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Since 1963, 18 campuses have been developed in Ohio at public institutions of higher education offering a 2-year program in technical education. Three additional centers for technical education are being developed. In 1967-69 more than 14,000 students were enrolled in 215 different technical education programs with nearly 2,000 associate degrees earned in the academic year ending June 30, 1968. Supplemented by federal funds over $52 million appropriated by the Ohio General Assembly has been spent for these 2-year campuses. The Ohio Board of Regents and the State Board of Education consider technical education beyond high school an integral part of higher education, and the former has established appropriate standards for curriculum, faculty and facilities. As funds become available, the Ohio Board of Regents plans to extend the network of technical education centers, to improve the financial support of technical education, and to encourage increased student and employer understanding and acceptance of technical education. (MU)

TECHNICAL EDUCATION
in
Ohio's State-Assisted Institutions
of Higher Education

A Report of Progress

Ohio Board of Regents
1968

TECHNICAL EDUCATION

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Ohio's State-Assisted Institutions of Higher Education

Progress Report

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Ohio Board of Regents
88 East Broad Street
Columbus
1968

SUMMARY

. Since 1963 eighteen campuses have been developed in Ohio at public institutions of higher education offering a two-year program in technical education. Three additional centers of technical education are being developed, and eight more are under consideration as such centers.

. In 1967-68 more than 14,000 students were enrolled in technical education programs. Nearly 2,000 associate degrees were awarded in technical education in the academic year ending June 30, 1968.

. As of 1967-68 a total of 215 different technical education programs for the associate degree had been approved by the Ohio Board of Regents, representing over 100 separate occupational titles.

. From the bond issues approved by Ohio voters in 1963 and in 1965, and from the funds appropriated by the Ohio General Assembly upon recommendation of the Governor, over 52 million dollars has been spent for two-year campuses where technical education is being offered. These funds have been supplemented by federal funds.

. The Ohio Board of Regents has insisted that technical education beyond the high school should be considered an integral part of higher education. Agreement on this principle has been reached with the State Board of Education. Appropriate standards for curriculum, faculty, and facilities have been established by the Board of Regents. Opportunities to continue higher education are available to the technical education student.

• The Ohio Board of Regents in the years just ahead, as funds become available, plans to extend the network of technical education centers where population and employment needs require, to improve the financial arrangements for support of technical education, and to encourage increased student and employer understanding and acceptance of technical education.

TECHNICAL EDUCATION
in
Ohio's State-Assisted Institutions
of Higher Education

Technical Education has been a major concern of the Ohio Board of Regents since the Board was established during the fall of 1963. The purpose of this report is to summarize developments in this field during the past five years.

The Master Plan

The Board of Regents is charged by the Ohio General Assembly to "make studies of state policy in the field of higher education and formulate a master plan for higher education for the state, considering the needs of the people, the needs of the state, and the role of individual public and private institutions within the state in fulfilling these needs". Prior to formulating the state's first master plan for higher education, the Board of Regents engaged an educational research organization, the Academy for Educational Development, to conduct a fact-finding background survey of Ohio's unmet needs for higher education and of the current state of higher education in Ohio.

One of the reports of the Academy dealt with the subject of technical education and was authored by Lester M. Nelson, Associate Director, Education Program, of the Ford Foundation, and Mark Ellingson, President, Rochester Institute of Technology. This report characterized technical education in Ohio as being in its infancy and recommended among other things, that:

1. Technical education should be conceived of as applying to the preparation of personnel to work in close support of professional personnel in all areas of recognized professional activity.

2. Technical education should be recognized as a critically needed resource to enable our constantly limited supply of professional personnel to function at the top level of their professional competence, for as close to full time as possible in order to extend, improve, or expand their social or economic productivity.

3. Technical education should be recognized as an added dimension of educational opportunity for increasing numbers of persons who desire education beyond the high school but who, for various reasons (economic or other) do not desire to spend four years or more before entering upon gainful employment.

4. Technical education should be thought of as an expanding field, not limited to those areas requiring engineering and scientific skills only, but embracing newly developed fields of work.

5. Technical education should be recognized as higher education, and, as such, it should be recognized by the Associate Degree.

Subsequently, in the formulation of its Master Plan for State Policy in Higher Education, published in provisional form in the Spring of 1965 and in final form in June, 1966, the Board of Regents adopted these general recommendations of the Academy for Educational Development and set out a series of proposals for expanding Technical Education. The Master Plan included the following specific recommendations regarding technical education:

Recommendation 23. There is an apparent need for a larger number of two-year instructional programs in business technologies, health technologies, agricultural technologies, and engineering technologies to meet the employment demands of our increasingly technical economy.

Recommendation 24. Technical education programs to be of higher education quality should provide a curriculum in which approximately one-half of the course requirements consists of general education and basic courses and approximately one-half of the courses involve the appropriate technology.

Recommendation 25. Satisfactory completion of a two-year technical education curriculum should be recognized by award of the degree Associate in Applied Science or in Applied Business.

Recommendation 83. Technical institutes should be established in appropriate areas to offer two-year programs in technical education of higher education quality, with particular attention to engineering technologies, business technologies, agricultural technologies, and health technologies.

Recommendation 84. Technical institutes will be considered for districts with a minimum population of 50,000 people, with an evident unfulfilled need for technical education, and where other facilities are available for general education. The minimum desirable enrollment in a technical institution should be 500 full-time equivalent students.

Recommendation 85. Community colleges will be considered for counties or areas of contiguous counties with a minimum population of 100,000 people and with an evident unfulfilled need for two-year programs in technical and general education. Community colleges should be created only in areas where other institutions of higher education are not available or where other institutions appear unlikely to meet enrollment demand. Community colleges should be planned to have a minimum enrollment of 1,000 full-time equivalent students.

Recommendation 86. Community colleges provide lower division programs in general education and in technical education, and may also undertake public service activities (not subject to state financial support).

a. It is vitally important that the general education program of a community college be comparable to that provided by state assisted universities and university branches, and that the program maintain comparable standards of instruction.

b. It is desirable that community colleges give special attention and emphasis to their technical education programs.

Recommendation 88. A university branch should consist of a separate campus apart from the central campus of a public university, should have permanent facilities for day-time as well as for late afternoon and evening instruction, and should provide primarily a program in general education to students enrolled on a commuting basis. In cases where individual community circumstances warrant such service, arrangements may also be made to provide a technical education program.

Recommendation 94. Through its Community and Technical College, The University of Akron should prepare to meet the enrollment demand for two-year general and technical education programs in its area.

Recommendation 115. Through its Community and Technical College, The University of Toledo should prepare to meet the enrollment demand for two-year general and technical education programs in its area.

Minimum Standards

In addition to the responsibility for developing a master plan, the Board of Regents was given authority to charter and generally to oversee the operation of Community Colleges and Technical Institutes in Ohio. Both types of institution are specifically authorized by permanent law to develop programs of technical education, subject to standards established by the Board of Regents.

Having established the general principle in the Master Plan that technical education is a new kind of education which can develop within a variety of organizational forms (community colleges, technical institutes, university branches, and urban universities), the Board of Regents adopted standards which should be met wherever technical education is offered in Associate Degree programs. These standards are included as Appendix A, and set minimum levels of performance in faculty staffing, students and student services, curriculum length and content, library resources, and various institutional resources in areas of finance, minimum enrollments, and physical plant. All programs which seek to award the Associate Degree for two-year technical education instruction have been required to meet these standards.

In the curriculum content provisions of these standards, an important principle was established concerning what constitutes a technical education program suitable for recognition as a part of higher education but yet effective in meeting job preparation goals. One-quarter of all course

credits in a curriculum must deal with knowledge which is basic to the field of study on which the particular technology rests, one-quarter must deal with general education subjects which are akin to higher education generally, and one-half must deal with the specific technical courses required to carry out the job goals of the curriculum. This particular pattern for curriculum design is intended to make possible the transfer of 50 per cent or more of the course credits in technical education programs to a senior college or university, without altering the primary job-entry goal of the programs. It is important to note also, that this pattern of technical education curriculum design has subsequently been adopted by the regional accrediting association to which all of Ohio's colleges and universities must look for approval of academic programs, the North Central Association of Colleges and Secondary Schools.

Memorandum of Understanding

Because of the considerable confusion which has surrounded the distinctions between vocational education at the secondary level and technical education at the higher education level, the State Department of Education and the staff of the Ohio Board of Regents have worked out a Memorandum of Understanding which clearly defines the two levels of education and defines the principal responsibilities of the two agencies in future developments. Acknowledging that leadership in vocational education should come from the Ohio Board of Education and that leadership in technical education should come from the Ohio Board of Regents, both Boards in March, 1967, approved a Memorandum of Understanding which is included herewith as Appendix B. This agreement, in casting technical education clearly within the sphere of higher education, is of extreme importance to the continued expansion of this form of education in Ohio.

Progress to Date

A considerable amount of progress has been made during the past five years in expanding activity in Associate Degree programs of technical education.

Very little activity existed in this area prior to 1963 in the state-assisted system of higher education. Technical education programs have been offered for a number of years by the Ohio College of Applied Science at Cincinnati, the Technical Division of the University of Dayton, and the Ohio Technical College at Columbus, all privately sponsored institutions. Only an occasional program had been undertaken by public institutions. In 1967, the three privately sponsored programs had a combined enrollment of about 1,600 students.

Financed by funds made available by the State bond issues of 1963 and 1965, a general expansion program was undertaken to build a geographically dispersed system of two-year state-assisted higher educational centers. In all, four community college campuses have been or are now being built, three technical institute campuses have been financed and two others are operating in plants provided without State capital investment, two urban university technical facilities have been financed, and permanent campuses of eighteen university branches have been built. All of these two-year centers are potential sites for the development of technical education programs and many now have such programs underway. Table 1 reports construction projects funded by the 1963 and 1965 bond issues which have directly supported the development of technical education programs.

Special priority was assigned in the Master Plan to the development of new and expanded centers of higher education in those areas of Ohio

Table 1

Construction Projects of the
1963 and 1965 Bond Issues
At Centers with Approved Associate Degree
Programs in Technical Education

	State Share of Project Cost
University of Akron Community and Technical College	$ 6,000,000
University of Toledo Community and Technical College	6,000,000
Cuyahoga Community College	14,021,000
Lakeland Community College	2,250,000
Lorain County Community College	6,469,000
Sinclair Community College	2,000,000
Clark County Technical Institute	2,000,000
Columbus Technical Institute	3,200,000
Jefferson County Technical Institute	1,800,000
University of Cincinnati, Walters Branch	2,169,000
Kent State University, Ashtabula Branch	1,925,000
Miami University, Middletown Branch	2,422,000
Miami University, Hamilton Branch	2,025,000
	$52,281,000

where the greatest population concentrations exist. This would appear to be a particularly sound approach to the location of technical education centers, wherein both the concentration of potential students and the proximity to participating businesses and industries are important. Map #1 shows the location of state-assisted technical education centers now offering approved Associate Degree programs. This map also shows those Ohio counties which have more than 100,000 population and which have been assigned high priority for expanded higher educational services in the Master Plan. At the present time eighteen locations offer one or more Associate Degree programs of technical education, three locations are undergoing active development, and consideration is being given to establishing technical education programs at eight other centers.

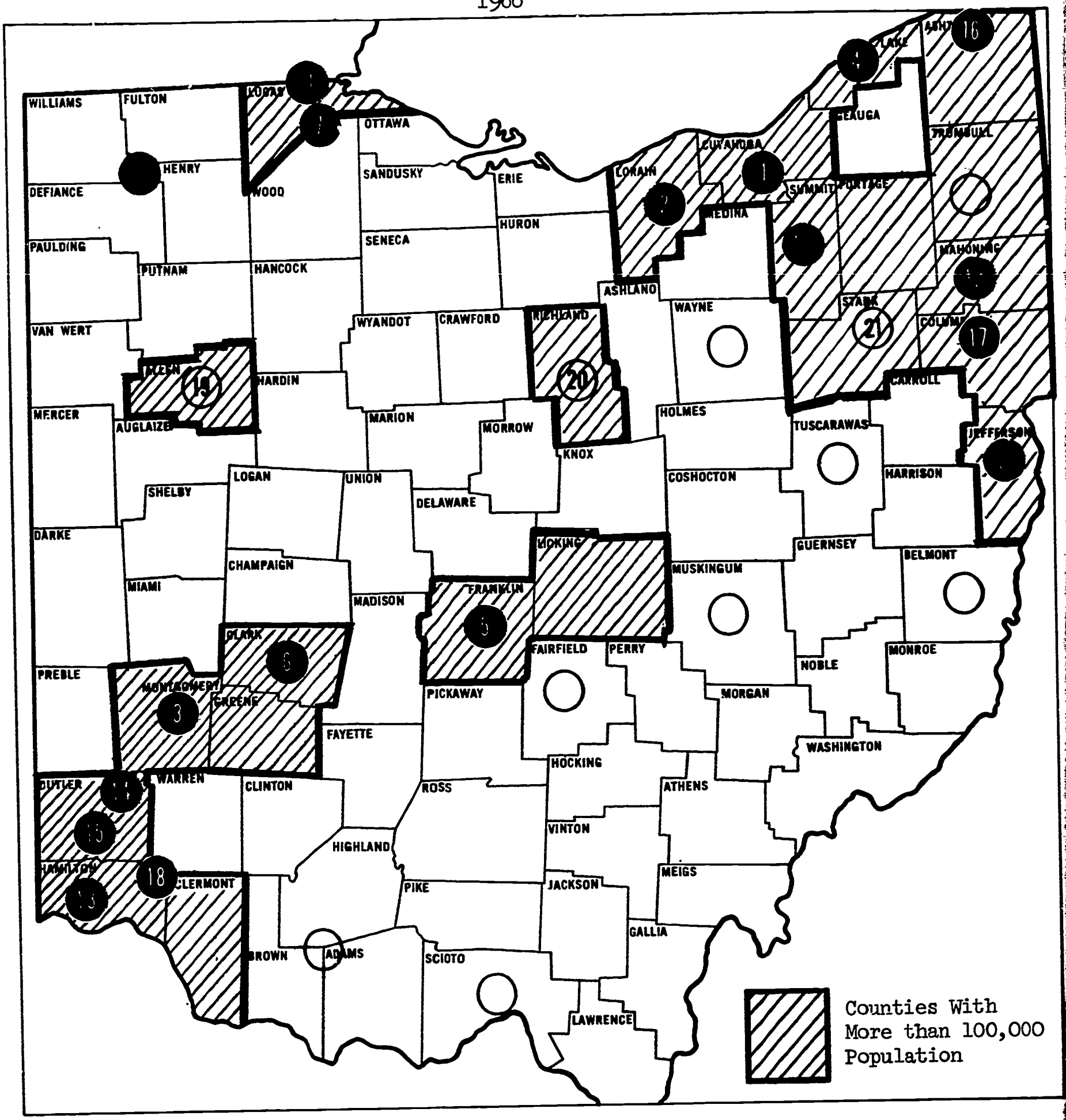
The Board of Regents has recommended the development at all centers of a variety of program offerings in order that students might have a choice of occupational goals. Most centers now offering Associate Degree programs of technical education have a variety of offerings. Map #2 reports the number of individual programs offered at the various centers under the jurisdiction of the Board of Regents.

Upon implementation of programs at the three centers now under active development a total of 87% of Ohio's population will live within commuting distance of a center of technical education. Map #3 illustrates this coverage of Ohio's principal population concentrations.

At the present time a total of 215 individual Associate Degree programs of technical education are being offered by Ohio's state-assisted

Technical Education Centers Offering Associate Degree Programs 1968

Map No. 1



Community Colleges

1. Cuyahoga
2. Lorain
3. Sinclair
4. Lakeland

Technical Institutes

5. Columbus
6. Clark
7. Penta
8. Jefferson
9. Four-County

State Universities

10. Akron
11. Toledo
12. Youngstown
13. Cincinnati

University Branches

14. Middletown
15. Hamilton
16. Ashtabula
17. Salem
18. Walters

Active Developments

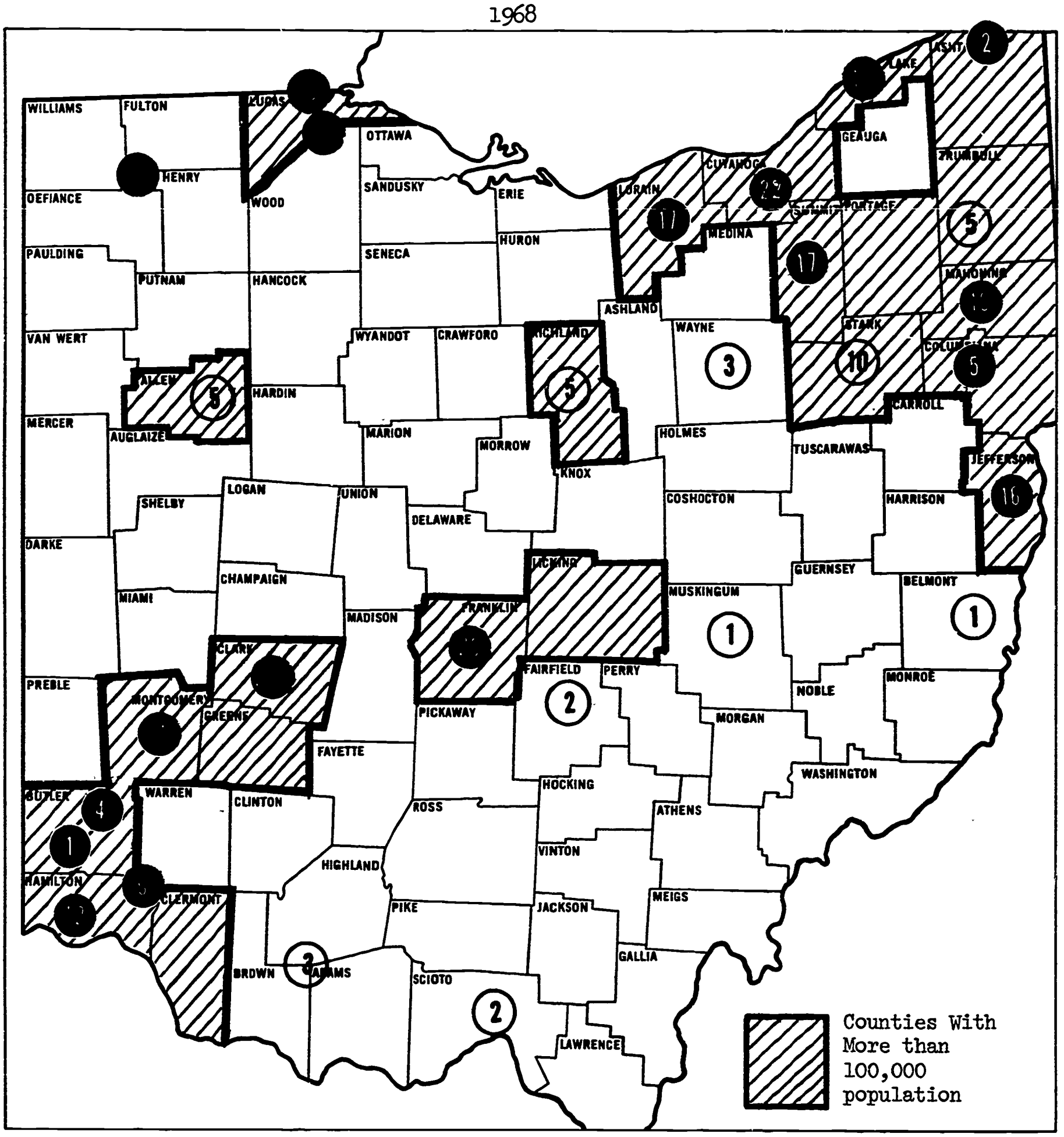
19. Lima
20. Mansfield
21. Canton

Under Consideration ○

Number of Programs

Associate Degree Programs of Technical Education 1968

Map No. 2

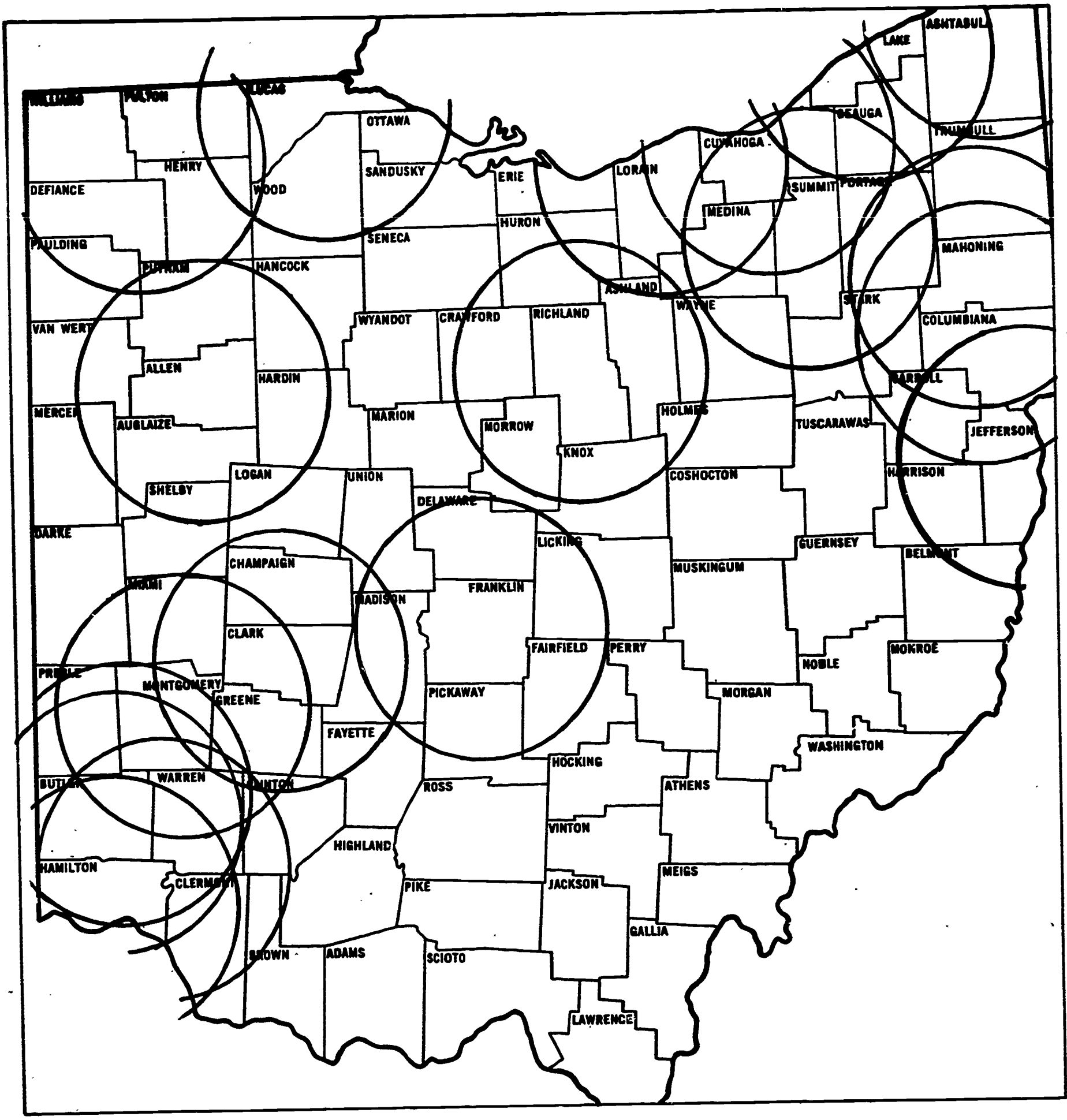


Approved Programs

Estimated Number of programs at Centers under consideration

Map No. 3

Commuting Service Areas of Technical Education Centers



Serving 87% of Ohio's population

institutions of higher education. As is shown by Table 2, 76 of these programs are offered at Technical Institutes, 60 are offered by Community Colleges, 58 are offered by technical divisions of urban-based senior universities, and 21 programs are offered by university branches. In this context an individual program represents a major field of study or a particular occupational goal which a student may choose to pursue. The 215 approved Associate Degree programs represent some 100 separate occupational titles, with some of the more popular occupations, of course, being offered by more than one of the centers. In addition, the various institutions list about 160 programs which they are likely to propose for development within the next three years. Many of these, of course, will refer to occupational titles already appearing in approved programs somewhere within the system of centers. A detailed inventory of Associate Degree programs now being offered or likely to be proposed in the near future is included as Appendix C.

Enrollments and Degrees Awarded

By the fall term of 1967 a total of some 14,000 students were enrolled in Associate Degree programs of technical education at the various state-assisted centers. Many of these students were enrolled in new programs and new institutions, and particularly in the urban centers some were enrolled on a part-time basis. Table 3 reports these enrollments by major occupational groupings and for the various technical education centers. As is reported by Table 4, a total of nearly 2,000 Associate Degrees were actually awarded for completion of two-year programs of technical education during the 1967-68 academic year.

Table 2

Technical Education

Approved Associate Degree Programs

1968 Academic Year

	Engr. Tech.	Agric. Tech.	Home Econ. Tech.	Public Serv. Tech.	Business Tech.	Graphic Arts	Health Tech.	Total
Community Colleges								
Cuyahoga	5		1	3	10		3	22
Lorain	7			1	5		4	17
Sinclair	2			1	7		1	11
Lakeland	4			1	4		1	10
Sub-Total	18	-	1	6	26	-	9	60
Technical Institutes								
Columbus	9		1		10			20
Clark	3	2		2	5		1	13
Penta	5	1	2	1	6			15
Jefferson	5				9		2	16
Four-County	5	1	1		5	-		12
Sub-Total	27	4	4	3	35		3	76
State Universities								
Akron	6		1		9	1		17
Toledo	10		1	1	6		1	19
Youngstown				2	7	1		10
Cincinnati	1	-	1	1	9			12
Sub-Total	17		3	4	31	2	1	58
University Branches								
Middletown	3						1	4
Hamilton							1	1
Ashtabula					1		1	2
Salem	4				1			5
Walters	1	-			7	-	1	9
Sub-Total	8				9		4	21
Grand Total	70	4	8	13	101	2	17	215

Table 3

Technical Education
Student Enrollment
Fall Term, 1967

	Engr. Tech.	Agric. Tech.	Home Econ. Tech.	Public Serv. Tech.	Business Tech.	Graphic Arts	Health Tech.	Total
Community Colleges								
Cuyahoga	688	-	40	305	1,551	-	420	3,004
Lorain	394	-	-	4	463	-	168	1,029
Sinclair	463	-	-	-	1,488	-	66	2,017
Lakeland	238	-	-	-	266	-	-	504
Sub-Total	1,783	-	40	309	3,768	-	654	6,554
Technical Institutes								
Columbus	218	31	20	-	223	-	-	492
Clark	90	95	-	-	111	-	27	323
Penta	238	-	118	-	310	-	-	666
Sub-Total	546	126	138	-	644	-	27	1,481
State Universities								
Akron	541	-	-	-	600	71	-	1,212
Toledo	744	-	15	16	824	-	148	1,747
Youngstown	-	-	-	3	392	-	98	493
Cincinnati	246	-	184	116	1,541	-	-	2,087
Sub-Total	1,531	-	199	135	3,357	71	246	5,539
University Branches								
Ashtabula	-	-	-	-	38	-	23	61
Salem	122	-	-	-	-	-	-	122
Middletown	184	-	-	-	-	-	-	184
Walters	18	-	-	-	83	-	58	159
Sub-Total	324	-	-	-	121	-	81	526
Grand Total	4,184	126	377	444	7,890	71	1,008	14,100

Table 4
Technical Education
Associate Degrees Awarded
1967-1968 Academic Year

	Engr. Tech.	Agric. Tech.	Home Econ. Tech.	Public Serv. Tech.	Business Tech.	Graphic Arts	Health Tech.	Total
Community Colleges								
Cuyahoga	40	-	-	9	89	-	135	273
Lorain	70	-	-	-	67	-	36	173
Sinclair	25	-	-	-	120	-	-	145
Sub-Total	135	-	-	9	276	-	171	591
Technical Institutes								
Columbus	49	12	9	-	54	-	124	248
Clark	33	32	-	-	41	-	-	106
Penta	45	-	11	-	50	-	-	106
Sub-Total	127	44	20		145		124	460
State Universities								
Akron	45	-	-	-	76	4	125	250
Toledo	82	-	-	-	133	-	39	254
Youngstown	-	-	-	-	15	-	-	15
Cincinnati	14	-	38	4	228	-	-	284
Sub-Total	141	-	38	4	452	4	164	803
University Branches								
Ashtabula	-	-	-	-	2	-	-	2
Salem	28	-	-	-	-	-	-	28
Sub-Total	28	-	-	-	2	-	-	30
Grand Total	431	44	58	13	875	4	459	1,884

Problems for the Future

As the Board of Regents has viewed the future of higher education in Ohio, no matter has been less certain than the magnitude of future need for technical education. Analysis of the national labor market makes clear that increased formal education for employment is fundamental to our economy, and that those occupations which require the most formal preparation are the most rapidly growing. Many observers see as many as 50 per cent of all high school graduates of the future requiring some form of post-high school educational experience, but less than a baccalaureate program. To develop a very clear picture of the likely future demand for technical education, however, is extremely difficult. Few indicators exist by which public acceptance and enthusiasm for this new level of education might be measured. It has been the policy of the Board of Regents to encourage the development of technical education centers in areas where the population base and the business and industrial base make the reception of these programs most promising. As is illustrated in the material presented in this report, a rather complete network of centers has been established in the populous counties. Certain other developments are under consideration, designed to selectively extend this network.

It would appear to be advisable in the period just ahead, to continue adequate financial support to these established centers such as will encourage their expansion as enrollment demand grows, to extend the network in those places where population and general business activity make likely a reasonably economical institutional size, to continue the very close relationship between technical education development and the larger higher

education plan of which it is a part, and to encourage in every way possible increased public and employer acceptance of the goals and values of technical education.

Regarding adequate financial support, the Board of Regents believes that it will be necessary to provide increased operating support for technical education during the coming biennium. During the current budget period technical education has been supported at the same rate per student as that given to all other freshman and sophomore level programs. It is now clear, however, that technical education is more expensive to operate than many other programs, and the Board of Regents will recommend suitable adjustments in support for the next biennium.

In the area of capital improvements appropriations, the Board of Regents is hopeful that continued support can be available to expand existing centers as enrollments grow and to add technical laboratory facilities at selected centers now under consideration for technical education development. Specific proposals have been made in the six year Capital Improvements Plan for higher education prepared one year ago, and updating of this plan is underway at the present time.

With regard to continuing the close relationship between technical education developments and other developments in higher education, the provisions of the Memorandum of Understanding described earlier are of great importance. It is essential that the growth needs of vocational education and of technical education be seen as two matters, not necessarily best served by a single plan or pattern of development. As a reflection of this separation of roles, the development of technical education as a part of higher education would be encouraged by basic changes in the channeling

of federal monies to the support of state programs. The Memorandum of Understanding would be better implemented if federal funds for technical education were removed from present direct involvement in the State Plan for Vocational Education and were made available directly to support implementation of the Board of Regents' Master Plan for Higher Education.

Finally, with regard to encouraging increased student, parent, and employer acceptance of the goals and values of technical education, a concerted program to publicize and systematically to explain this new level of higher educational opportunity would be of substantial value to developments now underway in Ohio.

APPENDICES

A - Standards for
Two-Year Technologies

B - Memorandum of Understanding

C - Inventory of Associate Degree
Programs of Technical Education

Appendix A

Ohio Board of Regents
Standards for the Approval
of Associate Degrees in
Two-Year Technologies

Objectives

The standards proposed below for approval of associate degree programs speak to two distinct but inseparable factors concerning the growth of technical education in Ohio:

1. The quality of the teaching program proposed to be carried out under the title of technical education, and;
2. The viability of the institution which may be brought forward to support that teaching program.

Because neither has substance without the other, no priority need be set by which to gauge the relative importance of the two factors. The standards listed below deal first with one factor and then with the other, and no attempt is made to separate the two.

Throughout these suggestions, however, run several purposes, and all individual concerns in administering the standards should give way to these:

1. To encourage the building of faculties which are fully competent to teach college level subject matter.
2. To encourage the development of curricula which are of sufficient substance as to stand unchallenged alongside other programs of higher education.
3. To encourage the admission of students who are adequately prepared to benefit by this program of higher education.
4. To encourage the guarantee of minimum institutional resources in advance of the award of higher education degrees, such as will reassure prospective enrollees that a "going-concern" will continue in the future to validate the educational program.

I. Faculty

A. Faculty members should be competent in the field in which they teach, normally holding the baccalaureate or higher degrees in fields of concentration appropriate to their teaching assignments.

B. Department chairmen or persons responsible for curriculum planning and supervision must hold the Master's degree or other advanced preparation and experience in an appropriate field of concentration.

C. In order that the faculty be familiar with and sympathetic toward the goals of technical education and of the institution itself, that continuity of program presentation be strengthened, and that a continuing interchange of ideas and experience within the faculty

be possible, a minimum of 60 percent of all units of credit in the curriculum should be taught by faculty members who devote their full time to teaching, and, or administrative responsibilities at the institution in question.

D. A significant proportion of all faculty members should have had recent experience in industrial or professional practice pertinent to the technologies which they teach, and such experience should be kept up to date through professional associations, consultative practice and individual reading and research.

E. Faculty members should be provided in numbers which will assure adequate attention to individual students.

II Students and Student Services

A. Students accepted for unconditional entrance should be graduates of a high school and have completed specified units of instruction appropriate to the curriculum into which they are admitted. Such secondary units should be sufficient to make possible the maintenance of college level course content throughout the technical curriculum. An institution which admits students whose preparation is less than adequate should offer an appropriate remedial program on a non-credit basis or a pre-technical program which lengthens the over-all curriculum beyond two academic years. Recommended minimum secondary school units required for entrance into an engineering technology should include:

(a) Three units of English
(b) Two units of mathematics, one of which is in algebra and the other in plane geometry (or the equivalent of these in integrated modern mathematics). Additional units in intermediate algebra and trigonometry are desirable.
(c) One unit of physical science with laboratory. It is desirable that this unit be in physics or chemistry.

B. Student testing programs should be carried out to assist in the proper evaluation of students applying for admission and to support continuing programs of student guidance and counseling. Appropriate programs of student guidance and counseling should be provided.

C. Adequate placement services should be provided to assist graduates in finding suitable employment, and to maintain and expand the institution's contacts with prospective employers. An integral part of the placement process should be the systematic gathering and analysis of data concerning the types of employment into which

graduates have gone, considering the appropriateness of education and training to employment.

III Curriculum

A. Academic credit for successful completion of courses should be expressed in conventional units of credit. One unit of credit should be awarded upon the basis of three hours of study per week, whether in classroom, laboratory, or outside assignments and study. Thus, one credit may be based upon one hour of classroom lecture or recitation per week, supplemented by two hours of assigned study outside the classroom. Similarly, one credit may be based upon one hour of classroom lecture, one hour of laboratory study, and one hour of assigned study outside the classroom each week.

B. Curriculum Breakdown.

(1) Engineering Technologies.
An engineering technology curriculum should be characterized by:

(a) at least the equivalent of fifteen semester hours of credit in basic sciences, about half of which is mathematics and of which the mathematics includes carefully selected topics suited to each curriculum from appropriate areas of mathematics beyond college algebra and trigonometry, and including basic concepts of calculus.

(b) at least the equivalent of fifteen semester hours of credit in non-technical subjects including oral and written communications and humanistic-social studies.

(c) at least the equivalent of thirty semester hours of credit in technical courses.

(2) Other Technologies.
Curricula outlined for other technologies should be characterized by:

(a) at least the equivalent of fifteen semester hours of credit in carefully selected studies which are basic to the field of study within which the technology is proposed to be offered.

(b) at least the equivalent of fifteen semester hours of credit in non-technical subjects including oral and written communications, and humanistic-social studies.

(c) at least the equivalent of thirty semester hours of credit in technical courses.

Within the general category of technical courses should be found certain courses identifiable with the technical skills needed in the student's intended occupation, and other courses which relate

to the core of knowledge upon which the occupation rests. A preponderance of courses within the technical category (perhaps of the order of 4-1) should deal with the core of knowledge required by the occupation rather than with the technical skills involved.

C. Curriculum Length
Each curriculum should be designed to provide not less than two academic years of full-time resident academic work beyond the secondary school, and should include courses valued at no less than 60 semester hours or 90 quarter hours of credit exclusive of physical education.

D. Transferability of Credits.
The primary objective of the associate degree technical education program is the preparation of students for immediate employment at the conclusion of two years' study. The desirability of providing for transferability of credits should not hinder the completion of all course sequences necessary to a sound two-year program. Appropriate attention should be given in the development of two-year curricula to the requirements of four year technology curricula into which a graduate may desire to transfer, and to the general requirements of baccalaureate programs.

IV Library

Adequate library facilities and holdings appropriate to the subject matter taught should be available, and adequate financial support should be dedicated to the continued updating of library resources.

V Institutional Requirements

A. The technical institution should provide a program which is sufficiently broad as to offer a reasonable choice of curricula to prospective students, and should possess a student body sufficiently well developed as to demonstrate the institution's public acceptance as a permanent establishment. As a general rule, an institution should offer a minimum of four distinctive curricula, each enrolling 50 full-time students in order to demonstrate the institutional viability envisaged by this standard.

B. The technical institution should demonstrate a clear promise of attaining an enrollment of 500 full-time equivalent students within three years after becoming a degree granting institution.

C. The technical institution should possess physical facilities including classrooms, laboratories, offices, and equipment adequate to the teaching program which it conducts, and which lend themselves to the establishment of an institutional identity apart from secondary programs.

D. The technical institution should be able to demonstrate the adequacy of its resources for supporting present and future operating budgets.

May 7, 1965

Appendix B

Memorandum of Understanding
on
Technical and Vocational Education
between
The Ohio Board of Regents and The Ohio Department of Education

The need to strengthen and expand the commitment of State government to vocational and technical education is clearly recognized. Although it is not always possible to make a sharp distinction in definition between vocational and technical education, certain characteristics of organizational structure and program level can be identified which make it possible to establish a separate identity for each of these two educational programs.

Vocational education is a program planned to assist people to enter employment or to upgrade themselves in their current employment. Many occupations require the development of work skills with supporting instruction in science and related subjects. High school programs of vocational education can provide students with sufficient skills and knowledge to enter employment upon graduation. Others who have missed vocational preparation at the high school level or who have become unemployed may need to enroll in vocational courses at various times during their adult life. Another important feature of the vocational program is the supplementary training thus made available to employed workers to help them hold their job or prepare for advancement. The organization and operation of vocational education is the responsibility of the secondary school and of the Ohio Department of Education.

Technical education is a post-high school program planned to prepare high school graduates for entrance into para-professional occupations as support personnel for professional practitioners. Such occupations are concerned with

design, development, testing, consulting, and supervision. Technical education, in comparison to vocational education, gives the major program emphasis to the acquisition of scientific and technical knowledge with work skills as a corollary. Persons are prepared for entrance into employment as technicians through two-year post-high school technical programs in one of three types of institutions -- the community college, the technical institute, or the university branch. While certain areas of instruction in technical education may be transferable to a baccalaureate program in a university or college, the program organization and content of the technical program must remain true to its unique goal and function. The academic community which tends to grant status only to baccalaureate and graduate programs must not allow the technical education programs to develop into poor quality, indifferently operated activities. The successful completion of the technical education program results in the award of the associate degree. The organization and operation of technical education recognized by the associate degree is the responsibility of the Ohio Board of Regents, with cooperation and assistance from the Division of Vocational Education, State Department of Education.

It is the position of the Department of Education and of the Ohio Board of Regents that opportunities for vocational and technical education should be greatly expanded throughout the State. Increased educational opportunities must be accomplished, however, through the efficient use of physical facilities and human resources. The Board of Regents and the Department of Education agree to the following principles governing the expansion of educational opportunities for vocational and technical education:

1) That determinations concerning the need for, and organization of vocational education shall be made by the Department of Education and by the individual school districts.

2) That determinations concerning the need for, and organization of technical education shall be made by the Ohio Board of Regents and by the individual institutions of higher education.

3) That on the basis of a legal and financial commitment to technical education, the Department of Education will cooperate with the Ohio Board of Regents in the development of and support of technical education. Such assistance from the Department of Education shall be limited to those technical programs meeting the standards of the Department and shall not handicap the development of vocational education.

4) While technical education will grow in several different administrative patterns, there must be no duplication of effort or taxation. Technical education is developing in Ohio in the following administrative organizations:

Community Colleges

Technical Institutes (Such technical institutes may be separate entities or organized in conjunction with a joint vocational school district).

Branch University Centers

5) That cooperative efforts will be undertaken for the joint use of certain physical facilities, and of appropriate professional staff and ancillary services, in those circumstances where technical and vocational education programs have been established in the same area.

Inventory of Associate Degree Programs of Technical Education

Showing Approved Programs and Programs Likely to be Introduced During the Period 1968-1971

Appendix C

X = Approved Program
0 = Program Likely to be Introduced during 1968-1971

	Community Colleges				Technical Institutes				
	Cuyahoga	Lorain	Sinclair	Lakeland	Columbus	Clark	Penta	Jefferson	Four-County
Engineering and Industrial Technologies									
Aviation					X		0		
Architectural Drafting					X				
Engineering Aide									
Chemical Engineering		X		X	X		0		
Industrial Chemistry									
Civil Engineering		X			X	0	0	0	
Water Pollution Control									
Highway Construction									
Building and Construction	X		0			0			0
Electrical Engineering	X	X				X	X	X	0
Electronics Engineering	X	X	X	X	X		X	X	
Electrical Power									
Industrial Electronics									
Electro-Mechanical					0				
Instrumentation	0	0			X		0		
Communications		0		0					
Lasers						0	0		
Optics	0				0				
Industrial X-Ray							0		
Industrial Engineering		X	0	X				X	0
Industrial Technology									
Warehousing and Traffic									
Industrial Supervision	X								
Food Processing					X		0		
Materials									
Mechanical Engineering	X	X	X	X	X	X	X	X	0
Mechanical Design							X		
Welding							X		
Metal Processing								0	
Tool and Manufacturing							0		0

X = Apprcved Program
O = Program Likely to be Introduced during 1968-1971

Inventory of Associate Degree Programs of Technical Education (cont'd.) — Appendix C

	Community Colleges				Technical Institutes				
	Cuyahoga	Lorain	Sinclair	Lakeland	Columbus	Clark	Penta	Jefferson	Four-County
Physics Engineering							O		
Heating, Refrig.&Cooling									
Internal Combustion									
Metallurgical		O			X		O	X	
Plastics Engineering							O		
Engineering Graphics		X	O			X		O	
Science Technology									
Agricultural Technologies									
Agri-Business		O				X	X		O
Agri-Equipment						X			
Health Technologies									
Dental Assistant			O		O		O	X	
Dental Hygiene	X	X		O		O	O		
Dental Laboratory									
Medical Assistant	X	X	O	O			O	X	
Medical Laboratory	O	O							
Medical Records	O			O					
X-Ray	O	O				O			
Physical Therapy	O								
Nursing	X	X	O	X		X	O		
Nuclear Medical Asst									
Nursery Asst.									
Inhalation Therapy									
Medical Electronics							O		
Hospital Service		O							
Operating Room		X					O		
Mental Health	O		X						
Occupational Therapy	O								
Dietary Aide									

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O = Program Likely to be Introduced during 1968-1971

Inventory of Associate Degree Programs of Technical Education (cont'd.)

Appendix C

	Community Colleges				Technical Institutes				
	Cuyahoga	Lorain	Sinclair	Lakeland	Columbus	Clark	Penta	Jefferson	Four-County
Home Economics Technologies									
Food Service					X		X		O
Child Development							X		
Nursery School	X	O							
Public Service Technologies									
Law Enforcement	X	X			O	X	X		
Public Service Assist.			O						
Fire	X		X			X			
Community Service Assist.			O				O		
Library	X	O	O	X					
Urban Planning	O								
Education Technician							O		
Recreation									
Public Administration									
Business Technologies									
Accounting	X	X	X	X	X	X	X	O	O
Business Management	X	X	X					X	
Secretarial		X							
Executive	X		X	X	X	X	X	X	O
Legal	X							X	
Medical or Dental	X					X		X	
Engineering								X	
International									
Educational									
Restaurant Management	X	O			X		X		
Real Estate			O					X	
Insurance			O					X	O
Banking					O			X	O
Retail	X	X		X	X	X	X	X	O
Wholesale	O				X		X		
Printing					X				
Data Processing	X	X	X	X	X	X	X	O	
Salesmanship	X				X			O	

Inventory of Associate Degree Programs of Technical Education (cont'd.) Appendix C

X = Approved Program
O = Program Likely to be Introduced during 1968-1971

	Community Colleges				Technical Institutes				
	Cuyahoga	Lorain	Sinclair	Lakeland	Columbus	Clark	Penta	Jefferson	Four-County
Business Technologies (cont'd.)									
Transportation	X		X				O		
Photography	O								
Hotel Management	O					O			
Horticulture				O		O			
Credit Manager									
Procurement			X						
Marketing			X		X				
Service Representative					O				
Consumer Finance					X				
Executive Housekeeping							O		
Office Management									
Physical Plant Management									
Advertising									
Public Relations									
Airline Stewardess									
Graphic Arts					O				

Appendix C

Inventory of Associate Degree Programs of Technical Education

Showing Approved Programs and Programs Likely to be Introduced During the Period 1968-1971

X = Approved Program
O = Program Likely to be Introduced during 1968-1971

	State Universities				University Branches									
	UA	UT	YSU	UC	ZAN	PORTS	LANC	BEL.CO	MID	HAM	ASHT	SALEM	WALT	TRI-CO
Engineering and Industrial Technologies														
Aviation														
Architectural Drafting														
Engineering Aide		X												
Chemical Engineering	X		O											
Industrial Chemistry		X												
Civil Engineering		X										X		
Water Pollution Control		X												
Highway Construction		X												
Building & Construction	X	X	O											
Electrical Engineering			O							X		X		
Electronics Engineering	X							O						
Electrical Power	O													
Industrial Electronics		X												
Electro-Mechanical														
Instrumentation	X	X												
Communications		O												
Lasers														
Optics														
Industrial X-Ray														
Industrial Engineering	X		O									X		
Industrial Technology									O					
Warehousing & Traffic		O												
Industrial Supervision		O												
Food Processing														
Materials										X				
Mechanical Engineering			O							X		X		
Mechanical Design	X	O												
Welding														
Metal Processing														
Tool & Manufacturing	O	X												
Physics Engineering														

X = Approved Program
O = Program Likely to be Introduced during 1968-1971

Inventory of Associate Degree Programs of Technical Education (cont'd.)

Appendix C

	State Universities				University Branches									
	UA	UT	YSU	UC	ZAN	PORTS	LANC	BEL.CO	MID	HAM	ASHT	SALEM	WALT	TRI-CO
Heating, Refrig.& Cooling		O												
Internal Combustion		O												
Metallurgical			O											
Plastics Engineering	O													
Engineering Graphics		X												
Science Technology				X										
Agricultural Technologies														
Agri-Business														O
Agri-Equipment														
Health Technologies														
Dental Assistant														
Dental Hygiene		O	O										X	
Dental Laboratory	O													
Medical Assistant		X	O											
Medical Laboratory	O	O						O						O
Medical Records		O												
X-Ray	O													O
Physical Therapy	O	O												O
Nursing	O	O	O		O	O			X	X	X			X
Nuclear Medical Asst.														O
Nursery Asst.	O													
Inhalation Therapy		O												O
Medical Electronics														
Hospital Service														
Operating Room														
Mental Health														
Occupational Therapy		O												
Dietary Aide		O		O										

X = Approved Program
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Inventory of Associate Degree Programs of Technical Education (cont'd.) Appendix C

	State Universities				University Branches								
	UA	UT	YSU	UC	ZAN	PORTS	LANC	BEL.CO	MID	HAM	ASHT	SALEM	WALT	TRI-CO
Home Economics Technologies														
Food Service	X	X	O											
Child Development				X										
Nursery School														
Public Service Technologies														
Law Enforcement		O	X	X										
Public Service Assist.														
Fire														
Community Service Asst.		O		O										
Library		X												
Urban Planning		O												
Education Technician		O												
Recreation		O		O										
Public Administration			X											
Business Technologies														
Accounting		O	X	X								X		
Business Management	X		X	X								X	O	
Secretarial	O	X	X	X										
Executive	X	O		X								X	O	
Legal	X	X		X								X		
Medical or Dental	X			X								X		
Engineering	X	O												
International	X													
Educational				O										
Restaurant Management														
Real Estate		O												
Insurance		O												
Banking	O	O												
Retail		X		X								X		
Wholesale														
Printing														
Data Processing	X	X		X		O								
Salesmanship	X	X												

Inventory of Associate Degree Programs of Technical Education (cont'd.)

Appendix C

X = Approved Program
O = Program Likely to be Introduced during 1968-1971

	State Universities				University Branches								
	UA	UT	YSU	UC	ZAN	PORTS	LANC	BEL.CO	MID	HAM	ASHT	SALEM	WALT	TRI-CO
Business Technologies (cont'd.)														
Transportation	X		X											
Photography														
Hotel Management		O		O										
Horticulture														
Credit Manager				X									X	
Procurement		O												
Marketing			X											
Service Representative														
Consumer Finance														
Executive Housekeeping														
Office Management		X									X		X	
Physical Plant Management		O												
Advertising			X											
Public Relations			X											
Airline Stewardess				O										
Graphic Arts	X	O	X											