an inexperienced user, this transition is much tougher as the concept of computers talking to each other tends to confuse an already confused individual (Hans Erdman 1992).

When asked how best to train a group of individuals, such as community planners, to use MC technology the firms stressed the importance of individual help. The reasoning behind this approach is that there are many different knowledge levels when dealing with personal computer users. Some users may have to go right to the basics while other may just need to know a few keystrokes and can go from there. "It is really a matter of confidence in one's ability to learn on a computer. For example, two people may have the same knowledge base but one may acquire it by studying the manual for hours while the
other prefers to learn through experimentation. No two users learn the same way" (Sean Ryan 1992).

The importance of microcomputer skills is growing as more businesses and public sector agencies acquire and include microcomputers in their day-to-day operations. One poll of planners done several years ago, and quoted earlier, compared the value of the ability\skill to interact with computers in separate surveys. One survey was done in 1976 while the other was completed in 1986. In just 10 years this ability\skill to interact with computers, when ranked as very important by planners surveyed, moved from a 11.5% to a 34.8%; a tripling in the number of planners who perceived this expertise as very important (Forkenbrock 1986).

Based on this assessment by computer educators, and on the fact that, in California planning groups, telecommunications or MC is generally regarded as an advanced computer function, it is reasonable to assume that the opportunity for real growth and utility in MC will only present itself after the fundamental computer basics are mastered by planners. In reality, although there are numerous initiatives, such as the growth and development of GIS and expert systems, the point at which the profession as a whole can claim to be computer literate may not be reached until the first wave of computer educated planners are firmly entrenched in senior or decision-making positions within the profession.
3.3 Microcomputer Communications: The Bottom Line

One of the most important items when considering implementation of any new system is cost, both capital costs and operational costs. In the case of microcomputer communications, the capital cost would normally be the purchase of the computer equipment required to enable the user to go online; usually just a modem and communications software, as many firms and departments already have a personal computer. The capital cost for a 9600 or 14,400 baud modem and good communications software is estimated to be in the $350-$450 (1992 dollars) range, although this figure can be greatly reduced if the needs of the system with regard to speed are not great. A low speed second-hand modem could be obtained, and public domain software could be used, at the reasonable cost of approximately $100 (1992 dollars).

While it is possible to provide an approximate figure for capital costs, operational costs are more elusive, because no two users use MC in the same way; some may use local BBS systems which usually only require a nominal yearly membership of $20 or $30 while other users may sign on to exclusive long-distance databases, which can cost up to $100 per hour of use. Certainly, online databases tend to produce the highest costs, because they are often expensive to maintain and update as many of these databases have new material added daily. Another reason for high cost is lack of competition, as many of these products are so specialized that no other database delivers the same type of service. There is, of course, always an alternative to the databases, but spending hours in a research library ceases to be an attractive substitute once an effective online service is available.
Listed in Appendix B are samples of online databases. The list is by no means comprehensive, but it does give a good cross-section of the available body of product in this category. Included is the name of the database, a description of its contents and several ports where it can be accessed. The port or point of access is often a major US information service, such as Genie or CompuServe. In Canada access could be obtained either through these services or via Datapac or I-Net. Included in the Appendix B sampling of databases is VU/Text. This database is relatively standard in its cost structure, charging a $15 per month maintenance fee, connect charges of about $11 per hour plus online charges of $132 per hour, with no charge distinction between 1200 & 2400 baud access (Online Access 1992).

While it has already been acknowledged that it is relatively inexpensive to use a bulletin board system or BBS, this section will provide a brief cost overview of this inexpensive end of the online community. Why would planners be interested in the nuts and bolts of this technology? More groups within the community are using these electronic meeting places to organize, coordinate lobby efforts and advance their particular cause or interest, and planners might find it in their interest to understand the basic infrastructure of this communications medium, in order to make for easier dealings with groups that are online. Another reason for planners acquainting themselves with the costs of a BBS is opportunity. This technology transcends time zones, doesn’t require meetings of any kind and can be used as an file or information exchange, a message centre and a newsletter. All this can be accomplished for as little as a few hundred dollars. In a situation where a large
conference has to be organized or a regional plan has to be developed, this cheap, easy-to-use technology might be the answer.

Many groups are now using BBS now to disseminate information to their members. One such group, interested in emergency planning in British Columbia, operates a BBS system called EPIX (Emergency Preparedness Information eXchange). This system had been operating as a straight BBS, but recently it has been transferred and will eventually be connected to Datapac, through a university system, to the rest of the online community.

The dollar cost of any BBS operation is hard to estimate, as no two systems operate in the same manner. One sysop (BBS slang for system operator) may set up the board and just leave it with periodic checks, while another may have features such as e-mail, echoes and daily file updates that require spending several hours daily on updating and board maintenance. The busier sysops tend to spend more money, but they also tend to have more users, and if they are charging a fee they will produce more revenue to cover those costs. Costs for operating a BBS can range from $0 to several thousands dollars a year. The no-cost BBS would probably not operate all day but would be put up on a residential phone line for a set number of hours. This system would then use a public domain software system to operate the board, and would not usually charge any callers for the service. The BBS's that have expenses in the thousands are usually those that have dedicated multi-line access to the system and that offer a much richer supply of online services.

After talking to a number of sysops, and experimenting with the technology it is obvious that, although some of the costs of operating the BSS can be recovered, there is one investment that does not offer much financial reward: the time spent on the system by
the operator. Most of those involved in this expanding industry treat the BBS portion of the operation as a hobby. Even those who charge for the board services, such as OMNI-NET, never see much profit from this form of online activity, and most of the time they run the BBS system as an adjunct service of some other business, such as a computer store or computer service center.

As part of this exercise some "hands on" work running a small bulletin board system was performed. This experimentation pointed out, in no uncertain terms, the fragile nature of that part of the MC world at that time. There were problems setting and aligning the standard software to a slightly non-standard computer\modem setup. The end result was that after two weeks, a poorly performing service was up and running about 60% of the time. Some two years later the same exercise, using a comparatively priced BBS system was tried and it, through a system of self-extracting files and a short question installation process, was up and 100% operational within a 40% minute period.

Another item that points to the maturing nature of the MC industry is the machine that acts as the backbone of the industry, the modem. In 1988 it was still common to see users signing onto BBSs and other services at 300 baud, this modem would cost about $150 (1988 dollars). Today it is not uncommon to see the same users signing onto the same services at 9,600 baud, with many users no doubt upgrading soon to 14,400 baud, these modems cost about $350-$400 (1992 dollars). This fact, blended with the dramatic increases in the number of users, databases and online services that were mentioned in previous chapters, appears to point to a subject that requires further examination with regard to its potential for use in planning.
4.0 ONLINE SERVICES

This paper has previously identified two types of online services. The first, computer mediated communications, or CMC, is any online service that allows people to exchange messages. The other type of online service is resource sharing, which, as the name suggests, involves activities that allow users to access computing resources such as files or databases (Quarterman 1990).

The list of CMC services is long, but it can be characterized as any electronic mail service, electronic mailing list service or almost any electronic conferencing services. There are literally hundreds of services available that can be listed under the above category, and many of the existing electronic networks, such as NetNorth and Internet, are examples of CMC services. The complexity of the various available networks, their links to larger international systems and the methods of connecting, is beyond the scope of this paper. But for those interested a summary listing of sample connections is provided in Appendix D. For a more thorough discussion of the above topic, Quartermann's The Matrix should be consulted.

4.1 The Commercial Services

Information services are the type of online commodity that offers the most diversity of service to users including both CMC and resource sharing. Examples of some of the bigger databases are CompuServe, Dow Jones, Delphi and GEnie. These services provide
generalized information to their clients, and common to most are a file section, some form of messaging system, special interest sections, access to specialized databases and, often a news/weather/sports section. In this paper the CompuServe Information Service or CIS will be referenced numerous times. It is not the only service available, but in the interest of saving money on research, one system was selected to serve as an example of what all information systems had to offer.

The major information services are stand-alone businesses, despite the fact that many of them started off attached to a parent company; CompuServe, for example, began in this way. A user can most commonly begin to access these services by buying an introduction packet from a local computer or electronics store which provides him or her with a brief description of the system, a user's guide and, usually, a small credit for the initial sessions on the system. Most services can also be contacted directly for subscription information.

One of the primary benefits of this type is product is the contact with other users on the system. Many of these people are avid and knowledgeable computer users who have probably experienced many of the computer-related problems and decisions common to most offices or departments. The large amount of public domain and shareware software available on such systems also may be of some use.

One feature of most of the bigger information services listed is the SIG (special interest group) or FORUM, a special place within the information service that is devoted to one particular area of interest. Companies such as CompuServe currently offer forums ordered by both the machine and interest, so if you own an I.B.M. and are interested in
communications you could join the discussion on CompuServe's <IBMCOM>. The Communications Forum. Besides the messaging and conferencing that occurs in the forum, there also exists a library for the forum's particular interest, and so, in the case of the communications forum, there should be communications programs, utilities and files in the forum library, ready to be downloaded.

Some information services have special sections set aside for professions such as law and medicine. On CompuServe the special sections or SIGS serve this function; other online services have similar areas. There many SIGS which may be of interest to planners including forums on environmental issues, engineering, politics and of course various current affairs issues. There are also SIGS where planners could either get help with computer questions (e.g. Desktop publishing, CADD or Artificial Intelligence) or do some research on issues which may be of concern in their community (e.g. native rights, AIDS research or disabilities forum).

Other areas of information and support include various vendor's forums. Many producers of computer products maintain support forums on the major services like Compuserve and GEnie. Often you can put your questions directly to the programmers who designed a certain program, which, for more complex programs, can be very valuable.

4.2 The Online Database

A commercial database refers to a group of files that usually have a related theme or heritage. These databases are the Cadillacs of the online roadway, and the costs of using
these systems can approach $300 an hour. The database can offer full text service, abstract service, directory or bibliographic service and even numerical service. Full text online databases may include newspapers, newsletters, press releases, magazines or journal articles. Directory type databases are often used for company information and bibliographic data.

There are people who make their living sorting through the growing maze of online information for clients. These people, often referred to as information brokers, classify a database as either primary or secondary. A primary database is one that has a printed counterpart while a secondary database has been manufactured for use by those accessing it online. A secondary database may be made up of several primary databases along with some other relevant data which the manufacturers think may be useful. At the present time there are many primary databases, and development of secondary databases is increasing (Mayer, Jensen & Jensen 1991).

The contents of commercial databases can vary greatly from one database to another. The breadth and depth of information available online is staggering. In addition to most of the major publications, many industry specific journals and newsletters are also available in electronic form. Each database, however, does not have its own phone number; the majority are accessible through a distributor. The creators of the database or IP's (information providers) sell their product to a distributor who arranges and manages their product along with other databases. The distributor acts as a middleman and provides the system and structure required for client use of a database. This approach provides a lower user cost and more convenience to the customer, as the costs of providing technical and
administrative support to customers is shared. There has been a dramatic increase in the number of such databases available.

There are several major distributors in North America currently providing services to computer clients. DIALOG, BRS, NEXIS, ORBIT, INFO-GLOBE, DOW JONES, AND NEWSNET are just some of the systems that provide access to a large variety of individual databases. There are also distributors who coordinate and manage databases that are not for general consumption and, therefore, usually not for profit. Examples of this type of database include many of the land based information systems currently available, as well as internal company data in large firms, or public agency databases such as the Canadian Center for Occupational Health and Safety’s CCINFO (Alston 1991).

4.3 BBS Systems

If the commercial databases are the Cadillacs of the online roadways, the bulletin board systems (BBSs) are the Volkswagens. Most of these services are provided by a group or individual who acts as a SYSOP or system operator. This individual acts as manager of the system ensuring that the system is operational and that participators act responsibly. Most of these services are free and open to the public, but some have a small yearly or lifetime fee. BBSs come in all shapes and colors, and there are systems devoted to a wide range of topics and interests. In Vancouver there are systems devoted to such varied topics as types of computers, different religious beliefs, or Vietnam veterans in Canada. Currently in the US alone there are more than 40,000 such systems (Hanson 1992).
A typical BBS has a main menu that illustrates a number of features, and normally these include a file section and some form of messaging environment. It is not unusual, as mentioned earlier, for a BBS to be devoted to a certain cause, activity or belief. One such BBS in the Vancouver area is CATALYST, which is operated by the Pacific Information Society, a group formed to further social change through the use of computers. Revenue Canada operates internal BBS's to assist its staff auditors and supply e-mail to people in the field (A.Smith-Revenue Canada 1989), while the Soil and Water Conservation Information Bureau of the University of Guelph maintains a BBS to promote information exchange on soil conservation. They promote their system and explain the board’s e-mail to beginners as being the same as a radio talk show, except for the following advantages:

1. You can "listen in" any time.
2. The host can’t cut you off in mid-sentence.
3. You can reply directly to the person who "spoke" before you.
4. You pick the topic of the day.
5. Your message can be read and replied to by others at any time.

(InfoSource 1991)

Other BBS features include file areas where a variety of files are maintained for downloading by the board’s users. The users are usually encouraged to upload material they might come across for use by other users. Since it is illegal to publicly distribute most commercial packages, the vast majority of the BBSs insist that everything in the file system
be designated either public domain or shareware. Depending on the type of BBS software used, many BBS's may also have a newsletter function, which allows the SYSOP or BBS operator an opportunity to display relevant information to all who sign on to the system. The Soil and Water Conservation Information Bureau BBS at the University of Guelph uses this function to list all upcoming events, conferences or courses on soil conservation and enhancement.

Another feature which can be found in some BBS's is an echo message system. This operates in the same manner as a normal message system, except when the board shuts down for self maintenance, those messages which have been placed in echo areas are copied from the system, compressed into mail packets and sent to the nearest central node. Then, at preselected times, central nodes across the country (or even the world) automatically call each other and exchange mail packets. The central nodes then distribute the new mail to the local boards under its wing. All of this activity generally occurs in the early morning, when phone rates are least expensive and when there is little use of the BBS. The result of all this activity is that messages are no longer local; they become international, with replies coming from any number of countries. It is possible therefore for someone in Canada to engage in an exchange on the effects of a Goods and Services Tax with someone in New Zealand, where such a tax has been entrenched for some time.

Questionnaire capability is yet another feature of some BBS’s, a feature that makes it possible to periodically poll users for their opinions on the system, or on any other matter of the day. Large (multi-line) BBS’s can provide a conference-like environment for interactive discussion on issues of the day—the BBS equivalent to a conference call.
Perhaps the most useful feature is the previously mentioned online information, which can provide library-loads of information depending on the system. There are literally hundreds of data bases which could be used as examples but one that might be useful for planners is COMPUSEARCH. This database is available through the I-NET 200 system and it contains three services. AREASEARCH incorporates more than 300 variables from the 1971, 1976 and 1981 Census of Canada; B.A.R., business activity reports for any location in Canada; and, TRADAREA which provides demographic analysis of any geographic area in Canada (I-NET 1989).

It is almost certain that, given current trends toward the growth of online information, many more services will be available as time passes. In fact, many organizations are beginning to view this medium as one more option in selling or promoting their service or product.

Some information providers are able to tap into this market directly while others require some form of middleman to assist them. The information providers are the organizations that sell their information to the information distributor or vendor. Many of these groups already have the information but do not have the system to deliver it to potential customers. An example of this would be the various merchants who sell their goods and services in the Online Mall section of CompuServe. These individual merchants could not afford to support the infrastructure required to sell to their customers directly, but by using the CompuServe network, the cost becomes just another business expense. General Electric, on the other hand, has an interest in the operation of one of the other large information services, GEnie. It can therefore directly market its various services and
products to the online consumer without employing the services of a middleman.

At the present time, most of the information providers are private corporations; however, recent developments suggest that government may become involved in this form of information dissemination. An example of a municipality doing just this will be examined later in this paper, and further examples of government involvement, albeit US examples, are provided in Appendix G.
4.4 **Online Operations**

This section addresses a number of sub-issues often associated with online operations.

4.4.1 **Online Searching**

Online searching refers to the use of computers to access and search, via phone lines, a distant database of information. The complexity of the process depends on the complexity of the database being accessed.

Online searching has several advantages over traditional methods. On databases which are regularly updated, the user is assured that all the latest data has been searched, or can be searched at speed. Many university libraries are now equipped with online searching capabilities which are a great deal faster than more traditional card catalogues. The greatest advantage of online searching, however, is comprehensiveness! A researcher can perform searches where hundreds of journals and thousands of articles are investigated in only a few minutes. With current technology anyone with a modem equipped computer can, for a fee, access any number of searchable databases whose products range from the recent stock prices on the TSE to the latest articles in the New England Journal Of Medicine.

The downside to online searching involves the wide variety of systems a user faces when using such services; this is changing, but very slowly. Another problem with such activities is cost, for many of the databases cost almost $100 per hour of connect time. For
inexperienced users it may be more cost effective to engage a information broker.

Information brokers, as mentioned earlier, are individuals who are experienced databases users and can reach the information needed quickly, and therefore cheaply. These information professionals can usually be found through large libraries or through the major information services like CompuServe, GEnie or Prodigy.

4.4.2 Electronic Mail

Electronic mail simply refers to a message sent via electronic means to another user of the same or connected system. Electronic mail is the computer equivalent of a phone call, but with several important advantages. Electronic mail is not time sensitive so if the person being called is at lunch or in a meeting, they don't miss your message, as it is waiting for them the next time they sign on to their system. This is an important point if you are communicating with someone across Canada or across the world or if you are trying to contact someone who is difficult to reach. Another advantage is that electronic mail or e-mail can be broadcast or sent to more than one person at the same time, which is often helpful for project work.

The downside to electronic mail is that, unlike real mail, it can sometimes have trouble crossing over into other e-mail systems, and so reliability can be a concern. For a better understanding to the complexities of this transfer, check Appendix D.
4.4.3 Online Discussion Groups

Online discussion groups have many names including Forums and Sigs. These and other such designations all describe a similar service. This service typically has a theme or focus subject which can range from Gardening to Space Travel; indeed, there are discussion groups for almost every possible subject, including some that people are more likely to discuss if they are not face to face, such as sex, drugs, or drinking. These discussion groups will be mentioned again later in the paper, when discussing the professional use of MC.

4.4.4 File Uploading & Downloading

One of the biggest benefits to using a computer in an online format is that users are able to upload (send) and download (get) programs or documents. This interaction is invaluable to many businesses, because they can move documents in a manner which is as convenient as a facsimile but does not require retyping.

4.4.5 Public Domain & Shareware Software

One of the greatest advantages of participating in online communication is the ability to download programs. While some of the material downloaded may be reports or other business-related material, the largest portion of the downloads are computer programs, and,
since it is not legal to duplicate commercial software without authorization, the programs distributed are defined as shareware, or public domain software.

Shareware is copyrighted software that is distributed at minimal cost. Because you can try before you buy, it’s easy to find programs to fit your needs. Shareware authors release programs with an element of trust, expecting payment if a program is used regularly. You save when you buy shareware since expensive marketing costs are eliminated. (Shareware Magazine 1992, 7)

Public domain is easier to define, it is software that is considered to be in the public domain or in other words, free of any charge. There is often a note from the program’s author that alerts users that they should not charge anyone for the program and that they are free to distribute it, providing they do not profit from the activity. Public domain software is freely distributed virtually without restriction; shareware software, however, is distributed on the honour system, which, in this case, means that if you use the program and find it useful you are then requested to send a payment to the producers of the package to support their work. It is essentially commercial software you can try before you buy.

The topic of shareware and public domain software may not, on the surface, seem of great significance to planners but, in this era of shrinking firm and department budgets, this resource could prove to be invaluable. Currently there are over 90,000 shareware or public domain programs available online.

4.4.6 Data Compression

ARCing, PACing, and ZIPping are examples of data compression techniques. These
techniques allow more programs to be stored on less space and facilitate faster transmission times during uploading and downloading. Prior to sending a program a user usually compresses it with one of several utilities designed for the purpose, down to about the program is then 25%-30% of its original size. Upon receiving the program another user can un-pack the program by using the reverse of the original technique. A user can usually identify the utility used by the program suffix; for example, if the program name was COMPUTER.ZIP the user would know that the program was zipped and must be unzipped before the package could be used.

4.4.7 Viruses

It would be irresponsible to discuss online activity, uploading and downloading files without mentioning computer viruses. The virus is, as the name implies, a special program that can attack your computer and prevent it from performing normal operations. Not only can a virus do harm to your system, it can, like its biological namesake, spread among other members of the 'species'. It often attaches to disks used in the infected machine, and thereby passes itself along to other computers.

The emergence of the computer virus is perhaps the single greatest threat to the continued expansion of the online industry. In a recent survey of some 600,000 personal computers and their users in the United States and Canada, it was revealed that 63% of the sites surveyed had experienced a virus attack. While the survey indicated only 9% of those surveyed endured a major virus infestation, the cost of this type of intrusion can be
devastating. We as a society are so dependent on computers that unexpected shutdowns can result in losses in the millions of dollars. (Hsu 1992)

The history of the computer virus dates back to the 1940s, with John Von Neumann's idea that programs could be made to multiply automatically, a line of research that led to John Conway's "living software" in the 1960s. The living software could not only reproduce but could also destroy other programs in the process. At this point in time this line of investigation was all in fun to see what could be developed. The first viruses came on the scene during the early 1980s with a small program written by a University of Southern California student who wanted to prove that it was possible to program a virus. It is in recent years that it has become more than a novelty. Not surprisingly the greatest growth in computer viruses coincides with the greatest growth of computers, the microcomputer boom of the 1980s (HSU 1992).

While it is not necessary to detail all the various types of bugs and their activities in this paper, it is necessary to point out to planners that the use of various online services carries with it certain responsibilities with regard to virus protection. After all, what good is it to save your firm or department several hundred dollars by uploading a piece of public domain software if, at the same time, you inadvertently load a virus that ruins all the hard drives in the office? Virus protection is a must, as is proper backup of all files. This is a precaution, however, that should be taken regardless of whether you use online systems or not.
5.0 MICROCOMPUTER COMMUNICATION USE

This section will cover numerous issues concerning the use of MC and the value of the technology to selected professions.

5.1 Microcomputer Communications Use By Selected Professionals

In urban planning, however, the role of the computer has been less significant than in other disciplines, such as business and engineering (Han & Kim 1989, 296).

In an attempt to ascertain the role that microcomputer communication might be able to play in planning, several other selected professions will be profiled. In these profiles the manner in which the profession is able to employ online computer services will be examined with an eye towards similar use by planners. These particular professions were selected because they appeared to be professions that were both well organized and faced with adapting to new methods of practice.

5.1.1 Civil Engineers

Engineers, and in particular civil engineers, have been able to use microcomputer communications in several interesting applications. Many engineers, by virtue of their daily work activity, tend to be familiar with microcomputers and this familiarization has undoubtedly facilitated the use of microcomputer communications. Another advantage engineering enjoys is the well defined subsections of engineering, which means that data is
often simply listed under the engineering sub-heading. For example is common to see chemical engineering or transportation engineering rather than just the general heading of engineering. This presents a natural and effective structure for information organization which makes online activity more precise in its focus.

Some of the larger online resources that may be of interest for engineers are COMPENDEX PLUS and the NATIONAL TECHNICAL INFORMATION SERVICE (NTIS). COMPENDIX PLUS is a computerized engineering index, covering most engineering topics, which is available on BRS, Data-Star, Dialog and ORBIT; it cites some 2.2 million articles, covers 4,500 journals and holds about 480,000 conference papers. The NTIS on the other hand is a reference base for government-sponsored research, development and engineering reports (Online Access 1991).

Additional material is available via computer, but is usually found in a more specialized arena. An example of this would be transportation engineering; there are several BBS systems operating that support this engineering sub-set. One of the most interesting is McLink, which is operated by the Center for Microcomputers in Transportation at the University of Florida. This group also operates a software distribution network on a cost recovery basis under the name McTrans. McTrans carries a host of useful transportation programs and models, which are often available to users at shareware level prices. According to Whit Blanton, a transportation planner in Orlando, the packages offered by McTrans are useful, and perhaps more importantly, well supported (Blanton 1992).
5.1.2. Medical Practitioners

Medicine is one of the more active professions in microcomputer communications. The medical community has numerous databases and online services available to it with more being brought online each year. The medical field (or at least those who service it) has developed many innovative information services during the recent past. Expert programs, which are programs developed with the aid of artificial intelligence technology, aid in diagnostic work. Accounting and database management systems are specifically designed for medical use, as are extensive electronic research libraries with advanced searching capabilities.

The medical research service known as MEDLINE is perhaps the best known computer communications product for the medical community. MEDLINE consists of over 6,500,000 references from about 4,000 of the top medical journals, with abstracts of articles, books, and journals; users can also order a full-text article. This service is updated daily and is accessible through many of the major information networks, such as CompuServe (CompuServe 1992).

Other medical related services available through Compuserve include the following:

1. Health Database Plus - health related stories from technical and professional journals.
2. Handicapped Users Database - data of interest to the handicapped community.
3. Human Sexuality Database - offers keyword or topical searches.
4. Rare Disease Database - up-to-date information on rare diseases.
5. Physicians Data Query - contains four separate cancer databases.

6. Iquest Medical InfoCenter - contains several databases on drug treatment & research.

7. CCML AIDS Articles - full text of AIDS articles from leading journals.

8. Veterans Admin. Rehab. Database - focus is rehabilitation research.


(CompuServe 1992, 20)

In addition to these databases there is also, on CompuServe, an entire forum for medical professionals. This forum, called MEDSIG, has some 20 sub-sections for both discussions and file management. Designed sub-sections include items such as AIDS/Social/Ethical (Section 12) and Mental Health (Section 17). These information sources are just the resources available on one commercial information service but there are many other services out there as well as many in-house information services at hospitals and medical schools (Bowen & Peyton 1986).

5.1.3 Educators

Although Education, like planning, is a profession that is often underfunded, educators, unlike planners, have managed to get a major database for their profession. The ERIC (Educational Resources Information Centre) database, which is offered by the firm OCLC, is the most complete database of bibliographic reference materials. ERIC is divided
into two files: Resources in Education, or (RIE), and Current Index to Journals In Education (CIJE), which dates back to 1966. Operationally ERIC has 26 indexes, which allow a user to search by date, language, geographic source and either the RIE or CIJE designation. ERIC is relatively easy to use and is updated on a monthly basis (Online Access 1992).

There are, of course, other online activities designed to serve the educating profession, including the low cost BBS. In a national directory of special use BBS systems published by Online Access, there were 21 different systems dedicated to the field of education. In addition to this, several departments of education (e.g., New Brunswick & Vermont) have online educational resource centers, where teachers can view the latest bulletins, exchange e-mail and distribute public domain software (Sean Ryan 1991).

There are also online educational initiatives which are fostered by non-teaching agencies. One such program, an environmental education course, is offered by the National Geographic Society. The course combines text materials, experiments and online communications to teach young people (ages 9-11) about various aspects of their environment. The online component offers students an opportunity to compare notes with children elsewhere who are taking the program at the same time. The administrators of this course believe that this program offers unique opportunities for children as it involves them in using technology for a real purpose (Buerkle 1992). While this is not actually an example of educators using online, the teachers still had to be "MC literate" before their school was selected to host this particular program.
5.1.4 Lawyers

Not so long ago many lawyers were among the technologically illiterate. Lawyers perceived themselves as being flooded by cases, statutes and administration law and were having trouble keeping up. The "information explosion" was a popular topic at legal meetings everywhere. As early as the 1960s the legal profession was increasingly complaining about too much information. Despite this, however, few lawyers involved themselves in computer-assisted legal research. But with the advent of OBAR and then LEXIS, the manner in which legal information was processed changed dramatically and lawyers became one of the largest online professional users groups (Harrington 1987).

In fact, the legal profession is now seen as a group that has led the way in developing computer communications and successfully integrating the technology directly into day-to-day affairs. This technology is now a significant aspect of many law practices. Lawyers have several services specifically designed for legal work of which WESTLAW and LEXIS are the two biggest examples in the United States. In Canada computer communications are handled through CBA-Net, a service operated by the Canadian Bar Association which provides electronic products such as QuickLaw (QL) through this network (D. Bartlett 1991). QL/Quicksearch is a computerized index to massive collections of information stored at QL’s computer centre in Kingston, Ontario. Main topic headings include:

* News (wire services & indexes)
* Business (wire services)
In British Columbia a regional online service, B.C. Online, has been developed. This service, supplied through the cooperation of the Province of B.C. and the B.C. Systems Corporation allows lawyers and the general public to have access to government information via computer. Information online includes land titles, rural tax, personal property securing loans, B.C. companies and, as of March 2, 1992, the B.C. Assessment authority (B.C.Online 1992).

In both Canada and the U.S. specialized services provide lawyers with news, e-mail and reports from various courts. These services are updated continually and are supplemented by numerous products offered by the big general services such as CompuServe. These products include the Trademark Research Center, which provides access to databases containing all nongraphic trademarks, the Patent Research Center, which has summaries of all patents (both US and International) issued in chemical, mechanical, electrical and design categories, and the Legal Research Center, which is an index service carrying more than 750 law journals and other legal publications (Compuserve 1991).
In addition to these services, several of the information services operate forums or special interest groups for lawyers. A service from CompuServe (CIS) will again serve as an example. Other services also have similar features, but since CIS is the largest service, it is often used as an industry model. At CIS the arena for lawyers is called the LAWSIG. It is made up of a number of file libraries, a conference room (for online message conferences), and 11 special message sections, as follows:

**LAWSIG MESSAGE AREAS**

0. General Interest
1. Computer Law
2. Referral Network
3. Westlaw/Lexis
4. Pro Bono
5. Legal Software
6. Lawyer to Lawyer
7. Law Student
8. Hot Topic
9. Law Enforcement
10. Municipal Planning
11. Legal Vendors

(CompuServe 1991)
In addition to services offered by the large information services there are bulletin board services (BBSs) that are also devoted full-time to legal issues and other matters of interest to lawyers. In a recent listing of such services 19 legal-oriented BBSs were listed. Not surprisingly, the names often indicate the board's subject matter. Here are a few samples: Lawboard, Legal Ease, PC Law, Ye Old Bailey, Litigator and LegNet. In addition to the listings of privately run boards were boards run by law associations or organizations such as the State Bar of Arizona, the Judicial Network of Philadelphia and the Colorado State Judiciary (Online Access 1992).

The number and quality of these information services offer some worthwhile conclusions with regard to the use of online systems by the legal community. The establishment and continued growth of space on commercial services such as CIS indicates that the legal community has recognized the value of such services and is willing to support them. The emergence of LEXIS, WESTLAW and other specialized law support systems points to the total integration of computer communications within the legal community. Admittedly, the match is well suited, for the lawyer needs specific information, and the computer communications system ability to provide that particular service is hard to beat.

It is reasonably easy to comprehend why products like LEXIS are successful. What is not so straightforward or easily explainable is the emergence of the lower end of the microcomputer communications spectrum, the BBSs. Perhaps a familiarization with the technology on a professional level, through using LEXIS or the Canadian Bar Associations system, has lead some lawyers to recognize the value of this form of technology. The fact that some of the BBSs are operated by legal associations tends to lend some support to this
notion. Planners, by contrast, have for the most part, not yet been exposed professionally to this form of technology and so it is perhaps unrealistic to expect them to adopt and use MC without first having an opportunity to see the value of the technology.

What can be expected for the future with lawyers and computer communications? Since lawyers appear to be one of the professions on the cutting edge of this technology, they will likely be among the first to press the edges of the existing envelope of services and uncover either new services or new ways to use the existing technology. One trend that has already taken hold is the use of CD-ROM (Compact Disk-Read Only Memory) in place of some online services. This form of technology offers several important advantages for specific applications. The CD-ROM has extremely large storage capacity, and so it is perfect for storage of historical data or other data not prone to change. Use of the CD-ROM in combination with an online service, for updates, is providing lawyers with fast, accurate and current data.

When pondering the future of online information for lawyers and other professionals, William Harrington foresees something much more grandiose.

We can envision this scenario. A desktop computer in a law office in Indianapolis is alerted at 2:00 A.M. by a signal from a satellite approaching from the west. As the satellite passes over the American Midwest it transmits a huge bundle of signals, sending down coded updating information to hundreds of in-office computers, each one receiving only that to which each has subscribed. The electronic libraries in the Indianapolis office have thus received their Tuesday morning update.

When the Indianapolis lawyer arrives in the morning, the computer indicates that a tax law development in which the lawyer is interested has arrived. The new information received overnight shows that a Circuit Court in California has decided a case on a point of law of significance to one of the attorney’s cases (Harrington 1987, 214-215).
While this scenario may sound far fetched, so too did some of the practices that we now take for granted. Harrington believes that the MC systems of today are just the tip of the iceberg. He suggests that more and more data will become available electronically and that greater integration will enable professions to cross over into areas not traditionally belonging to that person’s profession. If this does take place it would be significant for many professions, not the least of which would be planning.
Planning, unlike Law, Medicine, Business, Education, Engineering and other fields, has no computer communications products designed specifically for use by all members of the profession. There are no planning specific data bases, no file libraries geared to house planning material and no national forum or conferencing system for planners. It is safe then, to conclude that planners have been slow, compared to some occupations, to embrace the idea that computer communications technology may have something to offer the profession. This is unfortunate because in a profession that places so much value in participation and communication there is much benefit to be derived from learning, using, and molding new technologies like computer communications to the growing challenges faced by planners.

While there are no computer communications products specifically designed for planners, that does not mean that there are no products available that might be of some benefit to planners. Certainly, planners who work in areas of overlap with professions that are well supported by computer communications products will benefit from the connection. These areas might include transportation planning, development planning and various aspects of environmental planning. Some products which may be of interest to planners include Statistics Canada’s CANSIM database and (if you want US data) CENDATA. Many large information services, such as CompuServe and Dialog, also provide more detailed demographic information, such as CIS’s Neighbourhood Reports, which offers demographic data by zip code. Stats Canada offers a slightly less detailed package called "cross-tabulated..."
small area data by postal area", but as of yet, it is only available on diskette or magnetic
tape (A.Bell 1991).

5.2.1 ACCOMPLINE-NOMIS-LOGIN

Currently in North America there are few planning specific databases available,
although various planning components are scattered throughout the online world. In Great
Britain, however, they have several such data bases, two of which are known as
ACOMPLINE and URBALINE. They are two complementary online databases on all
aspects of urban issues and local government affairs. They are used by researchers,
academics, planners, businesses, and local and central government throughout the world to
keep track of developments in urban and regional planning and transportation, municipal
finance and administration, housing, social issues, industry and employment, public health
and environmental matters (Acompline 1989).

ACOMPLINE contains abstracts of books, reports, grey literature and journal
articles. It can help you to identify and assess reports on projects similar to your own, or
trace specific documents by their author, title or subject matter. As well, you can use
ACOMPLINE to carry out full literature searches on any subject relating to urban affairs
from the early 1970s to the present, as its database is updated monthly. Figure 5.1
illustrates the basics information flow of Acompline (Acompline 1989).

Updated daily, URBALINE provides brief abstracts of reports from newspapers,
press notices and periodicals. You can use it to search for press comment on a wide range
Figure 5.1

ACOMPLINE Information System

ACOMPLINE distributes:
* reports
* changes in legislation
* statistical data
* local gov. information

Towns

Villages

Cities
of subjects, and to produce briefing documents on short notice. URBALINE gives you short notice of newly published reports, often the day they are issued (ACOMPLINE 1989).

Another example of British online information is NOMIS, or National Online Manpower Information System. Although NOMIS is a national database, it specializes in providing statistical information for small areas within the U.K. It is maintained online permanently and can be accessed via PSS (the British equivalent of Datapac). The type of data involved would include figures on employment, job vacancies, and population totals and projections, along with migration numbers (O'Brien 1990).

LOGIN is an information service that serves U.S. cities, towns and counties. It acts as an information storehouse for municipal contacts, each member submits their experiences with selected topics such as finance, utilities and development including local contact names for each subject. The members can search for communities with experience with a particular system before installing one in their locale (Gordon & Anderson 1989).
5.2.2 The PEN Experience

Some communities are experimenting with new applications of existing technologies in an attempt to find appropriate uses for these tools. One such experiment is PEN, or the Public Electronic Network, which has been instituted in Santa Monica, California.

Born two years ago, PEN boasts some 4,000 users in a city of 88,000. While small as a percentage of the population, the number of people who have logged on, so dwarfs what the city government anticipated, that it has hired a part-time coordinator to educate residents about the system, which costs taxpayers some $100,000 a year to operate.

"Frankly, when we started up the system, we had no idea that this many people would participate," says Ken Phillips, Director of Information Systems for the city and "father" of PEN. "We actually thought that people would use it more for doing research."

In fact, PEN does offer a variety of research and conference bulletin boards with the bonus of an electronic mail system that allows residents to send private messages to each other. PENers, as they call themselves, can dial up from home using their own personal computers or from one of 35 public terminals set up throughout the city. Users have round-the-clock access to city information and departments as well as access to 250 menus of information, including recreation schedules, police notices, and fire and earthquake tips. The city's public library system catalog can be browsed through, and plans are in the works that would allow residents to check out books via PEN and have them mailed to their homes (Hanson 1992, 9).

These types of information services are also being tried in Kansas City, Cleveland, and in various counties in Florida but they do not have the same level of sophistication as PEN. Some communities are installing computer terminals in public places such as the post office and the library so that access can be universal and not just restricted to those with computers. This type of program is a good example of finding new and innovative methods to enhance existing services. A basic illustration of the PEN operation is provided in
There is certainly potential for a information system based at city hall for the public's use. If it employed online communications, optical storage devices and a user-friendly searching structure, the result would be a fast and effective method of obtaining pertinent information regarding virtually any matter dealing with local government. This form of communication with city hall may also, if properly managed, result in better service to the citizen, as it allows the citizen to pose his or her question whether or not the proper person is in the office, on the phone, in a meeting, or away for the afternoon. The question is answered at the next opportunity and the citizen can then retrieve the answer at his or her convenience, usually in the comfort of home.

Of course, the use of this technology assumes that the citizens of the community have some access to the technology required to take advantage of the new services. The number of people with access to computers is growing each day, and as the school system starts graduating students who have been educated with the help of computers, the level of participation will only increase. Until, however, the level of computer access reaches a higher level, communities will have to make arrangements to provide public access to any new service. Already many communities are encouraging the use of computers by their citizens by implementing programs that allow greater access to existing resources. This proactive approach to promoting the use of computers results in terminals and stand alone personal computers being placed in public areas, such as community centers and recreational facilities.
Figure 5.2
The Public Electronic Network (P.E.N.)

P.E.N. provides:
* E-mail
* Contact with officials
* Schedules
* Community information
5.2.3 The Corporate BBS

Some of the most important communications occur within the planner’s immediate group. For practising municipal planners this communication would be within the municipality planning department, and for private sector planners, within the firm. Obviously, much of the communicating at this local level is by way of informal communications, but for some of the larger municipalities and firms; it is more effective to use systems like e-mail. This is a real advantage if departments or offices are situated in more than one location.

UBC has a very effective e-mail system, a type of system which is effective because it is timely, but not time sensitive. With many different people on many different schedules this type of communication makes sense. The UBC system, like many communication networks, can also be accessed externally to provide communication links that transcend the campus boundaries. This makes it possible for literally anyone in the world, who has access to a phone line, to communicate with UBC.

The private sector also has a use for this type of technology. One example of this is the Jacques Whitford Engineering Group, the largest environmental/geotechnical engineering group in Atlantic Canada. With some 15 offices throughout Eastern Canada effective communications is a necessity. To supplement phone and fax services each office of the Group maintains a Bulletin Board System (BBS) to allow for transmission of computer files. This type of service is vital where you have several professionals working on the same proposal or project. One advantage of a BBS is, that unlike a fax transmission,
a file received through the BBS does not have to be retyped, a critical detail when a proposal deadline is fast approaching. A small diagram outlining the corporate BBS setup is shown in Figure 5.3 (Greg Synder 1990).
Figure 5.3
The Corporate BBS

Features
* e-mail
* file transfers
* bulletins

Fredericton
Moncton
Charlottetown
Saint John
Saint John's NFLD
Halifax
Bathurst
Another use of online communication technology is EPIX, a Bulletin Board System in Vancouver, B.C. that serves a very specialized community, those interested in Emergency\Diaster Planning. This type of use, ie. to serve the needs of a specialized segment of the population, is growing as the cost of the technology comes down and the systems become easier to set up and use. There are BBS systems that serve communities as diverse as the Green Party, Vietnam Vets In Canada and Gay Lifestyles.

SWICH is another BBS based system. Like EPIX, SWICH serves a specialized community. SWICH, which stands for Solid Waste Information Clearing House, is funded by the United States Department of the Environmental Protection and SWANA (Solid Waste Association of North America). SWICH offers a variety of services to users. New information on technologies, case studies, meeting\conference information and regulatory changes. Topic themes include recycling, source reduction, planning, public participation and legislation. Information available through SWICH is extensive, and is intended to provide assistance to government agencies, professional associations, industry, citizens groups and other interested parties on all aspects of solid waste. A small diagram showing the manner in which SWICH operates is shown in Figure 5.4 (SWICH 1991).
Figure 5.4

The Solid Waste Information Clearing House (SWICH)

SWICH provides:

* Information on upcoming conferences
* Resource library (available for downloading)
* An up-to-date listing of SWANA members
* Industry news and announcements

Users include:

Product Manufacturers  Municipalities
Regional Authorities  Eng. & Environmental Consultants
Provincial & State Environment Depts.
Although it is broadly true that there are no communications products specifically
designed for planners anywhere in North America, there is, in fact, one small oasis of
planning-related computer communications activity. This small pocket of electronic hope
was not originally designed to be a refuge for the electronic homeless planners, but is a
sub-section of the Lawyers service known as LAWSIG. A small section of the Lawyers
Interest Group on Compuserve, Section 10, as it is known, is the only online forum for
planners.

Section 10, Municipal Planning, has been in existence for almost five years but its
growth has been painfully slow. Just recently Sec.10 was granted additional file space, the
first real sign of growth on CompuServe. This slow growth has been frustrating for those
who have seen what a benefit online participation can be. Where else can you get a
response on a planning problem that is given not only by experienced planners but from
many different geographical locations? The question of why more planners were not signing
on for the service has become perplexing indeed for veterans of the forum. A sample of the
discussion on this issue can be found in Appendix C. An illustration of what choices a user
signing onto CIS can encounter is provided in Figure 5.5.

There are many examples of the benefits of this type of connection such as the
experience related earlier regarding a general question on Condo development. It should be
noted as well that while information is frequently given out, it is also sought. One example
of this is Wayne Senville’s Planning Commissioner’s Journal, a well-written publication
Figure 5.5

CompuServe: A User's Perspective

- Membership support services
- Investing and finance
- European services
- News, weather & sports
- Communications
- Hobbies
- Computer & software support
- Professional interests
- Electronic mall shopping
- Reference library
- Games
- Forums
- Travel services
targeted at volunteers who serve on planning boards or commissions. Mr. Senville, as editor, often uploads articles before publication for review by forum members.

As mentioned, the growth at CompuServe's Section 10 has been relatively slow. Recently, at the 1992 A.P.A. Conference in Washington, DC, members of Section 10 set up an information booth to demonstrate to planners the value of MC. As a result of this initiative, more members are signing on, including several of the A.P.A.'s executive and head office staff. This is a positive sign, for as more participants sign on the service becomes more interesting. As well, since the A.P.A. involvement has begun, they have added some interesting material to the forum library, a small sample of which can be seen in Appendix F.

Currently there is some discussion on the forum about the possibility of putting the A.P.A.'s Planning Advisory Reports online for better access. If this were to transpire it would give planners yet another reason to sign on. It may also be important in allowing many planners to seek funding from their employers, as many feel that the cost of this CIS service is keeping some planners away (Perry Norton 1992).
5.3 MC Use: Replacement or New Technology?

William Harrington in his book *Lawyer's Guide to Online Databases* writes that:

By discipline and tradition, lawyers are experts in finding and evaluating information. The most characteristic skill that distinguishes a lawyer is his ability to examine a large body of information and identify that which is relevant and operative, whether we are talking about a body of facts and evidence or a body of law materials. The law is an information-oriented profession, and lawyers are eclectic masters of information handling (Harrington 1987, 215).

Is this any less true of planners? It could be argued that planners, as professional generalists, have a greater need for information than many professionals. Harrington goes on to explain the driving thirst for knowledge:

Today’s lawyer who comes to the courtroom or the negotiating table with less information than another lawyer has accepted a disadvantage. In an adversary situation, or in any competitive situation, failure to take every advantage of information resources carries the seed of disaster (Harrington 1987, 216).

This is the same point that is emphasized by the earlier library example but it is offered again to reinforce the notion that information is an important part of the planning process and thus, should be an important matter to all planners.

The possibility of improved access to required information grows greater each month as new online services and products are brought into the online marketplace. In order to take advantage of this data some background in the use of MC is a prerequisite. If planners had even a basic understanding they would then be able to take advantage of the situation
should the opportunity present itself.

Planning students and professionals must not only learn how to operate computers and run prepackaged software. They must also be made aware of the assumptions and limitations of the models, methods and data they use; become familiar with alternatives approaches for dealing with information; and recognize the political implications of their professional practice (Klosterman 1992, 255).

This is as true for MC as it is for GIS operations or expert systems. If the profession of planning had remained as it is often envisioned by the public, as a group of bureaucrats stamping rezoning applications, then the topic of microcomputer communications would be of little consequence. However, as planners are fully aware, the profession is changing at a rapid pace. Planners are tackling both nontraditional tasks within regular planning positions as well as filling non-traditional roles in everything from administration to finance. While this is exciting and often hectic, these developments invariably demand that planners read more and obtain more information. Knowing all the possible data sources, including those online, goes along way in performing well as a professional regardless of the job title. In this demanding environment, as the information needs of the planner expand, the value of MC increases proportionately.

Now that the issue of information value has been examined, the fundamental question of whether MC would be a replacement or enhancement technology will be addressed. We will use electronic mail, participation in an online forum or special interest group, a database search and involvement in an online conference as our examples of MC technology at work. The primary question we will pose in each case is as follows: Does this activity merely replace an old manual function or is it a new function permitted by the
development of MC technology?

When reviewing electronic mail from the perspective of our primary question, we have to ask if this is a new function. The answer would have to be no, since one could accomplish more or less the same thing with a conference call. However, the time differences with the two activities have to be taken into account. With e-mail you do not have to coordinate participants to be together at the same time. This is a small point, but one that should not be overlooked as it appears that the trend towards globalization is a growing one. What this trend means in real terms is that you may have to deal with several people in several time zones, and nothing does that better than e-mail. Although you might get almost the same results with conventional means, this MC service has important advantages that should not be overlooked.

Our second example is involvement in an online special interest group. Online interest groups have many titles, such as Forums, Sigs and Lounges, which all describe a similar service relating to various themes or focus subjects. This is similar in many respects to attending a conference on a selected topic, except, obviously one doesn’t have to leave home. In this respect this is a new service and not just a replacement for an old function.

If users were to join one of the major information services they would have access not only to the discussions ongoing in the forum, but also to the forum’s file library which most forums have to support their activities. These libraries often contain useful utilities, old but significant message threads, related public domain or shareware programs and perhaps even indices from some of the industry/profession journals.

The next example involves the user conducting an online search. Online searching
refers to the use of computers to access and search, via phone lines, a distant database of information. This process is a good example of one that replaces an older manual function. The objective is the same as when a user would have to venture to a public library and spend hours pouring over a card catalogue and wandering through books stacks. The ability to search online, however, which has now been extended to many university libraries, offers several advantages to this traditional process. These were outlined in some detail in Chapter 4, but they are summarized below:

A) On databases which are regularly updated, one benefit of use is that the user is assured that all the latest data has been searched. This feature is of particular interest in professions like medicine and business.

B) Another advantage often cited by online searchers is speed. They have faster access to information which can make a real difference in a competitive environment.

C) While access to recent data and greater speed are important advantages, they are secondary to the greatest advantage of online searching, comprehensiveness! A researcher can perform searches in which hundreds of journals and thousands of articles are investigated in only a few minutes.

The final example of typical online activity is participation in an online conference. This online exercise involves signing on to a service at a particular time and joining in a real time discussion on a specific subject or event. Real time means that users are seeing messages as they are typed in and not later, as is the case with electronic mail.
For examples of available conferences the following is a selected time period during Feb-May 1992. The chart represents a small sampling of online events which occurred on Monday evenings at 10:00 p.m.:

TABLE 5.1

Selected Online Events

<table>
<thead>
<tr>
<th>Online Service</th>
<th>Online Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>America Online</td>
<td>PC Applications Conf.</td>
</tr>
<tr>
<td>Byte Information Exchange (BIX)</td>
<td>IBM Conf.</td>
</tr>
<tr>
<td></td>
<td>Science &amp; the Paranormal</td>
</tr>
<tr>
<td>CompuServe</td>
<td>Broadcast Professionals Forum</td>
</tr>
<tr>
<td></td>
<td>Collectibles (coin) Forum</td>
</tr>
<tr>
<td>Delphi</td>
<td>Midrange Systems Conf.</td>
</tr>
<tr>
<td>Genie</td>
<td>Desk Top Publishing (Amiga)</td>
</tr>
</tbody>
</table>

After reviewing the exercises we used as samples, it is evident that, while MC services can replace more traditional processes, they usually serve to enhance or extend service.

After numerous online discussions with users of several MC services it has become apparent that very few individuals rely totally on microcomputer communications services. The usual relationship has the MC products supplementing more traditional research techniques. That being the case, however, many users expect to use MC more in the future. The rationale for the anticipated increase in future use is based on several points:
1.) Certain improvements in the underlying information infrastructure will make activities like online searching more appealing and productive for users. Specific items that are being improved include better phone lines, faster access (i.e. from 1200 baud or 2400 baud to 9600 baud or even 14,400 baud), lower costs for communications hardware (modems) and a more user-friendly look and feel to many of the databases.

2.) While there are more databases and services coming online each month, there are also improvements to existing services as they strive to keep and improve their market share. A recent example of this is a move by several MC services (CompuServe & GEnie) to lower their pricing structure to allow less expensive access to some base services.

3.) The growing number of personal computer users will create a mounting pressure on those providing both service and product to the marketplace to standardize their work.

After investigating this subject it became apparent that it was not feasible to assess the value of MC use because it was dependent on many different variables. Therefore, instead, a personal experience will be related that is indicative of many stories of using the "online advantage. This example of the benefits of MC connection concerns a general question regarding condominium development. In 1989 a junior planner working for an Ontario firm interested in developing a section of the New Brunswick coastline was asked to research similar developments along the New England coast. Not knowing quite where to turn, the young planner left a short inquiry on CompuServe's LawSig Sec.10 : Municipal Planning and received several replies. The replies were so specific that the planner had only to make two calls to arrange meetings with three of the top developers in New England. The senior partners left the next week for talks with the developers and a new project was born. The cost of the message on CompuServe was about 40 cents. The savings in legwork,
In order to be a successful in any occupation one needs the basic tools to do the job. While there are many tools that a planner requires, few are of more importance than accurate and up-to-date information. The next question which naturally flows from this statement is: What kind of information do planners require? Moreover, how is that data obtained, organized and presented? This section deals with the different types of information needed by planners, with subsequent sections addressing the questions of data acquisition, organization, and communication.

While there is a great deal written about specific methods of information collection, survey, and analysis, there is a surprisingly limited amount of literature that deals with the topic of planning information in a general sense. One publication that directly addresses this concern is Hemalata C. Dandekar’s *The Planner’s Use of Information*. Dandekar adopts a three-part approach to the use of information by planning professionals. Information collection, organization and communication are the components described in this information process (Dandekar 1989). While planning information requirements are often project specific, this general approach is helpful, as it provides a valuable framework for the study of planning information.

This need for information is a by-product of an organized approach to defining the problem and the method of inquiry to be pursued. These first steps of putting the assignment in context, while important, are not the focus of this paper. It is valuable however to remember that, in ideal circumstances, the need for information arises from a
logical and well-defined process. The first component of this information trilogy is the process of information collection. Once it has been determined that specific data is required, the next hurdle to be faced is that of information acquisition. Where does the planner acquire the information that is needed? Obviously, planning data comes from numerous sources. Traditional sources of information for planning reports include those shown in Table 5.2.
TABLE 5.2

Information Sources

| Surveys or polls                             |
| Censuses or demographic data                |
| Previous planning reports                   |
| Reports from other departments              |
| Business studies and reports                |
| Material from professional journals and research services (i.e. ICURR, CIP, APA) |
| Research material on the subject from general sources |
| Data from other government agencies         |
| Material from interest groups               |
| Concerns from public sessions               |
| Letters, reports and other materials from the public |
| Consultants reports                         |
| Observations, informal public interview and site inspections |
| Opinions from experts                       |
| Opinions from other planning staff          |
| Data from similar situations elsewhere      |

The list contained in Table 5.2 is not designed to be an exhaustive review of information sources. It is merely a collection of possible sources based upon personal experience and common sense. While far from comprehensive, it is indicative of the types of information sources utilized by planners. Once it is known what types of information sources are required, the next question is: How are they accessed?

Information acquisition simply deals with where one gets the information and how. Some sample information sources have been identified in Table 5.3. These are the places
where certain pieces of information would likely be acquired, and the method typically
employed by planners in acquiring the data for use in day-to-day planning operations. As
well, suggestions are made in Table 5.3 as to possible MC alternatives to tradition means of
acquisition.
# TABLE 5.3

Microcomputer Communication Alternatives

<table>
<thead>
<tr>
<th>INFORMATION SOURCES FOR PLANNERS</th>
<th>MEANS OF ACQUISITION</th>
<th>MC ALTERNATIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Survey or polls</td>
<td>Contact firm responsible or visit library</td>
<td>Access online database</td>
</tr>
<tr>
<td>Censuses or demographic data</td>
<td>May be on file or contact agency</td>
<td>Access online database (CANSIM)</td>
</tr>
<tr>
<td>Previous planning reports</td>
<td>On file</td>
<td>These may be available on disk</td>
</tr>
<tr>
<td>Reports from other departments</td>
<td>A memo or a phone call</td>
<td>May be available from an in house BBS similar to the situation described in the corporate example</td>
</tr>
<tr>
<td>Business studies and reports</td>
<td>A trip to the Chamber of Commerce</td>
<td>Could be downloaded from an information service or from the Chamber of Commerce itself</td>
</tr>
<tr>
<td>Material from professional journals and research services (ie. ICURR, CIP, APA)</td>
<td>A subscription or annual fee plus a fee for the materials requested</td>
<td>This type of material is ideally suited for a BBS system such as McTrans</td>
</tr>
<tr>
<td>Research material on the subject from general sources</td>
<td>A literature review can usually be done at a good library</td>
<td>Several online sources may be helpful, the online service of your local library is a good start. Several information services offer general databases and some will even start a clipping file for ongoing projects</td>
</tr>
<tr>
<td>Data from other government agencies</td>
<td>Written or phone request</td>
<td>Some government services are now online, check your area for details</td>
</tr>
<tr>
<td>Material from interest groups</td>
<td>Minutes or transcripts of public sessions</td>
<td>Many interest groups now operate BBSs systems or have other electronic links. Services like the WEB provide access to groups - see Appendix E</td>
</tr>
<tr>
<td>Concerns from public sessions</td>
<td>Can be found in files</td>
<td>Minutes or transcripts of public sessions along with citizen comments could be made available from a system like P.B.N. in California</td>
</tr>
<tr>
<td>Letters and other materials from the public</td>
<td>Tender call, old reports may be on file</td>
<td>Could be broadcast via e-mail to departments concerned</td>
</tr>
<tr>
<td>Consultants reports</td>
<td>Site visits, phone calls and interviews</td>
<td>When any report is delivered the electronic version could be added to a data library which could be made available to any number of users</td>
</tr>
<tr>
<td>Observations, informal public interviews and site inspections</td>
<td>Calls, letters or meetings</td>
<td>It is hard to beat site visits, phone calls and interviews</td>
</tr>
<tr>
<td>Opinions from experts</td>
<td>Staff meetings</td>
<td>Often e-mail can be an effective means of communicating</td>
</tr>
<tr>
<td>Opinions : planning staff</td>
<td>Letters or phone requests</td>
<td>For organizations with more than one office e-mail may be an option</td>
</tr>
<tr>
<td>Data from similar situations elsewhere</td>
<td>letters or phone requests</td>
<td>Use of a forum, such as CIS’s SEC.10 is very helpful</td>
</tr>
</tbody>
</table>
These are only some of the information needs a planner might have, and the more traditional means a planner might employ to acquire the appropriate knowledge for a given project. What should become apparent in looking at Table 5.3 is that almost all the methods of securing the proper information and material consume significant amounts of the planner’s time and effort. This is time not spent on any planning analysis or any other planning related task, but simply time expended on the acquisition of information. Table 5.3 offers some options for information acquisition. Although these may not always be available this exercise does however, illustrate how these technologies could be used if they were developed. After the information needs, sources and methods of acquiring the data are examined. The next area of concern would be the question of how the data should be organized and presented to its audience.

Once the proper data has been acquired the task is then to assemble it in a form that can used for analysis and eventually communication. It is difficult to describe information analysis in a general sense, but usually the objective is to draw some conclusions based on the information collected. The types of activities common to this phase of the information process would include population projections, economic analysis or even forecasting traffic volumes.

The organization methods employed are often dependent on the data collected. For some situations the facts collected by the planners involved, through means such as public meetings or observation, may be simply recorded in the project file and included in the text of the project report. In other cases, such as transportation planning, the planner may take data collected and input it directly into a spreadsheet-based model that is specifically
designed for the purpose. The end result is then communicated or used to influence other decisions.

Information organization has changed dramatically over the past 10 years. Besides the obvious benefits of word processing and spreadsheets, there are many other technologies impacting on planning today. Two such examples which are important today, and threaten to be even more so in the future, are Computer Aided Design (CAD) and database management systems. CAD has the potential to do to the field of design what spread sheets and computerized accounting packages have done for the business community. This is not only an invaluable tool for those in the design field, but also for other professionals, including planners, who may be affected by such developments. It is possible, through the use of these systems, to see what a proposed development would look like on the site before a blade of grass is touched. These systems also enable the designers to answer those "what if " questions with a reasonably high degree of accuracy.

Database management is not brand new, but the increased usage of these type of systems for planning related work is relatively young. Tasks might include questionnaire survey work, property management, and downtown parking systems. Often this type of system not only offers information organization for a single purpose, such as a parking study, but also allows the district or municipality to maintain a community parking inventory. This is added to or subtracted from with each development or demolition thus providing the planners or other professions with the up-to-date parking capacity at any given time.

There are also other related technologies, such as the geo-based information systems (GIS), which incorporate aspects of the two technologies mentioned above and allow complex
material to be organized in a very "user friendly" form. This type of computer application, which has been very effective in such resource based applications as forestry management, is developing as a planning tool. It is especially valuable in situations where there is a need for constraint mapping, such as locational analysis.

The field of information communication has also undergone change in the recent past. While many planning thoughts are still conveyed through a everyday, ordinary, run of the mill planning report, there are some exceptions. Some planning departments are getting creative, and communication links from the planning department may now include a magazine style publication produced in house, using the latest desktop publishing capabilities. Even the 'everyday' reports are starting to be spiced up with advances in graphic production and laser printing.
5.4 MC & Social/Political Action

One area of recent interest is that of social or political action employing microcomputer communications as a tool to further a group’s cause or objectives. In attempting to illustrate the possible effectiveness of MC in this regard, several examples will be examined. Two of the more effective applications will show how students employing this technology have advanced their particular struggle. Indeed, the true potential of this form of communication may not be discovered until those students rise into senior positions in the private and public sectors. Unfortunately this will mean that we are not likely to see any significant changes until the year 2000.

There are several excellent examples of this type of action. One particular example was the use of the French Minitel Network to assist in organizing students during the protest of the French government’s policy on higher education. By using e-mail and exchanging documents such as press releases and media strategies, the students were able to effectively coordinate their activities and apply significant pressure on the government. The student leaders, speaking after the events, attributed much of the credit for their effectiveness to the ability to coordinate, via electronic means, various protest events (PBS 1992).

Another example of what can done using this form of communication was the use of computer communications by Chinese students in North America during the recent pro-democracy movement in China. While a key element in the electronic infrastructure supporting the Chinese students abroad was put in place in November 1987, its true value was not fully realized until the government massacre of students at Tiananmen Square. That
element, a news group called the Social Culture China (SCC) was set up on USENET, a unix based network with ties around the globe. More importantly for students, most major universities are either on USENET or can be linked to the system. Since the SCC was set up it has become one of the most active news groups on USENET with students from North America, Europe and Asia participating. In addition to SCC, the Chinese students were also experienced in exchanging e-mail (Quarterman 1990, Li 1990).

During and directly after the Tiananmen Square tragedy, the students used both SCC and e-mail to inform, educate and organize.

The best example illustrating computer network organized activities was the national demonstration in Washington, D.C. against the Chinese communist dictatorship. It was held on China’s National Day, October 1, 1989, and attended by about 4000 Chinese students from all over the United States. IFCSS [Independent Federation of the Chinese Students and Scholars] headquarters first posted a proposal for holding such a demonstration on the SCC news group together with electronic mail addresses of the host schools that were located in the Washington, D.C. area. Then the coordinators of each school sent to the host schools information about the number of rally participants and the arrival schedule, so that they could arrange lodging for the rally participants (Li 1990, 128).

Another example of online effectiveness occurred when the government of China tried to send an official delegation from China to tell students the "real truth" about events in China. Following their first meeting, a transcript of the event as well as a strategy of how to deal with the officials was sent to the SCC news group users. In the next set of meetings the students were prepared with video records of the Tiananmen Square Massacre and specific questions about details of the event. The official delegation was embarrassed and promptly cancelled the remainder of their trip and returned to China (Li 1990).

This group, Chinese students using online services, have continued to employ
computer networks and electronic mail to their advantage. In 1989 they were instrumental in lobbying to have the US Congress pass a bill offering safe haven for Chinese students.

While students are often effective users of this technology, others have also adopted it to assist them in their efforts. One interesting use of microcomputer communications can be seen at WEB. WEB, a division of Nirv Community Resource Centre, is a non-profit Toronto-based communications network. Best described as a "grass roots" bulletin board system, WEB is a large system that offers computer conferences (over 750), e-mail exchanges and transfers as well as file transfers, and contact databases. Their list of subscribers is also an interesting assortment, including environmental groups such as Greenpeace, Pollution Probe and the Sierra Club. While you might expect to see many of these volunteer groups, you perhaps would not expect to see Canada Mortgage and Housing Corporation, the Canadian Department of External Affairs and the Library of Parliament along with them; but they are all participants.

WEB provides a listing of some of their groups, and the recent edition encompasses some 300+ Canadian groups, broadly divided into six categories: Environment, International Development & Social Justice, Education, Social Development, Peace and Media. This listing is provided in Appendix E and illustrates the wide variety of organizations that have begun to use online services to complement their other information gathering and management tools (Maureen James 1992).

Yet another social implication of MC use is the impact on those who are disabled. The technology of microcomputer communications is a great equalizer; it does not offer the same constraints as many other day to day tasks. In fact, there are even quadraplegics using
MC by way of headsets and laser-activated key pads. Another group of individuals who are sometimes shut out of so called "normal" activity are senior citizens. But this again is another group that has recently become active through the use of MC technology. One of the main avenues for their organized online activity is called Senior-Net, a BBS based communications network that serves their needs (PBS 1992).

Another social, and perhaps political, activity made possible by the advent of MC technology is telecommuting, and the resulting home office. A loose definition of telecommuting is "the use of technology to access, from home or remote work station, a central office location". This was once a prediction envisioned by futurists like Alvin Toffler in Future Shock and John Naisbitt in Megatrends but, unlike some of their forecasts, this is really happening. The scale of the trend is difficult to measure because everyone seems to have their own definition of telecommuting, but everyone agrees on one fact; the trend is growing. IBM and the New York based AT&T are among the most visible corporations studying telecommuting. Since October 1989, about 160 management level employees in Los Angeles have been participating in a telecommuting trial. When assessing the trial, Kathie Fink, an executive from AT&T, stated that "we've gained a few, lost a few, but it is obviously working" (Husted 1990).

Obviously, some jobs are better suited to the work from home option than others. Jobs that work primarily with information, such as computer programmers, business analysts, consultants and some executives are particularly well suited for telecommuting. While the focus in the past has been on the technology used by telecommuters, the new focus appears to be on social and environmental impacts. In an address to the California Chamber of
Commerce, U.S. President George Bush endorsed the concept of telecommuting by saying "that if only five percent of L.A. County commuters telecommuted one day each week, they would keep 47,000 tons of pollutants from entering the atmosphere. Thus, telecommuting means saving energy, improving the environment and enhancing our quality of life" (Sullivan 1990).

Currently there are an estimated two million telecommuters active in North America but the potential for growth is much greater. This issue should be of interest to planners as there are many implications for the urban landscape. The first obvious advantage would be less congested highways and parking facilities. Another advantage is the time gained from not having to commute, for even a 20 minute round-trip commute amounts to two stressful 40 hour weeks on the road per year (Husted 1990). The downside involves issues like home offices, which are banned under many zoning bylaws, unless you are a doctor, dentist or some other traditional neighbourhood practitioner. This type of issue is not unresolvable, but it helps if planners are knowledgeable about the technology that is encouraging this trend.
5.5 A Role For Microcomputer Communications In Planning?

Certainly, as we have seen in this paper, there are three primary roles where microcomputer communications have been and are being employed. The roles of online libraries or data storehouses, e-mail delivery centers or electronic town halls are not always clearly defined. This section will examine the three existing roles and how they may be used to enhance or improve communication links.

5.5.1 Data Server

It is the ability to provide data in a timely and efficient matter that appears to be the largest single demand for MC in a planning context. This point is understandable given the advances in storage and communication technology, which makes it easier, less expensive and more reliable to go online (Klosterman 1990).

The ACOMPLINE, URBALINE, LOGIN and NOMIS systems all are essentially online databases which serve specialized needs. The further development of this form of systems will undoubtedly occur as these systems become more affordable. Another example of this form of technology is the online service offered by both the Canadian and U.S. census bureaus. The Canadian service, called CANSIM, is available not only online but also on diskette and CD-ROM.

Many additional databases that can be accessed online as suggested by the samples of database displayed in Appendix B. Most online databases tend to be either bibliographic, full
text or numeric\graphic with the costs varying greatly some demanding up to $200 per hour
of connect time. Often it is easier to connect to databases if the user employs a gateway,
such as I-Net 2000, or even going through one of the Information Services in the U.S. such
as CompuServe. Later, in Chapter Six we will examine some possible initiatives that may
assist in bringing planners closer to MC.

5.5.2  A Communications Mechanism

While many planners may be familiar with the concept of accessing databanks via
computer\phone connections, few will have experienced what ultimately could evolve into the
most valuable MC service of all. The service referred to involves electronic communication
between planners. Currently, the only public electronic meeting place in North America for
planner is on CompuServe and therefore the distinctions given are based on that service,
although they hold true as well for other information services, such as GEnie, Prodigy,
DELPHI and Dialog. This electronic version of peer-to-peer communication usually takes
three basic forms:

1. E-mail  Or electronic mail, can be a one-to-one communication
or a one-to-many communication. Since no electronic
communication system is secure, the messages are not
secure, but they are relatively private.

2. Forum mail  The distinction between e-mail and forum mail is small but significant.
If planner A posts a message for planner B via e-mail no other planner
will see the mail. If planner A posts a message to planner B via the
forum it becomes public viewing, and all who sign on may view the
mail. This is often where the most interesting conversations take place,
as one never knows who will sign on.
3. Conferencing

The online conference, as the name suggests, could be compared to a conference telephone call. These events usually occur at set times with set topics and often involve people with a wide variety of experience from literally anywhere in the world. There have not been a large number of planning e-conferences, but the potential exists.

It may be difficult for non-users to see the benefit of using any of the MC products or services, as one may have difficulty seeing the benefits until they actually sign on and experience them. There are signs that progress is being made in bringing more people online. Beyond the numbers that were presented on the growth of the online industry in the preceding chapters, there are small indicators that point to greater use of the technology.

One example is the distribution of e-mail addresses. Some people now have their e-mail address on their business card while other e-mail addresses are appearing at the end of articles allowing a reader to send a message to the author. Still other e-mail addresses are appearing on conference registration lists and even, in some cases, at the front of magazines beside the address and fax number of the publisher.

5.5.3 The Electronic Town Hall

The electronic town hall, already discussed in Chapter 5, represents yet another form of MC. The cost of implementing a PEN-like system however almost guarantees that very few will ever be implemented. The real community movement using electronics will likely involve citizens using existing facilities like schools and community centres to access low-tech, low-cost BBS-type systems to organize for or against a particular issue. This type of
happened in France and also around the world during the recent democracy movement in China. Unless costs drop dramatically or new technology is developed to allow individuals to use their television sets to communicate, we will not see many PENs.
The final chapter will provide a research summary, a review of the paper's findings and a discussion on possible future research.

6.1 Research Summary

A review of literature in the mainstream planning journals turned up no articles or information on microcomputer communications. The most valuable information from these traditional sources of planning literature were the published surveys of computer use. Of particular value was the 1989 study illustrating California planning agencies by French and Wiggins, which included telecommunications as an application.

Many of the characteristics described by Klosterman (1992), Harris (1989), French & Wiggins (1989) and others are as true for MC as they are for Geographic Information Systems (GIS), transportation models and expert systems. While this information was useful it was not hard-core MC information; this type of material is just not currently available from these sources.

The literature search was conducted through online systems at the University of British Columbia, the University of New Brunswick and the NOVANET Online Public Catalogue. The main obstacle to research was the age of the material found on the subject— for the most part it is badly dated. Even some of the more recent planning books, such as the 1988 2nd edition of Hemalata Dandekar’s The Planner’s Use Of Information and
Richard Brail’s *Computers in Planning* (1987), only deal with the field of microcomputer communication in a secondary or superficial manner. Often remarks would point out that this was a promising area for the future. The following excerpt from Brail is typical of many attempts to address MC in the planning context.

One of the increasingly important developments in microcomputer utilization is the use of telecommunications. There are a number of areas in which communications over telephones to other systems will become more and more convenient and necessary (Brail 1987,33).

Brail goes on to identify three possible MC functions, which is useful, but amounts to only two pages in a 300 page book. As with the related journals, the fact that the topic was not fully covered was significant in showing that very little research has been done on this particular subject, despite its recent growth and apparent usefulness in other professions.

The one exception found was Gordon and Anderson’s 1989 book *Microcomputer Applications In City Planning and Management*, where discussions of MC comprise a quarter of the entire book. The discussion, although rudimentary and focused primarily on the technical aspects of communications, does highlight some of the value to planners of the technology’s use. Faced with little significant data from the traditional planning sources, the research for the paper moved into other areas. Magazines such as PC World, PC Magazine and BYTE were of some value, but the richest research source for information directly pertaining to MC use came from unconventional sources. For example, significant hands-on experience was gleaned from a three month experiment as a board SYSOP, where
a public domain bulletin board was set up and operated. This type of involvement opened other opportunities to experience first hand what the online community had to offer users.

Another online experience, which is ongoing, is participation in Section 10 of CompuServe's LAWSIG titled Municipal Planning. This association has provided excellent information on the state of microcomputer communication in planning and allows for dialogue with some of the more technically-advanced planning practitioners. An example of this group's work was a booth recently set up at the American Planning Convention in Washington held in May of 1992. The booth demonstrated to attending planners the advantages of participating in online activities with hopes of attracting more planners to the use of communications software and planning-related forums. This experiment is starting to pay dividends as A.P.A. executives and staff are now online with CIS along with selected material such as indexed subject summaries from PLANNING magazine. Samples of material downloaded from Sec.10 are found in Appendix F, including summaries for PLANNING's 1991 editions. A.P.A. is also looking at providing its Planning Advisory Service for online access-a service for planners that may make MC a viable venture (Perry Norton 1992).

Had there been enough traditional material to support the research for this thesis, the hands-on experimentation would probably never have been done. But, given the fact that additional information sources were required, the direct involvement with the technology appeared to be the best alternative. A beneficial by-product of direct involvement was obtaining the view from both the user's and the information provider's perspectives.
6.2 Review of Findings

6.2.1 The Growth of Computers In Planning & the Emergence of the MC Industry

The municipal survey figures presented in chapter 2 describe the increase in the use of computers in general, and microcomputers in particular, as well as online services and databases. Despite this growth in the MC area, however, there are few planners using the technology. Several studies pointed out that the basic functions of word processing, database management and spreadsheet use comprise most planners' computer experience.

The microcomputer communications industry has come a long way in a short time. Following the original rags-to-riches story of microcomputer development, the MC industry is now doing some nine billion dollars worth of business each year. This has not been without some losses, the Source and the B.C. based SUZY being two of the larger casualties. Despite these setbacks, however, the industry as a whole has prospered and is expected by industry analysts to continue to grow over the next five years with no downside in sight. What this means for planners is that more members of the community are using these services and incorporating them into their everyday routines (McCabe 1992).

One can only conclude that the microcomputer communications industry will continue to expand and realize its promise to provide easy access to an increasing volume of information on a wide range of subject matter. This expanding information service will also greatly benefit from the increased use of high quality fibre optic transmission lines and rising reliable baud rates.
6.2.2 Requirements and Costs of MC Use

In Chapter 3 the issues of required equipment and their related expenses were covered in some detail. As with most questions regarding cost, the final price can vary greatly and is dependent upon the level and amount of MC products used.

The extent to which planners participate in or use MC services is largely controlled by the individual user. So, if the user does not find the service or product useful, he or she can discontinue use. However, it would appear from the rapid growth of the commercial industry and similar dramatic growth in the largely non-profit BBS portion of the MC field, that many people find the experience rewarding.

6.2.3 MC Products & Services

As was stated in Chapter 4, there are relatively few planning specific products or services currently available in the online world, although planners can find valuable data using their modems. There is a growing number of opportunities for knowledgeable planners to find information which might assist them in their practice.

Online discussions with planners revealed several reasons for using MC services. Wayne Oldroyd, a consultant from the US, cited national newspaper scanning for planning articles, participation in a forum for planners, access to databases for demographic information and data exchange with colleagues who are working together on a single project as reasons for using MC products and services. The complete forwarded message is
available in Appendix C. Wayne Oldroyd obviously does not represent the average planner. But what makes Oldroyd and other online planners different is not only what they use, but what they don’t use (Oldroyd 1990).

6.2.4 Professional Use of MC

As demonstrated in chapter 5, several professions have adopted MC and integrated it into their day-to-day functions. While it is true that several of the professions highlighted have information needs particularly well suited to MC, others such as teachers and business people have widely varying data needs and were found to benefit from MC.

Another integral question explored in chapter 5 was whether the MC service used by professionals merely replaces or substitutes for a traditional function, or whether these are new services that have little or no impact on the more traditional information infrastructure. Tiger Li’s article on the experience of the Chinese students using MC was perhaps the only academic source for an answer to this question. In the Chinese students’ situation, the use of a computer system to communicate has developed to such an extent that, of 272 Chinese students overseas surveyed from May 25 to June 5, 1990, some 61.8% of them listed the e-mail news package China News Daily as their major source of information for daily news. Therefore, in this particular case, it would appear that CMC has replaced more traditional means of information distribution, such as newspapers or radio (Li 1990).

During online conversations on the relationship between MC and traditional information sources several lawyers and computer professionals suggested that it would
amount to complete replacement. But, the majority indicated that they viewed MC as an augmentation to existing services. So, in effect, what the majority of users indicated was that, for them, the use of MC is a new service which may or may not replace some of the more traditional information sources such as journals and library visits. The manner in which many answered this question indicates that many of those with online experience perceive MC services as just another tool in the toolbox and not as some super instrument which will do every job every time.

6.2.5 Existing MC Use By Planners

It is not difficult to briefly summarize the findings regarding the existing MC use by planners because it is still very sparse. The English examples, Acompline, Urbaline & NOMIS, seem to be the most organized MC support within the profession. The LOGIN system, although serving a different function, also has some interesting implications. There will likely be more interesting firsts from the PEN experiment in California and the continuing work by a few MC believers centered in Sec 10 of the CIS LAWSIG promises to grow.

No doubt the lack of specialized information planners referred to by French & Wiggins (1989) and the dire monetary conditions for those who hope to develop planning software, alluded to by Klosterman (1992), have held back MC use in planning. Another reason, however, appears to be the general indifference shown by experienced planners towards many emerging computer applications. To change this attitude and to further the
technical knowledge of the profession, a concerted effort will have to be made to illustrate the potential of the technology.
Summary of Conclusions

This thesis sought to answer some basic questions regarding the use of microcomputer communications and its potential benefit, if any, for the planning profession. The paper's findings indicate that while the MC industry is currently experiencing strong and steady growth, planners' use of MC is quite insubstantial.

Ignoring, for the moment, practical considerations like the level of market demand required for creation of planning-related MC products, and agency budgets for online services and training in online techniques, it is possible to use analogies with some other professions to support speculation about how MC might improve planning.

The dominant MC product for professional educators is ERIC (Educational Resources Information Centre). However, MC participation by educators is not limited to this online service. Numerous BBS's are springing up with education as their main focus. In addition to ERIC and private BBS's, some school districts are now operating their own MC operations. This is an important transition as it illustrates how members of the education profession have recognized the value of MC and have implemented it in their particular region to share information and other resources.

There are several national and international MC products for lawyers to select from, as seen in section 5.1.4. While these products are significant, one of the most meaningful developments in law specific MC products is the establishment of smaller regional systems such as B.C. ONLINE. After reviewing the experience of the professions profiled it would appear that MC technology has been trickling down. Almost all online users start their
online activity on either BBS's or some form of in-house MC system but often the first MC use for professional purposes is a national or international service. Judging from the recent development of smaller systems, it appears that some professionals, who may have become comfortable with the technology on a national or international level, are beginning to recognize opportunities for using MC technology on a smaller scale and are supporting initiatives on a regional or local level.

Drawing from the experiences of the professions profiled it is apparent that MC serves two primary functions. One is communications, through professional forums and SIGs offered by commercial services, E-mail, and through the many professionally oriented BBS's. The value of communications is hard to measure in quantitative terms. It may be of more value to those professionals who are not able to interact with colleagues on a regular basis. Communications services would no doubt assist many planning organizations and contribute positively to the promotion of the profession as a whole. Communication functions could be established in a national information service or at a smaller regional system.

A second primary function that MC serves is access to data. This may be the more important in the long term due to growing recognition of the rising value of information in the planning process. In education, civil engineering, law and medicine there is a significant amount of knowledge from these professions available online. Civil Engineering, for example, has the McTrans software distribution service as well as several civic engineering databases such as COMPENDEX PLUS which holds over 2.2 million journal articles (Online Access 1991). Currently, outside the limited confines of CIS's Sec.10 library, no
planning-specific information is available to the greater planning community. Planners are frequently being accused of trying to re-invent the wheel each time a project is undertaken. Often it is not a question of trying to do everything from scratch but a true lack of information on what has been accomplished to date which causes the re-invention process to begin. Consider that much of the planning information currently being used is available in machine readable form, due to the fact that sooner or later it goes through either a word processor, spreadsheet program or other similar operation. Now consider the possibility of having zoning bylaws gathered from across the entire country available at a moment's notice, access to all the Park (national, provincial-state, city) studies done in North America in the last 10 years and the ability to download all the feasibility studies done for civic centres for cities of 100,000 or more. All of these information combinations could be made available via a planning information service. Advantages of such a service include accessing hard to get current data for quickly evolving topics such as environmental planning, the ability to search millions of pieces of existing data in minutes and the ability to access services literally from anywhere.

An online planning information system could be meshed with existing resources for planners such as Plan Canada and the A.P.A. Journal. Back issues could be available online, recent additions to the online system could be included in the printed journal and items like the Planning Advisory Reports could be provided in an online format. Conference reports, transcripts of zoning rulings and any other important planning material could be available online for planners to download. Planners could have equality of access regardless of whether they lived in New York City or Yellowknife. A national or even
international data library on planning issues could house millions of pieces of data that could be effectively searched in minutes. This is what professions like medicine now enjoy, and it would surely benefit planning as well.

To effectively use MC services and products, a planner must be knowledgeable about which services are available (this is a daunting task, as the online landscape changes frequently) and which of the available services make sense for a particular need. There are many occasions where a printed copy is better than an online copy and where it does make sense to go in person or where a library visit is a must. The key, however, is that to effectively make that judgment, one must be knowledgeable about all the choices.

Should the online industry continue to expand and proceed to attract users at current rates, planners will have little choice but to educate themselves. At that time, not only will they have to concern themselves with fundamental technical considerations but also the greater issue of the impact of the technology's use by their citizens.

If there is a single primary conclusion to be drawn from this paper, it is that planners need to know about MC in order to make informed decisions about its use. Planners who simply brush it off as a fad or a hobby may be depriving their clients of one of the more effective information mechanisms currently available.
6.4 Microcomputer Communications & Planning: Future Research

As previously mentioned, microcomputer communication and its potential role with the profession of planning is a subject that deserves more study. The basic queries in Chapter 1, which framed the discussion, have been answered but not resolved. This paper has identified several potential areas worthy of research, but the topics of online databases for planners and the electronic town hall seem especially promising.

As demonstrated in Chapter 2 there have been increases in both the number and use of online databases. Klosterman (1992), Gordon & Anderson (1989), Brail (1987) and others have all referred to potential online database use by planners but, to date, no one has thoroughly investigated which database products might be useful to planners.

Another topic which has many research possibilities is the electronic town hall. This innovative development mixes the themes of online technology, public participation and local government into a new form of electronic democracy.
6.5 A Bridging Initiative

Although the potential for MC technology is clear, there are several methods through which this potential could be realized. Planners could be left to discover for themselves if they can successfully employ MC in their practice, or some bridging initiative could be offered as a stepping stone to MC use.

Given the rather modest sums involved in setting up a bulletin board system, the consideration of a regional or even national pilot project to serve as an introduction to MC technology would seem a logical next step. For example, a planning BBS could be set up in Vancouver to serve members of the planning community. The cost, if existing equipment is used, would be minimal while the effort would foster communication within the profession. Such a venture could serve as a focal point and function as a resource center supplying e-mail, notices on upcoming courses/conferences and perhaps even a storehouse for electronic versions of planning documents.

Based on what other professionals have done, a bridging initiative would seem to offer unlimited potential, while only costing some time and a few thousand dollars. Other initiatives might include demonstrations at a regional conference, a demo-booth at a national conference (similar to the A.P.A. venture) and workshops in a continuing education environment.

The lack of progress in developing microcomputer software for planning applications is disappointing—particularly compared with the tremendous advances that have taken place in microcomputer hardware, operating systems, and general purpose applications software in the past four years. This condition reflects the difficulty of writing, documenting and supporting microcomputer software; the diversity of
planning applications; the small and nonlucrative market for planning software; and the lack of research funds and academic recognition for software development (Klosterman 1990)

Klosterman points out that planners can not expect to have software or information systems developed specifically for their use, due to the small population of the profession. What this means, in practical terms, is that planners will have to be resourceful in adapting commercial software packages to required tasks.

As a natural extension of this discussion a brief exercise covering the formation and cost of a fictional information system for Canadian planners has been developed. The formation of a Canadian Planning Information Network would involve several choices with regard to access, cost coverage and node location. The following discussion represents just one possible combination of those factors and is presented for discussion purposes.

The Canadian Planning Information Network or CAPIN would be a system with three primary features: electronic mail service for CAPIN members, a file library of various documents and several forums of interest to planners. Other features are possible but would add to the cost of the system. The approximate estimates given are calculated on the base platform of services.

There are several ways to set up an online service. The first option is to gain access to a packet switching service such as Datapac, which be used as a gateway to CAPIN. The cost of this connection is however, thought to be too high for a small experimental service (Paul Stewart:NB-Tel 1992). Another method of setting up a network involves going through an existing connection of networks. One of the best examples that comes to mind
are the university networks but since this is a professional organization this option does not hold much promise.

Yet another method of setting up a network involves joining a series of independent systems. This can be done relatively inexpensively but involves many more variables than the Datapac or university models. This is, however, depending on the costs of joining Datapac, seen as the best alternative to establish a system for the planning profession within Canada.

The costs for setting up CAPIN involve using an existing computer and phone line in six centers across Canada. These stand-alone systems could be used normally during the day and switched over to system use in the off hours (6:00 p.m. to 6:00 a.m. local times). The only capital costs involved would be in purchasing a commercial BBS package and setting up some mail packages to provide the required linkage to make CAPIN a national network.

CAPIN would operate with six nodes: Vancouver, Calgary, Winnipeg, Montreal, Toronto and Halifax. Users in the N.W.T., Yukon and B.C. would use Vancouver while planners in Alberta would use Calgary. Winnipeg would host for Saskatchewan and Manitoba. Planners in Ontario would call Toronto and Montreal would host Quebec. Atlantic Canada would use Halifax as a central point. Each caller would see the same setup and would view the same messages and bulletins each night. Each board would carry the same file setup and uploads would be added on a weekly basis. The messages and e-mail would be delivered by mail programs which can exchange mail at predetermined times, these are usually programmed to operate during the early morning hours to take advantage
of less expensive phone rates and low user utilization. Figure 6.1 gives a graphic illustration of how CAPIN might be organized.

The total capital cost for CAPIN, assuming free use of existing equipment, would be $800-$1,200, but the real cost of this type of network is the operational cost, which can vary depending on use. Approximate cost estimates range from $7,000 to $9,000 per annum, and are primarily for telephone time used for data exchange and maintenance time for the boards. This estimate is based on costs supplied by several board operators and may vary depending on what activities are supported by the system. The total cost of setting up CAPIN is therefore estimated to be in the $10,000 range for year one. These costs do not include the cost of accessing CAPIN, which must be borne by the user or their agency. While this is a significant dollar value, it would not be too heavy a burden if it were shared by the various planning agencies in Canada.

As a first step towards establishing a MC presence, a regional BBS system could be set up to introduce the technology to the planning professionals of the area and assist in the ongoing activities of the local provincial planning association, such as the Planning Institute of British Columbia. An illustration of potential features and users of this system are provided in figure 6.2.
CaPIN features could include:

* Electronic mail
* Online community data/profiles
* Planning software library
* Forum discussions
* Upcoming events & notices
Figure 6.2
A Regional Planning Information System

Possible features could include:
* E-mail
  * Online document library
  * Continuing Ed. updates
  * Forum discussion
  * Software library


Bell, A.. Information Officer-Statistics Canada. Telephone interview by author, April 1990, Fredericton. Transcript. Fredericton, N.B.


James, Maureen. Public Relations Officer-WEB. Telephone Interview by author, April 1992, St. Stephen. transcript. Garcelon Stamp Building, St. Stephen, N.B.


APPENDIX A

COMMERCIAL INFORMATION SERVICES DIRECTORY (VENDORS)
### COMMERCIAL INFORMATION SERVICES DIRECTORY (VENDORS)

<table>
<thead>
<tr>
<th>Name</th>
<th>Features</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>America Online</td>
<td>e-mail, bulletin boards, stock quotes, news and software library</td>
<td>$10.00 DAY $5.00 NIGHT</td>
</tr>
<tr>
<td>(800) 227-6364</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American People/Link</td>
<td>e-mail, shopping, travel, PD software library, computer and general interest forums</td>
<td>$17.95 Day $9.95 Night</td>
</tr>
<tr>
<td>(800) 524-0100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BRS:After Dark</td>
<td>menu driven general information services with over 150 databases also has large medical library system called BRS Colleague</td>
<td>varies from $12 to $150 per hour</td>
</tr>
<tr>
<td>(800) 995-0906</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BYTE Information Exchange</td>
<td>BIX offers software libraries, news and discussion services for computer professionals and enthusiasts around the world.</td>
<td>varies by location from $2 to $30 per hr</td>
</tr>
<tr>
<td>(BIX) (800) 227-2983</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMPUSERVE (CIS)</td>
<td>Perhaps the biggest vendor CIS has some 750,000 members. Services are too numerous to list but the service has an exhaustive list of SIGS and access to over 900 additional databases.</td>
<td>$6.30 to $22.80 plus database charges</td>
</tr>
<tr>
<td>(800) 848-8199</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dataquest</td>
<td>This service centers on data concerning high tech markets and industries. It contains annual data, business periodicals and government information on high tech items and industry.</td>
<td>Not currently Available</td>
</tr>
<tr>
<td>(408) 437-8000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data Resources</td>
<td>125 Databases focusing on business simulation planning and models.</td>
<td>$350 per year</td>
</tr>
<tr>
<td>(617) 863-5100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Data-Star</td>
<td>Over 200 databases on biomedicine, chemistry, business, healthcare and biotechnology.</td>
<td>from $34 to $213 per hr</td>
</tr>
<tr>
<td>(800) 221-7754</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DataTimes</td>
<td>Focus is on regional and international newspapers.</td>
<td>$2.03 per minute plus $75 month</td>
</tr>
<tr>
<td>(800) 642-2525</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DELPHI</td>
<td>Another of the big services Delphi offers e-mail, fax and telex service. Other services include SIGS, PD library and numerous business offerings.</td>
<td>$6.00 per hour plus $5.95 month</td>
</tr>
<tr>
<td>(800) 544-4005</td>
<td></td>
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127
<table>
<thead>
<tr>
<th>Service</th>
<th>Description</th>
<th>Prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIALOG</td>
<td>Dialog is another of the major players offering 390 databases with 270 million references to over 100,000 publications</td>
<td>Prices vary according to database used</td>
</tr>
<tr>
<td>Dow Jones News/Retrieval</td>
<td>Dow Jones News/Retrieval is the premier online business services with a wide range of services. These include data on pricing, firms, trends, market averages, profiles and all business news. Currently over 285,000 firms and individuals subscribe.</td>
<td>cost depend on membership type and hours used. Range $25 and up per month</td>
</tr>
<tr>
<td>The EPIC Service</td>
<td>The EPIC service contains several valuable education resource databases such as ERIC and the Dissertation Abstract</td>
<td>costs dependent on services used</td>
</tr>
<tr>
<td>GEnie</td>
<td>A very fast growing general service that provides e-mail, forums, product support hotlines, business quotes &amp; news</td>
<td>$18 hr Day $ 5 hr Night at 300 baud</td>
</tr>
<tr>
<td>Human Resource Information Network</td>
<td>A service dedicated to serving Human Resource specialists, includes databases on labour stats, legal decisions, benefit information, arbitration findings, job desriptions and thousands of online resumes.</td>
<td>subscription costs $395 per year plus connect charges.</td>
</tr>
<tr>
<td>Information America</td>
<td>This is an online service which provides access to government and legal documents.</td>
<td>Costs are just connect charges</td>
</tr>
<tr>
<td>Mead Data Central</td>
<td>Mead Data offers three professional services. LEXIS for lawyers, MEDIS for doctors and NEXIS for the business community</td>
<td>averages charges are $35 per hr</td>
</tr>
<tr>
<td>NewsNet</td>
<td>contains over 350 newsletters, 11 wire services, TRW Business profiles, Stock quotes &amp; news</td>
<td>$120 a year plus connect charges</td>
</tr>
<tr>
<td>Odyssey</td>
<td>Features include software library, adult chats, games etc</td>
<td>$20 sign-up $10.80 hr</td>
</tr>
<tr>
<td>Orbit Search Service</td>
<td>This is science and technology service with over 75 databases</td>
<td>$35 per year $35 hr &amp; up</td>
</tr>
<tr>
<td>Service</td>
<td>Description</td>
<td>Cost</td>
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</tr>
<tr>
<td>Pergamon Financial</td>
<td>This is a service dedicated to European finance and business. Data on</td>
<td>$18.50 (US) month plus</td>
</tr>
<tr>
<td>Services 01-9923456</td>
<td>companies, markets and products is available.</td>
<td>database charges</td>
</tr>
<tr>
<td>Portal Online (408)973-9111</td>
<td>Low cost general service with a focus on UNIX. Offers e-mail, conferencing and PD library</td>
<td>$20.00 start-up $10 per hr</td>
</tr>
<tr>
<td>Prodigy (800)822-6922</td>
<td>This service, backed by SEARS and IBM offers general service with low cost however it is one of the few services to have ads</td>
<td>$12.95 per month</td>
</tr>
<tr>
<td>Promenade (703)448-8700</td>
<td>Small general service designed for the IBM Personal System 1 computer</td>
<td></td>
</tr>
<tr>
<td>Reuter:File (800)387-1588</td>
<td>Instant new access to over 2000 sources world wide is available through this service.</td>
<td>under review</td>
</tr>
<tr>
<td>Suzy (604)439-1311</td>
<td>General service based in B.C., offers news through InfoGlobe, real estate listings through NRS and travel through OAG</td>
<td>software start-up package $59 +$.20 min p</td>
</tr>
<tr>
<td>Telescan (713)952-1060</td>
<td>Specializes in data on over 10,000 publicly traded companies, 20,000 mutual funds, 200 industry groups and major equity indexes</td>
<td>software start-up package $80 +$.60 min p</td>
</tr>
<tr>
<td>Thomson Financial</td>
<td>As the name suggests this service is strong in the financial information area. They provide the data required for serious analysis by major corporations.</td>
<td>Database costs</td>
</tr>
<tr>
<td>Network (617)345-2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VU/Text (800)323-2940</td>
<td>Full text services of 70 newspapers, business data and maritime(shipping) information</td>
<td>$108 per hour</td>
</tr>
<tr>
<td>Weatherbrief (800)641-1116</td>
<td>Full weather coverage, storm tracking and 2,5,10,30 and 90 day outlooks are available</td>
<td>package $53.00 + online time</td>
</tr>
<tr>
<td>WESTLAW (800)WESTLAW</td>
<td>The largest online legal database offers over 400 periodicals online.</td>
<td>Database charges + online time</td>
</tr>
</tbody>
</table>
APPENDIX B

Selected Examples of
Databases Currently Available
<table>
<thead>
<tr>
<th>NAMES</th>
<th>CONTENTS</th>
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<tbody>
<tr>
<td>ABI/INFORM</td>
<td>indexes &amp; abstracts of business articles, currently has a total of some 500,000 records</td>
<td>Dialog, ORBIT, BRS, Mead, Data-Star &amp; EPIC</td>
</tr>
<tr>
<td>Academic American Encyclopedia</td>
<td>full text articles updated quarterly</td>
<td>BRS, Compuserve, Dialog &amp; GEnie</td>
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<tr>
<td>ACCOUNTANTS</td>
<td>an index produced by the American Institute of Certified Accountants, 175,000 records</td>
<td>Compuserve, ORBIT</td>
</tr>
<tr>
<td>Advertising &amp; Marketing Intelligence (AMI)</td>
<td>AMI provides abstracts from some 60 advertising and specialized marketing publications</td>
<td>Mead</td>
</tr>
<tr>
<td>Advertising &amp; Public Relations Library</td>
<td>abstracts and full text articles from some 200 industry periodicals</td>
<td>Mead</td>
</tr>
<tr>
<td>Agribusiness</td>
<td>abstracts from more than 300 agriculture based journals, updated weekly</td>
<td>Dialog</td>
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<tr>
<td>ALLFEDS</td>
<td>all US federal court cases dating back to 1789 are documented</td>
<td>WESTLAW</td>
</tr>
<tr>
<td>American Banker</td>
<td>covers all banking related news stories on a daily basis plus tracks data such as bank earnings and credit card operations</td>
<td>Data-Star, Dialog, Mead &amp; NewsNet</td>
</tr>
<tr>
<td>American Business Lists</td>
<td>provides mailing lists for 14 million US and Canadian businesses, also has listing of high-income US residents</td>
<td>Online Information Network</td>
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<tr>
<td>Arthur D Little Online</td>
<td>Access to research, industry trends and outlooks in several technological fields</td>
<td>Dialog</td>
</tr>
<tr>
<td>Bechtel Sec Filings Index</td>
<td>an online index of financial reports filed by about 18,000 publicly held US firms</td>
<td>NEWSNET</td>
</tr>
<tr>
<td>Biobusiness</td>
<td>an index of 500 world wide publications covering genetic engineering, food technology, pharmaceuticals &amp; agriculture</td>
<td>BRS, Data-Star &amp; Dialog</td>
</tr>
<tr>
<td>Biocommerce Abstracts</td>
<td>short abstracts of over 100 periodicals covering applications of biological research</td>
<td>Data-Star &amp; Dialog</td>
</tr>
<tr>
<td>Bond Buyer</td>
<td>full text of <em>The Bond Buyer</em></td>
<td>Dialog, Mead &amp; NewsNet</td>
</tr>
<tr>
<td>Book Data</td>
<td>database of in-print and new books in abstract form from some 600 publishers</td>
<td>EPIC</td>
</tr>
<tr>
<td>Books in Print</td>
<td>all in-print books, new books and some out of print books are listed</td>
<td>BRS, Dialog</td>
</tr>
<tr>
<td>Business Opportunities</td>
<td>over 25,000 references to trade opportunities and contacts world wide are referenced</td>
<td>Data-Star</td>
</tr>
<tr>
<td>Business &amp; Finance Report</td>
<td>contains the latest financial news, trends and developments including Wall Street Journal highlights</td>
<td>Dow Jones News</td>
</tr>
<tr>
<td>Business Dateline</td>
<td>each week 1500 full text business stories are added from industry journals in the US and Canada</td>
<td>BRS, Dialog, Dow Jones News, EPIC &amp; Mead</td>
</tr>
<tr>
<td>Business Software Database</td>
<td>this databases lists over 17,000 software packages for business as well as reviews from 150 journals</td>
<td>BRS, Data-Star &amp; Dialog</td>
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<tr>
<td>Business Wire</td>
<td>full text news releases on new products, legal actions, financial data &amp; staff changes are listed</td>
<td>CompuServe, Dialog, Mead &amp; VU/Text</td>
</tr>
<tr>
<td>Canadian Business &amp; Current Affairs</td>
<td>this is four indexes in one which comprises over 1.3 million records from 500 Canadian &amp; US business and popular magazines, 10 daily Canadian newspapers are also included covered</td>
<td>Dialog</td>
</tr>
<tr>
<td>Capital Markets Report</td>
<td>interest rates, bonds &amp; financial futures from the world's financial capitals</td>
<td>BRS, Data-Star &amp; Dialog</td>
</tr>
<tr>
<td>Career Placement Registry</td>
<td>a database for both headhunters &amp; job seekers, contains 25,000 resumes</td>
<td>Dialog</td>
</tr>
<tr>
<td>Cendata</td>
<td>contains demographic data from the US Bureau of Census as well as similar data from some 200 other countries</td>
<td>CompuServe &amp; Dialog</td>
</tr>
<tr>
<td>Chemical Business Newsbase</td>
<td>summaries of the chemical industry's core journals are provided along with press releases &amp; research reports/studies</td>
<td>Data-Star &amp; Dialog</td>
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<tr>
<td>CIRR - Corporate and Industry Research Reports</td>
<td>this database is an index to various research reports on some 10,000 US companies</td>
<td>BRS</td>
</tr>
<tr>
<td>Commerce Business Daily</td>
<td>published every business day by the US Department of Commerce, the CBD lists the services and supplies (over $25,000) required by the US government. Also listed are successful contract bidders and upcoming sales of surplus federal property</td>
<td>Dialog</td>
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<tr>
<td>Compendex Plus</td>
<td>This Computerized Engineering Index is a thorough guide to engineering literature. It cites some 2.2 million articles, covers about 4,500 journals and has 480,000 conference papers in the DB, which is updated monthly</td>
<td>BRS, Data-Star, Dialog &amp; ORBIT</td>
</tr>
<tr>
<td>Computer Database</td>
<td>abstracts from 140 computer publications are cited in this data source with records currently totaling 270,000</td>
<td>BRS, CompuServe Data-Star &amp; Dialog</td>
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<tr>
<td>Corptech</td>
<td>caters to data on high-tech firms, their projects, employees and related interests</td>
<td>ORBIT</td>
</tr>
<tr>
<td>Daily Currency</td>
<td>as the name suggests this DB offers up to the minute exchange rates for 14 international markets, as well historical data back to 1961 is available</td>
<td>Reuter : File Ltd</td>
</tr>
<tr>
<td>Exchange Rates</td>
<td></td>
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<tr>
<td>Daily Report for Executives</td>
<td>Put out by the Bureau of National Affairs this DB is a briefing on new regulations, tax laws, legislative developments and other items of interest to the business community</td>
<td>HRIN, Mead &amp; WESTLAW</td>
</tr>
<tr>
<td>D &amp; B - Dun's Electronic Yellow Pages</td>
<td>this is one of the largest lists of American companies with a total of 8.2 million records, the list can be customized by several variables (ie. type of business, size or location)</td>
<td>Dialog</td>
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<tr>
<td>D &amp; B - European Dun's Market Identifiers</td>
<td>similar in format to Dun’s Electronic Yellow Pages but geared to the European market</td>
<td>Dialog</td>
</tr>
<tr>
<td>D &amp; B - Dun's Financial Records</td>
<td>as a result of Dun &amp; Bradstreet's credit reporting system a significant amount of business data is collected, D &amp; B includes data on 750,000 companies</td>
<td>Dialog &amp; Dow Jones News</td>
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<tr>
<td>D &amp; B - Dun's Market Identifiers</td>
<td>this Dun &amp; Bradstreet database provides information on 2.4 million companies with 40 searchable facts on each firm</td>
<td>Dialog</td>
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<tr>
<td>D &amp; B - International Market Identifiers</td>
<td>similar to Dun's Market identifiers but in a European setting with 200,000 companies and only 19 searchable facts</td>
<td>Dialog</td>
</tr>
<tr>
<td>Disclosure Online</td>
<td>this is a DB with some 12,000 publicly held companies but offers some 250 searchable fields for each entry</td>
<td>BRS, Dialog Dow Jones News, Mead &amp; Data-Star</td>
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<tr>
<td>Donnelley Online Express</td>
<td>this BD offers demographic data from 16 million mail responsive households and other sources</td>
<td>Dialog</td>
</tr>
<tr>
<td>Dow Jones News</td>
<td>up to the minute stock quotations as well as news and views from The Wall Street Journal &amp; Barron's</td>
<td>Data-Star &amp; Dow Jones News</td>
</tr>
<tr>
<td>Dow Jones Quotes</td>
<td>stock quotes, both real time and historical</td>
<td>Dow Jones News</td>
</tr>
<tr>
<td>Employment &amp; Policy Guide</td>
<td>The Bureau of National Affairs collects and organizes this database on human resource policy issues, users can compare state laws, compensation and benefits from all over the US</td>
<td>HRIN</td>
</tr>
<tr>
<td>ERIC - Educational Resources Information Center</td>
<td>ERIC offers two files: resources in education and current index to journals in education. 26 indexes are supplied and updated monthly</td>
<td>EPIC</td>
</tr>
<tr>
<td>Estimate Watch</td>
<td>Estimate Watch delivers earning estimates</td>
<td>Investext / Plus</td>
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<tr>
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<tr>
<td>Fairbase</td>
<td>this database lists trade shows, exhibitions and conferences up to the year 2007</td>
<td>BRS &amp; Data-Star</td>
</tr>
<tr>
<td>Financial Times Company</td>
<td>provides a European viewpoint on any major corporation, some 280,000 records are available</td>
<td>Data-Star &amp; Dialog</td>
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<tr>
<td>Abstracts</td>
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<tr>
<td>Financial Times Fulltext</td>
<td>this DB provides the fulltext versions of both the London &amp; International editions of the Financial Times</td>
<td>Dialog, Mead</td>
</tr>
<tr>
<td>Findex Reports &amp; Studies</td>
<td>Findex provides a list of any market studies or reports done on specific products, currently with 11,000 studies available</td>
<td>Dialog</td>
</tr>
<tr>
<td>Finis</td>
<td>Finis covers more than 200 banking, marketing and finance journals and is maintained by the Bank Marketing Association</td>
<td>BRS, Dialog &amp; Mead</td>
</tr>
<tr>
<td>Government &amp; Political</td>
<td>federal court decisions, regulations and legislation voting records are available</td>
<td>Mead (lexis)</td>
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<tr>
<td>News Library</td>
<td></td>
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<tr>
<td>ICC British Company</td>
<td>over 2 million references &amp; financial records are available on United Kingdom Companies</td>
<td>Data-Star &amp; Dialog</td>
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<tr>
<td>Directory</td>
<td></td>
<td></td>
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<tr>
<td>Incorporating Guide</td>
<td>lists various rules and regulations on incorporation for each of the 50 states</td>
<td>CompuServe</td>
</tr>
<tr>
<td>Industry Data Sources</td>
<td>features indexes and abstracts on market research reports, investment studies and conference reports in 65 industries</td>
<td>BRS, Data-Star &amp; Dialog</td>
</tr>
<tr>
<td>Infomat</td>
<td>periodical summaries from over 500 business newspapers and journals, the summaries are from 22 countries and encompass 450,000 entries.</td>
<td>Data-Star &amp; Dialog</td>
</tr>
<tr>
<td>Insider Trading Monitor</td>
<td>provides data on the trading of company officers and directors when they buy or sell their own company stock, covers 8,500 firms</td>
<td>Dialog &amp; Dow Jones</td>
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<td>NAMES</td>
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<tr>
<td>INSPEC</td>
<td>INSPEC is a bibliographic database with 3 million citations from 5,000 journals on physics, electronics and computing</td>
<td>BRS, DataStar, Dialog &amp; ORBIT</td>
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<tr>
<td>Investext</td>
<td>Investext contains 200,000 full-text references on 11,000 of the largest international &amp; US firms</td>
<td>BRS, Dialog CompuServe, &amp; Mead</td>
</tr>
<tr>
<td>Japan Technology</td>
<td>abstracts from Japan’s top 500 science and technical journals</td>
<td>Dialog &amp; ORBIT</td>
</tr>
<tr>
<td>Lawyer’s Alert</td>
<td>Lawyer’s Alert is a service that provides news and updates on US Supreme Court decisions</td>
<td>ABA/Net &amp; NewsNet</td>
</tr>
<tr>
<td>Legal Resource Index</td>
<td>Legal Resource Index is an index to over 750 legal publications, features over 3,500 new citations each month</td>
<td>BRS, Mead Dialog &amp; WESTLAW</td>
</tr>
<tr>
<td>M &amp; A Filings</td>
<td>abstracts from possible merger and acquisition offers are supplied based on SEC filings</td>
<td>Dialog</td>
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<td>Magazine Index</td>
<td>index citations totaling 2.8 million cover 450 US &amp; Canadian magazines</td>
<td>BRS &amp; Dialog</td>
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<td>Market Barometer Reports</td>
<td>MBR provides market and industry information to investors</td>
<td>Investext/Plus</td>
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<tr>
<td>Media General</td>
<td>detailed financial data on 5,100 firms including all NYSE listings</td>
<td>Dialog, Dow Jones News</td>
</tr>
<tr>
<td>Merck Index Online</td>
<td>Merck Index Online provides support to scientific and medical communities</td>
<td>BRS, Dialog</td>
</tr>
<tr>
<td>MicroReviews</td>
<td>an electronic bibliographic citation service with over 4,000 references on the US computer industry</td>
<td>HRIN</td>
</tr>
<tr>
<td>Militran</td>
<td>Militran offers access to more than 25,000 separating &amp; retiring military personnel</td>
<td>HRIN</td>
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<tr>
<td>Moody’s Corporate News</td>
<td>Moody’s International offers business and financial data on 3,900 firms in over 100 countries</td>
<td>Dialog</td>
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<td>International</td>
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<tr>
<td>Moody’s US Corporate News</td>
<td>Moody’s US Corporate News provides business and financial data on 3,600 public companies</td>
<td>Dialog</td>
</tr>
<tr>
<td>National Newspaper Index</td>
<td>the National Newspaper Index is an index of 5 nationally distributed newspapers and 3 wire services serving the US</td>
<td>BRS &amp; Dialog</td>
</tr>
<tr>
<td>Online Union Catalog</td>
<td>a comprehensive bibliographic DB containing over 22 million records dating back to 2150 BC</td>
<td>EPIC</td>
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<tr>
<td>Public Affairs Information</td>
<td>PAIS is a print, electronic and CD-ROM DB covering more than 1,200 periodicals and journals</td>
<td>Dialog, BRS &amp; Data-Star</td>
</tr>
<tr>
<td>Service - PAIS</td>
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<tr>
<td>PR Newswire</td>
<td>PR Newswire supplies financial and business related press releases which are updated continually</td>
<td>Dialog, Mead, NewsNet &amp; Dow Jones</td>
</tr>
<tr>
<td>Vu/Text</td>
<td>Full text services of 70 newspapers, business data and maritime (shipping) information</td>
<td>Available direct</td>
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APPENDIX C

CAPTURED THREAD FROM COMPUSERVE'S SEC. 10

"Why have planners been so slow in recognizing the benefits of microcomputer communications?"
Ray, I've changed the subject heading.

Couple of responses. I think we've got a chicken/egg thing here. If there were more planners using this medium there would be more responses, more useful material in the libraries, more use of email for committee work, etc. OTOH, with relatively few activists, potential newcomers and lurkers are not especially intrigued with what they see.

Another point: this is certainly not an office tool. It could be, of course, with, say, having PAS in a database, available only to those authorized ($) to access it. But generally speaking it IS mainly an informal networking, a place to kick ideas around.

As far as expensive is concerned: you have a local node, don't you? And tapcis? Y'know, for all the time I spend around here, my online time rarely exceeds 15 minutes a day - and that's because I capture All the messages from ALL the sections.
Expense is not just for message, there are some up front costs, plus when you first get started, you eat a lot of time. Up front cost (assuming you already have a modem) is $60 to $100 for a modem, $15 to $30 for CIS. If you are fairly knowledgable (which I think most planers are not, see reply to Whit, I think), then public domain software will get you started, if not another $50 to $100. Now I am going to be honest, if this was the only forum I frequented here on CIS, I would not be using CIS. That maybe different for others. My monthly bill (using TAPCIS and CIM) is $25 to $45. I think when you first start an bill of $20 would not be out of line. But tell a computer novice they are getting billed $12 an hour (which for some is close to their hourly wage, and for many more close to their hourly take home) and that seems expensive. They just do not understand computers and can not translate that in to actual time.

I think up front costs of $125 to $250 is intimidating (let alone hard to spell) for MOST planners who own computers at home. As much as I use computers, a $250 acquisition for any purpose (which for me can sometimes lead directly to producing income) is a major decision I do not take lightly. Hmmmm, I have other thoughts I will get to later.

Ray the protagonist (sp)
Perry and I have been having similar exchanges and differences of opinions. He has indicated to me that springing for a $1,500 home PC, and another $300 in modem and related peripherals, and monthly use charges of +/- $50 is not that big a deal for professionals, and are not the real obstacle. (Perry - am I misquoting??).

I find myself in agreement with you on this point. An extra 200-300 dollars upfront, and the apparent commitment to $40-$50 per month of use charges is a BIG stumbling block for MOST staff level and middle-mgmnt level planners. These seem like modest amounts, but for a LOT of folks, they’re substantial.

Where I disagree with you is the assessment of computer literacy. I get around to a lot of planning departments and work closely with a lot of planning staff. My impression is that at all levels below executive director, computer literacy is widespread and continues to grow. Anyone not already familiar with communications and bulletin boards are at least intrigued enough to learn -- IF they have access, and IF they see benefits.

It is my contention that ACCESS is one of the key blockages. Most staff are constrained to using the department’s computers. Storing "personal" files, arranging for the charges, accessing outside phone lines not intercepted by the building’s phone system, justifying your time at a common use PC for "chatting", are all inhibitions. I think they want to. I think they know how, or are willing to learn. They just can’t get at it, and cost IS a worry.

IMHO. W.L.
I think we agree. One time expenses are hard but acceptable when one understands the benefit. For $800 you can a very useful system at home that will over 3 or four years easily pay for itself. But a $25 a month bill is a little harder to swallow and is a little harder to justify.

I do not agree on computer usage. Yes, micros are spreadly rapidly with in planning offices and many planners are now learning to use micros. Many are using word processing, spreadsheets, and db systems. But they still do not understand computers. We have 40+ computers in our office, 100 staff members, of which 3/4 can use the word processor, 1/2 other tools. A few know the telecommunications exist, maybe 5 if motivated could learn to login to CIS and upload or download a file. None are using any type of telecommunications system including prodigy. Maybe 10 have computers at home.

I travel around alot as well and talk to a lot of planners. If the level of computer usage today existed in 1980, we could be proud of ourselves as a profession. We are so far behind the rest of the business world I am ashamed some times. The census is about to be mass distributed on CD-ROM and most planners have little understanding of what that really means.

Ray
For the record, this forum is about 50 percent of my online activity. I find it useful and enlightening, but I'm not looking for bottom-line type benefits. Tapcis allows for frequent and careful correspondence at a relatively cheap cost.

Planners by and large are very familiar and confident with computers. Availability of computers and knowledge that the forum exists are the primary drawbacks to usage, IMHO.

-- Whit

I don't agree with that. I think only a small percentage of planners are computer literate enough to even know what is a modem or what is an information service. I think if all planners had to do was sit down in front of any computer and run tapcis or CIM only 25 to 35% would even get logged on.

Honest answer now, if the reasons for your other 50% of activity went away, would you spend as much time on the forum?

Ray

Ray, I agree with your earlier comments that the CIS $ and upfront costs are a considerable barrier, and will deter 99% of all planners and people interested in planning issues. But even if this forum (or one covering a broader gamut of municipal issues) were to reach 1% (or probably even 1/2 of 1%) of the potential market, we'd have many times more participants. I think this would result in a more exciting and useful forum -- Perry's chicken & egg comment -- leading to even more use by word of mouth.

Wayne S.
My point is that our market is not 30,000 planners, it is 10,000 planners. Right now I think we are at about .1%. Sorry to sound so negative. I just get frustrated sometimes which gives me an overdose of reality. Here is a thought for all. Prodigy now has 1 million members, compared to CIS 750,000. Prodigy costs is $12.00 a month with unlimited access time to all features, free access to bulletin boards (24 hour posting delay) and 30 free 6 page email message a month (instant delivery). Genie allows off hour access 6pm-6am, unlimited time for EMAIL, flat rate 5.95 a month. All have wide spread nodes for local toll free access. Maybe there is an alternative?

Ray

Thirty percent!!? Lord luv us. APA has a membership of something over 26,000. I'd be thrilled with one percent active participation. In fact, with that (260 "active" people) we could REALLY talk turkey with CIS.

But I don't think (G) that even this would impress Ray who seems to question as to why ANY planner in his/her right mind would bother participating in Sec.10. [Hey, Ray, is Phoenix especially hot these days?]

I agree 110%. That is/was my main reservation about seeking a broader audience. It needs to include transportation engineers/planners, developers, real estate types, architects, urban economic/market gurus (me), and similar, but all oriented to planning and development. So -- how we do that???

W.L.
Wayne,

I think a theme more broadly defined than Municipal Planning is a good idea. A good place to begin with planners of all stripe is with the state chapters of the APA. Other professional and trade organizations, like the Association of Housing and Redevelopment Officials, the Institute of Transportation Engineers, Real Estate Research Corp., etc. could be solicited for their interest and input. If you’re on APA’s mailing list, you also prolly get mail from lots of other "peripheral" organizations. Maybe we can put together a list of names/addresses, cover letter and some interesting threads from this section, and mail it to these groups. Seems like CIS might even foot the bill for postage. What about that, Perry and Larry?

-- Whit

Ray
Let me fold Chicago and Participation together here. First, Chicago. Your comments on the newsletter copy are well taken. Thanks. Confusions arose over "who is responsible for delivering what services" - no questions of domination. PTS is called AICP, but it is not, really, delivered by AICP, nor is it delivered FOR AICP. Just a sample of one of the confusions. The proposal suggested that AICP Commissioners come back to the Board, as members of both the Commission and the Board. It wasn't discussed. Re Ethics, this will be worked on. My sense is that the ONE statement will be the AICP Code. Non AICP members may elect to sign on to the discipline, or may be guided by it (as is the present case with the APA Statement of Ethical Principles.

Participation. It has always been my understanding that if we generated enough (??) traffic we could go to CIS for a Planners Forum. I'm going to have to ask them for some tighter guidelines on this. Meanwhile, Is Stollman is investigating the possibility of a new private network, through CIS, where, for tariffs, members could access: PAS, Zoning Digest, the Journal, Planning Magazine, RFPs, etc. etc. In Denver I am going to have a meeting with Brail (Rutgers), Klosterman (Dayton), French (Cal Poly) to talk about the possibility of networking through the university grid. Have you suggested to people on other forums that they might drop us a line too?
Wayne Oldroyd 76066,447 responded on October 1st. This is only one I actually saw; but I could have missed something. It's been quiet in the planning section this week.

Anyway, here below is what Wayne wrote:

Let me count the ways....

1. Tapping into CIS Executive News Service lets me scan national newspapers quicker and easier for articles re planning, etc.

2. Participation in this forum allows some exchange of ideas; an occasional helping hand to a citizen planner or person affected by a planning issues, or just keeping in touch.

3. Access to databases, especially Cendata and other demographic info.

4. Cross linkage with other offices with whom you may be working, i.e. I author an EIS for a project but pick up sections from subconsultants (traffic, quality, etc.) directly through the computer rather than faxing marked up drafts back and forth.

These are my primary uses for online computer services, I'm sure others, especially public side planners, may have different uses.

Wayne.
Okay, folks here is THE (suggested) PLAN for creating a vibrant, robust, active online community for the urban building industry.

PREMISE:
I hold these truths to be self-evident:

a) An online community can be a great asset to the urban development industry by providing immediate access to a broad group of urban development practitioners, by promoting the exchange of information and ideas, by providing a central resource location and referral network which crosses discreet professional disciplines and practice areas.

b) For a combination of reasons, professional planners have demonstrated slower-than-average learning and acceptance curves, and have lower rates of computer expertise and online communications access.

c) An online community limited strictly to practicing professional planners will inherently be a limited group of modest size. Its modest scope will inherently limit the appeal and utility of the community and impair its ability to attract an enlarged membership.

d) To be effective and attractive, an urban online community, structured as a special interest forum, must have a large membership, have a unique combination of library resources, and have among its membership participants from a wide range of related disciplines and perspectives. It should include or have periodic access to widely respected experts and highly placed practitioners in a wide range of related fields.

e) In order to be recognized, and even "discovered", such a community or forum must have its own identity, and can not permanently exist as a subset under another profession's (i.e. legal) forum.

f) Unless a planned, organized initiative is undertaken, the broader, vibrant online community envisioned in (a) above will never come about. Unless there is a continuing commitment to manage and operate such a forum, such a community will not long endure.
OBJECTIVES
Overall:
   Create an enlarged, active, robust online community for urban development practitioners.

Specific:
1) Create our own "Urban Development" forum on Compuserve. Other online services may be viable or become viable as alternatives to CIS, but since this effort is being stimulated by CIS-based individuals, CIS is the logical starting point.

2) Dramatically increase the awareness among professional planners that this community exists and is expanding.

3) Dramatically increase the substance of this forum by expanding library contents, information and resource referrals, and the exchange of information from members of a much greater array of related professional backgrounds.

4) Expand the forum's membership beyond just city planners to include related disciplines and trade groups. While APA is the obvious trade organization among planners, other potential trades and organizations may potentially include CUED, ULI, ICSC, ICMA, IDEA, BOMA, Lincoln Institute, as well as trade journals representing developers, traffic engineers, and civil engineers. Institutional memberships should also be expanded to include faculty and students at city planning and architecture colleges and universities.

HOW THIS MAY BE DONE

The following is an initial "To-Do" list for getting such an initiative underway:

1. AGREE ON THE PLAN
   We need to have at least a general consensus that a) this is worth doing, b) we (that means US, folks) are actually going to spend some time and effort to do it, c) that the tasks listed here -- with amendments and suggestions -- are in fact what we're going to do. I AM TARGETING A CUT-OFF DATE FOR DEBATE AND SUGGESTIONS AS AUGUST 11, 1991. FINAL TO-DO TASK ASSIGNMENTS WILL BE CONFIRMED DURING THE FOLLOWING WEEK.

2. RESEARCH FORUM MANAGEMENT/ESTABLISHMENT WITH CIS
   Perry - this is yours. We need the equivalent of a two-three page memo outlining the criteria and procedures
for establishing a new "Urban Development" forum. This should address chicken-and-egg problems of membership size. We also need to know do's-and-don'ts for approaching other trade organizations, acquiring articles from their journals for uploading to the library, sysop obligations, ongoing management tasks, time requirements, etc. etc.

3. EXPLORE APA INTERFACE
As is clearly implied in much of the rest of this, other trade organizations need to be brought into this expanded online community. Perhaps there is a core group of 4-6 "sponsoring organizations" of which APA is one. How would APA "feel" about participating in this manner? How would articles from Planning, PlanAlerts, and similar items be accessed and uploaded to the library? What about copyrights? Who (specific individual) might serve as the official online interface contact person?

4. PRELIMINARY EXPLORATORY CONTACTS WITH OTHER ORGANIZATIONS
We should make preliminary contacts with other related trade organizations to explore how they as institutions, or perhaps just their members without the formal participation of the association itself, might join the forum. Is there some form of online communication already occurring? Under what terms might we upload copies of directories or journal articles? Are there individuals who might be appropriate for taking on this mission within each respective organization?

My preliminary list of potential other organizations includes:
CUED
ULI
ICMA
IDEA
ICSC
AIA
National Real Estate Investor

I, personally, would be happy to float this to ICSC and Real Estate Investor. I am willing to further carry it to CUED, ULI and ICMA, but perhaps others in our group might have better contacts with these organizations.

5. CREATE AN ONGOING MANAGEMENT OUTLINE
This will entail writing a preliminary outline piece on what it will take to keep the forum going. What are SYSOP duties and time requirements? How do we access article uploads? Is there a library manager? An event/conferencing manager? Is there an assistant SYSOP associated with each participating / member organization responsible for collecting uploads and feeding back to the respective organizations what's happening in the online community?
Just how is this thing going to be run and by who???(Note: this task will undoubtedly benefit from the CIS research described in item 2 above.)

If this work plan is generally acceptable -- with suggestions and amendments -- then the idea is that each of us active participants in LAWSIG Section 10 will volunteer to take on tasks or sub-tasks as described above. The product of each task would be a 2-5 page brief, describing the results of our research and discussions, uploaded to the forum.

If a final task list - work program is defined by mid-August, we should set a preliminary deadline for filing of briefs by the end of September. Then, we can all download all of the briefs, read and debate them with separate message threads. Within a couple of weeks after the briefs are filed, the subsequent steps should become reasonably self-evident.

MAYBE THERE ARE OTHER THINGS THAT COULD BE DONE. MAYBE THERE ARE OTHER OBSTACLES TO CREATING AN URBAN DEVELOPMENT ONLINE COMMUNITY THAT ARE NOT ADDRESSED HERE. BUT IF ALL WE DO IS GNASH TEETH AND BEMOAN OUR DIFFICULTIES, THE EXPANDED ONLINE COMMUNITY WILL NEVER HAPPEN. AN ACTION PLAN, EVEN IF INCOMPLETE, IS FAR BETTER THAN ENDLESS, MEANDERING DEBATE. ENOUGH TALK -- LET'S >>DO<< SOMETHING!

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Respectfully submitted --

Wayne Lemmon
APPENDIX D

Computer Networks & Electronic Mail Links
This list is current as of 04 April 1991, I think (but then, one never knows: things change so rapidly).

Would someone like to "officially" maintain this list? I'll strapped for time in the coming months...

Ajay.

Contents:

I: The Internetworking Guide
II: Networks NOT(yet) reachable from Internet.

Inter-Network Mail Guide - Copyright 1990 by John J. Chew

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INTRODUCTION

This file documents methods of sending mail from one network to another. It represents the aggregate knowledge of the readers of
comp.mail.misc
and many contributors elsewhere. If you know of any corrections or
additions to this file, please read the file format documentation
below
and then mail to me: John J. Chew <poslfit@gpu.utcs.utoronto.ca>.
If
you do not have access to electronic mail (which makes me wonder
about
the nature of your interest in the subject, but there does seem to be
a small such population out there) you can call me during the month
of
July at +1 416 979 7166 between 11:00 and 24:00 EDT (UTC-4h) and
most
likely talk to my answering machine (:-).

DISTRIBUTION

(news) This list is posted monthly to Usenet newsgroups
comp.mail.misc and
  news.newusers.questions.
(mail) I maintain a growing list of subscribers who receive each
monthly
  issue by electronic mail, and recommend this to anyone planning to
  redistribute the list on a regular basis.
(FTP) Internet users can fetch this guide by anonymous FTP as
  ~ftp/pub/docs/
    internetwork-mail-guide on Ra.MsState.Edu (130.18.80.10 or
    130.18.96.37)
    [Courtesy of Frank W. Peters]
(Listserv) Bitnet users can fetch this guide from the Listserv at
    UNMVM.
    Send mail to LISTSERV@UNMVM with blank subject and body
    consisting of
      the line "GET NETWORK GUIDE". [Courtesy of Art St. George]

HOW TO USE THIS GUIDE

Each entry in this file describes how to get from one network to
another.
To keep this file at a reasonable size, methods that can be
generated by
transitivity (A->B and B->C gives A->B->C) are omitted. Entries
are sorted
first by source network and then by destination network. This is
what a
typical entry looks like:

  #F mynet
  #T yournet
  #R youraddress
#C contact address if any
#I send to "youraddress@thegateway"

For parsing purposes, entries are separated by at least one blank line, and each line of an entry begins with a ‘#’ followed by a letter. Lines beginning with ‘#’ are comments and need not be parsed. Lines which do not start with a ‘#’ at all should be ignored as they are probably mail or news headers.

#F (from) and #T (to) lines specify source and destination networks. If you’re sending me information about a new network, please give me a brief description of the network so that I can add it to the list below. The abbreviated network names used in #F and #T lines should consist only of the characters a-z, 0-9 and ‘-’ unless someone can make a very convincing case for their favourite pi character.

These are the currently known networks with abbreviated names:

applelink
attmail AT&T
bitnet international academic network
bix Byte Information eXchange: Byte magazine's
commercial BBS
bmg
compuserve commercial time-sharing service
connect Connect Professional Information Network (commercial)

easyenet Easyenet (DEC's in-house mail system)
envoy Envoy-100 (Canadian commercial mail service)
fax Facsimile document transmission
fidoenet PC-based BBS network
geonet GeoNet Mailbox Systems (commercial)
internet the Internet
mci MCI's commercial electronic mail service
m汾net Magnetic Fusion Energy Network
nasamail NASA internal electronic mail
peacenet non-profit mail service
sinet Schlumberger Information NETWork
span Space Physics Analysis Network (includes HEPnet)
sprintmail Sprint's commercial mail service (formerly Telemail)
thenet Texas Higher Education Network

#R (recipient) gives an example of an address on the destination network,
to make it clear in subsequent lines what text requires substitution.

#C (contact) gives an address for inquiries concerning the gateway, expressed as an address reachable from the source (#F) network. Presumably, if you can't get the gateway to work at all, then knowing an unreachable address on another network will not be of great help.

#I (instructions) lines, of which there may be several, give verbal instructions to a user of the source network to let them send mail to a user on the destination network. Text that needs to be typed will appear in double quotes, with C-style escapes if necessary.

/* Additions */
/*
   Given below are the additions made, along with the sender's address:

   Network    Description                  Sender
   UNINet     Network in Rep. of SA         Erik Proper
               (erik@cs.kun.nl)
   SIGNet     Network in Rep. of SA         Erik Proper
               (erik@cs.kun.nl)
   EcoNet     Similar to PeaceNet           Brian Coan
               (brian@igc.org)
   gsfcmail   NASA Goddard Space Flight Center mail system
               DWEISSMAN@amarna.gsfc.nasa.gov

   Ajay
*/

#F applelink
#T internet
#R user@domain
#I send to "user@domain@internet#"
#I domain can be be of the form "site.bitnet", address must be <35 characters

#F AT&T Mail (attmail)
#T internet
#R internet!domain!user
#C AT&T Mail Customer Assisistance Center, 1-800-624-5672
               (1-800-MAIL-672)
#I For an address "user@domain", send to "internet!domain!user".

#F bitnet
#T internet
#R user@domain
#I Methods for sending mail from Bitnet to the Internet vary
depending on
#I what mail software is running at the Bitnet site in question.
In the
#I best case, users should simply be able to send mail to
"user@domain".
#I If this doesn’t work, try "user%domain@gateway" where "gateway"
is a
#I regional Bitnet-Internet gateway site. Finally, if neither of
#I works, you may have to try hand-coding an SMTP envelope for your
mail.
#I If you have questions concerning this rather terse note, please
try
#I contacting your local postmaster or system administrator first
before
#I you send me mail -- John Chew <poslfit@gpu.utcs.utoronto.ca>

#F compuserve
#T fax
#R +1 415 555 1212
#I send to "FAX 1415551212" (only to U.S.A.)

#F compuserve
#T internet
#R user@domain
#I send to ">INTERNET:user@domain"

#F connect
#T internet
#R user@domain
#I send to CONNECT id "DASNET"
#I first line of message: "\"user@domain\"@DASNET"

#F easynet
#T bitnet
#R user@site
#C DECWRL::ADMIN
#I from VMS use NMAIL to send to "nm%DECWRL::\"user@site.bitnet\""
#I from Ultrix
#I send to "user@site.bitnet" or if that fails
#I (via IP) send to "\"user@site.bitnet\"@decwrl.dec.com"
#I (via DECNET) send to "DECWRL::\"user@site.bitnet\"

#F easynet
#T fidonet
#R john smith at 1:2/3.4
#C DECWRL::ADMIN
#I from VMS use NMAIL to send to
#I "nm%DECWRL::"john.smith@p4.f3.n2.z1.fidonet.org"
#I from Ultrix
#I send to "john.smith@p4.f3.n2.z1.fidonet.org" or if that fails
#I (via IP) send to "john.smith@p4.f3.n2.z1.fidonet.org"@decwrl.dec.com
#I (via DECNET) send to "DECWRL::"john.smith@p4.f3.n2.z1.fidonet.org"

#F easynet
#T internet
#R user@domain
#C DECWRL::ADMIN
#I from VMS use NMAIL to send to "nm%DECWRL::"user@domain"
#I from Ultrix
#I send to "user@domain" or if that fails
#I (via IP) send to "user@domain"@decwrl.dec.com
#I (via DECNET) send to "DECWRL::"user@domain"

#F envoy
#T internet
#R user@domain
#C ICS.TEST or ICS.BOARD
#I send to "[RFC-822="user(a)domain"]INTERNET/TELEMAIL/US"
#I for special characters, use @=(a), !=(b), _=(u), any=(three octal digits)

#F fidonet
#T internet
#R user@domain
#I send to "uucp" at nearest gateway site
#I first line of message: "To: user@domain"

#F geonet
#T internet
#R user@domain
#I send to "DASNET"
#I subject line: "user@domain!subject"

#F GSFCMail
#T internet
#R user@domain
#C cust.svc
#I at the "To:" prompt type "POSTMAN"
#I at the "Subject:" prompt enter the subject of your message
#I at the "Text:" prompt, i.e. as the first line of your message,
#I or use same directions as sprintmail to internet

#F GSFCMail
#T NASAMAIL
#R userid
#C cust.svc
#I send to "(C:USA,ADMD:TELEMAIL,P:NASAMAIL,O:NASA,UN:userid)"

#F GSFCMail
#T span (now nsi-decnet)
#R host::user
#C cust.svc
#I at the "To:" prompt enter "POSTMAN"
#I at the "Subject:" prompt enter the subject of your message
#I at the "Text:" prompt, i.e. as the first line of your message,
#I enter "To: user@host.SPAN.NASA.GOV"
#I or use GSFCNE gateway and send to
#I (C:USA,ADMD:TELEMAIL,P:GSFCCNE,O:SPAN,OU:host,SN:user)

#F GSFCMail
#T sprintmail
#R (C:USA,ADMD:TELEMAIL,O:organization,UN:userid)
#C cust.svc
#I for public networks send to
#I "(C:USA,ADMD:TELEMAIL,O:organization,UN:userid)"
#I for private networks send to
#I "(C:USA,ADMD:TELEMAIL,PRMD:private_net,O:organization,UN:userid)"
#F internet
#T applelink
#R user
#I send to "user@applelink.apple.com"

#F internet
#T attmail
#R user@attmail.com
#C AT&T Mail Customer Assistance Center, 1-800-624-5672
(1-800-MAIL-672)
#I For an address "attmail!user", send to "user@attmail.com"

#F internet
#T bitnet
#R user@site
#I send to "user@site.bitnet@gateway" where "gateway" is a gateway
host that
#I is on both the internet and bitnet. Some examples of gateways
are:
#I cunyvm.cuny.edu mitvma.mit.edu. Check first to see what local
policies
#I are concerning inter-network forwarding.

#F internet
#T bix
#R user
#I send to "user@dcibix.das.net"

#F internet
#T bmg
#R John Smith
#I send to "John.Smith@bmg.fidonet.org"

#F internet
#T compuserve
#R 71234,567
#I send to "71234.567@compuserve.com"
#I note: Compuserve account IDs are pairs of octal numbers. Ordinary
#I consumer CIS user IDs begin with a '7' as shown.

#F internet
#T connect
#R NAME
#I send to "NAME@dcjcon.das.net"

#F internet
#T easynet
#R HOST::USER
#C admin@decwrl.dec.com
#I send to "user@host.enet.dec.com" or
"user@host.enet@decwrl.dec.com"

#F internet
#T easynet
#R John Smith @ABC
#C admin@decwrl.dec.com
#I send to "John.Smith@ABC.MTS.DEC.COM"
#I (This syntax is for All-In-1 users.)

#F internet
#T econet
#R user
#C <support@igc.org>
#I send to "user@igc.org"

#F internet
#T envoy
#R userid
#C POSTMASTER@SPRINT.COM for second method only
#I send to "att!attmail!mhs!envoy!userid@UUNET.UU.NET"
#I or through US Sprint’s X.400 gateway to
#I "C=CA/ADMD=TELECOM.CANADA/O=ENVOY/DD.ID=userid/@SPRINT.COM"

#F internet
#T fidonet
#R john smith at 1:2/3.4
#I send to "john.smith@p4.f3.n2.z1.fidonet.org"

#F internet
geonet
user at host
send to "user:host@map.das.net"
American host is geo4, European host is geol.

GSFCMail
userid
postmaster@ames.arc.nasa.gov
send to "user@GSFCMAIL.NASA.GOV"

mci
John Smith (123-4567)
send to "1234567@mcimail.com"
or send to "JSMITH@mcimail.com" if "JSMITH" is unique
or send to "John_Smith@mcimail.com" if "John Smith" is unique - note the
underscore!
or send to "John_Smith/1234567@mcimail.com" if "John Smith" is NOT unique

mfenet
user@mfenode
send to "user@mfenode.mfenet@nmfecc.arpa"

nasamail
user
postmaster@ames.arc.nasa.gov
send to "user@nasamail.nasa.gov"

peacenet
user
support@igc.org
send to "user@igc.org"

signet (through FidoNet)
John Smith at 27:2/3.4
Send the message to John.Smith@f527.n2.z2.fidonet.org (that is the
FidoNet to SigNet gateway).
The first line of the message should be:
@DOMAIN SIGNet 27:2/3.4 FidoNet 2:2/527
For other persons at the signet, replace John.Smith and 27:2/3.4 by
the proper person/node address.
The sysop of the gateway can be reached at:
andreas.levenitschnig@f527.n2.z2.fidonet.org
Internet

node::user or node1::node::user

Send to "user@node.SINet.SLB.COM" or "user%node@node1.SINet.SLB.COM"

Internet

span (now nsi-decnet)

host::user

netmgr@nsdca.gsfc.nasa.gov

Send to "user@host.SPAN.NASA.GOV"

Internet

sprintmail

(C:USA,ADMD:TELEMAIL,O:organization,UN:userid)

postmaster@sprint.com

For public networks send to
"/C=US/ADMD=TELEMAIL/O=organization/DD.UN=userid/@SPRINT.COM"

Or if you know the recipients registered full name
"/C=US/ADMD=TELEMAIL/O=organization/PN=firstname.lastname/@SPRINT.COM"

For private networks send to
"/C=USA/ADMD=TELEMAIL/PRMD=private_net/O=organization/DD.UN=userid/@SPRINT.COM"

Internet

thenet

user@host

Send to "user%host.decnet@utadnx.cc.utexas.edu"

Internet

uninet (South Africa) (Through FidoNet)

user.node

Send the message to user.node@f4.n494.z5.fidonet.org

A list of nodes in the uninet can be obtained by sending a message

With SEND UNINODE

MCI

internet

John Smith <user@domain>

At the "To:" prompt type "John Smith (EMS)"

At the "EMS:" prompt type "internet"

At the "Mbx:" prompt type "user@domain"

Nasamail

Internet

user@domain
#I at the "To:" prompt type "POSTMAN"
#I at the "Subject:" prompt enter the subject of your message
#I at the "Text:" prompt, i.e. as the first line of your message,
#I enter "To: user@domain"

#F sinet
#T internet
#R user@domain
#I send to "M_MAILNOW::M_INTERNET::"user@domain"
#I or "M.MailNow::M_INTERNET::domain::user"

#F span (now nsi-decnet)
#T GSFCMail
#R userid
#C mssdca::netmgr
#I send to "AMES:"

#F span
#T internet
#R user@domain
#C nssdca::netmgr
#I send to "AMES:"

#F sprintmail
#T internet
#R user@domain
#C (c:usa,admd:telemail,o:telenet.tele,fn:technical,sn:technical,i:t)
#I send to ":(C:USA,ADMD:TELEMAIL,PRMD:INTERNET,ID:<user(a)domain>)"
BT is a member of DialCom (qv).

The gateway was shut down in March 1990 for reasons. Individual customers may have private relays through the Commercial Mail Relay (CMR). Information available on the CMR is available from Intermail-Request@Intermail.ISI.EDU

mcmahan@netcom.UUCP (Dave Mc Mahan) reports nobody responded to his query in October 1990.

bruceh@CV.HP.COM (Bruce Hauge) reports that as 1991 there is no gateway yet, but they’re working on it.

christ@issun3.stc.nl (Brian Christiansen) nobody responded to his query in February 1991.

Fidelity Investments ea47916@uxa.cso.uiuc.edu (Eric Adams) reports that (Dallas) nobody responded to his query in February 1991.

No gateway yet, but Bill Louden, the General Manager of GENie, has stated publically that they are currently doing research into the feasibility of a gateway. If such a gateway is set up, you’ll hear about it.

By the way, the machine genie.com is a red herring.

GoldNet reports that GoldNet is part of DialCom (qv).

oze3@quads.uchicago.edu (J. Daniel Ozeran) that nobody responded to his query in January.
Midas International headquarters in Chicago
I000393@MAINE.BITNET (Pete) reports that nobody responded to his query in January 1991.

Nifty-Serve
a Japanese BBS
suzuki@sai.vtt.fi (Makoto Suzuki) contacted the system operators and confirmed that there is no gateway.

OMNET
Craig E. Ward (cew@isi.edu) explains:

Go either through Sprint Internet relay, Sprint.COM, or through the Commercial Mail Relay (CMR) at Intermail.ISI.EDU.

Through the CMR, you can send mail to OMNET users with this format:

"[omnet.user/OMNET]MAIL/USA%TELEMAIL"@Intermail.ISI.EDU

Users on OMNET will need to use an embedded header, i.e. in the body of the message text (almost as ugly as X.400, but not quite) in a message to
"[INTERMAIL/USCISI]SM66/USA" to get mail back to you:

Forward: Internet
To: Gumley_LE@cc.curtin.edu.au
<Blank-Line>

You can get more information about the Commercial Mail Relay from:
Intermail-Request@Intermail.ISI.EDU

Paranet
vac163w@monu6.cc.monash.edu.au (vacation) 4 Dec 90
email
No summary has yet been posted, and personal email to this person is not answered.

PC-Relay
davidl@cix.compulink.co.uk (Dave Lambert) 21 Feb 91
email
No summary has yet been posted, and personal email to Mr Lambert is not answered.

Prodigy
by IBM and Sears
censors email
charges the sender of the mail message
Censorship details available from comp.risks

issue 10.46.

PROFS (general)
PROFS is not a network. It is an electronic
office system that has electronic mail as one of its components. Many companies purchase it from IBM and install it locally.

PROFS (IBM) gt5116b@prism.gatech.EDU (Gaby Turek) reports that you send to username@vmmachine.iinus1.ibm.com, but the recipient must first have registered for internet access.

QUICK-COMM reports that as of February 1991 there is no gateway, though one is under development.

SABRE network. American Airlines' in-house reservation that savel@hoss.unl.edu (Bharat P. Savel) reports they it has no gateway to any other network, and intend to keep it that way.

Telemail Feb 91 Use the gateway at sprint.com This requires knowledge of the recipient's X.400 address on Telenet (now Sprintnet). Your SMTP address will look like this:

```
smtp%"/dd.un=username/admd=telemail/o=gte/c=us/@sprint.com"
```

the username will be the recipient's username on the system and o will be the organization.

VNET (IBM) kkrueger@zeus.unomaha.edu (Kurt Krueger) 16 Feb 91

Whole Earth 'Lectronic Link (WELL) basiji@milton.u.washington.edu (David Basiji) reports that you send mail to username@well.sf.ca.usa

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Ajay Shekhawat <Dept. of Comp. Sci., SUNY@Buffalo,
APPENDIX E

A Listing of Canadian Groups Using WEB
Canadian Organizations on Web

**ENVIRONMENT**

Advisory Committee on Environmental Standards
Alberta Environmental Network
Alberta Greens
Algoma Manitoulin Nuclear Awareness
Atmospheric Environment Service
British Columbia Environment Network
Campaign for Nuclear Phaseout
Canada Earthsave Society
Canadian Organic Producers Marketing Co-op
Canada / U.S. Acid Rain Networking Project
Canadian Participatory Committee for UNCED
Canadian Environment Network
Canadian Environmental Law Association
Canadian Earthcare Society
CHANGE
Chilliwack Environmental Panel
Citizens Action Network
Citizens Concerned about Nuclear Transport
Citizen's Network on Waste Management
Concerned Citizens of Manitoba
Conservation Council of St. John
Conservation Council New Brunswick
Conservation International Canada
Earthday Canada
Ecological Agricultural Projects
Ecology North
Ecology Action Centre
EcoSource
Elora Environmental Action Group
Energy Probe
Enviro-Link
Environment Canada
Environmental Action Leeds Grenville
Environmental Action Ontario
Environmental Choice Program
Environmental News Service
Environmental Protection Office
Environmental Studies Students' Association, York University
Friends of Oak Hammock Marsh
Friends of the Earth
Friends of the Dolphins
Friends of the Athabasca
Friends of Strathcona Park
Friends of the Peace River
Gaia Group
GATT-Fly
Global Action Plan
Grass Roots Albany
Green Party of Canada
Green Living
Greenbase (Greenpeace - Vancouver)
GREENGRASS Institute
Greenspace
Holland College Environmental Technology
Independent Power Producers' Society of Ontario
Informa Inc.
Institute for Research on Environment and Economy
Institute for Sustainable Communities
International Institute for Sustainable Development
International Wildlife Coalition
Library of Parliament
Manitoba EcosNetwork
Metropolitan Toronto Remedial Action Plan
National Secretariat for the 1992 U.N.C.E.D.
National Round Table on Environment and Economy
Niv Centre / EcolNet Canada
Northwestern Nuclear Awareness Project
Ontario Greens
Ontario Round Table on Environment and Economy
Ontario Hydro Corporate Relations
Ontario Environment Network
Ontario Ministry of Environment
OPRFG
OPRG
Parkdale Greens
Peace and Environment Resource Centre
Pollution Probe Foundation
Recycling Council of Ontario
Regina Environmental Group
Reseau Quebecois des Groupes Ecologiques
Resource Integration Systems
Riverdale Green Party of Ontario
Sacred Run Canada
Saskatchewan Environment Network
Saskatchewan Environmental Society
Sierra Club of Canada
Solar Energy Society of Canada
Temiskaming Greens
Ten Days for World Development
The Ecological Radical Residents Association
Tuat Environmental Services
Turtle Island Earth Stewards
Valhalla Wilderness Society
Wallaceburg Clean Water Committee
West Coast Environmental Law Association
Western Canada Wilderness Committee
Whiteware Residents Association
Yukon Conservation Society

**INTERNATIONAL DEVELOPMENT AND SOCIAL JUSTICE**

Africa Information Afrique
AlterNet Association
Association Quebecoise des Organismes de Cooperation Internationale
Canada Honduras Information and Support Association
Canada Tibet Committee
Canadian Council for International Cooperation
Canadian Crossroads International
Canadian Youth Foundation
Canadian Unitarian Council
Canadian Action for Nicaragua
Carrefour de Solidarite Internationale
Central American Information Project
Centro America Al Dia
CERLAC
CID
CIDMMA
Coalition to Stop U.S and Canadian Intervention in the Middle East
development Canada
Comite d'Appui au Peuple de Guatemala
Cultural Survival - Canada
DECCA
Department of External Affairs
Developing Countries Farm Radio Network
Division of International Development, University of Calgary
El Salvador Information Office
Federation of Metro Tenants' Associations
Guatemala Human Rights Commission
IDRC
IFDEC
Institute for International Development and Co-operation
Institute for Research on Public Policy
Inter-Church Uranium Committee
Inter-Church Committee on Human Rights in Latin America
International Defense & Aid Fund for Southern Africa
Jesuit Centre
Lawyers for Social Responsibility
Latin American Working Group
Manitoba Coalition of Organizations Against Apartheid
Ontario Council of Agencies Serving Immigrants

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Ontario Council for International Cooperation
Ontario - Africa Working Group
Oscar A. Romero Refugee Centre
Oxart
Pueblo
Radio Farabundo Martí Network
Radio Venceremos
Responsibility International
Resystom
Rural Advancement Fund International
SahAde
Saskatchewan Council for International Co-operation
South Pacific Peoples Foundation
Susila Dhamma International
Teardrop Crafts
The United Church of Canada
The Presbyterian Church in Canada
UNCHS - Habitat
Union for Democratic Communications / Borderlines Collective
United Nations Association in Canada
Videazimut
World Citizen's Centre

B.C. Teachers' Federation
Blake Street Public School
British Columbia Environment Network
Brocklehurst Secondary School
Brookwood Secondary School
Canadian Training Institute
Canadian Teachers' Federation
Dept. of Spanish and Latin American Studies
Edmonton Learner Centre
Environmental Studies Students' Association, York University
Fraser Information Society
Grey Highlands Secondary School
Institute for Environmental Studies
International Council for Adult Education
J.L. Jackson Secondary School
Kelowna Secondary School
L.V. Rogers Secondary School - Library
Laurier University
Learning and Technology Centre
Lester B. Pearson College of the Pacific
Mathematics, Sciences and Technology Education Group - Queens University
McMaster University
McMaster Students' Union
Mountain View Elementary
North York Board of Education
OISE - Centre for Women's Studies in Education
Queen's Park Elementary School
Royal Ontario Museum - Far Eastern Library
Shuswap Junior Secondary School
Sir Sanford Fleming College
Southern Interior Telecommunications Project
St. Vladimir Institute Library

Third Avenue Resource Centre
Toronto Board of Education
Toronto Urban Studies Centre
TV Ontario
Unisphere Learner Centre
University of Victoria - Faculty of Law
Vocational Counsellors Resource Network
West Vernon Elementary School
West End Alternative School
Westsyde Secondary School
York University

Albetta Global Education Project
Association of Family Mediators
B.C. Youth Employment Services
British Columbia Intervention Association
Canada Mortgage and Housing Corporation
Canadian Council on Social Development
Canadian Rehabilitation Council for the Disabled
Changemasters Institute
Davenport-Perth Neighbourhood Centre
Don Snowden Centre/Development Support Network
Edmonton Social Planning Council
Fédération des Jeunes Canadiens Français
Foodshare
Hamilton Action for Social Change
Homes First Society
Institute for Cultural Affairs
Institute for Community Economic Development
Landsman Community Services Ltd.
Microloans and Co-op Services
Ministry of Transportation - Marine Office
Niv Community Resource Centre
NR Group
Ottawa - Carleton Centre for Community Owned Business
Pembina Institute for Appropriate Development
Phoenix Community Works Foundation
Ralph Thornton Community Centre
RISE
Social Investment Organization
Social Justice Commission - Edmonton
Social Planning Council - Metropolitan Toronto
South Riverdale Community Health Centre
Taskforce on the Churches and Corporate Responsibility
The Network: Interaction for Conflict Resolution
Toronto Committee for the Liberation of Southern Africa
Urban Core Support Network
Westcoast Development Group
York Community Services

ACT for Disarmament
Beyond War
Canadian Institute for International Peace and Security
Canadian Voice of Women for Peace
Canadian Peace Alliance
Canadian Coalition for Nuclear Responsibility
Canadian Unitarian Council
Centre for Peace Studies, McMaster University
Coalition to Stop U.S. and Canadian Intervention in the Middle East
Greater Victoria Disarmament Group
Lawyers for Social Responsibility
North Atlantic Peace Organization
Nuclear Awareness Project
Oulis de Paix
Pacific Campaign to Disarm the Seas
Parkdale Greens
Peace and Environment Resource Centre
Tools for Peace
Veterans Against Nuclear Arms

Africa Information Afrique
AMARC
Big Creek Bugle
Canadian Tribune
CFLR - FM Radio
CFRU Radio
CHRY - FM
CHSR - FM Radio
CIUT - FM
CJAM - FM
CJSW - FM
CKLI
CKMS - FM
CKUT - FM
CRWR - FM
Canadian Physicians for the Prevention of Nuclear War
Earthkeeper Magazine
Editions Roque Dalton - Toronto
Environmental News Service
FM - Studio
GATT-Fly
Inter/Access - Matrix Interc
Kensington Drum
Maclean's Magazine
New Society Publishers
New Internationalist Magazine
Radio Carleton CKUC - FM
Radio Venceremos
Radio Centre-Ville
Radio Farabundo Mars
SciNet
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Houston and the Z-Word (News), Feb., p. 29

The Scoop on Houston [zoning], David Dillon, Apr., p. 13; Leading the Charge [planning director Donna Kristaponis], Gary Enos, p. 14

Skyscraper Compromise [New York] (News), June, p. 33
APPENDIX G

Federal, State, County and Municipal BBS Systems in the United States
U.S. GOVERNMENT, STATE, AND CITY BULLETIN BOARDS

BY MAX LENT

At present, there is no one government agency responsible for providing information about U.S. government, state, or local electronic bulletin boards. The bulletin boards listed here were found by calling known bulletin boards and obtaining numbers of others listed there. Although these numbers have been called for verification, they may change at any time. The bulletin boards listed here may or may not be operating by the time you read this. If a listed number does not answer or answers with a recording, call the voice number (if one is listed) to verify that the bulletin board is operational. If you know of U.S. government, state, or local bulletin boards not listed here, please share that information by sending e-mail to Max Lent (72145,125).

EXPORT-IMPORT BANK   (Washington, D.C.)
-- Exporters’ BBS
  data: (202) 566-4602
  voice: (202) 566-4690
  Sysop: Bob Hughes, Joel Kahn
  public access:   24 hours/day  7 days/week

DEPARTMENT OF COMMERCE
-- Climate Analysis Center
National Weather Service
5200 Auth Rd., Room 805
Washington, D.C. 20233
voice: (301) 763-8071
data: not listed
Sysop: Vernon Patterson
public access: Fee based system. Call voice number for password and dialup number.

-- National Weather Service Bulletin Boards
voice: (301) 899-3296 Washington, D.C.
data: (207) 772-6732 Portland, ME
data: (804) 857-0312 Norfolk, VA
data: (617) 567-8383 Boston, MA
public access: No fee or password required. Some data lines operate at 300 bps.
data: (301) 454-8700 Washington, D.C.
ID REQUIRED (USE FOLLOWING)

  ID: IF CALLING FROM:
  --- -------------------
  WRGN1   NEW ENGLAND AREA

190
WRGN2    NY, NJ, PA
WRGN3    MD, VA, DE, DC
WRGN4    OTHER LOCATIONS

FAX:
-- Economic News    (Washington, D.C.)
    (Office of Economic Affairs)
data:    (202) 377-3870
data:    (202) 377-0433
voice:    (202) 377-4450
Sysop: Ken Rogers
public access: may browse; charges fees for full access.

-- Office Automation    (Suitland, MD.)
    (Bureau of the Census)
data:    (301) 763-4576
voice:    (301) 763-7448
Sysop: Nevins Frankel
public access: 24 hours/day 7 days/week

-- Personnel    (Suitland, MD.)
    (Bureau of the Census)
data:    (301) 763-4574
voice:    (301) 763-7448
Sysop: Nevins Frankel
public access: 24 hours/day 7 days/week

-- Microcomputer Electronic Information Center    (Gaithersburg, MD.)
    (National Bureau of Standards)
data:    (301) 948-5717
data:    (301) 948-5718
voice:    (301) 975-3359
Sysop: Ted Lanberg, Lisa Carnahan
public access: 24 hours/day 7 days/week

-- Data Management Information Exchange    (Gaithersburg, MD.)
    (National Bureau of Standards)
data:    (301) 948-2048
voice:    no voice line indicated
Sysop: not listed
public access: 24 hours/day 7 days/week

-- Information Technology Exchange    (Kensington, MD.)
    (National Oceanic and Atmospheric Administration)
data:    (301) 770-0069
voice:    (301) 377-2949
Sysop: Rich Kissel
public access: 24 hours/day 7 days/week
-- Planning and Budget (Washington, D.C.)
    (Office of the Secretary)
data:   (202) 377-1423
voice: (202) 377-2949
Sysop: John O'Conor, Pat Spencer, Kathy Cooper
Appropriations data: Sharon Davis
Budget Bulletins: Beth Mack
public access: 24 hours/day 7 days/week

DEPARTMENT OF THE NAVY
-- Naval Aviation News Computer Information (NANci) (Washington, D.C.)
data:   (202) 475-1173
voice: (202) 433-4407
Sysop: Commander John A. Norton
public access: 24 hours/day 7 days/week

-- Naval Weapons Engineering Support (NAWWEA) (Washington, S.E.)
data:   (202) 433-6639
data:   (202) 433-2171
voice: (202) 433-4836
Sysop: Bill Walsh
public access: 4pm - 7am weekdays; 24 hrs weekends/holidays.

-- Judge Advocate General (Alexandria/Arlington, VA)
data:   (202) 325-0748
voice: (202) 325-8312
Sysop: Ens. Steve Bartlett
public access: 24 hours/day 7 days/week

-- Naval Observatory (Washington, D.C.)
data:   (202) 653-1079
voice: (202) 653-1522
Sysop: M. Miranian
public access: no limitations specified enter "@TCO" command for command directory.

-- Navy Regional Data Automation Center (NARDAC)
data:   (804) 445-1627 (300 - 1,200 bps)
data:   (804) 445-1121 (300 - 2,400 bps)
voice: (804) 445-4298
Sysop: Janet Carter
public access: 24 hours/day 7 days/week; restricted to NARDAC communications.

DEPARTMENT OF THE ARMY
-- Corps Engineer Planners (Mt. Vernon, VA)
data:   (202) 355-2098
voice: (202) 355-3087
Sysop: Michael Walsh
public access: 24 hours/day 7 days/week
DEPARTMENT OF DEFENSE
-- Ada Information Database
  data: (202) 694-0215 (DOD)
     (301) 459-3865 (Hyattsville, MD.)
  voice: (703) 685-1477 (Alexandria, VA)
  Sysop: none listed
  public access: 24 hours/day 7 days/week

-- Defense Technology Security Administration
  Export Control
  data: (202) 697-3632 (DOD)
  data: (202) 697-6109 (DOD)
  voice: (202) 693-1148 (DOD)
  public access: Exclusive use of exporters of licensed items
                under provisions of U.S. Export Control laws.

DEPARTMENT OF STATE
-- Agency for International Development (Arlington, VA.)
  data: Not operational
  voice: (703) 875-1369
  Sysop: Jerry Galindo
  public access:

DEPARTMENT OF JUSTICE
-- Micro Bulletin Board (Washington D.C.)
  data: (202) 898-0318
  Sysop: not listed
  public access: Dept. of Justice employees only.

-- Immigration and Naturalization Service (Washington, D.C.).
  Budget and Finance
  data: (202) 786-3640
  voice: no voice line indicated
  Sysop: not listed
  public access: Do not use during working hours.

DEPARTMENT OF TRANSPORTATION
-- Federal Highway Administration (Washington, D.C.)
  data: (202) 426-2961
  voice: (202) 366-4057
  Sysop: not listed
  public access: 24 hours/day 7 days/week

NATIONAL AERONAUTICS and SPACE ADMINISTRATION (NASA)
-- Information Technology Center (Washington, D.C.)
  data: (202) 646-6197
  voice: no voice line indicated
  Sysop: Carlos Ojeda, Maura Ennis
  public access: 24 hours/day 7 days/week

National Space Science Data Center (Greenbelt, MD)
data: (301) 286-9000  
voice: (301) 286-7251  
Sysop: Bruce McLendon, Pat Sisson  
public access: 24 hours/day 7 days/week enter NSSDC (after the connect) when asked for User, enter "NSSDC" again

Space Physics Analysis Network (Greenbelt, Md.)
data: (301) 286-9000  
voice: (301) 286-7251  
Sysop: Bruce McLendon, Pat Sisson  
public access: 24 hours/day 7 days/week  
enter NSSDC (after the connect)  
when asked for User, enter SPAN_NIC

NATIONAL SCIENCE FOUNDATION  
Science Resources Studies (Washington, D.C.)
data: (202) 634-1764  
voice: (202) 634-4636  
Sysop: Vanessa Richardson  
public access: 24 hours/day 7 days/week

DEPARTMENT OF ENERGY  
Energy Information Administration (Washington, D.C.)
data: (202) 586-8658  
voice: (202) 586-1155  
Sysop: T.C. Swann  
public access: Mon-Fri: 8:00am - 11:00pm  
wknds/hols: 10:00am - 6:00pm

Radioactive Waste Management (Washington, D.C.)
data: (202) 586-9359  
Voice: (202) 586-5722  
Sysop: Glenn Truitt  
public access: 24 hours/day 7 days/week

FEDERAL DEPOSIT INSURANCE CORPORATION  
data: (202) 737-7264 (Washington, D.C.)  
voice: (202) 898-7085  
Sysop: R. Campbell, L. Rudolph  
public access: 24 hours/day 7 days/week

SECURITIES & EXCHANGE COMMISSION  
Information Systems Management (Washington, D.C.)
data: (202) 272-2835  
voice: (202) 272-2823  
Sysop: not listed  
public access: Federal Government use only

DEPARTMENT OF EDUCATION  
Educational Research and Improvement (Washington, D.C.)
data: (202) 626-9853
voice: (202) 357-6524
Sysop: Tom Litkowski
public access: 24 hours/day 7 days/week

AUTOMATED LIBRARY INFORMATION EXCHANGE (ALIX)
-- Federal Library Committee (Washington, D.C.)
data: (202) 287-9656
voice: (202) 287-1374
Sysop: Bruce Miller, Lee Power, Steve Palinscar, Bill Stockey
public access: Mon-Fri 7:30am - 5:00pm

GENERAL ACCOUNTING OFFICE
-- Information Technology (Washington, D.C.)
data: (202) 275-1050
voice: no voice line indicated
Sysop: Mark Stefan
public access: 24 hours/day 365 days/year

GENERAL SERVICES ADMINISTRATION (GSA)
-- Information Resources Services Center (Washington, D.C.)
data: (202) 535-7661
voice: (202) 535-0825
Sysop: Steve Tursky, Suzanne Taxin
public access: 24 hours/day 7 days/week

VETERANS ADMINISTRATION
-- data: (202) 376-2184
voice: (202) 233-5571
Sysop: Jay D. Anderson & Heather Bullock
public access: 24 hours/day 7 days/week

VETERANS ADMINISTRATION
-- Acquired Property BBS listing

Regional Veterans Administration offices with online listings of local property foreclosures. If there is no answer during working hours try evenings and weekends.

ANCHORAGE AK PLANNED
MONTGOMERY AL 205-832-7202
LITTLE ROCK AR 501-370-3881
PHOENIX AZ 602-241-2371
SAN FRANCISCO CA 415-974-9510
LOS ANGELES CA 213-209-7920
DENVER CO 303-980-2984
HARTFORD CT 203-240-3021
WASHINGTON DC PLANNED
ST PETERSBURG FL NOT AVAILABLE
ATLANTA GA 404-347-7768
HONOLULU HI 808-541-1483

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**FEDERAL BUREAU OF PRISONS**  
-- Office of Information Systems (Washington, D.C.)  
data: (202) 272-4545  
voice: no voice line indicated  
Sysop: Byron Trantham  
public access: BOP and employees of other government agencies only.

**FAA/NWS/MITRE** (Falls Church/McLean, VA)  
-- Washington Testbed for Automated Flight Services Lab  
Experimental weather briefing  
data: (703) 790-1740  
voice: (703) 883-6008
Sysop: not listed
public access: No limitations specified.

FEDERAL COMMUNICATIONS COMMISSION
-- Public Access Link (Laurel, MD.)
data: (301) 725-1072
voice: not listed
Sysop: not listed
public access: 24 hours/day (5 min connect time)

DISTRICT OF COLUMBIA
-- Productivity Management Services (Washington, D.C.)
data: (202) 727-6668
voice: (202) 727-6665
Sysop: Danny Weiss
public access: 24 hours/day

U.S. GEOLOGICAL SURVEY
-- data: (703) 648-4168
voice: (703) 648-7000
Sysop: Jason Kruse
public access: 24 hours/day

U.S. DEPARTMENT OF AGRICULTURE
National Agricultural Statistics Service (NASS)
-- data: (202) 472-1027
voice: (202) 447-2339
sysop: not listed

INTERNAL REVENUE SERVICE
-- BXR Info Corner
Technical Support Section (Washington, D.C.)
Systems Services Branch
data: (703) 756-6109
voice: (703) 756-3535
sysop: Ginny Loiacona and Marianne Crockford

U.S. Information Agency (USIA)
-- data: (202) 376-1208 (use 7 bit, even parity, full duplex)
sysop: non listed
public access: Employees, clients, contractors, print media, and broadcast media.

WORLD BANK (Northwest Washington, D.C.)
-- Information, Technology and Facilities Development
data: Not operational
voice: (202) 473-3076
public access: closed
COUNTY BULLETIN BOARDS

The Farmer's Market Line
U.S. Department of Agriculture
Sussex County Cooperative Extension
R.D. 7 Box 13
Newton, NJ 07860
data: (800) 327-6658 (inside New Jersey only)
voice: (201) 383-3800
contact: Bruce Barbour, County Agricultural Agent.

CITY BULLETIN BOARDS

Free-Net

The Cleveland Free-Net Project
Case Western Reserve University
Cleveland, OH 44106
data: (216) 368-3888
Sysop: Tom Grundner, Ed.D
public access: Use 7-E-F settings at speed up to 2,400 bps.

The Youngstown Free-Net
Youngstown, OH
data: (216) 742-3072
Sysop: Lou Anschuetz, Robert Kennedy, & Robert Beveridge
public access: Use 7-E-F settings at speed up to 2,400 bps.

The Akron Free-Net
data: Not yet in service
voice: (216) 494-3637
contact: Mark Ravenscraft

RESOURCES MENTIONED

Information Broker

Instant Information (617) 523-7636
Randy Cabell, President
66 Long Wharf
Boston, MA 02110

Commercial Database Services

Bibliographic Information Services (BRS)
1200 Route 7
Latham, NY 12110
voice:  (800) 468-0908

DIALOG Information Services, Inc.
Marketing Department
3460 Hillview Ave.
Palo Alto, CA 94304
voice:  (800) 334-2564

Software

RBBS-PC
Capital PC User's Group
P.O. Box 6128
Silver Springs, MD 20906
voice:  (203) 268-9656
data:  (415) 689-2090