

# SENATE PRESENTATION

Every College President is asking, "How long can we wait for computer labs and the Internet and still be competitive?"

Students are asking, "Where can I use a computer?" "Can I access the Internet?" "Will I need computer skills to get a job?"

Faculty at RCC are concerned because student labs are inadequate and many faculty do not have access. Many departments are trying to build computer labs. Campus administrators are asking, "How much will this cost?" These are serious issues. We must confront them as a college community to find the best answers and implement them in a timely way.

## Academic Senate Technology Goals:

1. **Open computer labs on each campus to provide students in all disciplines access to computer technology in order to complete academic assignment and projects.**
2. **Acquisition and implementation of adequate and current technology for support of student access to word processing, computers, lab equipment, current software, in-class computer demonstration equipment, and student access to the Internet.**

This presentation is divided into five steps:

- Step one is *Building the Inventory*.
- Step two describes *Our Community Partners*.
- Step three shows *How Population Growth Affects the Equation*.
- Step four addresses *Faculty Training*.
- Step five relates to *Ways to Accelerate Progress*.

## 1. BUILDING THE INVENTORY

How many computers do we have? How many computers do we need? How much will it cost? How long will it take to reach the desired level of computers and support?

### How many computers do we have?

Table 1 shows the present inventory levels on each campus and relates it to the expected number of Full Time Equivalent Students.

**Table 1: Computer Inventory Levels and Ratios for RCCD.**

Campus	Obsolete Macintosh	Macintosh	Obsolete 8088-686	Pentium	Total < 5 years old	FTES	Ratio
City Campus	14	60	107	180	220	11000	1:50
Moreno Valley			38	242	242	2600	1:11
Norco	21		17	280	280	3000	1:11
Total	35	60	163	700	740	16,600	1:23

Norco and Moreno Valley benefited from construction and secondary effects funding. Moreno Valley includes 60 computers currently being purchased for the large general-purpose lab. City Campus expects to have construction and secondary effects funds for the new library building scheduled for 2001. In the interim there will be some technology and one-time capital funds.

### How many computers do we need?

Course needs vary. The simplest guide is to compare RCCD with other institutions. Table 2 provides current statistics

**Table 2: Computer:FTES Ratios for Selected Schools and Colleges**

Institution	Number of Computers	FTES	Ratio
Ngee Ann Polytechnic-Singapore	4,500	12,000	1:2.7
California State University, San Bernadino	4,000	12,000	1:3
Goal for State of California K-12			1:4
Redlands East Valley High School	400	2,000	1:5
RCC Norco	280	3000	1:11
Moreno Valley	240	2600	1:11
State of California K-12 – current ratio			1:14
RCC City Campus	220	11,000	1:50

The goal for RCCD should be no less than the 1:4 proposed for the State of California K-12. This would require 4,150 computers compared to the present inventory of 750, a difference of 3,400 computers.

### How much will it cost? And how long will it take to reach the desired level of computers and support?

At a purchase price of \$3,000 each, computers alone represent a cost of \$10.3 million. Networks, printers, servers, and software will double this cost. In some instances new construction, renovation, or rewiring will be part of the equation. Add to this the cost of technicians and lab aides.

For planning purposes, a five-year goal fits with the life expectancy of computers. If the desired inventory can be achieved in five years, continued purchase at that level year-by-year will maintain the inventory of current computers. Networks and servers have a longer life expectancy.

The bottom line is that approximately \$25 is needed to achieve the 1:4 ratio. If this is a five-year goal, it will cost \$5 million each year. Starting in year six, 20% of the inventory will need to be replaced. In other words, there will be a continuing cost of \$5 million each year.

Ways must be devised to augment funding or to significantly increase the use of computer resources. If State budgets are not sufficient, external funds and partnerships are needed. Effective utilization of computer resources is crucial – large labs reduce supervision cost and extended lab hours give greater value for each equipment dollar. If policies can be changed to allow students to do more of their work at home or at their placers of work, this further reduces the load on computer labs.

## 2. COMMUNITY PARTNERS - STUDENT ACCESS AT HOME AND AT WORK;

As inventory and courses increase, students will request the opportunity to do lab work on their computers at work and at home. For some, remote access may be easier and more convenient. From an instructional management point of view, support can be provided at a distance via telephone and wide area networks.

Telephone provides voice, fax, bulletin boards, email, chat rooms, computer forums, computer conferences, and other Internet services. Most businesses will have high-speed access to the Internet through ISDN or T1 lines used to connect their internal networks or LANs to the Internet.

Software is available that will allow instructor and student to share and control the desktop, keyboard and mouse at a distance – even if the receiving party does not have the software on his

or her computer (Timbuktu, Proshare, etc.). Video options are also available (Connectrix, Proshare, CU-SeeMe, Netscape, Explorer, etc.).

In order to do laboratory at work and at home, a policy changes will be needed regarding “line-of-sight” between instructor and student. Two measures are possible: One is to provide equivalent online services using the technologies listed above. If the student requires an online connection to a campus server, time and progress can be measured by polling the student’s computer and making a log of requests for assistance. A preferred means would be to change the metrics from time-based to outcome based learning. What the student has learned and his or her ability to apply the new knowledge and skills are more important measurements than seat time.

**3. HOW GROWTH AFFECTS THE EQUATION;**

Growth of up to 50% may occur in the next five years. The data presented is based on level enrollments and the level of support, including augmentations of capital, technology, and one-time allocations provided in the 1997-98 academic year. Expanded technology budgets and additional one-time allocations will be needed to handle annual growth. If the State does not provide these resources, partnerships and “for profit” programs will be needed to keep RCCD viable in meeting its mission to the Riverside community.

**4. HOW FACULTY TRAINING AFFECTS THE EQUATION;**

Faculty training needs to be synchronized with the development of computer labs. If training lags, computer resources cannot be used effectively; if construction lags, courses may need to be cancelled and/or students cannot be properly supported to do their assignments.

The quality and level of training is also a factor. High quality training experiences will provide a model for instructors. The breadth and depth of the training experience provides more options for the instructor and more opportunities for creative use of interactive multimedia in teaching and learning.

**5. WAYS TO ACCELERATE PROGRESS.**

A number of factors impede progress. These include:

- a. short and long term planning  
Plans need to be prepared well in advance to ensure that space, infrastructure, personnel and budget are sufficient and available in a timely manner for construction, training, operation, maintenance, and replacement.
- b. Space  
If space is already impacted, creative solutions are required to meet the short-term need. More effective solutions result from long-term planning involving new construction and/or renovation – a process that requires several years to plan, fund, and implement. Small labs cost more to supervise on a per-student basis than large labs. Teaching labs (instructor-led classes) are less efficient than open labs. If possible, the majority of laboratories should be focused in a single building adjacent to each other. The most efficient configuration is a large open lab surrounded by specialized labs and teaching labs. The specialized labs and teaching labs can be kept open when not assigned to classes to maximize student access.
- c. infrastructure: Electrical power, networks, air conditioning, furniture.

One problem of converting existing spaces is the provision of services such as power, air conditioning, network access. Also the space may substantially limit the furniture and layout options for the lab.

- d. personnel support: technicians, lab aides, trained instructors  
Spaces have to be supervised; students have to be supported; equipment, networks and software have to be maintained; lab aides and instructors need to be trained
- e. budget  
Capital budget is required construction, wiring, air conditioning, carpeting, furniture, computers, printers, network hubs and switches, and other computer peripheral equipment.  
Operating budget is needed for a lab manager, technicians, lab aides, contracted services, and spare and replacement equipment and parts.  
Replacement equipment budget is needed to replace equipment that is obsolete or no longer economical to repair. Typical life is five years for a computer, eight years for a printer, and ten to years for networks. These times may be substantially less if inappropriate equipment is purchased. For example, all instructional networks need switched hubs rather than shared hubs – shared hubs will not handle the multimedia, Internet and video traffic for multiple users.

#### **Can the five-year goal be accelerated?**

In addition to dollars, space and faculty training affect the rate of implementation. City Campus has no adequate space for its large general-purpose laboratory. The new library and technology building are five years away. Portables are not large enough and will not handle the heat from the new generation of computers. Pre-engineered warehouse buildings (as used by Costco and Home Depot) are a logical alternative if funding could be obtained. Norco and Moreno Valley are closer to the goal and could reach the 1:4 ratio in less than 5 years.

Faculty training will require instructors, well-equipped faculty laboratories, and lab aides. Courseware has to be selected or developed. Production support is needed. And curriculum committees must have time to act. Five years is not a long time for these things to happen. In the interim there will be shortages, tensions, and a great need for faculty, staff, administration, students, and the community to pull together to ensure that graduates for RCCD have the best possible training in computers and the internet to ensure that they are fully competitive in the workplace.