REPORT ON

Improving access TO THE Maine Technical College System

REPORT ON IMPROVING ACCESS TO THE MAINE TECHNICAL COLLEGE SYSTEM

COMMITTEE MEMBERS

Selected by Committee
Laurie Winsor, Chair
President, Androscoggin County Chamber of Commerce

Governor's appointee
Cheryl Clukey
Augusta, Maine

Speaker of the House Appointee
Representative Guy R. Nadeau
Saco, Maine

President of the Senate Appointee
A. William Kany
President, Saco-Biddeford Savings Institution

MTCS President Appointee
Dr. Durward Huffman
President, Northern Maine Technical College

Submitted to the 117th Maine Legislature and Governor Angus S. King, Jr. pursuant to Resolve, chapter 55.

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INTRODUCTION

This study is the result of the Maine Legislature's ongoing concerns about the Maine Technical College System's enrollment capacity in light of a burgeoning applicant pool and growing demand by employers for technically-skilled workers.

Since 1986, when the Maine Technical College System was created as an independent public institution, separate from the Maine Department of Education, the Legislature has authorized two study groups to examine the system's capacity to deliver a high-quality technical education within the financial constraints of the state.

In 1991, the Commission to Review the Capacity of the Maine Technical College System issued a report that highlighted a critical need for expansion. The year-long study showed that Maine's economic competitiveness hinged on the development of a highly-skilled workforce, but identified a shortfall of some 47,000 technicians by the year 2000. It found the capacity of the MTCS to train these workers to be alarmingly below the level needed.

The report also documented the changing mix of skills required in the new, global work place and identified a gap in the skills Maine workers currently possess and those needed by employers. It further identified an acute deficit in up-to-date technical training equipment at the colleges. Finally, the study outlined a growth plan which would gradually increase the enrollment capacity in day and evening programs at the Technical Colleges and address the critical funding needs of the colleges, including an investment in technical training equipment.

Coming as it did on the first wave of Maine's budget crisis, the State was unable to implement the Commission's recommendations for growth. Concern remained strong, however, and in 1994 the 116th Maine Legislature authorized L.D. 1832, "Resolve, to Conduct a Study on Improving Access to the Maine Technical College System," which directed the MTCS to conduct a follow-up study on the 1991 Commission report. The Legislature outlined four specific areas of review: curriculum needs; funding of equipment; the adequacy of locations of technical colleges; and admissions needs.

The study was conducted by a five-member committee, which included one appointee each from the Governor, the President of the Maine Senate, the Speaker of the Maine House of Representatives, and the President of the Maine Technical College System, and a committee chair selected by the four appointees.

The results of their review, detailed in this *Report on Improving Access to the Maine Technical College System*, are organized around the four areas of concern, with a recommendation for action in each area. A brief statement of intent precedes each recommendation, followed by a detailed narrative on the background and additional findings that led to each recommendation.

In pursuing it's task, the Committee found that the role of the Maine Technical College System in economic development was an area of great importance to Maine and, as such, merited consideration by the Committee. Those findings are included in a final section of this report.

PREFACE

Technologically advanced fields now account for the fastest growing segment of the global marketplace.

There is a new feeling of hope in Maine. After five painful years of economic decline, the momentum is changing. Maine people are beginning to see new jobs coming into the state, incomes are up slightly, manufacturing has increased and several new industries have expanded. Unemployment in six Maine counties has dropped below the national average.

It may not be a dramatic upswing, but it brings a sense of opportunity, of beginnings, of choices. And it calls to Maine's leaders to make sound, strategic investments in Maine's future. We cannot afford any less.

In light of the significant changes taking place in the state and national economies, there has never been a more prudent time to invest in technical education. Technologically advanced fields now account for the fastest growing segment of the global marketplace. Nearly 40 percent of the country's economic growth since 1990 is attributed to spending by U.S. businesses on high-tech equipment. In 1991, the Maine Department of Labor estimated that a minimum of 60,000 additional technicians would be needed by the year 2000 to meet the growing need for skilled labor in the state.

Maine's Technical Colleges are prepared to serve as a major catalyst for economic development at a time when the state urgently needs it. But at the present level of support, they are falling behind – the colleges simply cannot train enough skilled workers to keep up with demand. Applications to colleges in the Maine Technical College System grew more than 30 percent from 1989 to 1994, and are expected to more than triple in the next decade.

However, over the past five years, state appropriations for Maine's Technical Colleges have decreased by nearly six percent, excluding special initiatives. In the face of these budget constraints, the Technical Colleges have been forced to cut funding for badly-needed technical equipment, and increase student tuition by 74 percent.

Adding to the System's budget challenges, in the 1980s when state revenues were high, Maine's Technical Colleges were in the early stages of becoming an independent system and developing the functions previously provided by state government. As a result, important investments that helped advance other parts of Maine's education system — including the University of Maine System which benefited from a $15 million down payment in the mid-1980s — were not made in Maine's Technical Colleges. Therefore, the recession of the early 1990s hit particularly hard on an already lean organization.

These fiscal pressures are straining the System's ability to deliver the quality of education and training needed to graduate workers who can excel in today's new workforce. Faculty are forced to teach on out-moded equipment and, in some areas, verbally describe advanced technology since the colleges lack the resources to purchase up-to-date equipment.

The lack of investment in Maine's Technical Colleges is being felt by the business community. According to growth estimates by the Department of Labor, the state will face a projected shortfall of 4,700 technicians each year by the year 2000. This dearth of technically-trained workers could force many industries to look outside the state for their labor pool.

Perhaps the hardest hit by these constraints are the students themselves. The average Technical College student in Maine is 27 years old, holds a full- or part-time job, and receives some form of financial assistance. Tuition to the Technical

PREFACE

A recent poll by The Portland Newspapers showed that 66 percent of Mainers surveyed supported greater investment in Maine's Technical Colleges.

Colleges rose from $1,000 in 1989 to $1,740 in 1994, forcing some 70 percent of students to seek financial aid. Waiting lists have grown in the colleges' most popular programs and are expected to get worse.

Over 21,000 people are expected to seek entry to the MTCS by the year 2005, as a result of several school-to-work initiatives currently in place in secondary schools, and growing interest in technical education among other applicant pools. At its current capacity, the Technical Colleges will be able to enroll only one in seven applicants by the year 2005.

Without some planning and investment, the precious resource that these students represent will be lost.

The good news is, Maine's Technical Colleges have proven that given adequate resources they are ready to meet these challenges. Through sheer creative resourcefulness, the colleges have expanded programs of study to include 36 areas, representing more than 200 occupations – one-third of all jobs in Maine. Businesses have rallied to support the MTCS by donating close to $450,000 in 1993–94.

Clearly, Maine people have begun to place a new value on Maine's Technical Colleges. Look at the statistics:

- Some 80 percent of MTCS graduates find immediate employment after they graduate. And 98 percent of those jobs are in Maine.
- About 1,500 new jobs are expected to be created each year in Maine as a direct result of training provided through Maine Quality Centers, located at each Technical College.
- Students are relying on the Maine Technical College System to give them a competitive edge: Average placement wages for technical college graduates range from $18,000 to $30,000. With an 80 percent placement rate, technical college graduates generate hundreds of thousands of dollars in sales and income taxes each year.
- Secondary schools are forming new and stronger partnerships with Maine's Technical Colleges – through Tech Prep and the Maine Youth Apprenticeship Program – thanks to a growing enthusiasm for applied learning as an effective and energizing method of teaching.
- The Legislature showed its confidence in the System by creating a seventh college – York County Technical College – which will open in 1995.
- Most significantly, the citizens of Maine have voiced their commitment to help expand high-quality technical education. A recent poll by The Portland Newspapers showed that 66 percent of Mainers surveyed supported greater investment in Maine's Technical Colleges. In November, they voted to give $5 million to the Technical Colleges to purchase badly-needed technical equipment.

Maine people need jobs. Maine's businesses and industries need a better prepared workforce. With an amazingly modest investment, the Maine Technical College System can deliver both – and help to revitalize the Maine economy.

In these times, Maine can't afford any less.

SUMMARY OF RECOMMENDATIONS

Recommendation 1

To meet increasing student and industry demands, the Study Committee recommends that beginning in fiscal year 1996, the State of Maine invest $1.8 million annually in a growth plan for the Maine Technical College System to increase enrollment from 4,500 full- and part-time matriculated students to 10,000 by the year 2006. This increase should be initiated primarily through greater utilization of existing college facilities. *See pages 7–11.*

Recommendation 2

The Study Committee recommends creating, and investing annually in an equipment renewal program in the amount of $1 million beginning in fiscal year 1998. This action will ensure up-to-date equipment in each technology, based on average useful life expectancy. *See pages 12–14.*

Recommendation 3

The Study Committee recommends that the Maine Technical College System develop an implementation plan for the integration of complementary skills, as outlined in the *Report of the Skills Commission of the 21st Century,* into technical college curricula to ensure that students are prepared for an ever-changing workplace. *See pages 15–18.*

Recommendation 4

The Study Committee recommends that the Maine Technical College System examine options for creating an off-campus center in the mid-coast region of the State to meet the growing needs of residents and businesses. *See page 19.*

According to estimates provided by the State Planning Office, an annual investment of $1.8 million by the State will be repaid within 4 1/2 years in sales and income taxes generated by new technical college graduates. These graduates will earn an estimated $27.6 million in total wages during that period.

ADMISSIONS PRESSURES ON MAINE'S TECHNICAL COLLEGES

In fulfilling its charge, the Study Committee assessed the ability of the MTCS to train sufficient numbers of technically-skilled workers to meet industry demand, and to identify ways that increased student demand on the technical system could be met.

Recommendation #1:
To meet increasing student and industry demands, the Study Committee recommends that beginning in fiscal year 1996 the State of Maine invest $1.8 million annually in a growth plan for the Maine Technical College System to increase enrollment from its current level of 4,500 full- and part-time matriculated students to 10,000 by the year 2006. This increase should be initiated primarily through greater utilization of existing college facilities.

Background For Recommendation

This dearth of technically trained workers raised substantial fears that present and potential employers would begin to look outside the state for skilled labor.

A Critical Need For Skilled Workers in Maine

The 1991 Report by the Commission to Review the Capacity of the MTCS revealed some startling statistics about the demand for technically-educated workers in Maine. The Commission estimated that Maine would need a miniumum of 60,000 additional technicians by the year 2000 to meet employment growth projected by the Maine Department of Labor. High-growth industries included the areas of health care, printing, automotive repair, electronics and metal working.

The 1991 Commission found that Maine's Technical Colleges were only graduating approximately 1,300 students a year, while Department of Labor estimates established need at approximately 6,000 workers per year – resulting in an annual shortfall of 4,700 workers. At a flat rate of growth, the Commission projected that shortfall would total 47,000 technicians by the end of the decade.

This dearth of technically trained workers raised substantial fears that present and potential employers would begin to look outside the state for skilled labor – a trend the Maine economy can ill afford.

Four years later, those projections have held firm. Maine Occupational Information Coordinating Committee figures for 1992 show annual skilled-job openings at 7,861 per year, with the Technical Colleges graduating 1,500 skilled workers and all other Maine colleges graduating 2,046 skilled workers. The annual skill shortage is assessed at 4,380 workers per year – a figure nearly identical to the earlier projection.

At present capacity, Maine's Technical College system is able to meet less than 20 percent of industry demand.

Increasing Applications and Enrollments

Concurrently, student demand for technical education has risen sharply in Maine. Student applications for programs throughout the System have risen more than 30 percent from 1989 to 1994. All colleges have experienced increasing applications, with some reporting significant numbers. At Kennebec Valley Technical College, for instance, there has been an 82 percent increase in applications since 1987.

Applications alone are not an accurate reflector of actual need, since many students apply to more than one program in multiple colleges. However, enrollment figures can indicate student demand to some extent. Enrollment of full-time and part-time matriculating students in the MTCS has increased 23 percent since 1989. At that time, student enrollment was at 3,600.

ADMISSIONS PRESSURES ON MAINE'S TECHNICAL COLLEGES

Current enrollment pressures at Maine's Technical Colleges soon will be complicated by a major influx of degree-seeking students entering from secondary school programs.

There currently are 4,445 degree-seeking students. A majority of the growth was in part-time enrollment, which doubled in the past five years. At the same time, enrollment has grown in the Technical Colleges' Continuing Education Divisions (CED), at some colleges substantially. The technical colleges had 14,088 non-credit course registrations in 1993-94.

This trend toward part-time enrollment at 2- and 4-year colleges is nationally documented, borne of the volatility of today's job market. As more workers face layoffs, they are turning to evening programs for retraining and skills enhancement. Business and industry are turning to technical colleges for specialized employee training. And people are turning to Continuing Education Divisions as affordable and flexible points of entry into postsecondary education.

Enrollment can be increased only as resources will allow, and the state's budget crisis has severely strained the colleges' ability to respond to student and employer demand. The majority of degree-programs that have expanded have done so primarily through partnerships with business and industry and through grants, many of which are finitely funded. The colleges of the MTCS have been able to grow through sheer efficiency of operation – keeping most programs operational in the face of budget reductions.

Applications Expected to More than Triple Over Next Decade

Current enrollment pressures at Maine's Technical Colleges soon will be complicated by a major influx of degree-seeking students entering from secondary school programs.

Several school-to-work programs currently in place in Maine secondary schools – the Maine Youth Apprenticeship Program and Tech Prep initiative – are projected to funnel an additional 11,650 technical students into the MTCS annually by the year 2005.

The Maine Youth Apprenticeship Program is a 3-year program for high school students that combines workplace training with academic learning. The final year of the program is at a Maine Technical College. The program concludes with a Certificate of Skills Mastery. Upon high school graduation, MYAP students are guaranteed a slot in a degree program at a Maine Technical College. Currently, there are 70 secondary students enrolled in the program. Because the program is new in Maine – and, in fact, in the U.S. – estimates for future growth are difficult; however, the program has set an aggressive target of 4,000 students into the next decade.

Based on this target, it is estimated that up to 1,000 new students could be entering the Technical College System each year through MYAP. Because of their grounding in the fundamentals of their chosen field of study, these students are likely to be better prepared for a more challenging curriculum than the average first-year student.

Maine's Tech Prep initiative is part of an educational reform movement in place in school systems in 49 states across the nation. Tech Prep – short for technical preparation – uses real-life situations to teach academics. This model of applied learning prepares students for technical education and training. It's a rigorous program that begins in Grade 9 and for many students continues through two years of technical college, resulting in an associate degree.

Currently in Maine, there are 4,115 students enrolled in applied academics as a result of the Tech

ADMISSIONS PRESSURES ON MAINE'S TECHNICAL COLLEGES

All combined, Maine's Technical Colleges are projected to see more than a tripling in applicants by the year 2005.

Prep initiative. It is anticipated that 75 percent of Maine's 60,000 high school students will be in applied academic courses in the year 2005. Close to 25 percent of these students are expected to seek entry into a Technical College after graduation. That means that by the year 2005, Maine's Technical Colleges will be expected to serve approximately 11,250 new students who participated in applied courses in high school.

In addition to high school graduates, interest in technical education from other applicant pools – such as older workers seeking to upgrade their skills for new careers – is expected to continue growing into the next decade.

All combined, Maine's Technical Colleges are projected to see more than a tripling in applicants by the year 2005, from today's 5,900 to over 21,000 applicants by the end of the ten-year period.

Year-round Colleges Necessary to Meet Demand

The Study Committee determined that this increased demand for technical education could be partially met through greater utilization of existing Technical College facilities, coupled with expanded degree offerings in the day and evenings, and expanded student services.

Even though the demand for evening classes has grown, the percentage of degree-programs currently available to evening students varies from five to 40 percent among the Technical Colleges. This inequity between day and evening programming exists for several reasons, the most pressing being financial.

Because all Continuing Education classes are self-supporting through tuition, their operational funds are extremely limited. As a result, some of the more expensive, high-demand programs, such as electronics, cannot be offered to CED students. Evening students do not enjoy the full array of support services available to daytime students. Typically, there is no financial aid staffing available during evening hours, computer laboratories are limited, there are no counseling or business services, and libraries operate without a full level of professional staff.

The Committee also found that college facilities were underutilized during weekends and summers, when most colleges offer no, or very limited, degree programming.

Any substantive growth in the MTCS must be predicated on a year-round utilization of the colleges and a restructuring of curricula delivery so that evening students have more access to degree courses and receive a better delivery of support services.

Moderate Growth Plan Recommended

With this in mind, the Study Committee recommends a moderate growth plan to increase enrollment of degree-seeking students at the MTCS from its current level of 4,500 students to 10,000 students by the year 2006. The cost of adding students – through annual increments of 500 – could be undertaken at an estimated cost of approximately $3,500 per student, factoring in spending for instructional and support services. This level of incremental growth would require an additional $1.8[1] million annually in General Fund support for Maine's Technical Colleges.

[1] This $1.8 million investment does not reflect inflationary costs; tuition and fee revenues generated from the expanded student population are expected to cover inflationary increases.

ADMISSIONS PRESSURES ON MAINE'S TECHNICAL COLLEGES

Findings

As part of its review of the MTCS, the committee discussed several issues not specifically addressed in the legislation but important to their study.

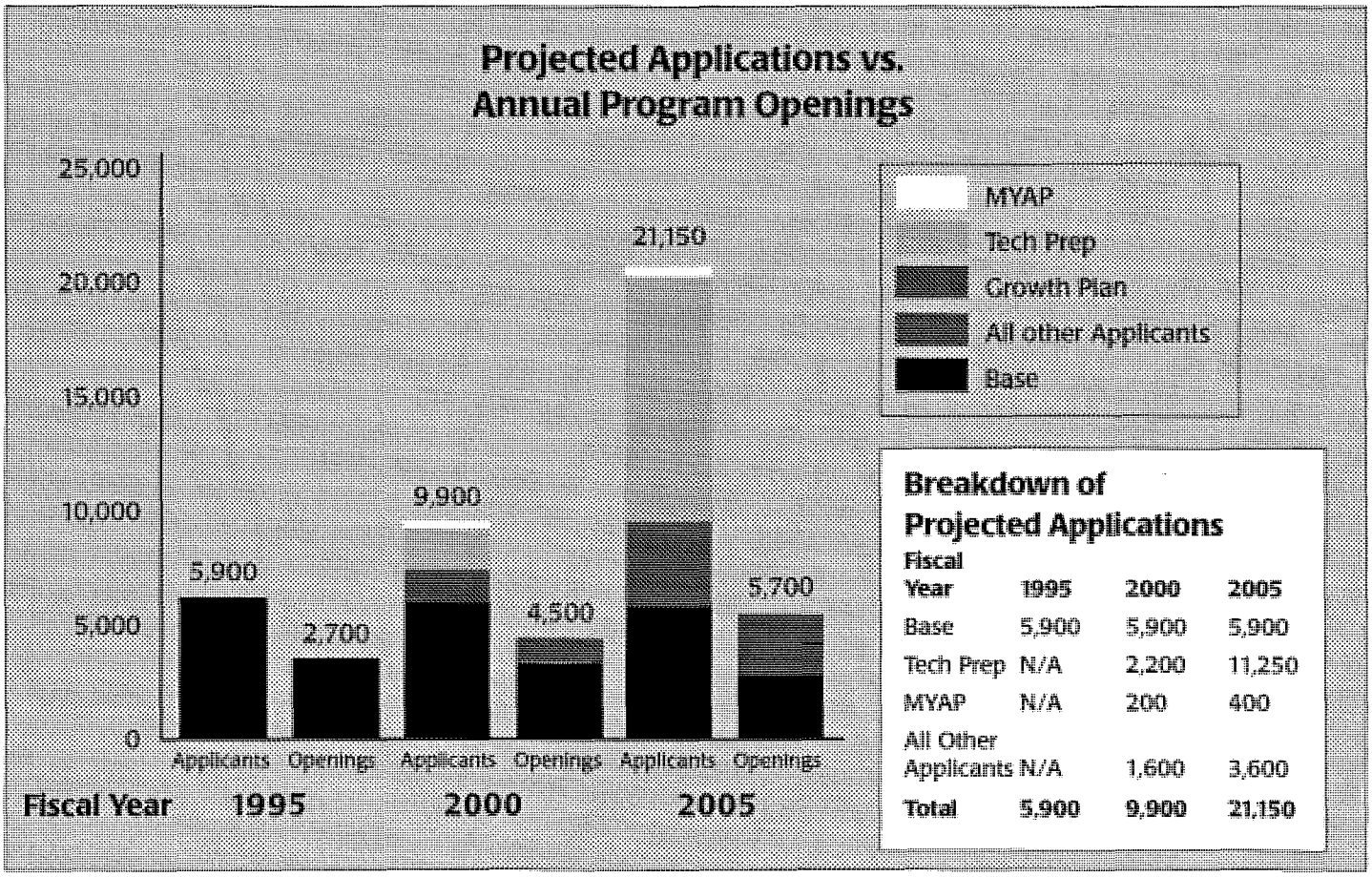
This suggested growth plan would give Maine students the educational flexibility they need, by offering more seamless programming of day and evening degree courses. It would ensure that evening students have access to support services. And it would open the doors to nearly double the number of degree-seeking students.

Nonetheless, at this recommended level of expansion, the MTCS will still be meeting only 50 percent of business and industry's need for technically-skilled workers and 27 percent of applicant demand.

The Effect of Funding Pressures on Accessibility

The Study Committee is concerned that the burden of underfunding has, in some measure, been shifted onto Technical College students. Annual tuition has gone up 74 percent since 1989 – rising from $1000 in 1989-90 to $1,740 in 1994-95. Nonetheless, tuition and fees account for only 22 percent of MTCS's budget.

Rising tuition has greatly increased the amount of financial aid students require. At Northern Maine Technical College, for instance, student loans for FY 1994 increased by more than 25 percent and still there was an unmet need of more than $2 million. Some 70 percent of MTCS students now require some form of financial aid.



ADMISSIONS PRESSURES ON MAINE'S TECHNICAL COLLEGES

This increasing debt load could have grave consequences to the System. From the 1992 Amendment to the Higher Education Act, a student loan default rate of 25 percent or more could result in a loss of eligibility for federal funds, including financial aid, and a college's accreditation could be put at risk.

The Study Committee found the System to be without an adequate level of scholarship money to offset rising tuition. General Fund monies earmarked for scholarships total approximately $58,250, divided between six colleges. The colleges have augmented that with nearly $200,000 in foundation support.

Gender Equity

The Study Committee examined the level of student gender equity at the colleges, reviewing enrollment, programming and graduation statistics. They found a modest improvement in gender equity systemwide, with marked improvement at several campuses.

Overall, the systemwide ratio of male to female students enrolled shifted only slightly in the past three years, with 59 percent male and 41 percent female students in 1992, and 58 percent male and 42 percent female enrolled in 1994.

The Study Committee reviewed the System's efforts to increase the number of female students enrolled in nontraditional programs and noted several initiatives under way. Under the aegis of the MTCS Gender Equity Project, each college hired a part-time gender equity coordinator, solely responsible for identifying and addressing barriers for current or potential students in nontraditional programs. One of the many results of their efforts is a 16-page brochure promoting nontraditional careers for women in trades and technologies offered within the System. It has been distributed at secondary schools and state agencies throughout the state. Additionally, many of the colleges offer Career Exploration programs on campus to expose potential students to some of the technologies offered, and have increased efforts to recruit female participants.

While the Study Committee noted that social stigmas associated with many technical fields make gender equity a deep-seated and somewhat intangible issue, they expressed hope that greater gender parity will continue to be achieved and recommended that the Technical Colleges continue to explore ways to encourage women to consider, and succeed in non-traditional fields.

DEFICIENCIES IN FUNDING FOR EQUIPMENT

The Study Committee examined the Maine Technical College System's budget, funding sources and equipment needs and found that an increased investment is needed for the System to replace outmoded training equipment.

Recommendation #2:
The Study Committee recommends creating and annually investing in an equipment renewal program in the amount of $1 million beginning in fiscal year 1998. This action will ensure up-to-date equipment in each technology, based on average useful life expectancy.

Background for the Recommendation

Equipment needs at Maine's Technical Colleges have assumed a profoundly greater importance as companies and industries introduce new technologies into the workplace at breakneck speed.

The Need For Up-to-date Training Equipment

A quality technical education demands up-to-date technology and training equipment – it is the very core of a Technical College education and an essential part of the System's mission as a public institution.

Equipment needs at Maine's Technical Colleges have assumed a profoundly greater importance as companies and industries introduce new technologies into the workplace at breakneck speed. It is no longer enough for Maine Technical College graduates to have proficiency in a single technology. Most of Maine's fastest-growing industries demand a high level of skill in several sophisticated technologies. If MTCS students don't receive appropriate training on up-to-date equipment, they'll lose their competitive edge in today's workforce and the colleges will not be effectively serving Maine businesses and industries.

Despite the pressing need to keep up with advancing technology, the colleges of the MTCS have been unable to keep pace even with renewal of existing equipment. Faced with maintaining programs during one of Maine's worst economic recessions, many of the colleges have had to slash equipment budgets just to continue offering existing programs. For instance, in FY 1993, Eastern Maine Technical College budgeted 7.8 percent of their General Fund support for capital equipment, but spent only 0.3 percent. During the same fiscal year Southern Maine Technical College budgeted 5.4 percent for capital equipment but actually spent 1.9 percent.

Since FY 1990, the systemwide budget for capital equipment has shrunk in half – from $1 million to approximately $500,000.

The Average Useful Life of Training Equipment

Another critical factor in MTCS's equipment deficit is the useful lifespan of technical equipment. The majority of training equipment used by the colleges has an average useful life expectancy of 10 years. That means that within 10 years, most of the colleges' training equipment should be replaced.

Based on those projections, the Technical Colleges should be budgeting and spending annually approximately 10 percent of the value of their equipment assets just to maintain that equipment. That doesn't factor in the costs of expanding or advancing technologies to keep curricula current.

The Maine Technical College System's assets in capital equipment are estimated at $32.8 million, based on present value. That means that the System should be spending approximately $3.3 million annually to renew existing equipment.

The actual average renewal activity for capital equipment from 1990-94 – which also included grants and donations – has been

DEFICIENCIES IN FUNDING FOR EQUIPMENT

"Faced with devastating budget cuts, we were forced to eliminate the Marine Electronics program from our inventory. This program was the only one of its kind in the state and was posed to supply highly-skilled technicians for this growing industry along the coast of Maine. Unfortunately, to meet the needs of this technologically advancing industry would have required a significant capital investment, which the budget simply would not allow."

– Ron Renaud
President, Washington County Technical College

$1.7 million, only 52 percent of the amount Maine's Technical Colleges should be reinvesting to maintain their technology. This leaves an annual shortfall of $1.6 million and virtually assures that technology at Maine's Technical Colleges will fall behind industry standards.

The Study Committee noted that the effect of chronic underfunding is already taking its toll on the quality of education at the MTCS. In some programs, faculty are training students in the fundamental technologies on outmoded equipment, then teaching advanced technologies through verbal description only, since the System lacks the actual equipment.

The Cumulative Effect of Underfunding

Current deficits in capital equipment monies at the MTCS are not an isolated occurrence. The Joint Standing Committee on Audit and Program Review recognized outstanding capital equipment needs during a regularly scheduled sunset review of the MTCS in 1990-91. They identified a total accumulated shortfall for training equipment in existing programs at approximately $20 million, based on inadequate operating funds from previous years. Recognizing the existing burdens on state revenues, the committee put forward legislation to authorize a $10,045,000 bond issue to purchase needed technical training equipment for the MTCS. The timing of the proposal coincided with the first wave of Maine's budget crisis and it was not approved.

Five years later, this Committee revisited those figures with the colleges and determined that equipment funding shortages have snowballed to $23 million over nearly a decade of underfunding.

Strides in Offsetting Chronic Underfunding

Despite four years of flat-funding, the Study Committee found that the System has been highly resourceful by agressively increasing private donations, gifts and grants. In FY 1990 the operating budget provided 64 percent of the equipment need; in FY 1994, it provided only 31 percent. Capital donations have increased 900 percent since 1990 and gifts and grants rose 76 percent. In FY 1994, 69 percent of equipment additions were made through non-budgeted sources.

Citizen support for Maine's Technical Colleges also has bolstered the System's equipment funds. A bond issue to purchase technical equipment was proposed and passed in November 1994, giving the MTCS an additional $5 million to purchase up-to-date training equipment. Of that amount, $1.5 million is to be matched by the private sector. The bond issue will reduce the accumulated shortfall to approximately $16.5 million.

Effect of Budget Procedures and Restrictions on Equipment Purchases

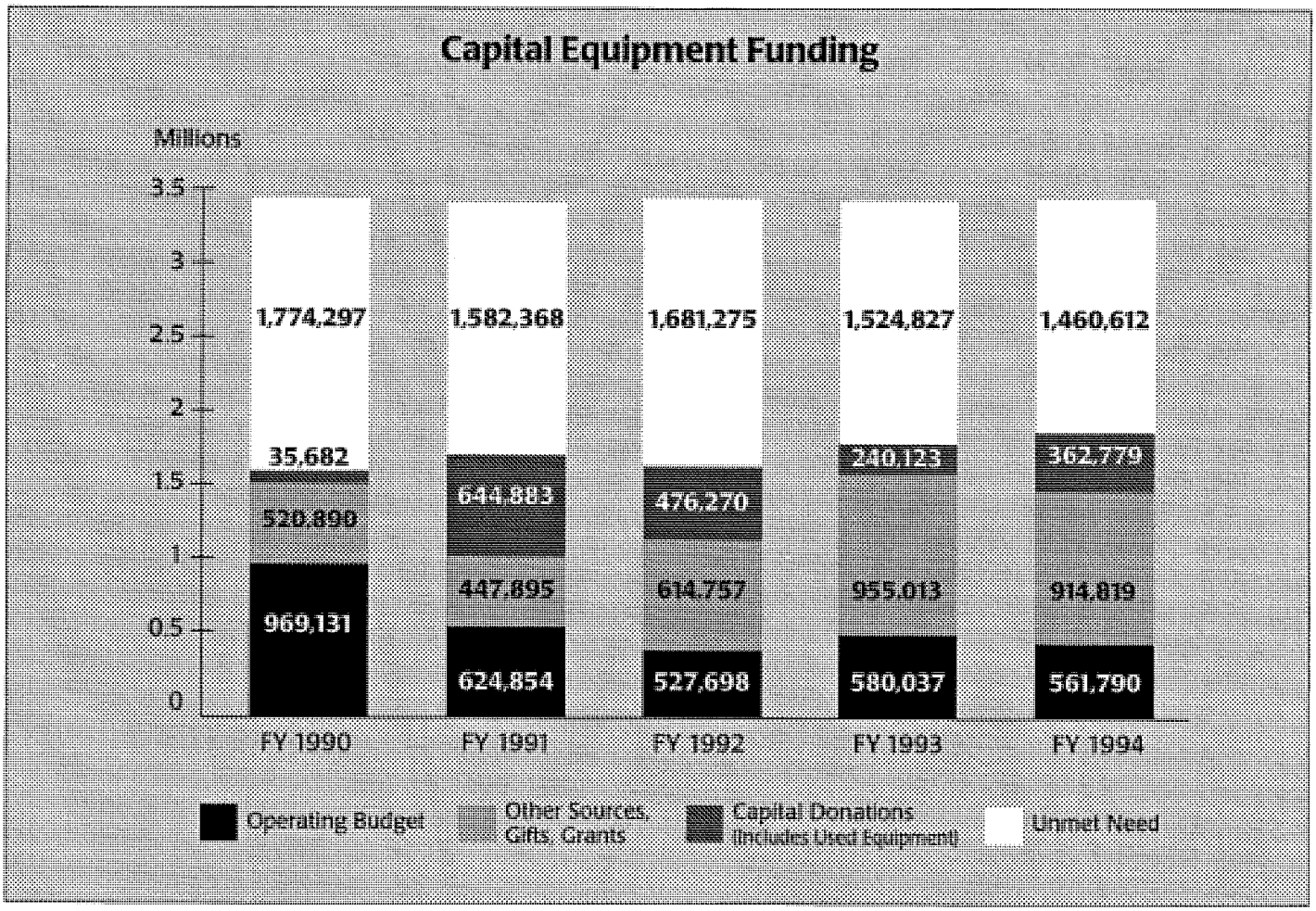
The existing state budget procedures pose a significant barrier to the MTCS. When the System was established as an independent public education entity in 1986, all of MTCS's current equipment and services were funded under the Part I budget. Any additional equipment – including replacement of current technology – fell under the parameters of the Part II budget, defined as "new and expanded programs." This means that the equipment needed to keep MTCS technologies current is not recognized as part of essential equipment and services.

DEFICIENCIES IN FUNDING FOR EQUIPMENT

While these procedures are the same for all state-funded agencies, they present a significant challenge for the MTCS in fulfilling its statutory mission.

Obviously, the difficulty presented by these procedures has been augmented in recent years by stiff competition for resources – resources needed to fund both existing and new services.

Despite an annual inflation of about three percent, the MTCS has received no additional revenues from the General Fund. The System's budget for FY 1992 was $23.1 million; in FY 1995 it is $22.9 million – this does not include funding for the Maine Youth Apprenticeship Program and York County Technical College. Of the current FY 1995 budget, only $634,000 is allocated for capital spending.



ADEQUACY OF CURRICULUM AT MAINE'S TECHNICAL COLLEGES

The Committee evaluated the process Maine's Technical Colleges use to determine whether the curriculum is meaningful and meets the needs of students and employers. The committee also reviewed whether any curriculum changes were necessary to produce graduates with the skills to compete in the new workforce.

Recommendation #3:
The Committee recommends that the Maine Technical College System develop an implementation plan for the integration of the "complementary skills" in the curriculum to ensure that students are prepared for an ever-changing workplace, as outlined in the "Report of the Skills Commission of the 21st Century."

Background for the Recommendation

What Are "Complementary Skills?"

In 1991, the U.S. Department of Labor unveiled an alarming profile of the nation's workforce. More than half of our young people leave school without the knowledge or skills required to find and hold a good job, according to the report by the Secretary's Commission on Achieving Necessary Skills (SCANS). The commission noted that America's labor productivity had declined in 1989 and 1990, and was projected to drop even lower.

The SCANS report traced this downturn in America's ability to produce competently trained workers, in part, to the globalization of industry and explosion of technologies – trends that have altered the nation's workforce forever. American industry is no longer characterized by the assembly-line model of manufacturing, where employees work repetitively at a single task with little understanding of the whole. Instead, most of today's technical workers operate within teams and perform complex and varied tasks. Today's employers need workers who can adapt to change and be creative problem solvers – skills that are equally applicable from the production floor to the executive suite.

The SCANS report sent ripples through the nation's educational system, as secondary and post-secondary institutions struggled to find ways to incorporate these skills – termed "complementary skills" or "workplace know-how" – into the classroom. These findings had deep resonance in Maine, where the workforce was reeling from the collapse of several manufacturing industries and educators were struggling to develop a greater base of skilled workers to meet emerging areas of technology.

Identifying New Job Skills Needed to Keep Maine Businesses Competitive

Spurred by the SCANS report and the realities of Maine's changing economy, the Maine Technical College System Board of Trustees launched an initiative to identify the specific job skills needed to keep Maine businesses and industries globally competitive.

In June of 1993, the MTCS Board of Trustees formed the Skills Commission for the 21st Century, a 14-member team of private sector and education leaders in Maine. Their charge was to review the delivery of academic and technical skills currently taught at the Maine Technical College System and to make very specific recommendations for enhancing curricula to meet the needs of the changing work place.

To identify the most important needs among Maine businesses, the Skills Commission enlisted input from a 35-member Select Advisory Committee, which included leaders from Maine business and industry –

ADEQUACY OF CURRICULUM AT MAINE'S TECHNICAL COLLEGES

"At BIW, we're absolutely convinced that the difference we need to make to compete globally rests in our workforce. What has become abundantly clear is that people need to be flexible, need to have developed skills in adapting to new technology, and an ability to synthesize that into their day-to-day activity without getting stymied."

– Kevin Gildart
Assistant to the President, Bath Iron Works, former Co-Chair of the Skills Commission for the 21st Century

such as Bath Iron Works, UNUM Corporation, National Semiconductor, Gates Formed-Fibre Products, Inc. and Maine Machine Product Company. The Advisory Committee also encompassed leaders from Maine unions, Technical Colleges and other educational institutions.

After reviewing MTCS curricula, the Skills Commission determined that Maine's Technical Colleges were doing an excellent job of providing technical training and academic preparation to students, but needed to enhance delivery of the "complementary skills" that are necessary to put that knowledge to full practical use in the new workplace.

The Skills Commission then set out to articulate those complementary skills that are vital to the new worker. Using research from the SCANS Report, and the widely-cited research of Carnevale, Gainer and Meltger (*Workplace Basics: The Essential Skills Employers Want*), the Commission developed a detailed outline of complementary skills, a blueprint that educators can use directly to integrate workplace know-how into academic study.

Those skills include problem-solving, listening, negotiating and communicating. They also address personal qualities, such as self-esteem, ethics and flexibility. Finally, the complementary skills include qualities which Maine employers identified as essential for job promotion and retention: the ability to effectively manage time, people and products; the ability to work well with others; skills for locating information from diverse sources; and an understanding of the interconnections between social, organizational and technological systems.

The Skills Commission's report, entitled *Skills For the 21st Century*, was released in June, 1994 and has received notice both in Maine and in other states as an excellent document specifying these types of skills.

Maine Technical College System's Delivery of Complementary Skills

Upon release of the Skills Commission report, MTCS administrators judged that within existing curricula at each of the colleges approximately 60 percent of the core skills are actively being taught.

In order to improve graduates' competitive edge in the workplace, the colleges recognized the need to bring these skills more meaningfully into their curriculum. An internal Skills Report task force has been created and it is expected that the Technical Colleges will complete a more formal assessment this year. From their assessment, the Committee recommends that a systemwide plan for implementing the complementary skills be developed.

Meanwhile, the Committee noted that many of the colleges within the MTCS have begun adopting aspects of the Skills Report on their own, as resources will allow. At Southern Maine Technical College, the mathematics department has begun integrating a software package called "PC Solve," which teaches math in small teams of students and fosters experiential development of complementary skills. Washington County Technical College has used the Skills Report to help develop the curriculum for new associate degree programs. The newly-established York County Technical College plans to integrate the complementary skills in all programs.

Obstacles in Delivery of Complementary Skills

The complementary skills outlined in the Skills Report raise some pressing concerns for Maine's Technical College System. Such a revision in education programming and delivery methods demands

ADEQUACY OF CURRICULUM AT MAINE'S TECHNICAL COLLEGES

This direct link of education to jobs is reflected in the MTCS statistics: in the past five years, more than 80 percent of Technical College graduates have secured employment following graduation – and 98 percent of those jobs are in Maine.

faculty training and the MTCS has very limited resources for needed professional development.

Technical training and professional development are of pointed and ongoing concern at the Maine Technical College System, since many of the highly-skilled occupations taught are grounded in technologies that change almost daily. To provide the highest quality of education in these competitive fields, MTCS faculty should regularly participate in seminars, workshops, retreats and professional memberships in order to remain current in their fields. By incorporating other levels of proficiencies into the syllabi – such as the complementary skills – the need for monies for professional development becomes significant.

An internal committee currently evaluating professional development needs within the System recently suggested that an amount equal to two percent of each college's general operating budget be earmarked for professional development, based on recommendations by the National Council for Staff Programs and Organizational Development. The Study Committee suggests that professional development be a funding priority of the colleges, recognizing that this estimate does not include potential costs for integrating complementary skills into the curriculum.

The integration of complementary skills would not necessarily require faculty to seek professional development outside of the Technical College System. Pockets of expertise in these skills may already exist within the System. To maximize the benefit of such expertise, greater opportunities for sharing of information, expertise and curricula should be provided.

On the student side, this level of curriculum enhancement creates a large assessment task: incoming students must be more thoroughly evaluated to determine their skill level both before and after they enter degree programs.

Findings

Curriculum Review

Programs at the Maine Technical College System are inextricably tied to Maine's economy. The System's essential mission is to give Maine students the highest level of training and education in needed and emerging technologies. If the economic need for an area of occupational study doesn't exist in Maine, courses aren't offered. This direct link of education to jobs is reflected in the MTCS statistics: in the past five years, more than 80 percent of Technical College graduates have secured employment following graduation – and 98 percent of those jobs are in Maine.

Because the Technical Colleges serve both students and employers, curriculum review is a multifaceted process. The content of programs must be reviewed for currency, need within the Maine economy, and applicability to professionally-based standards recognized nationally.

The Committee found a high level of internal curriculum review in place at the MTCS. All new programs go through a rigorous, five-phase review process, which includes an assessment of the program's need and economic impact as well as a three-year budget projection.

All existing programs are measured against annual statistics compiled by the Maine Occupational Information Coordinating Committee to determine their current and projected level of need within the Maine economy. They are evaluated annually by an advisory committee, which includes employers in each specific field.

ADEQUACY OF CURRICULUM AT MAINE'S TECHNICAL COLLEGES

The committee found the System to have the potential, but not the resources, to proactively develop programs for emerging areas of technology.

The MTCS Education Policy Committee reviews all programs every five years to evaluate their content, relevancy and delivery. Finally, graduates and employers are surveyed to determine their level of satisfaction with the programs.

All of the existing colleges are accredited by the New England Association of Schools and Colleges and the Study Committee found that the curricula of many MTCS programs also meet national business or industry-based accreditation standards. Some 20 individual programs meet standards for professional licensure or accreditation.

While this trend toward national program accreditation gives Maine technical students a competitive edge, it carries with it a price tag. Many accreditation boards require specific qualifications for faculty and demand regular equipment replacement and upgrading. For instance, MTCS nursing programs accredited by the National League for Nursing, require that all faculty providing instruction have a minimum of a masters degree.

Ability of Curriculum to Meet Changing Demands

The MTCS currently provides programming in all but one of the state's 50 fast-growing occupations according to figures recently released by the Maine Occupational Information Coordinating Committee. Further, in 31 of those occupations, the state's Technical Colleges are the sole provider of training.

Although the colleges of the MTCS have added some course offerings since the 1991 Report, that growth has been piecemeal. Many of those programs have been developed through specialized grants and industry-based partnerships and may not be sustainable beyond the life of the grant. Nonetheless, many colleges within the MTCS have been highly creative in developing new programs as offshoots of existing programs. Some short courses have been introduced through the colleges' Continuing Education Divisions, although the workplace demand may merit a full-degree program.

The Study Committee assessed the curricula of the Maine Technical College System to reflect the changing needs of Maine business and industry. They found the System to have the potential, but not the resources, to proactively develop programs for emerging areas of technology. In some instances, individual colleges are able to be responsive to economic changes in their region, but there are no sustainable resources to develop or continue programs once the need has been established.

LOCATIONS OF TECHNICAL COLLEGES

The Committee determined that, with the recent addition of York County Technical College, all concentrated population centers are served by existing colleges. They did, however, identify a gap in services to students in the mid-coast region.

The Committee reviewed the adequacy of the locations of Maine's Technical Colleges to meet the demands for technical education in Maine, and identified what the Committee judged to be the best vehicle for reaching those regions that are underserved.

Recommendation #4:
The Committee recommends that the Maine Technical College System examine options for creating an off-campus center in the mid-coast region of the state to meet the growing needs of residents and businesses.

The Committee examined the locations of the MTCS campuses against the Maine Department of Labor estimates of Maine's population base and employment for 1992-93. All existing Technical Colleges clearly serve as magnets for students within their local regions, with the largest clusters of students matching the state's highest population bases in Southern Maine and the Greater Bangor region.

The Committee determined that, with the recent addition of York County Technical College, all concentrated population centers are served by existing colleges. The committee did, however, identify a gap in services to students in the mid-coast region – circumscribed by the counties of Lincoln, Knox and Waldo.

Technical students residing in those areas currently must commute to Technical Colleges in Fairfield and Bangor, located some 40-50 miles away. The commutes are compounded by transportation difficulties – there is no viable means of public transportation to the colleges and students must travel on two-lane roads to reach the campuses, a deterrent during icy winter travel.

The need for increased services in mid-coast Maine was further substantiated by recent figures from the Maine Department of Labor, which show this region contains nearly nine percent of both the state's population base and total number of firms. The number of firms requiring technically-trained workers may actually be much higher, since the Labor Department figures report only those firms which contribute to unemployment compensation – thus eliminating the self-employed.

The Committee recommends that the MTCS Board of Trustees begin examining the options of opening an off-campus center to serve the mid-coast region. Based on the costs of administering off-campus centers in other areas of the state, it is estimated that the mid-coast center would require an additional $250,000 in annual support and would be administered by one or more of the existing technical colleges. drawing on their curricula, faculty and student support services.

STRENGTHENING THE ROLE OF TECHNICAL COLLEGES IN MAINE'S ECONOMIC DEVELOPMENT

"Maine's Youth Apprenticeship Program is one of the very best that I have seen. The useful thing about the program is that it incorporates both classroom education and learning in the workplace–and students are guaranteed positions in the degree programs that are important for later stages of their career. I think Maine is a model program."

– Caspar Weinberger

One of the primary challenges of the Maine Technical College System's mission as an economic development resource is to establish partnerships with business and industry and to link secondary school programming more closely with technical education. By strengthening these alliances, the Technical Colleges are greatly able to advance technical education and training in Maine and increase the availability of a highly skilled workforce. While the legislative charge which prompted this report did not specifically address these areas, the Study Committee found them to be of sufficient impact to merit consideration.

The Study Committee looked at recent efforts by the MTCS to strengthen technical preparation at Maine's high schools to encourage more students to enter postsecondary education. It reviewed the processes by which the Technical Colleges are bringing Maine employers more meaningfully into curriculum development and job placement. And, finally, it considered the ability of the Technical Colleges to meet the needs of business through specialized training programs.

Preparing Maine's Future Workforce

The Study Committee noted that the MTCS has made tremendous strides in the area of linkage to secondary schools, with the System serving as a catalyst for curricular reforms geared toward preparing youth for the world of work. Since the 1991 Study, two school-to-work programs have been initiated – The Maine Youth Apprenticeship Program and the Tech Prep program (described in an earlier section of this report). Though still relatively new in Maine schools, both are greatly improving secondary students' foundation skills in applied academics and occupational areas – and are increasing the number of secondary students seeking admission to the Technical Colleges and subsequent entry into the skilled workforce.

The Maine Youth Apprenticeship Program (MYAP), begun in 1992, is aimed at improving non-baccalaureate bound high school students' movement into high-skill occupations.

The MYAP directly links the workplace to education, by combining applied academics with hands-on work experience. Employers are partners in the development of curriculum and skill standards for their industry, and in the actual education and assessment of youth apprentices. Apprenticeships are currently offered in 19 occupational clusters – from culinary arts to computer maintenance.

The program is one of six in place nationally and is recognized as the most enterprising because it directly links secondary and post-secondary education. The program is funded through state and federal monies and employer contributions. Maine is one of eight states to receive a federal School-to-Work Opportunities grant which will accelerate its implementation statewide.

Maine's Tech Prep program is built upon the principle that many people learn best by doing and answers the fundamental question: Why am I learning this? Tech Prep teaches the foundation areas of academics – math, science, communications and applied technology – through practical, hands-on instruction in how those principles directly apply to the real world. Research has shown that a majority of students learn best from applied, "contextual" learning methods.

In developing this curricula, Maine's five Tech Prep consortias seek input from area businesses on skills students need to have before entering their workplace.

STRENGTHENING THE ROLE OF TECHNICAL COLLEGES IN MAINE'S ECONOMIC DEVELOPMENT

"The Maine Quality Center was a major factor in our decision to expand in Maine. We have over 130 employees in Maine today and the work ethic has been outstanding. Yet, work ethic alone does not make a company. They have to have the right training and tools. Maine's technical colleges are customizing courses to meet our specific needs. That level of cooperation is something I haven't heard of elsewhere."

– Dennis Mitchell, Senior Vice President, Medaphis Physician Services Corp.

Secondary-schools and postsecondary teachers are receiving training in applied education skills, and guidance offices are offering students career awareness at earlier points in their education. In just two years, the program has grown to include over 4,000 students who have enrolled in applied academics courses in Maine high schools from Madawaska to Kittery. To date, Tech Prep has developed 91 articulation agreements between secondary schools and technical colleges.

The reach of Tech Prep has recently expanded to include a seamless link with the University of Maine. In October 1994, the University of Maine signed an historic articulation agreement with Northern Maine Technical College to articulate Tech Prep students in agri-business from Presque Isle High School to NMTC to the University of Maine. The program, termed 2 + 2 + 2, lets students earn a Bachelor of Science in agri-business in two years after graduation from NMTC.

The effect of these programs on Maine's workforce can be seen as immediate: These students enter the work world with greater technical ability, more knowledge and finer complementary skills. Further, Maine citizens with associate degrees can expect to earn 25 percent more than those with high school diplomas only.

Despite the proven and potential success of both programs, their continuance is uncertain. The Maine Youth Apprenticeship Program is supported by federal and state grants, as well as corporate funding. However, the Tech Prep program receives no state support, operating annually with a $525,000 federal grant. There is no guarantee of funding for Tech Prep beyond FY 1996 and currently no mechanism or support within the Technical Colleges for continuing Tech Prep beyond the life of the grant.

Specialized Training For Businesses

The MTCS Continuing Education Divisions—often called the "flexible arm" of the Technical Colleges—offer courses and workshops for individuals and employers in a range of disciplines, from Total Quality Management techniques to energy auditing to small business management training, as well as in many fields offered through the college's regular daytime programs. Courses are offered either on campus or at an employer's work site, and can be customized to meet the employer's specific training needs. Many of the credit courses can be applied to a certificate, diploma or associate degree, giving the company's employees the opportunity to earn a college credential.

The Committee noted that the economies of delivering self-supporting specialized training make it difficult for some small businesses to take advantage of CED training, as well as the Maine Youth Apprenticeship Program. The fact that some 90 percent of Maine businesses employ fewer than 25 people highlights this concern. Therefore, the Committee recommends that the Technical Colleges explore ways of bringing small-business concerns more fully into these programs.

Quality Centers an Important New Economic Development Tool

In 1994, The Maine Quality Centers were established by Governor McKernan and the Maine Legislature. Modeled after a highly successful program in South Carolina, the goal of the Quality Centers is to provide a key incentive—customized free training—for companies to create new jobs in Maine. Within weeks of its being funded the program helped lure 500 new jobs to the

STRENGTHENING THE ROLE OF TECHNICAL COLLEGES IN MAINE'S ECONOMIC DEVELOPMENT

Lewiston area, with the expansion of Medaphis Physician Services Corp. At this time, several projects are under discussion, which, if all were realized, could generate about 1,700 new jobs, from all regions of Maine.

The Quality Centers initiative is a concerted effort to encourage expansion of Maine businesses and attract out-of-state employers. The program targets both unemployed and underemployed segments of Maine's workforce. Although placement of trainees at participating companies is not required, the Quality Centers guarantee that graduates hired by the company will be fully competent or they will receive retraining at no cost.

It is anticipated that the Maine Quality Centers will create approximately 1,200 new jobs a year in Maine at its current funding level of $2.6 million. The program is finitely funded, however, and will disappear entirely by 1996 without further investment.

These programs have given the MTCS small windows through which colleges can be responsive to the needs of business. However, there is no stable mechanism for the continuance of these programs and no resources for actively developing programs in emerging areas.

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Many other people made valuable contributions to the work of the Committee:

From the MTCS System Office:
Gary Crocker, Director of State and Federal Programs
Lynn Olson, Director of Finance and Administration
Dirk De Haan, Senior Financial Analyst
Jeff Ward, Public Affairs Assistant

From the Technical Colleges:
Barbara Woodlee, President, Kennebec Valley Technical College
Eric Hasenfus, Dean of Students, Kennebec Valley Technical College
Roy Blood, Tech Prep Coordinator, Kennebec Valley Technical College
Nelson Megna, Tech Prep Coordinator, Kennebec Valley Tech Prep Consortium
William Warren, Vice President/ Academic Dean, Southern Maine Technical College
William Flahive, Dean of Continuing Education, Southern Maine Technical College
Jean Mattimore, Executive Director, Center for Youth Apprenticeship
Marlene Groman, MIS Coordinator, Central Maine Technical College
Candace Ward, Registrar, Eastern Maine Technical College
Martha Robbins, Assistant Registrar, Kennebec Valley Technical College
Betsy Harris, Registrar, Northern Maine Technical College
Lisa Dolan, Registrar, Southern Maine Technical College
Joyce Maker, Financial Aid Coordinator, Washington County Technical College

Other contributors:
Justin Smith, Consultant
Denis Fortier, Systems Manager, Maine Occupational Information Coordinating Committee
Steve Adams, Director, State Planning Office

MAINE TECHNICAL COLLEGE SYSTEM
323 State Street
Augusta, Maine 04330