

**PERALTA
COMMUNITY
COLLEGES**

**LINKING
EDUCATIONAL
TO
FACILITIES
PLANNING**

REVISED

**LONG-RANGE
ENROLLMENT
PROJECTIONS**

Prepared by

Chuck McIntyre

Under contract to

PERALTA COMMUNITY COLLEGE DISTRICT

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PERALTA COMMUNITY COLLEGES

LONG-RANGE ENROLLMENT PROJECTIONS

Contents

	Page
Introduction	3
Background	4
PCCD Past Enrollment Fluctuation	6
Future Enrollment Scenarios	9
Simulated Future Enrollments	12
Projected WSCH and Delivery	17
Chart I. Laney College	23
Chart J. Berkeley City College	24
Chart K. Merritt College	25
Chart L. College of Alameda	26

PERALTA COMMUNITY COLLEGES

LONG-RANGE ENROLLMENT PROJECTIONS

Introduction

This paper on *Long-Range Enrollment Projections* is one of several papers from a project designed to help Peralta Community College District (PCCD) conduct its long-range strategic planning.

Work on this project began in June 2007, and has included, among other activities:

- Project design by the contractor (Chuck McIntyre), as modified by PCCD staff
- Extensive meetings with PCCD staff on project intent, methods, and findings
- Focus groups with individuals from communities in the PCCD service area
- Focus groups with faculty, staff and students from PCCD college campuses
- Information and data gathering and analysis by the contractor from a variety of sources inside and outside PCCD
- Review of findings, implications and proposed strategies with the PCCD Board of Trustees and staff in various meetings of the Strategic Management Team (SMT), District-Wide Educational Master Planning Committee (DWEMPC), and other groups.
- Detailed tours by college staff of the facilities at each campus.

From this work, project papers written by the contractor for PCCD include:

- *External Scan*: of external conditions and the educational needs of PCCD 's students and communities
- *Internal Scan*: of conditions internal to PCCD; how well its colleges are meeting educational needs, given their mission and goals
- *Findings and Conclusions* for PCCD colleges resulting from the above work
- *Scenarios and Simulations*: of the enrollment implications of future scenarios

In a closely related part of this project, the Contractor is working from the findings above to develop and write papers that help PCCD staff link facilities planning to educational planning – in collaboration with staff and with outside facility master planners WLC Architects, Inc. of Emeryville and Maas Companies, Inc. WLC's work on these plans should be based on information from PCCD's *Educational Master Plans*, district and college, and on long-term strategies for

- *Learning, Delivery and Facilities*: developments in pedagogy, "smart" classroom technology, distance learning, learning commons and the like (July 2008)

- **Space and utilization standards:** possible modification of obsolete state standards for local planning (August 2008)
- **Long-range projections of enrollment,** FTES, WSCH, and staff – by college, site, and program area (June, Revised August 2008)

This paper covers the last of these three topics.

Background

Peralta Community College District (PCCD) is one of 72 public community college districts in California and serves the six communities of Albany, Alameda, Berkeley, Emeryville, Oakland and Piedmont in the East Bay Area County of Alameda (Chart A). The district supports four colleges: Laney, Merritt, Alameda and Berkeley, a center in Fruitvale, and a variety of instructional sites throughout its service area.

This comprehensive PCCD system, delivering less-than-baccalaureate transfer, occupational and community education, currently enrolls over 30,000 students at any given time that are highly diverse and need education that ranges all the way from pre-collegiate basic skills classes to English as a second language (ESL) to lower division general education to highly-skilled job training. PCCD's mission statement also includes a role for it in the economic development of the East Bay Area.

After extensive strategic planning, PCCD's Board of Trustees adopted in 2007 a *District-Wide Strategic Plan* with goals to: (1) advance student access and success, (2) engage area communities and partners, (3) build programs of distinction, (4) create a culture of innovation and collaboration, and (5) ensure the district's financial health. Work here and elsewhere in this project uses these goals as benchmarks for analysis.

While growing modestly – at just over half the rate for the state as a whole – PCCD's service area communities are quite diverse, culturally and economically, and like many other mature urban areas, will experience the beginning of substantial retirements of “baby boomers” and the likely leveling or downturn in the number of local high school graduates by the end of this decade. These trends and PCCD's recent history confront the district with complex challenges and questions:

- How will the East Bay Area evolve and, as a consequence, how should PCCD evolve?
- How should the curriculum evolve, where should it be located and how delivered: on-campus, face-to-face; partnerships; distance learning; and in what kinds of class and out-of-class facilities?
- How can PCCD maintain robust basic skills instruction and an effective lower division, general education, transfer core, while augmenting its workforce

preparation and contract training? In what specific skill areas ought the latter functions be expanded so as to meet the labor market needs of the East Bay.

- What delivery modes and organization and staffing changes will maximize the district's access and program quality?
- What kinds of enrollment management strategies will enable PCCD to fulfill its mission, and meet its goals and objectives? What strategies best support the priorities of fiscal stability and sustainability?
- To what degree should the colleges make their market penetration (access) "more consistent" across their different service area communities and specific clientele "niches," and increase overall area access?

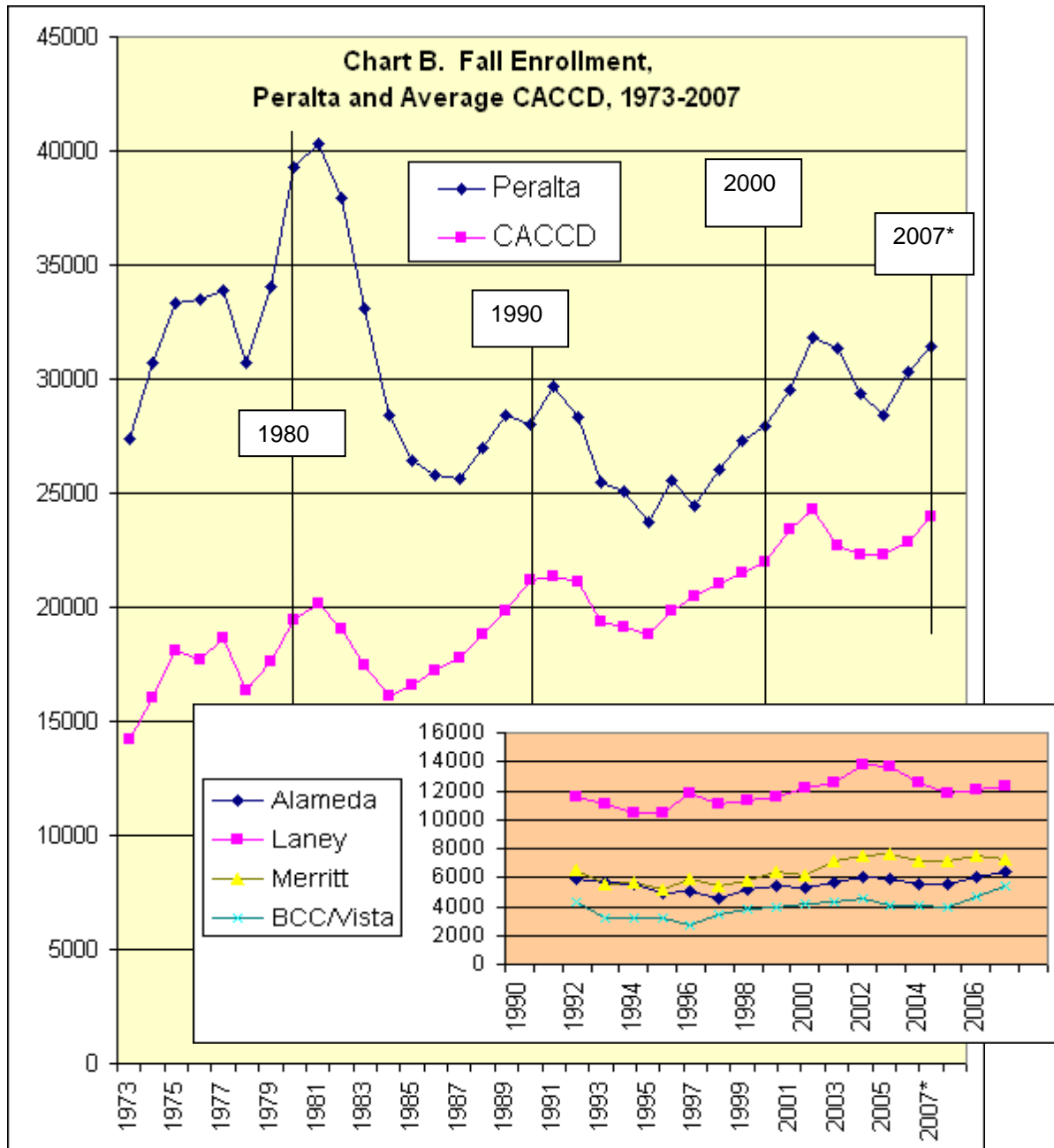
The *External and Internal Scans* have developed and analyzed evidence that addresses the above questions, but more than that, help PCCD staff in their efforts to develop a *District-Wide Educational Master Plan* that, in conjunction with similar plans by each of the four colleges, will enable the PCCD Board and staff to address the difficult challenges facing the district. *Findings and Conclusions* reviews the *Scans* – including quantitative empirical evidence and qualitative input from meetings and focus groups with PCCD faculty, staff, and area community members – and draws conclusions leading to a series of planning themes.

A paper on *Scenarios and Simulations* analyzes the causes of PCCD enrollment fluctuation, addresses the need for PCCD to plan for more than one possible future, what the enrollment consequences of alternative future scenarios might be, and a recommended planning scenario with strategies and consequences. Working from that paper, the following examines possible future enrollments by college, delivery and type of space needed to that facilities planning may proceed.

PCCD Past Enrollment Fluctuation

The last quarter-century has been characterized by a cycling in PCCD enrollments – mirrored by other California community colleges – in which each decade begins with the following events: a downturn in California's economy and in its highly-elastic General Fund (the basis for PCCD funding), a Legislative-response to increase student fees and cut budgets, and, thereby, reduce the colleges' ability to enroll students even though demand has increased because of rising unemployment and the need for retraining. This early-decade pattern is then followed by an economic upturn, fees even reduced and budgets and programs expanded, resulting in an enrollment upswing (Chart B).

Recent PCCD enrollment trends (since 2000) are due in large part to substantial tuition and fee increases – from a rate of \$365 per full-time student in 2002 to \$818 in 2004 – and a cutback of courses for students concurrently-enrolled in high schools in 2003. Other factors played a part, of course - notably, transportation (the largest component – at about one-fourth – of the direct cost faced by students who enroll at PCCD), fee

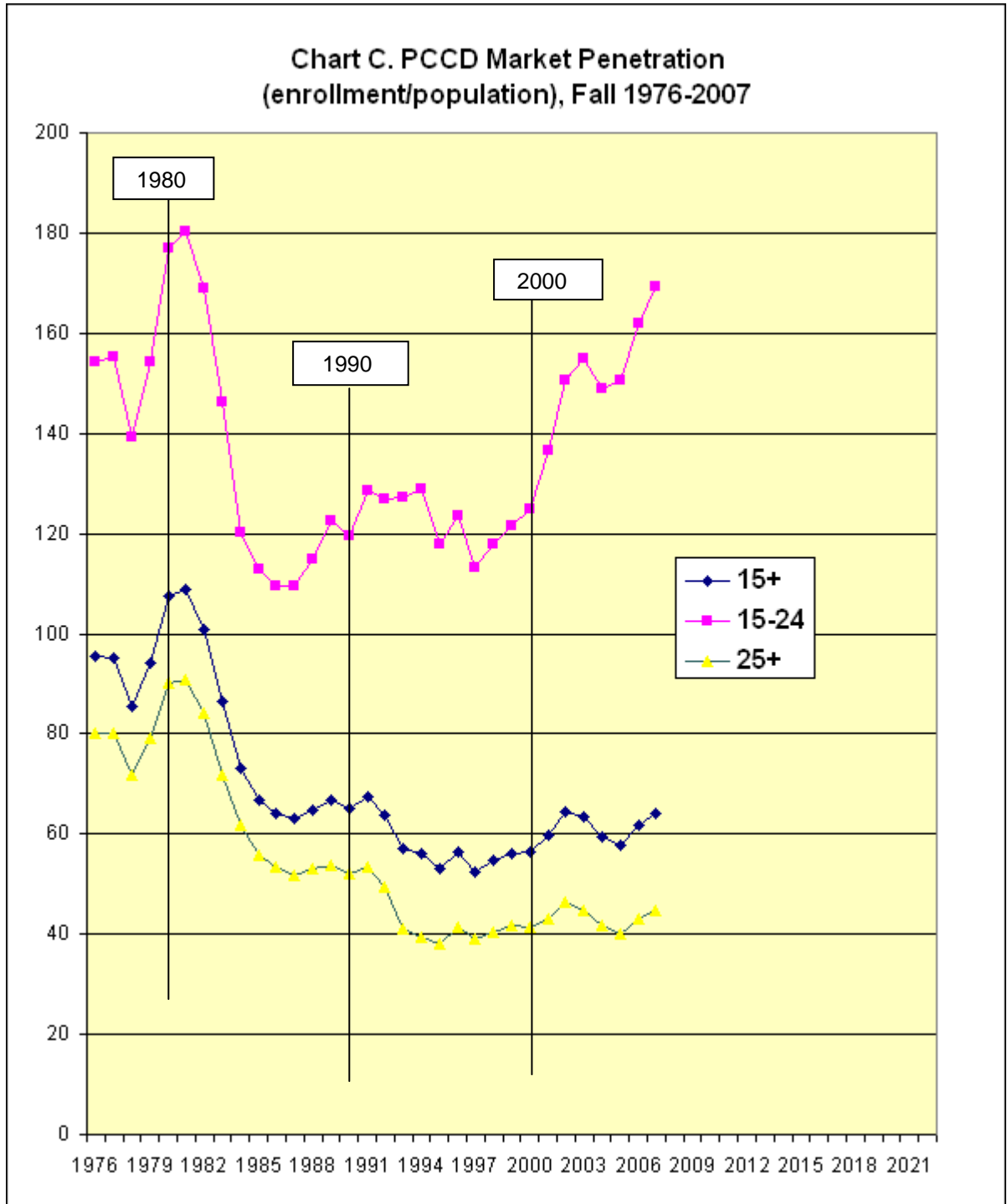


Sources: COCCC (2008), PCCD (2007).

increases at “substitute” colleges like California State University, changes to PCCD’s curriculum and services (as supported by budget), modest area population growth, economic fluctuations (as noted), and PCCD enrollment strategies like marketing, admissions, and scheduling.

Fall 2007 enrollment across the state and at PCCD increased (Chart B). Enrollments were up substantially at Berkeley City College (BCC) and College of Alameda (COA),

up modestly at Laney College (LC) and down at Merritt College (MC). Now, despite a relatively high proportion of older students, PCCD market penetration of those aged 25+ who reside in the district is near its lowest rate in three decades (Chart C).



Source: ESP Model (2008).

By contrast, PCCD market penetration among less-than 25 year-olds, after record low levels between 1984 and 2000, has increased dramatically, by 4% annually, in the last decade – enrollment at PCCD of this group increasing by an average of 3% each year while the district resident 15 to 24 year-old population cohort was decreasing by 1% annually.

Notably, this measure of market penetration (MP) reflects not only residents, but also non-residents. As noted in the *Internal Scan*, most of the dramatic increase here is among those <25 non-district residents. Between 2000 and 2006, PCCD improved its MP by 9% (including nonresidents) while statewide, community colleges' MP declined by -7%, a substantial difference. The practical result of this in our scenarios and forecasts below is that they presume that this attraction of PCCD to those outside the district, particularly those to the south (Chabot Las Positas' area) will continue to grow. If not, and in any case, PCCD must continue to improve its MP among those <25 district residents.

Use of a one-year budget lag in the econometric model – that is, enrollment and market penetration changes are posited to occur one-year after the funds become available – proves best at explaining enrollment fluctuations, especially for younger students. By contrast, older 25+ year-old PCCD students are far more sensitive to changes in the price of enrollment than are those younger than 25, though the latter, as expected, are impacted more by CSU fee changes. Both age groups are impacted by changes in area unemployment, the state funding cap, and PCCD policy and practice.

Future Enrollment Scenarios

Given future uncertainty, the implications of *multiple scenarios* should be explored as PCCD planners attempt to identify long-term problems and, given the college's mission, craft a vision, direction and specific strategies for enrollment management, operating budgets, and physical facilities. These multiple scenarios acknowledge that the PCCD colleges face relatively certain service area demographic trends, uncertain economic cycles, and mostly unknown future public policies – a mixed bag, to be sure.

Scenario planning can be described as a method that builds on traditional strategic planning – involving both internal and external scans – but adds the additional dimension of more than one possible future and, therefore, makes the process far more robust in selecting operating strategies – also, far more useful as an educational tool for staff facing an uncertain future and needing to build contingency plans.

The consequences of different futures for college enrollments – both the number and kind – can be simulated by the econometric model noted above and detailed in the paper on *Scenarios and Simulations*. Once the statistical parameters of the model are estimated, future values of the independent variables can be specified from scenarios and future enrollments then simulated and analyzed for each scenario. Scenario attributes also provide the basis to project the future characteristics, entering skills and learning needs of

these students – in PCCD’s case focusing on the differences between younger <25 year-olds and older 25+ year-olds.

These projections also support discussions about ways to deliver that learning: whether on the district’s main college campuses via active or passive (the traditional model) learning, at off-campus centers and/or work-sites, or through distance learning via online (Internet), televised, interactive video, CD-ROM or other media.

In general, the future scenarios are kept simple – the more complex the scenarios, the less likely the probability of their taking place, the more problematic their empirical consequences, and the more complex their implications. Scenarios also must be internally consistent; i.e., a falling economy raises unemployment and enrollment demand and likely simultaneously reduces the college’s public revenues and its ability to accommodate that increased enrollment demand.

Features of four scenarios are summarized in Chart D where the first step is to formulate a plausible, but “optimistic, status-quo” future,

Scenario A, in which the current sub-prime mortgage/financing and housing crisis is a modest “blip” and that interest rate reductions by the Federal Reserve Board (Fed), federal fiscal stimuli, help to borrowers, and the economy’s relatively strong underlying productivity produce a “settling,” followed by an upswing in 2009, moderating, then turning up again beginning 2013. Unemployment alternatively rises or falls and a continued modest district population decline (-0.4% through 2011) is assumed to shift to modest growth beginning 2012, led by the 25+ age cohort.

Proposition 98 is not or only temporarily suspended, and the California Legislative Analyst forecasts reasonable Proposition 98 revenue increases through 2011 despite the State Budget deficit. Scenario A also is a “status quo” scenario in that it continues current internal PCCD policies, and includes a \$6 per unit decrease (to \$20) in the student enrollment fee in 2007, 2008 and 2009, followed by moderate annual cost of living (CPI-like) increases in the fee, and reasonable annual gains in Proposition 98 State support for PCCD operating budgets.

Scenario B is a more pessimistic future where the current downturn escalates into a full-blown recession, followed by a generally weaker recovery beginning in 2013 with continuing State budget problems and a weak Proposition 98 – PCCD’s nominal budget growing at an average annual rate of just 4%, rather than the 7% of Scenario A, over the 15-year planning horizon 2008-22.

With a dramatic worsening in the state’s economy, rising unemployment and the like in Scenario B, the State Legislature reacts (as usual) by shifting more of the cost burden over to students through dual \$6 per unit fee increases in 2009 and 2010, pushing the total enrollment fee for an FTES from \$600 to \$960, followed by more moderate increases according to the HEPI thereafter. Both price indices, the HEPI that drives PCCD college costs and the CPI that drives student costs, increase at greater rates in

Chart D. PCCD Planning Scenarios

	A	B	C	D
Model Variables				
"UNMANAGEABLE"				
ECONOMY	OPTIMISTIC, but cycling, up 2013-17	PESSIMISTIC, and cycling down 2008-09	Like B	Like A
POPULATION	Stable, then increase, aging	Stable, then increase, aging	Like B	Like A
UNEMPLOYMENT (RATE)	Varies 4-7%, 5.5% average	Varies 5-9%, 7% average	Like B	Like A
COST OF LIVING (CPI)	Up 2.5%-4%, 3% average	Up 3%-5%, 4% average	Like B	Like A
CSU and UC STUDENT COSTS	Up by HEPI 4% average	3-yr trend: 7% average	Like B	Like A
"MANAGEABLE"				
PCCD RESOURCE PRICES (HEPI)	Up by 3-5%, 4% average	Up by 4-6%, 5% average	Like B	Like A
PCCD STUDENT TUITION AND FEES	\$20/unit 2008-2009, then up by HEPI (4%) in 2010-	\$20/unit 2008, \$26 in 2009, \$32 in 2010, then by HEPI	Like B	Like A
PCCD STUDENT DIRECT COST	Up by trend in CPI	Like A	Reduce cost of transportation	Reduce cost of transportation
PCCD STUDENT FINANCIAL AID	No change	Like A	Raise BOGG, FA delivery	Like A
PCCD OPERATING BUDGET	Cycles, with robust Prop.98, up 7% yrly ave	Cycles, with weak Prop. 98, up 4% yrly ave	Like B	Like A
PCCD DELIVERY	No change	Like A	Raise distance learning	Raise distance learning, sites
PCCD PROGRAMS AND SERVICES	No change	Like A	Like B	Expansion
PCCD MARKET, REG, ENROLL, RETAIN	No change	Like A	Like B	Initiatives

Scenario B – the HEPI averaging at 5% annually, rather than 4%, and the CPI at 4%, rather than 3% - than is the case in Scenario A due to inflationary conditions.

Scenario C poses the pessimistic external conditions of Scenario B, but in contrast to that scenario, has PCCD colleges responding with a couple of internal changes to both policy and practice. Under Scenario C student pricing, the colleges attempt to counteract the Legislature’s action by reducing transportation costs through increases in online instruction (infrastructure for which is funded in part by Measure A[2006]), scheduling that reduces the number of class meetings, and by increases in student financial aid, possibly through greater use of BOGGs and more active financial aid management.

A final **Scenario D** would encompass the optimistic unmanageable external conditions of Scenario A, but engage an expanded version of the manageable internal policies and practices – more so than Scenario C because of the better budget conditions. Here more online delivery is complemented by the addition of three centers, two on the North-side. In addition, PCCD colleges are able to expand both curriculum and support services and engage in more robust enrollment management strategies than possible under Scenario C. This simulation is something of an approximation – more like a set of goals, attached to enrollment management strategies.

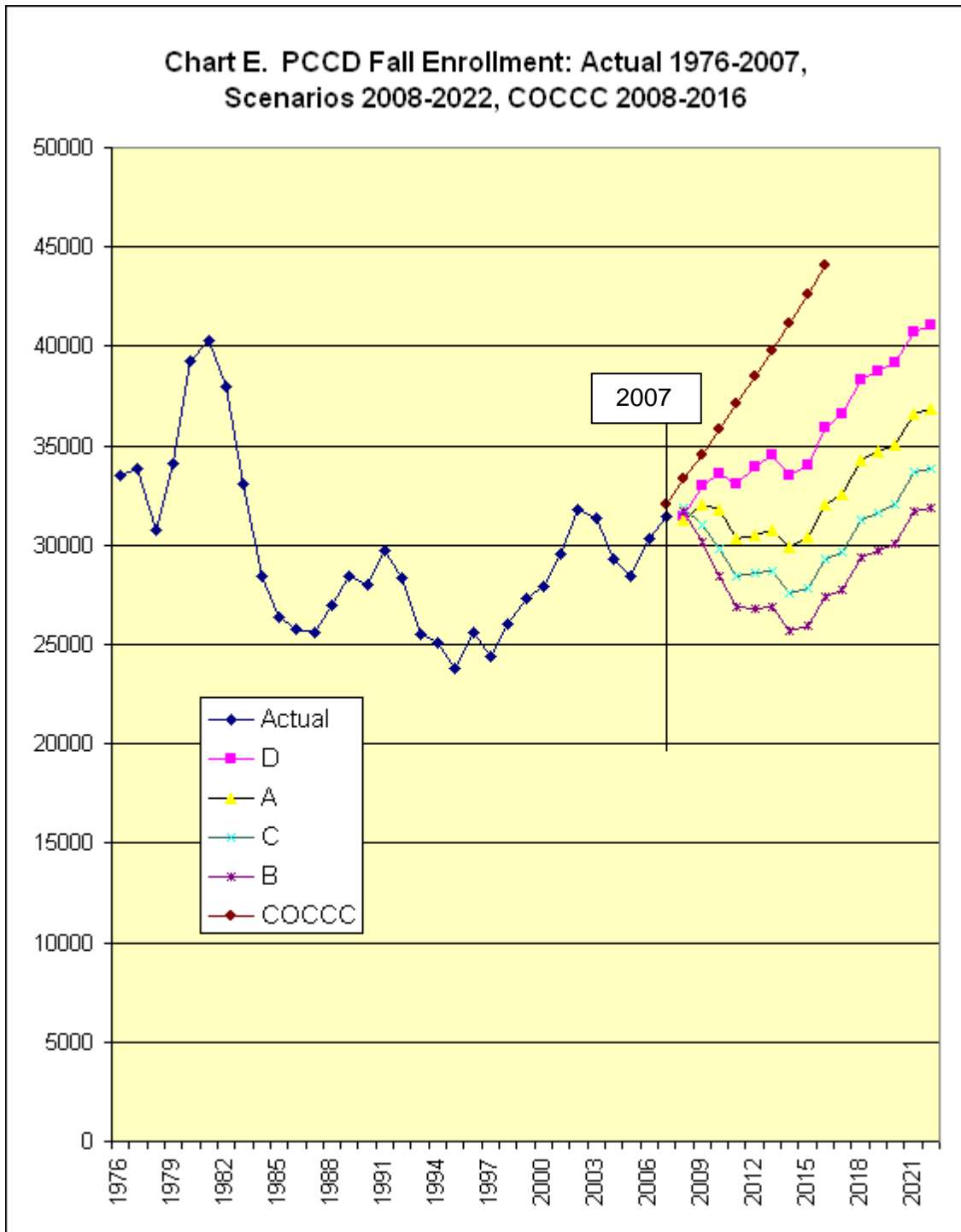
Simulated Future Enrollment

In summary, the four scenarios begin with two external scenarios – “optimistic” Scenario A and “pessimistic” Scenario B – and to these are then attached internal, “manageable” initiatives by PCCD to maintain or grow its enrollments in the face of the pessimistic conditions (Scenario C) and optimistic conditions (Scenario D). Each planning scenario produces quite different results, and a comparison of these four scenarios to the latest State Chancellor Office’s forecast is also informative (Chart E).

Scenario A embodies a reasonably optimistic and plausible – though relatively slow in the short-term – recovery from the current downturn. Consequently, PCCD enrollments of both older and younger students are projected to eventually increase, but only after a moderate near-term decline through 2014.

Scenarios B and C, embodying fee increases and budget reductions similar to the early 1990s result in projections rather similar to those trends, falling from the current level of 31,000 fall enrollment to 26,000 in Scenario B and less so in Scenario C where the price-effects of B are ameliorated somewhat by improved PCCD financial aid and more online delivery, the latter supported in part by Measure A (2006) funding for infrastructure costs.

Scenario D, as expected and displayed in Chart E – based as it is on relatively optimistic external assumptions and proactive PCCD policies and practices – produces the most enrollment growth of the four scenarios, but a rate that appears to be both plausible and sustainable, increasing from 31,000 fall enrollment currently to 41,000 by 2022.



Source: ESP PCCD Model (2008).

The internal actions by PCCD and its colleges under Scenario D are consistent with ideas and initiatives formulated in the *Districtwide Educational Master Plan*, received by the PCCD Board of Trustees in July 2008, and developed in prior discussion by PCCD staff and community in the several venues supporting the planning project: community and staff focus groups, DWEMPC, SMT and the Board. Specific initiatives in Scenario D include:

- ***Expanding online (hybrid) delivery (DL)***

This initiative is assumed to be more energetic in Scenario D than it is in Scenario C because of the greater availability of operating funds. Specifically, Scenario D not only shifts one of every 10 courses to online hybrid status by 2012, but continues that expansion such that one in every five courses are online by 2017. Thus, in theory, real (price adjusted) transportation costs are cut by 10% or \$100 per student by 2017, and continuing thereafter.

- ***Adding three new centers***

Working largely from what is suggested by PCCD's experience in Berkeley with Vista and BCC, as well as Merritt's Fruitvale Center, Scenario D incorporates the addition of three new neighborhood centers, opening in 2010, 2012, and 2014. The exact locations of these sites are subject to further study, but should at least be somewhere in the district's northern end and southern end, south of Merritt. Student out-of-class services as well as instruction are offered at these centers; i.e., they are more substantial than "store-front" operations, may be owned by the district, and may qualify for extra State "foundation" operating support as well as for capital funding.

- ***Initiating several enrollment management (EM) strategies directed largely at***

- Further improving the PCCD's market penetration (MP) among younger, <25 year-olds, through concurrent high school enrollments, expanded basic skills instruction, ESL and counseling, targeting current high school students as well as those who've dropped out or who've graduated, but do not continue.
- The 55+ year-old cohort, especially in the hills area and for specific skills niches like customer service reps, teacher aids and information technology.
- More business and industry partnerships for the (re)training of 25-54 year-olds.
- Improvements in marketing, yield, enrollment, scheduling and retention.

Model specifications of these strategies are based on the econometric regression results and residuals for specific time periods of PCCD enrollment trends over the past three decades. Of the three strategies, estimates of the enrollment consequences of EM

strategies are the most problematic and the resulting numbers to be considered more as goals than as precise empirically-based forecasts.

Estimated results of Scenario D, by each of the three categories of initiatives are summarized in Chart F. By 2010, D's initiatives are estimated to add 1,900 PCCD college enrollments over what would otherwise (in their absence) have been the case under Scenario A:

<i>Enrollment Management</i>	1,200
<i>Distance Learning</i>	500
<i>First new neighborhood center</i>	200

Despite these efforts, PCCD's recent growth in total enrollment moderates between 2008 and 2014 because of fiscal conditions, a continuing decline in area population and cycling economic conditions.

As all three efforts grow, with two more centers, more DL and more EM initiatives, the difference (between Scenarios D and A) grows to 3,400 by 2012, and with further expansion of DL offerings, to a difference of 4,100 students by 2022:

<i>Enrollment Management</i>	1,100
<i>Distance Learning</i>	1,800
<i>Three new neighborhood centers</i>	1,200

Other factors – budget, modestly increasing area population, economic conditions, and the like – reinforce PCCD colleges' efforts in Scenario D to produce a robust enrollment gain following 2014 through 2022.

Finally and importantly, PCCD's market penetration (MP) under Scenario D rises by one-fourth, from 64 fall enrollment per 1,000 district 15+ population in 2007 to 80 per 1,000 by 2022. This significant improvement would take total district enrollment to its the highest level of market penetration since 1983, just prior to the beginning of tuition (aka "enrollment fee") for California community college students (see again Chart C).

Given PCCD's fiscal condition – an unusually healthy reserve position at present – and the lack of discussion between the Governor and Legislature about raising community college enrollment fees, there is reason to believe that the internal (manageable) initiatives and results of Scenario D are possible. Whether the relatively external (unmanageable) conditions underlying Scenario D actually occur is more problematic. If energy prices (stimulated by the rise in oil to over \$140 per barrel) continue to rise and the housing crisis worsens, there seems little that monetary policy – mostly interest rate reductions by the Federal Reserve Board – can do to restore the economy quickly and significantly. And fiscal policy is constrained by the war and on-going deficit. That said, the underlying strong productivity of most industry sectors provides hope.

Chart F
Estimated PCCD Results from Scenario D Adjustments to Scenario A

	15+Pop'n	%Chg	MP(D)	%Chg	Enrollment					
					Actual	Est'd	Scn D	Scn A	D Adds Total Students	
							EM	DL	Centers	
2000	496544		56.3		27941					
2001	495630	-0.2%	59.6	6.0%	29552					
2002	494716	-0.2%	64.3	7.9%	31828					
2003	493802	-0.2%	63.5	-1.3%	31350					
2004	492888	-0.2%	59.5	-6.3%	29327					
2005	491974	-0.2%	57.8	-2.9%	28430					
2006	491060	-0.2%	61.7	6.8%	30298					
2007	488901	-0.4%	64.2	4.1%	31404					
2008	486742	-0.4%	64.7	0.7%		31477	31305	0	172	0
2009	484584	-0.4%	68.0	5.2%		32955	32029	584	342	0
2010	482425	-0.4%	69.7	2.5%		33623	31758	1161	511	194
2011	480266	-0.4%	68.9	-1.1%		33105	30311	1731	678	386
2012	481879	0.3%	70.5	2.2%		33963	30533	1999	850	581
2013	484101	0.5%	71.3	1.2%		34536	30788	1944	1025	778
2014	486112	0.4%	68.8	-3.5%		33465	29923	1365	1201	976
2015	489278	0.7%	69.6	1.1%		34055	30389	1107	1382	1177
2016	491864	0.5%	73.0	4.9%		35920	32067	1108	1564	1182
2017	494752	0.6%	74.0	1.3%		36599	32554	1110	1748	1187
2018	497756	0.6%	77.0	4.1%		38347	34284	1111	1759	1192
2019	501352	0.7%	77.3	0.4%		38762	34676	1114	1773	1199
2020	504701	0.7%	77.6	0.3%		39152	35044	1117	1785	1205
2021	508226	0.7%	80.2	3.3%		40743	36613	1120	1799	1212
2022	511775	0.7%	80.2	0.0%		41043	36890	1123	1812	1218

Source: ESP PCCD Model (2008).
MP(D): Enrollment per 1,000 Population.

Another factor suggesting that Scenario D as a plausible basis for PCCD planning is the district’s intended initiative in *economic development or enterprise activity* – including contract, grant and community (fee-based) education. Like online distance learning, PCCD begins this work from a minimal level and if successful should prove a significant stimulus to the growth of FTES in related regular instruction, supplementing expected State general fund apportionments.

Enrollments forecast in Scenario D are based, in part, on PCCD’s General Fund budget growing in nominal terms at an average of 6.9% yearly over the next 15 years (the nominal average budget increase for the past 15 years was 4.8% yearly) - the added 2% annually achievable by developing contract training, grant and community (fee-based) education; i.e., extramural funding from community-based partnerships, alliances and the like.

The latest projection of PCCD’s future enrollments by the State Chancellor’s Office (COCCC) also are displayed in Chart E and, at a glance, would appear to embody wildly optimistic assumptions of conditions that do not and likely will not exist in the future – or

that perhaps exist in some “parallel universe.” The COCCC methodology bases PCCD enrollment on Alameda County (not the PCCD district) population change, and assumes that budget, student price and state policy never change – thus a projection that oddly is driven solely by Alameda County population growth.

Arguments presented above suggest that PCCD may want to begin its long-term fiscal planning using the enrollments forecast under Scenario D assumptions; that is, a reasonably optimistic scenario that includes an attempt to implement basic operating reforms embodied in the district’s current educational planning. Use of Scenario D enrollment forecasts can support planning for both long range district operating budgets and the capital budgeting that relies on Measure A monies.

Forecasts used for capital planning of facility proposals for state support should be guided also by consideration of the added complexities that PCCD’s needs are being compared to other districts in the process and that the state’s space and utilization standards used to measure facility demand significantly understate the need because they are based on instructional delivery methods from a half-century ago and are quite out-of-date. (See paper on *Space and Utilization Standards*.)

Projected WSCH and Delivery

In the next step of tying PCCD’s educational to its facilities planning, the preferred forecast of future enrollments in Scenario D is translated into weekly student contact hours (WSCH) and full-time equivalent students (FTES).

Given differences in the projections of <25 year-olds and 25+ year-olds, differences in their academic hour-loading, and an assumed increase in academic loading by <25 year-olds who take online as well as face-to-face instruction, the resulting change in PCCD WSCH is estimated at increase of from 274,300 WSCH in 2007 to 375,200 by 2022 or 37% overall (Chart G).

The more rapid projected enrollment growth in 25+ year-olds is offset by the assumed increase in loading among <25 year-olds due to more online delivery:

	Percent Change 2007 to 2022	
	Enrollment	WSCH
<25 year-olds	28.9%	42.9%
25+ year-olds	32.0%	32.0%
Total	30.7%	36.8%

Source: Chart G.

As noted in Chart G, average loading of 9.3 weekly student contact hours for <25 year-olds increases by one hour to 10.3 while that for 25+ year-olds remains constant at 8.3. The overall student load estimated at 9.1 in 2022, if achieved, would be the highest since the 1970s.

Chart G. PCCD Enrollment and WSCH by Age, 1976-2022												
			<25				25+				Total	
	Enroll	%Ch	H/E	WSCH	Enroll	%Ch	H/E	WSCH	Enroll		H/E	WSCH
1976	11062				22460				33522		10.79	361677
1977	11197	1.2%			22653	0.9%			33850	1.0%	10.32	349390
1978	10130	-9.5%			20620	-9.0%			30750	-9.2%	10.67	328158
1979	11222	10.8%			22849	10.8%			34071	10.8%	9.07	309163
1980	12944	15.3%			26353	15.3%			39297	15.3%	8.27	324981
1981	13312	2.8%			27000	2.5%			40312	2.6%	8.14	328302
1982	12576	-5.5%			25356	-6.1%			37932	-5.9%	8.32	315415
1983	11032	-12.3%			22051	-13.0%			33083	-12.8%	7.88	260772
1984	9160	-17.0%			19243	-12.7%			28403	-14.1%	8.09	229804
1985	8691	-5.1%			17712	-8.0%			26403	-7.0%	8.54	225363
1986	8513	-2.0%			17264	-2.5%			25777	-2.4%	8.44	217505
1987	8603	1.1%			17021	-1.4%			25624	-0.6%	8.27	211820
1988	9183	6.7%			17827	4.7%			27010	5.4%	8.14	219927
1989	9955	8.4%			18489	3.7%			28444	5.3%	7.94	225737
1990	9809	-1.5%			18216	-1.5%			28025	-1.5%	8.30	232554
1991	10692	9.0%			19009	4.3%			29701	6.0%	8.02	238234
1992	10578	-1.1%			17735	-6.7%			28313	-4.7%	8.02	227038
1993	10605	0.3%			14871	-16.1%			25476	-10.0%	8.62	219591
1994	10699	0.9%			14369	-3.4%			25068	-1.6%	8.80	220620
1995	9793	-8.5%			13968	-2.8%			23761	-5.2%	8.97	213152
1996	10293	5.1%			15274	9.3%			25567	7.6%	8.68	221925
1997	9628	-6.5%			14810	-3.0%			24438	-4.4%	8.82	215552
1998	10214	6.1%			15793	6.6%			26007	6.4%	8.65	224911
1999	10664	4.4%			16614	5.2%			27278	4.9%	8.36	227979
2000	11147	4.5%			16794	1.1%			27941	2.4%	8.00	223509
2001	11926	7.0%			17626	5.0%			29552	5.8%	8.71	257371
2002	12844	7.7%			18984	7.7%			31828	7.7%	8.39	266956
2003	12920	0.6%			18430	-2.9%			31350	-1.5%	8.23	258065
2004	12130	-6.1%			17197	-6.7%			29327	-6.5%	8.50	249307
2005	11969	-1.3%			16461	-4.3%			28430	-3.1%	8.77	249268
2006	12555	4.9%	9.19	115380	17743	7.8%	8.09	143541	30298	6.6%	8.55	258990
2007	13013	3.7%	9.29	120894	18391	3.7%	8.34	153378	31404	3.7%	8.73	274274
2008	13199	1.4%	9.30	122750	18278	-0.6%	8.34	152435	31477	0.2%	8.74	275186
2009	13608	3.1%	9.40	127912	19347	5.9%	8.34	161356	32955	4.7%	8.78	289269
2010	13799	1.4%	9.50	131094	19824	2.5%	8.34	165333	33623	2.0%	8.82	296427
2011	13651	-1.1%	9.60	131047	19454	-1.9%	8.34	162250	33105	-1.5%	8.86	293297
2012	14190	4.0%	9.70	137648	19772	1.6%	8.34	164901	33963	2.6%	8.91	302549
2013	14731	3.8%	9.80	144360	19805	0.2%	8.34	165175	34536	1.7%	8.96	309535
2014	14440	-2.0%	9.90	142960	19025	-3.9%	8.34	158669	33465	-3.1%	9.01	301629
2015	14511	0.5%	10.00	145106	19545	2.7%	8.34	163003	34055	1.8%	9.05	308109
2016	15134	4.3%	10.10	152850	20787	6.4%	8.34	173361	35920	5.5%	9.08	326211
2017	15369	1.6%	10.20	156767	21230	2.1%	8.34	177055	36599	1.9%	9.12	333822
2018	15938	3.7%	10.30	164159	22409	5.6%	8.34	186894	38347	4.8%	9.15	351053
2019	16103	1.0%	10.30	165859	22660	1.1%	8.34	188982	38762	1.1%	9.15	354840
2020	16225	0.8%	10.30	167118	22927	1.2%	8.34	191208	39152	1.0%	9.15	358326
2021	16690	2.9%	10.30	171906	24053	4.9%	8.34	200602	40743	4.1%	9.14	372508
2022	16771	0.5%	10.30	172736	24272	0.9%	8.34	202431	41043	0.7%	9.14	375167
Assumptions: Enrollment Scenario D; 2006 hour loading by age continues, except for <25 where 9.3 increases to 10.3 by 2018 due to expansion of online instruction.												

Deriving PCCD FTES from the projection of future WSCH (in Chart G), district totals grow from 20,176 (the current estimate of FTES from the second principal apportionment of 2007-08) to a total of 29,200 in 2022-23 – made up of the following approximate components at five-year benchmarks:

FTES ESTIMATES BY INITIATIVE

	2007-08	2012-13	2017-18	2022-23	Average Annual Rate
Base	20,176	19,616	21,323	24,701	1.2%
Enrollment Management		1,444	805	931	0.4%
Distance (Online) Learning		850	1,398	1,450	0.4%
Educational Centers		581	1,187	1,218	0.3%
Contract, Grant & Fee-Based		200	500	900	0.2%
TOTAL	20,176	22,692	25,213	29,200	2.5%
INITIATIVES ADD		3,076	3,890	4,499	

Source: PCCD ESP Model (2008).

Growth targets and patterns for each of the four PCCD colleges are:

	FTES Targets:			
	Yearly Rate 1993-07	now (07-08)	2022	Yearly Rate 2008-22
LC	0.7%	8,647	10,600	1.4%
MC	0.8%	4,404	6,600	2.8%
COA	0.0%	3,635	6,000	3.4%
BCC	7.3%	3,490	6,000	3.8%
TOTAL	1.2%	20,176	29,200	2.5%

based upon:

- recent and possible future experience with FTES change by college
- college campus facility constraints

- planned specific college program emphases, policies about specialization and sharing of programs, and possible program growth or decline.

Notably, all college growth rates pick up, except BCC that is “built-out” by 2010 and must rely on off-campus sites and distance learning for further growth (Chart H).

Besides development of transfer and five other district-wide program themes of the *educational master plan*:

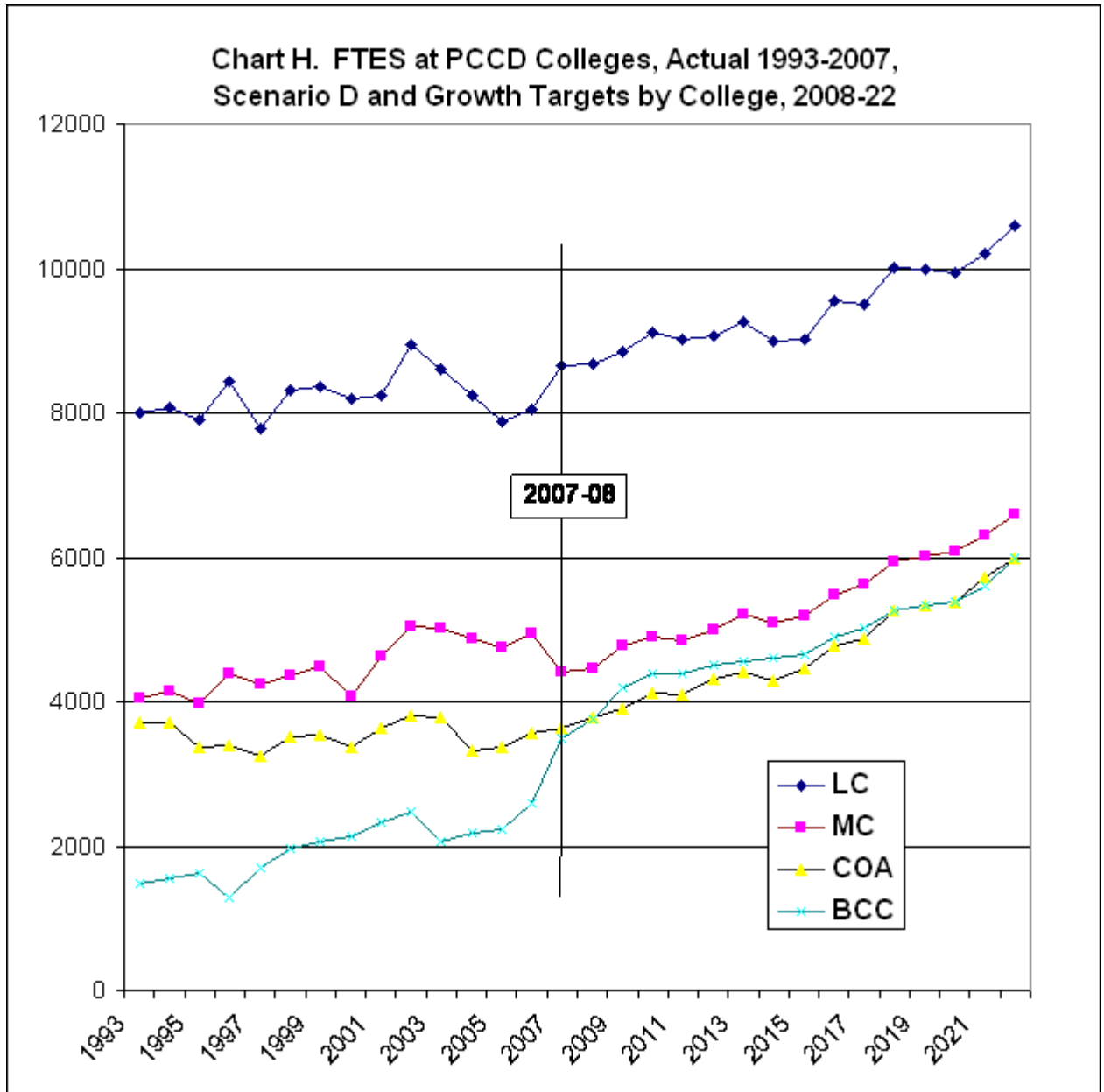
- Foundation skills
- Enterprise studies and technology applications
- Biosciences
- Social justice and environmental sustainability
- Global awareness and languages

each college’s growth reflects emerging educational programs and areas of specific emphasis developed during the educational planning project:

- **Laney**: green design and construction, wellness, bio-manufacturing, performing arts, business, public service
- **Merritt**: health, bioscience, public safety, child development, hospitality, landscape horticulture
- **Alameda**: transportation and logistics, green technology, bioinformatics, biotechnology
- **Berkeley**: biotechnology, bioscience, multi-media arts, human services, international trade, American sign language

In order to further project WSCH by college and pedagogy so as to identify specific space needs, a number of additional assumptions and plans are *proposed*:

- All colleges will offer **online** distance learning: 1/10 of classes are hybrid by 2012 and 1/5 of classes by 2017 (thus accounting for 10% of WSCH by 2017).
- Substantial **off-campus centers** (probably two north, one south) open in 2010, 2012 and 2014; BCC with the most off-campus work, LC with the least.
- One of every four lecture classes at each college is delivered in the “**active learning**” mode currently, increasing to ½ by 2020.
- Ratio of **labs and shops** at each college also increases due to program emphases, MC and COA with the largest increases, LC the least as its program balance between liberal arts and science and technology remains relatively constant.
- **Contract training and community education** should be a stimulus to growth at all colleges, but are not included in the forecasts due to limited experience.



Source: ESP PCCD Model (2008).

The above assumptions applied to the FTES growth targets in Chart H provide the basis for calculations of WSCH in Charts I, J, K and L for each of the four PCCD colleges by the following delivery and space categories:

- the off-campus component of delivery
 - centers and sites, face-to-face
 - virtual online

and

- the on-campus component of delivery, by face-to-face pedagogy

- Lecture
- Active Learning
- Laboratory
- P.E. Laboratory

Results show the substantial variation that exists among the colleges, Berkeley and Merritt with the largest off-campus activity, Laney and Alameda with the least, but growing. Most of the growth in off-campus activity will be the result of expanding online distance learning:

		Percent of WSCH Off-Campus	
		2007	2022
Chart I.	LC	1%	13%
Chart J.	BCC	11%	29%
Chart K.	MC	6%	17%
Chart L.	COA	1%	16%

Projected WSCH are then used to calculate instructional space needs (see paper on *Space and Utilization Standards*). These “raw” needs over time are balanced against existing and planned spaces to identify the gap or what’s needed – in the way of new, remodeled and/or renovated space. The latter is particularly important for PCCD colleges as some spaces aren’t fully utilized often because of their old design or poor condition. Also among the trade-offs is the need for new and replacement equipment, a PCCD priority.

WSCH need to be distinguished for those labs and shops with specific space standards that vary by discipline and department, work that may be added to facilities planning once trends – growth, stability, decline – by specific discipline are determined in the colleges’ individual *Educational Master Plans*.

Demand for the colleges’ requisite non-instructional support facilities like offices is calculated from Full-Time Equivalent Faculty (FTEF) and other staffing numbers – whose trends also are identified in the individual college *Educational Master Plans*.

Chart I. LANEY COLLEGE

WSCH BY DELIVERY TYPE, ACTUAL 2002-07, FORECAST 2008-22¹

	OFF-CAMPUS						ON-CAMPUS										TOTAL		
	Dist. Lrng. ²		Cntrs,Sites ³		Total Off-C		Total On-C		Phys Educ		Lecture ⁴		Active Lrn'g		Lab ⁵		wsch	rT	
	wsch	rT	wsch	rT	wsch	rT	wsch	rT	wsch	rOC	wsch	rOC	wsch	rOC	wsch	rOC			
2002																			
2003																			
2004																			
2005	0	0.00	805	0.01	805	0.01	105059	0.99	4213	0.04	49562	0.47	16521	0.16	34764	0.33	105864	1.00	
2006	0	0.00	823	0.01	823	0.01	107511	0.99	4311	0.04	50638	0.47	16879	0.16	35683	0.33	108334	1.00	
2007	0	0.00	869	0.01	869	0.01	113455	0.99	4550	0.04	53352	0.47	17784	0.16	37769	0.33	114324	1.00	
2008	1156	0.01	900	0.01	2056	0.02	113522	0.98	4735	0.04	52537	0.46	18459	0.16	37792	0.33	115578	1.00	
2009	2430	0.02	900	0.01	3330	0.03	115074	0.97	4727	0.04	51500	0.45	20748	0.18	38100	0.33	118404	1.00	
2010	3646	0.03	1337	0.01	4983	0.04	116552	0.96	4662	0.04	51163	0.44	21927	0.19	38800	0.33	121535	1.00	
2011	4810	0.04	1769	0.01	6579	0.05	113673	0.95	4547	0.04	48473	0.43	22811	0.20	37842	0.33	120252	1.00	
2012	6051	0.05	2208	0.02	8259	0.07	112760	0.93	4510	0.04	46670	0.41	24042	0.21	37538	0.33	121020	1.00	
2013	7429	0.06	2651	0.02	10080	0.08	113734	0.92	4549	0.04	45646	0.40	25676	0.23	37862	0.33	123814	1.00	
2014	8446	0.07	3096	0.03	11542	0.10	109110	0.90	4364	0.04	42422	0.39	26001	0.24	36323	0.33	120652	1.00	
2015	9613	0.08	3549	0.03	13162	0.11	107001	0.89	4280	0.04	40260	0.38	26840	0.25	35621	0.33	120163	1.00	
2016	11450	0.09	3559	0.03	15009	0.12	112214	0.88	4489	0.04	40814	0.36	29555	0.26	37356	0.33	127222	1.00	
2017	12685	0.10	3570	0.03	16256	0.13	110597	0.87	4424	0.04	38839	0.35	30516	0.28	36818	0.33	126852	1.00	
2018	13340	0.10	3582	0.03	16922	0.13	116478	0.87	4659	0.04	39443	0.34	33600	0.29	38776	0.33	133400	1.00	
2019	13307	0.10	3598	0.03	16904	0.13	116161	0.87	4646	0.04	37879	0.33	34965	0.30	38670	0.33	133065	1.00	
2020	13258	0.10	3612	0.03	16870	0.13	115711	0.87	4628	0.04	36281	0.31	36281	0.31	38520	0.33	132581	1.00	
2021	13597	0.10	3627	0.03	17223	0.13	118742	0.87	4750	0.04	37232	0.31	37232	0.31	39530	0.33	135966	1.00	
2022	13610	0.10	3641	0.03	17252	0.13	118852	0.87	4754	0.04	37266	0.31	37266	0.31	39566	0.33	136104	1.00	
	<i>rT</i> : ratio of wsch college total.																		
	<i>rOC</i> : ratio of wsch on-campus.																		
	<i>Assumptions and Plans:</i>																		
	¹ Laney growth under "Scenario D with Targets" (Chart 4a), moving from 8,600 FTES to a target of 10,600 by 2022.																		
	² Laney adopts distance learning like other PCCD colleges: 1/10 classes are hybrid by 2012, 1/5 by 2017 for 1,100 FTES by 2020.																		
	³ Laney moves classes off-campus to neighborhood centers, beginning 2010: its equal share of the "centers" enrollment initiative.																		
	⁴ At Laney one of every four lectures is delivered in the active learning mode currently, increasing to 1/2 by 2020.																		
	⁵ Laney balance between liberal arts and science/technology remains constant, and, therefore, lab ratio remains constant at 1/3.																		
																			McIntyre,8/07/08

Chart K. MERRITT COLLEGE

WSCH BY DELIVERY TYPE, ACTUAL 2002-07, FORECAST 2008-22¹

	OFF-CAMPUS				ON-CAMPUS										TOTAL			
	Dist. Lrng. ²		Cntrs,Sites ³		Total Off-C		Total On-C		Phys Educ		Lecture ⁴		Active Lrn'g		Lab ⁵		wsch	rT
	wsch	rT	wsch	rT	wsch	rT	wsch	rT	wsch	rOC	wsch	rOC	wsch	rOC	wsch	rOC		
2002																		
2003																		
2004																		
2005	0	0.00	3536	0.05	3536	0.05	61947	0.95	2044	0.033	30664	0.49	10221	0.16	19018	0.31	65483	1.00
2006	0	0.00	3862	0.05	3862	0.05	68998	0.95	2277	0.033	34154	0.50	11385	0.17	21182	0.31	72860	1.00
2007	0	0.00	3169	0.05	3169	0.05	56622	0.95	1973	0.033	29597	0.50	9866	0.17	18356	0.31	59792	1.00
2008	603	0.01	3200	0.05	3803	0.06	56463	0.94	1863	0.03	27577	0.49	9689	0.17	17334	0.31	60266	1.00
2009	1273	0.02	3500	0.05	4773	0.07	58866	0.93	1943	0.03	27973	0.48	10878	0.18	18072	0.31	63639	1.00
2010	1956	0.03	3937	0.06	5893	0.09	59321	0.91	1958	0.03	27406	0.46	11745	0.20	18211	0.31	65214	1.00
2011	2581	0.04	4369	0.07	6950	0.11	57576	0.89	1900	0.03	25331	0.44	11920	0.21	18424	0.32	64525	1.00
2012	3328	0.05	4808	0.07	8136	0.12	58424	0.88	1928	0.03	24948	0.43	12852	0.22	18696	0.32	66561	1.00
2013	4179	0.06	5251	0.08	9430	0.14	60216	0.86	1987	0.03	24934	0.41	14025	0.23	19269	0.32	69645	1.00
2014	4751	0.07	5696	0.08	10447	0.15	57420	0.85	1895	0.03	22677	0.39	13899	0.24	18949	0.33	67867	1.00
2015	5546	0.08	6149	0.09	11695	0.17	57630	0.83	1902	0.03	22026	0.38	14684	0.25	19018	0.33	69325	1.00
2016	6606	0.09	6159	0.08	12764	0.17	60633	0.83	2001	0.03	22401	0.37	16222	0.27	20009	0.33	73398	1.00
2017	7511	0.10	6170	0.08	13681	0.18	61429	0.82	2027	0.03	21569	0.35	16947	0.28	20886	0.34	75110	1.00
2018	7899	0.10	6182	0.08	14081	0.18	64906	0.82	2142	0.03	21976	0.34	18720	0.29	22068	0.34	78987	1.00
2019	8019	0.10	6198	0.08	14217	0.18	65977	0.82	2177	0.03	21511	0.33	19856	0.30	22432	0.34	80194	1.00
2020	8098	0.10	6212	0.08	14310	0.18	66672	0.82	2200	0.03	20568	0.31	20568	0.31	23335	0.35	80982	1.00
2021	8419	0.10	6227	0.07	14645	0.17	69542	0.83	2295	0.03	21454	0.31	21454	0.31	24340	0.35	84187	1.00
2022	8474	0.10	6241	0.07	14716	0.17	70028	0.83	2311	0.03	21604	0.31	21604	0.31	24510	0.35	84744	1.00
	<i>rT</i> : ratio of wsch college total.																	
	<i>rOC</i> : ratio of wsch on-campus.																	
	<i>Assumptions and Plans:</i>																	
	¹ MC growth under "Scenario D with Targets" (Chart 4a), moving from 4,400 FTES to a target of 6,600 by 2022.																	
	² MC adopts distance learning like other PCCD colleges: 1/10 classes are hybrid by 2012, 1/5 by 2017; @600 FTES by 2022.																	
	³ MC moves classes off-campus to neighborhood centers, beginning 2010: its equal share of the "centers" enrollment initiative.																	
	⁴ One of every four lectures at MC is delivered in the active learning mode currently, increasing to 1/2 by 2020.																	
	⁵ MC growth in health, biosciences and, possibly, hospitality increases its ratio of WSCH taught in laboratories from .31 to .35.																	

Chart L. COLLEGE OF ALAMEDA

WSCH BY DELIVERY TYPE, ACTUAL 2002-07, FORECAST 2008-22¹

	OFF-CAMPUS				ON-CAMPUS										TOTAL				
	Dist. Lrng. ²		Cnts,Sites ³		Total Off-C		Total On-C		Phys Educ		Lecture ⁴		Active Lrn'g		Lab ⁵		wsch	rT	
	wsch	rT	wsch	rT	wsch	rT	wsch	rT	wsch	rOC	wsch	rOC	wsch	rOC	wsch	rOC			
2002																			
2003																			
2004																			
2005	0	0.00	230	0.00	230	0.005	45834	0.995	1352	0.029	26057	0.57	8686	0.19	9740	0.21	46064	1.00	
2006	0	0.00	246	0.00	246	0.005	48955	0.84	1444	0.029	27831	0.57	9277	0.19	10403	0.21	49201	1.00	
2007	0	0.00	233	0.005	233	0.005	46385	1.00	1375	0.029	26328	0.57	8776	0.19	9906	0.21	46618	1.00	
2008	509	0.01	250	0.005	759	0.01	50150	0.99	1479	0.03	28112	0.56	9877	0.20	10682	0.21	50909	1.00	
2009	1070	0.02	300	0.01	1370	0.03	52144	0.97	1538	0.03	28402	0.54	10200	0.21	11159	0.21	53515	1.00	
2010	1645	0.03	350	0.01	1995	0.04	52844	0.96	1559	0.03	27947	0.53	11977	0.23	11361	0.22	54839	1.00	
2011	2229	0.04	400	0.01	2629	0.05	53097	0.95	1566	0.03	27098	0.51	12752	0.24	11681	0.22	55727	1.00	
2012	2874	0.05	1000	0.02	3874	0.07	53610	0.93	1581	0.03	26378	0.49	13589	0.25	12062	0.23	57484	1.00	
2013	3529	0.06	1500	0.03	5029	0.09	53783	0.91	1586	0.03	25489	0.47	14338	0.27	12370	0.23	58812	1.00	
2014	4012	0.07	2000	0.03	6012	0.10	51298	0.90	1513	0.03	23392	0.46	14337	0.28	12055	0.24	57310	1.00	
2015	4807	0.08	3000	0.05	7807	0.13	52275	0.87	1542	0.03	22912	0.44	15275	0.29	12546	0.24	60081	1.00	
2016	5725	0.09	4000	0.06	9725	0.15	53886	0.85	1589	0.03	22675	0.42	16420	0.30	13202	0.25	63611	1.00	
2017	6510	0.10	4670	0.07	11180	0.17	53915	0.83	1590	0.03	21754	0.40	17092	0.32	13479	0.25	65095	1.00	
2018	7021	0.10	4682	0.07	11704	0.17	58507	0.83	1726	0.03	22605	0.39	19257	0.33	14919	0.26	70211	1.00	
2019	7097	0.10	4698	0.07	11795	0.17	59173	0.83	1745	0.03	21862	0.37	20181	0.34	15385	0.26	70968	1.00	
2020	7167	0.10	4712	0.07	11878	0.17	59787	0.83	1764	0.03	21090	0.35	21090	0.35	15844	0.27	71665	1.00	
2021	7636	0.10	4727	0.06	12363	0.16	64001	0.84	1888	0.03	22417	0.35	22417	0.35	17280	0.27	76364	1.00	
2022	7691	0.10	4741	0.06	12432	0.16	64477	0.84	1902	0.03	22422	0.35	22422	0.35	17731	0.28	76909	1.00	
	<i>rT</i> : ratio of wsch college total.																		
	<i>rOC</i> : ratio of wsch on-campus.																		
	<i>Assumptions and Plans:</i>																		
	¹ COA growth under "Scenario D with Targets" (Chart 4a), moving from 3,600 FTES to a target of 6,000 by 2022.																		
	² COA adopts distance learning like other PCCD colleges: 1/10 classes are hybrid by 2012, 1/5 by 2017; @500 FTES by 2022.																		
	³ Beginning 2012, COA schedules classes off-campus at neighborhood centers and partners' sites; locating @600 such FTES by 2022.																		
	⁴ One of every four lectures at COA is delivered in the active learning mode currently, increasing to 1/2 by 2020.																		
	⁵ COA growth in transportation/logistics, green technologies and bioinformatics raises its ratio of lab/shop WSCH from .21 to .28.																		
																			McIntyre, 8/07/08