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AUTHOR Meuter, Ralph F.; And Others
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ABSTRACT

This paper describes the Instructional Television Fixed Service (ITFS) program, a closed-circuit educational television system in which classes originating on the California State University, Chico (CSUC) campus are simultaneously broadcast live to various ITFS sites within Northeastern California. Following an introduction, the first section summarizes the background, history, development, and growth of the ITFS system (also known as Instructional Television for Students) at Chico. Results of the spring 1982 enrollments in the ITFS system classes are then analyzed. The concluding section outlines plans and suggestions for future use and expansion of the system. A seven-item reference list is included. Supplementary attachments to the paper include maps showing California State University and Colleges locations, the area served by ITFS, and the population density of the area; a list of past ITFS courses; maps showing Learning Center locations and microwave signal transmitters; enrollment data; ITFS enrollments by course, instructor, and location; sample display giving instructions for connecting and using the system; the table of contents from the ITFS Student Handbook; a map showing statewide system connections; and a diagram showing equipment involved and the network connections at CSUC and learning sites. (LMM)

CLOSED-CIRCUIT EDUCATIONAL TELEVISION (ITFS) IN NORTHEASTERN CALIFORNIA: THE 33,000 SQUARE MILE CAMPUS

by

Ralph F. Meuter
Leslie J. Wright
Charles F. Urbanowicz

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Ralph F. Meuter
Leslie J. Wright
Charles F. Urbanowicz
Center for Regional and Continuing Education
California State University, Chico
Chico, California 95929

30 March 1982*

ABSTRACT

Since the Spring of 1975, the residents of Northeastern California have been able to utilize a closed-circuit educational television system known as "Instructional Television For Students" (ITFS). Originally developed as a two-way microwave system between California State University, Chico and the University of California, Davis (92 mile distance), the system has been expanded over the years into an integrated network of 13 remote sites (excluding Davis), two sites in the planning stage, and two sites scheduled for completion within the year.

This presentation covers the brief history of the ITFS system, the results of the Spring 1982 enrollments and some suggestions for future ITFS systems. The paper actually is a continuation to two earlier presentations to the Education Section of the World Future Society, Urbanowicz (1978) and Wright & Urbanowicz (1980).

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* For the World Future Society's Fourth General Assembly, "Communications and the Future", to be held in Washington, D.C., July 18-22, 1982.

INTRODUCTION

California State University, Chico (hereafter CSU, Chico) is part of the California State University System which includes 19 individual campuses. The System, established in 1961, is currently known as the California State University. The two other major components of public education in California are the California Community Colleges and the University of California. (See Attachment #1 for the CSU System.)

The service area of CSU, Chico is approximately 33,000 square miles (Attachment #2), or roughly 21 percent of the area of the state with a resident population of less than 600,000 individuals (attachment #3), or roughly 2.1 percent of the state's entire population. A pressing problem over the years has been "how to deliver quality education throughout the region," since enrollments at a remote site frequently cannot support the expense of sending an instructor off campus. An answer to this problem appeared in the Spring of 1975 when the closed-circuit television system known as "Instructional Television For Students" (ITFS) became operational and CSU, Chico began offering classes at Regional Learning Centers throughout Northeastern California.

The CSU, Chico ITFS/Microwave system is currently a one-way video, two-way audio system which is live and interactive. CSU, Chico is licensed to operate four channels but currently only one channel is utilized due to the limitation of a single broadcast classroom. The ITFS classroom can comfortably seat 32 individuals. In the classroom are four television cameras, two of which face the front of the class to pick up the instructor, one camera which is an overhead camera over the instructor's desk, and one camera at the front of the classroom which can televise the on-campus students to the viewers throughout the region. The instructor is outfitted with a wireless microphone and there are sixteen microphones in the classroom (one for every two students) so the students in the CSU, Chico class can also interact with the off-campus ITFS student.

Since the Spring of 1975 an extremely wide variety of courses have been offered over the system (attachment #4). The CSU, Chico system is a unique model in the CSU system and numerous individuals from a variety of institutions in California (and North America) have expressed interest in the CSU, Chico ITFS/Microwave system to make plans for their own ITFS/Microwave systems.

BACKGROUND

Located 99 miles north of the Capitol at Sacramento, CSU, Chico was originally established as a State Normal School in 1887 and became a State Teacher's College in 1921. In 1924 the California Legislature authorized the Chico campus to become a four year College and in 1972 Chico State College became California State University, Chico. CSU, Chico is the second oldest institution in the CSU System and in Spring 1982, CSU, Chico had an on-campus enrollment of 13,637 individuals generating approximately 12,170 FTE (or Full Time Equivalent students). The University is located in the City of Chico and the greater Chico area has a population of approximately 50,000 individuals.

The history of CSU, Chico is very important, we believe, for an understanding of the success of the ITFS/Microwave system throughout the northeastern part of the state: the University has an excellent history throughout the area and also an excellent reputation among teachers throughout the State. Consistently, since the Spring of 1975, the heaviest enrollments in the ITFS courses have come from Education courses offered in the 4-7PM time slot (and on various Saturdays from 9AM-Noon) and Education courses have accounted for almost 50 percent of all ITFS enrollments to date (Urbanowicz 1981), with Spring 1982 Education ITFS enrollments representing some 56.7 percent of all the Spring 1982 ITFS enrollments.

BRIEF HISTORY

In the Spring of 1975, the ITFS/Microwave system began operation on the CSU, Chico campus. Originally authorized in 1963 by the Federal Communications Commission, ITFS (officially described as "Instructional Television Fixed Service") was intended to provide:

> a means for the transmission of instructional and cultural material in visual form with an associated aural channel to specified locations for the primary purpose of providing a formal education and cultural development to students enrolled in accredited public and private schools. (Quimby et al., 1974: 40)

In 1966 there were only six ITFS delivery systems in the entire United States, but by 1976 there were 186 (Myers 1977: 66). A great deal of time and planning was conducted prior to the ITFS system becoming operational on the CSU, Chico campus, and a monumental document was a 1972 report by W.W. Hall entitled

NORTHEASTERN CALIFORNIA HIGHER EDUCATION STUDY: A REPORT PREPARED FOR THE CALIFORNIA RURAL CONSORTIUM AND THE COORDINATING COUNCIL FOR HIGHER EDUCATION. Hall's report laid the framework for much of what transpired in the decade of 1972-1982 and has been cited and referred to in every major grant that CSU, Chico submitted for the construction of the ITFS/ Microwave system.

DEVELOPMENT AND GROWTH

From an initial CSU, Chico-University of California, Davis, link in the Spring of 1975, the ITFS/Microwave system has been expanded through a series of grants and CSU, Chico support into an integrated network which currently consists of 13 Regional Learning Centers, the closest one located in the community of Red Bluff, which is 42 miles from Chico and the most distant Regional Learning Center located in the community of Yreka, which is 173 miles from the Chico campus. Two additional sites are scheduled for completion by the Fall of 1982 (Susanville, 105 miles from Chico and Quincy, 99 miles from Chico). Two or three additional locations are being considered for future Regional Learning Center sites. (Attachment #5 shows the distribution of Regional Learning Centers throughout the region and attachment #6 is the technical map of the ITFS/Microwave system.)

In the Spring of 1975 there were 22 off-campus enrollments in the eight courses offered that semester via the system; enrollments have grown over the years as the system was expanded (attachment #7) and in the Spring of 1982, there were approximately 388 enrollments in 25 courses (attachment #8). (At the time this paper was written, Spring 1982 enrollments had yet to be finalized.)

When ITFS was originally established on the Chico campus in 1975, only self-support courses were offered via ITFS and students paid Extension fees to receive credit for their courses; in the Spring of 1980, however, the decision was made to offer regular, state-supported courses via ITFS. Off-campus students were then able to register and pay the same fees "as if" they were attending class on the CSU, Chico campus and, in turn, these students generate FTE for the University. (It has been roughly estimated that the off-campus students generated approximately $132,000 for CSU, Chico campus through the FTE generated by their attendance in courses in the off-campus

Regional Learning Centers in the year 1981-1982. This is $132,000 that the University would not have seen were it not for ITFS/Microwave.)

Initially, ITFS classes at CSU, Chico consisted of a smorgasbord of courses and off-campus students took these courses for general enrichment. When the ITFS program begam offering regular, state-support classes and as the technical side of the ITFS/Microwave system was expanded and developed, improvements also came about in the curricular side and degree plans for ITFS were created. Currently, off-campus students can complete the major components of the B.A. degree in Social Science by means of the ITFS/ Microwave system. In addition, a certificate in para-legal studies is also available via ITFS, a Minor in Psychology is being planned, a Business degree is being considered, and there are plans for future courses that might lead to a degree in Electrical Engineering. Large components of a Computer Science degree and a degree in Education are also available via ITFS. In addition to the regularly scheduled courses offered from 8AM to 10PM, Monday through Friday and 9AM to Noon on Saturdays, the CSU, Chico ITFS/Microwave system is also used for regional conferences, committee meetings, student advising and the like on a time-available basis. We are rapidly approaching the point where a second ITFS channel could be utilized.

The support base for the CSU, Chico ITFS/Microwave system is a tremendous one. We have the total support of the Central Administration, and the President of CSU, Chico, Robin S. Wilson, is an ardent supporter of the ITFS system.

Intersegmental support for the ITFS/Microwave system is also extensive: in 1972 the Northeastern California Higher Education Council (NCHEC) was established and it currently consists of CSU, Chico, UC Davis, and the seven Community Colleges within the region: Butte College, Yuba College, Shasta College, Feather River College, College of the Siskiyous, Lassen College, and Sierra College. Three Regional Learning Centers are currently located at Community Colleges, two additional Community College locations will open by the Fall of 1982, and an additional Community College is being considered for a Regional Learning Center. In addition to the three Community College locations we currently have sites located at a Military Base, an elementary school, two high schools, four County or District School Offices, and two area industries (attachment #5). All of the Regional Learning Centers are equipped with either radio or telephone for interaction back to the CSU, Chico campus ITFS

classroom while the class is being broadcast live. It must be stressed that the CSU, Chico ITFS/Microwave system is a live and interactive system and although the classes throughout the day are taped (in case of technical problems), the tapes are erased the next day and used over again. In the event of an unlikely ITFS/Microwave system failure, the tapes--in either VHS, Beta or 3/4" mode--are shipped out to the Regional Learning Centers where the students can view them and then return the tapes.

In addition to the Regional Learning Centers which have been established throughout the region over the years, subscribers to participating cable companies also have the ability to receive the live ITFS television instruction from the CSU, Chico campus in their own homes if they rent a "brown box" (attachment #9) which converts the mid-band ITFS signal. Currently we have cooperative ageeements with four cable companies serving Northeastern California.

ITFS, "Instructional Television For Students", is truly a University-wide endeavour, with courses being offered from virtually every department on campus; the ITFS/Microwave network is coordinated by the Center for Regional and Continuing Education and the Center coordinates the activities of registration, test proctoring, sending out of course syllabi and materials, student services, advice, library services associated with the off-campus student and the like. In virtually every respect, the off-campus ITFS student is treated "as if" he or she were attending the class "live" on the CSU, Chico campus: student ID is provided, library services are available, and a 20 page ITFS STUDENT HANDBOOK is distributed to every enrolled ITFS student (attachment #10).

CONCLUSIONS

The CSU, Chico ITFS/Microwave network is a unique and cost-effective method of delivering high quality educational services to a widely distributed population. Indeed, the CSU, Chico ITFS/Microwave network has served as a model for many campuses within California and a lengthy 1980 report for the California Commission on Extended Education, entitled TELECOMMUNICATIONS APPLICATIONS FOR EXTENDED EDUCATION IN THE CALIFORNIA STATE UNIVERSITY AND COLLEGES, pointed out the potential of an ITFS/Microwave link throughout the entire State of California, with satellite earth stations anchored at various CSU institutions (attachment #11).

Plans are currently under way on the campus of CSU, Chico to provide each of the Regional Learning Centers with advanced telecommunications devices. These plans call for the eventual installation of slow-scan television at each of the sites (to allow for visual feedback from the off-campus locations back to CSU, Chico), high speed fascimile transmission devices, and computer terminals which will provide both hard and soft copy (attachment #12). Indeed, the computer terminals in the various Regional Learning Centers will link the rural inhabitants of Northeastern California with one of the few machine-readable library catalogues in the entire world. The CSU, Chico campus has converted over 300,000 titles in the library (serials, periodicals, non-print, and book titles) into the machine readable format and this catalogue will be available to the off-campus student as a microform or on-line through the computer terminals.

Eventually, through the advanced telecommunications devices we plan to install at the Regional Learning Centers, students off-campus will have direct access to the entire CSU, Chico University library as well as various data base searches and a wider variety of student services will also be available to the off-campus ITFS student. The purpose of all of these devices is to enhance the instructional experience for students and faculty at CSU, Chico.

Without ITFS/Microwave and the tremendous on-campus and off-campus support, CSU, Chico would be a relatively small rural University going into the 21st Century. As it is, since "Instructional Television For Students" is such an integral part of the University's planning, California State University, Chico, is on the "cutting edge" of educational technology and communications in California.

* * *

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Myers, A. 1977. A Statistical History of ITFS. EITV (Educational & Instructional Television), Vol. 9, No. 11: 67-70.

Quimby, J.P. et al. 1974. TELECOMMUNICATIONS AND THE PUBLIC INTEREST: NEEDS AND PROSPECTS IN CALIFORNIA (California Legislature, Report of the Joint Committee on Telecommunications, Sacramento, CA).

Urbanowicz, C.F. 1978. University Television in Northeastern California: A Partial Solution for the Future? (Presented at the "Appropriate Technologies" Session of the Meeting of the Education Section of the World Future Society, University of Houston, Celar Lake City, Texas, October 20-22).

_____. 1980 Diversity in Northeastern California: Television as
Wright, L.J. a Partial Solution to the Solution. (For the Meeting entitled "The Next Millenium: Unlearning the 20th Century" for the Education Section of the World Future Society, University of Massachusetts, Amherst, Massachusetts, November 6-8).

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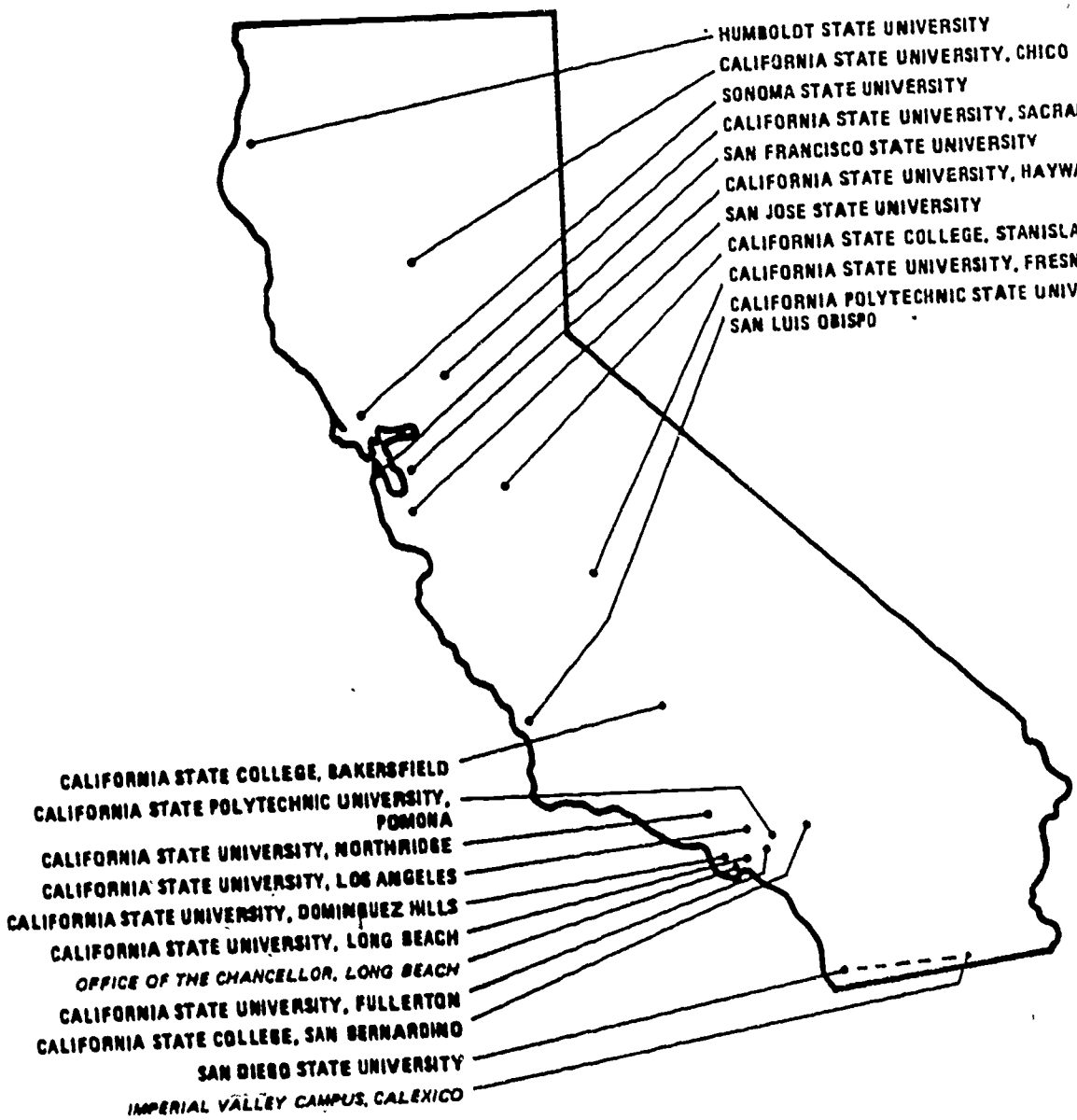
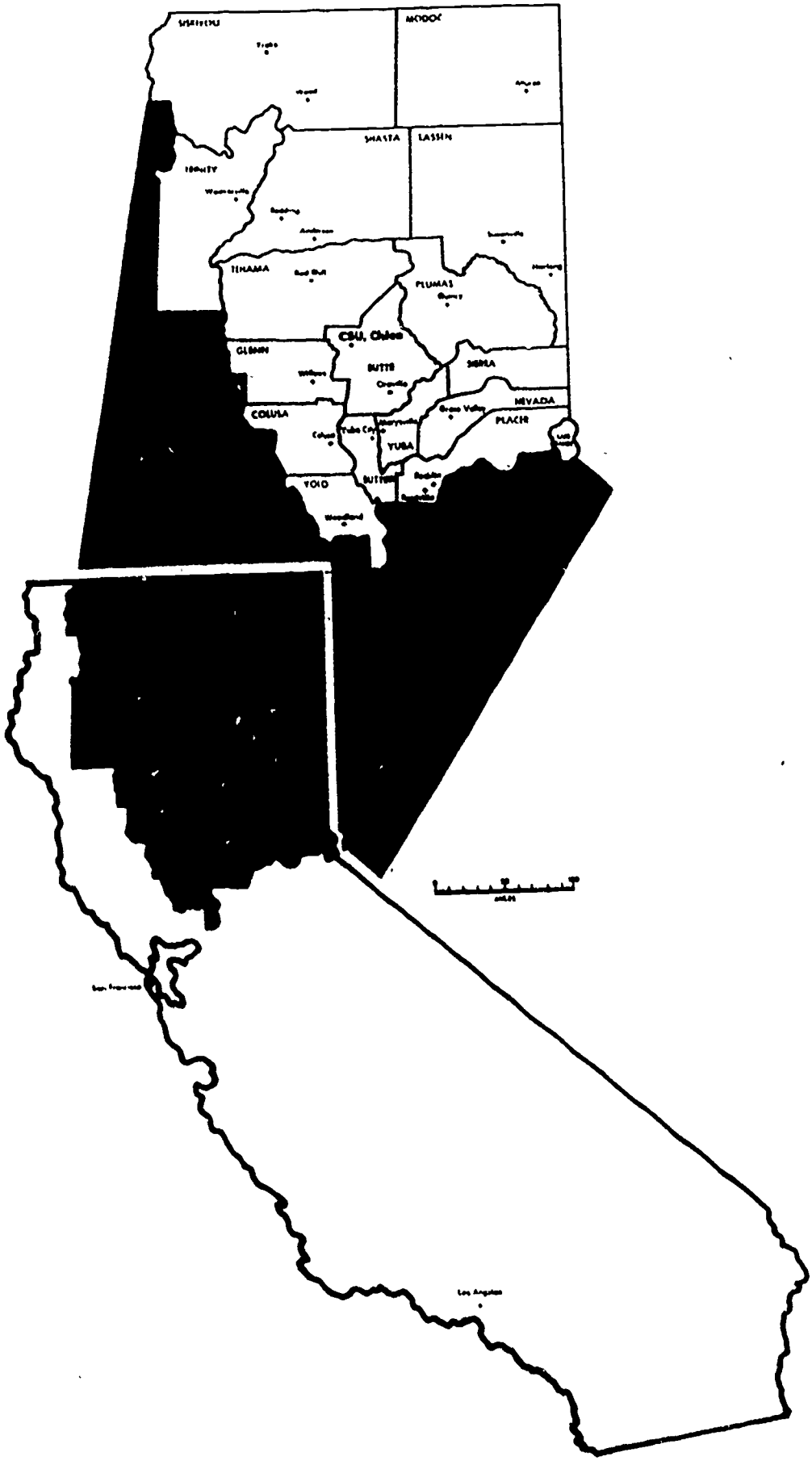
Attachment #1

THE CALIFORNIA STATE UNIVERSITY AND COLLEGES



Attachment #2



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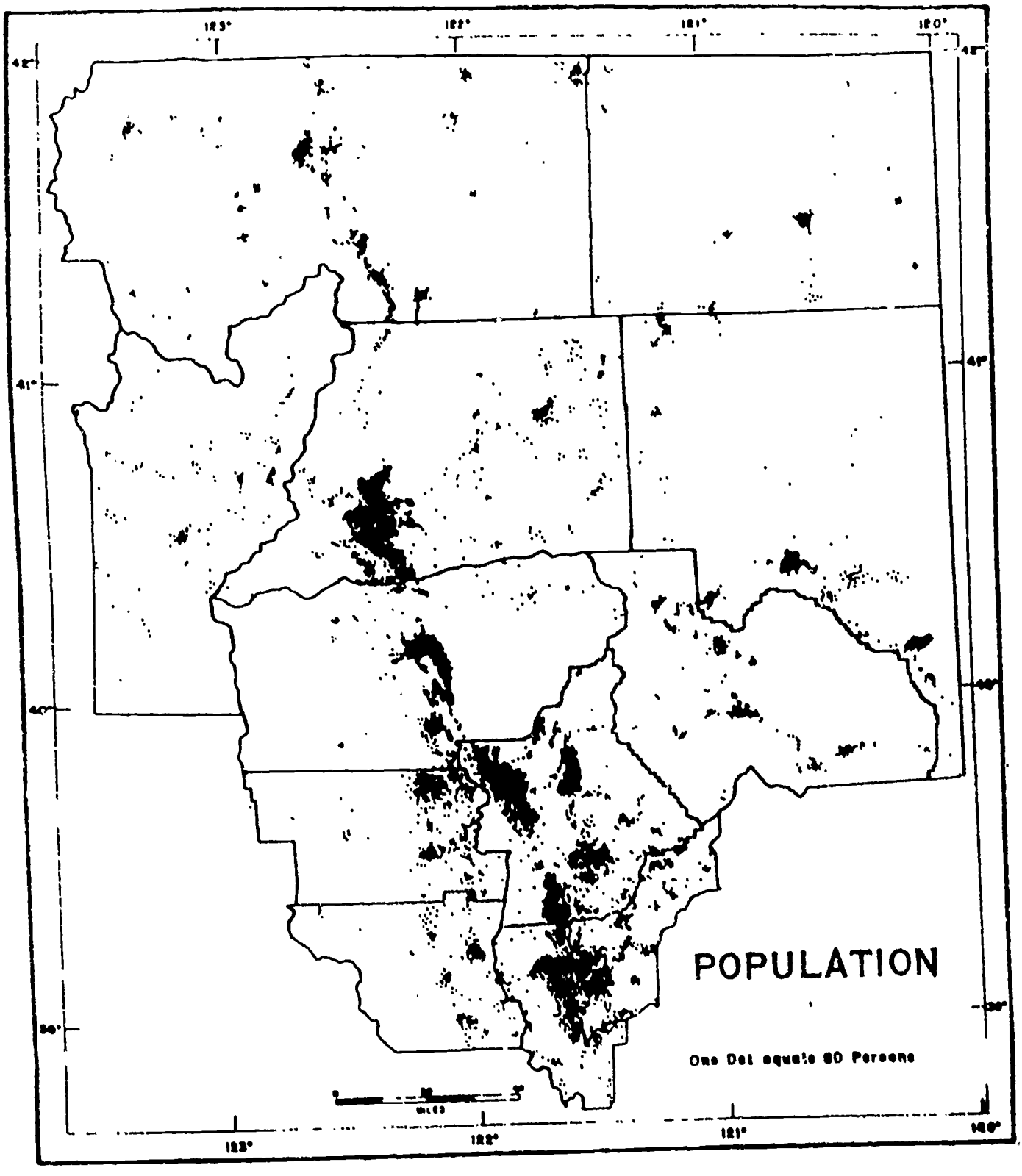
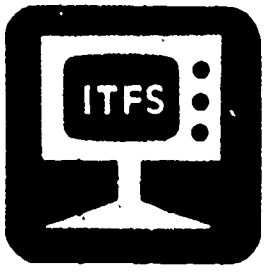
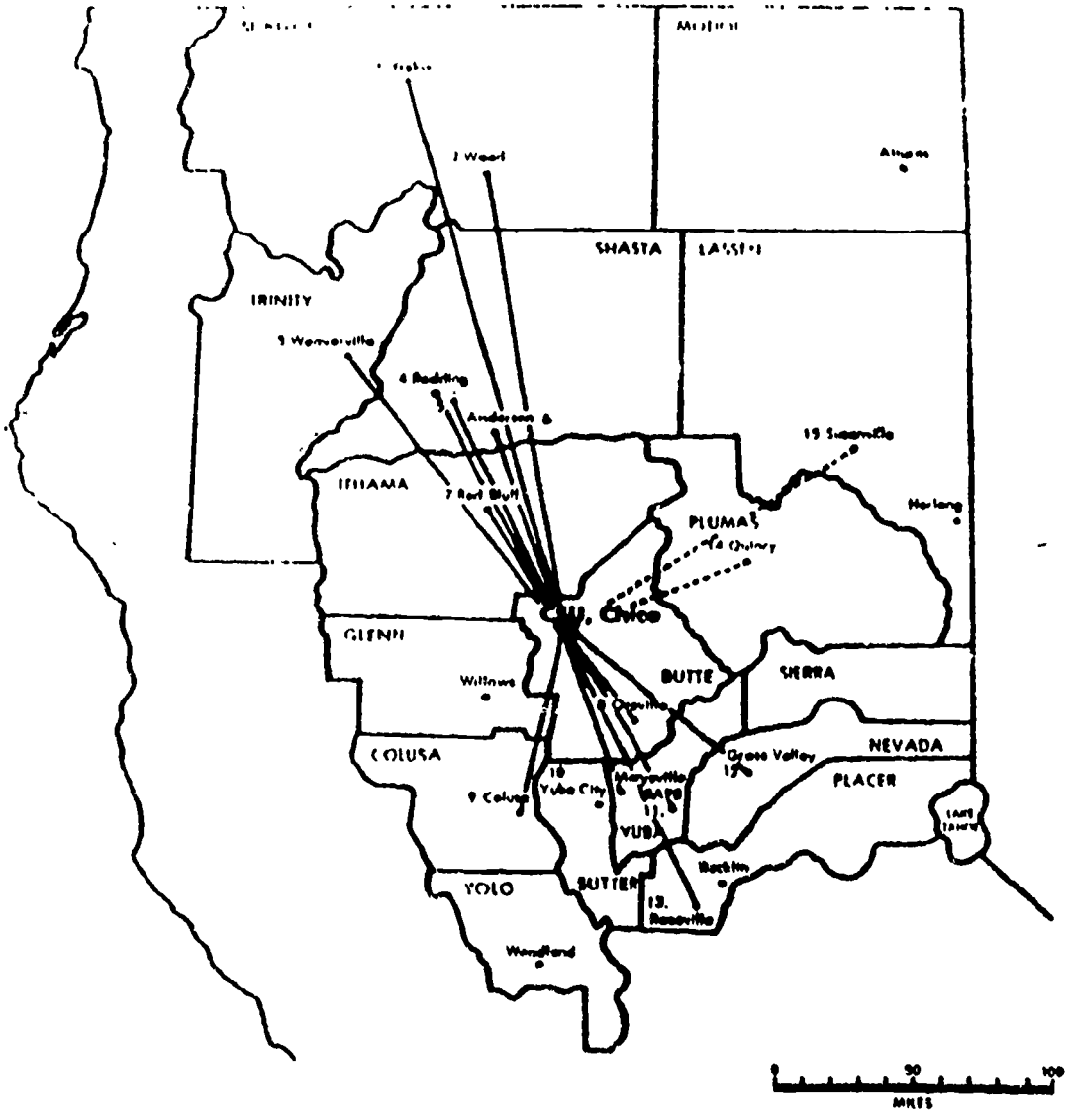


ITFS COURSES IN THE PAST HAVE INCLUDED THE FOLLOWING:

King Tut
Mainstreaming
Survey of Finance
California Gold Rush
Sociology of Religion
Computer Morphology
The Bible as Literature
Literature for Children
Cultural Anthropology
Comparative Education
Psychology of Prejudice
Literature for Adolescents
Science Fiction/Science Fact
Women in American History
Bigfoot and Other Monsters
The Ruins of Ancient Mexico
Overview of Special Education
Peoples and Cultures of Hawai'i
Proseminar in Special Education
Management of Cost Accounting
Seminar in Educational Sociology
Foundations of Bilingual Education
Introduction to Public Administration
Administration of Pre-School Programs
Curriculum Development: Social Studies
Spatial Concepts in the Study of Behavior
Survey of Child and Adolescent Psychology
Current Trends in Statistical Analysis in Education
Senior Seminar in Management Decision Simulation



LEARNING CENTER LOCATIONS



1. "REKA:
Yreka Union High School (Library) & home reception through Cal Nor Cablevision

2. WEED:
College of the Siskiyous (Library) & home reception through Siskiyou Cable Company

3. WEAVERVILLE:
Trinity County Schools Office & home reception through Trinity Cable Company

4. REDDING:
Shasta County Schools Office
(Media Center)

5. REDDING:
Shasta College Library

6. ANDERSON:

7. RED BLUFF:
Antelope Elementary School

8. OROVILLE:
Butte County Schools Office (Media Center) & home reception through Nor Cal Cablevision Inc

9. COLUSA:
Colusa Unified School District Office & home reception through Nor Cal Cablevision Inc

10 YUBA CITY/MARYSVILLE:
Chico Regional Learning Center at Yuba College & home reception through Nor Cal Cablevision Inc

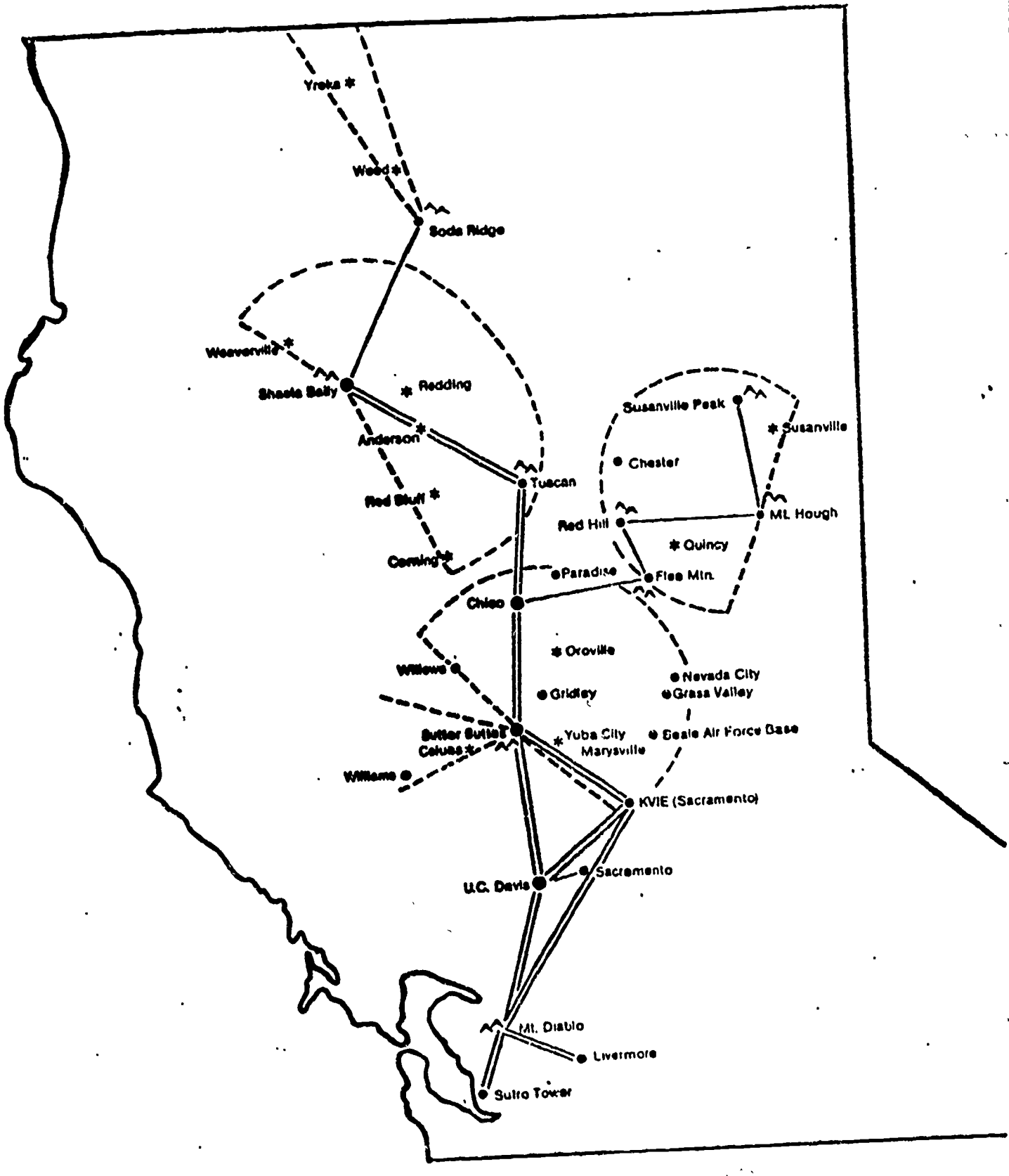
11 BEALE AIR FORCE BASE:
Learning Center

12. GRASS VALLEY:
Grass Valley Group (Training Center)

13. ROSEVILLE:
Hewlett Packard

14. QUINCY:
Under Construction. Site to be located at Feather River College.

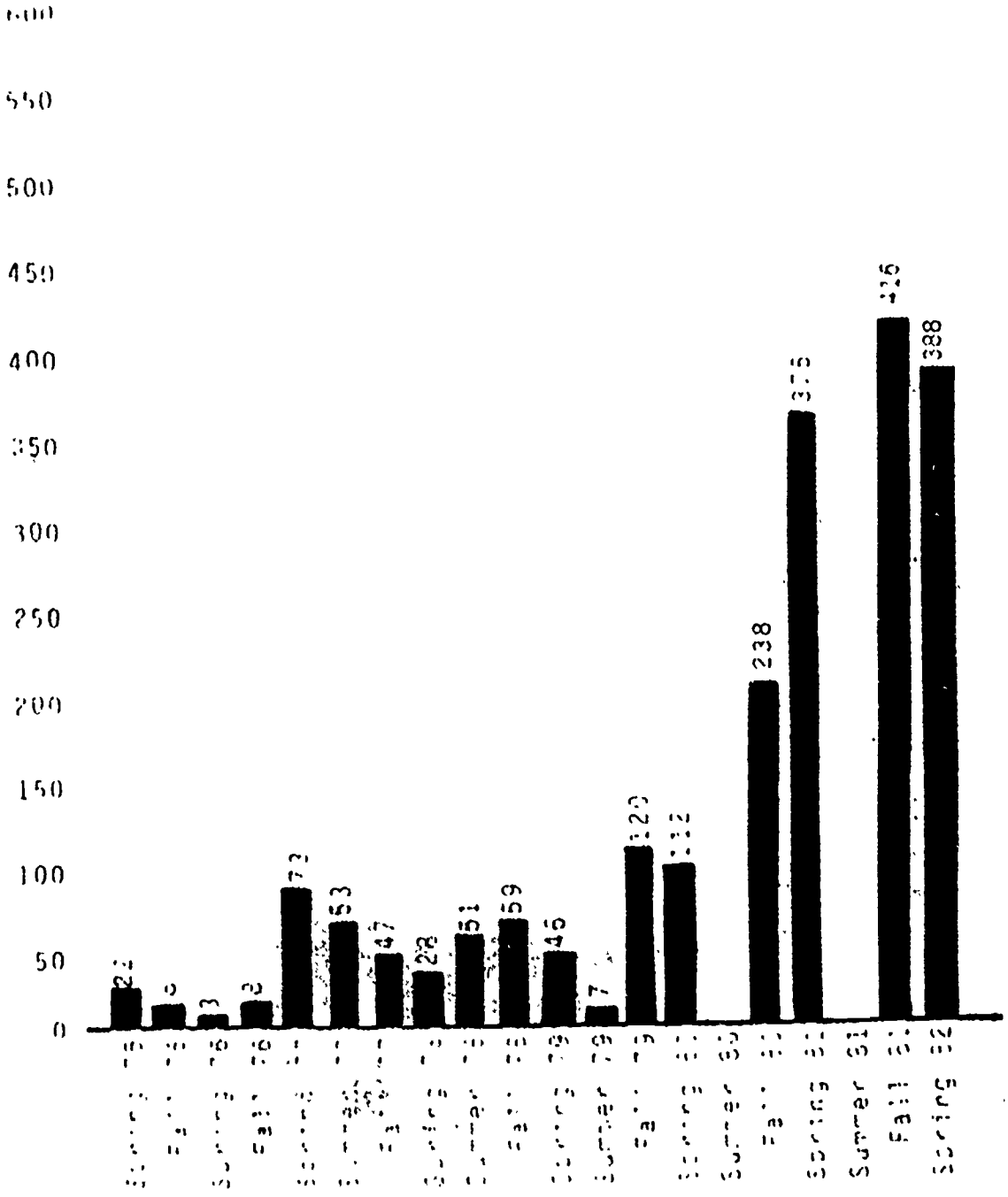
15. SUSANVILLE:
Under construction. Site to be located at Lassen College.


Yreka
Weed
Soda Ridge
Weaverville
Shasta Bally
Redding
Anderson
Red Bluff
Corning
Tuscan
Susanville Peak
Susanville
Chester
Red Hill
Mt. Hough
Quincy
Paradise
Flea Mtn.
Chico
Oroville
Willows
Nevada City
Gridley
Grass Valley
Sutter Butte
Colusa
Yuba City
Marysville
Beale Air Force Base
Williams
KVIE (Sacramento)
U.C. Davis
Sacramento
Mt. Diablo
Livermore
Sutro Tower

[illegible] Enrollment Data

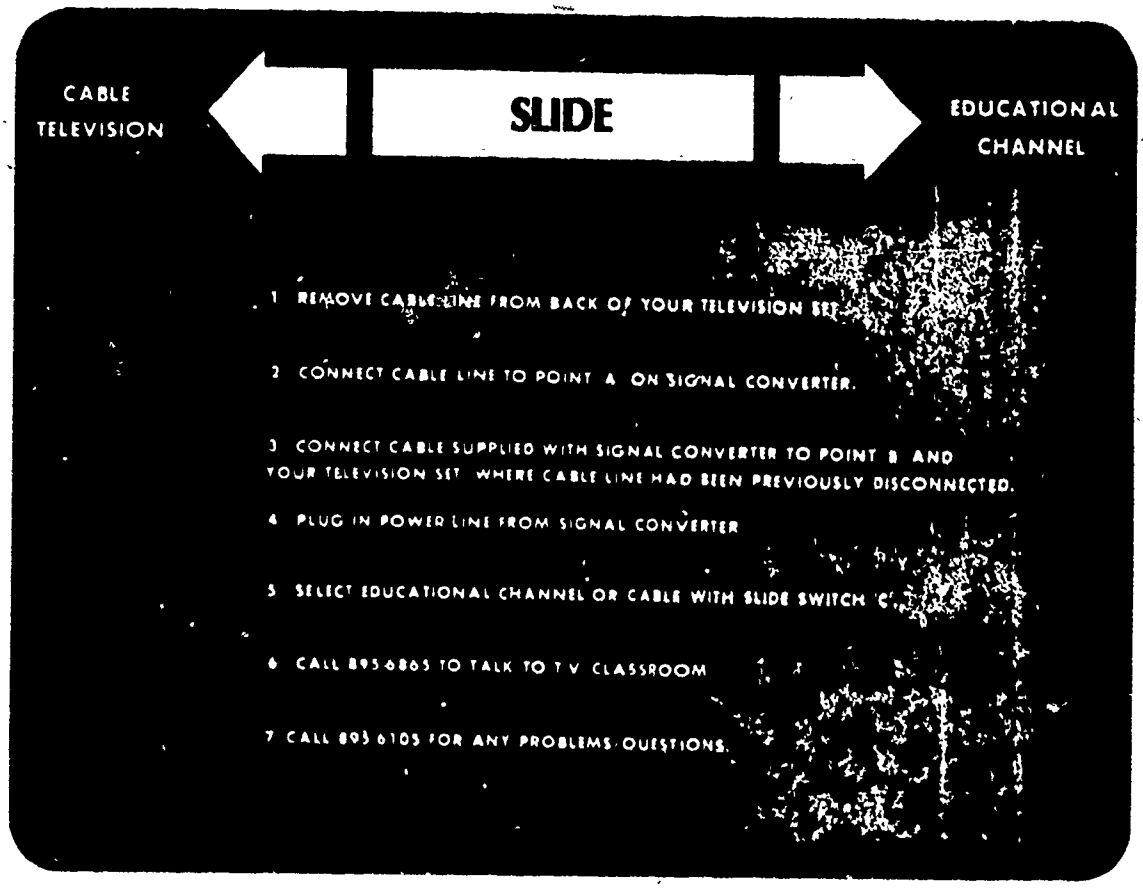
March [illegible], 1992

[illegible] Spring 1992



TFS NROLLMENTS

CL SES	Days	Hours	Brown Box	Colusa - 71	Yuba College	Beale AFB - ?	Red Bluff - 74	Anderson HS School - 75	Shasta College - 76	Shasta Co... Schools Offic	College of th Siskiyous - 7	Trinity County Schools Offic	H-P - 80	GVC - 81	Lassen College - 82	Feather R... College - 83	Butte Coun... Schools Offic	Yreka - 85	Off-Campus Totals	CSU Cr...	...quired
...—Hall	WF	8:00-8:50a					1												1		
...—Cheese	MWF	9:00-9:50a		2	1			2			2			2					9		
...—Miranda	MWF	10:00-10:50a			1					1								1	3		
...—Sowar	MWF	11:00-11:50a		1	1					2							1	1	6		
...—Fish	MWF	12:00-12:50p											1						1		
...	MWF	1:00-1:50p			1					2	1	2							6		
...—Bruder	MWF	2:00-2:50p																1	1		
...—Harris	TTH	9:00-9:15a											4						4		
...—Green	TTH	9:30-10:45a											6	7					13		
...—Donovan	TTH	11:00-12:15p			2		2			4	4	2							14		
...—Fong	TTH	12:30-1:45p			1		2			4	4	2							13		
SYCOS—Abramson	TTH	2:00-3:15p			1		2			5	1	1					2	2	14		
...—Cortez	MON	4:00-6:50p			3						1								4		
...—Cuevas	MON	7:00-9:50p		2	2		1	3	1	10	8	2						1	30		
...—Dixon	TUE	4:00-6:50p			6		4		2	6	2						1	4	25		
...	TUE	7:00-9:50p		3	6		2	3	5	4	8	2					1	3	37		
...—Marshall	WED	4:00-6:50p		1	9		4			8		1					1		24		
...—Kester	WED	4:00-6:50p		1	9		4			8		1					1		24		[24 also
...—Kester	WED	4:00-6:50p		1	9		4			8		1					1		24		taking 1
...—Kogel	WED	7:00-9:50p			3		1	1		2									7		unit non-1
...—Palmer	THU	4:00-6:50p			12		1		6	3	2			1			1	1	27		course.]
...—Khan	THU	7:00-9:50p			1			3	6		3			3					16		
...—Marshall	FRI	4:00-6:50p		1	10		2	2	1	7		2					2	3	30		
...—Converse	SAT	9:00-12:00a								8	6							1	15		
...—Kester	SAT	9:00-12:00a			4		1			7				2			2		16		
				12	82		31	14	21	89	42	16	11	15			13	18	364		(364 + 24 =

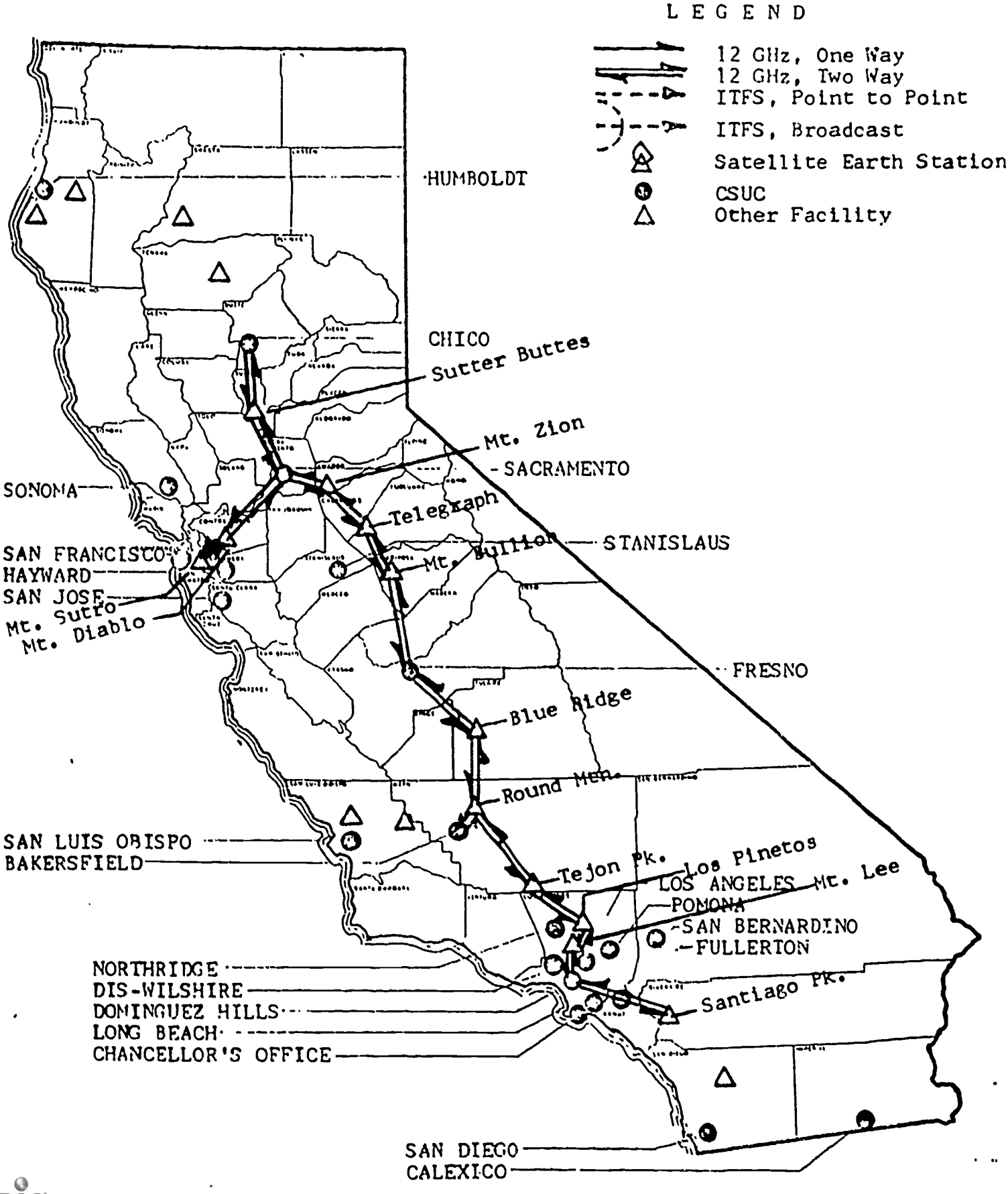

CABLE TELEVISION
SLIDE
EDUCATIONAL CHANNEL
1 REMOVE CABLE LINE FROM BACK OF YOUR TELEVISION SET.
2 CONNECT CABLE LINE TO POINT A ON SIGNAL CONVERTER.
3 CONNECT CABLE SUPPLIED WITH SIGNAL CONVERTER TO POINT B AND YOUR TELEVISION SET WHERE CABLE LINE HAD BEEN PREVIOUSLY DISCONNECTED.
4 PLUG IN POWER LINE FROM SIGNAL CONVERTER
5 SELECT EDUCATIONAL CHANNEL OR CABLE WITH SLIDE SWITCH 'C'.
6 CALL 895 6865 TO TALK TO T V CLASSROOM
7 CALL 895 6105 FOR ANY PROBLEMS OR QUESTIONS.

ITFS Student Handbook

California State University, Chico

Contents

Note: This is the BACKBONE



Attachment #12