

Draft PCC Educational Master Plan Recommendations

Recommendation 2.1

The various redesign plans and task force reports require continuity and integration within the six strategic planning directions, as outlined in the District's current strategic plan. All future planning activities, including this Educational Master Plan, should acknowledge and align with the Pima Community College District-Wide Strategic Plan 2014-2017 and all future Strategic Plans.

Recommendation 2.2

Collectively, the various plans propose hundreds of goals, action items, strategies, and recommendations. Some of these items must be accomplished before others or are less "strategic" in the overall planning framework. Before implementation, efforts should be directed toward some level of prioritization and a continuity check with the goals, action items, strategies, and recommendations of other plans in related areas.

Recommendation 2.3

We live in a data-rich world. We also live in an era of outcomes and accountability when documenting success in higher education. As goals, action items, strategies, and recommendations are further visualized and implemented, including those in this plan, it will be critical to identify a set of metrics, benchmarks, or key performance indicators to measure success or failure.

Improvement tends to be incremental and some goals will require testing in small pilot studies. Regardless, metrics at clearly defined decision points will need to be integrated into the fabric of strategy implementation. Not every goal or strategy will be successful, and the key is to know when to stop doing something that does not work.

Given the sheer number of strategies, this may require an augmentation or refocusing of staff devoted to measurement and research. Timely and accurate information through regular and *ad hoc* reporting of institutional data and success metrics to internal and external audiences will be critical.

Recommendation 2.4

In Fall 2015, 43.2% of Pima Community College students identified themselves as Hispanic or Latino. PCC is also designated as a Hispanic-Serving Institution (HSI). As the number of Hispanic-Serving Institutions increase, an ever-expanding body of research has translated into publications on a wide array of topics, data sources, conceptual frameworks, and methodologies. These reports examine how HSIs can better serve their Hispanic/Latino students and provide scalable practices for success and completion. Such research, ideas, or strategies are absent in many of the operational plans noted in this chapter.

Many HSI institutions assemble a representative group of student service personnel and faculty to research current best practices and make recommendations for continued success of Hispanic/Latino students, as well as students from all backgrounds and ethnicities. Currently, the PCC Diversity Plan and Strategic Plan for Internationalization provide key strategies at a broad level. Success strategies based on best practices are also critical.

Recommendation 3.1

Environmental scanning should be expanded to include a summary of emerging trends in higher education and their applicability to the College, especially in areas identified in the strategic plan. There is an expanding body of literature that provides evidence of effectiveness in student engagement and success, new student services models, career pathways, and remediation.

Recommendation 5.1

During the review of GIS outcomes presenting campus attendance by student residence, many members of the Educational Master Plan committee and several PCC administrators commented about “misperceptions” about the mobility of the student population and their willingness to commute to specific campuses. One comment from PCC staff stated that “These misperceptions are driving decisions that are not based on factual knowledge and are costing us precious resources. The GIS analysis suggests that Pima does not need to duplicate every service on every campus.”

The GIS analysis is one form of evidence that can be used to clear up misperceptions regarding student travel patterns with all faculty and staff. The GIS analysis needs further validation with additional insights from structured student focus group sessions at each campus. The outcomes of these sessions should be one factor in decision-making for campus programs and services.

Recommendation 6.1

Creating a “premiere community college” requires a philosophy that is tailored to the needs of students, not past assumptions and competitive habits. All students should receive a quality education, regardless of location. Congruency between strategic and operational goals should be emphasized moving forward.

Recommendation 7.1

Nursing and Allied Health Sciences Framework Plan

Given the number of allied health programs and the co-location of these programs on the West Campus, a Center of Excellence framework is recommended. In alignment with nursing, together these programs provide a synergy in terms of interdisciplinary simulation, student resource areas, and student collaborative study areas. As the many of these programs require specialized teaching facilities, the majority of courses should be aligned with the West Campus. A Center of Excellence framework will require significant upgrades in terms of space to the current nursing bed labs and simulation area. The simulation center should be of significant size to accommodate simulation in many of the allied health programs. A recent partnership with NAU in the nursing area could also assist in building the center of excellence.

EMSI and the Competition

In reviewing EMSI average annual completers and PCC completers, there are several other higher education entities in Pima County offering allied health programs. For example, an average of 108 students in Pima County received an AAS degree in Radiologic Technology over the last three years. A total of 17 of these completers graduated from Pima Community College. This trend is more pronounced at the certificate level, where PCC had an average of 282 certificates over the last three years while other competing colleges awarded 732 certificates in health related professions. Altogether, EMSI notes that there is a surplus or oversupply of education completers in most of the allied health occupations. The occupational demand indicates a small gap or undersupply for fitness certificates.

Program Relocation

The large majority of allied health programs are already located on the West Campus.

- In the future, Pharmacy Technology should be relocated to the West Campus.

- The Veterinary Technician AAS and the Veterinary Practice Assistant program certificate, utilizes animal kennels and small animal operating rooms that are slightly different than those used for humans. However, students would benefit from being clustered with other health science students. The East Campus should be able to provide the necessary science prerequisites to maintain the program on this campus in the near term. As health facilities are expanded or renovated on the West Campus, there should be a concerted effort to relocate this program to West Campus.
- At the certificate level, Medical Assistant and Phlebotomy programs provide opportunities for underserved students to obtain entry level credentials at the Desert Vista Campus. In many ways, these programs complement Medical Office, Nursing Assistant, Practical Nurse, and Surgical Technical, as offered through Career and Technical Development.

Program Concerns

Therapeutic Massage at the certificate level has less than 10 students. According to EMSI, other higher education programs are producing an average of 173 completers and saturating the market by almost 150 graduates. Given the nature of the program and space demands, it is suited for the Northwest Campus.

Potential New Programs

EMSI identified a need for healthcare support workers. This would be an entry-level certificate with a broad-based knowledge of the healthcare or hospital system. This could be an entry pathway from high school to college.

Recommendation 7.2

Culinary, Hospitality & Tourism Framework Plan

Programs that make up the Culinary Hospitality and Tourism career cluster are scattered among three different campuses. The Desert Vista Campus includes the culinary arts credit programs and short term culinary and food industry programs under Career Training and Development.

The facilities on the Desert Vista Campus are inadequate compared to comparable programs at the two-year level across the country. Typically, there would be several theory kitchens, a food quantity production kitchen, a pastry/baking kitchen, a chocolate lab, a demonstration kitchen for community programs, and a space for ice sculpting and guar mache. Most programs also have a small bistro and retail bakery that allow students to receive hands-on instruction. Given the emphasis on viticulture in the region, a sensory free wine tasking room could also be developed.

If the culinary, hospitality, and tourism program is to thrive in Tucson's growing food service and tourism industry, a new facility is needed. The addition of retail management and customer service management programming fits well with in this service-oriented framework.

To make this program a Center of Excellence, it would ultimately mean that the culinary, hospitality, and tourism program would seek new facilities with the potential to be co-located near shopping or business areas with a high density pedestrian population, where the College could open a limited hours bistro and retail bakery. The most ideal situation would be to partner with a four-year college and national hotel operator to provide service-oriented components for students. In this scenario, retail and customer management students in short-term and certificate programs would work with culinary students to assist in retail and customer service strategies. EMSI notes a significant need for managers at the food service and retail management level.

Finally, there is a significant potential for community education, as home cooks want to learn cooking and baking techniques from professional chefs. In a demonstration kitchen, these courses could be recorded and offered online.

EMSI and the Competition

In reviewing EMSI average annual completers and PCC completers, PCC is providing the largest share of training in these programs. There is significant occupational demand in many of these areas.

Program Relocation

Culinary arts, tourism, hotel and restaurant management, retail and customer management would all relocate to a single location.

Program Concerns

Certificates in retail management and customer service have few students. It may be that these programs are not meeting the needs of local employers or are connected to other career pathways.

Potential New Programs

The EMSI report included no new programs.

Recommendation 7.3**Education Framework Plan**

The Education cluster at PCC includes programs in early childhood education and teacher education. Both degree and certificate programs are offered on the Desert Vista Campus with teacher education programs managed from the Community Campus. The majority of students in early childhood programs are located at the Desert Vista Campus. Given the number of occupational openings, a focused program strategy is warranted. Basic educational technology and teacher education are online programs offered through the PCC online campus.

EMSI and the Competition

In reviewing EMSI average annual completers and PCC completers, PCC is providing the majority of training in these programs. There is significant occupational demand for the basic Early Childhood Studies certificate. In most other programs, EMSI notes a surplus of graduates.

Program Relocation

No recommendations.

Program Concerns

The basic Early Childhood Studies certificate should be a pathway to the AAS degree or the AA in early childhood education. The number of PCC completers in this program is low compared to occupational demand.

Potential New Programs

EMSI identified a modest need for library technicians.

Recommendation 7.4**Applied / Digital Arts and Design Framework Plan**

The applied and Digital Arts and Design cluster is an opportunity for a Center of Excellence. All of the digital arts programs are currently located on the West Campus. This campus also houses a significant share of Fine Arts and Performing Arts.

At many community colleges, fine arts & applied arts students are working together in a large makerspaces or fabrication labs that provide hands-on experiences (see next section of this chapter). While the maker movement has developed in out-of-education spaces and has mostly involved adult participants, there is a

growing number of college educators bringing 'making' into higher education to enhance opportunities for students to engage in collective design and collaborative team practices.

One of the features of a makerspace is the use of new and newly affordable digital tools. As these tools provide new ways of interacting with physical materials, they also offer new opportunities for learning. Digital physical tools (also called rapid prototyping tools or digital manufacturing tools) shape materials or material objects into new forms. Some of these include 3D printers, laser cutters, vinyl and paper cutters, and digital embroidery machines. While faculty tend to focus on ways in which digital tools can support student projects and small-scale making, others see makerspace as the beginning of a much larger social and economic transformation. Studies have been completed that demonstrate that students who use these spaces are more likely to engage with faculty and other students and complete their program of study.

This Center of Excellence also brings together fashion design and Fashion Consumer Sciences as part of the design component of the center for excellence.

EMSI and the Competition

In reviewing EMSI average annual completers and PCC completers, PCC is providing the majority of completers in these programs. The EMSI gap analysis report notes lackluster occupational demand in most of the digital arts and fashion design programs. The majority of certificate programs have a low number of completers averaged over the last three years. It may be that these programs can be retooled into shorter-term programs to fit a career pathways model tailored more specifically to student interest. This is described in more detail in chapter 8.

Program Relocation

While the Fashion Consumer Sciences certificate at the Downtown Campus is heavily focused on the merchandising and marketing side of the industry, these students would benefit greatly from being immersed into more creative environments that emphasize the digital and design components. It is suggested that the program be merged together at the West Campus with multiple pathways.

Program Concerns

Partnerships with local design and creative agencies in the Tucson area should be emphasized. If a makerspace is developed, there are potential partnerships with business and industry and community education components that should be explored.

Potential New Programs

EMSI identified no new programs in this area.

Recommendation 7.5

Industry, Manufacturing, Construction, and Transportation Framework Plan

Perhaps the great of areas of promise for a program cluster is in the Industry, Manufacturing, Construction and Transportation area. Not only does this program cluster have a large number of openings in many occupations, it also has a significant number of potential new programs. The majority of these programs are housed at the Downtown Campus. The aviation and avionics program is located in a facility near the Tucson airport, but should be connected to this cluster of career programs. The proximity to the Desert Vista Campus should continue.

In many cases facilities are completely inadequate for the programs that are being offered. One such area is in Building and Construction Technologies. Another major area with space constraints is in Welding.

During on-campus tours, the method of instruction (such as the curriculum in the automotive technology program) is outdated and needs to be replaced with a more contemporary course-based content. There is also a need for industry sponsored programs such as FORD ASSET, TOYOTA T-TEN or GM ASEP. There is a significant

opportunity to make this cluster a Center of Excellence for Pima Community College, especially if Workforce Development, credentialing, and apprenticeships are integrated into this center and partnerships with local business and industry are actively pursued.

EMSI and the Competition

In reviewing EMSI average annual completers and PCC completers, PCC is providing the majority of completers in these programs. The EMSI gap analysis report notes strong occupational demand in building trades, automotive, machine tool, welding, and truck driver training.

Program Relocation

- The truck driving facility is located next to the Maintenance & Security complex in south Tucson. The program is administered from the Community Campus. The feasibility of relocating the oversight of this program to the Desert Vista Campus should be explored.
- The Downtown Campus will require new facilities to accommodate the growth of existing programs and new occupations programs such as diesel technology. The Downtown Campus is also the most urban campus and is landlocked with limited opportunities to purchase additional land. A viable Center of Excellence will require a more singular focus with the relocation of several existing programs to other sites over the master plan horizon.

Program Concerns

A large number of certificate programs have a low number of completers averaged over the last three years. The most significant include Cabinetmaking, Minor Home Improvements, Limited Remodeling & Repair, and General Residential Contractor. It may be that these programs are not in line with the current needs of the industry, or that students do not see a benefit to completing these certificates. These programs may need to be retooled into shorter-term credentials to fit a career pathways model tailored more specifically to industry needs. This is described in more detail in chapter 8.

Partnerships with local design and creative agencies in the Tucson area should be emphasized. If a makerspace is developed, there are potential partnerships with business and industry and community education components that should be explored.

Potential New Programs

The EMSI gap analysis identified multiple new programs in this cluster. The two clusters with the largest gaps are in construction trades and heavy equipment/diesel mechanics. These programs are also some of the most costly in terms of equipment and require large amounts of space. In some cases, demand may not be sufficient to justify the startup costs, such as the 13 annual openings in automotive body repairers.

Recommendation 7.6

Public Safety and Emergency Services Institute (PSESI) Framework Plan

The Public Safety and Emergency Services Institute is located at the 29th Street Coalition Center and managed from the Community Campus; it functions much like a Center of Excellence. Current programs include paramedic, fire and emergency services, and law enforcement (AAS and Academy). The Emergency Medical Technology basic certificate is offered at the East Campus. The lack of adequate facilities at the 29th Street facility and the divided EMT/Paramedic program between two sites are barriers to moving forward as a fully viable Center of Excellence.

EMSI and the Competition

In reviewing EMSI average annual completers and PCC completers, PCC is providing the majority of graduates in these programs. Students are also obtaining law enforcement credentials from other higher education institutions in the region. While the EMSI gap analysis notes double-digit demand in many of the programs and a

surplus of completers, their analysis does not take into consideration those students attending the program from outside of Pima County. This is typical for an institute or Center of Excellence that attracts students from outside the immediate region.

Program Relocation

The EMT/EMS program on the East Campus should be integrated with, and be part of, a career pathway with the paramedic program at the 29th St Location. The program at the East Campus includes a classroom, skill demonstration and practice areas, equipment and supply storage, and offices. The amount of space at the current PSESI site is cramped, especially in the paramedic program. The master plan will need to provide a physical solution before these programs can be collocated.

Program Concerns

None at this time.

Potential New Programs

The EMSI gap analysis identified the need for correctional officers. There is also a need for continued training for security personnel to continue to refine their skills and knowledge in related law enforcement areas.

Recommendation 7.7

Social and Human Services Framework Plan

The Social and Human Services Career Cluster is comprised of multiple programs that, at first glance, may not seem to have much in common. This cluster is one of the most difficult with respect to program placement on many community colleges campuses. The concentration of social services programs is offered at the West Campus. As many of these programs have specific areas of emphasis that can be offered independently on different campuses. As a result, a distributed program framework is recommended.

EMSI and the Competition

In reviewing EMSI average annual completers and PCC completers, PCC is providing the majority of social and human services program graduates with the exception of Administration of Justice Studies degree. With many of these programs there is a greater demand at the degree level than at the certificate level. The greatest exception is in the direct care professional certificate. This is a very basic certificate that can lead to entry-level jobs in care centers, nursing homes, and home health aide. Due to the aging population, the number of average annual openings is significant over the next ten years.

Program Relocations

- It is recommended that the core Social Services degree and certificate programs remain at the West Campus, as there is some relationship with other caregiving programs, especially in Allied Health.
- In reviewing the Direct Care professional certificate offered at the Northwest Campus, it can be justified through Fall 2015 duplicated headcount enrollments that demand is equal or stronger at other campus sites that are closer in proximity to campus locations in the central Tucson area. This program would work well with the medical assistant and phlebotomy programs, as well as those offered by the Center for Training and Development (CTD). In fact, the direct care professional program could be also offered in a CTD format or as part of an I-BEST program through Adult Education.
- The Behavioral Health Sciences certificate currently located at the Desert Vista campus would be more appropriately suited at the West Campus and integrated within the social services framework.
- Translation interpretation studies seems to be well attended on the Downtown Campus but could relocate to the West Campus if space becomes an issue at the Downtown location.

Program Concerns

The number of students in certificate programs in the Behavioral Health Sciences, Substance Use Disorder Specialty, Domestic Violence Intervention, and Community Health Advisor are significantly low. These programs should be reviewed carefully to determine their viability for the future. The EMSI average annual openings is also relatively low in for these programs.

Potential New Programs

The EMSI gap analysis identified a need for residential advisors. While this program may seem disconnected to the social services cluster, the skills needed for this occupation are in line with this cluster.

- Customer and Personal Service – Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.
- Psychology – Knowledge of human behavior and performance; individual differences in ability, personality, and interests; learning and motivation; psychological research methods; and the assessment and treatment of behavioral and affective disorders.
- Therapy and Counseling – Knowledge of principles, methods, and procedures for diagnosis, treatment, and rehabilitation of physical and mental dysfunctions, and for career counseling and guidance.
- Sociology and Anthropology – Knowledge of group behavior and dynamics, societal trends and influences, human migrations, ethnicity, cultures and their history and origins.

Recommendation 7.8

Business, Management, and Administration Framework Plan

Business, Management and Administration programs are located on five of the six PCC campuses. This is typical for community colleges with large districts. The Dean of Business has recently been assigned to the East Campus. Programs in Paralegal and Health Information Management are located at the Downtown Campus, while Accounting is located at the West Campus. Due to the nature of these programs, many stand alone in academic content as they're not as tightly interconnected as programs in health or Public Safety. As a result, a distributed framework plan is recommended.

EMSI and the Competition

In reviewing the EMSI data, other higher education institutions in the surrounding area are offering degrees in General Business and Paralegal. The EMSI data suggest that this is producing a surplus of higher education completers in business related programs. In many instances, a business degree is applicable to many occupations. At the certificate level, competing higher education institutions are offering a certificate in Health Information Management and Advanced Business.

There is a significant number of average annual openings for graduates with a certificate in basic business and advanced business credentials. Otherwise, PCC is providing the majority of graduates in business related programs.

Program Relocations

- The human resources certificate is fully online and is managed from the Community Campus.
- The Health Information Management degree and certificate program at the Downtown Campus were reviewed in great detail. Several community colleges with like programs in this area were studied to understand the location placement. In addition, the types of tasks, tools, knowledge skills, abilities, work activities, and work content were studied to understand the best alignment for this program. While this program does include the security, management, and administration of patient medical records, it is best suited on a campus with Allied Health and robust Information Technology programs. It is recommended that this program be relocated to the West Campus.

- Logistics and supply chain is well suited for the East Campus due to its proximity to distribution centers.

Program Concerns

Several of the certificate programs have low enrollments and also have low average annual openings. These include logistics and supply-chain basic and advanced certificates, the technical writing and communication certificate, and the fraud examination certificate. These programs should be reviewed for relevancy of content and the ability to meet employer needs. These programs may be better suited for short-term workforce development programs than credit instruction.

Potential New Programs

EMSI has identified several new potential programs. The property real estate and community association manager's average annual openings is significant. This could be a short term credit or workforce development credential. Certificate in supervision of production workers could be connected to a pathway as part of several industry programs located at the Downtown Campus. There is also a need for a certificate in real estate to assist in students passing the real estate exam. This could also be completed as part of a workforce or community education program.

Recommendation 7.9

Engineering and Technology Framework Plan

This collection of programs fits within a Science Technology Engineering and Math or STEM cluster. This cluster includes Computer Information Systems, Archaeology, and more interdisciplinary programs such as Histotechnician and Clinical Research Trial Coordinator. As these programs are located on two different campuses, a distributed program framework is recommended. In the future, additional interdisciplinary programs involving a STEM Focus could be distributed across multiple campuses based on the program focus.

EMSI and the Competition

A review of the EMSI data indicates the average annual openings are limited in most programs. The largest number of openings is at the certificate level and Systems Administration and Networking. EMSI shows no openings for clinical research trial coordinators at the degree level. Occupational demand information on this program at the certificate level was non-existent.

There are other higher education institutions in the Tucson area that are supplying graduates in Systems Administration Networking degrees. When combined with Pima Community College graduates, the number of students is creating a significant surplus in the market based on occupation of the demand.

Program Relocations

No programs are suggested for relocation.

Program Concerns

Certificates in Archaeology and Clinical Research Trial Coordinator indicate low student enrollments and lack of viable occupational demand for the foreseeable future. Decisions need to be made about the viability of these programs. The goal of a certificate program based on the Association of Clinical Research Professionals is obtaining a Certified Clinical Research Associate certification after completing a minimum number of hours performing essential duties. This could be accomplished in a workforce or CTD delivery system.

Potential New Programs

One potential degree program is noted. Training for this program could be interdisciplinary with a focus on fire prevention and suppression within a public safety pathway or more science focused on natural resources.

Recommendation 7.10

Transfer Program Framework

The official designation for each PCC transfer credit certificate and degree disciplines and program was obtained from the 2016/2017 Pima Community College Catalog. Duplicated enrollment for Fall 2015, by campus, retention and persistence rates were obtained from dashboards provided by PCC Institutional Research, Planning and Effectiveness, dated November 11, 2015. As transfer programs typically do not result in direct employment, there is no EMSI occupational gap analysis data. The distribution of enrollment by campus was reviewed based GIS information regarding the ethnicity, poverty level, income distribution, and educational attainment of Tucson residents.

A significant number of courses are offered at each of the five campus locations, especially in programs with large enrollments such as Business Administration, Education, Engineering, and Science. While a distributed program framework is recommended, the evaluation of courses by discipline or program is more effective at the course level.

The recent reorganization of academic deans suggests that general education and liberal arts disciplines are aligned with selected campuses. For example, social sciences will be administered from the East Campus, Humanities and Fine Arts on the West Campus and Sciences and Mathematics on the Northwest Campus.

In very large community college districts, the delivery of 100 level (Freshman) and 200 level (Sophomore) courses can be dispersed and duplicated among multiple campuses as significant enrollment and physical resources (i.e., science labs) exist within the district. In smaller districts, enrollments often justify duplicating courses on multiple campuses at the 100 level but selectively distributing the number of campuses offering 200 level course sections. As PCC offers more than 1,200 courses per semester, recommendations at the course level are not within the parameters of the Educational Master Plan.

As PCC continues to reorganize academic administration, attention must be focused on course section enrollments at the 200 level. This is especially critical for disciplines and programs that require dedicated resources such as science, computer and training laboratories. For example, popular introductory level science course sections could be offered at each campus. A larger number of 100 level science course sections and all 200 level science course sections may only be offered at West, Northwest, and East Campuses as these locations are dispersed around the Tucson metropolitan area and adequate facilities are in place to meet student demand. This strategy also ensures higher laboratory utilization rates as courses sections can be more limited, with the goal of filling lab sections in a limited number of campuses.

For those disciplines or programs that are not space dependent on dedicated space, the focus should be on actual enrollment levels, as compared optimum course section sizes. The recent classroom utilization study suggests that multiple classrooms at each campus location were scheduled for courses with low enrollments for Fall 2014. If the number of course sections could have been reduced, the utilization would have increased, while at the same time reducing the overall cost of instruction. This study is being replicated for Fall 2015 as part of the master planning process.

In the end, 200 level course sections should be given as much attention in terms of campus placement as programs in career and technical education. Additional transfer recommendations are included in Chapter 8.

Recommendation 7.11

It was noted during campus tours that PCC has a large number of forward-facing table and chair classrooms. Faculty on the Educational Master Plan Committee discussed lack of adequate technology and inflexibility of

furnishing in many of the classrooms. Observation suggests that this varies by campus. The images in this section display some of the most recent trends in classrooms.

There is a shortage of collaborative and social spaces at the Desert Vista, East, and Downtown campuses. The need for classrooms and collaborative areas on each campus will be addressed in more detail in the Campus Master Plan.

Recommendation 7.12

A part of broader student engagement strategies, PCC needs to consider the creation of maker spaces or idea labs, especially for program pathways using a center of excellence approach. The requirements for these spaces will be part of the Campus Master Planning process.

Recommendation 7.13

It might be hearsay, but interviews with College constituents note that the current PCC program review and action plan process has not been used to determine program health or vitality. In other words, the process has not been used in the past to start the process of program discontinuation. Likewise, the process does not allow programs to provide evidence of the need for potential new programs in similar areas.

The following questions, taken from various program review documents, begin to illuminate the need for change at PCC.

- How is your advisory committee helping you achieve your program goals? How are they promoting your program to others in the community?
- Where are students that are enrolling in the program coming from? What is the retention rate for students who started in remedial courses? Is there a viable career pathway from high school to this program?
- Is the program “state of the industry”? What specifically prevents the program from reaching that goal? What faculty development goals will create opportunities for excellence?
- How is the program responding to changes in population and occupational projections? What strategies are being developed to address these trends? Are there potential capacity concerns?
- What are employers who are hiring graduates in your programs saying about their level of preparation and on-the-job skills? What additional training is necessary?

Recommendation 7.14

A review of occupational demand and program gap analyses data should be required at all Occupational Program External Advisory Committee (OPEAC) meetings. This includes longitudinal trend data on the number of certificate or degree completions. Many of the larger community colleges have a “new ventures” employment position that is charged with working with regional and local employers to validate program gap findings. Decisions regarding program closure or program correction need to be specified on a step-by-step basis as part of comprehensive program review process.

Recommendation 7.15

The projected annual openings for each pathway area are based on more than 300 occupational titles. As stated in the previous section, some existing CTE programs at PCC will need to expand, while others may need to retool or retract as the demands of the labor force change. In a few instances, lack of occupational demand may indicate the first sign of program closure. The detailed employment projections need to be factored into the future planning process for each program. Program enrollment and staffing projections are a critical component as space needs analyses will need to be calculated for each program as part of the Campus Master Plan.

Recommendation 7.16

Similar to the previous recommendation, EMSI data on potential programs is disaggregated by occupational title. This information must be reviewed in greater detail. In a handful of cases, the projected annual openings are high enough to warrant additional investigation about the viability of these programs.

Programs such as Automotive Collision Technician and Diesel Engine Mechanic will require a tremendous amount of instructional space and expensive equipment. This investment warrants serious conversations with local employers and economic development entities to accurately predict student demand.

Recommendation 8.1

After a review of all CTE and transfer certificate and degree programs offered by Pima Community College, nine clusters emerged. Transfer pathways were also developed as part of this process:

Recommendation 8.2

All PCC career and technical programs should fit within this proposed structure. In reviewing the EMSI Occupational Gap analysis, these clusters were aligned with occupational demand and regional economic development initiatives. This structure is also critical in terms of the Campus Framework Plan, as described in Chapter 7. The following illustration reviews recommendations regarding CTE program of study alignments with proposed pathways.

Recommendation 8.3

At the broadest level, each campus location should have a designated pathway. In addition, each pathway is linked to a campus framework strategy. As an example, the Industry, Manufacturing, Construction, and Transportation pathway should be strategically aligned with the Downtown Campus (Chapter 7). Given workforce and regional economic demand, there is a need to integrate academic and workforce programming within this pathway. Based on national examples, this framework would work well for a Center of Excellence in Manufacturing and Applied Technologies.

Recommendation 8.4

This broad Framework Plan, as discussed in Chapter 7, will need to be reviewed at the degree and certificate level. Overlaying this framework on the existing taxonomy of certificates and degrees by campus location generated some discrepancies. During implementation, there should be a conscious effort to eliminate any duplication of programs across different sites. In many cases, duplicate CTE courses can be offered at multiple campus locations, especially broad-based entry level courses at the 100 level that do not require dedicated equipment or large amounts of space, as described in the distributed approach.

Recommendation 8.5

Making the kinds of district-wide changes called for in the development of career or guided pathways will be challenging and require commitment from College leaders, faculty and staff across all Pima Community College campuses and centers. As the state of Arizona is not affiliated with a particular career or pathways model, PCC will need to spend time reviewing the various models and frameworks before making decisions in this direction. All PCC pathways must be aligned with the Arizona Program of Study framework.

Recommendation 8.6

Many of the current pathway models integrate student services and instruction into clearly structured programs of study. Pathway decisions need to be investigated with involvement from student affairs and academic affairs, as well as workforce development representatives. Many institutions use a task force approach to review and select pathway models. Institutions that ultimately elect to implement career and guided pathway models develop a director or higher position to oversee and implement the process.

Recommendation 8.7

The separate systems of secondary and post-secondary education need to be bridged. Any forward moment in the areas of career and guided pathways at Pima Community College will not work without input and cooperation from stakeholders in secondary education, local government, and Tucson business and industry representatives, as well as those involved in economic development at the regional level. For example, Colorado community colleges are provided a step-by-step guide for creating career pathways. Pathways are heavily dependent on sector partnerships and industry clusters. (Collaborative Economics and the Woolsey Group, 2014).

Recommendation 8.8

Adapting current PCC career and technical education programs to career pathways to meet the needs of the 21st century learners will be a complex process. Many institutions start small by piloting one program and make refinements before achieving scale. Pathways also need to be considered within the framework of stackable credentials and industry-based credentials, which are described in the next chapter of this plan.

Recommendation 8.9

There are four best practices regarding transfer pathways:

1. Create major-specific transfer pathways with clear concise program maps.
A review of transfer agreements with the major Arizona four-year colleges and universities indicated that hundreds of major-specific transfer pathways have been developed between Arizona two-year colleges and the major universities as part of the Arizona Statewide Transfer System.
2. Provide high-quality academic experiences to prepare students for four-year programs:
PCC has a robust Honors College and provides some opportunities through capstone courses for students to work on research projects with a faculty member in their discipline or major. PCC needs to investigate other opportunities to engage transfer students, especially in areas that focus on the application of knowledge from an interdisciplinary or global perspective. In many cases, the development of capstone or portfolio projects will require new or re-purposed spaces at the campuses. These spaces are discussed under the Active Learning Spaces and Other Engagement Strategies section in this chapter.
3. Establish regular processes for updating and improving program maps.
Many of the updates are handled as part of the Arizona Statewide Transfer System process. This should not prevent PCC faculty and advisors from reaching out to specific four-year programs to better-align transfer program sequences. Of greater importance is monitoring student progress across the entire transfer pathway to better understand each student's ability to perform academically at the four-year level.
4. Design unconventional pathways, as necessary.
This strategy includes offering four-year degrees on two-year campuses, Three-Plus-One Bachelor's degrees, and reverse transfer degrees. Some of these strategies are currently in place at PCC. Transfer pathways are becoming common and extending into high schools for students in dual or concurrent enrollment programs. This is a growing market for PCC, and there should be alignment between high school, two-year, and four-year postsecondary institutions.

Recommendation 9.1

Pima Community College has a robust strategic plan for internationalization that unites the college with multiple local, national, and global partners. The college has multiple planning documents (i.e., high school dual enrollment, student services review, strategic enrollment management). These plans should be reviewed from a collaborative impact perspective with the goal of reducing partnership silos by creating a plan to build

coherence among PCC units to create multi-sector partnerships designed to strengthen pathways both into and through college to employment or further education.

Recommendation 9.2

PCC should investigate development of an Office of Partnerships and Community Engagement as a face for the College in the community. This office would be managed by a “New Ventures Officer” and would provide assistance in the strategic development of entrepreneurial, scalable, sustainable programs, and possible revenue-generating partnerships for the Pima Community College District. Responsibilities could include:

- Working with employers to better understand program demand.
- Management of key school district, business, community, and non-profit partnerships.
- Development and implementation of a proactive partnerships and Community Engagement plans that includes managing institutional representation for various boards, committees, and community associations.
- Providing and coordinating intensive outreach to underserved and underrepresented communities.
- Studying the potential for developing Community Engagement Centers or expanding the mission of existing Adult Education Learning Centers.
- Working with the Provost’s office and Student Affairs to provide opportunities for students to engage in service learning programs and other co-curricular opportunities.

Recommendation 9.3

The Program Gap Analysis is one of numerous recurring reports and publications that need to be periodically reviewed, placed into context, and interpreted with regard to the College’s current mix of career and technical programs. This activity is part of the internal processes that enable the College to respond to current and emerging workforce/industry needs, as identified in the Strategic Plan.

Operational planning goals (2014-2015) for each campus describe various methodologies to survey, document, or engage businesses, industries, and agencies in order to identify skill, training, and education needs. In reviewing operational plans for each campus, data collection methodologies, planning processes, and the use of this data to inform programmatic decisions varies by campus. There seems to be a duplication of effort on many fronts.

- There should be a central repository for the collection of all state and regional economic and occupational data reports and publications. This is typically housed in Workforce Development.
- An online database, accessible to all campuses, should include the contact information for all business, industry, agency, and community partners. This would include a list of faculty and administrators that are currently serving on various economic development, industry, community, and agency boards.
- At least once per year, a district-wide group of internal academic and workforce representatives should meet to review current workforce and occupational data, changes in regional economic development initiatives, and key partnerships. The goal of this “workforce summit” would be to proactively identify potential changes to existing programs and emerging new programs.
- The expansion of Workforce and Business Development, combined with enhanced business outreach, and industry credentialing within career pathways will require constant focus. A position entitled New Ventures Officer under a proposed Office of Partnerships and Community Engagement could also be effective in this area.

Recommendation 9.4

For the aforementioned reasons, PCC should evaluate modularizing existing associate degree programs and longer-term certificate programs. In many cases, these could be chunked into short-term certificates designed to provide completers with competencies to qualify for an entry-level job. For example, Oregon created Career Pathways Certificates of Completion (CPC), which can range from 12-44 credits and must be wholly contained

in either a 1- or 2-year Associate of Applied Science (AAS) degree. Courses are tied to competencies identified by employers for jobs in the local labor market. A good example is PCC's Digital Arts AAS degree and Certificate, which currently require 79 and 45 credit hours, respectively, for completion. Digital Arts can be modularized into shorter-term stackable certificates averaging 20 to 24 credits each.

Recommendation 9.5

At Pima Community College, workforce programs are offered in Building, Construction and Utilities, Business and Industry, and Public Safety and Corrections. In 2012, the five most common fields in which short-term stackable certificates were awarded nationally were emergency medical technician, automotive mechanic, welding technologist, commercial vehicle operations, and law enforcement. PCC should continue to expand offerings in industry certifications offered by NC3 or others, especially in transportation (automotive), manufacturing, and digital literacy, in accordance with the economic and employment needs of the regional Arizona labor market.

Recommendation 9.6

Industry credentials have the potential to be offered at all PCC campuses based on the designated CTE programs offered at each site. Current classroom and laboratory utilization rates suggest that physical resources used for credit instruction could also be used for workforce industry credentialing programs. College policies should allow qualified full-time and part-time faculty to teach industry credentialing courses. In many cases, there are viable ways to embed industry-based credentials into credit-bearing career and technical programs, such as those being offered at Milwaukee Area Technical College.

Recommendation 9.7

Board policies and SPG language should be revised after current PCC credit courses are aligned with national industry certifications. The American Council on Education (ACE) is the national leader in the evaluation process for education and training obtained outside the classroom, including courses, exams, apprenticeships, and other nontraditional forms of training.

Recommendation 9.8

Given the success of these types of transition programs and the solid relationship PCC has with local high schools, PCC should investigate the development of a middle college for campuses located within areas of low income and higher dropout rates.

Recommendation 10.1

Components of the 2015-2020 Strategic Plan for Internationalization and 2015-2020 Diversity Plan should be solidified into a congruent goal framework, especially in the areas of professional development, study abroad and recruitment. Goal 3 of the Diversity Plan notes the need to develop processes and mechanisms for increased study abroad opportunities while the Strategic Plan for Internationalization (page 21) notes early development and draft documentation for a study abroad program.

Diversity plan recommendations include the need for a chief diversity officer to establish an Office for Diversity and Inclusion, with a diversity council or advisory committee to oversee institutional diversity planning and policy efforts. Again, this position and the office should be considered within the broader definition of diversity, with possible integration with International Development and an academic center for diversity studies.

A solid diversity plan, such as one developed by Lane Community College, also includes integrating themes of inclusion, diversity, and globalism into each student's academic experience. In addition to the Language Institute, PCC should investigate the creation of a center of excellence or interdisciplinary department on ethnic, gender, and global studies.

Recommendation 10.2

There is a need to increase participation and success of underrepresented populations. This could be accomplished by continuing to strengthen the connection between adult education, developmental education, and workforce development. Continued expansion of the number of contextualized integrated and accelerated instructional models and student support services and other best practices is needed in order to increase access and success of underrepresented populations in pathways. This includes expanding a variety of I-BEST programs. Current research suggests that the I-BEST model works best for hands-on programs such as Automotive General Service Technician, Welding, Carpentry, and Architectural CAD Drafting, to name a few. These options should be explored at PCC through district-wide discussions, using insight from business and industry, about the overlap/alignment with developmental education and basic skills transitions and build career pathways from high school bridge programs through completion.

Recommendation 10.3

Research on labor market outcomes of adult basic education and ESL students in Washington state found that short-term training does not help individuals advance beyond low-paying jobs, whereas a year or more of college-level credits provides a substantial increase in earnings (Price and Jenkins, 2005; Wachen, et. al., 2012). As a result, current I-BEST programs must be structured to provide a clear pathway to credentials and career advancement.

At PCC, I-BEST programs are at the certificate level, meaning that intervention is relatively short. The high level of support to students usually ends abruptly at the conclusion of the I-BEST course sequence. This could be problematic and some students may not be ready to negotiate college-level programs without additional wraparound student services or academic support. It will be necessary to consider the next steps towards completion for students who finish initial I-Best courses.

Current and future I-BEST programs at PCC need to be linked to educational pathways leading to longer-term certificates or degrees. In a strong pathway, a student who completes an I-BEST program will either have the necessary skills to continue in a certificate or degree program or will have an opportunity to enroll in a type of bridge program that will provide next steps towards entering longer-term college-level programs.

In summary, programs using the I-BEST model need to consider all of the possible transition points and identify barriers to a successful transition for further education. In many cases, additional assessment testing may be needed to determine if students are academically prepared to continue into a degree program and what supports they may need to succeed in college level courses

Recommendation 10.4

An important component of student success is improving program completion rates of students who begin developmental education coursework. Current PCC developmental education recommendations reflect pre-career pathway and/or meta-major strategies. As Pima Community College begins to investigate career and guided pathways, the aforementioned developmental education pathway models may be viable strategy for future success.

Recommendation 10.5

As some PCC students are not college-ready, a large number of them are ill-equipped to engage in online learning. Beyond mastering basic study skills, students need to have time-management skills, self-motivation, communication skills, and awareness that the requirements for success are similar to those in traditional classes. They should also have the ability to use the technology required for the class. Numerous tests can be used to assess student readiness, and such a test should be provided as a mandatory online readiness component, with

the possibility of unprepared students being asked to reconsider their decision to enroll in online or hybrid classes until mastering basic content within a classroom setting.

Recommendation 10.6

After registering for an online or hybrid class, students should be provided with an orientation (online presentation or video) with clear information on how to access the online class, where to obtain technical help, and how to navigate the frequently used components of the Desire2Learn course management system they will be using for the online or hybrid class. This orientation should be required for all students taking their first online or hybrid class using Desire2Learn.

Recommendation 10.7

Several areas of institutional support are obligatory for online students as well as those enrolled in blended classes:

- **Technical Support:** A help desk should be convenient and generally available to support students with technical issues.
- **Single Contact Person or Office:** In addition to technical support, an institution should have a single office or person to serve as the students' contact regarding questions concerning online or hybrid classes and programs.

Recommendation 10.8

As with traditional on-campus students, early alert systems need to track inactive online students to identify problems and encourage their participation in the course or retention in the program. Faculty need to work closely with online advisors and implement strategies to assist students in course completion. Links to academic resources such as tutoring, library, and student support services that are specific to online learners should be provided.

Recommendation 10.9

As PCC continues to develop program offerings and full online degrees, there should be an attempt to establish cohorts or online learning communities, not just offer courses. One of the limitations of non-cohort programs is that, even though vibrant learning communities are established in individual courses, they nearly always have to be rebuilt with each new course. Cohorts allow learning communities to be carried from one course to another and built throughout the program. Like face-to-face environments, community is built through frequent interaction, as well as occasional synchronous activities including chat sessions, video conferences, and webinars.

Many community colleges are creating online campuses. These virtual campuses have all of the student services and support systems found on a physical campus, including tutoring and other academic support services.

Recommendation 10.10

Adult Education will need to work closely with academic units to ensure that future transition programs align with future career and technical education career pathways. These pathways need to extend from high school through the baccalaureate level.

Recommendation 10.11

I-BEST provides an on-ramp to a career technical education program, customized for basic skills students. PCC I-BEST programs are structured to provide a clear pathway to a college credential and entry-level careers. Past research studies suggest that these programs are highly effective in terms of student success and completion.

In national I-BEST models, a basic skills instructor is present in the classroom at least 50 percent of the time. The additional cost of providing two instructors raises concerns about the scalability of the model for a large number

of program areas. National studies on the cost-benefit on I-BEST indicate that “the benefits of the I-BEST program approximately equal the additional costs incurred by the program.” (Wachen, et al., 2012).

Unfortunately, I-BEST is only reaching a small fraction of the basic skills students in adult education programs at PCC. While it is not feasible to offer the I-BEST model for every field of study in career-technical programs, PCC needs to expand contextualized programs in this area. This is especially true for high demand occupations that require a greater level of hands-on training. Costs may need to be mitigated through statewide, regional or local grants and funding initiatives. In some cases, program redesign could decrease the amount of co-teaching and contextualization.

Recommendation 10.12

Community colleges provide an attractive option for students who want easily accessible, low-cost, flexible education options close to home. Because community colleges generally have open admission policies, they offer a viable option not only for Hispanic and Latino students who want to attend college, but all students from diverse backgrounds.

Based on a review of recruitment strategies at other HSIs, community colleges are providing outreach by extending the campus into the community. There are examples of placing community engagement centers into areas with diverse, under-represented populations. The College should investigate rebranding or enhancing existing Adult Education Centers into Community Engagement Centers and increasing the number of bilingual staff to provide both recruitment and advising services, as well as other services to support community-based social programming efforts.

Recommendation 11.1

Instructional facilities are defined as seminar, classrooms, lecture rooms, auditoria and teaching labs as designated in the district’s space inventory system. Utilization guidelines for instructional facilities at PCC should be developed to measure efficiency of use. Metrics should include weekly room hours, station occupancy, and assignable square feet per station. Classroom and class laboratory criteria and size standards should be used regarding capacity for growth or facility expansion.