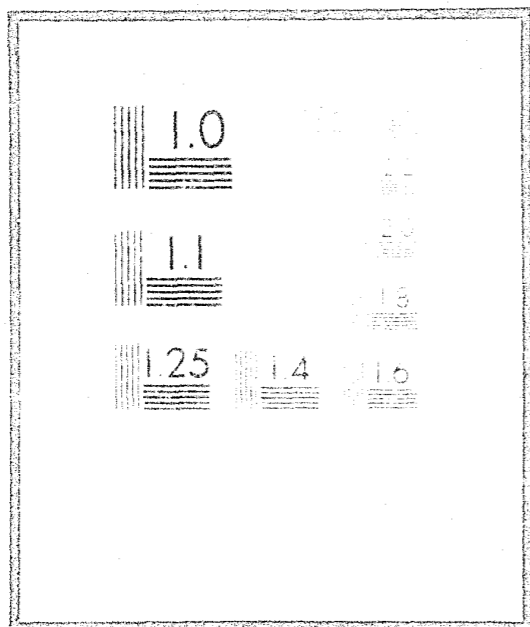


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METREK DIVISION

MTR-7328
Vol. II

The Video Telephone in Criminal Justice The Phoenix Project Volume II Analysis of Applications

L.L. STINE
L.G. SIEGEL

AUGUST 1976

38951cs

MITRE

MITRE Technical Report

MTR-7328

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EXECUTIVE SUMMARY

Department Approval:

Walter H. King

MITRE Project Approval:

Warner A. Elie

This is Volume II of three volumes describing the Phoenix video telephone project. It describes in detail the project experience with video telephone applications implemented during the project in the Phoenix-Maricopa County criminal justice system.

Seven applications were implemented and used to a significant extent during the project. Principal among these were such functions as public defender conferences with jailed clients, remote access to the police information bureau, arraignment of in-custody defendants, and remote testimony at preliminary hearings and trials.

The most heavily used application for the video telephone was in public defender conferences with jailed clients. After the video telephone was installed there was an average of 186 video telephone contacts per month with clients in the county jail, which represented 67 percent of the total of all video telephone, telephone and in-person contacts. The number of in-person contacts at the jail dropped to about half its previous level during the same period, and the total number of contacts per attorney almost doubled.

Simultaneously it appeared that the first contacts between public defender attorneys and in-custody clients were taking place earlier by amounts that ranged from 37 percent for conferences pertaining to upcoming preliminary hearings to 130 percent for conferences in preparation for trial. These changes in conjunction with the increase in contact frequency suggest that the use of the video telephone for this application exhibited potential for improving the administration of criminal justice. An analysis of costs suggests further that the advantages were achievable at a net cost savings, if the video telephones were costed as if they were generally available as a tariff item.

The applications involving criminal hearings and trials were implemented only on a test case basis to avoid a buildup of cases that might be reversed on appeal because of the use of the video telephone. Police officer testimony was presented by video telephone in seven preliminary hearings and two criminal trials. The testimony of a jailed codefendant was also taken in one of the criminal trials using the video telephone in the jail.

An analysis of the overall cost impact of the video telephone use in Phoenix, assuming the video telephone were costed as if it were generally available as a tariff item, showed that even with the minimal test installation and limited usage, the cost savings more than offset the cost of the installations. When the usage was projected

to the maximum possible within the Phoenix-Maricopa County jurisdiction the savings increased to as much as \$27,000 per month. This suggests that there is potential in Phoenix for saving money by using the video telephone as a substitute for in-person travelling in the administration of criminal justice.

Other documents available from the Phoenix Video Telephone Project are:

The Video Telephone in Criminal Justice: The Phoenix Project

Volume I - Summary of Applications and Findings, W. A. Eliot et.al., The MITRE Corporation, August 1976

Volume II - Analysis of Applications, L. L. Stine, L. G. Siegel The MITRE Corporation, August 1976

Volume III - Technical Characteristics, R. G. Pfefferkorn, The MITRE Corporation, August 1976

Visual Communications Program: Site Evaluation and Recommendation, T. Kornreich, K. Levin, The MITRE Corporation, September 1974

Video Technology in The Courts, Genevieve Coleman, The MITRE Corporation, June 1976

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FOREWARD

The Phoenix project was concerned with the role of the video telephone in the criminal justice process and the improvements in case disposition that might result from its use. The specific equipment selected for the project was an experimental version of the PICTUREPHONE fabricated by the American Telephone and Telegraph Company (AT&T). Any other equipment of a similar nature could have been used. The AT&T equipment is not generally available and no conclusion about its availability should be inferred from its use in the Phoenix project. In addition, the cost figures used in the report were projected by The MITRE Corporation from figures charged by AT&T during an earlier service offering. The projections were assumed for a hypothetical situation in which the PICTUREPHONE would be generally available for public use and would be widely used. Since this is not now the case the cost figures and the calculated savings would not necessarily apply in the kinds of limited installations that might be negotiated by individual users with AT&T or any other manufacturer.

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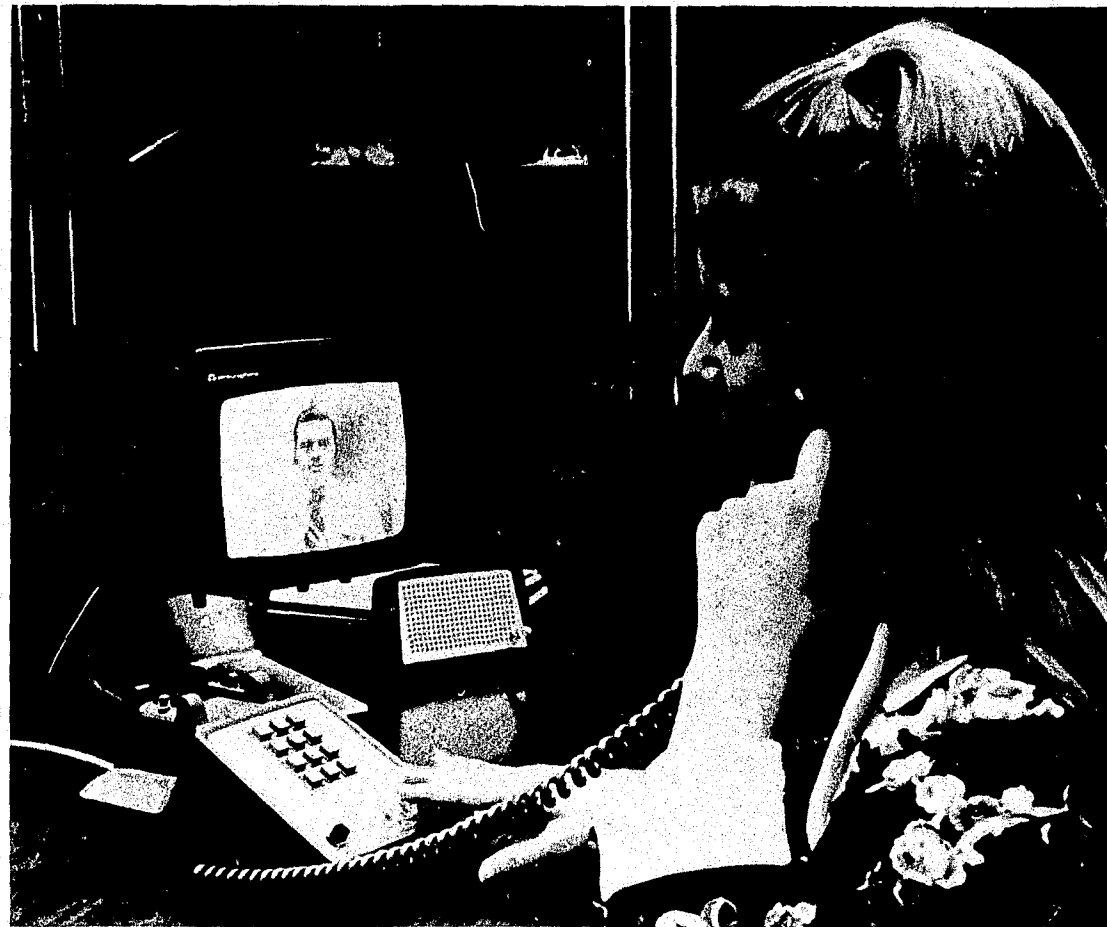


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SECTION I INTRODUCTION

SCOPE OF THIS VOLUME

This is Volume II of three volumes describing the Phoenix video telephone project. It describes in detail the project experience with video telephone applications implemented during the project. Each application is described in terms of the operational environment, measured usage patterns, functional changes in the conduct of the applications, cost savings, and legal issues raised by the use of the video telephone. A network cost model that examines the economic implications of using the video telephone in criminal justice is also described. The reader is referred to Volume I for a general overview of the project which provides the broad context for the applications.

NATURE OF THE APPLICATIONS

A set of specific applications was selected for implementation and evaluation in order to provide a focus and structure to the project. The principal applications, listed in Table I, covered a broad range of functions in the criminal justice system and included several kinds of information exchanges. The relationship of all candidates to the various stages of the criminal justice process is shown in Figure 1.

The applications listed in Table I were comprised of several kinds of information exchanges. Some involved one individual talking to another individual; others involved three-way conferences or a group of persons appearing before a judge in a court hearing. Still others involved the transmission and copying of graphic information, such as photographs and documents. Adversarial as well as non-adversarial proceedings, including oral argument of pre-trial motions and remote testimony in probation violation hearings, preliminary hearings and criminal trials, were planned and implemented.

TABLE I
PRINCIPAL VIDEO TELEPHONE APPLICATIONS

APPLICATION TITLE	DESCRIPTION
PUBLIC DEFENDER CONFERENCE WITH JAILED CLIENT	A public defender confers with clients at the county jail prior to court hearings.
PRE-SENTENCE INTERVIEW WITH CONVICTED PERSONS IN JAIL	A probation officer interviews convicted inmates at the county jail prior to sentencing.
REMOTE ACCESS TO POLICE INFORMATION BUREAU	Police officers in substations access central police records in support of investigations, identifications and court testimony.
CALL OF THE CALENDAR	The Presiding Criminal Judge, public defenders and deputy county attorneys meet daily to confirm plans and readiness for trial the next day.
ARRAIGNMENT OF IN-CUSTODY DEFENDANTS	The Presiding Criminal Judge arraigns in-custody defendants pleading not guilty.
ORAL ARGUMENT OF PRE-TRIAL MOTIONS	The county attorneys and/or public defenders present motions to the criminal court judge prior to trials.
PROBATION REVOCATION HEARINGS	The probation officer testifies at a probation revocation hearing before the criminal court judge concerning an alleged probation violation
TESTIMONY IN PRELIMINARY HEARINGS	Police officers and crime lab experts testify for the prosecution at preliminary hearings.
TESTIMONY IN CRIMINAL TRIALS	Police officers and crime lab experts testify for the prosecution at criminal trials.

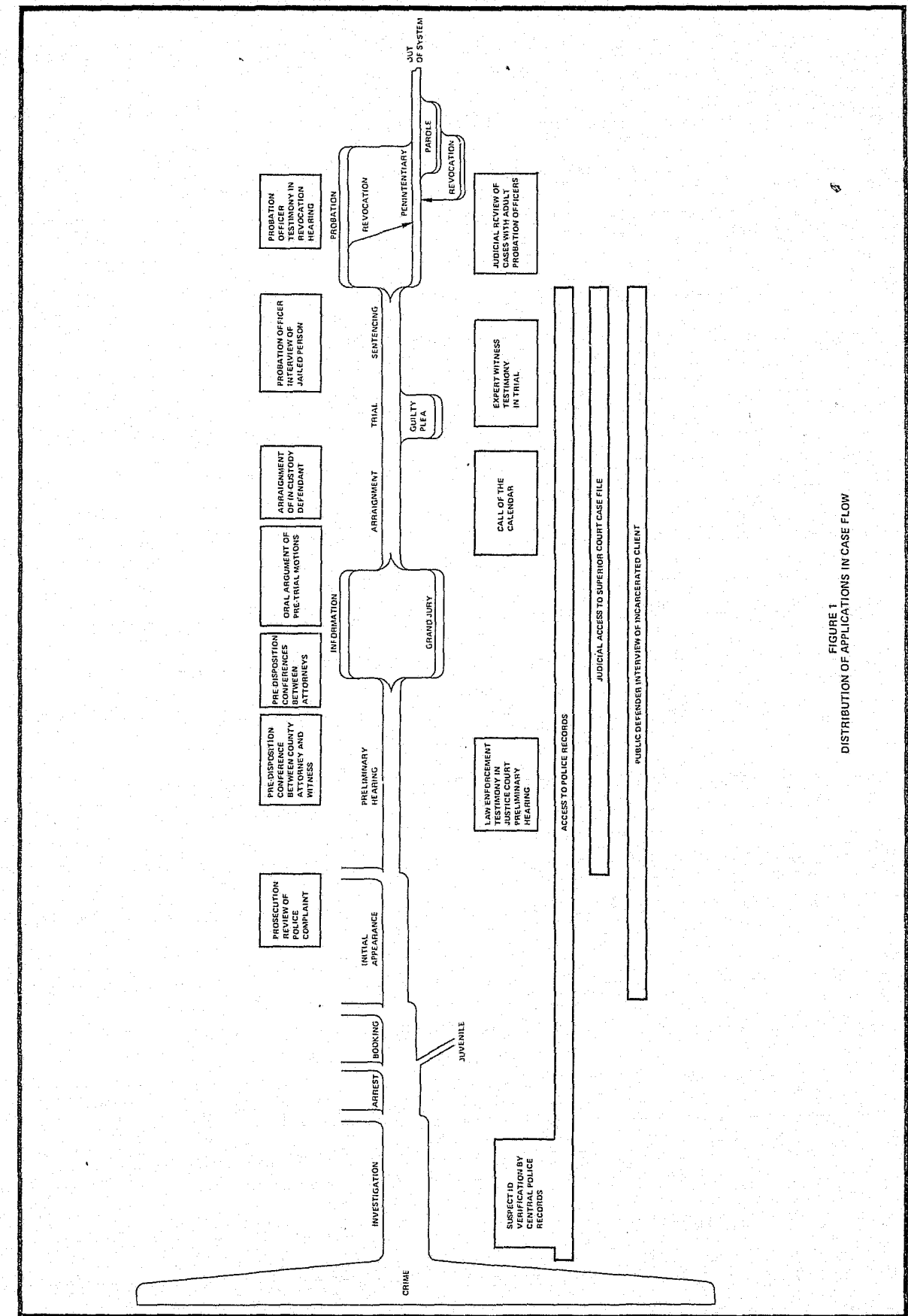


FIGURE 1
DISTRIBUTION OF APPLICATIONS IN CASE FLOW

APPROACH TO THE APPLICATIONS ANALYSIS

The purpose of the project was to gain insight into the potential impact of the video telephone when used for the identified set of applications. For purposes of the project, impact was defined as a relationship among three components: functional changes and cost changes in the criminal justice process as a result of using the video telephones, amplified by the extent of the video telephone usage. The nature of the impact was assumed to be modified by the operational environment (i.e., particular jurisdiction) in which the video telephone was implemented and the way in which various issues raised by the use of the video telephone were resolved.

Accordingly, the experience in Phoenix with each application is described in terms of the following five aspects:

1. the operational environment of Phoenix/Maricopa County which determined the particular circumstances for the implementation of the application,
2. the usage of the video telephone for the application,
3. the functional changes that resulted from use of the video telephone,
4. the cost changes in agency budgets that would appear to be possible if the video telephone were generally available, and
5. the issues raised by the use of the video telephone.

The operational environment of each application is described in terms of size and assignment of personnel in the criminal justice agencies, geographic location, and relevant procedures. Specific issues are identified but are not treated in detail since many are expected to be dealt with in the courts. The remaining three aspects--usage, functional changes and cost changes--are described in the following paragraphs.

USAGE

People may or may not use the video telephone for a variety of reasons--personal convenience, changes in procedures, daily schedules, positive or negative feelings about the equipment (especially when it is first installed), the nature of the application, etc. All of these factors will affect whether an individual chooses to use the video telephone instead of making a personal trip. As will be seen in the description of individual applications, usage measured during the project varied widely among applications.

Project personnel had numerous unstructured discussions with individuals regarding their attitudes toward use of the video telephone during the course of the project. As might be expected, attitudes ranged from completely negative to extremely positive. However, a structured sample of user attitudes was not a part of this study. Experience indicated, however, that attitudes changed with experience and with perception of the nature of the applications.

In all instances, participation by local criminal justice personnel was voluntary. Coordination was required each time the video telephone was used in preliminary hearings and trials. In these instances, project personnel worked with the agencies to identify upcoming cases assigned to equipped courts and to coordinate among the individuals involved plans for use of the video telephone. In almost all applications, MITRE and the system provider, American Telephone and Telegraph Company (AT&T), worked with agency representatives to establish the procedure and equipment configuration in order to make the application available to the users with minimum disturbance of routine.

During the course of the project, most applications experienced continuing use and gradually increasing acceptance. Figure 2 shows the monthly call statistics for the entire network. To some extent the rising trend reflects the growth in operational stations and applications shown in Figure 3. However, the last few sets to be installed were used only in selected instances for testimony in court hearings. While the number of sets and applications doubled from the Summer of 1975 to the Spring of 1976, the network traffic tripled and seemed still to be on the increase at the end of the project.

Usage statistics were compiled separately for every application. For some applications, where the usage involved a significant call frequency, the statistics were compared with similar numbers from pre-video telephone days. For others, such as testimony by video telephone in criminal trials and hearings, where usage was limited to selected test cases, the significance lay in the fact that the application took place at all, rather than in the frequency of occurrence.

FUNCTIONAL CHANGES

Because the criminal justice process is a means for resolving criminal conflicts, the ways in which people interact with each other during the process are particularly important to the way the conflict is resolved. Use of the video telephone as a means of interaction can result in changes in the criminal justice process. An obvious change is that people are not physically face-to-face but instead see television images of each other while conversing over the telephone. This can result in a number of desirable functional changes such as more frequent contact among participants, less travel and waiting by attorneys and police, better security of defendants and courts, and so forth.

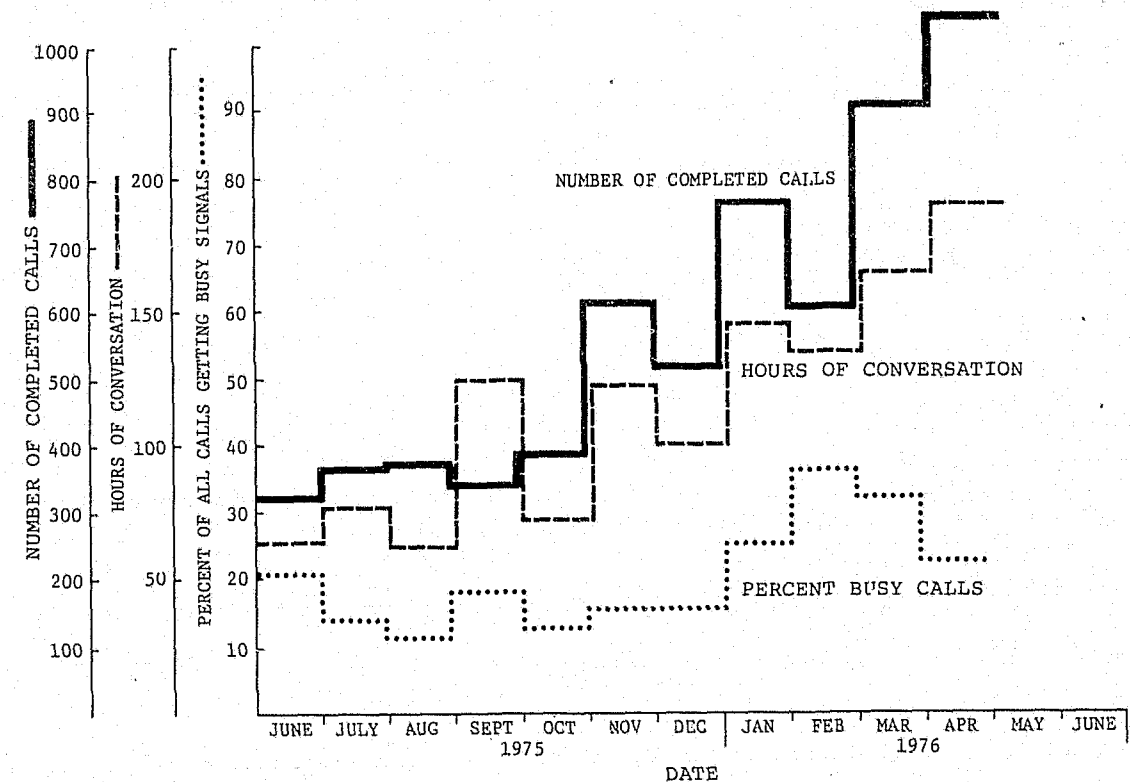


FIGURE 2
NETWORK MONTHLY CALL STATISTICS

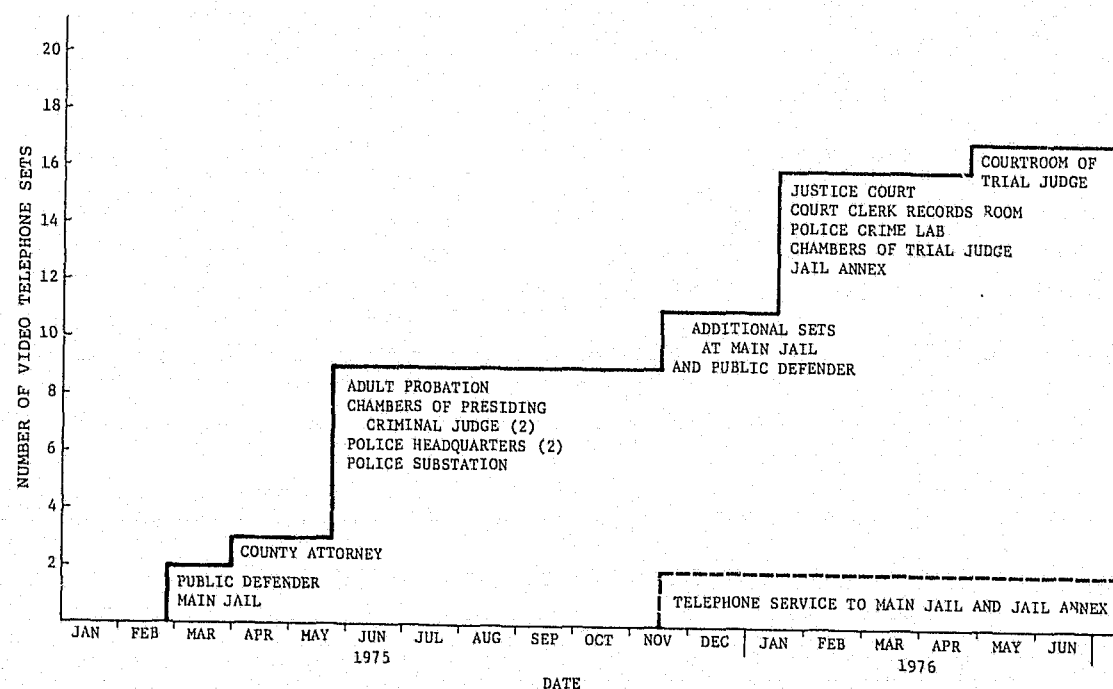


FIGURE 3
AVAILABILITY OF VIDEO TELEPHONE SETS

In remote testimony applications, for instance, the use of the video telephone can affect the availability of witnesses because the need to travel and wait in order to participate is lessened. Other possible effects include earlier case screening and disposition and an improved attitude of the community about the criminal justice system.

In contrast to these desirable changes there may be negative effects as well. These include perceptions of increased threat to the privacy of privileged conversations with attendant withholding of information, depersonalization of contact with defendants, reduced ability to argue effectively, deterioration of the formality of the court, and inadequate confrontation. To the extent that both positive effects and negative effects can be detected and weighed against one another, an understanding of the functional impact of the video telephone can be determined.

In assessing the effects in Phoenix, only the direct changes were observed and recorded. No attempt was made to assess the ultimate effect of the changes and no attempt was made to assess specific hypotheses because many of the potential effects became apparent only as a result of the Phoenix experience. For the more heavily used applications, for example public defender conferences with jailed clients, some of the changes were measured and assessed directly. For others, the changes were observed but were not measured in either quantity or frequency.

COST CHANGES

The use of the video telephone will result in cost savings to an agency if the usage and consequent man-hour and salary savings are sufficient to compensate for the cost of the video telephone service. The maximum savings would be limited by the maximum usage possible in the affected agency.

In order to determine the kinds of cost savings possible in Phoenix, the description of each application includes data about parameters affecting cost changes and information about the magnitude of the changes. Figure 4 is a generalized model of the means of comparison. The horizontal dotted line in the cost to the agency for each interaction prior to the advent of the video telephone. It is determined from the salary cost of the average traveling, waiting and interacting times experienced in accomplishing the interaction in person.* The solid line is the cost to the agency for each interaction when the video telephone is used. The values consist of the sum of the salary cost of the interaction time experienced in accomplishing the interaction by video telephone -- no traveling and waiting times are required -- and the pro rata tariff for each video telephone call, based on a monthly usage rate.

It can be seen that for any monthly interaction rate greater than the rate at which the lines cross over, a net savings results. The amount is determined by the difference between the two lines. Obviously, the specific values depend on procedures, distances, salary limits and equipment charges. All can vary from jurisdiction to jurisdiction and even within a given jurisdiction. The results presented in the report should be viewed only as an illustration of the experience and possibilities in Phoenix-Maricopa County and not as representative of either Phoenix-Maricopa County or the criminal justice system in general.

For each application, the cost changes are described and compared only for the most affected agency. For some agencies the cost of the equipment is offset by the savings that result, or is justified by the value of the functional changes that take place. For others, the cost is borne without either offsetting savings or benefits in order that other agencies can benefit. The net effect is the combination of these

* Refers to unloaded salary only, with no travel costs included.

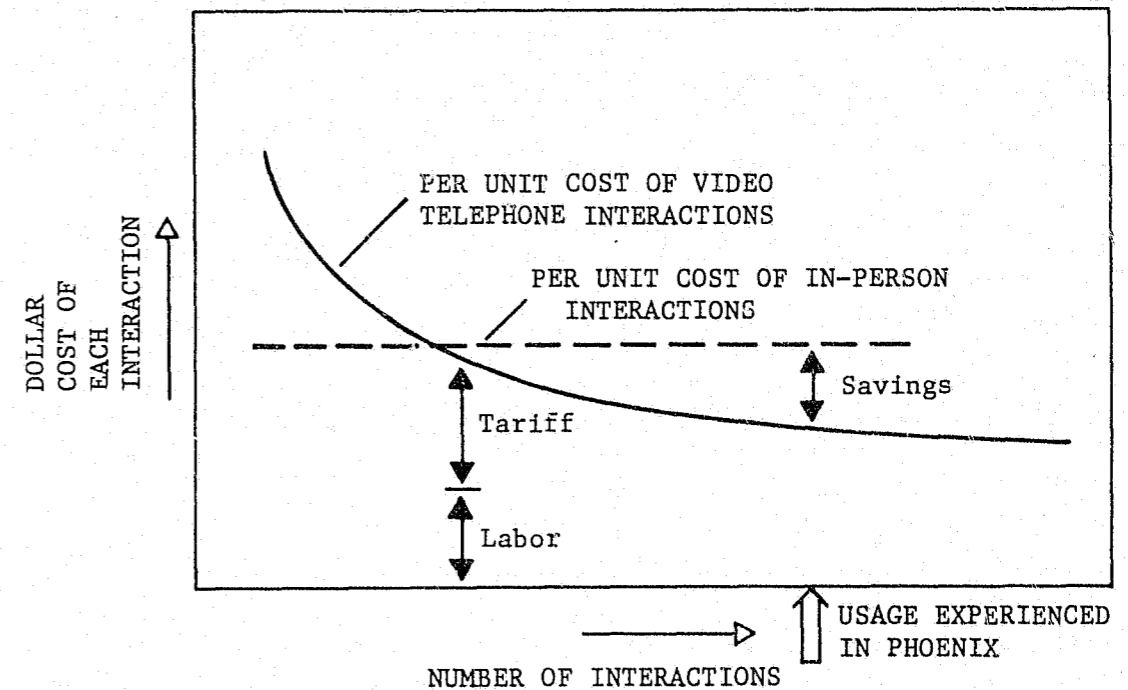


FIGURE 4
COST ANALYSIS CONCEPT

for all agencies across all applications, extrapolated to a hypothetical situation in which the video telephone is generally available within the criminal justice community. Accordingly, Section XII of this report lumps the applications and agencies together and develops a network model of the costs and savings. The model shows the potential total costs, total savings and the sensitivity of these totals to changes in usage, network size, number of applications and equipment charges. Section XIII compares Phoenix to a sample of other cities in the U.S. in terms of distance between key agencies as a possible factor affecting the usage on which the cost figures are based.

SECTION II

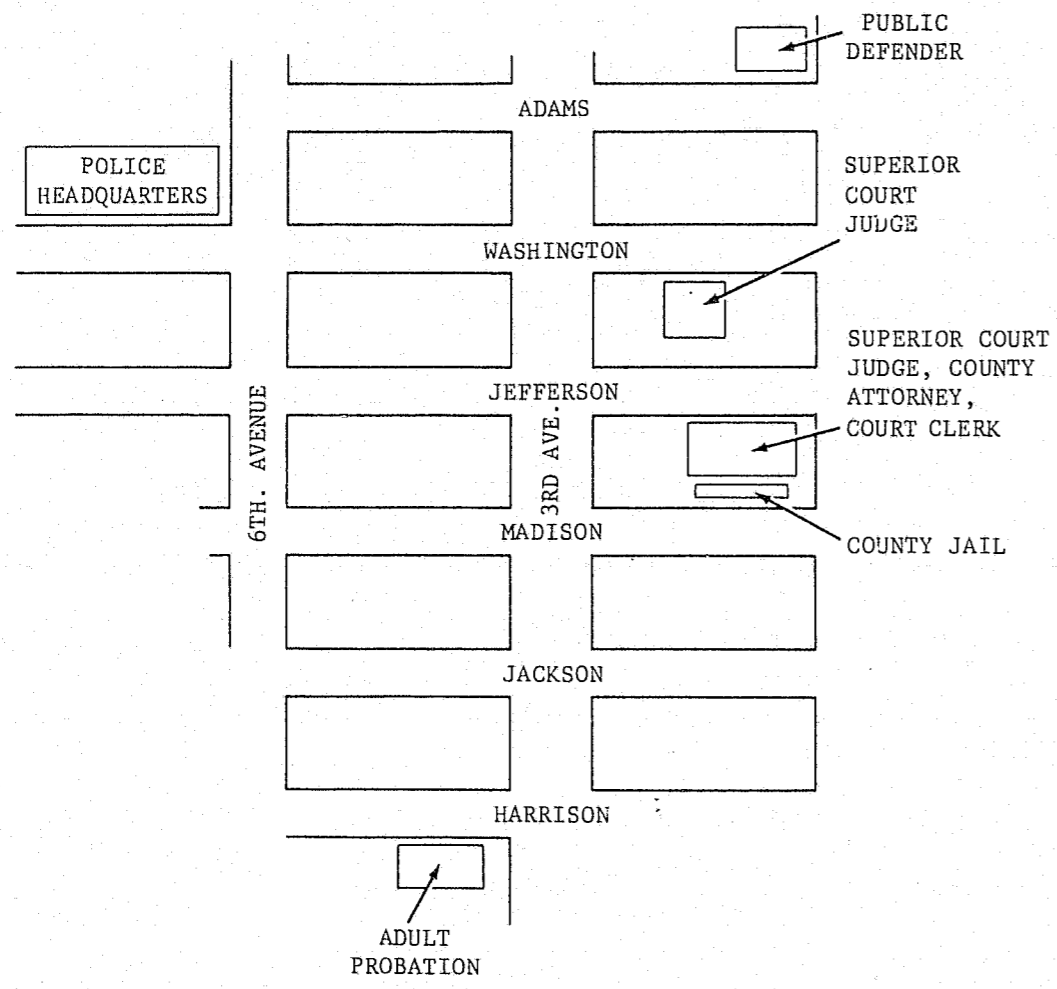
PUBLIC DEFENDER CONFERENCES WITH JAILED CLIENTS

This application concerns the use of the video telephone to expedite conversations between public defenders located in a central office and defendants held in the jail. Video telephones are located in designated private conference rooms in the public defenders' office and in private video telephone rooms at strategic locations in the county jail and jail annex (see Figure 5). The purpose is to make it easier for public defenders to meet with clients by saving the travel and wait time normally lost in personal visits to the jail, and thereby to encourage more frequent and earlier contact.

The video telephones were heavily used for this application. Measurements were made of the resulting frequency of usage and timeliness of contact and of the man-hour savings that resulted. Observations were made of the issues that appeared to be raised by the use of the video telephone for this purpose and of the attitudes of the participants about the use.

THE PHOENIX ENVIRONMENT FOR CONFERRING WITH JAILED CLIENTS

The public defender's office in Phoenix is organized into a felony attorney section, a misdemeanor attorney section and an investigator section. The caseload had been growing at approximately 35 percent a year for several years prior to the project. Coincidental to the period of the project the number of staff in the office continued to increase (see Figure 6). Several attorneys were hired and the felony section almost doubled in size. As a consequence, nominal caseload was reduced from some 260 cases per felony attorney prior to July 1975, to an average of 175 cases per attorney through the end of the project.



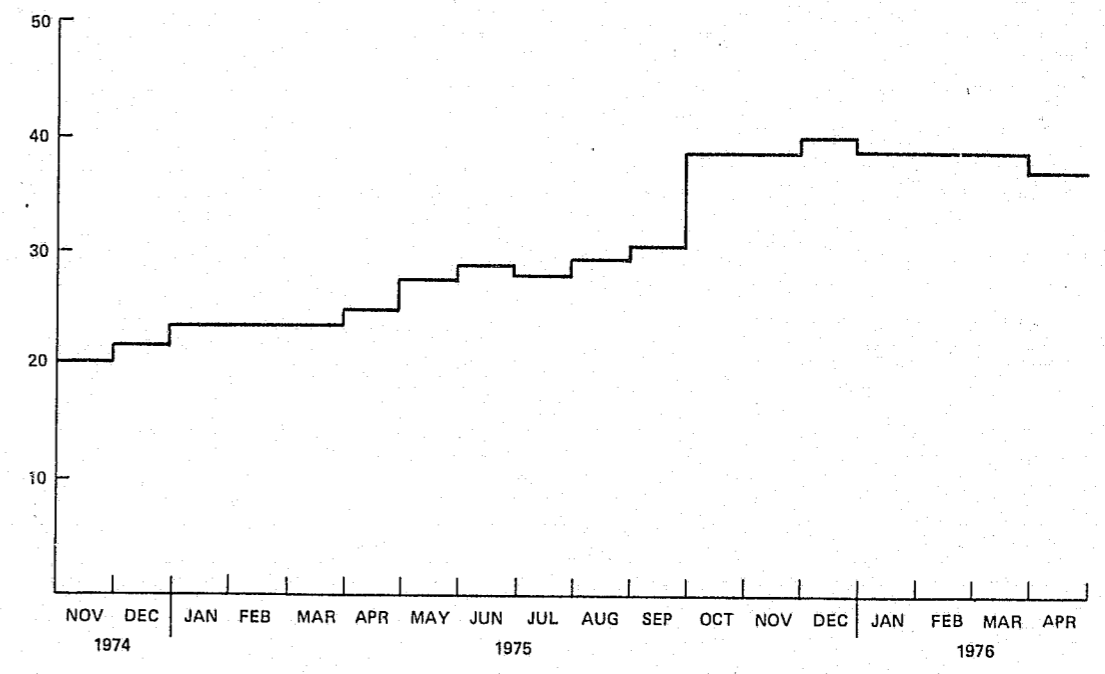
NOTE: MILES GIVEN ARE APPROXIMATE DISTANCES FROM SUPERIOR COURT

JUSTICE COURT
4 MILES

POLICE SUBSTATION
4 1/2 MILES

JAIL ANNEX
5 MILES

FIGURE 5
LOCATIONS OF AGENCIES PARTICIPATING IN VIDEO TELEPHONE PROJECT



*Assume all Appellate Attorneys are Half-Time

FIGURE 6
GROWTH IN PUBLIC DEFENDER FELONY ATTORNEY STAFF

Incarcerated defendants awaiting trial are housed in two facilities, the downtown county jail and the jail annex. The county jail is located in the same city block as the Superior Court and holds a maximum population of 600. The jail annex is located approximately 5 miles away and typically holds 140 defendants charged with minor felonies and 30 defendants charged with misdemeanors. The annex also houses another 160 sentenced misdemeanants who are serving time.

The following are the means by which public defenders confer with clients held in the jails:

(a) In-Person Visit Procedure

Prior to the installation of the video telephone system it was necessary for public defenders to walk four blocks to the county jail (30 minutes round trip); stop at the control area to record the name of the prisoners to be seen, and the date and time; wait for clearance; take the elevator to the appropriate jail floor; and wait for the client to be brought from his cell (10 minutes). The two would then confer in one of the two visiting rooms provided or stand at a counter talking by telephone through a glass divider (20 minutes per client for an average of 1.5 clients per visit). Thus, each in-person client contact took an average of 27 minutes for travelling and waiting, and 20 minutes for conferencing for a total of 47 minutes.

By contrast, to visit the jail annex, the public defender would walk to a parking lot and use his own automobile or a county automobile to drive to the annex (70 minutes round trip). Upon arrival at the annex he would follow the same sign-in process as at the county jail. The client would then be escorted to the main visiting room (5 minutes) for conference (20 minutes). Generally, only one client contact would be made during each visit. Thus, each in-person client contact took an average of 75 minutes for travelling and waiting and 20 minutes for conferencing, for a total of 95 minutes.

(b) Video Telephone Procedure

After the video telephone equipment was installed at the county jail in February, 1975, the public defender wishing to confer with a client incarcerated there had the option of visiting him at the jail in-person or via video telephone from the public defender's office. To arrange a video telephone conference, the public defender would use his regular office telephone to call the correctional office at the county jail and request that his client be brought to the video telephone. Depending upon the queue at the jail waiting to use the video telephone, the public defender would either proceed to his centrally located video telephone room or wait for the correctional officer to call. Once the correctional officer had the defendant and public defender in contact via the video telephone, he would leave and close the door of the video telephone room in the jail (see (Figure 7)). At the end of the conversation the public defender would advise the defendant to hang up the telephone. A light outside the visiting room would signal the correctional officer that the conversation was completed. The inmate was then returned to his cell.

The first video telephone sets became operational in the county jail and the public defenders office in February 1975 (see Figure 3). Due to the high usage of the equipment, second sets were added at both the jail and public defenders' office in November, 1975.

In addition, a video telephone was installed at the jail annex in January 1976. After this set became operational the network experienced congestion problems. To remedy these problems, a secretary in the public defenders' office was designated to coordinate with the correctional officers all requests for client contact by video telephone.



FIGURE 7
VIDEO TELEPHONE ROOM IN THE COUNTY JAIL

(c) Addition of the Regular Telephone

As the application proceeded, the issue arose as to the value of the video portion of the link and whether or not a telephone would be useful either alone or as a supplement to the video telephone. To investigate the issue, the jailed client interview application was modified by making private-line telephone service available as an additional option to video telephone at the county jail, and by making a similar service available at the annex two months before video telephone service was provided. The data showing the resulting telephone use are included in the contact-frequency figures in this section and are discussed at the end of the section.

USAGE

Figures 8 and 9 show the measured frequency of contact between public defender staff and jailed clients at the county jail and jail annex, respectively, the former being only a few blocks from the public defenders' office and the latter being five miles away. The in-person contact data were drawn from the temporary files of the sheriff's department. The video telephone and telephone data were drawn from telephone company records of calls dialed and answered, as checked against manually-kept logs at each video telephone and telephone station.

The county jail contact data show that the in-person contact frequency - contacts made during personal visits to the jail - declined after the video telephone was installed to an average of 57 percent of the pre-video telephone level. The total contact frequency, during the same period, including all in-person, video telephone and telephone contacts, rose 81 percent above the pre-video telephone level, with the video telephone contacts accounting for 67 percent of the total. Since these are average changes for values that vary widely they are useful primarily to show that changes took place.

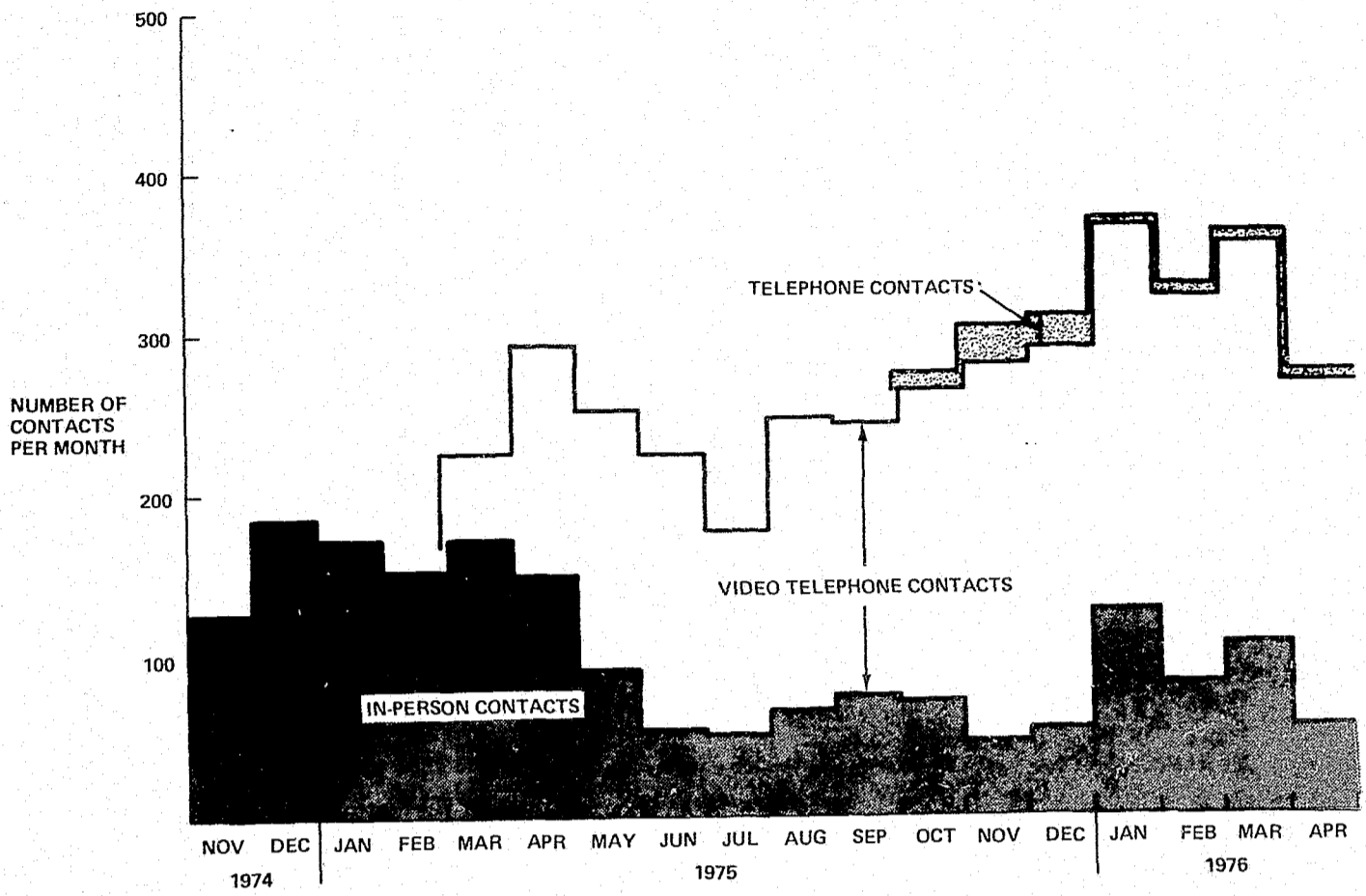
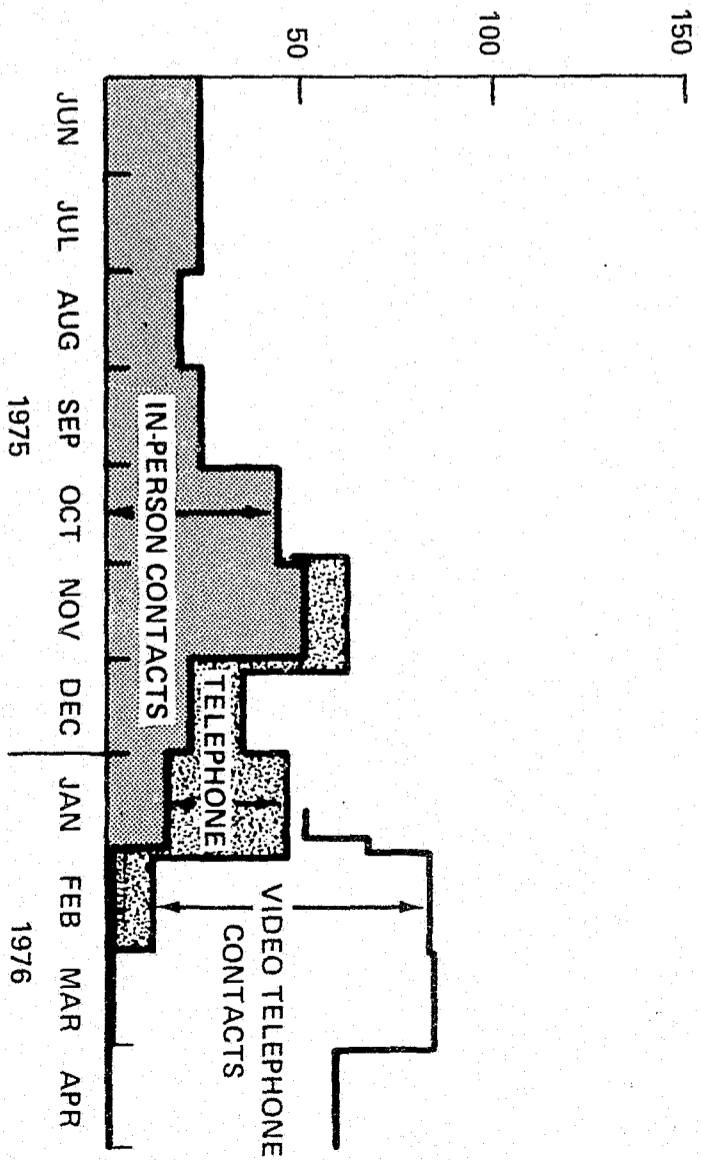


FIGURE 8
FREQUENCY OF PUBLIC DEFENDER CONTACTS WITH JAILED CLIENTS (COUNTY JAIL)

FIGURE 9
FREQUENCY OF PUBLIC DEFENDER CONTACTS WITH JAILED CLIENTS (JAIL ANNEX)



The jail annex contact data show that the in-person contact frequency declined after the video telephone was installed to an average of only 6 percent of the pre-video telephone level. In the last two months, there was no in-person contacts at all. However, the total contact frequency during the video telephone period rose 161 percent above the pre-video telephone level, with the video telephone contacts accounting for 92 percent of the contacts.

In both examples, the data reflect the total contact frequency by all public defender staff and no allowance is made for the increase in staff during the project period (see Figure 6). In contrast, Figure 10 shows the county jail contact frequency data for felony attorneys on a per-attorney basis, effectively normalizing for the number of attorneys in the office. Shown this way, the average in-person contact frequency during the video telephone period at the county jail declined to 57 percent of the pre-video telephone level, while the total rose 75 percent above the pre-video telephone level. The video telephone contacts accounted for 75 percent of the total contacts.

In effect, when viewed on a per attorney basis, the in-person contact frequency dropped to about one-half and the total contact frequency almost doubled when the video telephone was made available. This suggests that the video telephone became a dominant means of conference between public defender attorneys and jailed clients and that the ease of contact encouraged more frequent contacts. The fact that this marked effect occurred for contacts only a few blocks away from the public defenders' office and that the effects seem to be magnified at the jail annex which is significantly farther away, suggests that the value perceived by the users was substantive and was magnified by increasing distances.

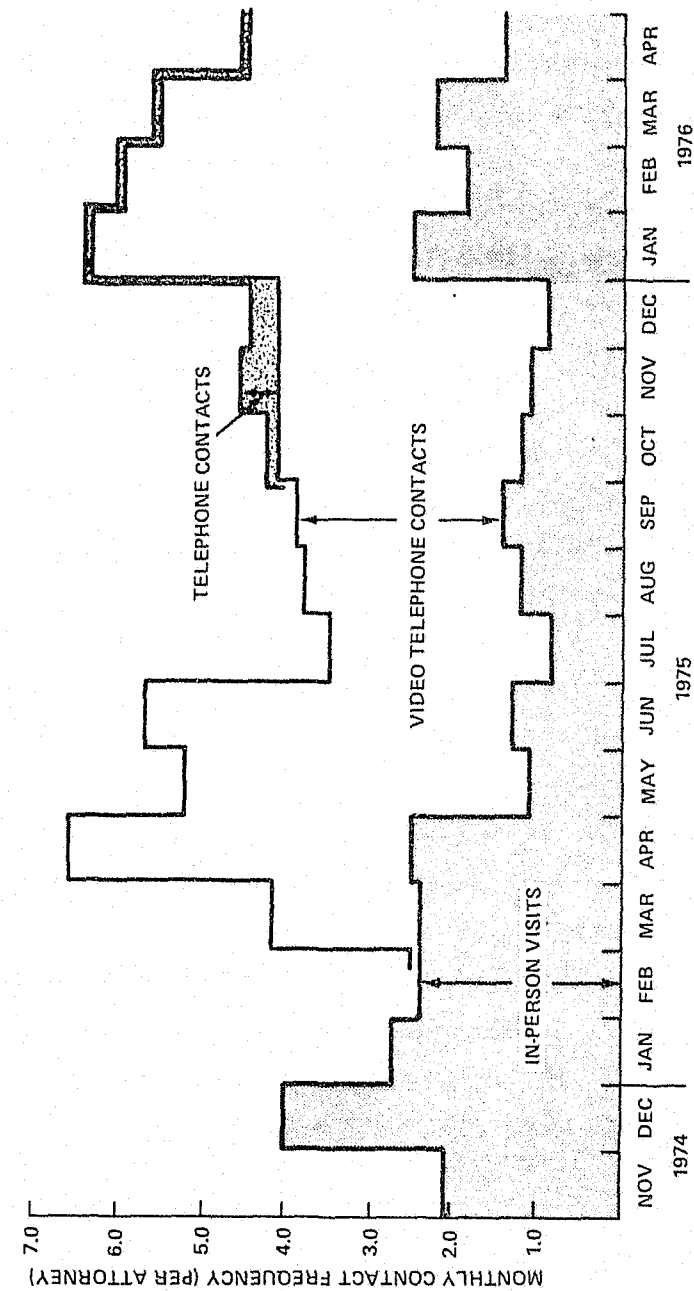


FIGURE 10
PER ATTORNEY FREQUENCY OF CONTACTS FOR ALL FELONY ATTORNEYS (COUNTY JAIL)

The telephone contacts at the county jail never constituted a significant fraction of the total, despite the fact that calls could be made directly from the attorney's desk and did not involve the use of a central video telephone room in the public defenders' office. The fact that the telephone was installed after the video telephone had been in use for a time may have influenced the results. At the jail annex where the telephone was in place for a time before the video telephone was installed and where in-person contacts involved a significant commitment of travel time, the telephone appeared to constitute a large share of the contacts until the video telephone became available. At that point, the video telephone took over almost all contacts and the total contact frequency markedly increased. This suggests that the telephone can play a role in public defender conferences with jailed clients where in-person contacts are personally burdensome but that the video telephone is preferred when there is a choice.

DURATION OF CONTACTS

The average duration of contacts throughout the project was approximately 20 minutes. However, there was a distinct difference in duration depending on whether the contact was made in-person or by video telephone. Before the video telephone was introduced, the average in-person contact duration was 20 minutes. After the video telephone was made available, the in-person contact increased to 27 minutes and the video telephone contact decreased to 16 minutes. Overall contacts continued to average 20 minutes. This suggests that perhaps the more complex conferences were reserved for in-person contacts but that basically there was no change in the character of the contacts. The 20 minute figure was used as the base for all cost calculations.

TIMELINESS OF CONTACTS

As stated earlier, the video telephone appeared, on the basis of increased contact frequency, to increase the convenience of public

defender contacts with jailed clients. If this were actually the case, the timing of contacts might be expected to be influenced also. If contacting the client is easier and less time consuming the contact might occur earlier in advance of important court dates (preliminary hearings, arraignments, trials and sentencings). Increased timeliness is desirable as a step toward earlier resolution of cases.

To test this hypothesis, case histories were reviewed to determine the dates of public defender/investigator visits and important client court appearances. The timing of in-person visits to the county jail during the baseline period (21 October 1974 to 5 February 1975) was compared to the timing of video telephone calls to the county jail during nine and one-half months (14 March 1975 to 31 December 1975) of project operations. The two periods were analyzed with respect to the time elapsed between first contacts by public defenders and subsequent client court appearances. Only routine, uncomplicated cases were used in the analysis. Complicated cases with many public defender-client visits utilizing both in-person and video telephone modes of communication were disregarded. So were those cases where the elapsed time between first meeting and court appearance was unusually long indicating that the meeting was for purposes other than preparation for the court appearance. Similarly, cases in which the data indicated unusual circumstances such as numerous continuances, mental examinations, movement of the client from the jail annex to the county jail, or client involvement in multiple cases, were excluded. Additionally, because the video telephone was not installed in the jail annex until January 1976, case tracking data were restricted to clients housed in the county jail. In other words, cases were not randomly selected but rather were drawn from the set for defendants housed in the county jail whose case dispositions were relatively uncomplicated and whose disposition times were short enough to conform loosely to the disposition

time requirements of the Arizona Rules of Criminal Procedure for felony defendants in jail (see Figure 11).

An analysis of the data (see Table II) shows that first meetings via video telephone during the project operations period were possibly more timely than in-person meetings during the pre-video telephone period.¹ The change in elapsed time for preliminary hearings and sentencing are 1.2 and 5.4 days, respectively. A two-tailed t-test shows these differences to be significant at the 0.1 level. The changes for guilty pleas and trial starts are of a larger magnitude (20.2 and 30.2 days respectively). In these instances, two-tailed t-tests show the differences to be significant at the 0.001 level. The data, therefore, indicate that the availability of the video telephone and the convenience it affords might have influenced the timing of first meetings between public defenders and their jailed clients and might stimulate earlier meetings in advance of court dates. It is important to note, however, that the same effect could possibly have resulted from the reduced attorney case load during the same period.

ENHANCED JAIL SECURITY

The jail has a large daily inflow and outflow of prisoners, law enforcement officers, attorneys and family members. An reduction in this flow is perceived by the sheriff's department (responsible for jail security) to result in improved security. On the other hand, where the reduction involves only public defenders, and the prisoners do not leave the security barriers of the jail, the actual security improvement is difficult to discern.

¹Halfway through the project period attorney caseloads nominally decreased and the allowable time between initial appearance and trial was lengthened from 90 days to 120 days. Sampling of control data during the video telephone period showed that these developments had no discernible effects.

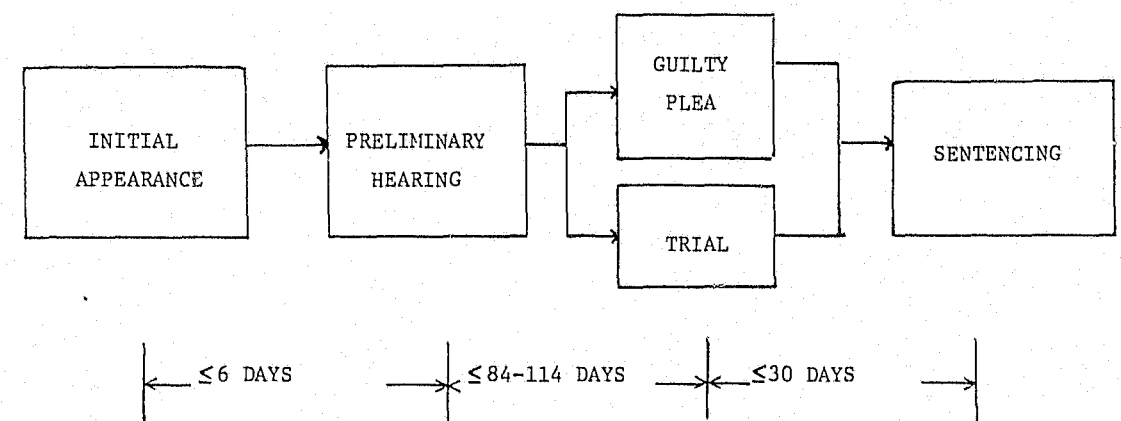


FIGURE 11
CASE DISPOSITION TIME REQUIRED BY ARIZONA RULES OF CRIMINAL PROCEDURE.

TABLE II
TIMELINESS OF PUBLIC DEFENDER CONTACTS

	ELAPSED TIME BETWEEN FIRST CONTACT AND COURT APPEARANCE				t (t VALUE FOR A TWO-TAILED TEST)	df (DEGREES OF FREEDOM)	P (PROBABILITY)
	PRE-VIDEO PERIOD		VIDEO PERIOD				
	MEAN TIME \bar{X}_p (DAYS)	STANDARD DEVIATION, SD (DAYS)	\bar{X}_v (DAYS)	SD _v (DAYS)			
PRELIMINARY HEARING ¹	3.2	2.9	4.4	5.9	1.2	152	≤0.1
GUILTY PLEA	17.5	16.7	37.7	39.3	20.2	155	≤0.001
TRIAL START	23.2	22.3	53.4	43.1	30.2	109	≤0.001
SENTENCING DATE	13.1	7.7	18.5	15.0	5.4	50	≤0.1

¹PRELIMINARY HEARING DATA ARE RESTRICTED TO FIRST MEETINGS CONDUCTED BY INVESTIGATORS FROM THE PUBLIC DEFENDERS OFFICE.

COST OF CONTACTS

Measurements made in Phoenix of the time required by public defender felony attorneys to contact jailed clients indicated that a relatively large amount of time was "wasted" in travelling between the office and the jail and waiting to meet with the client. A balancing of the cost of this time wasted against the cost of the video telephone determines the cost impact of the video telephone usage. In the following analysis, the cost of in-person and video telephone contacts at the county jail and the jail annex are compared:

(a) In-person Contact at the County Jail

As noted earlier, the average travelling and waiting time for each in-person client contact at the county jail was determined to be 27 minutes. Adding the average conferencing time of 20 minutes to this gives an average total time involved in the contact of 47 minutes (0.78 hour). For an attorney salary of \$15 per hour, this results in a cost of \$11.75 per client contact for a public defender felony attorney to confer with a client held in the county jail.

(b) In-person Contact at the Jail Annex

The travelling and waiting time for each client contact at the annex was determined to be 75 minutes. Adding the 20 minute conferencing time gives a total time of 95 minutes (1.58 hours). This results in a cost of \$23.75 per client contact for a public defender felony attorney to confer with a client held in the jail annex.

(c) Video Telephone Contact at the County Jail and Jail Annex

The cost of video telephone contacts with jailed clients is the sum of the attorney cost for the 20 minute (.33 hour) conference time and the pro-rata cost of the video telephone service for each call. At the \$15 salary for felony attorneys, the cost of the time would be \$5. The cost of the video telephone call would depend on the cost of the video telephone service and the frequency of use. For a monthly tariff of \$200 per video telephone and a use rate of 200 calls per month per unit, the cost per call would be \$1.00. For twice that tariff

or half that usage, the cost would be \$2.00 per call.¹ In either case, the per-call cost would add to the \$5.00 attorney cost.

Figure 12 is a plot of the total cost of the various modes of felony attorney conferences with jailed clients. The cost of in-person contacts are shown as fixed values independent of the number of contacts per month. The cost of video telephone contacts is plotted against the number of calls per month per video telephone according to the two equations:

For a \$200 monthly video telephone tariff,

$$C = 5 + \frac{200}{N};$$

For a \$400 monthly video telephone tariff,

$$C = 5 + \frac{400}{N};$$

where:

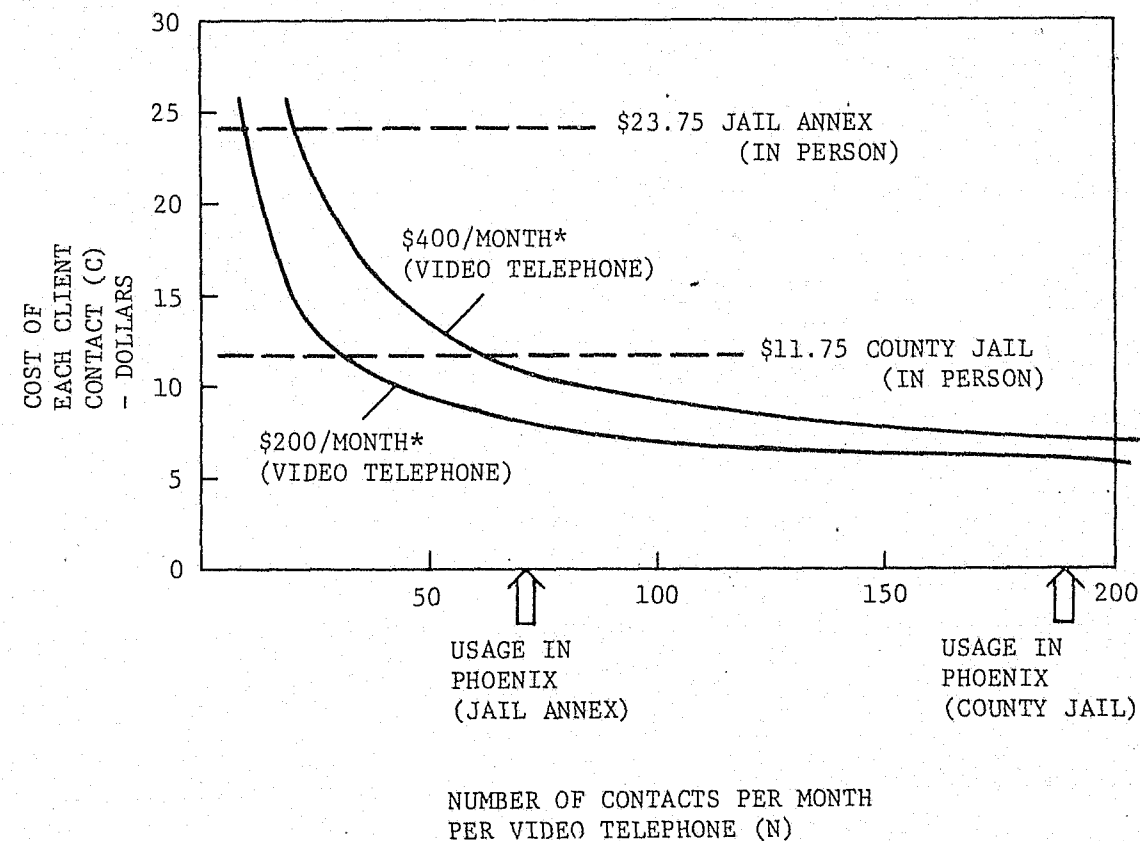
C is the cost per client contact for a public defender felony attorney to confer with a client held in either the county jail or the jail annex,

N is the number of calls made each month per video telephone in the public defender's office, and,

5 is the salary cost of 20 minutes of attorney time.

The important thing to note is that for any number of contacts greater than about 60 per month the cost per contact is less by video telephone than by the lowest cost in-person contact. For this application in which there are approximately 40 felony attorneys in the public

¹AT&T's PICTUREPHONE service was offered in Chicago at \$125 per month. Future rates for an advanced system of the type used in Phoenix can only be estimated. AT&T confirmed that a projection of \$200 per month is realistic if the service is generally available and used by the public. However, if the service is limited, for example, to criminal justice use only, the minimum rate may be twice this.



* Refers to monthly cost per video telephone.

FIGURE 12
COST OF PUBLIC DEFENDER FELONY ATTORNEY CONFERENCES WITH JAILED CLIENTS

defenders' office the average combined usage rate was about 257 per month, and this appeared to be almost the saturation rate for the way the attorneys scheduled the use of the device. At this usage rate the cost per video telephone contact, assuming a \$200 monthly tariff, is less than half the cost of an in-person contact at the county jail.

ISSUES CONCERNING THIS APPLICATION

The video telephone appeared to be generally accepted by the public defender staff for conferences with jailed clients. The acceptance probably reflected the convenience experienced by the staff in contacting clients by video telephone rather than by personal visit to the jail.

The cost analysis above shows there is potential cost benefit associated with the application.

The contact frequency and timeliness analyses suggest a possible benefit to the clients in more frequent and earlier conferences with their lawyers. Informal interviews with correctional officers brought out the perception on the part of the officers that jail inmates sensed a greater degree of accessibility to their lawyers because of increased response to conference-request slips. There was no structured confirmation of this.

Informal conversations with a number of jail inmates who had conferred with their lawyers by video telephone, and with a number of lawyers and criminal justice researchers, suggested a number of issues that would argue against the use of the video telephone:

(a) Increased Perception of Threat to Privacy

Modern technology has made it easier to monitor and record private conversations whether conducted in-person or over the telephone. There is no question but that it is illegal to perform such actions without a court order. Given the privileged nature of the attorney/client relationship, it is difficult to see when court-ordered legal monitoring would ever be permitted. However, recent events on the local and national scene have shown that monitoring without court order is not inconceivable. The fact that conversations are conducted over a video telephone rather than in-person would make it easier to access the conversation and monitor it.¹

In addition, with the video telephone, one party could not see if someone at the other terminal is listening out of camera view. Even intuitive recognition of this fact by some clients may lead to less than full disclosure of all pertinent facts to the attorney. There is no evidence that this has occurred, or that if such disclosures are important the attorney would not sense the fact and make a personal visit to the jail. The possibility exists, however, and the concern was expressed in the interviews.

(b) Depersonalization of the Conference

Because only the head and shoulders of each party appear as a monochrome image on the screen, it can be argued that important non-verbal, non-facial "metamessages"² by each participant are not being

¹In the future, video telephone calls may be carried by optical fibers rather than copper wires. This transmission media is very difficult to tap without disturbing the signal thus covert monitoring of calls would approach the same level of difficulty as overhearing in-person conversation.

²Bermant and Jocubovitch, "Fish Out of Water: A Brief Overview of Social and Psychological Concerns about Video Taped Trials," Hastings Law Journal, 26, 1975, pp. 999-1011.

conveyed. The conversation would, therefore, be less informative to the attorney, and less comforting to the client thus lessening in effectiveness subsequent representation by the attorney.

(c) Adequacy of Representation

This is a question of the depersonalization issue. If communication between the attorney and his client is perceived by either party to be inhibited in any way, there can be a question about the adequacy of representation. There seemed to be no serious question raised by any lawyers approached during the project about the legality of video telephone conferences but there was some question raised about the adequacy.

(d) Social Discrimination

If it is perceived that representation is less than adequate when it involves conferences by video telephone, and if it is noted that only persons unable to make bail are held in jail and subject to conference by video telephone, then the social question of justice only for the rich is raised. This appears on the surface to be an issue associated with the use of the video telephone, but in fact is related to the more basic issue of bail reform, which has nothing to do with the video telephone.

SECTION III

PRE-SENTENCE INTERVIEW WITH CONVICTED
PERSONS IN JAIL

This application concerns the use of the video telephone by adult probation officers to interview jail inmates awaiting sentence for felony convictions. A video telephone is located in a designated private conference room in the adult probation office and in private video telephone rooms at strategic locations in the county jail and jail annex. The purpose is to make it easier for probation officers to interview jail inmates by saving the travel and wait time normally lost in personal visits to the jail, and thereby to encourage more frequent and earlier contact. The application is superficially similar to public defender conferences with jailed clients, but the experience with the application was markedly different.

The video telephones were used for only a small fraction of the interviews conducted during the project for either the county jail or the jail annex. Also, the timing of those interviews held by video telephone was little different from those involving personal visits.

THE PHOENIX ENVIRONMENT FOR INTERVIEWING CONVICTED PERSONS IN JAIL

The Department of Adult Probation in Maricopa County is grouped into seven small operational sections of 4 to 10 people each. Personnel in investigative sections generally conduct pre-sentence investigations and prepare a report for the judge. Those personnel in field supervision sections work with persons released on probation. The total number of probation officers remained essentially unchanged during the period of the project.

Both groups of probation officers have occasion to visit the jail. Investigators interview convicted persons as part of the preparation of a pre-sentence report. Field supervisors visit rearrested probationers.

The following are the means by which probation officers interview clients held in the jails:

(a) In-Person Visit

The environment for conducting in-person meetings is similar to that for the public defender (see Section II). While travel time between the adult probation office and the county jail is longer (35 minutes round trip) due to greater distance (five blocks) and intervening railroad tracks, it is the same between the adult probation office and the jail annex (75 minutes round trip). Waiting time for both adult probation officers and public defenders is the same at both jails (10 minutes). Similarly, the average conversation time is about the same length as a public defender interview (20 minutes per interview for an average of 1.4 interviews per visit). Thus, each in-person contact at the county jail took an average of 32 minutes for traveling and waiting and 20 minutes for interviewing, for a total of 52 minutes, and each in-person contact at the jail annex took an average of 68 minutes for traveling and waiting and 20 minutes for interviewing, for a total of 88 minutes.

(b) Video Telephone Procedure

The procedure and duration of video telephone interviews are the same as for public defender conferences with jailed clients (20 minutes per interview).

USAGE

Figure 13 shows the monthly frequency of probation office contacts with persons held in the county jail just five blocks from the probation office. The frequency of in-person visits to the county jail by adult probation officers remained essentially unchanged. This indicates

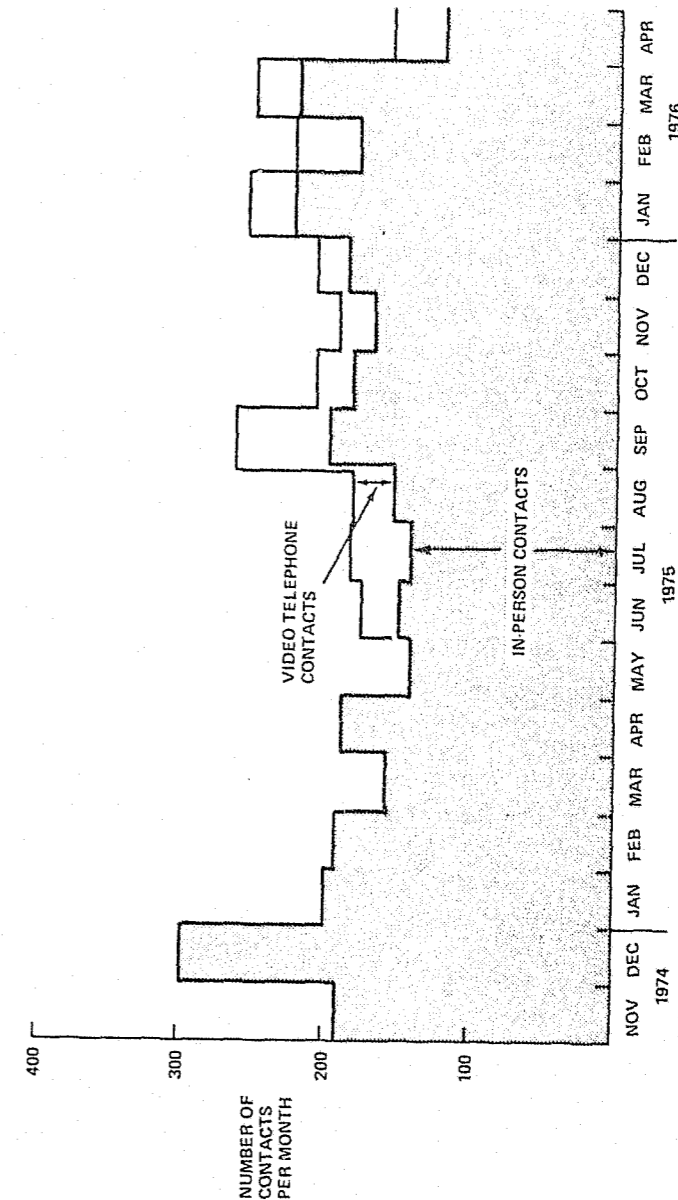


FIGURE 13
FREQUENCY OF ADULT PROBATION CONTACTS WITH JAILED PERSONS (COUNTY JAIL)

that video telephone calls functioned as supplements to, and not substitutes for, in-person visits. For example, the two most frequent callers, while maintaining their previous number of in-person trips, doubled their client contact frequency. During the video telephone period the video telephone accounted for only about 15 percent of all contacts.

Figure 14 shows the monthly frequency of probation office contacts with persons held in the jail annex five miles from the probation office. Due to the dynamics of the contact frequency during the pre-video telephone period which was characterized by a generally decreasing number of contacts, it is difficult to determine if the number of trips to the jail annex was influenced by the use of the video telephone. However, the data do show that the video telephone was used for a greater proportion of contacts in the jail annex than in the county jail; 35 percent of all contacts in the jail annex were made by video telephone.

Most adult probation officers used the video telephone at one time or another. Of the sixty-one possible users, all but sixteen tried it. Of those who did, there was a wide variation in relative usage. A few individuals used the video telephone for a large fraction of their contacts and accounted for most of the video telephone calls. Most used it sporadically but infrequently. Six tried it once or twice and stopped. Seven tried it for the first time during the last few months of the project.

Although the application was originally planned as a means for improving the pre-sentence investigation process, it was found that most of the video telephone calls were by field supervisors for probation interviews. While field supervisors accounted for 53 percent of the personnel in the probation office and 60 percent of all in-person

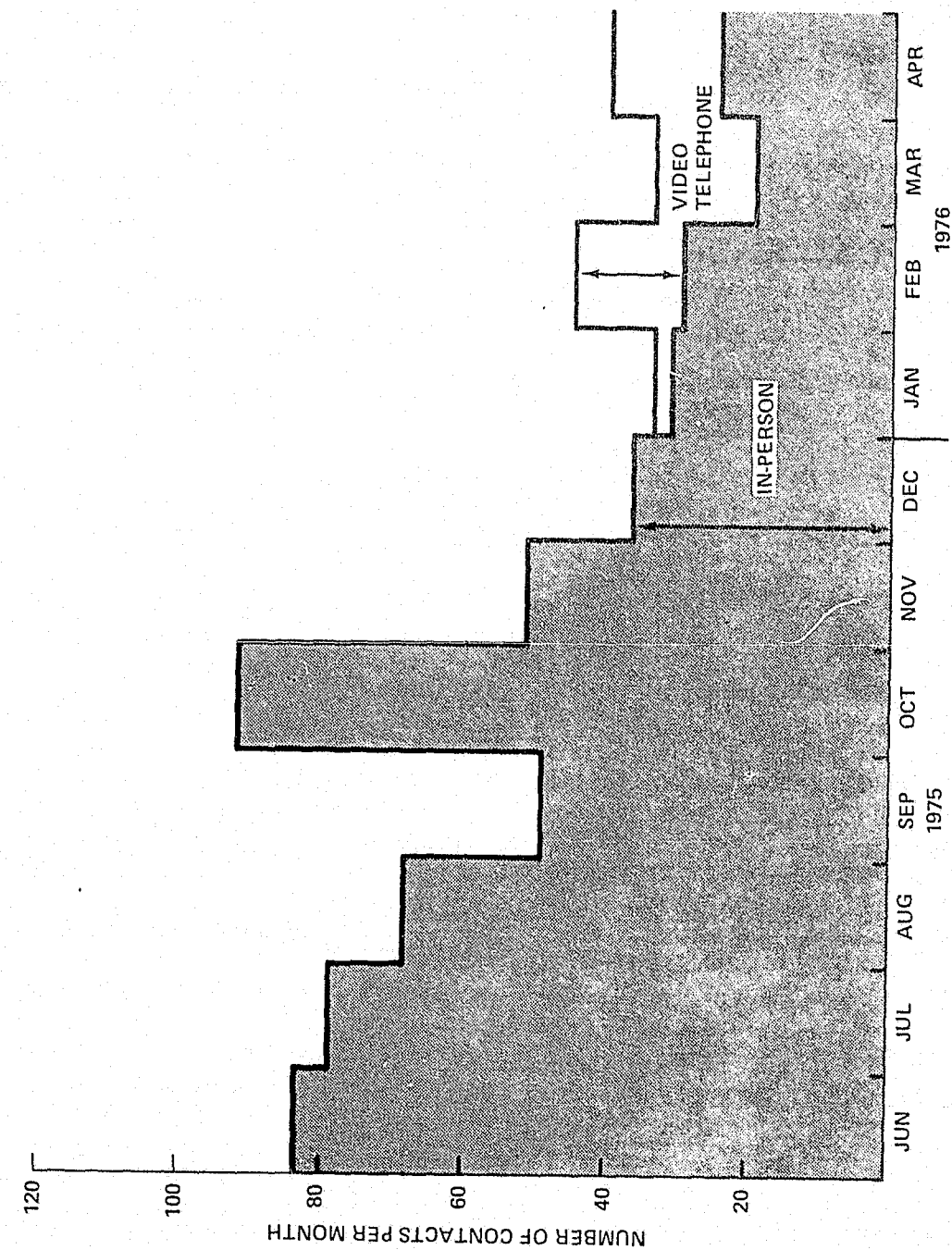


FIGURE 14
FREQUENCY OF ADULT PROBATION CONTACTS WITH JAILED PERSONS (JAIL ANNEX)

contacts at the jails, they accounted for 80 percent of the video telephone usage.

DURATION OF CONTACTS

The relative durations of probation officer contacts were similar to those measured for the public defender.

TIMELINESS OF CONTACTS

If the use of the video telephone were a more convenient way for probation officers to interview persons in jail, it could be postulated that video telephone contacts would occur earlier in advance of the sentencing dates than would in-person visit contacts.

To test this hypothesis, case histories were reviewed to determine both the date the adult probation officer visited a client and the date the client was sentenced. The timing of in-person visits during the baseline period (21 October 1974 to 5 February 1975) was compared to the timing of video telephone calls to the county jail during project operations (2 June 1975 to 17 March 1976). The two periods were examined with respect to the time elapsed between first contacts by adult probation officers and subsequent sentencing dates. Of all cases reviewed, however, only those cases were used that (1) had a sentencing delay reasonably in line with the requirements of the Arizona rules of criminal procedure (see Figure 11), (2) did not have numerous in-person and video telephone contacts, (3) involved only a single case, and (4) involved only persons held in the county jail. In short, cases were not randomly selected, but rather were chosen because they were free of complications.

An examination of the data (see Table III) reveals that first meetings via video telephone during the video telephone period might be slightly earlier than in-person meetings during the pre-video telephone

TABLE III
TIMELINESS OF PROBATION OFFICER CONTACTS

	ELAPSED TIME BETWEEN FIRST CONTACT AND COURT APPEARANCE				t (t VALUE FOR A TWO-TAILED TEST)	df (DEGREES OF FREEDOM)	P (PROBABILITY)	
	PRE-VIDEO TELEPHONE		VIDEO TELEPHONE					IMPROVEMENT IN CONTACT TIMELINESS $\bar{X}_v - \bar{X}_p$ (DAYS)
	MEAN TIME \bar{X}_p (DAYS)	STANDARD DEVIATION, SD (DAYS)	\bar{X}_v (DAYS)	SD _v (DAYS)				
INVESTIGATIVE UNIT	21.0	8.7	22.2	14.1	1.2	N.S. ¹		
FIELD UNIT	20.9	12.0	24.2	13.8	3.3	N.S.		
ALL ADULT PROBATION OFFICERS	21.0	10.2	23.6	13.7	2.6	N.S.		

¹NOT SIGNIFICANT.

period. This is true for the adult probation office as a whole as well as for the individual units. The main differences between the pre-video and video periods for time of first visits in advance of sentencing are 1.2 days for investigative officers, 3.3 days for field officers, and 2.6 days for the entire adult probation office. A two-tailed t-test shows that these differences are not significant. While the data reveal that meetings via video telephone were more in advance of sentencing dates than were in-person visits during the pre-video period, the differences in time elapsed were relatively small. Overall, video telephone capability appeared to have little influence on the timing of first meetings between adult probation officers and jailed clients.

COST OF CONTACTS

Measurements of the time required by adult probation officers to interview jailed persons showed roughly the same level of time "wasted" in travelling and waiting. The following is a comparison of the cost of in-person and video telephone contacts.

(a) In-person Contacts at the County Jail

As noted earlier the average travelling and waiting time for each contact at the county jail was measured to be 32 minutes. Adding the average interview time of 20 minutes gives a total time involved for each contact of 52 minutes (.87 hours). For an average probation officer salary estimated at \$8 per hour, this results in a cost of \$6.93 per contact for an adult probation officer to interview a person held in the county jail.

(b) In-person Contacts at the Jail Annex

The travelling and waiting time for each contact at the jail annex was measured to be 68 minutes. Adding the 20 minutes interview time gives a total of 88 minutes (1.47 hours). This results in a cost

of \$11.73 per contact for an adult probation officer to interview a person held in the jail annex.

(c) Video Telephone Contacts at the County Jail and Jail Annex

The cost of video telephone contacts is determined the same way as for public defenders in the previous section, as follows:

for a \$200 monthly video telephone tariff,

$$C = 2.67 + \frac{200}{N};$$

for a \$400 monthly video telephone tariff,

$$C = 2.67 + \frac{400}{N};$$

where:

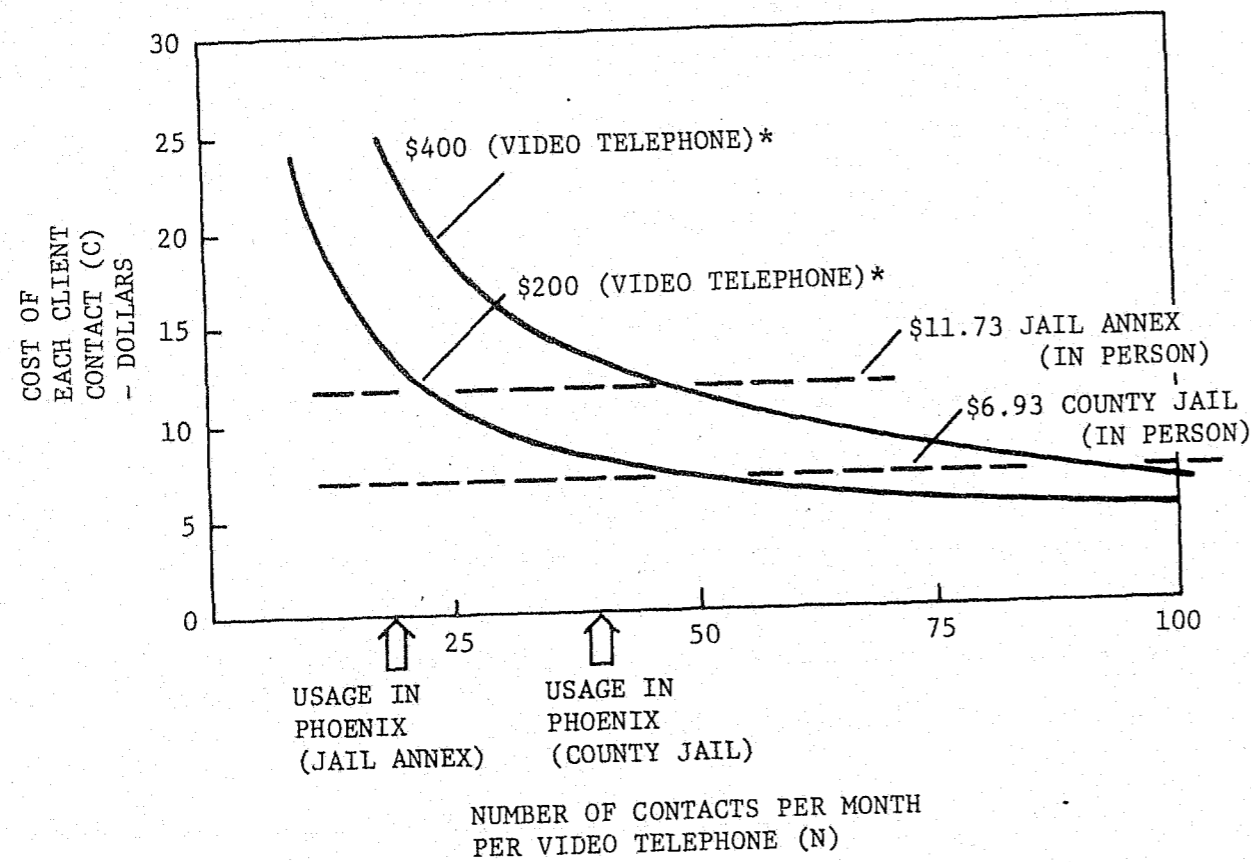
C is the dollar cost per contact for an adult probation officer to interview a jailed person held in either the county jail or jail annex,

N is the number of calls made each month per video telephone in the adult probation office, and,

2.67 is the salary cost of 20 minutes of probation officer time.

Figure 15 is a plot of the total cost of these various modes of adult probation interviews with jailed persons. Note that the number of contacts has to exceed about 90 per month to assure that the cost of video telephone contacts, for the \$400 per month tariff, is less than the cost of in-person contacts. For the \$200 per month tariff, the number is about 50 contacts per month.

The usage actually experienced during the last four months of the project was about 49 contacts per month, which is well below the 257 per month saturation level experienced by the public defenders. Since the 49 contacts per month is only 19 percent of the total number of contacts accomplished by the adult probation office, the potential for growth beyond the break-even numbers is clear.



* Refers to monthly cost per video telephone.

FIGURE 15
COST OF ADULT PROBATION OFFICER INTERVIEWS WITH JAILED PERSONS

ISSUES CONCERNING THIS APPLICATION

The video telephone was nearly fully accepted by the staff of the adult probation office, and the reluctance to use the video telephone for interviews with jailed persons is reflected in the low usage throughout the project. The issues appear to be the same as those affecting the public defender/jailed client application except that they seem to be modified somewhat in both nature and intensity. In particular, with regard to privacy and depersonalization of the interviews, the conversations with probation officers do not concern implicating factors of guilt or innocence, as do conversations with public defenders. Presumably, the jailed person is not as concerned with self-implication and is less likely to hold back in responses to questions.

On the other hand, the probation officers suggest that their role requires a personal rapport with the client and a concern with the clients' personal reaction to events and conversations, whereas public defenders purportedly are more concerned with revelation of fact. The result is apparently a much stronger perceived need to confer in the physical presence of the jailed person. The lower video telephone usage by probation officers may be attributable to either a general or an organizational awareness of this concern.

It is important to note that while the application was designed around pre-sentence investigations, the bulk of the usage was by field supervision conferring with probationers held in the jail (see pages 38-40).

SECTION IV

REMOTE ACCESS TO POLICE INFORMATION BUREAU

This application concerns the use of the video telephone by police officers to review records stored in the central police files and to transmit records back and forth between the police substations and headquarters. Typical records involved are criminal histories, incident reports, fingerprints and booking photographs or mug shots. Video telephones equipped with attachments for displaying documents and for making copies of displayed documents are located in the Sky Harbor police substation and in the Information Bureau (I-Bureau) at the police headquarters. The purpose is principally to save the time involved in making the nine mile round trip between the substation and the headquarters every time it is necessary to access the files or make an identification.

The document transmission depends heavily on the graphics reproduction capability of the video telephone equipment. The capability was assessed on a comparison basis by a panel of police users and the results are reported in Volume III of this report and summarized below. In general the tests showed that the graphics transmission capability is adequate for mug shots and is marginal for typed or handwritten documents and fingerprints.

The usage during the project was sufficient to suggest a potential for heavy usage if the technical problems of document readability could be resolved. Some problem was experienced with the procedural "reorganizations" required in the I-Bureau to provide clerical response to counter requests and video telephone requests simultaneously, but it appeared to be the kind of problem that would yield to organizational adjustment if the demand for video telephone service became significant.

THE GRAPHICS TRANSMISSION SYSTEM

The basic video telephone system in Phoenix consists of a 525-line, black and white television display on a 9 by 7 inch screen at each video telephone station. For the graphics display of I-Bureau documents the video telephone in the I-Bureau is also equipped with a special stand holding a vertically mounted camera containing a zoom lens for controlled magnification of documentation placed on the stand beneath the camera (see Figure 16). The video telephone at the Sky Harbor police substation is a basic video telephone station that displays either an image of the clerk operating the equipment at the I-Bureau or an image of the transmitted documentation (see Figure 17). It also is equipped with a printer that provides hard-copies of the displayed images on demand.

Figure 18 is a photograph of a typical mug shot as seen on the display screen. The photograph process degrades the image somewhat but the usability of the image for identification purposes is readily apparent. Figure 19 is a photograph of a hard copy of the same image taken from the hard-copy machine. The reduced quality is apparent but again the usability is apparent.

Figure 20 is a photograph of the display of typical 8½ x 11 inch typed incident report magnified to fill the display screen with about one-half of the page. The marginal nature of the reproduction is apparent (see Volume III for more details of the display capability). Figure 21 is a similar photograph of a fingerprint display magnified to fill the display screen.

THE PHOENIX ENVIRONMENT FOR REMOTE ACCESS TO I-BUREAU FILES

The Information bureau (I-Bureau) of the Phoenix Police Department is a central repository for all records pertaining to individual criminal incidents, outstanding warrants, criminal

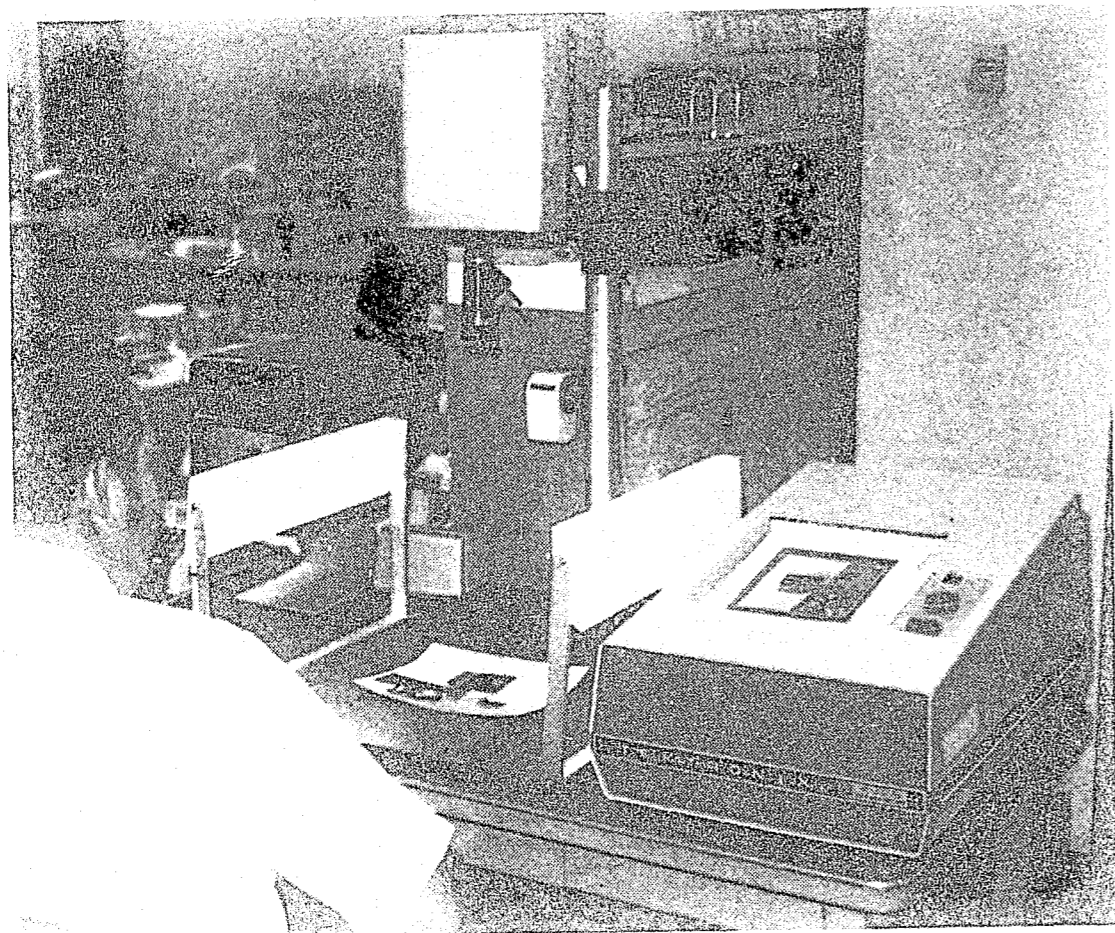


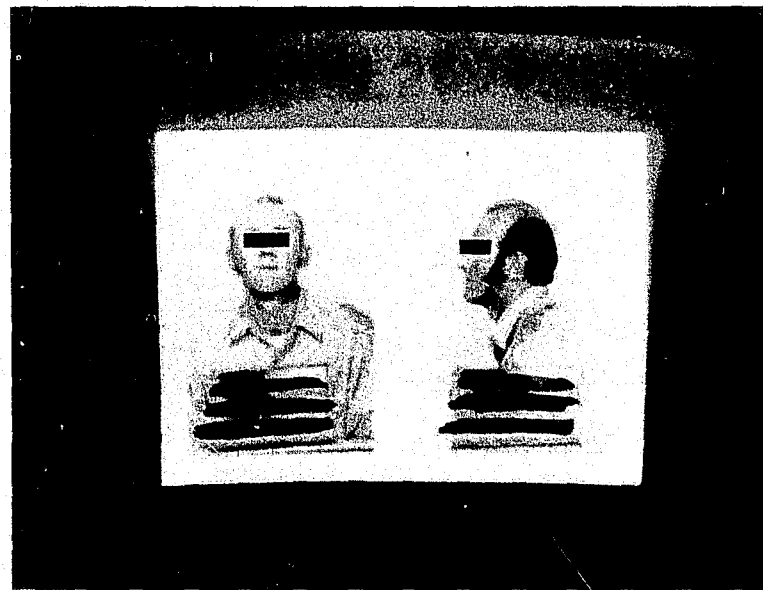
FIGURE 16
VIDEO TELEPHONE WITH GRAPHICS STAND IN POLICE INFORMATION BUREAU



FIGURE 17
VIDEO TELEPHONE IN SKY HARBOR POLICE SUBSTATION



a. Magnified



b. Not magnified

FIGURE 18
PHOTOGRAPH OF MUG SHOT FROM DISPLAY AT SKY HARBOR

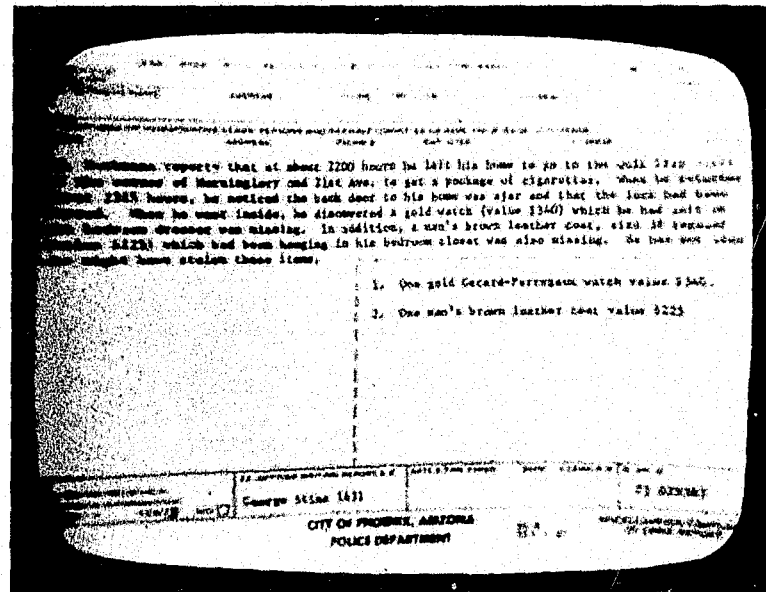


a. Magnified

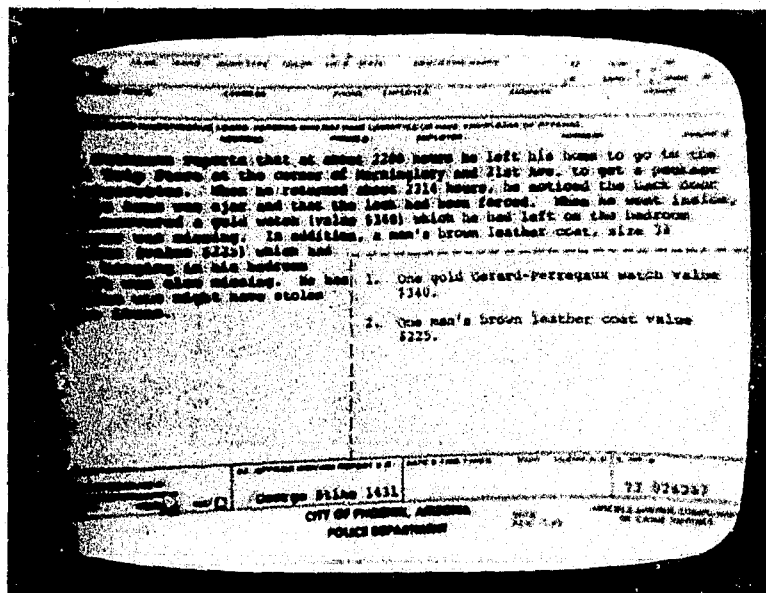


b. Not magnified

FIGURE 19
PHOTOGRAPH OF MUG SHOT FROM HARD COPY MACHINE AT SKY HARBOR



a. Elite type face

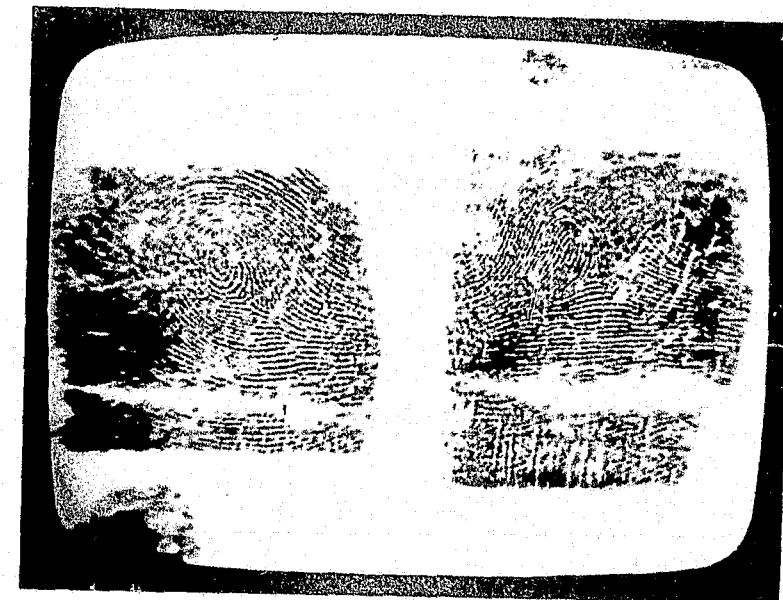


b. Pica type face

FIGURE 20
PHOTOGRAPH OF TYPED INCIDENT REPORTS FROM DISPLAY AT SKY HARBOR



a. Single flat print



b. Two rolled prints

FIGURE 21
PHOTOGRAPH OF FINGERPRINTS FROM DISPLAY AT SKY HARBOR

records, and identification material of individuals who have been arrested. In addition to supporting Phoenix Police Department personnel working out of headquarters and from distant substations, the I-Bureau responds to local requests from the Maricopa County Sheriff's Department, the Department of Adult Probation and the city and county prosecutors office. Information requests can be handled over-the-counter or via telephone. Counter requests permit officers to peruse the entire file, look for specific items, view photographs and request copies of specific documents; it is this type of interaction and capability that was made available remotely to Sky Harbor substation. The procedures for these requests were as follows:

(a) In-Person Procedure

Prior to the installation of the video telephone the individual police officers at the Sky Harbor substation would drive the 9-mile round trip to headquarters to read and obtain copies of I-Bureau files. A request slip would be filled out at the counter and the requested file would be handed to the officer to read at the counter. Hard copies of individual pages would be made on request.

Trips to the I-Bureau from Sky Harbor typically took about 60 minutes of the officers time and involved the use of a patrol car for transportation. Data for a period of seven days prior to the installation of the video telephone showed an average of 11 trips per day, varying from a low of six to a high of 20. Eighty percent of the requests were for individual criminal history "jackets", including a mug shot of the subject. Ten percent were for incident reports and the remaining were for miscellaneous records such as warrant records, index cards, etc.

(b) Video Telephone Procedure

With the video telephone, the requesting officer would dial the I-Bureau to talk with the answering clerk. After verifying the identification of the officer by sight or by identification card, the clerk would place the requested document on the graphics stand and would stand by to focus the camera on different parts of the page or to turn pages, always placing an overlay on the document containing the date and ID number of the Sky Harbor officer. The officer then made his own copies by pressing the button on the hard-copy machine and waiting five seconds. The entire transaction typically took about six minutes.

USAGE

The usage of the video telephone by the patrol officers to access the I bureau varied widely during the test. Initial technical difficulties with the transmission line and the hardcopy device inhibited use during the first six months of operation although a few officers continued to use the device infrequently. After reliability and performance was improved usage picked up significantly to a peak of about 10 calls per week. This figure is about 14 percent of what could be achieved if all trips to the I bureau were replaced by use of the video telephone. Usage was on the increase at the end of the project, however. In May 1976, 64 requests were made via video telephone.

Since the number of calls was a small percentage of all requests, it was not possible to show from a count of I-Bureau transactions that travel was being reduced. However, interviews of officers indicated that the video telephone calls were replacements for trips and were not a supplement for telephone calls. The capability to select any material in a document and be absolutely sure of its accuracy was only possible by video telephone or making

a trip to the I-Bureau. If the identity of a suspect were to be established, a photograph would have to be seen. A verbal description would not serve the purpose.

Several factors appeared to inhibit the use of the video telephone. Among these were:

(a) Officers on patrol frequently felt it was just as convenient to go to the headquarters as to the substation to look at a file.

(b) Early technical difficulties with the video telephone equipment reduced the quality of the displayed images well below that shown in Figures 18-21 above.

(c) Documents had to be positioned beneath the I-Bureau camera by a clerk one at a time making it awkward to examine a complete "jacket" or file.

Nonetheless, when circumstances were favorable, those officers who did use the video telephone saved time and travel. They occasionally were able to avoid the necessity of transporting a suspect from the substation to the headquarters when a call to the I-Bureau allowed a mug shot to be transmitted to the substation for positive ID.

CHARACTER OF THE USAGE

The type of information requested via video telephone was similar to that requested over the counter. Seventy-two percent (versus 80 percent for counter requests) of the calls were for information contained in jackets. (Log sheets at the substation and I-Bureau showed that particular emphasis was given to photos. This was not a surprising result since as described earlier the video

telephone performs best in reproducing photographs.) Eight percent of the requests were for incident reports (versus 10 percent for counter requests). The remainder were for miscellaneous records such as warrants and index cards.

COST OF INFORMATION REQUESTS

A balancing of the cost of the time "wasted" in making trips from Sky Harbor to the headquarters against the cost of the video telephone determines the cost impact of the video telephone usage. In the following analysis the cost of in-person and video telephone requests for information at the police I-Bureau by officers at the Sky Harbor substation are compared:

(a) In-Person Requests

As noted earlier the average time spent by an officer travelling the round trip from Sky Harbor to the headquarters and examining a file is 60 minutes (1 hour). For an estimated average salary of \$6 per hour this results in a cost of \$6 per request for Sky Harbor in-person requests for information from the I-Bureau.

(b) Video Telephone Requests

The cost of video telephone requests to the I-Bureau from Sky Harbor is determined the same way as for public defender contacts with jailed clients in Section II, as follows:

For a \$500 monthly video telephone tariff (\$200 for the substation and \$300 for the I-Bureau),

$$C = 0.60 + \frac{500}{N};$$

For a \$1000 monthly video telephone tariff,

$$C = 0.60 + \frac{1000}{N};$$

where:

C is the cost per request for a police officer to call the I-Bureau at police headquarters,

N is the number of calls made each month per video telephone at Sky Harbor, and,

0.60 is the salary cost of the 6 minutes of officer time.

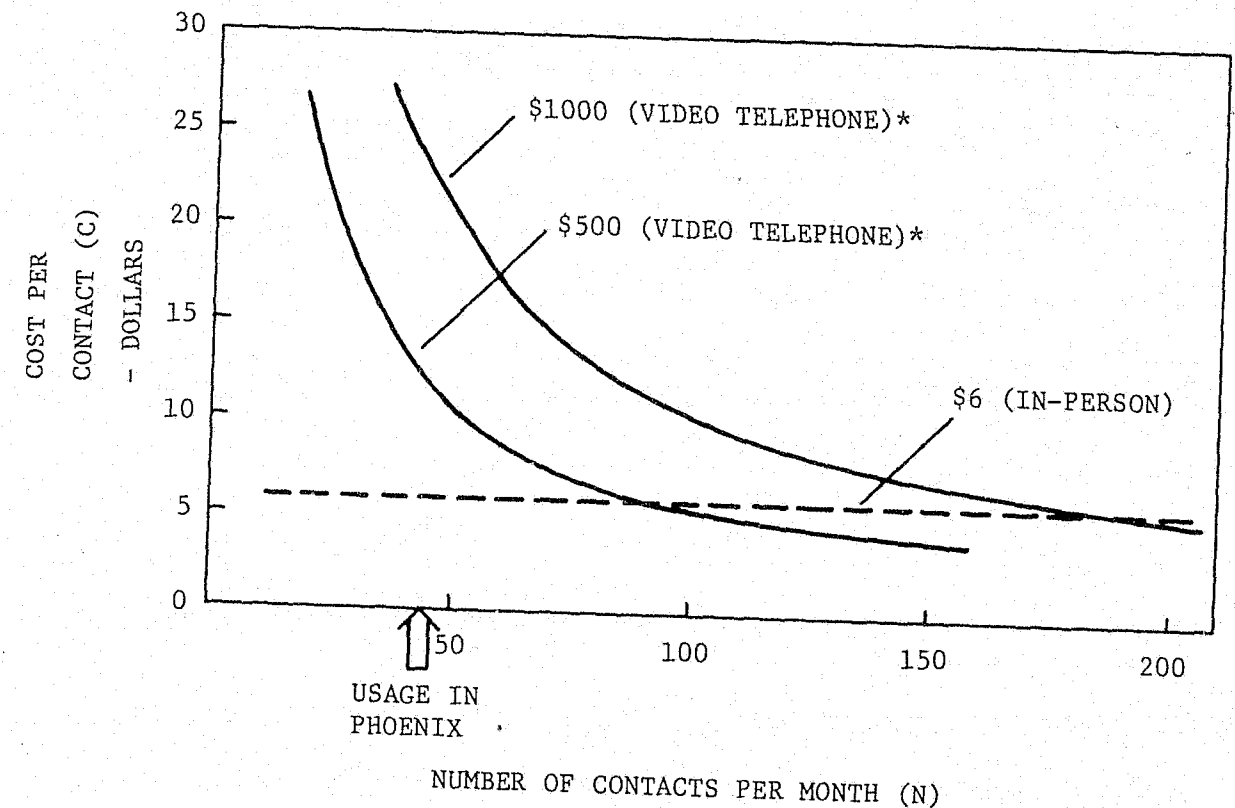
Figure 22 is a plot of the total cost of the police officer requests for information. Note that the number of video telephone requests has to exceed about 180 per month to assure that the cost of the video telephone requests for the \$1000 per month tariff is less than the cost of in-person requests. For the \$500 per month tariff, the number is about 90 requests per month.

The usage actually experienced during the last few months of project averaged about 43 requests per month (10 per week), which, as noted earlier, was only about 14 percent of the in-person traffic during the same period. The potential for growth beyond the break-even numbers is clear.

ISSUES CONCERNING THIS APPLICATION

The principal issue concerns possible unauthorized access to the information contained in the files. If the clerk at the I-Bureau does not make sure of the identification of the requester or if unauthorized persons read or make copies of the display requested by authorized persons, the kind of security normally maintained by the clerk at the counter in the I-Bureau is jeopardized. This prospect is magnified by a potential growth in the number of agencies making requests by video telephone because of the ease of video telephone requests.¹

¹During the final months of the project deputy county attorneys began to call the I-Bureau themselves in order to complete their case files rather than to wait for their clerks to obtain the material.



*Refers to Monthly Cost of Video Telephone

FIGURE 22
COST OF SKY HARBOR POLICE SUBSTATION ACCESS TO I-BUREAU

This increases the problem of identification and improper use of transmitted information.

However, the issue appears to be one of organizational procedure rather than of legal or social impact. On the other hand, if the organizational procedure is not well designed with this problem in mind, unauthorized access can have both social and legal impact. A parallel in current practice is the ongoing effort to formulate procedures and regulations to govern computerized criminal history files. The eventual guidelines from this would have their parallels in access by video telephone.

SECTION V

CALL OF THE CALENDAR

This application concerns the use of the video telephone by the presiding judge of the criminal court to hold the daily call of the calendar. Video telephones are located in the judge's chamber and in the offices of the public defender and county attorney. They are interconnected into a three-way conference arrangement when all three parties dial a common number. The purpose is to make it more convenient for the judge and the large number of defense and prosecution attorneys to meet than is normally the case when all attendees are required to assemble in the courtroom. As a side effect, however, it also makes it possible for the public defenders and county attorneys to stay in their respective offices and thus save the traveling and waiting time otherwise involved.

The application was initiated spontaneously by the judge because of the availability of the video telephones. It eased an otherwise burdensome routine administrative procedure. From the time it was initiated in March 1976 until the end of the project in June the application was used once a day for all centralized calendar calls.

THE PHOENIX ENVIRONMENT FOR CALL OF THE CALENDAR

The Judges of the Superior Court in Maricopa County began a six month centralized criminal calendar project in March 1976. The purpose of the project was to explore the advantages of an individualized calendar versus those of a centralized calendar for the disposition of cases. Under the individual calendar, upon arraignment a case is permanently assigned to a specific court division. Under a central calendar all cases are "pooled" and assigned as required to one or another judge for hearing of specialized portions of the

proceedings: guilty plea arraignments, changes of plea, motions, sentencings from guilty pleas, etc. All central calendar judges except the motion judge and the presiding criminal judge conduct trials. During the course of the project, 56 percent of the cases were assigned to the central calendar.

(a) In-Person Procedure

As part of this procedure, a calendar call is held each afternoon by the Presiding Criminal Judge. At the calendar call cases are assigned to a centralized calendar division for trial to begin the following day. Prior to the use of the video telephone, all attorneys for these cases would assemble in the courtroom. As each case was called the prosecution and defense attorneys respectively indicated their readiness to go to trial. Pertinent motions were also heard at this time.

A typical afternoon would review about 18 cases. Public defenders would be assigned to about 11 of these cases and private attorneys to the remainder. Each defense attorney, or a representative, would be present. One deputy county attorney would represent all cases for the prosecution unless special circumstances required the presence of the assigned attorney. The latter would happen for about four of the 18 cases. Thus a typical calendar call would see from 15 to 20 attorneys gathered at the court for the half-hour proceedings.

Travel time for the various attorneys would vary. Public defenders would walk three blocks (15 minutes round trip), deputy county attorneys one block (five minutes each) and private attorneys from varying distances around the city. Typical waiting times, until a case was reviewed, was about 20 minutes.

Upon return to their respective offices, the attorneys would pass on the pertinent information to clerks. The clerks in the offices of the Public Defender and County Attorney would then record the outcomes and notify any attorneys who had delegated their representation.

(b) Video Telephone Procedure

Using the video telephones, the judge, public defenders and deputy county attorneys dialled the three-way conference number. All three parties remained in their offices. The clerks could also be present at the video telephone to transcribe the outcome of each case. Because they have no convenient access to video telephones, private attorneys had to be present in the court. On the average there were seven public defender attorneys and five deputy county attorneys involved.

As each case was called the appropriate public defender and deputy county attorney would sit in front of their respective sets. The speakerphone included with the video telephone station enabled the private attorneys to address the court and the prosecution from in front of the judge. All parties could see and hear each other.

Necessary conversations between the attorneys before and after the calendar call were handled by separate telephone calls.

USAGE

The use of the video telephone for this application was different from the previously described uses in one important respect; the use was scheduled and periodic rather than by demand. For the last few months of the project the video telephone network was used once per working day for 100 percent of the centralized calendar calls.

FUNCTIONAL CHANGE

The application resulted in two significant functional changes; (1) the attorneys no longer gathered together in a single room for the calendar call, and (2) the representatives of the public defender's and county attorney's offices stayed in their offices where they had ready access to the attorneys and prosecutors actually assigned to the cases and access to the office files on the cases.

COST OF THE APPLICATION TO PUBLIC DEFENDERS

Measurements of the travelling time involved in an in-person call of the calendar showed that there was a significant amount of time "wasted, particularly by public defender attorneys. The following is a comparison of the cost of in-person and video telephone calendar calls for the public defender's office.

(a) In-Person Calendar

For this application the in-person cost for calendar call is dependent on the number of public defender attorneys participating in the calendar call according to the relation:

$$C = 11.25 N,$$

where: C is the dollar cost of public defender participation at each calendar call,

N is the number of public defender attorneys attending,

11.25 is the salary cost of 45 minutes of attorney participation.

(b) Video Telephone Calendar

The video telephone cost per calendar call is determined the same way as in-person calls except that the attorney time involved is less and the cost of the video telephone is added:

or a \$200 monthly video telephone tariff,

$$C = 9 + 7.5 N;$$

for a \$400 monthly video telephone tariff,

$$C = 18 + 7.5 N;$$

where:

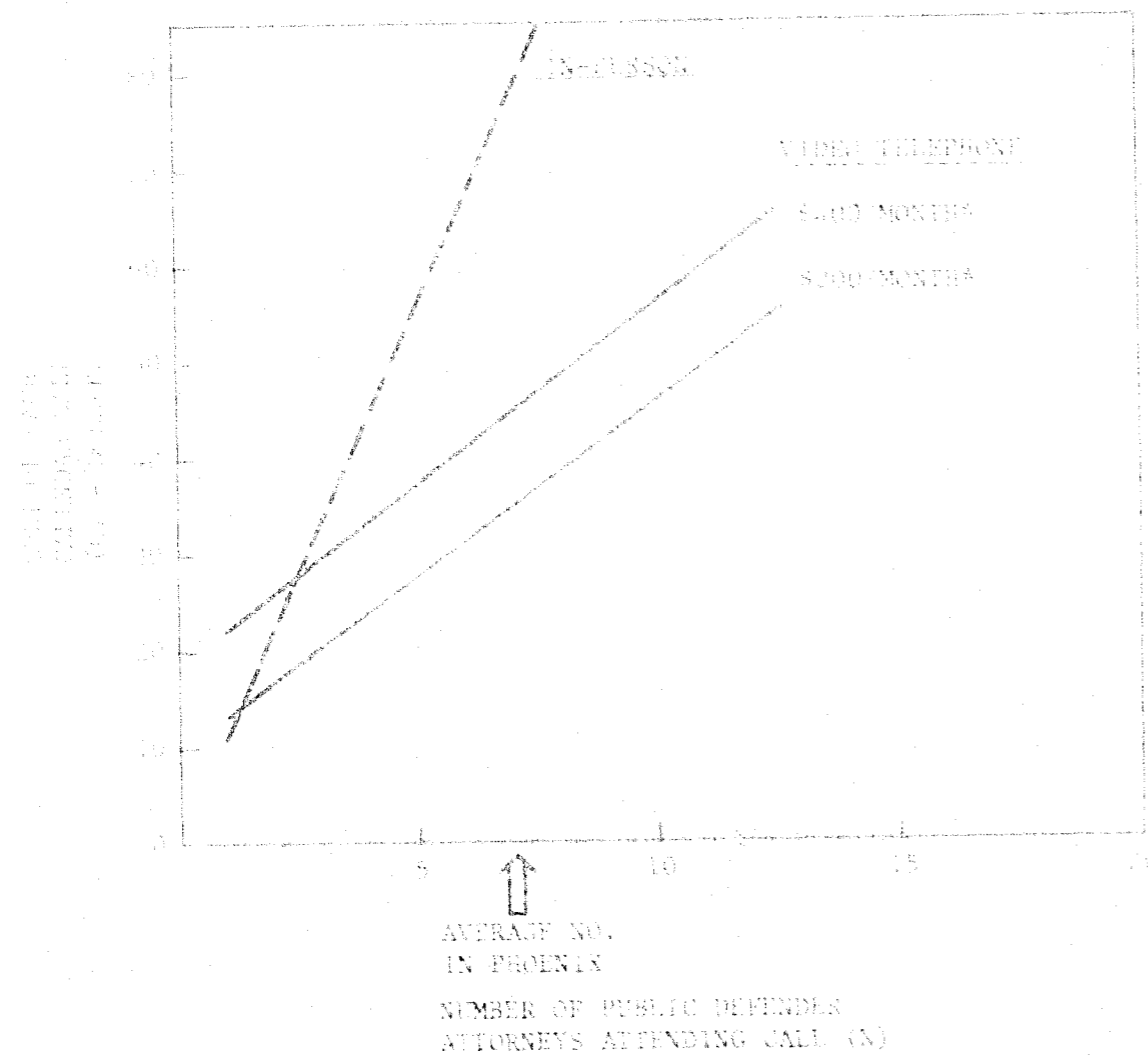
9 and 18 are the dollar costs for the video telephone for each of 22 calendar calls per month,

7.5 is the salary cost of 30 minutes of attorney time.

Figure 23 is a plot of these values. Note that for a tariff of \$400 per month, at least three attorneys must participate in each calendar call for the video telephone participation to be less costly to the public defender's office than in-person participation. At a \$200 per month tariff the number of attorneys must exceed one. The average number participating in Phoenix was seven.

ISSUES CONCERNING THIS APPLICATION

For most of the cases the interaction was composed of affirmative responses from the attorneys as to readiness to go to trial and a case assignment response from the judge. Only in those few cases where questions were raised (e.g., change of judge or dismissal with or without prejudice) could an argument have been made that physical presence of the attorney in front of the judge was necessary for due process. Otherwise the application concerned only an administrative process.



numbers to monthly cost per video telephone

FIGURE 23
COST OF PUBLIC DEFENDER ATTORNEY PARTICIPATION IN CALENDAR CALLS

CHAPTER VI
 DEPARTMENT OF CORRECTIONS

This report reflects a general decline in the video telephone use by the public defender in the criminal division of the superior court. A major reason for this decline is the change in the video telephone use by the public defender in the criminal division. The public defender in the criminal division has been using video telephones for a number of years. The public defender in the criminal division has been using video telephones for a number of years. The public defender in the criminal division has been using video telephones for a number of years.

The video telephones are used primarily on a daily basis for calendar calls. In 1977, approximately 40 percent of all calendar calls were conducted by video telephone. In 1978, approximately 30 percent of all calendar calls were conducted by video telephone. In 1979, approximately 20 percent of all calendar calls were conducted by video telephone.

The public defender in the criminal division has been using video telephones for a number of years. The public defender in the criminal division has been using video telephones for a number of years. The public defender in the criminal division has been using video telephones for a number of years.

THE PUBLIC DEFENDER'S ROLE IN ARRANGING APPEARANCES

In Maricopa County defendants to be arraigned in Superior Court appear before the judge in two separate proceedings. Those defendants who are going to plead not guilty or who are appearing

initially in probation revocation proceedings are scheduled during one proceeding. Defendants submitting guilty pleas are scheduled for a separate proceeding. The application concerns only those pleading not guilty. The following are the means by which in-custody not guilty arraignments are held:

(a) In-Person Procedure

For an in-person arraignment the defendants are escorted to the criminal court in a group once each working day. Women are escorted separately from men. The escort detail averages 2.5 deputy sheriffs. Prisoners are assembled in the holding tank at the county jail about an hour before their court appearance. Prisoners held at the jail annex five miles away are transferred to the county jail earlier in the morning. About thirty minutes before the court proceeding the group of escorts and handcuffed prisoners leaves the jail and walks to the Court House two blocks away. After the proceedings the prisoners are escorted back to the holding tank and then returned, one or two at a time, to their cells or to the jail annex. The average time for the entire process is 1.5 hours.

During the court appearance defendants pleading not guilty appear one at a time before the judge to be assigned a date and court division for trial. A reading of the charge is normally waived because of the prior decision to plead not guilty. Any inconsistencies in name spellings and charges and any requested postponements are handled by the judge at that time. A written copy of the trial assignment information is given to each defendant. The entire procedure for each case takes an average of about one minute. Motions other than for routine continuances are not usual during the proceedings.

A representative from the office of the county attorney monitors each arraignment and modifies the case records as needed. A single representative from the office of the public defender handles the arraignments on all cases assigned to that office and is present

in court during all proceedings. Private attorneys are required to be present in court with their clients. Under the Arizona Rules of Criminal Procedure covering in-person appearance in the court, if a private attorney is not present, another is appointed by the court temporarily to represent the defendant during the proceeding.

(b) Video Telephone Procedure

Using the video telephone procedure, in-custody defendants who are pleading not guilty remain in the jail during the arraignment. They are assembled at the location of the video telephone room where one corrections officer handles the entire process. The process takes the same 1.5 hours as the in-person process.*

The arraignment begins with the judge calling the jail by video telephone at a scheduled time from his chambers. The proceedings open with the reading of a statement for the record giving the authorization under which the video telephone is used (see Figure 24). The judge then talks to each of the previously assembled defendants over the video telephone (see Figures 25 and 26). The exchange is the same as for an in-court appearance. The representative from the office of the public defender is present at the jail to handle the paperwork and answer any questions on behalf of the defendant(s). Private attorneys are also present in jail with their clients.

The procedure changed slightly after the three-way conference bridge was installed in the network. Prior to the conference bridge, during the first eight months of arraignment via video

*The time was unchanged because the travel time component was small and the movements were largely governed by schedule. A greater travel distance would probably cause a change.

DECLINE STATEMENT FOR
VIDEOPHONE PROCEEDINGS - ARRANGEMENT

The following information is provided to you in accordance with the provisions of the Criminal Justice Act 1988.

The information is provided to you in accordance with the provisions of the Criminal Justice Act 1988.

The information is provided to you in accordance with the provisions of the Criminal Justice Act 1988.

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FIGURE 24
STATEMENT READ AT THE START OF VIDEO TELEPHONE ARRANGEMENTS



FIGURE 25
IN CUSTODY ARRAIGNMENT: JUDGE'S CHAMBERS



FIGURE 26
IN-CUSTODY ARRAIGNMENT: JAIL

telephone, the deputy county attorney attended in the judge's chambers, although only the judge would appear on the video telephone screen at the jail. When the three-way conference bridge became available, the deputy county attorney remained in the county attorney's office and participated in the proceedings by using his own video telephone.

Changes in the local rules permitting arraignments via video telephone were reviewed by the Arizona Supreme Court. Two conditions for the new procedure were required. First, the defendant must waive his right to an in-person appearance by signing a printed waiver (see Figure 27). If he chooses not to sign the waiver he must be escorted to the court for an in-person arraignment. Second, the public defender cannot represent all defendants solely for the purpose of arraignment convenience.

USAGE

Eighty-nine percent of all in-custody, not guilty arraignments from July 1975 to the end of the project in June 1976 were held by video telephone. One arraignment session was held each working day. During the 25 day working period from mid-September to mid-October, 1975, 187 males and 19 females were arraigned at an average rate of about 8 per day. Eleven percent refused to sign the waiver and were escorted to the court for in-person arraignment.

FUNCTIONAL CHANGES

The principal changes experienced as a result of using the video telephone in the arraignment process concerned (a) the security of the court and defendant and (b) the personal impact of the process on the defendants.

IN THE JUSTICE COURT OF _____ PRECINCT
MARICOPA COUNTY, ARIZONA

STATE OF ARIZONA,)
)
 Plaintiff)
)
 v.)
)
 Defendant)
)
 _____)

J.P. Court No. _____
WAIVER OF PHYSICAL PRESENCE
AT TIME OF ARRAIGNMENT IN
SUPERIOR COURT

I understand that I have a right to be physically present before the Superior Court Judge who takes my plea of not guilty at arraignment in Superior Court.

I hereby waive (give up) my right to be physically present before the Judge at that proceeding. I understand that I will appear by means of the video-phone installed in the Maricopa County Jail.

I understand that my attorney will be with me and appear on my behalf at that proceeding by means of the video-phone also.

DATED this _____ day of _____, 19__.

DEFENDANT

ATTORNEY FOR DEFENDANT

FIGURE 27
ARRAIGNMENT WAIVER FORM

(a) Security

By using the video telephone during the arraignment process the defendant can be held in the jail and guarded against attack or escape. In addition, the court can be guarded against disruption. Neither of these has generally been a problem in Maricopa County, although in the two years prior to the project there were eight recorded escape attempts during court proceedings or transportation. Also, in at least one instance during the project there was an extraordinary security requirement for an individual held on a murder charge receiving national attention.

(b) Personal Impact

When the video telephone was used during the arraignment process, the defendants were held in the hallway outside the video telephone room in the jail. As a consequence of this, the surroundings were less formal than in the courtroom and it appeared that the defendants responded to this by being somewhat more relaxed and noisier while waiting to appear. Also, because they stayed in the jail, the defendants were not paraded through the streets in jail clothing and handcuffs and were not shackled together. The latter allowed greater freedom for attorneys to converse in private with their individual clients prior to the proceedings.

In addition, unless the defendants understood that the proceeding was largely administrative -- to assign a time and date for trial -- they would sometimes feel that the use of the video telephone denied them the opportunity to explain to the judge "what really happened."

COST OF PROCEEDINGS

The principal cost effect of using the video telephone in this application accrues to the sheriff's department, which is responsible for jail operations and prisoner escort. For the criminal court the

video telephone is a cost burden with no identifiable cost savings. The following is a comparison of the cost of in-person and video telephone proceedings from the point of view of the sheriff's department:

(a) In-Person Proceedings

As noted earlier the manpower requirements to escort defendants through the in-custody, not guilty arraignment session were based on a policy of assigning one sheriff's deputy to every three defendants, with a minimum of one deputy for less than three. The cost per arraignment session as a function of the number of defendants would then be the product of the number of defendants divided by three and the number of hours per arraignment session and the estimated salary cost per hour (\$6) for deputy sheriffs, or,

$$C = 3N,$$

where:

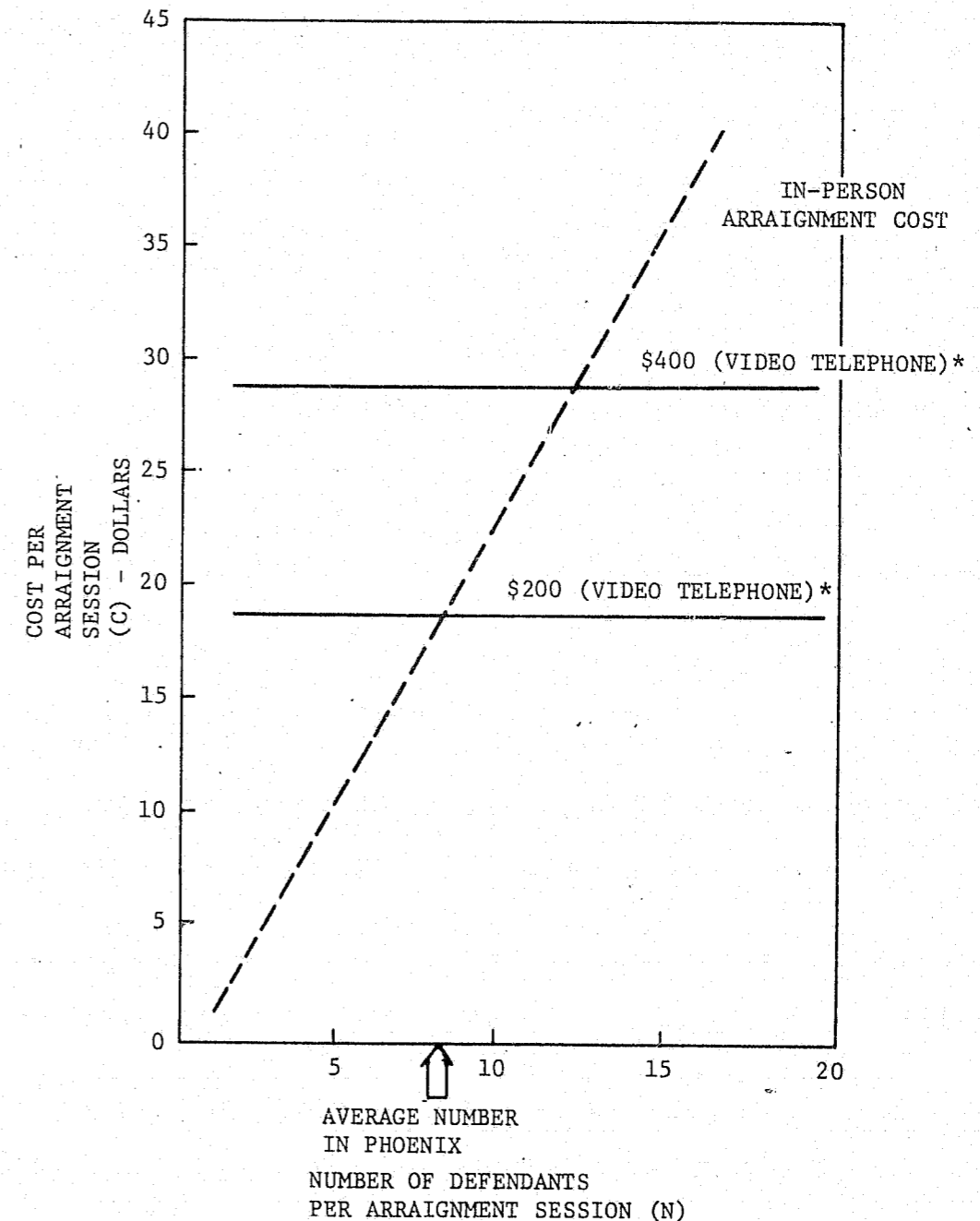
C is the cost per session in dollars,

N is the number of defendants.

(b) Video Telephone Proceedings

The cost of video telephone arraignment session, assuming one session every workday, is the sum of the salary for the one guard to escort the defendants inside the jail and the cost of the one video telephone call per session. For a \$200 monthly video telephone tariff for 22 calls per month and an estimated \$9 salary cost for 1.5 hours of guard time, the cost for video telephone arraignments would be \$18.10. For a \$400 monthly tariff under the same circumstance, the cost would be \$27.20.

Figure 28 shows the cost of arraignment sessions to the sheriff's department. Note that the number of defendants has to exceed nine per session to assure that the cost of the video telephone session, with a \$400 per month video telephone tariff, is less than the cost of the



* Refers to monthly video telephone.

FIGURE 28
COST TO SHERIFF'S DEPARTMENT OF IN-CUSTODY, NOT GUILTY ARRAIGNMENT SESSIONS

in-person session. For \$200 per month tariff the number of defendants is six.

The number experienced in Phoenix was eight per session. This represented 89 percent of all defendants undergoing in-custody, not guilty plea arraignments.

ISSUES CONCERNING THE APPLICATION

The only substantive issue to arise from conversations with defendants whose arraignments had been conducted over the video telephone was that use of the video telephone was perceived to abridge the defendant's right "to appear in person" before the judge. A number of defendants expressed dissatisfaction that they were unable to "tell their side to the judge." In fact, the opportunity to do this was never granted either before or after the video telephone because in Maricopa County the not guilty arraignment is largely an administrative procedure.

Private attorneys occasionally expressed dissatisfaction with the necessity to appear in the jail rather than in the courtroom for the arraignment.

Broader issues would probably be raised if the application were extended to include guilty plea arraignments.

SECTION VII

ORAL ARGUMENT OF PRE-TRIAL MOTIONS

This application concerns the use of the video telephone by public defenders to argue pre-trial motions before judges of the criminal court. Video telephones are located in the public defender's and county attorneys offices, the judges chambers, the county jail and a police substation.¹ The application consists either of (1) a three-way conference call between the judge and two opposing attorneys, with all three generally remaining in their respective offices but occasionally with the public defender participating from the jail in company with the defendant, or (2) a conventional two-way call between the court, where the judge and two attorneys are located, and a police office in an outlying substation. The purpose is to expedite the hearing of motions in order to speed the disposition of cases and save the time of the participants.

The video telephones were used on a selected-case basis about once per day for the two month period during which motions were heard by the judge equipped with the video telephone. This represented about 20 percent of pre-trial motions heard during that period.

THE PHOENIX ENVIRONMENT FOR CONDUCTING PRE-TRIAL MOTIONS

During the video telephone project the Superior Court of Maricopa County coincidentally embarked on an experimental project to compare the traditional individual calendar method of assigning cases with the central calendar method (see Section V). In contrast to the individual calendar method, all motions for cases assigned to the central calendar are heard by one judge. The baseline data detailing the motion hearings described in this report are derived over a two-month period from the experience of the court division handling central calendar motions.

¹These are the same video telephones used for all other applications involving these agencies.

During an average day the court scheduled five motion hearings and one or two voluntariness hearings. Approximately 60 percent of the motion hearings involved just the attorneys and the judge. The remaining motion hearings also involved the defendant and/or a law enforcement officer.

The time scheduled on the court docket for the presentation of each motion varied widely. Some 35 percent of the motion hearings were allocated only 15 minutes. In comparison, 20 percent were scheduled to last 30 minutes, an additional 20 percent approximately 45 minutes and the remaining 25 percent an hour or more.

The following are the procedures for the pre-trial motion hearings during the two month period of observation:

(a) In-Person Procedure

Typically, a motion request is initiated by the defense attorney who submits a pre-printed form to the Clerk of the Court describing the specifics of the motion and the case. Upon receiving the form, the clerk checks for completeness and requests the proper court division (the motions court if the case is assigned to the central calendar or one of the other courts if the case is assigned to the individual calendar) to set a date and time for the motion to be heard. Sufficient time is allowed for all participants to be notified by mail and the opposing attorneys to prepare.

Observations outside a judge's chambers during the hearing of pre-trial motions indicate that a typical waiting time for the attorneys before the motion is heard is about 15 minutes. Additional time is spent by the prosecution and defense attorneys travelling to the central calendar motions court. The County Attorney's Office is only three floors below and a round trip consumes five minutes. The Public Defender's Office is three blocks away and a round trip takes approximately 15 minutes.

(b) Video Telephone Procedure

The procedure for requesting and scheduling a motion hearing by video telephone is the same as for an in-person hearing. The notice of time and day mailed to all participants specifies that the video telephone will be used. In most cases the motions heard via video telephone are short and involve only the two attorneys and the judge. At the appointed time, using their respective video telephones, all three dial a common conference call number and are connected together.

Since, as mentioned earlier, only the shorter, less complicated hearings are conducted by video telephone, the average length of a video telephone hearing is approximately 15 minutes.

USAGE

Pre-trial motions were heard under the central calendar method by the court having the video telephone only during March and April 1976. In general, one motion was selected each day to be argued by video telephone. Generally, the motions selected were those expected to be among the shorter and less argumentative and to involve only one public defender attorney. Private attorneys were not involved in the selected cases because there was no video telephone generally available outside the agency offices.

On a few occasions, the defense attorney participated from the jail in company with his client, using the video telephone in the jail. One notable instance of this use involved a murder case that received national attention and in which the security of the defendant was a matter of concern. By using the video telephone to appear at the pre-trial motion hearing, the defendant with one of his attorneys was able to remain within the protection of the jail and the extra eight deputy sheriffs scheduled for court security were not required.

CONTINUED

1 OF 2

FUNCTIONAL CHANGES

The primary functional change in this application involves who sees what of whom. Video teleconferencing shows only the head and upper torso of the speaker and the impact of certain body movements such as hand gestures is lessened. Also, as the three-way conference bridge was implemented in Phoenix the video telephone screen would only show the image of the person speaking to the other two parties. The listeners would not simultaneously also see each other. The speaker would see on his screen the person who last spoke. Thus his ability to see facial responses by both parties would be inhibited.¹ He does, however, have the sole attention of each listener when he is speaking and is on an equal visual level to any other speaker. Functionally the hearing proceeds the same as without the video telephone.

COST OF MOTION HEARINGS

A balancing of the cost to the public defender's office of attendance at pre-trial motion hearings with and without the video telephone determines the cost impact of the video telephone usage. The public defender's office is the focus of this comparison because the public defender attorneys have to travel farther to attend the hearings in the judges chambers (see Figure 5). In the following analysis the cost of in-person and video telephone attendance by public defender attorneys at pre-trial motion hearings is compared.

(a) In-Person Requests

As noted earlier, the average time spent by a public defender attorney in travelling the round trip to the judges' chambers at the

¹Other video telephone conference arrangements used by AT&T include multiple image display on a single screen. The system in Phoenix used only the single image display.

courthouse and in waiting for the hearing to start is 30 minutes. The time spent in the kind of hearings for which the video telephone would be used averages a minimum 15 minutes. The total for attendance at each hearing is, therefore, 45 minutes (0.75 hours). For an average attorney salary of \$15 per hour this results in a minimum cost of \$11.25 per hearing for a public defender attorney to attend a pre-trial motion hearing in-person. This is shown in Figure 29 as the cost for an in-person hearing on the assumption that only one public defender attorney is involved. If there are additional attorneys or if the hearings are longer the cost would be higher, so the figure shown is conservative.

(b) Video Telephone Hearings

The cost of video telephone attendance by public defender attorneys at pre-trial motion hearings is determined the same way as for public defender attorney contacts with jailed persons in Section II, as follows:

For a \$200 monthly video telephone tariff,

$$C = 3.75 + \frac{200}{N};$$

For a \$400 monthly video telephone tariff,

$$C = 3.75 + \frac{400}{N};$$

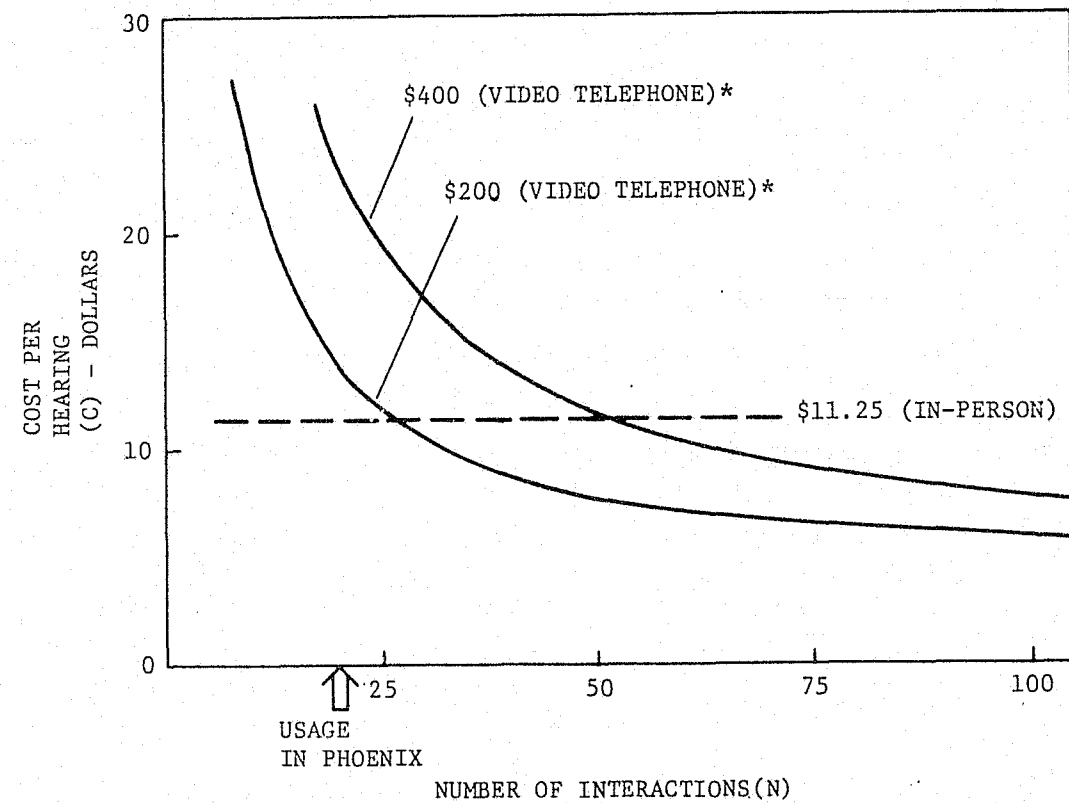
where:

C is the cost per hearing for a public defender attorney to attend a pre-trial motion hearing by video telephone,

N is the number of such hearings each month, and,

3.75 is the salary cost of 15 minutes of attorney time.

Figure 29 is a plot of the total cost of public defender attorney attendance at motion hearings. Note that the number of video telephone hearings has to exceed about 55 per month, for the \$400 per month tariff to assure that the cost of the video telephone attendance is less than the cost of the in-person attendance. For the \$200 per month tariff the number is about 30 hearings per month.



*Refers to monthly cost of video telephone

FIGURE 29
COST TO THE PUBLIC DEFENDER'S OFFICE OF ATTENDANCE AT PRE-TRIAL MOTION HEARINGS

The usage actually experienced during the two month period the application was active was about 20 per month, which, as was noted earlier, was about 20 percent of the total number of motions heard during the same period.

ISSUES CONCERNING THE APPLICATION

All of the motions heard by video telephone during the two month period were straightforward hearings without significant contest. There was speculation that for the more complex hearings the limitations imposed by the video telephone might tend to inhibit participation. The issue arises from two perceptions: (1) the difficulty of being persuasive by video telephone, and (2) the difficulty of dealing effectively with physical and documentary evidence and frequent complex interchanges among participants. More experience is needed under a variety of conditions to determine the significance of these concerns.

SECTION VIII

PROBATION REVOCATION HEARINGS

This application concerns the use of the video telephone by the adult probation office and the criminal court judge to expedite the holding of probation revocation hearings. Video telephones are located in a designated private conference room in the adult probation office and in the chambers of a criminal court judge (see Figure 5). The purpose is to make it easier and less costly for probation officers to attend the revocation hearings and, thereby, to expedite the disposition of probation violation cases.

The video telephone was used only on a selected test-case basis for this application; four hearings made use of the video telephone.

THE PHOENIX ENVIRONMENT FOR PROBATION REVOCATION HEARINGS

The procedures for handling probation revocations changed during the demonstration period. Under the old rules there were three steps to the process:

- (1) Initial Appearance where the arrested probationer was informed of his rights to counsel and that any statement he makes prior to the hearing may be used against him. A date for the revocation hearing was set and a release determination made.
- (2) Preliminary Hearing where a plea was entered. If a not guilty plea was entered, the testimony of the probation officer was taken.
- (3) Disposition Hearing where final disposition such as reinstatement of probation or revocation of probation and sentencing was made.

On 1 August 1975 the process was modified by dividing the Preliminary Hearing in two: Revocation Arraignment and Violation Hearing. The new procedure is:

- (1) Initial Appearance.
- (2) Revocation Arraignment where a plea is entered; a guilty plea would eliminate the need for a violation hearing.
- (3) Violation Hearing where testimony of the probation officer is taken if a plea of not guilty was entered.
- (4) Disposition Hearing.

During 1975 there were approximately 650 violation reports prepared by the Department of Adult Probation. Unfortunately the number of cases for which violation hearings were held was unavailable. On the basis of conversation with participants, it is assumed that half of these required violation hearings.

The following are the characteristics of probation officer trips to participate in violation hearings:

(a) In-Person Procedure

The person usually called to testify is the probation officer assigned to the case. Sometimes another member of the probation department, called an "officer of the day," who is familiar with the procedure, is also called. For purposes of the application only the attendance of the assigned officer is considered.

For a month the duration of waiting and testimony times of probation officers was logged outside a division of the criminal court. The average time recorded between arrival and departure was 76 minutes. The share of this actually involved in testimony was not clear. Assuming an average time of 15 minutes based on conversations with probation officers and a recognition of the fact that testimony to establish the circumstances of a probation violation is generally simpler than testimony in a preliminary hearing to a felony (35 minutes by police officer), the average waiting time is 61 minutes. In addition,

the round trip travel time to the court from the probation department is about 20 minutes. Therefore, the average travelling and waiting time for a probation officer to attend a violation hearing is 81 minutes.

It should be noted that field officers typically spend only one day a week in the office. The remainder of their time is spent in various locations throughout the county. Thus, the travel time presented above is probably conservative. Access to a county-wide video telephone system would permit them to testify from wherever it was convenient to do so.

(b) Video Telephone Procedure

When the video telephone is to be used for probation officer testimony, the use is agreed upon in advance by the judge and the probation officer. The call is placed by the judge's office when testimony by the probation officer is desired. The average testimony time is assumed to be the same 15 minutes involved in the in-person hearings.

USAGE

The video telephone was available in the probation office for approximately 13 months from May 1975 to June 1976. During this period the video telephone was used a total of four times to present testimony before the court in hearings involving a charge of probation violation.

FUNCTIONAL CHANGES

In all four cases the video telephone set in the judge's chambers was used because a courtroom installation was not available. A probation officer gave testimony via video telephone in three instances. In two cases the defendant was absent although represented by counsel. In the third case the defendant was present. As an example of the utility of the video telephone which goes beyond just saving travel and wait time by the witness, in at least one of these three cases a 15

minute postponement was eliminated because an officer of the day was called to testify. This eliminated delay, saved time for the judge, the court reporter and the attorneys.

In the fourth case no testimony was presented and the defendant remained at the jail accompanied by defense counsel. Upon stipulation the revocation arraignment and violation hearing were combined.¹

COST OF TESTIMONY AT HEARINGS

A balancing of the cost of the time "wasted" in travelling and waiting to participate in probation revocation hearings against the cost of the video telephone determines the cost impact of the video telephone usage. In the following analysis the costs of in-person and video telephone testimony in criminal court hearings by adult probation officers is compared:

(a) In-Person Testimony

As noted earlier, the average travelling and waiting time spent by probation officers to testify in probation revocation hearings is 81 minutes. Adding to this the 15 minutes estimated for testimony time gives a total of 96 minutes (1.6 hours). For an estimated average salary of \$7 per hour, this gives a cost of \$11.20 for a probation officer to testify in-person at a probation revocation hearing.

¹This particular case illustrates a possible interstate use for the video telephone under this application. The defendant was serving a 10 year to life sentence at Folsom prison in California. He was extradited to Arizona to answer the charge that he had violated the terms of a probation granted him in Arizona. The defendant admitted the violation during the arraignment portion of the hearing and was sentenced to 5-10 years in the Arizona State Prison - sentence to run concurrently with the California sentence. Upon completion of the proceeding he was returned to Folsom to serve the balance of his California sentence.

(b) Video Telephone Testimony

The cost of video telephone testimony is determined the same way as for public defender contacts with jailed clients in Section II, as follows:

For a \$200 monthly video telephone tariff,

$$C = 1.75 + \frac{200}{N} ;$$

For a \$400 monthly video telephone tariff,

$$C = 1.75 + \frac{400}{N} ;$$

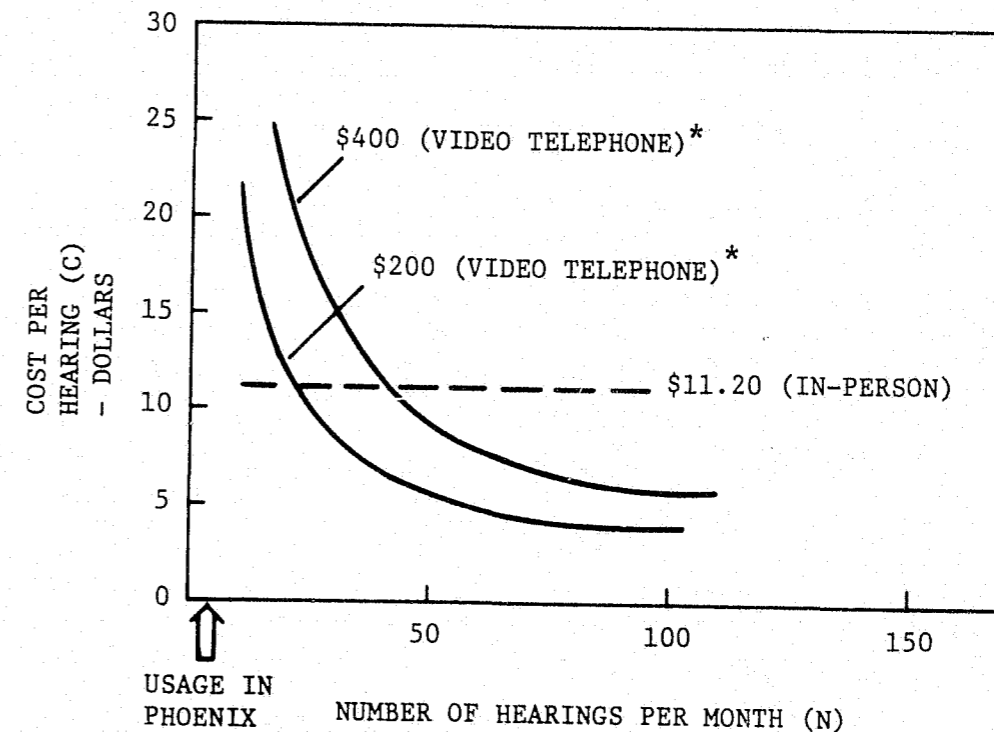
where:

C is the cost per hearing for a probation officer to testify at a probation revocation hearing,
N is the number of hearings per month by video telephone, and,
1.75 is the salary cost of 15 minutes of probation officer time.

Figure 30 is a plot of the cost of probation officer testimony. Note that number of hearings by video telephone has to exceed about 40 per month to assure that the cost of the video telephone testimony, at the \$400 per month tariff, is less than the cost of in-person testimony. For the \$200 per month tariff the number is about 20 hearings per month.

ISSUES CONCERNING THIS APPLICATION

The primary issue in this application, as for others involving remote testimony, is the adequacy of confrontation. However, the U.S. Supreme Court has indicated that a probation revocation is not a



*Refers to monthly cost for video telephone.

FIGURE 30
COST TO PROBATION OFFICE OF TESTIMONY AT PROBATION REVOCATION HEARINGS

criminal proceeding in the same sense as are trials and show-cause hearings.¹ In fact, it is interesting to note that the U.S. Supreme Court left room for "creative solutions" to the problem of confrontation in its ruling.²

¹GAGNON, WARDEN v. SCARPELLI, 411 U.S. 778 (1972).

²SCARPELLI, see footnote 5

Some amount of disruption inevitably attends any new constitutional ruling. We are confident, however, that modification of the interstate compact can remove without undue strain the more serious technical hurdles to compliance with Morrissey. An additional comment is warranted with respect to the rights to present witnesses and to confront and cross-examine adverse witnesses. Petitioner's greatest concern is with the difficulty and expense of procuring witnesses from perhaps thousands of miles away. While in some cases there is simply no adequate alternative to live testimony, we emphasize that we did not in Morrissey intend to prohibit use where appropriate of the conventional substitutes for live testimony, including affidavits, depositions, and documentary evidence. Nor did we intend to foreclose the States from holding both the preliminary and the final hearings at the place of violation or from developing other creative solutions to the practical difficulties of the Morrissey requirement.

SECTION IX

REMOTE TESTIMONY IN PRELIMINARY HEARINGS

This application concerns the use of the video telephone by police officers to give testimony in preliminary hearings. Video telephones are located in the Sky Harbor police substation (see Figure 17) and in the South Phoenix Justice Court. The latter is a multiple installation involving a conventional desk top unit (see Frontispiece) on the bench for the judge's use and a wide screen display visible to the remainder of the court (see Figure 31). All parties see and hear each other. The purpose is to make it easier and less costly for police officers to participate in preliminary hearings as prosecution witnesses.

Preliminary hearings represent a large proportion of the court proceedings requiring police officer testimony. However, the use in Phoenix involves only one of the 17 justice courts and only selected test-cases within that court. By the end of the project 16 preliminary hearings had been scheduled to use the video telephone and seven actually did use the device. The remainder of the hearings were continued for reasons unrelated to the video telephone or were resolved by a guilty plea prior to police testimony.

THE PHOENIX ENVIRONMENT FOR REMOTE TESTIMONY IN PRELIMINARY HEARINGS

The purpose of the preliminary hearing is to require the prosecution to show cause before a magistrate why a defendant charged with felony should be held for trial. The Arizona Rules of Criminal Procedure require that the preliminary hearing be held within six days of the initial appearance. The rules for the introduction of evidence in preliminary hearings permit hearsay evidence by means

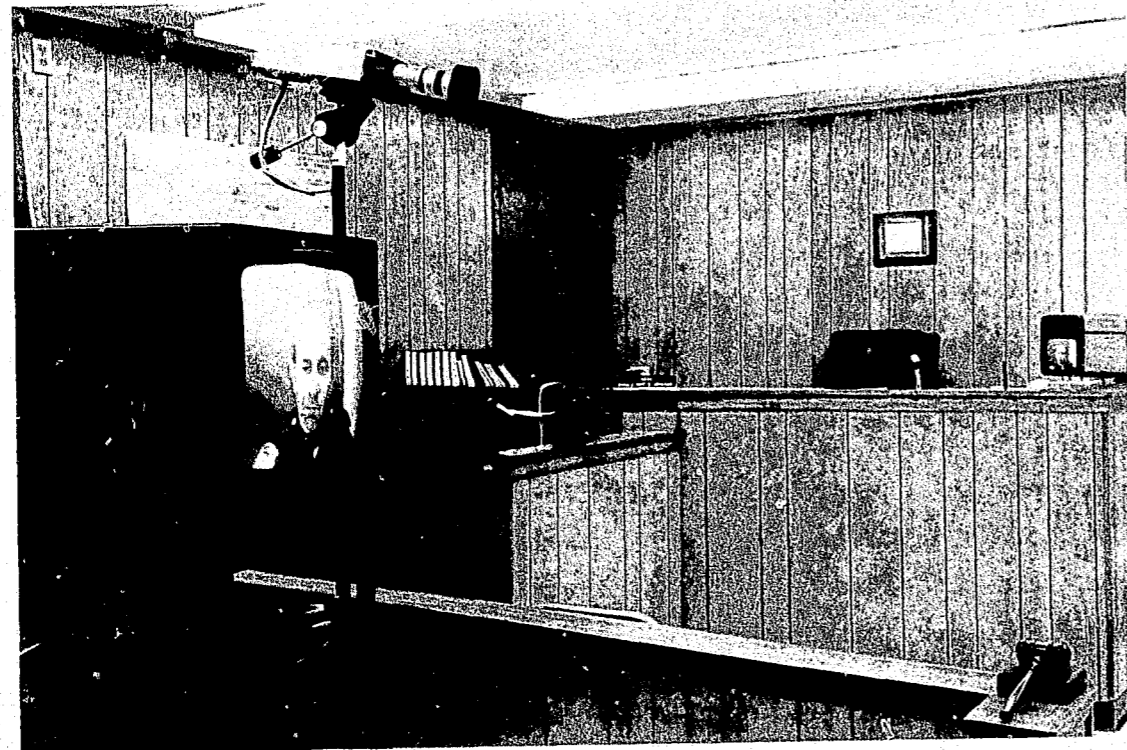


FIGURE 31
JUSTICE COURT INSTALLATION

of written reports or the testimony of police officers.¹ Further, only one of the arresting or investigating officers needs to take the witness stand even though several may have been called and may be in the courtroom.

In Maricopa County there are 17 justice courts which conduct about 10,000 preliminary hearings per year. Law enforcement officers employed by the various city police departments (Phoenix, Mesa, Tempe, etc), as well as the Maricopa County Sheriff's Department and the Arizona Department of Public Safety are frequent witnesses in these justice courts.

A log of police witnesses compiled at a justice court in Phoenix over a 55 day period revealed an average of three preliminary hearings each workday involving eight witnesses. Of the latter, 88 percent were from the Phoenix Police Department, six percent were from the Arizona Department of Public Safety, four percent were from the Maricopa County Sheriff's Department and the rest were from other

¹From the Arizona Rules of Criminal Procedure:
5.4 Determination of Probable Cause.

c. Evidence. The finding of probable cause shall be based on substantial evidence, which may be hearsay in whole or in part in the following forms:

- (1) Written reports of expert witnesses;
- (2) Documentary evidence without foundation, provided there is a substantial basis for believing such foundation will be available at trial and the document is otherwise admissible;
- (3) The testimony of a witness concerning the declarations of another or others where such evidence is cumulative or there is reasonable ground to believe that the declarants will be personally available for trial.

local agencies. Of the officers from Phoenix, 50 percent were detectives based in the police headquarters and 50 percent were patrol officers from the nearest substation. Only one of every four called to testify actually took the witness stand.

The patrol officers in Phoenix are organized into four shifts to provide round-the-clock patrol service. The detectives are organized into one shift operating during regular business hours. This means that all detectives called to testify in preliminary hearings are able to appear during on-duty hours. In contrast to this, only one out of four patrol officers is able to appear during on-duty hours. Three of the four, having duty outside of regular business hours have to appear during off-duty hours. As a consequence, 62.5 percent of the Phoenix police officers (all detectives and one fourth of the patrol officers) appear during on-duty hours, and 37.5 percent (three fourths of the patrol officers) appear during off-duty hours. The latter are given three hours of overtime pay to compensate for the off-duty time.

The following are the means by which police officers testify in preliminary hearings:

(a) In-Person Procedure

A log of the time spent by Phoenix police witnesses travelling to and from the justice court, waiting to testify and testifying on the stand in-person revealed that the three out of four officers who were subpoenaed to appear but did not take the stand waited an average of 70 minutes* in the court. The one out of four who did take the stand waited an average of 80 minutes* and spent an additional 35 minutes on the witness stand for a total of 115 minutes. The

* Thirty minutes of this time was spent conferring with the prosecuting attorney.

travelling time for all officers to and from either the headquarters or the substation was an additional 40 minutes round trip.

Thus, the average time spent by on-duty officers (62.5 percent of the total) in appearing at justice court preliminary hearings is two hours (three-fourths of the officers for 70 minutes waiting time plus one-fourth of the officers for 115 minutes waiting and testifying time plus 40 minutes travelling time). The average time for off-duty officers (37.5 percent of the total), because of the overtime allocation, is three hours. Therefore, since four officers appear for each officer who testifies, $9\frac{1}{2}$ man-hours (37.5 percent of three hours plus 62.5 percent of two hours, all multiplied by four) are expended for every four officers subpoenaed to testify in person.

(b) Video Telephone Procedure

To permit testimony to be presented to the court by video telephone a system of video telephone cameras, large-screen monitors and audio equipment tailored for the courtroom was installed and connected into the video telephone network through the regular dial-up equipment (see Figure 31). The purpose for the special installation was to allow all participants in the preliminary hearing to see and hear each other and minimize the forced changes to courtroom practice.

At the time the hearing is scheduled the subpoenaed police witness remains conveniently close to the video television station in the police headquarters or substation. When the hearing is called at the court the clerk of the court dials the video telephone of the witness and presents his image on both the large screen monitor facing the courtroom and the conventional video telephone monitor facing the judge. The audio is presented on loudspeakers audible to the entire court.

The witness is sworn, examined and cross-examined just as if physically present in the court. The average testimony measured in

the South Phoenix justice court where the video telephone was installed was 35 minutes. In addition, the average time spent in conferring with the prosecutor was 30 minutes. Thus, the average time spent by every four officers in responding to subpoenas was 155 minutes (120 minutes for four officers to confer with prosecutors and 35 minutes for one of the officers to testify) or 2.6 hours.

USAGE

The video telephone was used in seven preliminary hearings in the period between March 1976 and June 1976. There were nine other hearings scheduled to use the video telephone in which the witness never took the stand because the outcome of the proceeding made continuation of the hearing unnecessary. Each hearing was selected for clarity of charge and identification, and each required the prior consent of the judge, the assigned prosecuting and defense (always public defender) attorneys, the defendant and the witnesses. In most instances the video telephone was used prior to the start of the hearing for discussion between the deputy county attorney and the witness.

FUNCTIONAL CHANGES

Because the witness is physically absent from the courtroom and because each party views the other through a television camera there are three functional differences in the presentation of testimony: (1) differences in what the court sees of the witness and what he sees of them during testimony, (2) differences in the way physical evidence is introduced and identified, and (3) differences in the way the defendant is identified.

The court sees only an upper body view of the witness (see Figure 31). Hands and lower body are generally obscured from view. The witness, in return, sees either the judge or the whole court depending

on whether or not the judge is speaking. In all cases the image is in black and white.

When physical evidence is introduced in the court the evidence is placed on a table and a camera is focused onto the table top area. All identification tags and other material that single out the evidence are also shown on the screen. The evidence can be introduced in the court and identified by the witness or it can be introduced by the witness and shown to the court by video telephone. In the latter case a paper copy of the image can be made in the court for the use of the court or for the record.

A third functional difference is how the witness responds to a request to identify the defendant. Generally, the officer views the prosecution table, the defense table, and the court background including spectator seats. If it is necessary during the identification process the camera view can be zoomed and swept across the court. Full face views can be picked up at any location and held for as long as the witness desires. Because of the performance characteristics of the demonstration camera, the lighting environment of the courtroom had to be modified by installing drapes to lower the ambient light level. This change was especially important when identification was required of defendants with dark complexions.

COST OF REMOTE TESTIMONY

A balancing of the cost of time "wasted" in making trips from the police headquarters or from the Sky Harbor substation to testify in preliminary hearings at the South Phoenix justice court against the cost of the video telephone to the police determines the cost impact of the video telephone usage. In the following analysis the costs for in-person and video telephone testimony are compared:

(a) In-Person Testimony

As noted earlier there were $9\frac{1}{2}$ police man-hours expended for every four officers subpoenaed. For an estimated salary of \$8 per hour (including an average markup for overtime) this results in a cost of \$76 per in-person appearance of an officer on the witness stand. The cost per officer subpoenaed would be one-fourth of this or \$19.

(b) Video Telephone Testimony

The cost of video telephone testimony to the police department is determined the same way as for public defender contacts with jailed clients in Section II, except that video telephones are required in both the headquarters and substation locations. The costs are determined as follows:

For a \$200 monthly telephone tariff for each of two installations:

$$C = 5.20 + \frac{400}{N} ;$$

For a \$400 monthly telephone tariff for each of two installations,

$$C = 5.20 + \frac{800}{N} ;$$

where:

C is the cost per police officer subpoenaed,
N is the number of hearings per month by video telephone, and,
5.20 is the salary cost of one-quarter of 2.6 hours of police

officer time spent in responding by video telephone.

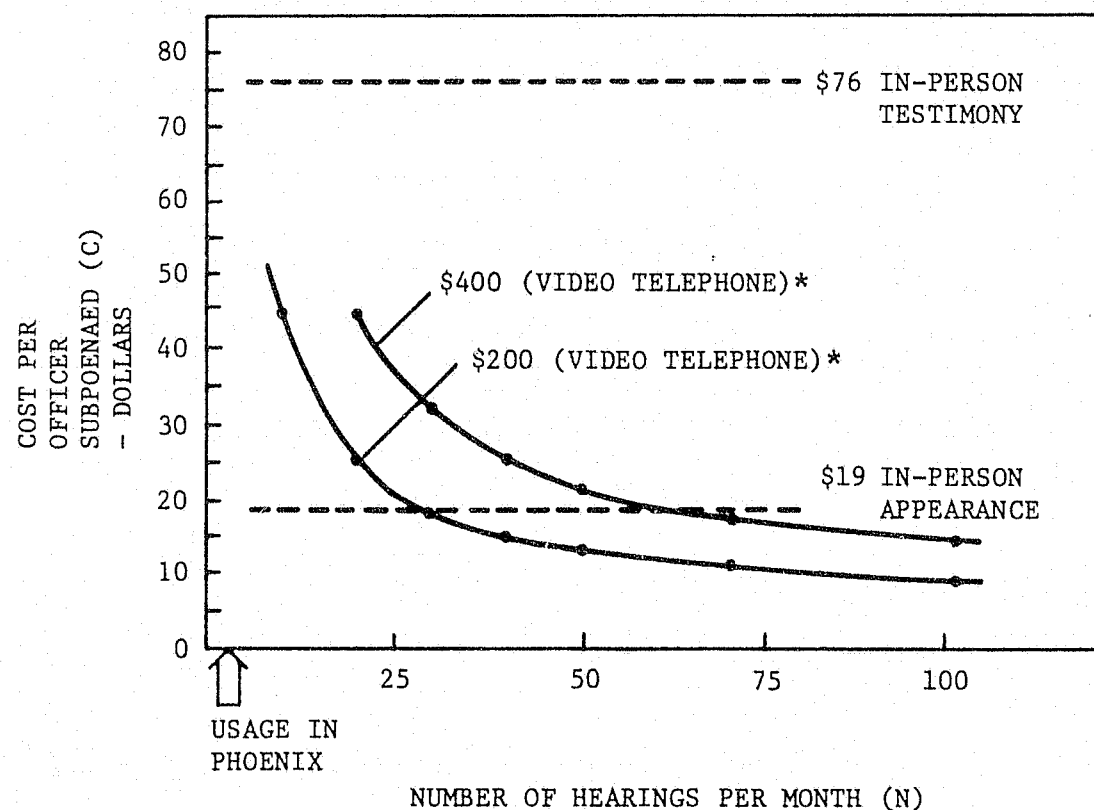
Figure 32 is a plot of the total cost of the police officer testimony. Note that the number of police officer appearances has to exceed about 55 per month to assure that the cost of the video telephone, at the \$400 per month tariff, is less than the cost of in-person appearance in court. For the \$200 per month tariff, the number is about 30 per month.

ISSUES CONCERNING THIS APPLICATION

The main issue for this application is whether or not, for the purposes of a preliminary hearing, sufficient confrontation takes place between the defense and prosecution witness to allow proper examination and cross-examination.

Factors that may influence whether or not sufficient confrontation takes place include the following:

- (1) Technical: The quality of reproduction of image and speech of the witness as perceived by the court and of the court as perceived by the witness may affect the degree to which feelings of remoteness are experienced by the participants. The configuration demonstrated in this project (see Volume III for detailed description) did not incorporate the maximum of what is technically possible. The audio heard by the court in Phoenix generally lacked the lower and higher tones in the speaker's voice and tended to echo in the room.
- (2) Acceptance of Video: Of all the participants in the court only the defense attorney had the experience of regularly



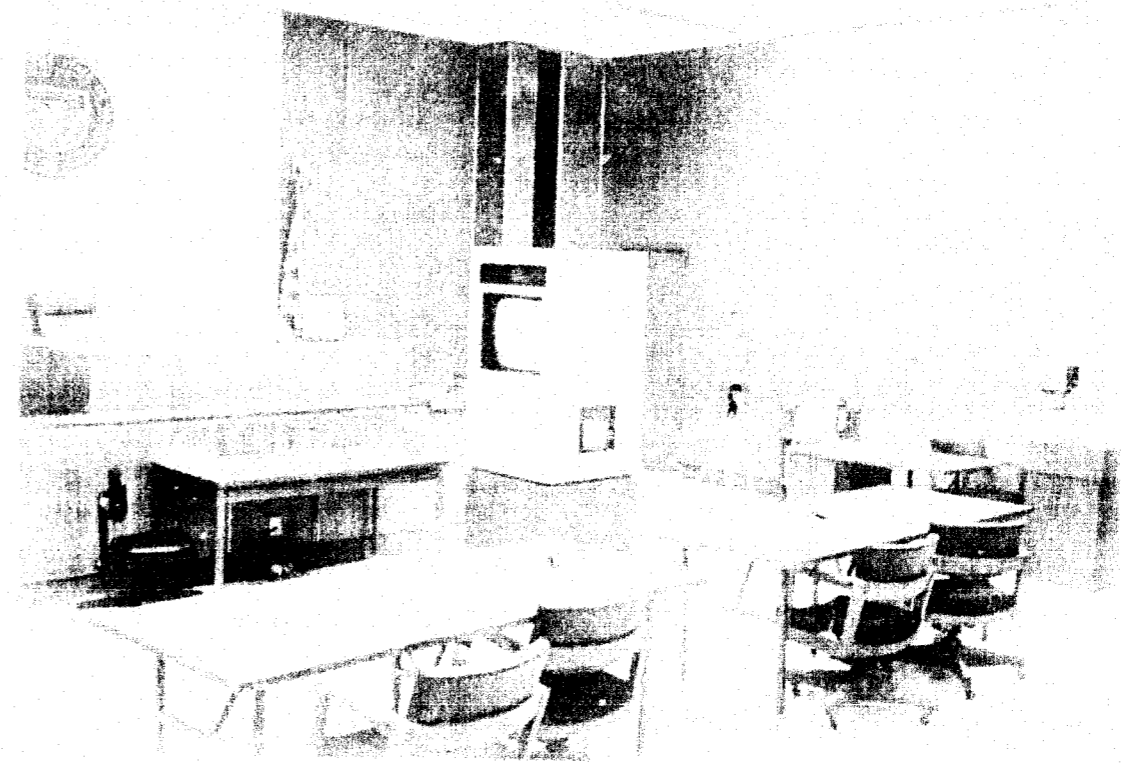
*Refers to monthly cost of video telephone.

FIGURE 32
COST OF POLICE OFFICER APPEARANCE AT PRELIMINARY HEARINGS

using the video telephone in the course of his daily business for different applications. Previous experience with the video telephone in other situations might affect this specific application with respect to ease of use by attorneys and witnesses.

- (3) Rules of Criminal Procedure: The requirement of confrontation for all prosecution witnesses is presumably less rigid in a preliminary hearing than in a trial. For example, the use of certain forms of hearsay evidence is more permissible than in a trial. To what extent this can be used as an argument to support the use of the video telephone for witness testimony in preliminary hearings needs to be determined.

During the project witnesses testified satisfactorily in seven different preliminary hearings. However, as the above discussion implies, remote testimony by video telephone, at least for the demonstration system, is not an equal substitute for in-person testimony. The questions are how unequal and what is acceptable.



The following is a consideration of the means by which police officers give testimony in Superior (criminal) Court:

(a) In-Person Procedure

Police officers are subpoenaed to appear at the courtroom to testify in criminal trials in much the same manner as for preliminary hearings in justice court. No figures were available for the nominal travelling and waiting times and times spent on the witness stand by police witnesses.

(b) Video Telephone Procedure

In comparison to the installation in the justice court, the video telephone configuration in the Superior Court is more complex. There are two video telephone desk sets and a graphics stand for display of physical evidence (see Figure 33). If such equipment were to be used on a routine basis, a configuration more integral to the courtroom environment would be desirable. No figures were available for the nominal time spent on the witness stand by police officers because only two trials made use of the video telephone.

USAGE

During the project three witnesses gave testimony and were cross-examined via the video telephone in the course of two different trials. In the first trial a crime lab technician identified physical evidence. In the second trial a police officer described the circumstances of the investigation and arrest, and a jailed accomplice testified for the prosecution.

The following are descriptions of the way the video telephone was used in the two trials:

(a) Trial Number 1 - CR 91345 - May 7, 1976

Background:

This trial involved three witnesses: a police officer, a criminalist assigned to the city crime lab and the defendant. The police officer brought the evidence to the courtroom and testified so that the evidence could be officially received. The criminalist testified via video telephone; he identified the evidence via the graphics station in the courtroom.

Because of the circumstances of the case, little was to be gained by basing the defense on a question as to whether the defendant actually was in possession of marijuana when apprehended. Further, the defense attorney feared that the showing of an exhibit of marijuana to a jury on a large screen would have a prejudicial effect against the defendant. Therefore, he requested and was granted a trial without jury. Before the trial, the defense attorney stated that he doubted that he would cross-examine the criminalist.

Beyond familiarizing and training the participants in the use of the equipment, there was no special pre-trial staging or procedural preparation for this experiment.

Events and Timing:

The trial was scheduled for 1:45 p.m.; the trial started at 2:45. At 2:45 the police officer was sworn and testified and the court exhibits were marked and received. Recess was called at 3:05 to prepare for remote testimony. At 3:12 the witness was sworn and testified. At 3:30 defense moved to strike testimony regarding certain evidence; the motion was taken under advisement. A defense motion to dismiss was denied. At 3:32, the defendant was sworn and testified. At 4:45, following a State motion for a mistrial on some procedural issues associated with the defendant's testimony (denied),

and a defense motion to acquit, based upon defendant's testimony (taken under advisement), court was adjourned.

On 14 May, the judge reconvened the trial and found the defendant not guilty.

Comment:

During the process of identification of State's evidence, the images transmitted to the witness are also viewed by all participants in the trial in the courtroom. During the trial, the defense attorney noted that the images were not recognizable as marijuana. In cross-examination he questioned that the criminalist could affirm that the evidence shown was the same evidence "in substantially the same condition" that he had examined and initialed previously. It became apparent that the standard means of sealing and marking for identification (translucent tape with the criminalist's initials) were insufficient, given a two-dimensional, black and white image for identification.

Both attorneys concurred that a procedural change would provide a satisfactory basis for identification of two-dimensional, black and white images of evidence. The standard procedure is that a police officer removes evidence (that has previously been examined and initialed by a criminalist) from a secured property locker and takes it to the court. Under a revised procedure, the officer would first take the evidence to the criminalist. The criminalist would verify his original determination and both would mark the evidence with their initials and the date of the trial. These markings would later be used by both to identify the evidence.

(a) Trial Number 1 - CR 91345 - May 7, 1976

Background:

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Beyond familiarizing and training the participants in the use of the equipment, there was no special pre-trial staging or procedural preparation for this experiment.

Events and Timing:

The trial was scheduled for 1:45 p.m.; the trial started at 2:45. At 2:45 the police officer was sworn and testified and the court exhibits were marked and received. Recess was called at 3:05 to prepare for remote testimony. At 3:12 the witness was sworn and testified. At 3:30 defense moved to strike testimony regarding certain evidence; the motion was taken under advisement. A defense motion to dismiss was denied. At 3:32, the defendant was sworn and testified. At 4:45, following a State motion for a mistrial on some procedural issues associated with the defendant's testimony (denied),

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Comment:

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Both attorneys concurred that a procedural change would provide a satisfactory basis for identification of two-dimensional, black and white images of evidence. The standard procedure is that a police officer removes evidence (that has previously been examined and initialed by a criminalist) from a secured property locker and takes it to the court. Under a revised procedure, the officer would first take the evidence to the criminalist. The criminalist would verify his original determination and both would mark the evidence with their initials and the date of the trial. These markings would later be used by both to identify the evidence.

In Phoenix, the revised procedure easily could be accommodated, since the property lockers are located only a few steps from the city crime lab. Moreover, a stronger link would be forged in the "chain of evidence".

(b) Trial Number 2 - CR 91488, CR 91506 - May 17-18, 1976

Background:

Defendant was charged with four counts of armed robbery. There were nine witnesses; two testified remotely: one a detective, and the other an alleged accomplice to the crimes. On 17 May, the detective testified from police headquarters, and on 18 May, the alleged accomplice testified from the county jail. On 18 May the jury found the defendant guilty on all four counts.

Events and Timing:

- 17 May - trial scheduled to start at 10:00 a.m.
- 11:37 - in chambers, motion to modify conditions of release to remand defendant to county jail pending trial outcome (granted).
- 1:45 - motion in chambers to sever cases for trial (denied).
- 1:50 - jury selection.
- 2:43 - court at recess.
- 3:12 - court reconvenes, jury named. A detective testifies to cause 23 exhibits to be entered as evidence.
- 3:30 - court at recess.
- 3:35 - in chambers, counsel stipulate that two witnesses may be called on video telephone. Defendant waives objection to the extent that video telephone may infringe on the right of defendant to confront witnesses. Defendant is called into chambers and agrees to use of video telephone.
- 3:53 - court reconvenes. Another detective is sworn, testifies via video telephone and makes an in-court identification of defendant. The detective identifies guns displayed to him via the graphics station. Another witness is sworn, testifies and makes an in-court ID of defendant.
- 4:20 - court at recess until 10:00 a.m. on 18 May.

- 18 May
- 10:22 - the identifying witness takes stand to continue testimony. Certain exhibits are identified. Other witnesses are sworn and individually testify, make an in-court ID of the defendant and identify certain exhibits.
 - 11:20 - court at recess.
 - 11:34 - court reconvenes and the last witness completes testimony.
 - 11:40 - court at recess.
 - 1:42 - the alleged accomplice is sworn and testifies via video telephone. He identifies two guns and the defendant via the attorney's camera.
 - 1:59 - court at recess.
 - 2:02 - three more witnesses identify the defendant after being sworn. One also identifies certain exhibits.
 - 3:24 - court at recess.
 - 3:25 - in chambers, counsel moves for acquittal on all counts (denied), and moves for mistrial (denied).
 - 3:35 - court reconvenes, both sides rest. State presents argument.
 - 3:44 - defense presents argument.
 - 3:50 - closing argument by State.
 - 3:56 - instructions to jury
 - 4:06 - jury retires to consider verdict.
 - 4:40 - jury requests copy of testimony of one of the identifying witnesses.
 - 4:45 - in chambers, it is ruled that a copy of the witness' testimony may not be provided.
 - 5:20 - jury returns verdict of guilty on all counts. Ordered setting of judgment of guilt and sentencing, at 8:45 a.m., 17 June 1976.

Comment:

During part of the detective's video telephone testimony, there was considerable audio distortion from the PA speakers. Some repetition of testimony was necessary. The Mountain Bell personnel attributed the difficulty to the fact that the witness had a very deep voice. During the testimony, the problem was alleviated by reducing the loudness of the PA system.

Also, during the detective's testimony the bailiff forgot to switch the courtroom monitors to show what the witness saw while defendant was being identified, and while guns were being identified (using the graphics station). (After the court was adjourned that afternoon, the judge strongly affirmed that the jury should have witnessed the ID of the evidence). It was not evident later whether or not this influenced the outcome of the trial.

The alleged accomplice's remote testimony the second day went smoothly. There was background noise from the jail location, but the noise did not seem to detract inordinately from the proceedings.

FUNCTIONAL CHANGES

The following are some of the functional differences noted in the video telephone testimony in criminal court:

(a) View of the Witness

Participants in the courtroom see a full-front head and shoulders view of the witness on the large-screen display when the witness is testifying by video telephone. This is the view seen by the judge in contrast to the profile view normally available to the judge when the witness is on the stand in-person.

The witness normally sees a wide-angle view of the court that includes the prosecuting attorney, the defense attorney and the defendant, but not the judge or the jury or the bailiff. When the witness is addressed by the judge or the bailiff, a manual switch is used to transmit a full-face view of the person talking. The witness can also be presented with a wide-angle view of the jury and an attorney standing in front of the jury box.

(b) Witness Identification of Individuals in the Courtroom

Witnesses are often asked to identify the defendant in the courtroom. To respond by video telephone to this question the witness asks that the camera scan the courtroom. The zoom lens

permits close-up views of particular individuals on demand. Because the image is in black and white, confirmation of the identification cannot be made in terms of color of clothing. Rather, confirmation must be done in terms of hair style, physical location in the courtroom, etc. Technical characteristics of the camera to zoom in and to adjust to different light levels seem to be particularly important in cases where such identification is required.

(c) Introduction of Physical Evidence

Because the witness is not in the courtroom, the identification of physical evidence is procedurally different and sometimes difficult.¹ For example, different witnesses may be asked to identify the evidence to establish chain of custody. Without special tags and markings that are either attached to or integral to the evidence in question, this appeared to be difficult for the witness. In contrast, reliance upon physical characteristics of the evidence such as color, wear patterns, and size or weight placed witnesses using the video telephone at a marked disadvantage. These characteristics are not as definable by video telephone as they are when the evidence is seen in-person.

COST OF TRIAL TESTIMONY

No figures were available on which to base an analysis of the cost impact of remote testimony in criminal court. It would not seem unreasonable to assume that the characteristic types of costs would be the same as for justice court testimony with perhaps differences in the times spent waiting to testify and actually testifying.

¹In case of preliminary hearings the police witness has the physical evidence with him and shows it to the court by video telephone. In the case of trials, the evidence is in the courtroom and shown to the witness by video telephone.

ISSUES CONCERNED WITH THIS APPLICATION

With only two trials involving the video telephone in less than a one-month period, there was little basis from the Phoenix experience for observing the development of issues. Two possible issues are as follows:

(a) Possible Violation of the Right of Confrontation

The Arizona Constitution, in accordance with the sixth amendment rights² to public trial, to be confronted with witnesses, and to have assistance of counsel, carries the provision:

"In criminal proceedings, the accused shall have the right to appear and defend in person.....
..... to meet the witnesses against him face-to-face....."

It was not clear to many of the attorneys and judges who could have participated in the Phoenix experiment that testimony by video telephone would meet these provisions. Also there were questions as to whether examination and cross-examination by video telephone meets the requirements for due process and "best evidence." Almost all attorneys felt they would be inhibited in their ability to draw the "truth" from a witness over a video telephone and to demonstrate the evidence of "truth" and "falsity" to the court when the witness is not physically present. Whether this is a result of the training and experience of the attorneys with in-person witnesses or a result of a fundamental difference in the response of witnesses and jurors to video telephone testimony, can only be determined by further study and trial.

²Sixth amendment of the U.S. Constitution. The fourteenth amendment made the fifth and sixth amendment rights, incorporating the principles of fair trial, incumbent upon the states.

(b) Technical Capability of the Equipment

The ability of the equipment design to reproduce the clarity and presence of an in-person witness in order to minimize the perceptual differences between in-person and video telephone appearances is limited at best. While equipment designers insist that any degree of "presence" can be recreated, it is not clear that the necessary degree is either currently known or available at a cost to permit the application to be useful as an alternative to in-person testimony.

For either issue it is clear that all the other applications tried in Phoenix apply less stringent rules regarding the video telephone than does the criminal trial. Blakey concludes that ".....if there is no viable objection to the use of video telephone testimony in a criminal trial, its use in other types of proceedings should not pose difficult issues."³

³Blakey, G. Robert, "Application of the Video Telephone to the Administration of Criminal Justice: A Preliminary Assessment," Journal of Police Science and Administration, Volume 3, No. 1, 1975, p. 52.

SECTION XI

OTHER APPLICATIONS

A number of additional applications planned for implementation in Phoenix received little usage during the course of the project. Still other applications that were not planned initially were initiated spontaneously by the local users. The following is a brief description of both categories of application.

APPLICATION WITH LITTLE USAGE

(a) Pre-Disposition Conferences between Attorneys

This application concerned the use of the video telephone by deputy county attorneys and public defender attorneys as part of the discovery process and to discuss the potential for pre-trial case disposition. Arrangements were made for the application but there was little or no usage. A log of interactions maintained by the deputy county attorneys revealed that contact was most often made by telephone or in-person in the hallways outside the judge's chambers. In addition, the county attorney would send formal letters of notification that case files are available and that copies of specific reports could be forwarded by mail.

(b) Post-Arrest Prosecution Review

In this application the video telephone was to be used by the police court liaison group to meet with deputy county attorneys in order to screen cases brought by police arrest, generally within the preceding 24 hours. The application was never implemented because the proposed participants felt that the heavy interchange of documentation and the short distance (two blocks) involved did not justify the procedural changes required to use the video telephone.

(c) Attorney Conference with Police Witnesses

This application concerned the use of the video telephone by deputy county attorneys to confer with police witnesses. It was planned to ease the problem of attorneys with dynamic schedules getting together with police officers and detectives who spend only a portion of their time in police offices during normal working hours. The application was implemented but received little usage in its planned linkage between the county attorney's office and the police headquarters and substations probably because their schedules produce little joint time when they are in their respective offices. The only significant usage was for contact from the justice court between deputy county attorneys and police witnesses at headquarters or substation scheduled to testify in preliminary hearings by video telephone (see Section IX).

(d) Judicial Retrieval of Court Records

This application involved the use of the video telephone by secretaries or bailiffs of the Superior Court to review case records kept in the clerk's record room in an adjoining court house. The application depended heavily on the graphics transmission capability of the video telephone in order to transmit documentary records. Also, the distance was not great.

All of these applications experienced at least one call after the right combination of video telephones was made available. However, none of them developed any degree of use that indicated a level of routine practice. This was probably because none embodied the favorable combination of need and implementation circumstances to encourage use.

APPLICATIONS INITIATED LOCALLY

(a) Calendar Call

This application concerned the use of the video telephone by the presiding judge of the criminal court to hold the daily call of the calendar (see Section V). The application was initiated spontaneously by the judge and was used for all centralized calendar calls during the last few months of the project.

(b) Judicial Review of Cases with Adult Probation Officers

This application involved the use of the video telephone for consultations between criminal court judges and adult probation officers. The purpose was to discuss background information on cases before the court for sentencing, for issue of warrants on probation violation, or for revocation of probation. The usage averaged about two calls per day. Some would be initiated by the judge and some by the probation officer.

(c) Prosecutor Access to Police Records

This is a variation of the remote access application described in Section IV. Six individual deputy county attorneys used the video telephone about three times per week to call the police information bureau to examine supplementary reports on cases. The motivation apparently was to gain direct and instantaneous access to the files rather than indirect, delayed access through a visit by a clerk.

It is interesting to compare these three applications with the planned ones that experienced little usage. In the absence of real evidence one can only speculate as to why circumstances would encourage one and discourage another. Based on the nature of these seven applications it appears that the circumstances of user motivation, timing of implementation, location of installation and distance between participants all produce an effect that can either encourage or discourage use.

SECTION XII

COST MODEL

The preceding sections considered the cost savings on a per-interaction basis for each of the major applications in Phoenix/Maricopa County. The comparison was made between the cost to accomplish the interaction by an in-person visit and the cost to accomplish it by a video telephone call. In all comparisons the cost of the video telephone was based on an assumed future tariff for video telephone service and the cost was assigned only to the "owning" agency. The comparison was made between estimated costs of the in-person labor on the one hand and the labor and video telephone on the other.

The comparisons focused on the cost savings per interaction that would be experienced by the agencies involved in the applications. In each case the comparison was made only for the agency that appeared most likely to experience cost savings. The other agencies involved in each interaction was assumed generally to experience only the cost of the video telephone alone and not a labor cost. This assured that savings and costs could be accumulated and examined for individual agencies separately. However the video telephone equipment is a dial-up network which operates in the local criminal justice system. Accordingly, the results should be examined across the spectrum of applications for each agency to determine the net agency impact, and across the spectrum of agencies to determine the impact of the community of agencies as a whole.

Table IV is such a cost accumulation. The costs and savings are shown for each agency "owning" one or more video telephones in Phoenix/Maricopa County, and are listed separately for each application. The labor savings are based on the actual usage rates experienced during the project and the measured average labor hours involved (see Appendix A.) The video telephone costs are based on an estimated \$200 per month

TABLE IV
COST MODEL FOR PHOENIX INSTALLATION

	LABOR SAVED PER MONTH -MAN-HOURS		EST. COST PER MAN-HOUR - DOLLARS		LABOR SAVINGS - DOLLARS	EST. VIDEO TELEPHONE COST-DOLLARS	VIDEO TELEPHONES REQUIRED AND COST BASIS
POLICE DEPARTMENT							
Remote Access	39	X	6	=	234		
Preliminary Hearings	16	X	8	=	128		
Criminal Trials	*				*	900	1@ 200 (Detectives) 1@ 200 (Crime Lab)* 1@ 200 (Substations) 1@ 300 (I-Bureau)
					362		
SHERIFF'S DEPARTMENT							
Arraignments	49						
Pub. Def. Conferences	0						
Pre-Sentence Inv. (Probation Follow-up)	0	X	6	=	294	600	2@ 200 (City Jail) 1@ 200 (Jail Annex)
	49						
PUBLIC DEFENDER							
Pub. Def. Conferences	173						
Calendar Call	38						
Oral Arguments	11	X	15	=	3330	400	2@ 200 (Office)
	222						
ADULT PROBATION							
Pre-Sentence Inv. Probation Rev.	35						
	35	X	8	=	280	200	1@ 200 (Office)
COUNTY ATTORNEY							
Arraignments	*						
Calendar Call	*						
Oral Arguments	*						
	*						
SUPERIOR COURT							
Criminal Trial	*						
Calendar Call	0						
Arraignment	0						
Oral Arguments	0						
Probation Revocation	0						
	0				0	1100	1@ 200 (Chamber A) 1@ 200 (Chamber B) 1@ 300 (Courtroom A)* 1@ 200 (Secretary) 1@ 200 (Clerk)*
JUSTICE COURT							
Preliminary Hearing	0						
	0						
					0	300	
					4266	3700	1@ 300 (Courtroom)
Monthly Labor Savings						\$4266	
Monthly Equipment Cost						\$3700	
Monthly Net Savings						\$ 566	

Legend:
o = usage but no savings
* = minimal usage and savings

basic tariff (see footnote, page 30), with a 50 percent higher tariff assumed for installations having an extra graphics capability or special monitors and cameras. Different tariffs would, of course, affect the results.

By adding the net labor savings for each agency and comparing with the cost to that agency, the cost impact of using the video telephone becomes apparent. For the police or sheriff's departments the costs are considerably higher than the savings, even though only small amounts of monies are involved. For the public defender the saving is considerably higher than the cost even though, again, not much money is involved. For some agencies there is no saving at all and the cost is carried only because of the personal convenience afforded by the use of the video telephone and so that other agencies can experience a cost benefit. The overall cost impact based on all video telephones installed during the project and the actual usage experience during the project is a savings of \$566 per month, a minor amount that could just as easily be doubled or converted to a net loss by slightly different costing assumptions during the analysis. The important feature to note, however, is that for the minor usage experienced with a system involving only a small fraction of the possible installations and working with criminal justice personnel who approached the experiment with a healthy degree of skepticism, the impact was shown not to be a heavy cost burden and, in fact, showed a slight savings.

Table V reexamines the cost impact that might result from projecting usage to the maximum possible on the basis of the overall average interaction rates experienced during the project for each application, adding additional video telephones as necessary to accommodate the full scale usage, and removing video telephones where the usage experienced was zero or not significant. Table V thus represents

TABLE V
COST MODEL FOR FULL USAGE OF MINIMAL SYSTEM

	LABOR SAVED PER MONTH -MAN-HOURS		EST. COST PER MAN-HOUR - DOLLARS		LABOR SAVINGS - DOLLARS	EST. VIDEO TELEPHONE COST-DOLLARS	VIDEO TELEPHONES REQUIRED AND COST BASIS
POLICE DEPARTMENT							
Remote Access	1,092	X	6	=	6,552		
Preliminary Hearings	2,560	X	8	=	20,480	1,100	4@ 200 (Substations) 1@ 300 (I-Bureau) 1@ 200 (Detective)
					27,032		
SHERIFF'S DEPARTMENT							
Arraignments	54						
Pub. Def. Conferences	0						
Pre-Sentence Inv. (Probation Follow-up)	0						
	54	X	6	=	324	600	2@ 200 (County Jail) 1@ 200 (Jail Annex)
PUBLIC DEFENDER							
Pub. Def. Conferences	215						
Calendar Call	38						
Oral Arguments	55						
	308	X	15	=	4,620	400	2@ 200 (Office)
ADULT PROBATION							
Pre-Sentence Inv. (Probation Follow-up)	170	X	8	=	1,360	200	1@ 200 (Office)
SUPERIOR COURT							
Calendar Call	0						
Arraignment	0						
Oral Arguments	0						
JUSTICE COURT							
Preliminary Hearings	0					400	1@ 200 (Chamber A) 1@ 200 (Chamber B)
						3,000	
					33,336	5,900	10@ 300 (Courtroom)
						\$33,336	
						\$ 5,900	
						\$27,436	

the cost impact of a minimum cost system designed to accommodate the maximum level of usage for applications that would seem to promise a growing usage. The minimum cost system for analytical purposes, is similar to the system used in the project except that all little used video telephone are removed and the remainder of the network is expanded to provide full access throughout all agencies that demonstrated significant usage.

Note that the police department saves money at a level equivalent to the cost of over 10 officers. The public defender's office experiences net savings roughly equivalent to the cost of two attorneys. The courts still experience a net loss. The overall impact would be a net savings of \$27,436 per month, a not inconsiderable savings to the community. If the rather large police department saving is left out of the accounting, the net impact is still a saving of \$4,704 per month assuming that no video telephones are installed in police facilities or justice courts.

Again, the significant feature is that the video telephone network is shown not to be a cost burden and, in fact, has potential for rather significant savings. The actual result, if the video telephone were generally available and all affected personnel were experienced enough in its use to overcome the normal inhibitions, would probably lie somewhere in between.

SECTION XIII

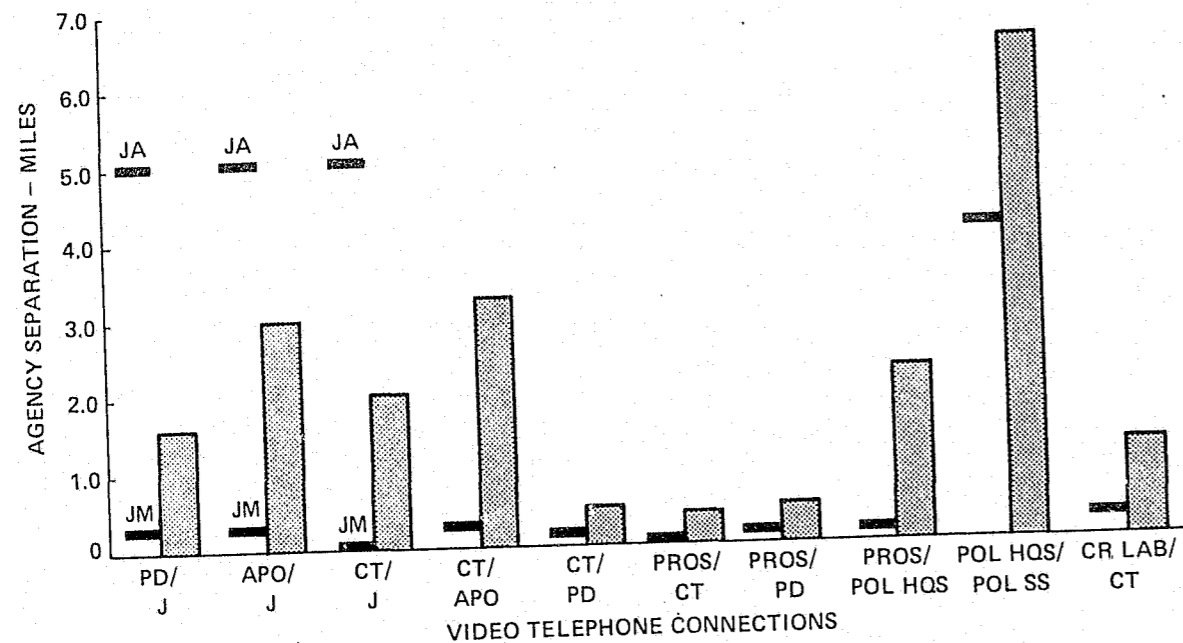
TRANSFERABILITY OF FINDINGS

The preceding sections described the video telephone applications that found usage in Phoenix and identified some of the apparent advantages and disadvantages of the usage in the practice of criminal justice. They also showed the labor equivalent cost savings that could be projected from the Phoenix experience if the video telephone were generally available at an estimated tariff rate.

This section examines one of the key factors felt to influence the frequency of usage of the video telephone as a substitute for in-person visits. It describes the position of the Phoenix-Maricopa County criminal justice system in the spectrum of like-sized cities in the U.S. in terms of distance between principal criminal justice agencies.

Figure 34 is a chart of the average distance between pairs of agency offices making up the kinds of video telephone network links involved in the Phoenix applications. The data represent the average of data obtained from a random sampling of 20 cities in the U.S. in the population range from 144,000 to 900,000, which includes the City of Phoenix. The height of the vertical bar represents the average minimum distance. The position of the solid bar on each vertical bar represents the minimum distance in Phoenix. In every case, the average distance for the sample of U.S. cities is greater than in Phoenix. Only the distances to the jail annex in Phoenix are greater than the average.

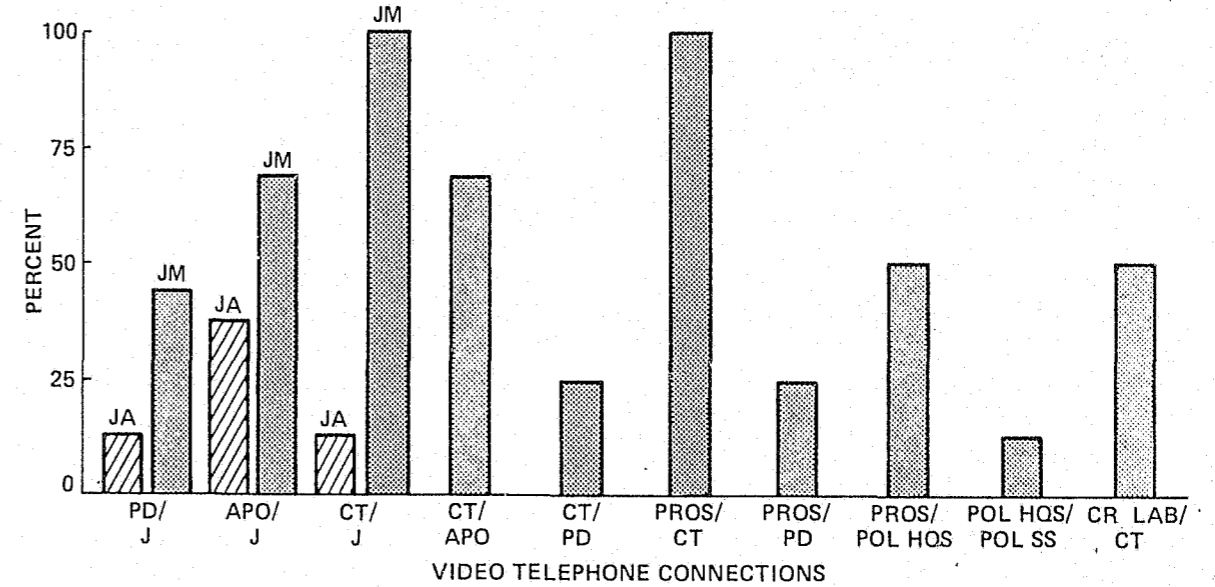
Figure 35 is a chart showing the percentage of the sample of 20 cities that had equal or greater distances than in Phoenix. The values vary from a low of about 12 percent, for the distance between the public defender's office and the jail annex, to a high of 100 percent for the distance between the Superior Court and the jail. This latter means



LEGEND:
 APO = ADULT PROBATION JM = MAIN JAIL
 CT = COURT PD = PUBLIC DEFENDER
 CR LAB = CRIME LAB POL HQS = POLICE HEADQUARTERS
 J = JAIL POL SS = POLICE SUBSTATION
 JA = JAIL ANNEX PROS = PROSECUTOR
 [Small black bar] = DISTANCE IN PHOENIX

*A RANDOM SAMPLE OF 20 CITIES FROM THE POPULATION RANGE 144,000 TO 900,000

FIGURE 34
 DISTANCES AMONG CRIMINAL JUSTICE AGENCIES IN U.S. CITIES



LEGEND:
 APO = ADULT PROBATION JM = MAIN JAIL
 CT = COURT PD = PUBLIC DEFENDER
 CR LAB = CRIME LAB POL HQS = POLICE HEADQUARTERS
 J = JAIL POL SS = POLICE SUBSTATION
 JA = JAIL ANNEX PROS = PROSECUTOR

*A RANDOM SAMPLE OF 20 CITIES FROM THE POPULATION RANGE 144,000 TO 900,000

PERCENT OF SAMPLE* OF U.S. CITIES HAVING EQUAL TO OR GREATER AGENCY SEPARATIONS THAN IN PHOENIX

FIGURE 35
 FRACTION OF SAMPLE HAVING GREATER DISTANCE THAN IN PHOENIX

that the distance between the Superior Court and the jail in Phoenix was exceeded by the distances for 100 percent of the cities in the sample.

These findings suggest that to the extent that usage is influenced by the distance that has to be traveled to make an in-person visit, the findings in Phoenix were not abnormal and were perhaps somewhat conservative compared to the potential in other cities. Clearly, other factors influence the usage also, but conversations with lawyers, judges and police personnel from across the country suggested that except where legal restrictions dictate otherwise, the greater the distance the greater would be the personal urge to use the video telephone.

APPENDIX I

BASIS FOR LABOR SAVINGS
DERIVED FROM EXPERIENCED USAGE

BASIS FOR LABOR SAVINGS
DERIVED FROM EXPERIENCED USAGE

POLICE DEPARTMENT

(a) Remote Access

There was an average calling rate of 10 calls per month. If each six-minute call replaced a trip that involved one man-hour of the officer's time, the use of the phone saved 54 minutes per call for a total of 39 man-hours per month.

(b) Preliminary Hearings

There were 16 hearings in a four month period in which police officers were subpoenaed to testify. At the measured average rate of seven Phoenix police officers (88 percent of eight witnesses) per three hearings this is a total of 37.3 officers over the four-month period or 9.3 officers per month. For in-person appearances these officers would spend 22.1 man-hours per month (9½ man-hours per four officers). For video telephone appearances these same officers would spend six man-hours per month (120 minutes per four officers to confer with prosecuting attorneys plus an additional 35 minutes for one of the four officers to testify on the stand). The savings is the difference of 16.1 man-hours per month.

SHERIFF'S DEPARTMENT

(a) Arraignments

There was one in-custody, not-guilty arraignment session per workday throughout much of the project. This is an average of 22 per month. The escort detail for in-person arraignment would have averaged 2.5 deputy sheriffs for 1.5 hours each session. The video telephone session required one deputy sheriff for the 1.5 hours. Thus, the use of the video telephone saved 49 man-hours per month (1.5 deputies for

1.5 hours for 22 days per month).

PUBLIC DEFENDER'S OFFICE

(a) Public Defender Conferences with Jailed Clients

There was an average of 186 video telephone contacts per month with clients in the county jail and 71 per month with clients in the jail annex. The time that would have been "wasted" in travelling and waiting to accomplish all contacts by in-person visits was 27 minutes (.45 hours) for the county jail and 75 minutes (1.25 hours) for the jail annex. Thus, the use of the video telephone saved a total of 173 man-hours per month (186 contacts for 0.45 hours plus 71 contacts for 1.25 hours).

(b) Calendar Call

There was one calendar call by video telephone each workday for a total of 22 per month. Each call involved an average of seven public defender attorneys. The time that would have been "wasted" in traveling to the courthouse to attend the calendar call was 15 minutes (.25 hours) per attorney per trip. Thus, the use of the video telephone saved a total of 38 man-hours per month (seven attorneys for ¼ hour for 22 calendars per month).

(c) Oral Arguments on Pre-Trial Motions

There was one oral argument by video telephone each workday for a total of 22 per month. Each hearing involved only one public defender. The time "wasted" in traveling and waiting to attend each hearing was an average of 30 minutes. Thus, the use of the video telephone saved a total of 11 man-hours (one attorney for ½ hour for 22 hearings per month).

ADULT PROBATION

(a) Pre-Sentence Investigation (Probation Follow-ups)

There was an average of 34 contacts by video telephone each month with inmates in the county jail and 15 per month with inmates in the jail annex. The time that would have been "wasted" in traveling and waiting to accomplish all contacts by in-person visits was 32 minutes (0.53 hours) for the county jail and 68 minutes (1.13 hours) for the jail annex. Thus, the use of the video telephone saved a total of 35 man-hours per month (34 contacts for 0.53 hours plus 15 contacts for 1.13 hours).

APPENDIX II

BASIS FOR MAXIMUM USAGE COST PROJECTIONS

BASIS FOR MAXIMUM USAGE COST PROJECTIONS

POLICE DEPARTMENT

(a) Remote Access

The measurements in Phoenix established that the number of video telephone contacts for remote access to the I-Bureau was about 14 percent of what would be achieved if all trips to the I-Bureau from the Sky Harbor substation were made by video telephone. This would suggest a potential for a sevenfold increase in the number of video telephone contacts. In addition, since there are four substations in Phoenix, a maximum utilization of the network would probably be even larger than the sevenfold increase. If the assumption is made that the I-Bureau traffic from all substations is identical, the net increase would be 28-fold. Multiplying the 39 man-hours of Table IV by 28 gives a net labor saving of 1,092 man-hours per month.

In order to accommodate the additional substations it would be necessary to increase the number of substation video telephones from one to four.

(b) Preliminary Hearings

The measurements at the South Phoenix Justice Court established that the number of hearings for which the video telephone was used was only about 6 percent of the number of hearings scheduled (four per month average versus 66 per month average). This suggests a potential for a 16-fold increase in the number of video telephone related hearings. In addition, since there are 10 justice courts scattered throughout the City of Phoenix, the maximum utilization of the network would probably be even larger. If the assumption is made that the average rate of hearings at all justice courts is the same, the net increase would be 160-fold. Multiplying the 16 man-hours of Table IV by 160 gives a net saving of 2,560 man-hours per month.

In order to accommodate the additional substations and justice courts would require the four video telephones in the substations provided for in the previous application and, in addition, would require that 10 justice courts be equipped with video telephones.

SHERIFF'S DEPARTMENT

(a) Arraignments

The only increase available here to achieve video telephone for 100 percent of the in-custody, not guilty arraignments would result from including the 11 percent of the defendants who refused to sign the waiver and demanded in-person hearings. This would increase the average number of man-hours saved from the 49 listed in Table IV to a total of 54 man-hours.

PUBLIC DEFENDER

(a) Public Defender Conferences with Jailed Clients

The measurements for interaction between public defenders and jailed clients established that an average of 67 percent of the contacts at the county jail and 100 percent of the contacts at the jail annex were accomplished by video telephone. It also established that of the 173 man-hours saved each month, 84 resulted from the county jail contacts and 89 from the jail annex contacts. Multiplying the first of these by 1.5 (the potential increase possible with a 67 percent usage rate) gives a potential saving from county jail contacts of 126 man-hours. Adding to this the 89 man-hours for the 100 percent contact at the jail annex gives a total savings of 215 man-hours per month.

(b) Calendar Call

The calendar call savings noted in Table IV involved 100 percent of the centralized calendar call savings possible with public defenders.

(c) Oral Arguments in Pre-trial Motions

Only one of the average of five motion hearings per day made use of the video telephone. If all five motion hearings made use of the video telephone, and if all hearings were assumed to save the same labor as the one that made use of the video telephone (this is not inconsistent with the fact that travel time is the same regardless of the complexity of the hearing as long as only one public defender is involved in each hearing), then the savings would increase from the 11 man-hours noted in Table IV to a total of 55 man-hours per month. These figures concern the centralized calendar only. If all motion hearings were included the figure would be higher.

ADULT PROBATION

(a) Pre-Sentence Investigation

The measurements of interactions between adult probation officers and jail inmates established that 15 percent of the contacts at the county jail and 35 percent of the contacts at the jail annex were accomplished by video telephone. It also established that of the 35 man-hours saved each month, 18 resulted from the county jail contacts and 17 from the jail annex. Multiplying the first of these by 6.7 (the potential increase possible with a 15 percent usage rate) and the second by 2.9 (the increase associated with 35 percent) gives a potential savings of 170 man-hours per month.

END