

CABLE TELEVISION: A COMMUNITY INFORMATION SYSTEM AT JONATHAN

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At Jonathan, Minnesota today, people are using "Responsor"tm units as part of a demonstration of what the two-way cable system can offer. This demonstration is made possible through a grant from the U.S. Department of Housing and Urban Development to Community Information Systems, Inc. We all know that the general public has little or no idea of what two-way cable into their homes will really mean. None of us knows the full potential. We do know that by putting the "Responsor"tm units in the hands of enough people and inviting them to use the units to tell the system what they want, we're going to expand their vision of how cable communications can more fully serve their needs, and, in the process, we in the industry are going to become much wiser as to the wants and needs to be fulfilled.

One-way television broadcasting and one-way CATV systems have taught the public to expect little in the way of response from their television sets. Nicholas Johnson surprised them with his book, How to Talk Back to Your TV Set; talking back was a new idea to most viewers. However, now in a much more immediate way with two-way amplifiers, and terminals capable of sending and receiving subscriber signals, we are entering the era of two-way cable systems when information systems will be offered on a massive scale. The demonstration system at Jonathan is perhaps the first to so thoroughly break through the stereotypes of one-way broadcasting, enabling the individual to think more vividly in terms of what he can ask for from this two-way medium. There is no substitute for the hands-on experience that we offer them. No verbal description, no slides, no movies will give a person as deep an impression as he gets from actually using the equipment the Community Information Systems now has available to the public in the new town of Jonathan in the City of Chaska, Minnesota.

Jonathan is a planned community on 5,000 acres about 25 miles southwest of Minneapolis (Figure 1). Within 15 years, Jonathan will probably be the home of at least 50,000 people with 15,000 subscribers to the two-way cable system. Communication is being carefully planned in Jonathan and will play a vital role in the development of this new town. For example, the educational system in Jonathan can take a completely new form with new methods of teaching. Health care delivery can be made more immediate, serving greater numbers of people more efficiently.

In Jonathan, the cable television network is redefined as a Community Information System where the conventional concept of television entertainment plays but a small part of community services to be provided. This Community Information System will be a configuration of men, machines, methods, data, and facilities designed to satisfy the informational needs of the community. In such a system, men and machines combine to perform the function data communications, processing, storage, and display associated with the inquiries and delivery of information to the subscribers. This interchange of information takes place for purposes relating to education, cultural interchange, health care delivery, religion, business, recreation, and many others.

In creating and developing the Community Information System in Jonathan/Chaska, the existence of four major forces must be recognized due to their influence on the types of services which may be offered:

- Technical Forces
- Economic Forces
- Legal/Political Forces
- Socio-cultural Forces

The technical and economic forces were the significant forces when CATV first entered rural areas. Today there are also certain limitations on the technical capabilities in terms of the advancement into the two-way cable field as to what is feasible as well as economically practical to provide. Since we are considering "the right" to information, economic divisions must be designed to give this information to all income levels and, at the same time, maintain a profitable company.

When the CATV industry moved into the urban environment, the legal/political forces became significant. In a CIS, these factors are even more paramount; as managers of computer banks containing information, in some cases, highly personal information, control must be designed to provide limited access to certain information. Such privacy of information incorporates the legal/political factors as a major influence on the development of the Community Information System.

Considerations in the socio-cultural area lean toward determining the appropriate types of information to be made available to the community in support of activities such as education, health care, and community interests. A Community Information System by its nature in serving the informational needs of the community must consider and respond to the socio-cultural forces present as well as the technical, economic, and legal/political aspects.

The program at Jonathan, Minnesota, sponsored by the U.S. Department of Housing and Urban Development is directed toward gaining more knowledge about how communications, more specifically, two-way cable communications, can serve the socio-cultural needs in the community.

Emphasis up to now has been on informing the public of the two-way technology and citing estimates of the various services that can be provided. The focal point should trend toward what people in these communities feel is important in the way of communications and what they view as significant services to satisfy their personal and professional lives.

In Jonathan, the overall program is divided into three phases as shown in Figure 2. The first phase deals with the basic data and information necessary to guide the development, construction, and operation of a Community Information System. In Phase II, plans include the design, construction, and operation of a 100-terminal network in nearby neighborhoods connecting homes, businesses, and institutions to the system. This can serve as a prove-in phase for both hardware and software. Keeping the network to this size will allow a manageable system, yet one adequate to provide valuable data. It is expected Phase II will require 1 to 1½ years. Phase III will be designed to offer a variety of services to the entire community of Jonathan and Chaska. Based on the findings and results of Phases I and II, this third phase will provide meaningful services to the community on a paying basis over a period of 2½ to 3 years, obtaining data relative to subscriber desires, willingness to pay, and cable communications as a vehicle for providing total communications as a way to improve the socio-cultural elements of the community.

In each of these phases, a primary objective will be to gather demand-side data and information to project cost benefits of various services. A multi-phase program of this type provides an optimum approach for gaining knowledge, experience and preparing the community for this technology as it becomes available.

In these activities, one of the most challenging tasks has been to develop the methods for determining individual preferences and values concerning two-way cable services. Four techniques are being used for eliciting significant data about such preferences and values; they are as follows:

- (1) In an effort to determine the services which individuals consider functional, visitors to the demonstration center are asked to complete a short questionnaire, either the standard form for adults or the simpler form for children.

- (2) Each machine and program in the demonstration center is being connected to an automatic counter, giving us data on how often each one is used.
- (3) People of the Jonathan/Chaska community are participating in panel discussions led by our program's consulting behavioral scientists. They take part in a series of opinion surveys dealing with the contributions of two-way cable communications to the quality of life.
- (4) A sample of the general population of the area will also be interviewed in some depth regarding the preferences for cable communication systems and the monetary value the services maintain for them.

These four methods for getting demand-side data have not yet been underway long enough to provide any figures that would be meaningful to our discussion here today, but these figures will be part of our report to the U.S. Department of Housing and Urban Development later this year.

Let me give you some ideas of what the visitor sees and does at the Community Information Systems Demonstration Center. A plan view of this demonstration facility is shown in Figure 3. The visitor enters the demonstration center after having gone through the Jonathan Development Corporation's information area and been introduced to the new town and its goals. After being greeted by our hostess, the visitor's attention is drawn to an explanation of how a Community Information System is a community service based upon a high level of participation by the citizenry in determining the particular kinds of services that can be provided (Figure 4). Different elements of the community affected by cable communications are illustrated visually by a large scale map which initiates some idea of the geographic area that can be served by this project.

A 10-minute slide/tape presentation then points out how important this new type of communication system may be and explains to the visitor how he may use the two-way cable system present in the demonstration center. He previously noticed the Communication Center equipment (Figure 5); it may have aroused his curiosity with its visual displays indicating how various groups of lights have something to do with intrusion, fire, no response, and other functions. Practical usage of the hands-on equipment of the Communication Center is an alluring area of the display. Here, the visitor may use the "Responsor"tm to call up the desired program sequence. Figure 6 shows a listing of the programs available and those soon to be available. One program, for example, shows the interactive

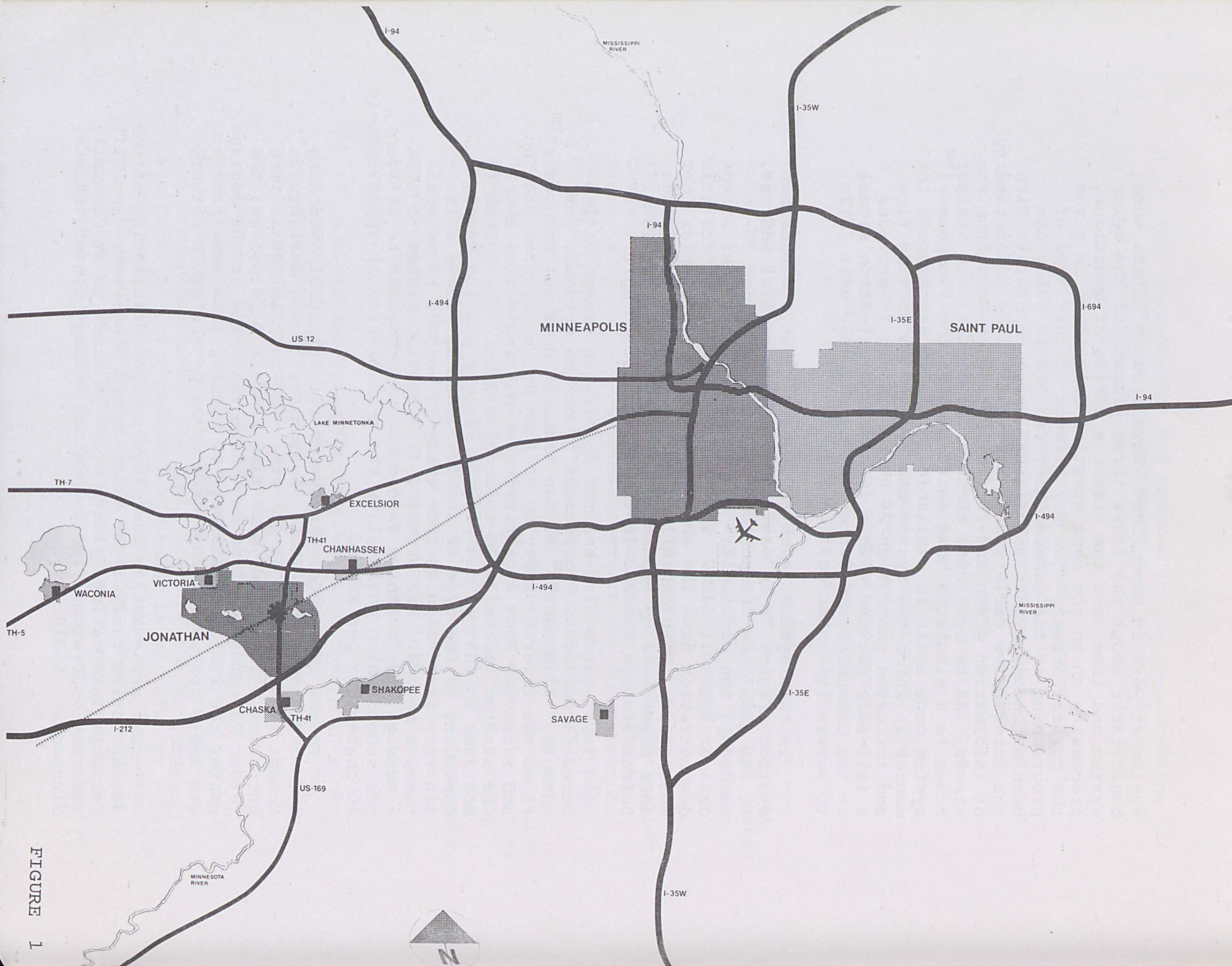
system at work in education. This program offers some basic facts about the first three planets of the solar system and then asks the viewer a series of questions, proceeding on to the next question only after he gives the correct answer. The key element of this type of programming is the General Electric AVR-10 which has been extended beyond its original usage to operate with the interactive cable system for testing the understanding of information given and for collecting answers from the viewer. As he continues through the center, the visitor comes to a simulated home setting where the "Responsor"tm system once again is available to him to demonstrate the manner in which the system can be used to provide fire and intrusion protection 24 hours a day. It provides a fail-safe feature with a loss of communication signal at the Communication Center if any response unit fails to answer its interrogation signal.

In this system, each "Responsor"tm at a subscriber station (Figure 7) is assigned a unique digital address. At the time each "Responsor"tm is polled (every 10-20 seconds), the particular "Responsor"tm can either accept data or transmit data. The "Responsor"tm units for this demonstration have the ability to store and display four characters. This capability can be extended to include more characters by expanding the capacity of the local buffer storage element in the "Responsor"tm unit.

This system also has the ability to communication between individual "Respondors"tm on the network; for example, "Responsor"tm #1 can transmit data to "Responsor"tm #5 or the reverse simply by calling up the desired station and receiving back a confirming signal indicating that the station is available to receive data. The system is designed so that it can provide various polling rates, depending on the type of service desired. These rates can vary from scanning once every 10 seconds to several times a second. For example, if a station wishes to type a message, the scanning rate could be increased to 10 scans per second which would allow the transmission of approximately 40 characters per second.

In the idle mode, the system is continually scanning each "Responsor"tm. These "Respondors"tm are designed to accept sensor inputs at all times for such things as fire intrusion. Therefore, each time a station is polled, the return idle message from each unit indicates at the message center the status of alarms. Of course, this same process can apply for performance monitoring of the cable network itself.

This presentation has given a brief description of the demonstration facility at Jonathan and the system capability. For more information, please write or visit us at Community Information Systems, Inc., Jonathan Village Center, Chaska, Minnesota 55318.



PHASES OF THE EXPERIMENT.

- 1** • Design, construct, and operate a C.I.S. Demonstration Center
 • Define the follow-on experiment
- 2** • Design, construct, and operate a 100-terminal network in nearby neighborhoods
- 3** • Modify and extend the two-way network to 1500 terminals in Jonathan-Chaska
- &** (In) • Get demand-side data
 (each phase) • Analyze benefit cost.

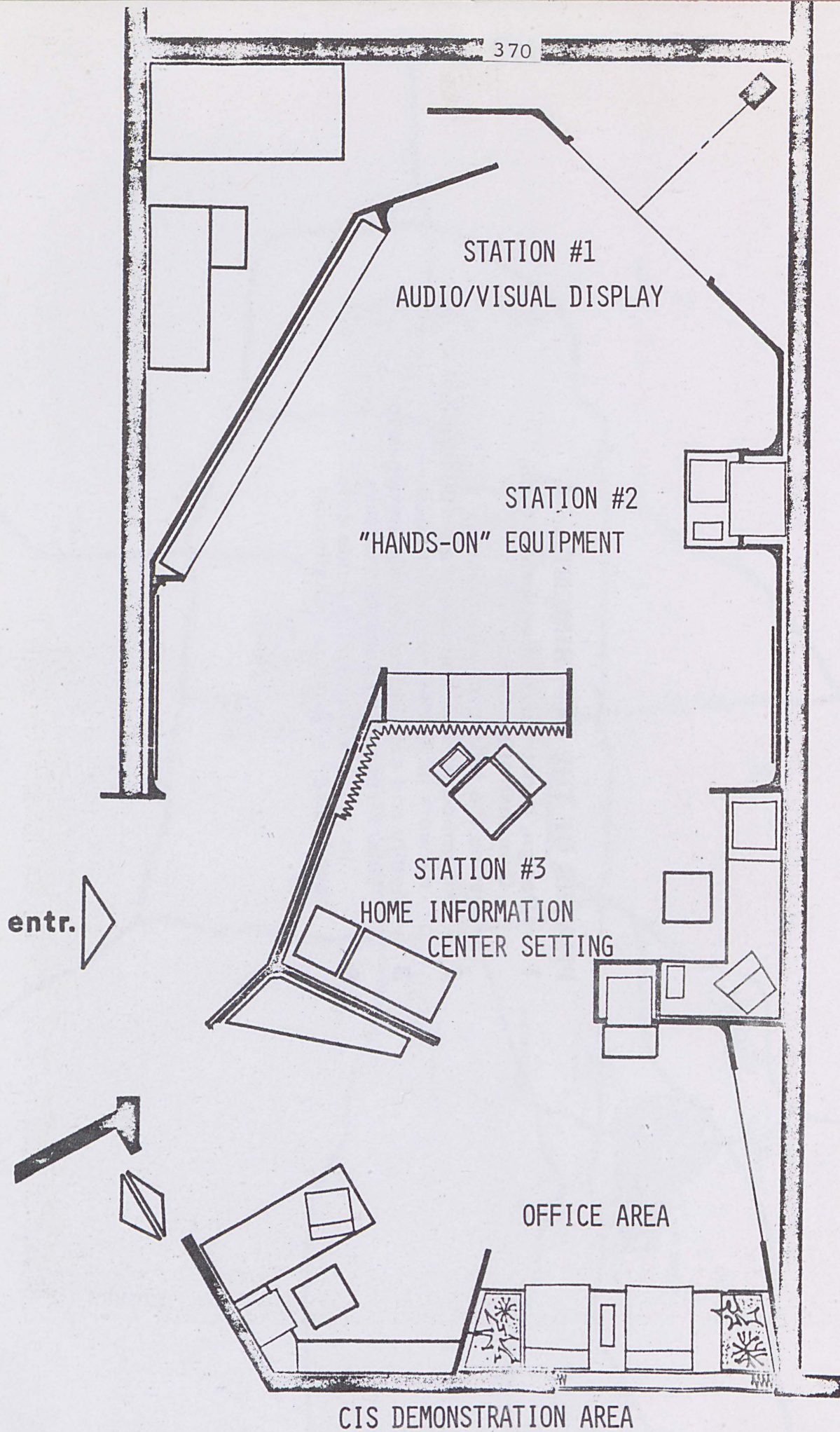


FIGURE 3

COMMUNITY INFORMATION SYSTEMS

a community program

SERVING THE NEEDS OF THE
COMMUNITY IN:

- * EDUCATION
- * HEALTH CARE
- * CULTURE
- * MUNICIPAL SERVICES
- * TELECOM
- * BUSINESS
- * INDUSTRY
- * MAXIMIZING COMMUNITY
INVOLVEMENT THROUGH:
- * SEMINARS AND GROUP
PRESENTATIONS
- * COMMUNITY USE OF
DEMONSTRATION FACILITY
- * CITIZEN PARTICIPATION IN
JOINT PROGRAM PLANNING



FIGURE 4



FIGURE 5

INDEX OF PROPOSED APPLICATIONS
AND DEMONSTRATION PROGRAMS

- JONATHAN HOMES
- OUR COMMUNITY
- LEARNING IS FUN
- TIC-TAC-TOE
- HOME SECURITY
- OPINION POLLING
- HOME SHOPPING
- LOCAL EVENTS
- LOCAL HISTORY

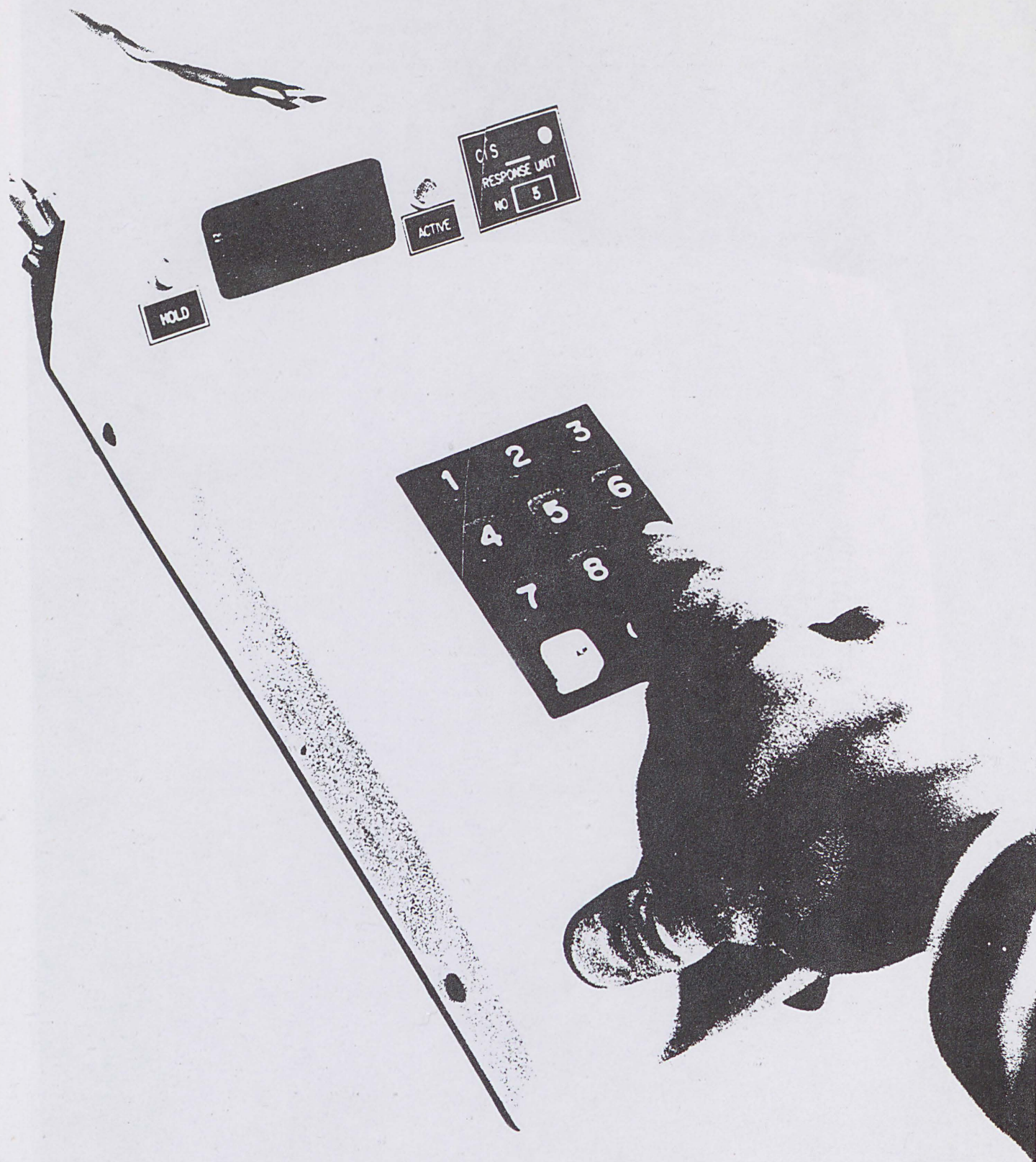


FIGURE 7