EVALUATING THE FEASIBILITY
OF IMPLEMENTING A
TWO-WAY INTERACTIVE VIDEO/AUDIO
ARRAIGNMENT SYSTEM, SUFFOLK COUNTY,
NEW YORK: ISSUES AND COSTS

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Institute for Advanced Studies in Justice
The American University Law School
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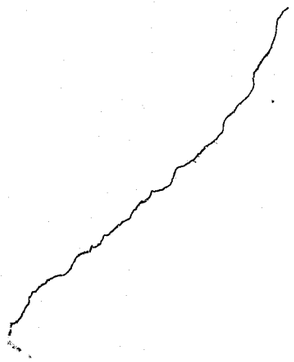

I. INTRODUCTION

Since 1960, Suffolk County, New York has witnessed a dramatic increase in its jail population as well as problems with prisoner processing and overcrowding of the local police detention facilities. As a result of these problems, the police, the sheriff, the court, and the Suffolk County Bar Association have explored methods of alleviating the problems and expediting the criminal arraignment process. The culmination of these efforts was presented in a proposal by the Presiding Judge of the Suffolk County District Court to install a two-way, interactive, closed circuit television system between the District Court Headquarters (the First District) and each of the six Suffolk County Police Precincts. As conceived, the proposed system would allow a judge at the First District Court to arraign arrestees at the local precincts via interactive closed circuit television.[1]

To initially determine the feasibility of this system, the Suffolk County Criminal Justice Coordinating Council (CJCC) made preliminary inquiries of audio-visual

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[1] BASICS: Planning Study Final Report, Civil Rights Committee, The Suffolk County Bar Association. The basic conceptual design is illustrated in Appendix B.

vendors regarding equipment requirements. To adequately assess their responses and evaluate the requirements and appropriateness of the proposed systems, the CJCC requested LEAA's Criminal Courts Technical Assistance Project at The American University to conduct a feasibility study which would include a discussion of the most appropriate means of implementing such a program and its associated costs. Mr. B. Thomas Florence and Mr. Kenyon Olsen of Ernest H. Short and Associates, Inc., Sacramento, California, were selected by the project to provide this assistance.

During the four-day site visit, November 18-21, 1975, the consultants surveyed the Suffolk County District Court and the Suffolk County Police Department to determine the structure of current arraignment procedures; the requisite operating characteristics of the proposed system; and the existing county resources which could be applied to the proposed system. The data used in the preparation of this report were obtained from existing county records, as well as extensive interviews with representatives of the First District Court, the County Police Department, the Suffolk County Criminal Justice Coordinating Council, the Metropolitan Regional Council, American Telephone and Telegraph, Genesys Systems, Inc., the Federal Communications Commission, and Teleprompter Corporation. The information obtained during the site visit

was analyzed in relation to existing video telecommunication hardward services and costs.

(a distance ranging from 0.6 to 13.5 miles). The arrestees are placed in the courthouse lock-up facility until they are moved to the courtroom for arraignment. After arraignment, the arrestees may be released on bail, released on their own recognizance, or remanded to the County Jail. The individuals who are not released on bail, and the individuals who are unable to meet bail, are transported by the Suffolk County Sheriff from the First District Courthouse to the County Jail in Riverhead (a distance of approximately 30 miles).

c. Proposed System:

The two-way interactive television system proposed by the Suffolk County District Court is intended to reduce pre-arraignment and arraignment delays by allowing live communication among the judge, the arresting officer, and the arrestee when they are separately located. As currently conceptualized, the judge, district attorney, and court reporter would be located at the District Court and would be televised to the precinct houses. At the precinct houses, the arrestee and the arresting officer or desk sergeant would be televised to the District Court. The judge, district attorney, and court reporter would be able to see and hear the arrestee and desk sergeant, and the arrestee and desk sergeant would be able to see and hear the parties located at the District Court. All parties in the arraignment could freely interact. Initially, the system would be operated between the hours of 3 P.M. and 12 M., with the capability of extending the operational hours to 8 A.M. to 12 M.

As proposed, the system would additionally offer the capability of recording the proceeding on videotape as a means of verifying the appropriateness of the procedures used.

By eliminating the need to transport arrestees to and from the District Court, the court and police feel that the following benefits will accrue:

- Savings of 4 - 5 man hours daily by eliminating the requirement to transport prisoners to the First District Courthouse.
- Decreased number of detainees located at the precinct by allowing continuous arraignment between 8 A.M. and 12 M.
- Reduction in dentention costs for meals, due to a shorter precinct detention period.
- Reduction in transportation costs (e.g. gasoline, vehicle maintenance).
- Decreased possibility of liability presented by transportation and incarceration of prisoners.
- Increased accessibility of prisoners to the legal process, i.e. a reduction of the time between arrest and arraignment.
- Release of prisoner nearer to their residence.
- Response to criticisms of the Suffolk County Bar

Association regarding unnecessary detainment (detention at a precinct as well as First District Court) in inadequate facilities (the poor detention facilities at First District Court).

- Decreased prisoner population at the First District Court resulting in a decrease in personnel requirements at the court.[2]

Finally, it should be noted that as currently designed the system would be used for all types of crimes and all arrestees.

D. Possible Methods of Implementing the Proposed System and Recommendations

Currently, there are at least five methods which could, in theory, be used as the foundation for a two-way interactive television system: 1) the AT&T "Picturephone" system, 2) dedicated video signal quality telephone lines, 3) commercial cable television company cables, 4) private coaxial cable, and 5) private microwave transmission facilities.

1) The American Telephone and Telegraph "Picturephone" service is an experimental black and white, video-based system connecting four major cities: New York, Washington, Chicago and San Francisco. The system is capable of two-way video

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2. Preliminary Research on the Utilization of Television Arraignments, research proposal, Police Department, County of Suffolk, October 24, 1975.

and audio transmission between studio facilities located at AT&T offices in any of the above cities. Although this system is theoretically capable of satisfying the needs of Suffolk County, the system is experimental, and AT&T has not yet decided whether or not the system will be commercially marketed; therefore, it is impossible to say whether or not the system will ever be available in Suffolk County.[3] For this reason, the AT&T "Picturephone" system cannot be considered to be a feasible solution to the Suffolk County problem.

2) Dedicated video signal quality telephone lines are technically equivalent to the transmission medium used by the AT&T "Picturephone" system. In general, these are special lines that are capable of transmitting video information. These lines are roughly equivalent to one thousand standard voice-grade telephone lines. Assuming these lines could be installed for use in Suffolk County, their lease cost would represent a considerable continuing expense. Although specific lease costs could not be obtained during the site visit, costs reported for similar services in other geographical areas rule out this alternative on the grounds of economic feasibility.[4]

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3 J. Smith, American Telephone and Telegraph, personal communication, November 20, 1975.

4 A system designed for use by Bankers' Trust of New York has a reported lease cost of $11,000/year for a 3½ mile connecting line; Communication News, June, 1966. The Metropolitan Regional Council studied the use of dedicated telephone lines and estimated the yearly lease cost to be $800,000 (approximately 200 miles); Bretz, Two-Way TV Teleconferencing for Government: The MRC-TV System, Rand Corporation Report R-1489-MRC, 1974.

3) Except for a few experimental installations, existing commercial cable television companies are equipped with one-way distribution equipment only. Although not currently required by FCC guidelines, it is possible to adapt certain existing systems to allow for two-way transmission of visual and aural information. However, even if local commercial cable facilities have the existing capacity to adapt to two-way transmission and are willing to convert to two-way transmission, the conversion costs (and, thus, the lease costs) for such a service are likely to be prohibitive.[5]

4) Private coaxial cable is similar in concept to the transmission system used by commercial cable companies. This system would involve physically connecting each precinct with the First District Courthouse via coaxial cable lines. The connecting cables are normally attached to existing telephone poles or buried underground depending upon local considerations. Since the capital cost of installing a coaxial cable system is, in general, proportional to the distance between connected sites, this technique is most cost advantageous over short distances (e.g. connecting offices within one building).

Based on cost estimates obtained from engineering/construction firms in the New York area, and costs reported for similar systems in other geographical areas, the installation costs for a coaxial cable system average $6,000 to $10,000 per mile using existing telephone poles, and $20,000 to $25,000 per

5 Conversion costs are roughly equivalent to the costs of installing the original one-way system; On the Cable, Report of the Sloan Commission on Cable Communications, McGraw-Hill, 1971.

mile for underground installation. Assuming straight-line distances, the Suffolk County system would cost approximately $280,000 to $465,000 for installation on telephone poles and $925,000 to $1,160,000 for underground installation, depending upon local conditions (excluding pole lease fees and right-of-way fees). In comparison to microwave transmission systems, these costs are extremely high and rule out private coaxial cable as a feasible solution to the needs of Suffolk County.

5) Microwave transmission systems are based upon ultra-high frequency waves which can be focused into a narrow, concentrated beam for efficient transmission. Transmission to and reception from a point generally requires the use of parabolic antennas. Although microwave systems do not require that sites be physically connected, there must be line-of-sight clearance between transmitting and receiving facilities. To overcome obstructions to line-of-sight clearance, microwave antennas are normally mounted on high buildings or towers. In those instances where line-of-sight clearance cannot be achieved by antenna location, relay stations are used to relay signals between transmitting sites.

Based upon discussions with engineering/construction firms and users of microwave systems, this type of system seems to be the most cost beneficial for the Suffolk County application. Cost estimates for such a system will be provided in section III of this document.

The remainder of this document will assume the use of a microwave transmission system.

III. IMPLEMENTATION ISSUES AND RECOMMENDATIONS

Potential problems that should be addressed prior to and during the implementation of a two-way interactive arraignment system may be divided into four general areas: 1) Legal, 2) Economic, 3) Technical, and 4) Operational.

A. Legal Issues:

1) Questions regarding the legality of the video arraignment procedure may prove to be a significant barrier to implementing the system as currently proposed.[6] It is recommended that steps be taken to allow the use of an interactive audio/video communication system for the purpose of initial criminal arraignment. A legislative change and/or a judicial ruling allowing the use of this technique should precede the expenditure of any funds for the design and implementation of the system.

2) An equally important legal question regarding the use of video arraignment procedures is whether or not the procedure, in practice, is acceptable to the legal community. Although representatives of the court, police, district attorney, and Legal Aid Society have indicated acceptance of the system in concept, none of the parties involved have had direct experience with the use of video technology in the judicial process. Even if questions regarding the legality of the procedure are resolved, negative attitudes toward the specific methods used in applying the technique could severely hinder its successful implementation. It is recommended that prior

6 New York Criminal Procedure Law §110.10, §170.10, and §170.10,3.

to committing funds for the design and implementation of the system:

a) The specific procedures to be used in conducting the video arraignment should be formalized (i.e. designed and approved by all parties involved).

b) All parties should be informed of the intent to use the system for the arraignment of all arrestees (i.e. the involuntary nature of the system).

c) With the aid of the County Police Audio/Visual Unit, simulations should be conducted using the above referenced procedures. (This may be easily accomplished by setting up a temporary closed-circuit system between two adjoining rooms. One room would contain the judge, district attorney and reporter; the other room would contain the police officer and the simulated arrestee.) [7] Representatives of the court, police, district attorney, Legal Aid Society, and Suffolk County Bar Association should be allowed to view the simulations and recommend changes in the procedures used. These simulations should prove invaluable in identifying problem areas and design requirements for the actual system.

B. Economic Issues:

The feasibility of a system such as the one proposed by

[7] F. Fernez, Suffolk County Police Department, personal communication, November 19, 1975.

Suffolk County is ultimately dependant upon the relationship between the cost of the system and the savings accrued as a result of using the system. To aid in forecasting the cost/benefit of such a system, the following cost estimates are provided. These estimates assume a microwave transmission system between a central facility in the First District Court and six remote precincts. Because of the uniqueness of the proposed system, exact cost estimates are difficult to obtain. The following estimates are based upon discussions with firms offering the required engineering/construction services and upon costs reported for implementing similar systems. These estimates are necessarily subject to error and may vary widely depending upon local conditions.

1) Implementation Costs:

a. Preliminary Engineering Study - to include site path surveys, study of frequency availability, FCC certification $ 15,000

b. Engineering System Design Study - full system design to include antenna positioning and size, relay positioning, equipment specifications, system performance specifications (assuming use of stock equipment and one relay station) $ 57,000

c. Equipment Costs Excluding Installation - full equipment costs including transmitting and receiving equipment, studio equipment, and test

equipment (assuming one relay station). (This estimate may vary widely upon the number of relay sites required and the quality of equipment used) $300,000

d. Equipment Installation Costs - to include tower construction, cabling, minor site remodeling (assuming one relay station). (This estimate may vary widely depending upon the tower requirements for the area, e.g. 100 ft. tower approximately $10,000; 300 ft. tower approximately $50,000) $100,000

e. System Debugging Costs - engineering time necessary to make system fully operational $ 5,000

f. Personnel Costs - initial personnel costs for: ½-time project director, full-time senior technician, ½-time operator/maintenance technician. (Assuming 12-month period.) $ 56,000

g. Spare Parts Cost - inventory for minimum operational requirements $ 4,000

h. Videotape Costs - inventory to allow full recording of all arraignments. (Assuming reuse of tape on an 8-week cycle.) $ 8,000

Total: $545,000

2) Annual Operating Costs:

a. Personnel - Salaries & Benefits	
1 - Project Director (½ time)	
1 - Senior Technician	
1 - Maintenance Technician (½ time)	
7 - Operators (½ time)	$101,500
b. Maintenance Costs Excluding Personnel - equipment repair costs, maintenance-related travel expenses, videotape replacement costs. (Assuming 1,300 operating hours/year)	$ 15,000
c. Facility Rent and Overhead	
d. Training Costs - personnel costs for training as a result of turnover	$ 2,500
Total:	$119,000

C. Technical Issues:

1) Because microwave operates within the UHF portion of the frequency spectrum, transmission frequencies must be allocated by the Federal Communication Commission. The request for and allocation of transmission frequencies is a highly complex issue involving the selection of a frequency band, the availability of frequencies within that band, and the optimum assignment of available frequencies to sites within the system. Since the feasibility of the microwave system is dependent upon FCC approval, it is recommended that prior to committing money for design and equipment, an engineering consultant be retained to conduct the site path and frequency studies necessary for obtaining an FCC certification.

2) Because of the newness and complexity of the system being proposed by Suffolk County, technical assistance during the preliminary study and design phases is a necessity. It is recommended that subsequent to or concurrent with FCC certification an engineering consulting firm be retained to fully design the operating system (including antenna and relay position plans, equipment specifications and performance standards). The consultants should have experience in the design of a similar "working" system. It is not necessary that the consultants be different from those recommended in 1) above; in fact, if possible, one firm should conduct all preliminary study and design. It is additionally recommended that final design decisions be evaluated by persons experienced in the use of video technology in the judicial system.

3) Microwave transmission systems such as the one being contemplated by Suffolk County have a multitude of potential uses (e.g. training, conferencing, etc.) over and above those currently planned. Although it is possible to expand an existing system to perform additional functions, the costs of this expansion may be quite high due to the fact that some portion of the existing system may become obsolete in light of increased uses. It is recommended that any anticipated expansion of the system be considered during the design phase of the project to minimize unnecessary retrofitting costs.

4) As currently conceived,[8] the county proposes that

8 Judge A. Mauceri, First District Court, personal communications, November 18, 1975.

the studio portions of the system be totally automatic, capable of being operated by the judge presiding at the arraignment and the desk sergeant at the precinct. Although it is technically possible to design such a system (e.g. the "Picturephone" system), these systems only operate effectively within certain parameters (e.g. light levels, contrast range, size of image reproduced, etc.). As a result of these limitations, totally automatic systems often sacrifice production quality for ease of operation. Since the acceptability of the video arraignment procedure will be dependent upon the overall quality of the production, it is recommended that the studio portions of the system be designed to operate semi-automatically (i.e. capable of manual override) using a trained operator. In other words, each video arraignment should be conducted by trained operators at each site, using standardized production techniques.[9]

D. Operational Issues:

Any major operational problems in using a system such as the one proposed in Suffolk County are ultimately traceable to the number and skill of the personnel operating the system. With too few, or poorly trained, personnel, the quality of production is likely to suffer and equipment down time may become excessive. A degradation in production quality may make users dissatisfied with the system's performance, and may ultimately lead to total disuse. It is recommended that the system operating staff include: 1) one full-time senior technician capable of overseeing the operation

[9] For an example of such a system, see Appendices C and D.

and maintenance of the complete system, 2) one or two part-time maintenance technicians capable of performing preventive maintenance and minor equipment repairs, and 3) one part-time operator at each site capable of producing program material. Except for the senior technician, the personnel positions may be filled with trained county personnel. It is recommended that the senior technician and maintenance technicians be employed in all phases of the project from system design through full implementation.

It is recommended that the system contractor be required to provide initial orientation and training to all operational personnel as part of the purchase agreement and that only trained personnel be allowed to operate the system.

E. Implementation Plan:

The major milestones in implementing a two-way interactive video/audio arraignment procedure in Suffolk County are as follows:

1) Formalization of the legality of the procedure.
2) Design of procedures to be used.
3) Conduct simulations for the court, police, district attorney, Legal Aid Society and Suffolk County Bar Association.
4) Formalize procedures to be used and design requirement for the system.
5) Appoint project director.
6) Apply for project funding.
7) Contract Preliminary Engineering Study.
8) FCC Certification.

9) Contract Engineering System Design Study. 10

10) Hire senior technician and designate maintenance technicians.

11) Request bids for equipment and installation.

12) Equipment purchase and installation.

13) Training of maintenance technicians.

14) System tests and debugging.

15) Training of operators.

16) System operational.

The time lag between the preliminary engineering study and the completion of the fully operational system is estimated to be 18 - 24 months, depending upon the extent of tower construction required and the equipment delivery schedule.

IV. CONCLUSION

This report is designed to aid local decision makers in analyzing the feasibility of implementing a two-way interactive video/audio arraignment system in the Suffolk County criminal courts. This report should not be interpreted as a recommendation to implement such a system. The implementation of this procedure is a highly complex and costly endeavor which may or may not result in commensurate savings of money and time. The cost and complexity of this solution, as well as other alternative solutions, should be weighed against the magnitude of the existing problem to determine the overall

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10 Since the preliminary engineering study and system design study are highly interrelated, the county may wish to consider contracting with one organization to accomplish both tasks.

feasibility of this project. Should Suffolk County decide to implement this innovative procedure, Appendix A provides a list of sources for obtaining more detailed information on this subject.

APPENDIX A

APPENDIX A

SOURCES OF INFORMATION

A. Documents:

1. Administrative Office of the Illinois Courts, Interim Report to the Supreme Court of Illinois: Experimental Video-Taping of Courtroom Proceedings, 1968.

2. Bretz, R., Two-Way TV Teleconferencing for Government: The MRC-TV System, The Rand Corporation, R-1489-MRC, April, 1974.

3. Brigham Young University, J. Reuben Clark Law School, Symposium: The Use of Videotape in the Courtroom, Vol. 1975, No. 2.

4. Dickstein, P., "Decentralized Court Processing Over Closed Circuit Television," New York City Bureau of the Budget, January 20, 1971.

5. Ernest H. Short & Associates and McGeorge School of Law, Videotape Recording in the California Criminal Justice System, March, 1973.

6. Federal Judicial Center, Guidelines for Prerecording Testimony on Videotape Prior to Trial, November, 1974.

7. Harkness, R., Telecommunications Substitutes for Travel: A Preliminary Assessment of Their Potential for Reducing Urban Transportation Costs by Altering Office Location Pattern, University Microfilms, Ann Arbor, Michigan, 1973.

8. Morris, A.; Martin-Vegue, C.; Farrer, L. and Tallmadge, G., "MRC-TV: A Two-Way Audio-Visual Communications Network," Microwave Systems News, December, 1975.

9. National Academy of Engineering, Communications Technology for Urban Improvement, Report to the Department of Housing and Urban Development, June, 1971.

10. National Center for State Courts, Video Support in the Criminal Courts, Vols. I-IV, 1974.

11. Ohio Legal Center Institute, Videotape as a Medium for Recording Evidence, May 19, 1972.

12. Yin, R., Cable Television: Applications for Municipal Services, The Rand Corporation, R-1140-HSF, May, 1973.

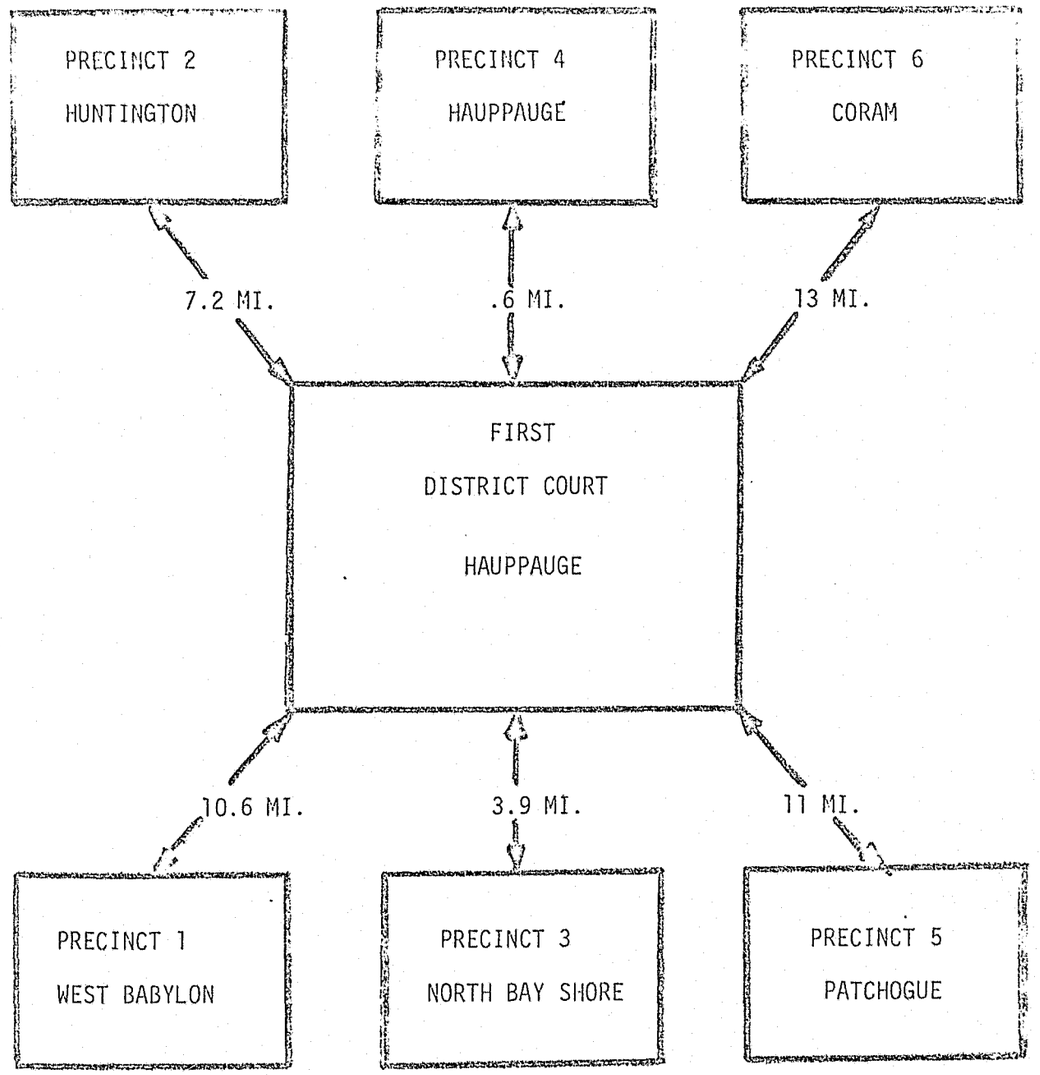
B. Organizations:

1. Association of Public Communications Officers, Inc., New Smyrna Beach, Florida.
2. Genesys Systems, Inc., Palo Alto, California.
3. Jerrold Electronics Corporation, Horsham, Pennsylvania.
4. Metropolitan Regional Council, New York, New York.
5. Mitre Corporation, Washington, D.C.
6. Philadelphia Police Department, Philadelphia, Pennsylvania.
7. Philadelphia District Attorney's Office, Philadelphia, Pennsylvania.
8. Safety and Special Radio Services Bureau, Washington, D.C.
9. Scientific-Atlanta, Inc., Atlanta, Georgia.
10. Teleprompter Corporation, New York, New York.
11. Varian Micro-Link, Beverly, Massachusetts.

APPENDIX B

APPENDIX B

CONCEPTUAL DESIGN



APPENDIX C

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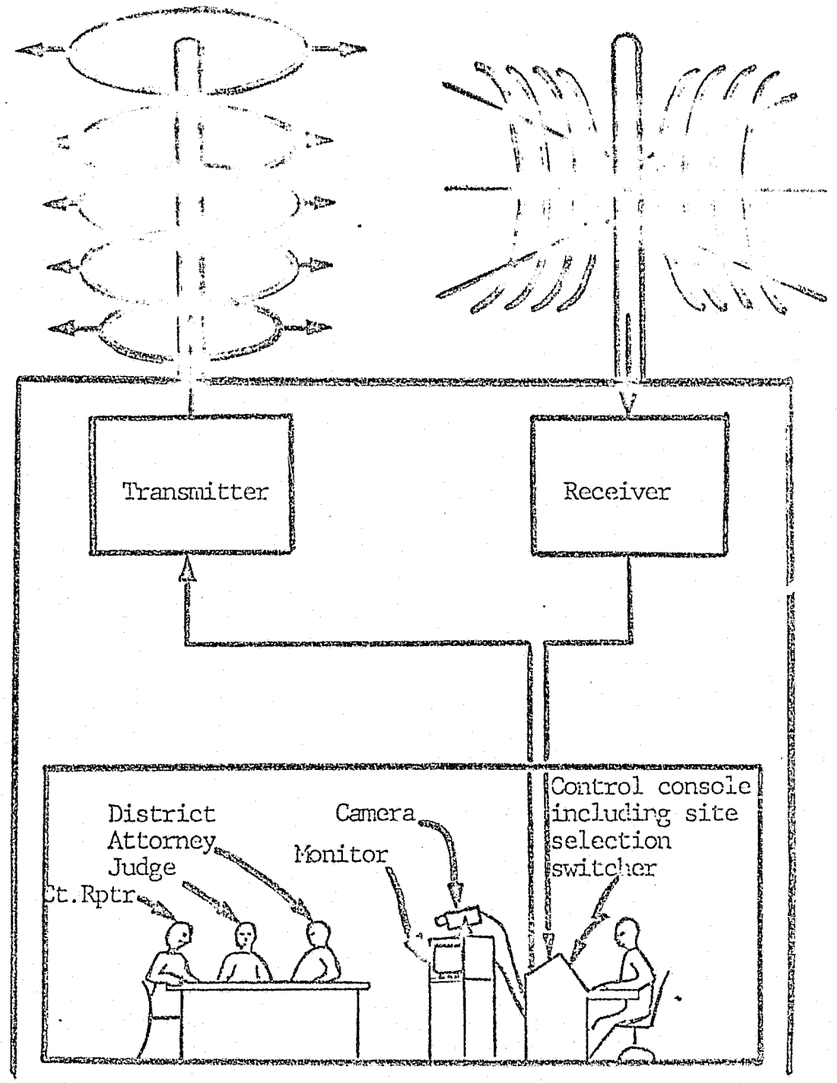
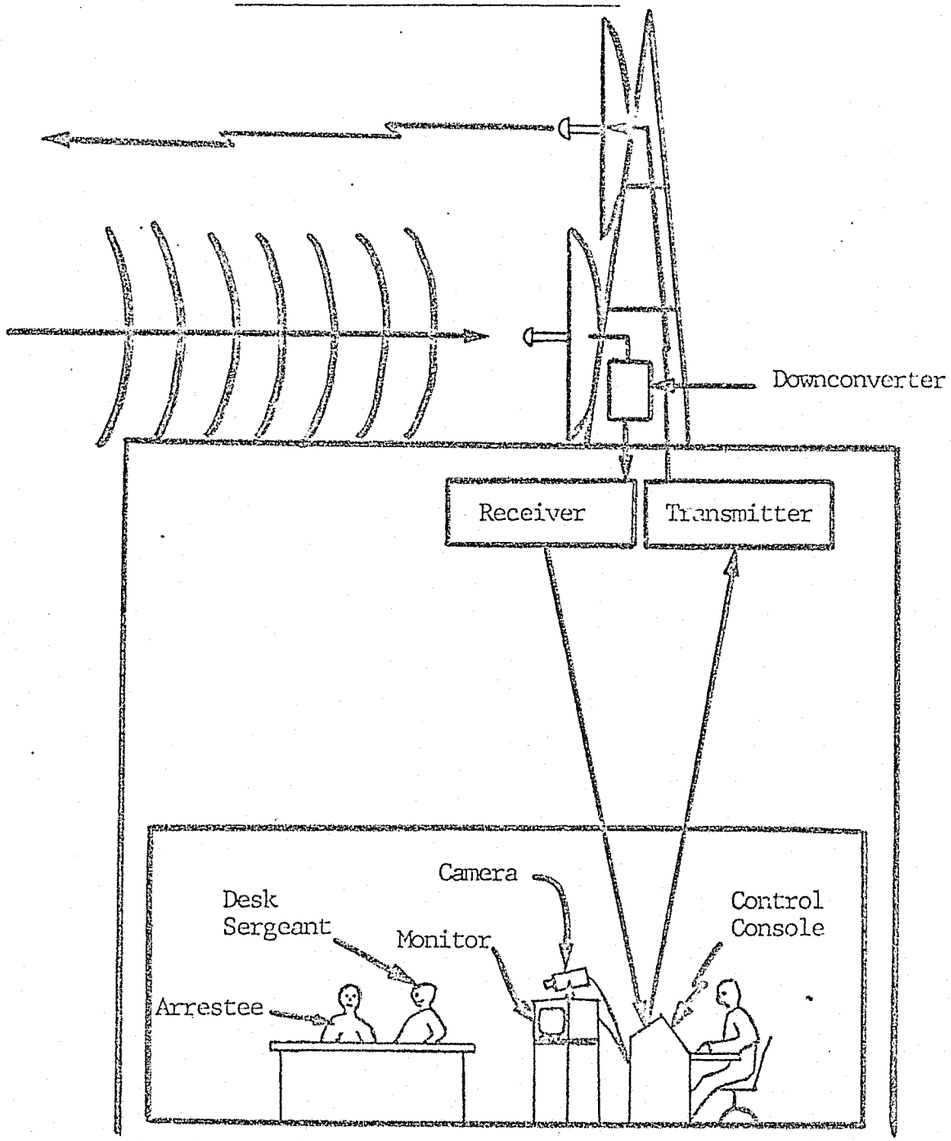
A SAMPLE SITE: CENTRAL COURTHOUSE



APPENDIX D

APPENDIX D

A SAMPLE SITE: PRECINCT



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