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ABSTRACT

This document presents a work plan for developing distance education programs delivered by telecommunications and other media to citizens of the state of Washington. It is intended to provide direction for future postsecondary education programs delivered in whole or in part by telecommunications and for a study on how to accomplish this. The plan focuses to a lesser extent on the technical infrastructure and concentrates on a cooperative planning environment and suggested programs for development. Future institutional directions are discussed for six colleges and universities and the State Board for Community and Technical Colleges. Issues of faculty, curricula, costs, coordination, and evaluation are considered, along with some future considerations for out-of-state providers, educational reform, and use of the international electronic network, the Internet. Questions for review before program implementation and recommendations for future study are presented. Appendixes consider advisory forum membership, infrastructure, satellite arrangements, satellite downlink sites, and requirements for a quality program. (Contains 7 references.) (SLD)

PLANNING FOR DISTANCE EDUCATION AND SUPPORTING POLICIES

A WORKPLAN

WASHINGTON STATE HIGHER EDUCATION COORDINATING BOARD

JULY 1993

CONTENTS

Planning for Distance Education and Supporting Policies

A WORKPLAN

SCOPE OF DOCUMENT

This document comprises a workplan for developing ***distance education programs*** delivered by telecommunications and other media to the state's citizens. It is intended to provide direction for future development of postsecondary educational programs delivered in whole or in part by telecommunications and for a study on how this may best be accomplished. The workplan focuses to a lesser extent on the technical infrastructure, because substantial public and private infrastructure already exists. In addition, technologies are developing rapidly, which requires that program planning be flexible and continually incorporate the latest technical information into on-going policy formation and program operations.

Areas for future policy development that will support the directions outlined in the state plan section are also outlined. In addition, criteria to be applied by the HECB to new programs or infrastructure are discussed. A schedule and process for reviewing this workplan are also provided.

BACKGROUND

In January 1989, the Higher Education Coordinating Board adopted an *Educational Telecommunications Plan for Higher Education* (HECB, 1989). This document outlined a "rolling plan concept" that would ensure continuous planning in order to incorporate and respond to rapid changes in telecommunications technologies.

In the four years that followed adoption of this plan, rapid changes have indeed occurred. The state purchased satellite downlink equipment for each of the community and technical colleges. Through the STEP/STAR schools partnership program, many K-12 schools and educational service districts also were equipped with satellite downlinks. During the same period, uplink capacity increased to include ESD 101 in Spokane, the University of Washington, Washington State University, and Western Washington University (with leased equipment).

A few innovative programs have been developed using satellite technology or mixed media. These include, but are not limited to, the Washington Satellite Consortium for Graduate Teacher Education coordinated by Washington State University, a distance education program

offering a B.A. in Social Sciences by WSU, and use of satellite technology by community and technical colleges to deliver a variety of courses. However, program development has not kept pace with development of telecommunications infrastructure.

It is clear from this brief overview that the HECB's 1989 Plan required a thorough review and updating to incorporate recent developments and to envision new directions for use of different media in the delivery of educational programs by Washington's postsecondary education system. An advisory body of institutional and state representatives (see Appendix A) assisted staff in examining the issues presented in this document.

PLANNING CONTEXT

Planning for distance education delivered via a variety of media occurs in a context of multiple partnerships and singular responsibilities. The HECB has statutory responsibility for 1) approving new and off-campus degree programs offered by the four-year public institutions, 2) establishing institutional service areas, 3) evaluating degree programs, 4) planning for enrollment growth, and 5) making recommendations on institutional operating and capital budgets to the Governor and Legislature. To these ends, the HECB has prepared the *1992 Update to the Master Plan for Higher Education, Guidelines for Program Planning and Approval, Design for the 21st Century*, and recommendations on biennial budget requests. HECB staff are preparing revisions to the *Guidelines on Existing Program Review* which can be used for program self-assessment and improvement.

The Department of Information Services (DIS) has statutory responsibility for developing and coordinating the state's information technology network, focusing on the system's infrastructure and expanding the use of technology across state government. DIS has recently developed a *Strategic Information Technology Plan* (January 1993) and a *Video Telecommunications Strategic Plan* (1992); the latter provides strategies and activities for developing and using the state's video telecommunications network. Staff from the HECB and DIS coordinate planning to ensure that the separate plans complement and reinforce the goals of the state.

As the work outlined in this plan proceeds, staff from the HECB and DIS will continue to collaborate to ensure that enhancements to the infrastructure are consistent with state policies and will support the program needs of postsecondary education. DIS supports the need for education to plan programs for regional or statewide delivery and to outline technical capabilities important to ensure a quality educational experience for students. The HECB supports DIS in its function of designing and coordinating appropriate technical systems which may serve multiple state and local users.

BENEFITS

Technologies that support distance education programs have been extensively supported by the Legislature based on several anticipated benefits:

- Increase access to educational programs that address student goals and state needs;
  - By providing access to courses and programs where no service was available previously,
  - By increasing the variety of courses and faculty available to the student,
  - By increasing the variety of life-long learning opportunities available to citizens, and
  - By targeting postsecondary programs (e.g., workforce training) to communities experiencing economic hardship.
- Reduce the need for off-campus construction;
- Reduce the need for faculty travel;
- Increase information-sharing among faculty, administrators, and the general public;
- Increase collaboration among two- and four-year, public and independent educational providers;
- Create a "tele-smart" citizenry that will use telecommunicated services from education and government; and
- Stimulate change among faculty, administrators, and support staff to reform educational programs, teaching techniques, services, and delivery methods.

These are substantial benefits, yet some are more hypothetical than others. Given the newness of some programs and the technologies used to deliver them, it is not surprising that many individuals have reservations about programs delivered by media other than traditional in-person instruction. These doubts must be addressed by evidence that distance education programs can provide substantial benefit at a reasonable cost.

The many media (e.g., satellite, cable TV) used to deliver distance education have been characterized as a means to an end: a means to increase access to quality education. If it is to be deemed successful, the ends must be achieved. Put differently, media are a pipeline and "The true test of success will be the quality of what flows through the pipe and the benefits accrued by those at the other end." (p. 41, Gross & English, 1989)

STATE PLAN

Infrastructure

The purpose of the present document is to provide direction and a cooperative planning environment for the development of distance education programs. This focus has been chosen because substantial public and private infrastructure already exists to support the delivery of distance programs: a satellite system, WHETS, cable TV, fiber optic phone lines, to name a few. However, development of programs and support structures have lagged behind development of technology. Furthermore, technologies are changing rapidly, and new media are continually becoming available. Thus, dependence on any one media may lock programs into a format or technology that will soon be outdated and need to be replaced. Therefore, program planning must be flexible, using current technology where available, but be aware of possible future technical developments.

Therefore, the sections which follow focus on programs -- not technologies. Appendix B contains a brief description of the current infrastructure in Washington State for the reader who wishes to review what technologies exist and how they operate. Appendices C and D provide more detailed information on one technology -- satellite -- that is especially useful for a statewide system of program delivery. In the very near future, there may be other technologies that allow an educational program to be delivered to every part of the state.

Relegating information about these technologies to the appendices is not meant to imply they are unimportant or invisible to the educational process. Indeed, understanding how the different technologies impact students and the educational experience is crucial, and the plan addresses how institutions can develop policies that help faculty and students use technology for the best educational results. However, planning programs for specific telecommunications technologies is like planning for last year's computer model; neither the computer nor the technology may be around one year from now. What is needed is to develop the skills and analytical tools among faculty, support staff, and students to adjust and use new technologies to achieve the educational goals of the student.

Technology is the "hardware" for distance education. It is a necessary prerequisite to

offering distance education programs. However, it is not sufficient to guarantee that the program will be successful. The "software" -- faculty, support services, students, and institution -- must be ready to fully exploit the changing hardware in order to educate students.

However, it is clear that the existing infrastructure or "hardware" may require some enhancement or new technology. As planning proceeds, it will be important to ensure that Washington State not waste resources by reinventing programs and/or systems that have been designed and tested elsewhere. Washington can learn from the successes (and failures) of other states as many states grapple with providing quality distance education to its citizens.

> Recommendation #1: The HECB will continue to monitor technical developments as they affect the infrastructure that supports the delivery of distance education programs and will recommend, where appropriate, proposed enhancements to existing infrastructure or new technologies to be pursued.

2+2 Program Potential

The satellite-based infrastructure described in Appendix B has the potential to support a "2+2" site-based program that opens access to upper-division programs to every region of the state. For example, every community and technical college can receive programs transmitted by satellite technology. Therefore, a community college could offer on site lower-division coursework to be followed by upper-division coursework in specific fields (leading to a baccalaureate degree) offered by a four-year institution. The advantages are:

1. Students would be able to stay in their own community while completing the baccalaureate degree and to retain their present employment and housing arrangements.

2. The support staff and services located on the community college campus could also support, with additional resources, upper-division coursework.

3. The community college downlink sites are geographically dispersed across the state and located in most mid-sized communities; this would markedly extend access to upper-division education across the state.

4. Where a community college is not available, a STEP/STAR downlink site could be used; however, this would require augmentation of the support services to be offered on site.

5. The community colleges would ensure a supply of students to feed into upper-division programs, providing a critical mass of students that could support each

other during the program.

6. "2+2" programs could encourage greater collaboration among two- and four-year faculty, the sharing of resources, and improved curricula that aid articulation among levels of programs.

7. The community colleges could provide an existing facility (classrooms and parking) at times when the facility may be underutilized, forestalling the need for additional capital construction.

8. "2+2" programs have already been implemented in this state.

It is important to also understand the barriers to a "2+2" upper-division program delivered in part by satellite or other technologies.

1. There is a lack of upper-division degree programs ready to be adapted for delivery to the state's community colleges via satellite or other media.

2. The cost of providing upper-division education solely via satellite may be prohibitive, which indicates the need for developing programs that can be delivered with other media (e.g., technologies that use phone lines) to both lower cost and provide students with a variety of learning experiences.

3. There may be a lack of resources (e.g., library materials and staff, support staff, space) that will allow community colleges to support upper-division education.

This paper will delve deeper into barriers #1 and #2 in a later section. The following recommendation addresses the need for further study of barrier #3:

> Recommendation #2: The HECB and SBCTC will prepare a comprehensive estimate of costs and resources needed by community and technical colleges to provide support to a statewide "2+2" upper-division program.

Quality Programs

Currently, only one upper-division educational program has been proposed to be delivered statewide: the B.A. in Social Sciences offered by WSU. The degree program has been granted a limited pilot test by the HECB for four sites: Grays Harbor, Omak, Colville, and Walla Walla Penitentiary. The pilot test was initiated to allow program personnel to work the "kinks" out of a new degree program format intended for adult learners at a distance from the main campus. A pilot test of the curricula, support services, and format was essential to

provide WSU an opportunity to ensure that the educational program was of equivalent quality to that offered on the main campus.

The program has the potential to achieve worthwhile student outcomes, but it also could struggle to live up to expectations. The decision to extend the program to a statewide service area will be made by the HECB by June 1995: the decision will be based on a satisfactory assessment of the program, student achievement, and other materials.

Although the B.A. in Social Sciences uses a limited number of media (i.e., satellite, telephone), a program delivered by a range of media has the potential to be a powerful educational experience. The mixed-media format (i.e., satellite, computer conferencing, correspondence study, and in-person instruction) can provide students with a variety of learning mechanisms and has been endorsed by some distance-learning providers (e.g., Oregon State University). Therefore, the mixed-media format could be flexible enough to provide other upper-division programs. The lessons learned from WSU's pilot test will be helpful in determining future directions for distance education programs and learning how to deliver high-quality upper-division instruction to adult, distant learners. Recommendations 2, 4, 5, 6, and 7 address the development of policies to ensure quality programs.

Future Institutional Directions

The four-year institutions and the State Board for Community and Technical Colleges were asked to review their plans for educational telecommunications and distance-education possibilities for a five-year period, 1992-1997. The following summarizes current thinking about future development of services or infrastructure:

University of Washington. The UW intends to use educational telecommunications to support engineering instruction at the branch campuses as well as to augment continuing education opportunities for the health professions. The UW has uplink capacity and would be able to develop a statewide upper-division program in a discipline that will not be duplicated by another institution.

Washington State University. The WHETS system will be extended to Wenatchee Valley College by Fall 1993; WHETS should also be extended to the Yakima area. Both sites would receive an upper-division program in nursing. Further extensions of WHETS should weigh the benefits against other existing technologies. No new statewide upper-division programs are being contemplated, but WSU's experience with the B.A. in Social Sciences may well equip them to add a second statewide upper-division program in a different discipline area in the future.

Central Washington University. CWU should pursue a connection to WHETS

in order to better serve the communities of Wenatchee and Yakima through WHETS classrooms at Wenatchee Valley College and Yakima Valley College. This will require an upgrade of the analog links to digital for sufficient capacity to allow CWU and WSU to offer courses concurrently.

Eastern Washington University. At present, EWU is oriented to providing better service to/from Cheney and Spokane. However, with satellite uplink capability located at ESD 101 in Spokane and/or the development of other low-cost technologies, EWU could develop a statewide upper-division program in a discipline area that is not duplicated by another institution.

The Evergreen State College. Evergreen plans to use educational telecommunications to augment on-campus programs.

Western Washington University. WWU, through the Western Connect Demonstration Project, presently leases uplink equipment. However, with permanent equipment, WWU would be able to better serve the Olympic Peninsula or to develop a statewide upper-division program in a unduplicated discipline or professional area.

State Board for Community and Technical Colleges. The community and technical college system is equipped to originate (at Bellevue Community College) and receive satellite instruction (at all community and technical colleges). Future plans include connecting the campuses with fiber optics, which could be extended to four-year institutions offering 2+2 programs.

SUPPORTING POLICIES

Service Area

The designation of a service area for telecommunicated or mixed-media programs is influenced by the answers to two questions. First, how large a geographic area (and thus, how far students are from the main campus) can an institution serve and ensure a quality education? Second, how many students (and thus, how large a geographic service area) are required to make a program cost-effective?

The *Guidelines for Program Planning and Approval* adopted by the HECB in September 1992 designated regional service areas for off-campus degree programs. These Guidelines should continue to govern the offering of off-campus degree programs offered via in-person instruction. However, telecommunicated or mixed-media programs need not be limited to the

same regional service areas.

Quality and cost questions cannot be answered now with available information. Therefore, it makes sense to proceed carefully on this issue and decide the appropriate service area for each program on a case-by-case basis. Much can be learned from an institution conducting a thorough pilot test of a new program or technology in a limited service area. A statewide service area for a telecommunicated degree program should result from a careful needs assessment and a successful testing of the program on a limited population. At this stage of experience, a degree program that has proven it can provide quality education to distant students with the technology should be considered for a statewide service area.

However, telecommunicated degree programs have the potential for duplicating other state-supported programs. This potential prompts additional questions. First, will a statewide service area for a telecommunicated degree program preclude the need for off-campus programs in the same disciplinary area? Second, will a telecommunicated program impact the demand for similar programs at the main campuses of the four-year institutions? Third, HECB policy (*Master Plan for Higher Education*, HECB 1987) indicated that "Telecommunications will be the principal source of upper-division and graduate-level service for smaller urban areas and rural communities" (p. 16). Should telecommunications be restricted to these areas or should this policy be revised? These questions indicate a need for further policy discussions.

> Recommendation #3: The HECB, in conjunction with the four-year institutions, will develop policies related to service areas and program duplication.

Quality

The state's investment in telecommunications, the student's investment of time and money, and the institution's investment in people and effort is warranted only if the result is a quality education for students. However, ensuring that distant students receive a quality education requires new, different, and/or more intensive effort on the part of students, faculty, and the institution.

Students. Students located at distance from the main educational facility face several hurdles to gaining a quality education. First, they must have, or gain access to, appropriate equipment, e.g., computers, modem, FAX machine, VCR. While much of this equipment is to be found in many American homes, it is not universal. Second, they must learn how to use telecommunications equipment, how to interact successfully over the medium, how to get assistance from a distant provider, and how to ensure that their educational needs are met. Third, getting an education via telecommunications or mixed media will require that a student show initiative and be highly motivated. Fortunately, many distance learners display these characteristics. However, if these are essential characteristics for academic success, they may

need to be incorporated into student screening or recruitment procedures or be developed early in the educational program.

> Recommendation #4: The HECB will request institutions involved in telecommunicated or mixed-media programs to develop policies and programs for student training and readiness.

Faculty. To be successful with new media, faculty will need to learn how to make best educational use of the media to ensure student learning. Many will need time and assistance to change their traditional instructional style or course curricula to adjust to the media or the needs of adult distant learners. Faculty members using new media find themselves consciously thinking about how to ensure student learning, how to assure sufficient interaction among students, and how to document whether students have achieved the program outcomes.

> Recommendation #5: The HECB will request institutions engaged in telecommunicated or mixed-media programs to develop policies and programs for faculty development.

Curricula. The course content and learning objectives need to be consistent with the advantages and/or constraints of a particular media. Some types of courses may be appropriate for satellite but inappropriate for correspondence study. Seminars, where discussion and interaction are important, will require a medium that allows greater interaction, such as computer conferencing, video conferencing, or a workshop on campus. Videotaped courses may be appropriate for the dissemination of information and for students with good aural skills, but courses requiring the acquisition and practice of inquiry skills would be better suited to satellite. Resolution of these issues is important for maximizing the student's learning experience.

> Recommendation #6: The HECB will request institutions engaged in telecommunicated or mixed-media programs to develop policies and programs for identifying appropriate media for each course or program and student objectives.

Institution. The institution provides the distant learner with essential support services. Without these services, it is unlikely that the student will receive a quality education or finish his/her degree. Areas within the institution which must rethink and revise their normal ways of providing student services are the library, registration, financial aid, and advising. Also, course materials must be forwarded to students in a timely manner, all technical aspects of course transmission must be of high quality, and financial accounting must support the institution's need for information about costs. In addition, on-site personnel should be available to help students with institutional regulations, course advising, and trouble-shooting.

Interaction among faculty and students and among students at different sites is critical to a quality education and engenders student involvement and commitment (and thus, persistence).

Therefore, the institution should develop standards that may take the form of requiring various opportunities for interaction and/or training for faculty and students on the need and means for becoming more involved.

While the above is not a lengthy list nor does it convey the importance of these services, it illustrates how telecommunicated or mixed-media programs demand change from sponsoring institutions, change from personnel, and change in procedures. Other policy areas which may require revision are:

- requirements for on-campus residency for students learning at a distance,
- release time and instructional support for faculty preparing courses delivered by telecommunications,
- evaluation, promotion, and tenure rules for faculty involved in telecommunicated instruction, and
- sequencing of telecommunicated courses. (Olcott, 1990)

Fortunately, excellent guides to developing distance degree programs are available to help institutions new to telecommunications and distance degree programs decide whether and how to proceed (see Corporation for Public Broadcasting, 1992; Duning et al., 1993).

> Recommendation #7: The HECB will request institutions involved in telecommunicated or mixed-media programs to develop appropriate policies to ensure that a) quality on-site and on-campus support services are provided to students, b) interaction among faculty and students occurs, and c) other academic policies support the distance-learning program.

Appendix E lists areas that can contribute to the delivery of a quality education using telecommunications or mixed media. It should be modified as experience is gained with these types of programs.

Cost

Types of Costs. Cost areas can be divided into capital and operating, and both may be needed. While some of the capital or infrastructure (e.g., technology, equipment) is already in place, some of the infrastructure must be upgraded (e.g., digitizing the Tri-Cities to Wenatchee WHETS link) or initiated (e.g., CWU connection into WHETS).

Operating costs can be separated into two phases: development and operation. During the development phase, an institution must involve all aspects of the university community (e.g., faculty, students, library, support staff) to design a quality education for distant learners. No complete estimate has been made of development costs, but these may be substantial: planning

to change how activities are presently done, training for existing personnel on new technologies or procedures, designing new curricula, and establishing new activities for distant learners.

The cost of operating an on-going upper-division program has not been estimated. The experience of WSU with the B.A. in Social Sciences should provide information on these costs. These include, but are not limited to, faculty time, added responsibilities for support staff (e.g., registration, advising, financial aid), new library materials, new telephone lines, added mail costs, payment of on-site personnel, and all technology-related costs.

Cost Information. No reliable cost data are available for programs of this type. Cost estimates for the development of a new program and for the first two years of operation are necessary in order to convey to the state the cost of the proposed state policies above.

> Recommendation #8: The HECB, in conjunction with WSU and other interested four-year institutions, will develop cost information to assess the cost of developing statewide "2+2" upper-division education programs. Information should include, but not be limited to, an estimate of:
>
> a) the cost of adding technology to complete the necessary infrastructure;
> b) the cost of developing the program;
> c) the cost of operating a program statewide;
> d) the cost of making the program self-supporting (e.g., tuition rates, grants);
> e) the cost of sharing program costs between students (i.e., tuition) and the state (i.e., subsidy); and/or
> f) "critical mass" of students necessary to support program costs.

State Policies. Without reliable cost information, it is difficult to develop appropriate state policies on how distance education programs should be supported. Policy development should follow the review of cost information and address the questions which follow. Should these programs be self-sustaining? How much would this policy cost students? Should the state support the development of a distance education program? For how much and how long? Should the state share the support of the program with students? At what percentage of cost would tuition be set? How could financial aid programs support students in distance-education programs?

> Recommendation #9: The HECB, in conjunction with the SBCTC and four-year institutions, will develop state policy on the support of distance-education programs.

Coordination

Two levels of coordination are necessary. First, at the course level, individual upper-

division programs should be coordinated with other programs to identify courses which may be shared.

> Recommendation #10: The HECB, in conjunction with the SBCTC and two- and four-year institutions, will develop criteria and/or a procedure for course-sharing among institutions providing statewide telecommunicated programs.

Second, proposed distance education programs must be coordinated to prevent duplication and ensure the best use of state resources. This may be accomplished through the program planning process outlined in the HECB's *Guidelines for Program Planning and Approval.* Institutions would submit to the HECB their proposed upper-division programs to be delivered via telecommunications or mixed media in their regular program plans. Based on a statewide perspective and the input of other educational agencies (e.g., SBCTC), the HECB would approve the development of the program. Once developed, the program proposal would be reviewed by the HECB.

> Recommendation #11: The HECB, in conjunction with the four-year institutions, will prepare a development plan based on institutional program plans to be submitted September 1993 (and subsequent years following). This plan would identify upper-division programs to be developed by each institution and delivered fully or partially by telecommunications.

Evaluation

Programs that use new technology, new processes, or new ideas invariably generate skepticism and greater scrutiny. The careful and thorough evaluation of telecommunicated or mixed-media programs will be essential both to allaying fear of the "new" and to ensuring that all programs are of high quality.

At a minimum, two types of evaluation need to occur. The most important is student outcomes assessment, or information provided to program personnel on how well students are acquiring the knowledge, skills, and behaviors outlined in the program objectives. This information assists faculty and other institutional staff to identify areas that need improvement and to implement changes to ensure student learning. This evaluation would be designed for use by program personnel, with data available to the HECB on request.

The second type evaluates the benefits of the program and/or technology. This could include, but is not limited to, the impact the program or technology is having on the institution, the community served, and the state. This evaluation would be designed for use by the institution, with data available to the HECB on request.

Recommendation #12: The HECB, in conjunction with the two- and four-year institutions, will prepare an outline of information to be incorporated in evaluations of telecommunicated programs.

OTHER FUTURE CONSIDERATIONS

Out-of-State Providers

The attractiveness of delivering educational programs using telecommunications has meant an increase in the number and type of out-of-state educational providers who wish to telecast or transmit their programs to the residents of the state. For example, National Technological University (NTU), an out-of-state institution, uses satellite technology to deliver courses to businesses and universities across the United States. Mind Extension University, another out-of-state institution, uses satellite and cable television to provide instruction to learners in several states, including Washington.

On the national front, several state authorization agencies, the State Higher Education Executive Officers (SHEEO) organization, and the Western Interstate Commission for Higher Education (WICHE) have discussed coordinating the review and approval of programs offered across state lines. Washington needs to continue monitoring these national and regional efforts and to prepare for an anticipated increase in telecommunicated degree programs offered by institutions not domiciled in the state.

Recommendation #13: The HECB will develop state policy on out-of-state providers of telecommunicated instruction.

K-12 Reform, Internet, and Other Opportunities

Efforts at K-12 reform in Washington schools and an extensive telecommunications infrastructure serving the school system necessitate that planning for distance postsecondary education coordinate closely with K-12 education. Any technology chosen to serve the needs of distance education for the postsecondary system must increase the potential for collaboration with K-12 education which can, in turn, forge working partnerships between schools and colleges for the purpose of reform and revitalization.

Internet has quickly become the standard for electronic communications among universities in the United States. Five of the six public four-year institutions are connected to Internet, and through Internet to universities, public agencies, researchers, libraries, and

companies across the globe. The Washington Systemic Initiative (a collaborative proposal of K-12 and higher education for the improvement of math, science, and technology education) recently proposed that connecting K-12 schools to the Internet could be an important mechanism for increasing educational partnerships among K-12 teachers, university faculty, and students. Internet could become the "electronic highway" for conversations about K-12 reform, science projects, student research, and curriculum development.

Although Internet and other new technologies could augment the delivery of distance-education programs, they may offer much more. As the planning process outlined in this document proceeds, other technologies and the opportunities they represent will need to be discussed and incorporated into the policy framework of this, and other, plans.

> Recommendation #14: The HECB, in conjunction with other state agencies and institutions, will continue to incorporate K-12 reform efforts and emerging technical developments into appropriate policy documents.

QUESTIONS FOR BOARD REVIEW

Telecommunicated Degree Programs

In addition to program approval criteria set forth in *Guidelines for Program Planning and Approval*, the HECB should consider the following list of questions in evaluating programs to be delivered by telecommunications:

1. Does the telecommunications project support the institution's ***role and mission***?

2. Is there evidence that the program is ***needed***, in terms of student desires, employment possibilities, requirements of the community, other statewide needs, or lack of reasonable access to alternate providers?

3. Is the use of telecommunications a ***means to an end***, or does use of the technology appear to be an end in itself?

4. Will the program use the most ***cost-effective technology*** or will it use ***existing (public or private) infrastructure***?

5. Has the program considered the use of ***shared resources***, or does it allow for future sharing of resources?

6. Is the program *responsive to the needs* of the K-12 system, community and technical colleges, other four-year institutions, and/or other state agencies?

7. Does the program use *appropriate technologies* to meet the student's educational goals and other program objectives?

8. Is the program consistent with *national* efforts in telecommunications?

9. Will the program be compatible with the requirements of the *Americans with Disabilities Act*?

10. Will the program provide a *quality education* to all learners?

11. Does the program assure ample *interaction* between faculty and students and among students?

This list of questions may be augmented with additional areas of concern pertinent to the individual program.

Infrastructure-Related Requests

The Department of Information Services (DIS) has responsibility for forwarding recommendations to the Governor and Legislature on purchases of telecommunications infrastructure that support educational programs or activities. However, the HECB should review capital or operating budget requests to purchase or extend existing video telecommunications infrastructure where one or more of the following conditions apply:

1. The request places one institution in another institution's service area;

2. The request is in support of one or more degree programs; or

3. The request can take advantage of collaboration with a local community or technical college.

Recommendation #15: The HECB provide to DIS, for consideration during their review of budget requests, a policy analysis of institutions' telecommunications-related projects in areas that are the statutory responsibility of the HECB (e.g., service areas, degree programs, coordination).

REVIEW OF PLAN AND POLICIES

This plan is intended to be an interim document that will guide policy over the near term. More importantly, it should stimulate discussion on the above issues and guide further study over the 1993-95 and 1995-97 biennia (see below). Given the rapidity of technological change, the vision outlined in this document will need to be assessed continuously and modified as appropriate. Also, the availability of state resources to support new telecommunications initiatives may brake progress toward the proposed plan. On the other hand, the state's constrained resources demand that postsecondary education plan carefully, act collectively, and maximize resources.

> Recommendation #16: Upon adoption of the Plan by the HECB, the policies governing telecommunicated or mixed-media degree programs will be incorporated into the Board's *Guidelines for Program Planning and Development* (HECB, 1992). The HECB Distance Education Plan will be reviewed by HECB staff at the close of the 1993-95 and 1995-97 biennia for possible revision.

FUTURE STUDY

The following section reviews the recommendations in this document. A draft timeline follows the recommendations and apportions the work for accomplishing the recommendations over two biennia. This timeline is intended to guide staff in pursuing the objectives in the workplan, but may be revised to incorporate new developments and/or emerging needs.

Recommendation #1:	The HECB will continue to monitor technical developments as they affect the infrastructure that supports the delivery of distance education programs and will recommend, where appropriate, proposed enhancements to existing infrastructure or new technologies to be pursued.
Recommendation #2:	The HECB and SBCTC will prepare a comprehensive estimate of the costs and resources needed for the community and technical colleges to provide support to a statewide "2+2" upper-division program.
Recommendation #3:	The HECB, in conjunction with the four-year institutions, will develop policies related to service areas and program duplication.

Recommendation #4: The HECB will request institutions involved in telecommunicated or mixed-media programs to develop policies and programs for student training and readiness.

Recommendation #5: The HECB will request institutions engaged in telecommunicated or mixed-media programs to develop policies and programs for faculty development.

Recommendation #6: The HECB will request institutions engaged in telecommunicated or mixed-media programs to develop policies and programs for identifying appropriate media for each course or program's curricula and student objectives.

Recommendation #7: The HECB will request institutions involved in telecommunicated or mixed-media programs to develop appropriate policies to ensure that a) quality on-site and on-campus support services are provided to students, b) interaction among faculty and students occurs, and c) other academic policies support the distance-learning program.

Recommendation #8: The HECB, in conjunction with WSU and other interested four-year institutions, will develop cost information to assess the cost of developing statewide "2+2" upper-division education programs. Information should include, but not be limited to, an estimate of:

a) the cost of adding technology to complete the necessary infrastructure;
b) the cost of developing the program;
c) the cost of operating a program statewide;
d) the cost of making the program self-supporting (e.g., tuition rates, grants);
e) the cost of sharing program costs between students (i.e., tuition) and the state (i.e., subsidy); and/or
f) "critical mass" of students necessary to support program costs.

Recommendation #9: The HECB, in conjunction with the SBCTC and four-year institutions, will develop state policy on the support of distance-education programs.

Recommendation #10: The HECB, in conjunction with the SBCTC and two- and four-year institutions, will develop criteria and/or a procedure for discussing course-sharing among institutions providing statewide telecommunicated programs.

Recommendation #11: The HECB, in conjunction with the four-year institutions, will prepare a program development plan based on institutional program plans to be submitted September 1993 (and subsequent years following). This plan would identify new upper-division programs to be developed by one institution and delivered fully or partially by telecommunications.

Recommendation #12: The HECB, in conjunction with the two- and four-year institutions, will prepare an outline of information to be incorporated in the evaluation of telecommunicated programs.

Recommendation #13: The HECB will develop state policy on out-of-state providers of telecommunicated instruction.

Recommendation #14: The HECB, in conjunction with other state agencies and institutions, will continue to incorporate new technical developments into appropriate policy documents.

Recommendation #15: The HECB will provide to DIS, for consideration during their review of budget requests, a policy analysis of institutions' telecommunications-related projects in areas that are the statutory responsibility of the HECB (e.g., service areas, degree programs, coordination).

Recommendation #16: Upon adoption of the Plan by the HECB, the policies governing telecommunicated or mixed-media degree programs will be incorporated into the Board's *Guidelines for Program Planning and Development.* The HECB Distance Education Plan will be reviewed by HECB staff at the close of the 1993-95 and 1995-97 biennia for possible revision.

Proposed Timeline for Accomplishing Recommendations

Recommendation	1993-95	1995-97
1. Enhance infrastructure	/----------/	/----------/
2. Estimate community college needs	/----------/	
3. Develop service area policies	/----------/	
4. Develop student training policies	/ . . . . . WSU . . . . . /	/----------/
5. Develop faculty development policies	/ . . . . . WSU . . . . . /	/----------/
6. Develop media selection policies	/ . . . . . WSU . . . . . /	/----------/
7. Develop interaction policies	/ . . . . . WSU . . . . . /	/----------/
8. Estimate costs	/----------/	
9. Develop state support policies		/----------/
10. Develop course-sharing policies		/----------/
11. Prepare program development plan	/----------/	
12. Prepare evaluation information	/----------/	
13. Develop policies on out-of-state providers	/----------/	
14. Include K-12 reform and Internet	/----------/	
15. Analyze budget requests	/----------/	
16. Revise Guidelines and review plan	/----------/	

NOTES: *Given WSU's experience with distance education and prior policy development in these areas, WSU is likely to address Recommendations 4, 5, 6, and 7 earlier in the planning process.*

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APPENDICES

APPENDIX A
Advisory Forum Membership

Ron Johnson, Associate Vice Provost
Computing & Communications
University of Washington

Jerry Hosman, Dean
Division of Education & Psychology
Heritage College

Don Hanna, Associate Vice Provost
Extended University Services
Washington State University

Jerry Tucker, Head
Professional Studies
Gonzaga University

Bill Craig, Director
Media Center
James Kloster, Coordinator
Credit Continuing Education
Central Washington University

Ron Crossland, Associate Director
Educational Services
State Board for Community &
Technical Colleges

Terry Novak, Dean
Extension Programs
Eastern Washington University

Marilyn Freeman, Senior Planning &
Policy Consultant
Department of Information Services

Bill Bruner, Dean
Library Services
The Evergreen State College

Bill Allison, Associate Director
Business and Computing
Council of Presidents

Ken Symes, Vice Provost
Extended University Services
Western Washington University

Katrina Meyer, Assistant Director
Academic Affairs
Higher Education Coordinating Board

APPENDIX B
Existing Infrastructure in Washington State

At present, the state is served by two state-owned educational telecommunications systems: the Washington Higher Education Telecommunication System (WHETS) and satellite technology. Several privately-owned systems (e.g., cable TV, telephone) also exist, or are under development.

WHETS uses microwave-based technology to deliver point-to-point instruction that allows for two-way video and audio interaction. It is operated by WSU and delivers education to/from Pullman and the branch campuses in Tri-Cities, Southwest Washington, and Spokane. This part of the system has been recently digitized which increases the channels and number of courses that can be delivered concurrently. By Fall 1993, WHETS will be extended to Wenatchee Valley College; this extension uses analog technology that provides more restricted capacity. If funded by the 1993 Legislature, WHETS will also be extended to Yakima.

Satellite technology has been added to the state's telecommunication infrastructure. It depends upon three elements: an electronic classroom or uplink facility (to broadcast the program), satellite time, and downlink capacity (for the receiving site). Communication is two-way audio (through a telephone hookup) and one-way video. (Appendix C displays the satellite arrangement using satellite alone or in conjunction with cable TV).

Electronic classrooms or uplink facilities are located at Bellevue Community College, the University of Washington, Washington State University, Western Washington University, and ESD 101 in Spokane. The WWU equipment is leased and is used to support a contract with the Dept. of Social and Health Services.

The 1990 Legislature funded downlink equipment at all of the state's community and technical colleges for a total of 32 receive sites. WSU Cooperative Extension offices in the state's 39 counties are also equipped with downlink equipment. The STEP/STAR schools partnership program has equipped over 170 schools and nine educational service districts with downlink equipment. Appendix D displays the location of satellite downlink or receive sites across the state.

Other Media are available to augment or enhance the delivery of educational programs via these video telecommunications systems.

- *Computer conferencing* uses telephone lines to connect faculty and students.
- *Video conferencing* can also use telephone lines and has grown in use by business and industry.

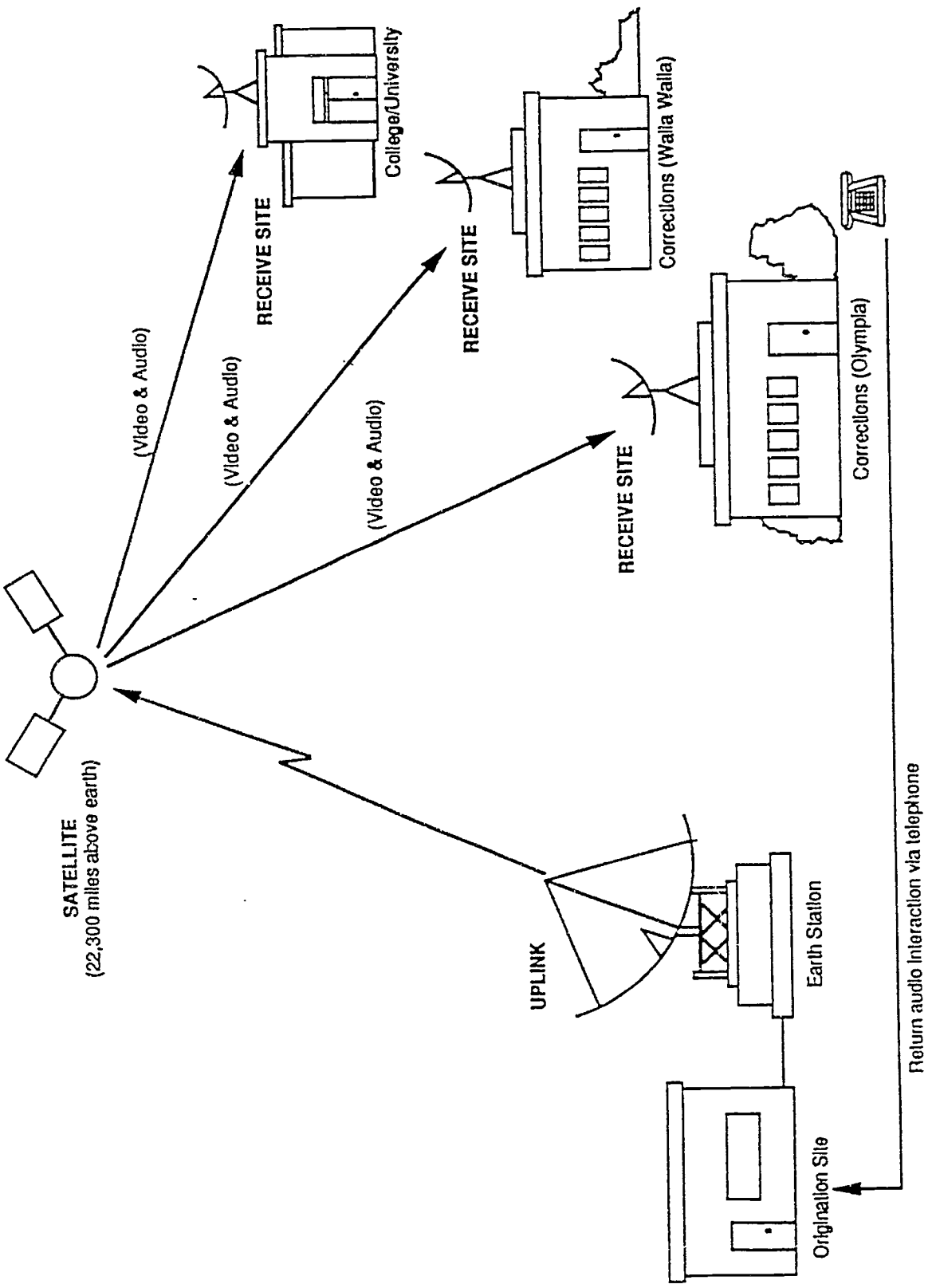
APPENDIX B
Existing Infrastructure in Washington State

- The *telephone* can also be used to augment classroom instruction with one-on-one assistance.
- *Videotaped courses* often depend upon the mails for delivery of tapes to the student or can be telecast to multiple sites over satellite.
- *Correspondence study* courses are also conducted through the mails and rely upon written assignments completed at the pace of the student.
- The *facsimile machine* augments mail service by providing a means for sharing written work and communicating with faculty.
- *Fiber optic* telephone lines allow for two-way video capacity but can be found in the Puget Sound, not in other portions of the state. Fiber optics will also be an important part of the telecommunications infrastructure.
- *Compressed video*, which can be sent to receiving sites over fiber optic telephone lines, is another viable medium for delivering educational programs using two-way communications.
- Lastly, local *cable television* channels televise courses and degree programs.

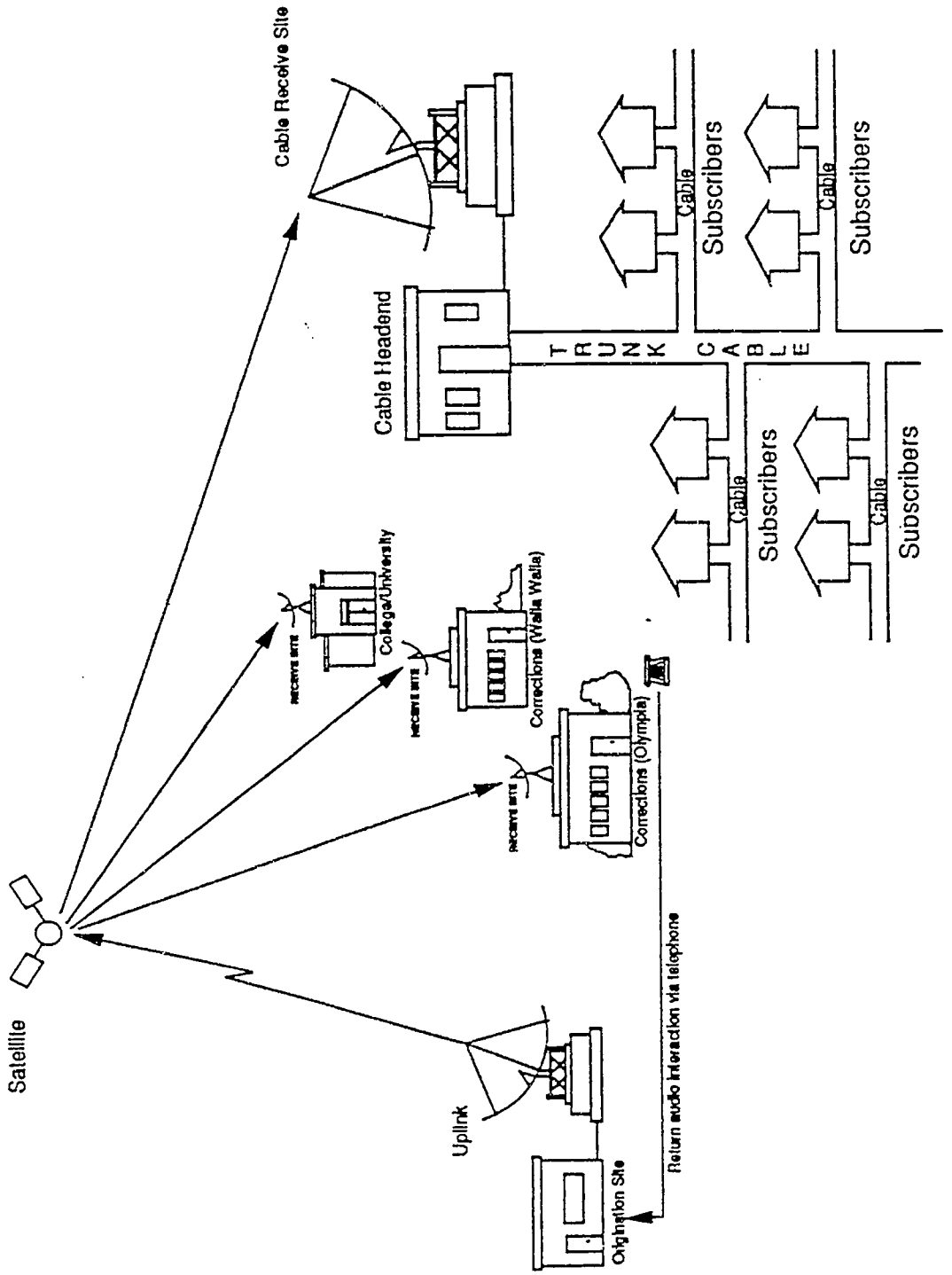
The state has a substantial investment in telecommunications infrastructure that can be used to provide educational programs to the state's citizens. This infrastructure, like all technologies, will continue to evolve and improve. However, it could support substantially more educational programming than is currently available.

A variety of in-state educational providers use telecommunications for some or part of their instruction. The ***University of Washington*** provides engineering coursework on videotapes to area businesses through the Televised Instruction in Engineering (TIE) program. CABLEARN, also operated by the UW, provides educational programs over local cable networks in the Puget Sound region. ***Washington State University*** provides one-way instruction to businesses in the Spokane area over Instructional Television Fixed Service (ITFS) microwave transmission to the business site. KWSU, operated by WSU, also provides educational programs over local cable networks in eastern Washington. ***Eastern Washington University*** provides in-service teacher training on local cable television for residents of Spokane.

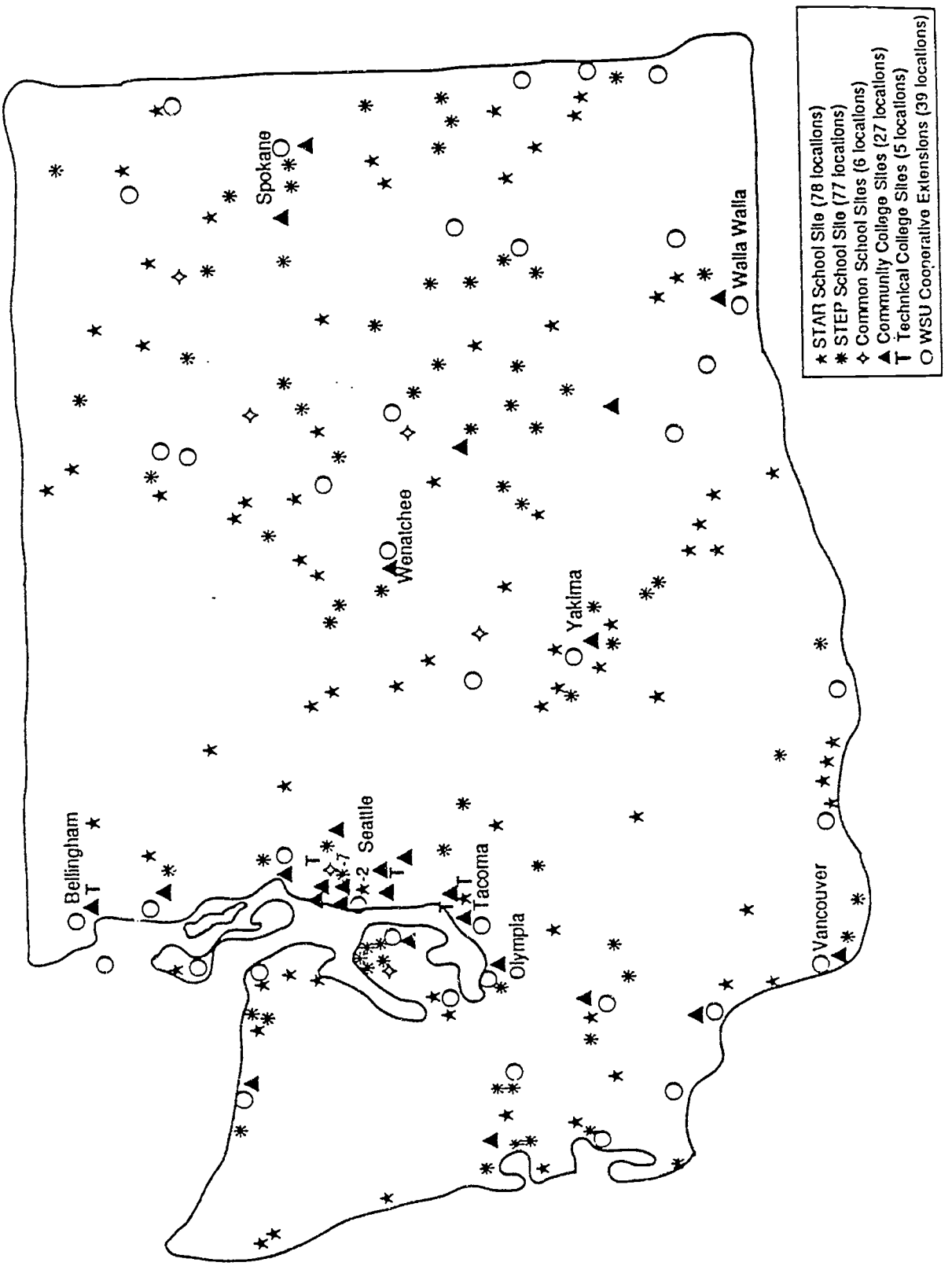
APPENDIX C
Satellite Arrangements -- Satellite Only



APPENDIX C
Satellite Arrangements -- Satellite and Cable TV



APPENDIX D
Satellite Downlink Sites



STEP School Locations

Adna School District
Almira School District
Bremerton School District
Cape Flattery School District (Sequim)
- Clallam Bay Elementary
- Neah Bay High School

Cascade School District (Leavenworth)
Cashmere School District
Central Kitsap School District (Silverdale)
- Central Kitsap High School
- Olympic High School

Central Valley School District (Spokane)
Colton School District
Columbia School District (Hunters)
Coulee-Hartline School District
Cresent School District (Joyce)
East Valley School District (Spokane)
Eastmont School District (Wenatchee)
Eatonville School District
Education Service District 105 (Yakima)
Education Service District 112 (Vancouver)
Education Service District 113 (Olympia)
Education Service District 114 (Bremerton)
Education Service District 123 (Walla Walla/Pasco)
Puget Sound Education Service District (Seattle)
Elma School District
Endicott School District
Freeman School District (Rockford)
Goldendale School District
Granger School District
Harrington School District
Highland School District (Cowiche)
Hoquiam School District
Lacrosse School District
Lake Chelan School District
Lind School District
Mary M. Knight School District (Elma)
Mary Walker School District (Springdale)
Marysville School District
Mercer Island School District
Moses Lake School District
North Franklin School District (Connell)
North River School District (Cosmopolis)
Oakesdale School District
Ocean Beach School District (Ilwaco)
Odessa School District
Omak School District
Onalaska School District
Othello School District
Reardan-Edwall School District
Republic School District
Riverside School District (Chattaroy)
Rosalia School District
Royal School District (Royal City)
St. John School District
Seattle School District
- Cleveland High School
- Eckstein Middle School
- Franklin High School
- Nathan Hale High School
- Roosevelt High School
- Washington Middle School

Sedro Woolley School District
Selkirk School District (Metaline Falls)
South Bend School District
South Kitsap School District
Sprague School District
Sumner School District
Tekoa School District
Trout Lake School District
Wahluke School District (Mattawa)
Warden School District
Washougal School District
White River School District (Buckley)
Wilbur School District
Wilson Creek School District
Winlock School District
Wishkah Valley School District (Aberdeen)
Yakima School District
Zillah School District

Community College Locations

Bellevue Community College
Big Bend Community College (Moses Lake)
Centralia Community College
Clark College (Vancouver)
Columbia Basin Community College (Pasco)
Edmonds Community College
Everett Community College
Grays Harbor Community College (Aberdeen)
Green River Community College (Auburn)
Highline Community College (Des Moines)
Lower Columbia Community College (Longview)
North Seattle Community College
Olympic Community College (Bremerton)
Peninsula Community College (Port Angeles)
Pierce Community College (Tacoma)
Seattle Central Community College
Shoreline Community College (Seattle)
Skagit Valley Community College (Mt. Vernon)
South Puget Sound Community College (Olympia)
South Seattle Community College
Spokane Community College
Spokane Falls Community College
Tacoma Community College
Walla Walla Community College
Wenatchee Valley Community College
Whatcom Community College (Bellingham)
Yakima Valley Community College

STAR School Locations

Bickleton High School
Brewster School District
Bridgeport Jr.-Sr. High School
Carbonado Elementary/Middle School
Cascade Middle School (Sedro Woolley)
Centralia High School
Chimacum Junior High School
Cle Elum High School
Colfax School District
- Colfax High School
- Jennings Elementary School

Coulee-Hartline School District
Cusick Middle/High School
Darrington High School
Davenport High School
Dayton High School
Deer Park High School
Easton School District
Entiat Jr.-Sr. High School
Ephrata High School
Forks High School
Garfield Elementary
Grandview High School
Grapeview School District
Hood Canal School District
Inchelium School District
Index Elementary
Jenkins Middle School (Chewelah)
Kalama Jr.-Sr. High School
Kettle Falls High School
Kittitas Jr.-Sr. High School
Liberty Jr.-Sr. High School
Lyle Secondary School
Mabton Jr.-Sr. High School
Mansfield Elementary/Secondary School
Mill A School District
Montesano Jr.-Sr. High School
Morris Schott Middle School (Mattawa)
Mount Baker High School
Naches Valley High School
Newport Jr.-Sr. High School
Northport High School
Oak Harbor Junior High
Ocosia Jr.-Sr. High School
Okanogan Jr.-Sr. High School
Orondo Elementary
Oroville High School
Pe Ell Elementary & Secondary School
Port Townsend School District
Prescott Jr.-Sr. High School
Prosser High School
Pullman School District
- Lincoln Middle School
- Pullman High School

Queets-Clearwater School Dist (Forks)
Quilcene Elementary
Raymond Jr.-Sr. High School
Ridgefield High School
Ritzville High School
Seattle School District
- Asa Mercer Middle School
- Ingraham High School

Sequim High School
Skykomish School District
Sultan School District
Sunnyside High School/Harrison Middle School
Tacoma STAR Center
Taholah School District
Tieton Middle School
Tonasket High School
Union Gap Elementary
Waitsburg Secondary School
Washtucna Jr.-Sr. High School
White Pass Jr.-Sr. High School
White Salmon Valley School District
- Columbia High School
- Henkle Middle School

White Swan High School
Wind River Middle School
Yakima School District
- A.C. Davis High School
- Washington Middle School

Yelm High School

Technical College Locations

Bellingham
Clover Park (Tacoma)
Lake Washington (Kirkland)
L. H. Bates (Tacoma)
Renton

Other Locations

Lake Roosevelt High School (Grand Coulee)
North Mason High School (Belfair)
Seattle School District at TCI Cable Headend
Soap Lake High School
Thorp School District
Valley Elementary

WSU Cooperative Extensions

Ritzville
Asotin
Prosser
Wenatchee
Port Angeles
Vancouver
Dayton
Kelso
Waterville
Republic
Pasco
Pomeroy
Ephrata
Montesano
Coupeville
Port Townsend
Seattle
Port Orchard
Ellensburg
Goldendale
Chehalis
Davenport
Shelton
Okanogan
South Bend
Newport
Tacoma
Friday Harbor
Mount Vernon
Stevenson
Everett
Spokane
Colville
Olympia
Cathlamet
Walla Walla
Bellingham
Colfax
Yakima

APPENDIX D
Satellite Downlink Sites

APPENDIX E
Requirements for a Quality Program

PROGRAM-RELATED:

Quality of Program
- Faculty orientation & development
- Instruction
- Learning materials
- Faculty-student interaction
- Student-student interaction

Learner Outcomes
- Student skills & knowledge
- Time-to-completion
- Dropouts & completers
- Placement
- Value-added learning

Access
- Geographic coverage
- Enrollment
- Target group

Relevance to Needs and Expectations
- Individual/student
- Societal
- Employment
- Community or local

Impact
- Overall success
- Students
- Graduates
- Employers
- Institution

Effectiveness and Efficiency
- Needs met
- Demands
- Cost

Generation of New Knowledge
- New practices
- New ideas
- New directions

INSTITUTION-RELATED:

Academic Planning & Evaluation
- Academic planning
- Curriculum development
- Course design
- Academic policies
- Faculty selection & development

Academic Support
- Technology support
- Materials
- Library
- Course advising
- On-site support

Student Services
- 800 Number
- Transcript evaluation
- Admissions
- Registration
- Financial aid

Technical Support
- Computer conferencing
- Voice mail
- Course development
- Audio/video conferencing
- Transmission

Budget and Accounting
- Planning & monitoring
- Reporting

External Relations
- Funding agencies
- Legislature
- Community groups
- K-12 system
- Two-/Four-year institutions
- Business & industry

SOURCES: *Modified from Verduin and Clark (1991) and Washington State University "Components of Quality."*

RICHARD R. SONSTELIE
Chair

ELSON S. FLOYD
Executive Director

STATE OF WASHINGTON
HIGHER EDUCATION COORDINATING BOARD
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RESOLUTION NO. 93-23

WHEREAS, The Higher Education Coordinating Board has reviewed the Distance Education Workplan; and

WHEREAS, The workplan outlines a general direction and vision for some statewide upper-division programs to be delivered by telecommunications and other mixed-media formats; and

WHEREAS, Further planning must be undertaken prior to initiating these programs, which will address enhancements to infrastructure, program design, policy development, and cost estimation; and

WHEREAS, The recommendations direct staff to undertake appropriate policy discussions with the Department of Information Services, the State Board for Community and Technical Colleges, the two- and four-year institutions, and the K-12 system;

THEREFORE, BE IT RESOLVED The Higher Education Coordinating Board endorses the workplan, *Planning for Distance Education and Supporting Policies*.

Adopted:
July 29, 1993

Attest:

Richard R. Sonstelie

Mary C. James