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PLANNING FOR INSTRUCTIONAL TELEVISION.

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EXPERIENCES OF THREE JUNIOR COLLEGES WERE THE BASIS FOR THIS SUMMARY OF (1) PROCEDURES FOR ACQUIRING A TELEVISION CHANNEL, (2) METHODS OF SETTING UP AND FINANCING A STATION, AND (3) PROGRAMS SUITABLE FOR A DISTRICT OWNED STATION. THE COMPLEXITIES OF ACQUIRING A CHANNEL ASSIGNMENT ARE DESCRIBED IN DETAIL, INCLUDING THE FUNCTIONS OF LAWYERS AND ENGINEERS OFTEN NEEDED IN FCC HEARINGS. ATTENTION IS GIVEN TO CONSTRUCTION PERMITS, OWNERSHIP REPORTS, EQUIPMENT TESTS, PROGRAM TESTS, TIME OF OPERATION, LICENSE RENEWALS, AND FINANCING (INCLUDING FEDERAL AID, COMMUNITY SERVICES TAXES, SALE OF TIME AND SERVICES TO OTHER SCHOOL DISTRICTS, AND APPORTIONMENT OF STATE FUNDS FOR REGULAR CLASS ATTENDANCE). BECAUSE OF THE DEMAND FOR ASSIGNMENT OF AVAILABLE CHANNELS FOR COMMERCIAL ACTIVITIES, THE AUTHOR URGES INTERESTED EDUCATORS TO APPLY EARLY FOR CHANNELS AND TO BEGIN EARLY PLANNING OF THE USE OF TELEVISION FACILITIES. (WO)

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HOW TO USE TV

PLANNING FOR INSTRUCTIONAL TELEVISION

PLANNING FOR INSTRUCTIONAL TELEVISION

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U. S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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PREFACE

As the impact of the population explosion reaches the junior college level, television as an instructional tool will begin to play a major role on this echelon of education. While much has been written about the use of television in general, very little has been written about the specific factors involved in the acquisition and financing of a public instructional television station.

This report will deal only with the technical matters of acquiring a television channel, with the methods available in California for financing the television station, and with the programs produced by a district-owned television station.

This report is based on experience gained by San Bernardino Valley College, Modesto Junior College, Compton College, and the College of San Mateo.

PLANNING FOR INSTRUCTIONAL TELEVISION

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PLANNING FOR INSTRUCTIONAL TELEVISION

Introduction

In a Memorandum Opinion issued July 13, 1951, the Federal Communications Commission upheld its right to reserve channels for noncommercial educational use and to make assignments to specific communities accordingly. Up to June 30, 1953, the Commission had granted Construction Permits for 17 noncommercial educational television stations. One of this number--KUHT in Houston, Texas--was the first to begin operation. By the end of the fiscal year 1953, the number of television channels reserved for noncommercial educational use had increased to 245.

While school districts elsewhere in the United States were permitted to own and operate television stations, prior to 1961 the State Education Code in California expressly forbade a school district to own and operate a television station or to spend money on educational television. In 1961, the state legislature approved legislation which authorized the public schools in California to own, operate, and otherwise expend public funds for the purpose of educational and instructional television.[1] By July 1, 1962, two California junior colleges had

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[1] Education Code, 1961, State of California, Section 8857, of Article 8, Chapter 6, Division 7

started to establish their television broadcasting stations.[2]

Permissive Legislation

Specifically, the code provides that the governing board of any school district or the county superintendent may enter into contracts or cooperate with other school districts for the purpose of participating in or procuring television broadcasts for use in the educational programs of the schools. The governing board or county superintendent may also purchase broadcast time, and may own, lease, and operate television transmitting facilities for use in providing instructional services, teachers' in-service education services, and otherwise perform the necessary functions to provide educational and instructional television for school districts within their jurisdiction.

Until the passing of this permissive legislation, all educational television stations in California were owned and controlled by non-profit corporations organized specifically for the purpose of providing educational television facilities for the community which they served; and funds for the operation of television stations owned by non-profit corporations were derived by public subscriptions, grants from philanthropic foundations, television auctions, and other promotional enterprises. In other areas and in California with the

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2 KVCR-TV, San Bernardino Valley Joint Union Junior College District, and KCSM-TV, San Mateo Junior College District

passing of the permissive television legislation, the schools contributed on a per-pupil or per-district basis to a fund which was used for the cost of production and cost of transmission of the educational television material.

The Acquisition of a Channel

The acquisition of a television channel can become a very complex ma ter, and it is an area in which few California school administrators have had experience. Furthermore, the medium poses some unique problems in the field of financing; and it will be the purpose of this document to trace the steps which may be necessary in the acquisition of a channel and to enumerate some of the methods which may be used to finance a television facility.

When the Federal Communications Commission originally assigned television channels to the various communities in the United States, certain channels were reserved for educational television. For instance, Channel 9 in the San Francisco Bay Area was reserved as an educational television channel. With the opening of the ultra-high frequency band of television channels, certain additional channels were reserved for educational purposes. Commercial interests were enjoined from filing for a Construction Permit and station license for stations on channels reserved for educational purposes.

There are 82 television channels in four separated blocks of

frequencies.[3] Channels 2 through 4 occupy a frequency range of 54 to 72 megacycles, channels 5 and 6 occupy a frequency range of 76 to 88 megacycles, channels 7 through 13 occupy a band of frequencies 174 to 216 megacycles, and channels 14 through 83 occupy a band of frequencies from 470 to 890 megacycles. The first three bands of frequencies are referred to as the VHF (very high frequency) band. The last group is referred to as the UHF (ultra-high frequency) band.

Each channel occupies a band of frequencies six megacycles wide. The video (picture) information is transmitted by an amplitude modulation transmitter occupying the lower-frequency portion of the channel. The aural (audio) information is transmitted by a frequency modulation transmitter located 4.5 megacycles higher than the video carrier.[4]

A conference of Federal Communications Commission engineers and industry representatives studied the problem of assignments of channels to areas for the purpose of providing television channels to all major localities and to assure that a minimum of interference exists between stations. This table of channel assignments is published by the Federal Communications Commission.[5] In California, 32 channels

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3 Federal Communications Commission Rules and Regulations, Volume III, January, 1964, as amended. Section 73.603

4 Ibid., Volume III, Section 73.699, Figure No. 5

5 Ibid., Volume III, Section 73.606

have been reserved for educational television of which seven are presently activated.

Separation Rules

A set of simple rules[6] determine the physical separation of stations in miles and the channel allocations.

1. Stations on the same channel are separated by 155 miles and 220 miles depending upon the channel number and area in the United States.

2. For channels removed by + or -8 channels, the separation of stations must be 20 miles due to interference from IF beat.

3. For channels removed by +2 to +5 and -2 to -5, the separation of stations must be 20 miles due to intermodulation interference.

4. Adjacent channel station separations must be 55 miles or 60 miles depending upon the channel number.[7]

5. For channels removed by + or -7 channels, the separation of stations must be 60 miles due to interference from the local oscillator.

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6 Ibid., Volume III, Section 73.698, Table IV

7 Ibid., Volume III, Section 73.610(c)

6. For channels removed by + or -14 channels, the separation of stations must be 60 miles due to interference in the sound image frequency.

7. For channels removed by + or -15 channels, the separation of stations must be 75 miles due to interference in the picture image frequency.

The Federal Communications Commission and its consulting engineers made no attempt to saturate the United States with television channel assignments, and the list of channel assignments (see Footnote No. 5) does not exhaust all of the possible channel assignments.

Under a National Defense Education Act project[8] (National Defense Education Act Project No. OE-2-16-027), the National Association of Educational Broadcasters in cooperation with the Department of Health, Education, and Welfare made a study of a nationwide plan for assignment of television channels for maximum service and efficiency by the use of an electronic digital computer. This report took into account the population in various areas and attempted to assign the maximum number of useable channels consistent with the population and educational requirements of communities throughout the United States. The survey indicated that a minimum of 1,197 channel assignments would be required in the next ten to fifteen years of television

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8 "A Report of a Study of Nationwide Assignments of Television Channels for Maximum Service and Efficiency by the Use of Electronic Digital Computer Methods," National Association of Educational Broadcasters, Washington, D. C., 19[illegible]

development in education. The study also maintained that with the best possible assignments of the presently available channels, there would still be a shortage of 311 channel assignments for the minimum educational service.[9] A complete list of assignments by communities and states is listed in the above report.[10]

In June, 1965, the Federal Communications Commission published its own UHF allocation plan which was produced by means of a Univac III computer. Priority was given to the city having the fewest channels available for assignment. If more than one channel was available, the computer assigned the lowest numbered channel. No assignments were made for channels 70-83 pending resolution of the Federal Communications Commission's pending resolution for a proposed low-power use of channels 70-83.[11]

Search For A Channel

The search for a suitable channel for a particular school district can be a simple or a very complex matter. For technical reasons, the lowest numbered channel is desirable. Propagation losses are lower on the lower frequencies, and the shadow effects due to terrain are less pronounced.

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9 "Survey of the Needs of Education for Television Channel Allocations," National Association of Educational Broadcasters and the United States Office of Education, Washington, D. C., Page 1, United States Government Printing Office, 1962

10 National Association of Educational Broadcasters, Op. cit., Pages T-1 through T-55

11 Federal Communications Commission Bulletin 65-504, June 4, 1965

Commercial interests are enjoined from applying for channels that are reserved for educational purposes. Educational agencies may, however, apply for unreserved channels; and, in the case of a conflict with another application, the matter is decided by the Federal Communications Commission on the principle of merit and public service. If a channel is listed in the table of channel assignments for the community in question, the educational agency may apply for a Construction Permit.

In the event that no channel assignment for the particular community exists, a channel assignment may be moved fifteen miles without requesting a formal hearing or permission.[12] The distance between communities shall be determined by the distance between the respective coordinates thereof as set forth in the publication of the United States Department of Commerce entitled "Air Line Distances Between Cities in the United States."[13] This publication is limited to the major population centers in the United States; and if the publication does not contain the coordinates of either or both communities, the coordinates of the main post office in either or both of such communities shall be used.

The location of the proposed transmitter site must further be carefully selected so as not to violate any of the rules outlined on pages

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12 Federal Communications Commission Rules and Regulations, Volume III, Section 73.607(b)

13 This publication may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., 20402.

5 and 6 of this report. Where transmitter sites for the pertinent channels have been authorized in communities, the proposed transmitter site and other authorized transmitter sites should be determined by the distance between the coordinates of the respective transmitter sites.[14]

Petition For Rule-Making

In the event that no channel assignment is located in the table of channel assignments and reserved for educational television that meets the above rules, the school district may petition the Federal Communications Commission for a rule-making hearing to transfer an unused commercial channel and reserve it for educational purposes. Such a channel must be within fifteen miles of the community in question and must comply with the other station separations for channel assignments as referred to immediately above.

It is the responsibility of the school district to advertise the existence of the petition for the rule-making hearing with all the pertinent facts in four advertisements over a two-week period in a newspaper with wide circulation.

In the event that a search shows that no channel can be assigned to a particular community within the limitations imposed by existing

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[14] Federal Communications Commission Rules and Regulations, Volume III, Section 73.611(b)

channel assignments, the petitioner for rule-making may request the deletion of an existing assignment in another community or the transfer of a channel assignment in another community so as not to produce interference in either of the communities. A notice of a petition for rule-making which would affect another community must be advertised in both of the communities in order that the affected community may reply to and present reasons for objecting to the deletion or transfer or substitution of a channel in that community. When complexities such as are indicated in this paragraph exist, hearings lasting from eight months to two years are not uncommon; but there is no other way to assign a channel in many instances.

New Low-Power Station

In the summer of 1965, the Federal Communications Commission announced a new class of low-power "community" television broadcast stations. The stations in this category would be limited to channels 70 to 83, 10 Kw, and an antenna height of 300 feet. Together with these limitations, the Federal Communications Commission announced that it would consider closer mileage spacing in the categories outlined under Separation Rules, page 5. This class of station is specifically designed to meet the needs of medium and smaller communities for both commercial and educational local television operation.

Several equipment manufacturers have transmitters for this type of service. A 100-watt transmitter could adequately cover a community to

an approximate five-mile radius.

Professional Assistance

When a district must submit data and material to the Federal Communications Commission, the services of a professional will usually be required. A school district will find additional consulting engineers among the professional cards listed in the Service Directory of the magazine, Broadcasting. The chief engineer of a local television station or county communication office can give a district valuable assistance. A consulting electronics engineer can prepare the basic information relative to the availability of channels and make the calculations on separations with various possible channel arrangements.

The Educational Television Stations Division of the National Association of Educational Broadcasters can provide helpful and valuable suggestions to educational stations in many areas. In California, the State Television Advisory Committee has recently requested increasing the budget of the office of the Coordinator of Television,[15] Dr. Lawrence T. Frymire, for the fiscal year 1966-1967 for professional services so that the coordinator will be able to provide the consulting services of an electronics engineer to public school agencies. This assistance, of course, is subject to approval of the budget for the office of Television Coordinator.

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15 Dr. Lawrence T. Frymire, Educational Television Coordinator, State of California, Room 1149, State Capitol, Sacramento, California, Telephone: Area 916, 445-9788

On many occasions, the services of a consulting engineer in Washington, D. C., and/or a firm of lawyers are required to carry a hearing before the Federal Communications Commission.

Application for a Construction Permit

Once a channel has been assigned to a community and reserved for educational purposes, the school district is in a position to apply for a Construction Permit. An application for a Construction Permit is a complex document and usually requires engineering assistance to gather all of the technical data required by the Federal Communications Commission. Federal Communications Commission Form 340 is the required form, and only those exhibits pertaining to television are required to be submitted. It is important to note that the district is specifically forbidden to begin construction until the Construction Permit has been approved by the Federal Communications Commission.[16]

The Construction Permit is an official document issued by the Federal Communications Commission authorizing the construction of and testing of the broadcasting facility. In effect, it reserves the channel exclusively for the educational institution within the limits specified in the application and Construction Permit.

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16 Federal Communications Commission Rules and Regulations, Volume III, Section 73.639

Under authorization of the Construction Permit, the station equipment may be purchased and the installation may be completed.

Ownership Report

The permittee shall file an Ownership Report (Federal Communications Commission Form 323E)within thirty days of the date of grant by the Commission of an application for original Construction Permit. In the case of a school district, this report must show the names and addresses of the Board of Trustees and the chief executive officer of the board. Additionally, it must show all contracts that the district may have relative to program material such as membership in the National Association of Educational Broadcasters and interests in other broadcast stations such as a frequency modulation radio station.

A supplemental Ownership Report shall be filed by each licensee or permittee within thirty days after any change occurs in the information required by the Ownership Report from that previously reported.

Equipment Test

The station may test the equipment installation after notifying the Commission and the engineer in charge of the radio district in which the station is located.[17]

During the equipment test phase of the operation, test pattern,

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17 Ibid., Volume III, Section 73.628

stair-step pattern, and station identifications may be transmitted visually but the audio portion is limited to single tone signals. At this time, all of the adjustments and tests to show compliance with the terms of the Construction Permit are made.

The formal application for station license may now be completed. This is FCC Form 341. Section I of this form deals with the fiscal and legal aspects of the license application and must include the expenditures made in the course of the construction of the station.

Section II-C deals with the engineering aspects of the installation. The exhibits included in this section are called the Proof of Performance. This section can best be completed by the engineering service available from the supplier of the station equipment. Usually a certain amount of work will be performed by this engineering service under warranty, such as repair and replacement of parts damaged in shipment, correction of faults in circuitry, tuning of the transmitters, etc.

Program Test

When FCC Form 341 has been completed and tendered for filing with the Federal Communications Commission, this information must be advertised four times, two times a week for two weeks, in a local newspaper of general coverage. At this point, the station may request permission

to program test.[18] This request must be made ten days prior to the planned date for program test.

Program tests cannot commence until specific Commission authorization is received. This is usually in the form of a telegram. The station then must inform the Commission and the engineer in charge of the radio district in which the station is located when program tests will commence.

Program test authority does not constitute approval by the Commission of the application for station license, but the station may continue to operate its normal programs until informed to the contrary or until the station license is issued. The Commission has a station license application backlog of approximately one year.

Time of Operation

The Federal Communications Commission requires adherence to specific rules on the time of operation of a commercial television station. Noncommercial educational television stations are not required to operate on a regular schedule and no minimum number of hours of operation is specified; but the hours of actual operation during a license period are taken into consideration in considering the renewal of such television broadcasting licenses.[19]

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[18] Ibid., Volume III, Section 73.629

[19] Ibid., Volume III, Section 73.651

License Renewal Considerations

A television station license does not become the exclusive property of the licensee. Rather, the television channels are part of the national heritage of the people of the United States. The licensee, therefore, is required to show that the station will be operated in the public interest and the degree to which the licensee fulfills this obligation is taken into consideration when the station license is renewed. Commercial station licenses have been reassigned to a rival applicant when it was possible to show that the rival applicant would successfully operate the station in the interest of the public. The Federal Communications Commission has been very lenient with educational broadcasters in the past, but there is evidence that the Commission will tighten up on the intent of the rules.

The Chairman of the Federal Communications Commission in a speech on November 3, 1965, said:[20]

> ". . . the honeymoon between the FCC and noncommercial educational television may be nearing an end. The Commission may no longer be satisfied merely with seeing educational channels activated.
>
> Education Not Enough. Educational broadcasters--like commercial broadcasters--are expected to present public affairs programming. They should not limit themselves to educational or instructional material but should seek out and deal with the problems affecting their communities. The licenses of those that do not may be in jeopardy.

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20 Mr. E. William Henry, Broadcasting, November 8, 1965, Pages 50-51

> With the development of educational television as a competitor of commercial television, the services of ETV stations is being subjected to closer scrutiny. And if groups should emerge to challenge a licensee for an educational frequency, we have the responsibility for giving them a chance in a hearing to prove that they can do a more effective job for the community."

Legal Qualifications

The 1961 change in the State Educational Code authorized schools to own and operate a television broadcasting station (see Footnote No. 1). It became possible for a district to invest district funds for the purchase and operation of a broadcasting station. Without legal authority to own a broadcasting station, the Federal Communications Commission would not and could not assign a Construction Permit to a school system. In the case of publicly supported educational organizations, the accreditation of their respective State Department of Education shall be taken into consideration when considering the eligibility of the applicant.[21]

In California, the legislature designated a Coordinator of Television to work with the Commission and other federal bodies. Dr. Lawrence T. Frymire, with offices in Sacramento, is the present Coordinator of Television

Section 8875 of the State Education Code defines the duties and function of the office of the Coordinator of Television as follows:

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21 Federal Communications Commission Rules and Regulations, Volume III, Section 73.621(a)1

"Section 8875. Duties. The television coordinator shall prepare a plan for television to serve the educational needs of the state. Such plan shall assure the most effective and economical utilization of human resources, public funds and channels of transmission.

The coordinator shall also (1) serve as the official state agency for processing applications for federal funds which may become available for television for educational purposes, and for receiving and distributing such funds, (2) act in an advisory capacity in recommending to the appropriate federal agency or agencies the allocation of television channels which become available for educational purposes, (3) coordinate the activities of the various public and non-profit agencies concerned with television for educational purposes, and (4) serve as a clearing house for information on television for educational purposes.

Nothing in this section shall require the Board of Regents of the University of California or any other agency to submit requests for federal funds through the coordinator if such funds are for a purpose other than a capital outlay for television purposes unless federal law requires that all the federal funds must go through a single state agency. (added by statute, 1961, Chapter 2065, see note at beginning of article.)"

Federal Aid to Television

In 1962, the federal government passed legislation for the purpose of providing financial aid to television under an act entitled "Educational Television Facilities Act," Public Law 87-447. This legislation provided 32 million dollars for distribution among the states; and, more specifically, one million dollars for the State of California on a matching basis for transmission apparatus. A station could receive a grant for one-half of the allowed funds required for a new installation and one-fourth of the funds already expended by

the station prior to the granting of the application.[22] Under this program, no federal funds are available for personnel, property, or programs.

Applications for federal aid under the Federal Aid to Television Program must be filed in accordance with the format supplied for this purpose.[23] A copy of the application must be filed with the California Television Coordinator as required by Section 8877 of the Education Code.

California has already been assigned the one million dollars provided for in the original legislation. A move is now in the offing which would revise the legislation to grant in excess of a million dollars to certain of the states including California.

Community Service

The community colleges in the state of California are in a unique position to receive aid from the communities through a non-voted community service tax.[24] The community service tax provision provides that the Board of Trustees of a district may levy a tax up to five cents for $100 assessed valuation on the property in the

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22 "Rules and Regulations of Public Law 87-447," Title 45, Subtitle A, Part 60, A Reprint from Federal Register, June 1, 1963

23 "Application for Federal Matching Grant to Construct Noncommercial Educational Television Broadcast Facilities," Department of Health, Education, and Welfare, Form HEW-OE-4152(1-63)

24 Education Code, 1961, State of California, Section 20801 of Article 1, Chapter 3, Division 16

district tax roll for the purpose of community service. Since a portion of the television program could correctly be classified as community service, a portion of the construction costs of the station can be properly charged against this tax. In the event that the television station operates a mobile television van, the appropriate portion of the cost of this van could likewise be charged to the community service tax.

In addition to the direct purchase of equipment by funds obtained from the community service tax, it is appropriate to charge the cost of community service operation against this source.

Service to Other Districts

An educational television station can enter into legal agreements with other school districts (see Footnote No. 1) for the purpose of telecasting programs for and to specific school districts. The contracting school district could hire the television teacher, pay for the script for the program, supervise the production, but the station licensee must have complete control over the materials to be telecast.

School districts may contract with the television station for telecasts within the provisions of the rules and regulations of the Federal Communications Commission.[25] It seems to imply that a noncommercial educational broadcast station could enter into a contract

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25 Federal Communications Commission Rules and Regulations, Volume III, Section 73.621

wherein a school district would share in the overhead, maintenance, pro-rata cost of the facility, and the cost of the technical personnel to produce the telecast. Care must be exercised that the contract excludes reference to a rate card or other terms that could be construed as a rate card.

Direct State Support

Junior colleges in California are reimbursed for instruction by the State of California according to a complex formula which depends upon the assessed valuation per unit of ADA in the district. The basic support is $125 per unit of ADA. Since 525 hours of class attendance is equivalent to one unit of ADA, the basic state support per hour of instruction is approximately 23.81 cents.

In 1959, the Los Angeles City School Districts requested an opinion from the County Counsel relative to the validity of counting attendance for apportionment purposes in a televised course. A seven-page opinion was written by Mr. James W. Briggs, Deputy Counsel under Mr. Harold W. Kennedy, County Counsel of the County of Los Angeles, on July 15, 1959, in which he states in part: "We thus conclude that in the types of classes enumerated in your letter involving instruction by one certificated employee of pupils or classes physically segregated one from another, the district is not precluded from claiming state apportionments."[26]

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26 Opinion of Counsel for the County of Los Angeles, dated July 15, 1959

In 1963, Mr. Harold M. Manell, Chief Deputy under Mr. Stanford D. Herlick, County Counsel for the County of San Bernardino, ruled that the San Bernardino Valley College could include for the purpose of determining the number of units of ADA that time students viewed course material presented over television off campus.

In 1964, Mr. Jerome F. Coleman, Deputy District Attorney for the County of San Mateo, reviewed the two previous opinions and came to the following conclusion:

> "We therefore conclude that your classes being shown over KCSM-TV would qualify for State aid where the students have followed your procedures. We are informed that classes at another junior college are similarly televised and receive State aid; however, we are also informed that only minimum information has been given by the school when applying for State aid. Therefore, we cannot be certain that the State Board of Education would approve of your course without question. In view of this situation, it might be well to encourage adoption by the State Board of Education of clear and definite administrative regulations on the qualifications for State aid of such classes televised into the home."

The Rodda Bill, SB-111

In the 1964-1965 legislative year, Senator Rodda introduced legislation known as SB-111 which states as follows:

> "Section 1. Section 6360.5 is added to the Education Code to read:
> 6360.5. Classes for adults may be provided for persons residing within a school district by television transmission for home reception undertaken pursuant to the provisions of Article 8 (commencing with Section 8851) of Chapter 6 of Division 7.

> Section 2. Section 11502 is added to said code, to read: 11502. Units of average daily attendance for adult education classes provided by television transmission for home reception shall be computed, pursuant to regulations prescribed by the Superintendent of Public Instruction, by counting in attendance during actual hours of instruction over television those students who have requested, and have been furnished by the district, with the necessary supplementary instructional and examination materials. The average daily attendance so computed shall be credited to the school district providing the classes."

Senator Rodda declined to blanket all junior college for-credit courses in this bill.

The bill passed both houses but was vetoed by the Governor. However, since under California law a school district may operate only as specifically authorized by law, the Rodda bill places a distinct cloud of uncertainty on counting open-circuit television attendance for ADA purposes by junior colleges.

Contributions by the Board of Supervisors

Section 26155 of the California Government Code provides that the Board of Supervisors may authorize and provide for contributions to non-profit educational television stations, provided all of the following conditions exist:

1. The purpose of the contribution is to enable the citizens of the county to enjoy greater educational and cultural advantages.

2. A substantial number of the residents of the county live within the reception area of the station.

3. The station regularly broadcasts programs which have educational or cultural significance.

4. The contribution is to the general funds of the station and not for or in connection with any particular program.

5. The contribution is not accompanied, directly or indirectly, by any direction of, sponsorship of, control of, or restriction of any program or the content of any program.

The Farr-Quimby Act, SB-635

In the 1965 regular session, the California Legislature passed the Farr-Quimby Act which appropriates $800,000 for the purpose of supporting each student taught by television to the extent of fifty cents per pupil for the year.

Section 18270 of the California Education Code provides that the Superintendent of Public Instruction shall allow to each school district participating in a program for instructional television established pursuant to Sections 6441 or 6442, fifty cents ($0.50) multiplied by the number of pupils of the district present in the classroom and instructed by such instructional television programs

during the preceding fiscal year. The amount of such allowance to a school district shall not exceed one-half of the total cost to the district of providing television broadcasts or closed-circuit television programs pursuant to Section 6441 or 6442. For the purpose of this section, no pupil shall be counted more than once per school year.

Title III, National Defense Education Act

Funds on a matching oasis are available under Title III of the National Defense Education Act for the purchase of certain pieces of equipment involved in the instructional television activity. The following pieces of television equipment are eligible for requests in NDEA Title IIIA project proposals:[27]

1. Receiving Sets

   a. The number allowed is consistent with the number and size of teaching stations involved in the instructional television activity within the critical subject areas described in the proposed project.

   b. Stands or brackets are allowable to the number of receiving sets requested.

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[27] Memorandum, October 8, 1965, Mr. Guy M. Helmke, Consultant, NDEA, Bureau of Audio-Visual and School Library Education, State Department of Education, 721 Capitol Mall, Sacramento, California

2. Antennas - "but not towers or masts"

   a. Simple pipe supports are eligible, but structural steel towers or masts of a complicated or expensive nature are not eligible.

   b. 2500 Megacycle "fixed service" receiving antennas and their attendant converters are eligible.

3. Converters whether at the individual receiving set or master converters at the head end of a reception-distribution system.

4. Amplifiers for increasing the power of the received television signal so that it may be carried for greater distances in the distribution system.

5. Coaxial Cable. Coaxial cable and attendant transformers, splitters, tapoffs, couplers, outlets and plugs which, with antennas, converters, and amplifiers, make up a reception-distribution system are eligible.

6. Portable television tape recorders of either broadcast or nonbroadcast quality are eligible for purchase as a device primarily to record programs in one or more of the critical subject areas.

7. A small television camera attached to and used as an integral part of a microscope for use within the confines

of a science classroom or laboratory is eligible for purchase under a Title III science project. Television cameras, other than those used as a part of a microscope, are not eligible for purchase under any other circumstances.

A more complete list can be obtained by writing to Mr. Guy M. Helmke, NDEA Consultant.

Television Technician Training

The latest list of acceptable work-titles under Title III of the George Barden Act and the Federal Aid to Education Bill of 1963 includes the category of broadcast technician. This new category permits schools to obtain matching funds for courses designed to educate broadcast technicians. Supplies and equipment used in the educational television station can be purchased under the above acts with the federal government providing matching funds.

Value of Instructional Television Courses

The value of open-circuit television instruction in addition to providing improved instructional services can be determined by calculating the cost to the school district if the student attended classes on campus. There are two independent costs involved. First, the construction of the classroom is $300 per student. This is the legal fee that may be made for a seat charge in billing other school

districts. Secondly, the average cost per unit of ADA for junior colleges in California for the 1964-1965 year was $586.06. Taking into account the fact that the colleges are allotted a minimum of $125 in state support for each unit of ADA for classes taught on campus, the net value to the district for each unit of ADA taught by open-circuit television is therefore $761.06.

Program Sources

An educational television station may receive indirect support through many programs. Educational television stations record programs and exchange these recorded programs with other educational television stations or institutions owning closed-circuit television systems and thus greatly increase their source of program material at no additional production cost.

In June of 1965, under an agreement between the Western Radio and Television Association (WRTA) and the National Center for School and College Television (NCSCT), a western regional office was established at San Francisco to service the instructional television needs and activities of Alaska, Arizona, California, Hawaii, Idaho, Montana, Nevada, Oregon, Utah, and Washington. Mr. Ken Winslow[28] is the Executive Director of WRTA and will organize and develop the activities of NCSCT. A large variety of instructional television

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[28] Mr. Ken Winslow, 115 New Montgomery Street, San Francisco, California 94105; Telephone: Area 415 781-2769

courses and material for use on all educational levels will be available through NCSCT's western regional office in San Francisco.

The National Association of Educational Broadcasters has established a new section known as Educational Television Stations (ETS). Programmed material is now available to members of ETS at a cost of $5 per half-hour.[29]

The television station may affiliate with National Educational Television (NET); and for the basic affiliation fee of $100 per year, the station will receive five hours of new programming per week. These programs are produced at the various NET affiliate stations in the United States. Additionally, NET's Flexible Service offers cultural programs from past seasons at a cost of $5 per hour of program material to affiliate stations and $10 per hour to non-affiliate stations with a limited number of hours per week. This rate is less than 10% of the cost of producing the program.

Where two educational television stations exist in the same geographical location, NET will furnish the full service to the NET affiliate but will furnish additional programs to the second station on an hourly basis at approximately the same cost.[30]

The Broadcast Information Bureau[31] lists some 26,000 hours of

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29 ETS Program Service, Box 63, Bloomington, Indiana, % Mr. David Leonard, Director

30 National Educational Television (NET), 10 Columbus Circle, New York, New York

31 "TV Free Film Source Book," Volume 5, Issue 4, Summer-Fall, 1964 Broadcast Information Bureau, 535 Fifth Avenue, New York 17, New York

free film available to any educational television station. These free films are sometimes inferior and non-useable but certain of the material is useful in the initial operating period of the broadcasting station.

Many governmental agencies, both foreign and domestic, have free film service (generally similar to free literature and brochures) which is made available to educational institutions.

Urgency in Filing Application for Channel

Most of the early educational television stations were on frequencies located in the VHF band. For many years, commercial broadcasters on the UHF band ran into difficulties because a converter was required to receive the television station. With the passing of the all-band legislation, all receivers sold after April 30, 1964, were required to tune the entire television spectrum, VHF and UHF. This legislation has changed the entire complex of the UHF band; and, as reported by the TV Guide for December 11-17, 1965, approximately "35% of the nation's 53,800,000 television homes already have at least one set which can tune to UHF channels. At the present rate, UHF's set-circulation problem should be virtually eliminated in about three years, when all-channel homes will account for at least 90% of the United States total."

When the all-channel legislation was enacted, Broadcasting

estimated that the UHF saturation point would come in approximately ten years. The accelerated rate of UHF set-circulation is partly due to the advent of color television. The net result of these factors has been an increased activity on the part of commercial broadcasters in the UHF band. For instance, KSAN-TV in San Francisco, Channel 32, was reportedly sold for one million dollars, and this sales price included little useable hardware. Activity elsewhere in the UHF band in California has reached a point where educators must act immediately to file for the channels now reserved for educational purposes and to compete actively for the unreserved channels with the commercial operators.

A California school district may apply for a reserved channel or an unreserved channel in their community. An application for a channel should be filed only in good faith and not for the expressed purpose of holding the channel. While there is a nine-month period in which the permittee can install and complete the television station, the Federal Communications Commission has always been lenient in extending the time required to construct the station. Federal Communications Commission Form 701, Application for Additional Time to Construct a Radio (or Television) Station, must be filed and each application for additional time provides for an extension of six months.

Conclusion

The Federal Communications Commission has made ample provision

for educational television and has cooperated with school districts in making channels available through rule-making sessions. Channel assignments, however, will soon exhaust the available allottments; and after that happens, a school district will be required to compete with commercial operators and purchase existing television stations. At the present time, channel assignments are available in many communities; but with the accelerated rate of UHF set saturation, the channel allottments will soon be all assigned. If the junior college districts are to avail themselves of this tremendous teaching medium, the districts will have to act with utmost haste.

It is later than you think!

BIBLIOGRAPHY

Briggs, Mr. James W., "Opinion of Counsel for the County of Los Angeles," July 15, 1959

Broadcast Information Bureau, "TV Free Film Source Book," Volume 5, Issue 4, New York: 1964

Coleman, Mr. Jerome F., "Opinion of the District Attorney for the County of San Mateo," 1964

Department of Commerce, "Air Line Distances Between Cities in the United States," United States Government Printing Office, Washington, D. C.

Department of Health, Education, and Welfare, "Application for Federal Matching Grant to Construct Noncommercial Educational Television Broadcast Facilities," Form HEW-OE-4152(1-63), Washington, D. C.

Department of Health, Education, and Welfare, "Rules and Regulations of Public Law 87-447," Title 45, Subtitle A, Part 60, A Reprint from the Federal Register, June 1, 1963

Education Code, State of California, 1961

Education Code, State of California, 1963

ETS Program Service, Box 68, Bloomington, Indiana

Federal Communications Commission Bulletin 65,504, Washington, D. C., June 4, 1965

Federal Communications Commission Rules and Regulations, Volume III

Frymire, Dr. Lawrence T., Educational Television Coordinator, State of California, Room 1149, State Capitol, Sacramento, California

Helmke, Mr. Guy M., NDEA Consultant, Memorandum, October 8, 1965

Henry, Mr. E. William, Broadcasting, November 8, 1965, Pages 50-51

Manell, Mr. Harold M., "Opinion of Counsel for the County of San Bernardino," 1963

National Association of Educational Broadcasters, "A Report of a Study of Nationwide Assignments of Television Channels for Maximum Service and Efficiency by the Use of Electronic Digital Computer Methods," Washington, D. C.: 1963

BIBLIOGRAPHY

(continued)

National Association of Educational Broadcasters and United States Office of Education, "Survey of the Needs of Education for Television Channel Allocations," United States Government Printing Office, Washington, D. C.: 1962

National Educational Television (NET), 10 Columbus Circle, New York, New Ycrk

Winslow, Mr. Ken, Executive Director, Western Radio & Television Association (WRTA), 115 New Montgomery Street, San Francisco, California