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A CAUTIONARY ANALYSIS OF A BILLION DOLLAR ATHLETIC EXPENDITURE: The History of the Renovation Of California Memorial Stadium and the Construction of the Barclay Simpson Student Athlete High Performance Center*

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ABSTRACT

This paper is a description and analysis of the history of the renovation of Memorial Stadium and the building of the Barclay Simpson Student Athlete High Performance Center (SAHPC) on the Berkeley campus, showing how incremental changes over time result in a much riskier and financially less viable project than originally anticipated. It describes the decision making process, the role of various constituent groups including senior administrators and the UC Regents, faculty, community members and local and state governmental officials, donors and protesters. It includes the legal challenges and financial implications of the most expensive intercollegiate athletics capital project in the nation totaling $474 million dollars. Taking into account debt servicing over time, the total expenditures could approach more than $1 billion. These projects were highly controversial from their inception, continue to be so to this day because of current campus wide financial challenges, and illustrate the complexity and risk of managing big-time intercollegiate athletics programs. This study draws on two theories of organizational decision-making, Diane Vaughan's normalization of deviance and Charles Lindblom's science of muddling through. They are part of a larger debate within the social sciences about the degree to which structure and/or agency determine human behavior. Structure is the broad framework of rules, regulations, expectations, history and tradition within which organizations function and which provide limits or constraints on human behavior. Most organizational decisions are made within this framework and are inevitably incremental and often risk averse. Agency is the ability to take independent action despite the constraints of structure, entails greater risk, and becomes necessary because behavior within the organization has become normalized over time and deviates, even unknowingly, from changing values.

Keywords: Intercollegiate Athletics, UC Berkeley, California Memorial Stadium, Student Athlete High Performance Center, NCAA

This paper is a description and analysis of the history of the renovation of Memorial Stadium and the building of the Barclay Simpson Student Athlete High Performance Center (SAHPC) on the Berkeley campus, showing how incremental changes over time result in a much riskier and financially less viable project than originally anticipated. It describes the decision making process, the role of various constituent groups including senior administrators and the UC Regents, faculty, community members and local and state governmental officials, donors and protesters. It includes the legal challenges and financial implications of the most expensive intercollegiate athletics capital project in the nation totaling $474 million dollars.[1] Barclay Simpson was a businessman, philanthropist and major figure in the arts, government and education. A long-time supporter of Cal, both in academics and athletics, he chaired the capital campaign that raised $3.3 billion, made the lead gift for the SAHPC, and was the recipient of The Berkeley Medal, the highest honor the University bestows.

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This study draws on two theories of organizational decision-making, Diane Vaughan's (1996) normalization of deviance and Charles Lindblom's (1959, 1979) science of muddling through. They are part of a larger debate within the social sciences about the degree to which *structure* and/or *agency* determine human behavior. Structure is the broad framework of rules, regulations, expectations, history and tradition within which organizations function and which provide limits or constraints on human behavior. Most organizational decisions are made within this framework and are inevitably incremental and often risk averse. Agency is the ability to take independent action despite the constraints of structure, entails greater risk, and becomes necessary because behavior within the organization has become normalized over time and deviates, even unknowingly, from changing values. Appendix A provides a fuller description of Vaughan's and Lindblom's work.

A Berkeley Chancellor and his 8,500 administrative staff, manage a very large and inherently complicated organization. Berkeley's annual operating budget is approximately $2.7 billion. Over 38,000 students participate in 277 degree programs taught by 1522 ladder rank faculty and a much larger number of lecturers and graduate students. Every year, the campus brings in over $600 million in research funding. Its research, teaching and public service functions rely on revenue from multiple sources: the federal and state governments, private organizations and individuals, tuition and fees.

Each element of the organization involves a political dynamic based on needs and expectations. Students expect a first-rate education, decent housing and a safe environment; faculty expect adequate offices, lab space, the best technology, increasing salaries and staff support; the staff want good salaries and a manageable workload; city officials want help in meeting the needs of Berkeley citizens who are impacted in multiple ways by what seems like an ever expanding campus footprint; state and federal officials expect more of everything for less money, including accommodating an expanding student population; donors and alumni expect the Berkeley campus to maintain its standing as one of the best universities in the world and to have a greater voice in its operations to ensure that. The Chancellor's job is to balance all of those needs, along with the periodic crises, while making sure that access and excellence occur at a maximum level. Resting on one's laurels is an impossibility.

Decision making in this environment often means favoring one of the constituent groups at the expense of another. The limitation on available revenues makes this unavoidable. The challenge is to make sure that the unhappiness quotient does not reach a tipping point among several of the constituent groups at the same time. That involves a measure of good luck along with political skill and a feeling for how the total organization is functioning at any point in time. It is in this context that the personality and temperament of the individual leader come into play. Any complex decision involves trade-offs that include the assessment of risks or downsides. Since those decisions almost always reside with the Chancellor, his or her tolerance for risk will always come into play, consciously or otherwise.

Chancellors inherit a history of traditions, values and assumptions that have set expectations and embedded ways of managing over time. Nevertheless, societal changes impinge on the university and must be accommodated, forcing significant changes in its operation. Examples of this include declining state support, the computer revolution, and fundamental changes within certain disciplines such as biology. Most decisions a Chancellor makes are incremental, not revolutionary. They involve an assessment of the current situation, an attempt to measure likely outcomes of a particular decision, and extensive consultation with the effected constituent groups. This is the "muddling through" approach. It is of necessity limited and imperfect.

One danger with incremental decision-making is that a pattern of behavior and way of thinking become normalized over time, limiting the leader's ability to foresee potentially serious negative consequences. This occurs when competing values are at stake and heightened as a result of external societal forces. This is the case with big-time intercollegiate football programs in the United States. What, at their inception in the late 1800s, were self-supporting student run activities, have now morphed into a multi-billion dollar entertainment enterprise. Amateurism, the foundational principle of the NCAA, tying together athletics and academics, can only be maintained at the expense of the players themselves. Coaches, athletic administrators and student athletes in the non-revenue sports benefit at the expense of the football players who generate the revenue and receive very questionable educational benefits for their work.

Forty to fifty hour per week time commitments, injuries, extensive travel and regimented control of almost all their waking hours significantly weaken any true educational experience. Furthermore, and perhaps more importantly, educational institutions permit, foster and benefit from a sport that often leads to bodily injury, including long-term damage to the brain for some players. The tragic death of Cal football player Ted Agu in 2014 during a questionable extreme conditioning exercise led to a $4.75 million settlement for his family and extensive negative publicity for UC Berkeley for the way in which it was handled. The central issue here is not whether young men wish to engage in risky behavior and do so in this and other physical activity. The issue is whether tying football, and the huge expenditures needed to compete in the sport, to the educational institution fundamentally deviates from its educational mission.

A. The Context

The construction of the Barclay Simpson Student Athlete High Performance Center (SAHPC) and the renovation of Memorial Stadium, a subset of the broader dilemma of football's connection to the University, describes the way certain policies and behaviors became normalized over time. The risk involved in how these projects were financed is highlighted. The consequence of those decisions is now apparent as is illustrated in the annual deficit of the intercollegiate athletics program for 2015-16 of $22 million. The relationship between the debt service payments and the deficit in that program is described later in the paper. Other new campus buildings also used debt financing. The annual servicing of this debt totals $100 million that includes the intercollegiate athletics component. The debt service is a contributing factor to the projected campus deficit for 2017 of $170 million.

There are multiple reasons for the overall campus deficit - a substantial cut in State appropriations; the need to absorb $120 million in pension contributions and $75 million in additional health insurance costs; five years of flat tuition; a failure of a change to centralized or shared services that did not lead to anticipated savings; greatly reduced State support for capital projects; and a failure to constrain staff growth.

Late in Chancellor Birgeneau's term (roughly 2012), a change in budgeting occurred. Previously, differentiated revenue streams were linked to specific purposes, such as faculty positions, the library, student services, maintenance, minor capital improvements. The new approach, commonly referred to as "all money is green," combined specific revenues and allowed for greater flexibility in their allocation. It also made it more difficult to describe publicly the causes of the deficit. While the $100M debt service is offset by associated revenues such as rent for student housing, indirect cost recovery for research buildings and TV revenue and ticket sales for athletic facilities, expenditures are projected to exceed revenue for multiple reasons totaling $170 million for 2017. A variety of cutbacks are expected to reduce that amount to $110 million by June 2017. In essence, what is being stated is that, *in retrospect*, it would have been better to have not undertaken so much capital debt.

The campus administration was counting on increased tuition and an increasing number of out-of- state undergraduate students (who pay higher tuition) to cover a substantial portion of the deficit. Governor Jerry Brown and UC President Janet Napolitano foreclosed that option in an agreement described below. The magnitude of the deficit is of considerable concern to the campus community because of its potential to undermine Berkeley's excellence over the long term.

While this paper focuses on the recent history of the two athletics projects, the historical trajectory of ambivalence towards intercollegiate athletics on the Berkeley campus, beginning in the 1960s, is an important cultural determinant. This ambivalence is described in detail in the first white paper by Cummins and Hextrum (2013). A combination of scarce resources and a lack of clarity about the role of intercollegiate athletics on the campus led to a continuation of the deterioration of the stadium for almost twenty years during the administrations of Ira Michael Heyman (1980-1990) and Chang-Lin Tien (1990-1997). Even the seismic renovation of academic buildings did not get serious attention until Chancellor Robert Berdahl's administration (1997-2004). Heyman believed that the State of California would bail out the campus if a major seismic event occurred. As State support continued to decline, it became clear to Berdahl that the campus had to take direct action.

A further shift occurred in the 1980s as a result of declining state allocations to the University of California. Heyman began referring to the campus as a "state assisted" as opposed to "state supported" institution. He responded to this shift by establishing a substantial fund raising operation for the campus that has taken on enormous importance due to a continuing decline in state support. Donors took on an increasingly important role, following a long established pattern in the private universities. Clarifying their role in governance at Berkeley continues to this day. Some important donors value athletics and, as a result, have also influenced decision making in that arena. The possibility of alienating donors is taken into account in every major decision affecting athletics.

In this same time period, the emergence of cable TV and ESPN would eventually lead to enormous sums of money pouring into selected conferences and programs from television contracts. This was a major factor in a significant cultural shift at Berkeley and nationally where intercollegiate athletics viewed itself, and others viewed it, more as a business than as an ancillary student activity. Student first and athlete second further eroded, as is evidenced by poor graduation rates at certain big-time programs, including Berkeley, where winning took primacy over academics. By the 1980s, the athletics arms race was fully underway and magnificent stadia and other amenities proliferated. Keeping up with the Joneses through facility enhancements and salary increases for coaches and athletic administrators were seen as essential to remain competitive. Berkeley was in catch-up mode and the combination of lavish competing facilities at other schools and the fact that Memorial Stadium sat directly above the Hayward Fault pushed costs into the stratosphere. Lacking a donor base like Stanford where large, substantial gifts and creative investments boosted athletic support, riskier financial programs became an attractive alternative at Berkeley during former Chancellor Birgeneau's term (2004 - 2013).

The following story illustrates how history and cultural shifts affect decision-making and risk in an elite university with a big-time intercollegiate athletics program, what Vaughan calls "situated action." (Vaughan 1998) It is common practice to place blame on certain individuals when institutional failures occur, whether perceived or real. Firing those responsible, it is believed, solves the problem. Certain cases fit that pattern. Other cases don't. Vaughan's work on the Challenger space shuttle catastrophe demonstrates a much more complex interaction of historical, cultural forces, assumptions and embedded ways of thinking that led to unintended consequences. As a senior administrator and participant observer in the Chancellor's office from the early 1980s until 2008, my experience with successive Chancellorial decision making on athletics matters resonates with Vaughan's analysis. Undoubtedly mistakes and errors in judgment were made, as they are in any human endeavor. These are more easily seen in retrospect. However, at the time and within the existing context, each Chancellor firmly believed he was acting in the best interests of the University.

B. The Story

On Monday, May 13, 2013, Bob Birgeneau was nearing the end of his nine-year term as Chancellor. That evening his current and former cabinet members feted him at a dinner on the University Club level of Memorial Stadium. Vice Chancellors paraded to the microphone and sang his praises, his Provost George Breslauer referring to him as perhaps the most transformative Chancellor in campus history. Birgeneau, a risk taker by any measure, raised enormous amounts of money and championed the disadvantaged and underrepresented. Berkeley was the first university in the U.S. to offer comprehensive financial aid to undocumented students and the first public university to provide substantial financial aid to middle class students with family incomes up to $140,000. He maintained and enhanced Berkeley's excellence despite the worst financial challenge in its history as a result of the Great Recession of 2008 and eroding State support, and presided over the construction and renovation of many campus buildings. None was more challenging or more expensive than Memorial Stadium itself and its accompanying building, the SAHPC.

Some candid comments at the dinner reflected what all his direct reports knew. His multitasking often gave the impression that he was not a good listener. The checking of his watch, the sudden typing of an email or the shuffling of papers on his desk in the middle of a conversation, his rapid decision making even when counseled otherwise, his stubbornness could be a bit unnerving. But what he accomplished in very trying times was unquestioned.

Finally, it was his turn at the microphone. With the stadium immediately behind him and the magnificent view westward in front of him, he graciously thanked his colleagues and took the opportunity to say how proud he was that the SAHPC and renovation of Memorial Stadium had occurred on his watch. Of Berkeley's ten Chancellors, only he and Glenn Seaborg (1958-1961) were such avowed supporters of intercollegiate athletics at Cal. Only someone with that level of commitment and persistence could have seen these projects through to completion. Protests from tree sitters, legal maneuvering, seismic challenges, construction delays, faculty opposition and financing obstacles plagued the project. The projects were done well but the cost was enormous.

The rapidly escalating intercollegiate athletics operating budget and the drain it was placing on the campus to support it during the Great Recession of 2008, precipitated major faculty opposition as exemplified in the Academic Senate passage of a resolution urging that: "All funding of Intercollegiate Athletics from campus subsidies and the use of student registration fees cease immediately (or as soon as possible to the extent permitted by existing contract constraints) on November 5, 2009."

The words "support," "subsidy" and "deficit" take on different meanings over time. If one believes in the value of an intercollegiate athletics program to the overall educational mission, then campus "support" is no different from support for any other program. If one questions the value and believes the athletics program should be "self-supporting," as it was for most of its history at Cal, then the campus contribution is referred to as a "subsidy" or even a loan to cover the shortfall or "deficit" in the athletics operating budget. Whatever term is used, the accumulated campus contribution from 1991 to the present is over $200 million and averages somewhere between $8 and $10 million annually. This includes both campus support and the student fee, which averages about $2 million annually. The $22 million deficit for 2015-16 is the highest on record. With the exception of a very few programs like Texas and Ohio State, most institutions subsidize their intercollegiate athletics programs. Just within the UC system, UCLA, Davis and Berkeley, all with football programs, have widely varying subsidies. From 2010 to 2014, UCLA's total subsidy over that period was $14 million, virtually all of which was student fee money; Berkeley's was $47 million, 22% of which was from student fees; and Davis's was $114 million, 81% of which was student fees. (Chronicle of Higher Education/Huffington Post Report, 2015)

Nevertheless, the Stadium and SAHPC, and the ability to pay for these projects, have become the most visible symbol of the controversy and value conflicts that surround intercollegiate athletics at UC Berkeley. The history of intercollegiate athletics nationally is replete with examples of faculty resistance and concern over the direction of intercollegiate athletics, as described in the first White Paper. Nevertheless, the Faculty Senate resolution shocked the Berkeley campus and the larger community and led to an intense period of scrutiny of the finances of intercollegiate athletics and their associated risks.

1. Background

Several factors influenced UC Berkeley's decision to renovate California Memorial Stadium: the generally deplorable condition of the stadium; pressure from the UC Regents to ensure the health and safety of fans in the stadium and about 400 employees and student athletes who worked there daily; the need for additional facilities for the non-revenue sports; and university leaders' belief that a new stadium would bring athletic success to the football team.

Roy Brophy, a Cal alum and 1986 Governor Deukmejian appointee to the UC Regents, often attended football games at Memorial Stadium. As a successful Sacramento developer, he saw the deteriorating condition of the stadium and knew well the danger posed by its location atop the Hayward fault. Not one to shy away from controversy, he began to pressure Chancellor Heyman to seismically retrofit the stadium. Brophy, as chairman of the Regents from 1989 – 1991, exerted considerable influence. Heyman knew there was no money to finance such a project and withstood the pressure. While the State of California did provide funds for seismic improvements, it did so only for state funded buildings. The stadium was not one of those. Chang-Lin Tien faced too many budget challenges to take the seismic renovation of the stadium seriously. Chancellor Berdahl, an "outsider" who most recently had been President of the University of Texas at Austin, took a more aggressive approach and inaugurated the SAFER (Seismic Enhancement Plan for Facilities Enhancement and Renewal) program in 1997. This plan addressed all seismically deficient buildings on the campus over a twenty-year timeframe and expanded funding sources for that purpose through philanthropy and the federal government.

Berdahl also hired Steve Gladstone as Athletic Director in 2001. The hiring of Coach Jeff Tedford in 2002 symbolized another shift in the culture of intercollegiate athletics to address operational budget deficits. Spending money to make money and inculcating the philosophy that Cal could indeed win across the board and escape its long-standing mediocrity on the gridiron were wrapped up in the hiring of Jeff Tedford. Thus began the period of accepting a higher level of risk to achieve a consistently winning football program that would fund other intercollegiate sports and maintain a balanced budget, eventually eliminating central campus support. Berkeley was not the only university to take this gamble but it did so primarily for financial reasons, to reduce the subsidy and please the donors. It did not need to build its brand and to increase the student application pool, as was the case with several other universities. It already had an exceptional international brand and it routinely turned away many thousands of excellent student applicants with 4.0+ GPAs.

Another cultural shift had also occurred as a result of the increasing importance of donor involvement in internal campus decisions. In 1992, Chancellor Tien would not approve a doubling of football coach Bruce Snyder's salary to $500,000 to counter a bid from Arizona State. Tien did not believe that a football coach should make more than the highest paid faculty member, even though major donors were willing to make up the difference. Ten years later, donors played a major role in the hiring of Steve Gladstone and in influencing the decision to spend money to make money in athletics. Donors, of course, became increasingly important to the campus as state resources continued to decline. Fears about alienating them, particularly those with ties to athletics, continued to grow.

Tedford insisted that he could not produce regular, winning football teams without dramatically improved facilities. The turnaround in the football team Jeff Tedford initiated in his early years led to enormous salary increases tied to contracts that rewarded him for staying at Cal until the team played in the renovated stadium. This approach resembled some other big-time programs nationally. They too had worn out facilities although some of those programs had addressed them over time in a more measured way. Tedford soon became the highest paid state employee at about $2.8 million annually, more than ten times Bruce Snyder's salary when he left Cal. The economy was good and money was not as pressing an issue as it was during the Tien years and as it would become at Cal in 2008 when the housing bubble burst and sent the economy into a tailspin.

Berdahl's term ended in September 2004 and Birgeneau replaced him. His earliest major decisions involved athletics. He selected Sandy Barbour as the new athletic director replacing Gladstone and he appointed the Memorial Stadium Advisory Committee to analyze and make recommendations on how to proceed with the renovation of the Stadium. Karl Pister, professor and former Dean of the College of Engineering, former Chancellor at UC Santa Cruz and former Vice President for Outreach in the President's Office, chaired the committee. This thirty member committee, in conjunction with engineering and architectural firms, HNTB and Studios, concluded that the necessity to renovate the stadium could best be implemented by the building of a student athlete high performance center, half of which would be devoted to the football program and the other half to twelve other Cal sports. Their decision coincided with Sandy Barbour's idea to develop a high performance initiative whereby all facets of a student athlete's experience would be coordinated and integrated to achieve the highest performance level. This facility would be immediately west of the stadium and would house the four hundred or so people who currently occupied the seismically poor stadium on a day-to-day basis. It also provided an opportunity to revitalize the southeast quadrant of the campus to benefit both athletics and academics.

An Academic Commons building was planned between the Law and Business Schools that would benefit both. A parking lot under Maxwell Field, just north of the stadium, and the renovation of some university houses on Piedmont Avenue were part of the plan. Landscape and other changes could also lead to a better integration of the stadium and intercollegiate athletics with the academic program, at least physically. This approach would also facilitate fund raising for all the projects. This plan became known as the Southeast Campus Integrated Projects (SCIP) plan. The committee under Pister's leadership came to be known as the SCIP committee and its responsibility was to provide coordination and communication as this very large project moved forward.

Amid much optimism, at press conferences in February and November 2005, the campus unveiled the SCIP project. The Student Athlete High Performance Center would demonstrate Cal's commitment to its athletics program at a cost of $125 million, all funded privately with half the money already raised, a figure that would turn out later to be exaggerated. A campus press release stated: "Birgeneau said that just as with the original construction of Memorial Stadium, the rebuilding is dependent on private fundraising. 'We have set a first-phase fundraising goal of $125 million,' he said. 'Already, several gifts, including a significant challenge gift, have taken us close to the halfway mark.'"[2]

The Deans of the Law and Business Schools, Chris Edley and Richard Lyons, praised the design of the Academic Commons building. Edley stated that the goal was to make this building with its magnificent atrium "the destination venue for the campus," and "a window onto Berkeley for the rest of the world."

Pister's job was not easy. The engineering, architectural, political and financial components were highly complex. As is often the case at Berkeley, a given individual undertakes substantial responsibility without clear authority. One early challenge involved the Vice Chancellor for Facilities, Ed Denton. Denton inherited the myriad problems associated with the construction and renovation of the Haas Pavilion after Berdahl hired him in August 1998. Influential donors associated with that project insisted that an outside construction management firm have responsibility for the stadium and high performance center. They had lost faith in the ability of the campus to manage capital projects. One key donor, Ned Spieker, a successful developer in his own right, was particularly incensed that Spieker Plaza, immediately in front of Haas Pavilion, was paved over with asphalt as opposed to pavers, which he had specifically requested as the donor funding that part of the project.

Denton did not serve on the SCIP committee, something that Pister found awkward. Instead of the project being managed by the campus under Denton's leadership, donors insisted that an outside project manager be found. Don McQuade, the Vice Chancellor for University Relations and the principal fundraiser for the campus, believed this was essential for the fund raising effort ahead. Bechtel National and the URS Corporation were the finalists for the management of the project. Bechtel backed out at the last minute due to liability concerns and URS received the assignment. A project of this kind requires approvals from the Regents on several levels: approval of the Environmental Impact Report required under the California Environmental Quality Act; of the project planning, design and construction; and of the financing of the project. According to Pister: ". . . just to emphasize the awkwardness of this, I remember at the first Regents' meeting, where we first presented this project to Buildings and Grounds. I was the lead presenter, the URS guy made the presentation and Ed Denton just sat there." (Karl Pister, 2011, p. 14) Birgeneau, a new Chancellor still sorting out a myriad of political and personnel issues, asked former Chancellor Mike Heyman to undertake a review of the capital projects operation which provided a positive evaluation of the unit.[3] Eventually, it became obvious to the campus administration that Ed Denton's leadership was essential to the committee. URS was unable to coordinate with the campus community and the management of the project returned to Denton's unit.

Berdahl, before stepping down, had asked Ned Spieker to prepare a plan for the stadium pro bono. Spieker's plan would have replaced the entire historic west wall of the stadium with a very large facility that would have included space for both the Law and Business schools as well as the needed athletic facilities. The SCIP committee and Chancellor Birgeneau decided that Spieker's plan was not a viable option because fundamental changes to the historical, landmarked status of the stadium would invite lawsuits that would significantly delay construction. Spieker was never invited to present his plan for discussion either with Birgeneau or the committee. This created a further irritant for a major donor who had wide influence with other campus donors.

During this same time period, roughly the first two years of Birgeneau's and Barbour's terms as Chancellor and Athletic Director respectively, an intense focus on the budget of intercollegiate athletics also occurred. 2004 marked the first time that the intercollegiate athletics budget was open to public scrutiny. Previously, athletics budgets were managed by the Chancellor, the administrative Vice Chancellor and the Athletic Director, what Vaughan would refer to as structural secrecy. This change led the Chancellor to establish the University Athletics Board (UAB), a joint administration/Academic Senate group to advise him on intercollegiate athletics matters. Getting good data from the athletic department was difficult. A proposal to reduce the number of sports from 29 to 16 would have led to a savings of $4 to $5 million but the administration ruled it out as a draconian approach that would lead to major donor pushback.

Even discussing the possibility of cutting sports with donors was rejected as too risky. Undertaking a review of the Title IX implications if sports were cut was delayed until 2007. The Academic Senate Committee on Academic Planning and Resource Allocation (CAPRA) as part of its responsibilities took up the issue of the size of the central campus financial support provided to Intercollegiate Athletics. The Committee under leadership of its Chair, Professor Calvin Moore of the Mathematics Department, discussed and debated the issue and recommended that the annual support should be reduced from its then current amount of approximately $12M-$13M per year to $5M per year, this amount to include the $2M of support from student reg fee income, and recommended that the campus should develop a glide path to reach this level of support by 2012.

The Chancellor and the UAB did agree that the appropriate amount of central campus support to athletics should be $5-7 million annually and put a glide path in place to reach that goal by 2012. Professor Moore and administrative Vice Chancellor Nathan Brostrom disagreed on the final amount. As noted, Moore's $5 million glide path figure included approximately $2 million in student fees, Brostrom's did not. Brostrom prevailed, and the total campus contribution including the $2 million in student fees was $7 million.

2. Legal Challenges

By May 2006, the campus had completed the draft Environmental Impact Report (EIR) for the SCIP project for public review and comment as required by State law. It places the SCIP project within the context of the campus Long Range Development Plan approved by the Regents in January 2005, and addresses the environmental impacts caused by the project. The final EIR incorporated the numerous public comments and the campus response to them and was forwarded for Regents approval at a meeting scheduled at UCLA on November 14. The City of Berkeley requested a delay in that decision claiming insufficient time to review the now over 1000 page document and threatened a lawsuit if the request was denied. The Regents approved the budget for the first SCIP project, the Student Athlete High Performance Center at a cost of $112 million to be funded entirely by gifts, but deferred the decision on the approval of the design of that building and the approval of the SCIP EIR until a special meeting on December 5 2006. An approved EIR opens the gates for lawsuits on controversial projects. External scrutiny and accompanying lawsuits are not unusual in projects of this kind but they do elevate the level of risk involved in terms of delay and increasing costs.

The City of Berkeley had already sued the Regents in February 2005, following the Regents' decision to approve the campus 2020 Long Range Development Plan. The City claimed that the planned for 2.2 million square feet of new buildings was too vague to provide any clear indication of their environmental impacts. This suit was filed within the broader context of the university's responsibility to mitigate the impacts it makes on the local community, a long-standing, controversial matter. The University, as a constitutionally exempt state entity, is not subject to the local jurisdiction's land use authority. Yet the university does indeed affect the community's tax base, its local economy, its fire services, its sewer services and the upkeep of its local roads, among other ways. Who should pay what is a constant source of tension. Both entities commissioned reports detailing the costs and benefits of the campus/city relationship. Needless to say, they were far apart in their conclusions. The City threatened that if the campus did not pay its fair share of the cost of certain city services, they would sue to block construction of any further campus projects, including the stadium and the Chang -Lin Tien Center for East Asian Studies.

The City and the University reached a landmark agreement by late May 2005, settling the lawsuit. The campus provided $1.2 million annually to the City to cover sewer and storm drain charges, fire and police services, neighborhood improvement projects and joint transportation impact studies. The agreement also provided for the joint planning of a Downtown Area Plan that would guide both university and other public and private development projects. It further reduced the number of planned, new parking spaces for the university from 2300 to 1270 by the year 2015. A confidentiality agreement between the City and the university forbade public disclosure of the agreement prior to approval by both the City Council and the Regents in closed sessions. This led to accusations of secret deals and criticism of Mayor Tom Bates for being too easy on the university.

By the end of December 2006, three lawsuits challenged the Regents' decision on the approval of the EIR for the SAHPC. The City of Berkeley sued to halt construction of the high performance center, scheduled to begin in March 2007. The City claimed that the LRDP was too vague and that the EIR related to the high performance center did not take into account sufficiently the seismic hazard as a result of its location so close to the Hayward Fault, nor did it attempt to address the possibility of the west wall of the stadium collapsing on top of the roof of the planned high performance center, among other concerns.

Earlier in the month, the Panoramic Hill Neighborhood Association brought suit claiming similar concerns over safety, and the California Oaks Foundation sued over the removal of many mature specimen trees necessitated by the construction. The three suits were consolidated under superior court judge Barbara Miller who granted the petitioners claims for a trial and issued an injunction at the end of January, 2007, prohibiting any further construction related work on the site. The administration puts its best face on this decision but it was a substantial blow. A major concern was the anticipated escalating cost of the project as well as mounting legal fees to defend the case in court.

3. The Tree Sitters

A major point of contention in the proposed construction of the SAHPC was the necessity of removing forty to fifty trees on the site just west of the stadium. In the hours preceding Big Game on December 2, 2006, a few protesters led by one-time mayoral candidate Zachary Running Wolf began a tree sitting occupation in a few tall redwood trees in the grove. In true Berkeley style, this began one of the longest tree sitter protests in the country, lasting until September 9, 2008. While campus police did have some previous experience with this kind of activity – animal rights activists occupied a crane for a week as the Northwest Animal Facility was being constructed in 1989; and protesters infrequently have rappelled part way down the Campanile – this situation posed particular challenges.

The tree sitters managed to construct tree houses with zip lines connecting them well above ground level. Campus police had no training or expertise in getting them down. Outside experts offered advice and assistance, at a cost, but the possibility of bodily injury for the occupiers and the removers posed too many risks. Thus, the police and administration decided to wait them out. This decision implied the assumption of responsibility for their well-being. Because the grove with many trees extended some two blocks, and because Judge Miller's injunction prohibited removing any of them, the protesters were able to fortify themselves with food and water with the help of support groups on the ground. The police lighted the area at night and provided round-the-clock security. TV news trucks and onlookers delayed traffic on Gayley Rd.

Parking on this public road immediately in front of the grove posed security challenges. The campus asked the City to block public parking in that area but the request was refused. As the months passed and the campus prepared for the 2007 football season, special preparations involved keeping the fans away from the tree sitters. The administration erected a ten-foot high cyclone fence around the perimeter of the grove. Fans of some of the visiting teams laughed at the seeming inability of the campus to deal with this issue, claiming that where they came from the protesters would have been removed immediately. Birgeneau admitted later that he should have decided to remove them sooner, never expecting they would occupy the trees for twenty-one months. (Robert Birgeneau, 2014, p. 23)

At various points during the 21-month ordeal, the media had plenty of opportunities to keep the focus on the carnival atmosphere. On January 23, 2007, former Mayor Shirley Dean at age 71 and City Councilwoman Betty Olds at age 86, along with 91-year-old Shirley McLaughlin, a conservationist whose late husband was a UC Regent, joined the tree sitters for a few hours. On March 17 of that year, a nude photo shoot by photographer Jack Gescheidt brought 75 volunteer models to the grove. Various confrontations between police and tree sitters and their support groups brought more attention.

But it was the erection of a fence before the 2007 football season that brought the loudest howls. Supporters of the tree sitters said free speech was being abridged. The health of the tree sitters was at risk because the university was limiting food and water. The fence remained and the costs continued to mount. Several hundred thousand dollars at this point had been spent on security measures. In September, the University sought an injunction ordering the tree sitters to come down from the trees. In October, Judge Richard Keller granted the injunction, which applied to support group members as well. This led to a small number of arrests but the encampment in the trees continued.

Finally, on July 22, 2008, Judge Miller ruled in favor of the University on virtually all points. Technical matters dealing with a beam that was to be attached to the stadium from the high performance center and the number of events other than football games to be held at the stadium were quickly resolved to the Judge's satisfaction. The Panoramic Hill Association and the California Oak Foundation appealed the ruling and requested that the injunction barring construction remain in effect. The City of Berkeley declined to join in the appeal. On September 4, the California Court of Appeals denied the request of the petitioners and the stay barring construction was removed. In early September, the University removed most of the trees in the grove, isolated the few remaining tree sitters and removed them on September 9. Site preparation was soon underway with construction to follow. The 145,000 square foot SAHPC finally opened its doors in the fall, 2011.

4. Financing the Stadium and High Performance Center

Chancellors Birgeneau and Berdahl emphatically stated that these athletic projects would not draw on central campus resources. Fund raising became paramount. By 2007, Nathan Brostrom was fully ensconced as the new Vice Chancellor for Administration. Birgeneau personally led this search, an indication of the importance of the position. He believed that Berkeley would benefit from the experience of a financial expert from the private sector. This continued under Birgeneau's term as two succeeding Vice Chancellors for Administration from the financial industry, Frank Yeary and John Wilton, eventually replaced Brostrom. Brostrom was Managing Director and Manager of the Western Region Public Finance group for JP Morgan for the previous ten years; He oversaw the financing of more than $100 billion for municipal governments, higher education institutions, the Asian Art Museum in San Francisco and other similar organizations, giving him a unique perspective on higher education finance. He had experience in Sacramento, working for the Treasurer at that time, Kathleen Brown. His first wife, Lisa Capps, who died tragically of cancer, was a psychology professor at Berkeley. Thus the institution was not new to him.

Birgeneau's decision to rely on a series of investment bankers was another cultural shift for the campus. This occurred during the Great Recession of 2008 when the reputation of the financial industry was in tatters. Unsustainable debt levels propelled by subprime mortgages was one of the root causes. As Berkeley, along with the nation and indeed the world, suffered the economic consequences, it was easy for some to conflate Berkeley's economic crisis and its "bankers" with the national and international crisis. They viewed the efforts underway to cut costs through outsourcing and centralizing services; to increase revenues through higher tuition and the acceptance of more out-of-state students; and to utilize debt to pay for capital projects as evidence of privatizing a public university. While the State's disinvestment in UC had begun decades before, it would greatly accelerate in the next five years totaling almost $1 billion. Berkeley's use of the above measures arguably had less to do with the backgrounds of the senior administrators than with the State's disinvestment in the University.

5. Following the numbers

How to pay for both the SAHPC and the Stadium, and determining the amounts of donations received for that purpose were contentious. In casual conversation among senior administrators, a figure of $85 million was often cited as the amount of money raised for the SAHPC as early as 2006. Vice Chancellor Frank Yeary, who had taken over responsibility for athletics after Brostrom left campus and became Senior Vice President for Administration for the Office of the UC President, cited that identical figure to Cummins in 2010. The Great Recession of 2008, the lawsuits and the lack of a tangible facility explained the paucity of giving over that period of time.

A senior budget officer under Brostrom provided Birgeneau with a more accurate set of numbers on October 11, 2006 in preparation for the Regents Item approving the financing for the SAHPC. "At the moment Athletics has a total of $76,498,000 in gifts available for the project consisting of $9,000,000 of cash in hand, $34,798,000 in bankable pledges and $32,000,000 in pledges in process."[4] Virtually identical figures are used in the Action Item to members of the Regents Committee on Grounds and Buildings dated November 14, 2006, under the section entitled "Financial Feasibility." The item also states that an additional $35,450,000 must be raised through gifts. The total project cost for SAHPC at that time was $111,948,000.

The item also indicates that the campus planned to return to the Regents at a later date requesting approval for a change in the financing plan that would include debt as well as gift money. The campus indicated that confidence was high that gifts would pay off the debt. In the event they would not, football revenues would be pledged. Instead of using gift money to pay off the construction costs directly, that money would be invested. The profit from the investments would be used to pay off the indebtedness. Using tax-exempt bonds at a lower interest rate, payments over time were expected to be less than the amount of money earned through the investment of the gifts. This arbitrage arrangement could produce considerable revenue for the athletic department in the long term if the model worked. It depended on the success of the fund raising effort, the state of the economy, which would affect investment outcomes, and the interest rate obtained on the tax exempt bonds. Nathan Brostrom introduced it as an option for the campus to consider, an approach called an FFE or Fund Functioning as an Endowment.

Table 1

Changes in Gift Category Amounts over 11 month period		
SAHPC Regents Items	October 11, 2006	September 18, 2007
Gifts in Hand	$9,000,000	$1,300,000
Gifts Pledged	$34,798,000	$6,500,000
Gift Pledges to be confirmed	$32,700,000	$60,200,000
Total	$74,498,000	$68,000,000

On September 18, 2007, the campus requested and the Regents approved the use of external financing in the amount of $100,000,000 and $17,000,000 from gifts. In the item labeled GB2, page 9, under the heading “Long Term External Financing,” the following status of the gift campaign is given. The numbers, provided by the campus changed dramatically (see Table 1). Whereas Gifts in Hand, eleven months earlier was $9,000,000, it was now reported as $1,300,000; Gifts Pledged, ten months earlier, was $34,798,000, it was now reported as $6,500,000; Gifts Pledges to be Confirmed, ten months earlier, was $32,700,000, it was now reported as $60,200,000. Amazingly, no explanation is given for these widely varying numbers nor does it appear that the Regents questioned them. Obviously the numbers were a red flag with regard to the likely success of the fund raising. Pledging football revenues as a back-up source of funding also seemed suspect.

The athletics budget had long experienced substantial deficits. Football was the major revenue provider for the entire athletic program. If football revenues had to be used at some point to cover the debt, how could that be done quickly? The campus anticipates this problem in the item by saying that, should the fund raising fall short, it will return to the Regents to pledge alternative fund sources in addition to the gross football revenues. In essence, what this really meant was that the campus was back stopping any shortfall in revenues from football to pay off the debt. That shortfall would be covered by central campus funds that could otherwise be used for academic purposes.

The Regent’s item goes on to state:

> Pledges to be confirmed include pledges to the Memorial Stadium campaign which are expected to be changed to the SAHPC Initiative Fund, verbal pledges and pledges with contingent language. *Fundraising is actively continuing and the campus plans to raise the remaining gifts before it goes to bid*. (Emphasis added by author.)
>
> The establishment of the SAHPC Initiative Fund and investment as FFE is a pilot program as an alternative to using such gifts as cash payments for construction. Historically all UC campuses have used gifts which are earmarked for facilities as cash to pay for construction costs. This avoids the use of debt but may not be the best long-term use of the gift. By investing the funds, the earnings can be used to support program and facility expenses as well as contribute to debt service, and when the debt is fully repaid, it is anticipated that the FFE will be available to provide subsequent earnings.

Note that there is no mention at this time of drawing down on the principal of the FFE as well as the earnings to cover program support and debt. This changes by 2009.

The use of the FFE occurred at the same time that the Regents departed from past practice on the use of the University’s debt capacity. Then Chairman of the Board, Richard Blum (2007-2009), a wealthy investment banker, believed that the University of California should utilize more of its debt capacity to address construction and deferred maintenance needs. A study undertaken by Blum in 2007 identified an additional $9 billion in debt capacity for the University system, jumping from $1 billion to $10 billion. (Yudof, 2013, p. 20, and Schevitz, 2008) UC President Mark Yudof (2008-2013) described this change as catching up with the actions of other universities. The use of debt in public colleges doubled from 2003 - 2012. (Murphy, 2016) Nevertheless, it met with considerable resistance at the highest levels of President Robert Dynes’ administration (2002-2008), including by Senior Vice President for Finance and Administration, Joseph Mullinix, and Larry Hershman, Vice President and Director of Budget. Their concern at the time revolved around the State fiscal situation and the continuing decline in State support as the student population increased.

In the 2006-2007 UC Budget for Current Operations, President Dynes points out that the State contribution per general student in 1985 was $15,500 but had declined to $9,500 while the student population increased by 19% from 2001 to 2006. (Dynes, 2005) By 2012-13, the per-student contribution had declined even further to $6,190. (2015, University of California, UC Newsroom) Mullinix left for a position at the National University of Singapore in 2006 and Hershman retired a year later. Dynes stepped down amid a scandal over executive compensation within UC in 2008. Yudof, championed by Blum, succeeded him. By the end of fiscal year 2008, UC systemwide debt outstanding totaled $6.79 billion. By November 1, 2016, that debt had increased to $17.1 billion. (2016, University of California, Office of the President)

Was this the appropriate time to significantly increase the use of debt to fund capital projects and deferred maintenance? There is no simple answer to this question. The State’s disinvestment in the University applied to capital projects as well. The long standing preferred method of financing these projects was through State issued general obligation bonds (GO bonds) backed by the taxpayers. The last such GO bond was in 2006 and the State stopped issuing lease revenue bonds in 2010. Revenue bonds, gifts, and other sources of non-State funds are used to finance the ever growing need for new and renovated buildings, and to address seismic strengthening of existing structures. As the oldest UC campus, most State money for capital purposes at Berkeley was used to address seismic issues. Using revenue bonds was inherently riskier. A *Mercury News* story covering the September, 2016 Regents meeting reports two quotes which capture the dilemma: Executive Vice President Nathan Brostrom stated: "If we had not taken advantage of that (debt financing) and had to build buildings out of our operating budget, it would have been a risky or foolish way of doing it." This view is understandable in light of the low interest rates and federal tax exemptions on the debt.

On the other hand, Governor Jerry Brown, a UC Regent and fiscal conservative, said at a previous Regents meeting: "Borrowing has limits because then you have more fixed commitments and your revenue is not so fixed. I know rich people have lots of debts, that they borrowed a lot and made a lot, but that's how a lot of people go bankrupt, too." (Murphy, 2016) The disinvestment in the University of California by the State gave the University little choice, despite the increased risk. The question was, and remains, how much debt to assume and which capital projects to fund using it.

Certainly the use of the debt was put to good purposes, as Nathan Brostrom stated in January 2017:

> First of all, of the $10 billion increase in debt, $2.3 billion went to refinance the State's lease revenue bonds, an action which generated $100 million of annual cashflow savings to UC. Another $900 million was borrowed, at a rate less than 1%, and deposited into the University of California Retirement Program (UCRP), another obligation that the State used to cover. Of the remaining debt, a significant portion went to our medical centers and housing auxiliaries, both areas of growth for the University.

He went on to state:

> The investments that we have had to make in deferred maintenance, seismic upgrades, and enrollment growth have all had to come from our own balance sheet and represent tradeoffs in other areas of the academic enterprise. One interesting metric that highlights this is that the Merced campus, barely 10 years old, has nearly as much debt on its balance sheet as the Santa Cruz campus, which is over 50 years old. This is not because Merced is reckless or profligate, but that the State built most of the basic infrastructure and buildings for our earlier campuses, but hasn't for Merced or enrollment growth at other campuses. This is particularly unfortunate in that these campuses house a very high percentage of low-income and first-generation students (in Merced's case, 67% of its undergraduates are first-generation).

As would soon become clear, the level of risk accelerated for Berkeley when Chairman of the Regents Blum directed the campus to fix the seismic problem at Memorial Stadium or find another place to play beginning in the 2011 season. Regents had even expressed their concern about personal liability in the event of a major earthquake during a football game. Diane Feinstein, Blum's wife and US Senator, when serving as mayor of San Francisco, was instrumental in seismically retrofitting Candlestick Park. When the Loma Prieta earthquake hit in October, 1989, immediately preceding game 3 of the World Series between the San Francisco Giants and Oakland A's, that retrofit undoubtedly saved lives. Despite being presented with studies indicating the low risk of an earthquake occurring during a football game at Memorial Stadium, Blum, mindful of Feinstein's success at Candlestick, was adamant. In the context of the history of this project dating back to the Heyman era and then Chairman of the Board Brophy's concerns, Blum's decision is not surprising. Cal played the 2011 season at AT&T Park as the massive renovation of Memorial Stadium began.

In February 2009, the campus appeared again before the Regents seeking another budget augmentation for the High Performance Center. The lawsuits, escalating costs associated with the delay, security costs related to the tree sitters, a poor initial estimate prepared by URS, the outside project management firm, and project changes necessitated an augmentation of $35.6 million. The cost of the SAHPC now totaled $153 million. Of that amount, only $17 million was covered through gifts with the remaining amount of $136 million debt financed. These numbers change by 2012. By then, the University issued revenue bonds covering almost $126 million with the remaining $27 million covered by gifts (Fuchs, et. al., 2013, p. 3). Football revenue was pledged as the source for the repayment of that debt. The problems with using this source for the repayment of the debt were discussed above. The Regents item (GB1A) then concludes with this paragraph:

> The change in the pledge and source of payment for external financing *(i.e., football revenues alone)* completely decouples the external financing from any fundraising activities (except for the $17 million of gifts dedicated to the project). This change is part of a plan, unrelated to the financing of the SAHPC or any other project to develop a long-term and stable funding source for programs through the expansion of funds functioning as an endowment (FFE). To achieve this goal, *it is important that the FFE balance and income be available for use for a wide range of expenditures*. (Emphasis added by author) The FFE will be created through unrestricted gifts or gifts with very limited restrictions matching the purpose of the FFE. Gifts tied to the construction of the SAHPC or other capital projects will not be included in the FFE.

This statement is important because the campus administration is now anticipating drawing down on the principal as well as the income from the FFE. University policy does not permit this to occur until five years after the creation of the fund. In 2012, Birgeneau sought an exception to the policy and Yudof approved it. This of course heightens the risk even further. See below, p. 17.

In September 2009, the campus returned to the Regents for funding approval of the seismic retrofit and upgrade of Memorial Stadium. This time, the campus sought and the Regents approved a staggering sum to be debt financed of $321 million. Approximately $200 million of that amount dealt with the seismic upgrading, the remainder with amenities such as the enhanced facilities for donors that would help generate revenue to cover the debt. In that same month, Brostrom transitioned to Executive Vice President - Business Operations under then President Mark Yudof.[5] He and Richard Blum were obviously in key positions to influence the Regents to go forward with the financing plan. Repayment on the debt would not be covered just by football revenues but rather by athletics revenues, i.e., all revenues of the intercollegiate athletics department. Vice Chancellor Frank Yeary, Brostrom's successor at Berkeley and formerly head of Global Acquisitions and Mergers for Citibank, discovered that the IRS would not permit a direct quid quo pro arrangement in an arbitrage financing scheme, i.e., football was the beneficiary of the new stadium and also the revenue source for the debt financing through ticket sales and other means.

The athletics department provided a larger financial umbrella to satisfy the tax code. In essence, it made no difference. Revenue sources in addition to fundraising would be funneled through the athletic department. Those revenue sources would be used to service the debt, directly and through earnings generated through the FFE. The largest source of new revenue to cover the debt was a seat licensing program for football games at Memorial Stadium, referred to as an Endowment Seating Program (ESP). Brostrom had reported in the July, 2009 Regents meeting that ESP sales of approximately 3000 seats were already underway and highly successful with letters of intent, i.e., pledges in process, for 63% of the seats, generating $160 million. That number represents the sum of the total purchase price for those seats. Many of those seats would be purchased through annual payments with no binding commitment. Thus, the actual amounts of money in the FFE would be substantially less.

As mentioned earlier in this paper, Intercollegiate Athletics had a long track record of accumulating budget deficits, and getting away with it with very little consequence, thus normalizing <u>a pattern of deviant behavior</u>. No other unit on campus would have received such an accommodation for such a long period of time. It was highly unlikely that athletics would be able to pay the interest-only debt from its own revenues, let alone the principal. Why then indicate that in the Regents item? Was this a palliative for the faculty opponents who raised serious questions about the viability of the financing? When the University sells revenue bonds on the open market, they are often bundled with bonds for other capital projects. The buyers of the bonds have little knowledge about the specifics of how a particular campus intends to pay them off. The bond rating of the selling agency, i.e., the University of California, is based on several factors including overall management and governance, state support and its financial strength. The ability to raise tuition is singularly important in this context. Very few faculty, staff, members of the public or even perhaps some Regents understand the arcane details of bond financing, another example of structural secrecy.

Particularly difficult for Berkeley, the campus did not anticipate that UC President Janet Napolitano and Governor Jerry Brown would enter into an agreement in 2015 curtailing tuition increases and limiting out-of-state student enrollment. It came on top of a freeze in tuition that began in 2011. That removed a revenue option that would have mitigated the overall campus deficit of $170 million mentioned earlier. As of the writing of this paper in early 2017, the UC Regents are considering limiting out- of-state enrollment. The Berkeley campus now stands at 25% out-of-state enrollment and rolling that number back could lead to a loss of several million dollars. Any increase in tuition for 2017 is also likely to be minimal as a result of political pressure from the legislature and the students. The imminent departure of current Chancellor Nicholas Dirks and the need to fill several senior level administrative positions only makes the challenge of dealing with this deficit more daunting.

6. *Repayment of the Debt*

The Great Recession of 2008 had an enormous impact on the University of California. By 2014, the per student contribution from the State to UC had been cut in half. Despite a $140 million State contribution in 2014, the University of California system was still $460 million below its 2008 funding level from the State. (The Los Angeles Times Editorial Board, 2014) Cost cutting, layoffs and staff reductions, salary cuts and tuition increases gave rise to student protests and a major decline in faculty and staff morale. The assumption of such a large amount of debt for athletics and other projects could not have come at a worse time. A dramatic drop in discretionary spending nationally could affect the willingness of individuals to buy seat licenses at anywhere from $40,000 to $225,000. The faculty were already alarmed about subsidies and unpaid loans from the central campus to the athletics department and the debt only added fuel to the fire. As mentioned above, on November 5, 2009, the Academic Senate passed a resolution urging the Chancellor to end immediately all such loans and subsidies. At that Senate meeting, and less than two months after the Regents approved the Stadium financing, Brostrom stated the following about the seat licensing program:

> In order for the construction project to be fully self-supporting Intercollegiate Athletics needs to sell 75% of the seats that are included in the ESP program. As per current pledges and commitments, IA will have sold 70% of the inventory by the end of this calendar year. Conservative estimates suggest that IA will have little trouble selling another 5%---about 150 seats--- of the inventory before construction is scheduled to start in January 2011. (One indication of the program's success to date is the fact that IA initially projected the 70% mark would not be reached until June 2010.) If, for some reason, IA is unable to sell 75% of the seats prior to the start of construction, IA will be ready to further evaluate the size and scope of its program in order to meet its debt obligations without any additional reliance on revenues or funds from the campus. (Brostrom, Undated)

As will be described below (p.14 following), senior administrators were not presenting accurate information on the number of seats sold. When construction began in December 2010, the number of seats sold was far less than 75%. Only 44% actually were sold as of June 30, 2011. The reporting line of athletics changed to Vice Chancellor Frank Yeary with Brostrom's departure and then from him to Vice Chancellor John Wilton, newly hired in January 2011. There is no indication that athletics did any further evaluation of seat sales before construction began. Redoing the finance model fell to Wilton. Changes in leadership of this kind, over relatively short periods of time, introduce another risk factor. Yeary and Wilton had no previous experience in higher education administration let alone intercollegiate athletics. Transitions of this kind are difficult, across the board, in any complex organization, and it is not unusual for attention to pressing matters at hand to slow as the organization adjusts.

The administration believed it was too far along in the project to pull back and reevaluate. They had to proceed with the Memorial Stadium work or play elsewhere indefinitely. Other options, such as abandoning the stadium and playing at the Oakland Coliseum or constructing a new stadium at the Richmond Field Station, near the Golden Gate Fields Race Track, or on campus at the Edwards Field site were previously ruled out. According to Chancellor Birgeneau, Ed Denton and Karl Pister, analyses of other options were completed. Those studies indicated the various options were expensive and not in the best long-term interests of the campus. At the Race Track site, for example, the significant undefined costs for infrastructure impacts including utilities and traffic modifications (additional lanes, overpass modifications, traffic signals) could run into multi-million dollar projects. Edwards Field looked promising because of its close proximity to parking and public transportation but the footprint was not large enough to accommodate a 60,000 seat stadium and would disrupt the soccer and track and field programs.

According to Birgeneau, he and Don Mcquade, the development Vice Chancellor, met with David Friedman, a renowned structural engineer who played the lead role in the structural redesign of Memorial Stadium, to discuss the cost involved in building a new stadium at a different location, either on the campus or off. Friedman confirmed a new stadium would indeed cost more than the renovation of the existing structure. Birgeneau believes that the cost of the new Levi's stadium in Santa Clara, $1.3 billion, confirms that, and that stadium is not built on an active fault. Denton cites a report by HNTB indicating that the cost of a stadium just south of Golden Gate Fields would cost $600 - $800 million, not including off site improvements.

As far back as 2006 in the City of Berkeley's comments on the campus Environmental Impact Report, the issue of alternatives was addressed specifically with regard to the Oakland Coliseum site:

> However, the FEIR (Final Environmental Impact Report) then makes clear that no actual analysis of availability or cost were conducted. No explanation is provided as to why a stadium with thousands of parking places and direct access to BART is somehow a less feasible location for football games than a stadium that has almost no parking or direct access to BART. . . The issue is not whether the CMS is beloved or whether the tradition of on-campus football is a good and special tradition. The issue is whether it is wise to invest hundreds of millions of dollars on a stadium that unfortunately straddles an active earthquake fault; is in a wild-land fire hazard area; has extremely poor access; . . . (Brocher, 2006)

The above statement reflected a common sense public concern at the time. A Public Records Act request I made for any studies related to the University's analysis of alternatives provided no results.

Did the administration in fact have no feasible alternative or had they reached a foregone conclusion, as some believed, that construction of the SAHPC and retrofit and renovation of the stadium was truly the only option. The California Environmental Quality Act (CEQA) has as its primary focus the impact a particular project has on the environment. At the same time, in looking at alternatives to a particular project, ". . . site suitability, economic viability, availability of infrastructure, other regularity constraints, and jurisdictional boundaries can be taken into account."[6] CEQA does not require that every alternative be analyzed, only those that would substantially reduce environmental impact. The analysis of alternatives does not require the level of detail that the principal project does. Differences among interested parties on these matters can lead to legal proceedings where the judge has final authority. The Oakland Coliseum was not identified as an alternative in the Draft Environmental Impact

Report. However, comments from several parties raised it and the campus then addressed it in the Final Environmental Impact Report.

Both Birgeneau and AD Barbour have said that playing at the Coliseum would not have engendered the kind of alumni affinity with the campus or the campus spirit within the student body that they felt were so important. However, USC and UCLA play off campus, at the Los Angeles Coliseum and Rose Bowl respectively, and have an alumni and donor affinity for their football teams at least equivalent to Berkeley. That has been their long history. It is not the case at Cal. The following is the relevant information from the University's SCIP Final Focused EIR, November 2006:

> The University also considered the option of leasing access to McAfee Coliseum in Oakland, but found it to be an infeasible alternative and withdrew it from consideration as well. Several commenters suggested the Coliseum as an off-site alternative. However, considerations such as cost, proximity to campus, reliability of access, and scheduling combine to make this alternative infeasible. Leasing space such as the Coliseum would represent a sizable new expense, given that the University owns the CMS; the campus believes that the expense of retrofit and rehabilitation of the beloved CMS is a wiser investment, despite its faults. Furthermore, while collegiate athletics elsewhere may thrive in event space distant from campus, UC Berkeley traditions permit students to walk to events from nearby University and private housing, and permit alumni patrons to bring their families to and around campus before an event. The Coliseum is approximately 11 miles from UC Berkeley, a geographic and psychological distance that would significantly dislocate and disorient campus traditions related to athletics.
>
> Reliability and scheduling were additional concerns that led to this alternative's withdrawal. Relationships between management and users of large athletic facilities often achieve notoriety, with regular conflict over contract terms, advertising, and scheduling; this has certainly been the case with the Oakland Coliseum, to the degree that one or more parties may be abandoning their agreements at the facility when their terms are complete. The University is seeking a stable, long-term facility that will accommodate football and other events without the unpredictability of lease agreements. Scheduling is another point of potential infeasibility. Both the Oakland Athletics and Oakland Raiders are users of the McAfee facility during the NCAA college football season. It is unlikely that accommodating another regular user would be feasible, given Sunday NFL games and regular MLB games. Neither the Los Angeles Coliseum nor the Rose Bowl currently also hosts major league football and baseball. (p.23)

Brostrom estimated that the cost to play elsewhere was $5 million annually, an additional expense for athletics that was already overextended (Brostrom, Undated). Note however that the debt service for the athletic structures is currently $18 million annually and increasing substantially in the out years. One option that might have been exercised, however, was playing elsewhere until more money could be raised. Suppose this took four years, for example. The total additional cost might have been $20 - 25 million but the long term cost, assuming a substantial increase in fund raising revenue did occur, would have been a lot less than the current and future amount of the debt. If sports had been cut and the savings applied to the cost of playing elsewhere, even that cost would have been less. It is less likely that an option like this would have been considered because the mindset of the key decision makers had already concluded on staying at Memorial Stadium and renovating it.

What the University could not foresee in its justification was the Pac-12 television contract in 2011 and the authority granted to ESPN and Fox to determine the times games were played. Night games and their last minute scheduling angered a loyal fan base who found it more difficult to bring their children to games as well as older alums that did not wish to face driving home late at night. It was easier to stay home and watch on television. Not only would this affect the sale of ESP seats but also ticket revenue for games in a newly renovated stadium with 10,000 less seats to begin with.

Vaughan makes reference to the pattern of decision-making described above in what she refers to as the "Culture of Production:"

> People are both the carriers and creators of culture. Cultural persistence is enacted in everyday life, as we try to make sense of events by drawing on largely unconscious knowledge for our responses. We tend to make the problematic non-problematic by formulating a definition of the situation that makes sense of it in cultural terms. We achieve consistency by aligning our actions with the past, either by 'interpreting our acts in cultural terms or by taking account of culture in the framing of action.' As a result, people can see their own conduct as culturally approved and conforming, even when the behavior is objectively deviant. Aligning actions with culture legitimizes questionable conduct, affirms the rightness of norms, and maintains the course of joint action. In this way, we reproduce cultural meaning systems in both small and large choices, relegitimating the past, providing a medium for the present, and setting the stage for the future (Vaughan, 1996, pp. 222-223).

It is not that the campus administration's justification for proceeding in the way that it did was irrational. Rather, it is within the context of the history, tradition and culture of football on the Berkeley campus that made it more difficult to see a viable alternative and easier to follow the long established pattern despite the evolving risk.

Another concern of all parties involved was the requirements of the Alquist-Priolo Earthquake Fault Zoning Act. That law prohibits building new structures on an active fault and sets certain requirements for renovating existing structures. The act specifies, for alterations or additions to a pre-1975 structure built on an active fault, a dollar limit of 50% of the value of the given structure. To avoid what appeared to be certain litigation over the determination of the value for the stadium, the campus sought and received an exemption from the legislature that Governor Arnold Schwarzenegger approved in 2009. The exemption was granted due to the cost involved in restoring a nationally landmarked building and applied to all such state owned structures.

However, the exemption for all such state owned buildings was removed one year later at the request of the Governor, thus making Memorial Stadium an entirely exclusive exemption. The consequence of this decision, one undoubtedly taken "to help the university out," will not be known until a major seismic event occurs on the Hayward Fault, a near certainty according to seismologists (Zolfagharifard, 2016). Assuming that because the very best engineering of the structure will preclude loss of life, the stadium itself may be uninhabitable and further compound the difficulty of repaying the bonds. The University is self-insured so the cost would have to come from within.

7. *ESP Seat Sales*

Worries aside, the decision was made to move forward on the Memorial Stadium retrofit. The immediate question then was how to fund it. Stadium Capital Financing, a subsidiary of Morgan Stanley, approached the athletic department with a seat licensing program that, according to Brostrom, involved taxable financing and an outside bank or financing entity that would not have worked at Berkeley. A critical component in the plan Berkeley created was tax exempt financing at lower interest rates. Stadium Capital's role going forward involved marketing and sales of the seats for which they received $4.6 million. 3198 prime seats were set aside for the licensing program.[7] The plan included the sale of the rights to these seats for 40 to 50 years at a cost of anywhere from $40,000 to $225,000. Buyers received a substantial tax deduction because a portion of the payment is viewed as a contribution to an educational institution. Initially these seats were to be sold for cash up front. The proceeds would be placed in the FFE and invested with return on investment used to fund the debt.

Other revenue sources would also be used including a football ticket surcharge and gifts. There were so few takers for this plan that changes were made to it. Buyers could purchase the seats over time, much like a mortgage on a home, but they could drop out at any point along the way, making the revenue stream contingent at best. These changes, of course, increased the risk of the financial model failing.

Considerable skepticism accompanied this approach. Some members of Athletic Director Sandy Barbour's advisory committee raised concerns. Professor Roger Noll of Stanford, an expert on such financing schemes, warned that Cal's approach was much too optimistic. He cited Texas and Michigan as comparisons. Cal was attempting to raise three to five times as much as those seat licensing programs (Fuchs, et al, 2013). Stadium Capital was not having much luck selling its program to any other institution except the University of Kansas. Seats there were much less expensive but the response was so lukewarm that UK backed away from the plan one year later in 2010.

A vocal group of Cal faculty also spoke out against the risky approach.[8] Brian Barsky, Professor of Electrical Engineering and Computer Sciences at Berkeley, became the most visible and informed critic, both on the budget of intercollegiate athletics and on the funding model for the athletics capital projects. He was instrumental in the passage of the Academic Senate resolution calling for a halt to the programs' continued subsidization and he raised warning signs about the promise of the seat licensing program. As is often the case in the long history of intercollegiate athletics, Barsky was brushed aside, labeled as I and worse and one who was in opposition to all of intercollegiate athletics, despite that not being the case. These warning signs did not deter the administration's desire to move forward.

Why then did the Regents approve such a risky and unproven undertaking? The Regents' insistence that the project be undertaken or that the football games be played at another location created an immediate problem for the campus. Along with the cost of playing elsewhere, the downturn in the economy also brought construction costs down thus creating a time sensitive incentive to move forward with the stadium. The campus felt it had to move quickly despite not having enough money on hand. The ESP seat licensing program provided an out, however unrealistic it may have been. The numbers presented to the Regents on the sale of seat licenses turned out to be greatly exaggerated. Those numbers originated in the athletics development office and no one verified them. As Jon Wilner, who has covered this issue extensively for the San Jose Mercury News reported in 2013, "Cal announced last month that it has sold just 64 percent of the 2902 high-priced seats available in renovated Memorial

Stadium. That figure might come as a surprise to the Regents of the University of California, who were told by a Cal official 3.5 years ago that 65 percent of the premium seats had been sold."

Wilner goes on to state that: "A review of dozens of stadium-related interviews, memos and reports from 2009-2011 found no evidence that Cal engaged in fraud. Internal documents usually specified that sales figures were based on intent-to-purchase orders, but school officials were less specific in their public comments." (Wilner, 2013) This was the second time in a two-year period that the Regents received puzzling, inaccurate information. Recall the different numbers provided in Regents items for the SAHPC in the 2006-2007 period dealing with cash in hand, bankable pledges and pledges in process. (Page 10 above)

Those "less specific comments" included, for example, AD Sandy Barbour's statement to a homecoming gathering on Oct. 20, 2010, that two-thirds of the seats had been sold. In a January 28, 2011 op-ed from Professor Calvin Moore and Vice Chancellor Frank Yeary in the *Daily Californian,* they wrote: "As of today, ESP participants have accounted for 1895 seats." (Yeary and Moore. 2010) In fact, when the University did release the statistics through June 30, 2011, only 1421 seats had been sold. The Moore/Yeary op-ed was in response to two opinion pieces in *The Daily Cal* by Barsky calling into question the viability of the financing plan for the stadium. (Barsky, 2010 and 2011) His detailed analysis is largely on the mark. While the athletics website indicated that $215 million had been raised, Barsky's calculations, using available athletics data, concluded that only $20 million in cash had been raised. He also questioned how athletics revenues can pay back the debt when it has run substantial deficits for decades.

Moore and Yeary acknowledge some of Barsky's assertions and still claim that 98% of the ESP seats will be sold when the stadium renovation is completed. That occurs in August 2012 when 1812 seats had been sold, approximately 60%. The Moore/Yeary response states that they are relying on the analysis done by Moore in the Report of the Academic Senate Task Force on Intercollegiate Athletics published on August 30, 2010. Moore chaired this task force, which followed upon the Academic Senate resolution calling for an end to campus subsidies for athletics. The final paragraph in Moore's risk analysis, included as Appendix G in that report, states:

> However, it is well to sound a word of caution: given the uncertainties of fundraising, the uncertainties of the athletic success of the football team, the ultimate level of success of the ESP program, and the uncertainties of the financial markets over the next 30 years, the error bars on these results have to be assumed to be enormous. (Moore, et. al., 2010, page 54)

Furthermore, Moore's risk analysis of the ESP program states that, "we followed in many ways the assumptions used by California Hall (i.e., the Chancellor's office) in their assessment of the project." According to Moore in a recent email to me, his information came from Brostrom and Yeary in verbal reports, and his analysis never contemplated drawing down on the principal of the FFE. He indicated his shock at hearing this for the first time from me. It is difficult not to read the Moore/Yeary op-ed as anything other than a strong defense and endorsement of the ESP program despite their earlier acknowledgement of the "enormous" risk. Meanwhile, Barsky, the critic, who is extremely detailed, highly analytical and persistent is cast as the outsider, attacked in the various blogs and listservs and privately denigrated. The Moore/Yeary op-ed appears then on the California Golden Bears official website with no context as to what Barsky stated, let alone his two op-eds. Construction on the stadium commenced that very month, January 2011. The momentum of the project was such that the key decision makers found it unthinkable to delay it.

The campus administration knew that the heavy reliance on the ESP program as originally structured to cover the debt had major problems. The administration also knew that it had a credibility problem as a result of the misleading data that had been presented on various occasions.

8. *A New Vice Chancellor and a Different Approach*

Frank Yeary returned to the private sector and Chancellor Birgeneau appointed John Wilton as the new administrative Vice Chancellor in June 2011. Wilton had 25 years experience as a senior manager at the World Bank and several years experience as a financial consultant on a host of economic matters. Wilton had no experience with intercollegiate athletics but he knew that the program's overall financial condition had to be addressed. He took action on several fronts.

First, to address the credibility issue, Wilton decided to issue quarterly reports on the ongoing sales of the ESP seating program. The first report was issued through June 30, 2011.[9]

Second, Wilton sought an evaluation of the revised funding model in April 2012 from the Haas School of Business on the Berkeley campus. The report of Professors William Fuchs, Richard Stanton and Nancy Wallace was issued on March 29, 2013. That public and highly detailed report describes the problems associated with seat sales projections, the debt financing for the

SAHPC and stadium, how that debt is projected to be serviced, and an analysis of the assumptions underlying those projections, including a sensitivity analysis varying the seat sales and investment returns on the FFE over time. Their major finding was:

> . . . it is important to note that even under the worst set of assumptions (an extremely pessimistic combination of no further ESP sales at all after 2012, combined with an annual FFE return of 2% per year for 40 years) the FFE balance does not go negative until 2034, leaving at least 20 years to work out how to deal with this eventuality." At the same time, the authors caution that "None of us knows anything about selling seats in football stadia, so to try to understand likely sales levels and the reasonableness of IA's projections, we asked IA to provide detailed background on all aspects of the forecasts . . . Unfortunately, in part because most of the people currently responsible for managing the debt payments were not at U.C. Berkeley at the time the original decisions were made, we were unable to obtain many documents . . .

In fact, Barsky pointed out that the Haas faculty analysis does not contemplate a more troubling worst case scenario involving existing seat license holders turning back their seats since there is no annual required payment. This would almost certainly occur if Cal could not produce consistently winning football teams. They have not, and the total number of seat licenses has declined, as the reader will see below.

Some data were available on current forecasts, historical sales forecasts and a PowerPoint presentation from a marketing survey of almost 4400 donors to elicit their interest in the seat licensing program. The Haas faculty authors acknowledge on page 16 that "we are not really qualified to judge" the reasonableness of the projections. They go on to say that: "Despite our uncertainty, we acknowledge that the ESP sales team at IA knows a lot more about selling seats than we do . . . " and that the number of seats sold is definitely increasing. They indicate their further reassurance by stating John Wilton's commitment to have " . . . a neutral outside expert evaluate the reasonableness of their stadium revenue assumptions in the near future." They repeat their concern in the Summary as follows: "We hope that some of this uncertainty will be resolved when IA bring in an outside expert to evaluate their forecasts in the near future, as they have promised." (Fuchs, et. al, 2013, pp. 13-20, 32) To date, no evaluation has been done.

Third, Wilton also understood that the heavy reliance on the seating program could cause problems for the repayment of the debt in the long run. The debt was structured so that interest only payments were made for the first twenty years beginning in 2013. The annual payment for that time period is approximately $18 million.[10] Beginning in 2032, the annual payments increase to $26-$37 million from 2032 - 2050. Sufficient funds had been raised for the SAHPC, $86 million in pledges, and revenues from a football ticket surcharge and other sources that were placed in an Endowment beginning in 2009 to cover the interest only payments through 2032.[11] That endowment is referred to in campus correspondence as SAHPC (#R14447). The Haas faculty evaluation report indicates that $50 million resided in the endowment[12] as of July 1, 2012. Table 2 shows the FFE balances from 2012 through 2016.

Table 2

Fiscal Year Funds Functioning as Endowment Balances				
2012	2013	2014	2015	2016
$50,000,000	$54,713,901	$63,400,000	$66,300,000	$60,980,000

In February 2012, President Mark Yudof granted Chancellor Birgeneau's request, as an exception to policy, to invade the principal of the SAHPC FFE (R#14447) according to the following timetable:

- Up to $3 million by April 2012
- Up to $5 million by April 2013
- Up to $5 million ongoing annually until funds are depleted

The policy requires a five-year period following the creation of an endowment before the principal can be invaded. Birgeneau and Wilton believed they needed flexibility to invade the principal in down market years and to backfill it in up years. The Haas faculty, in their evaluation of the new financing model, appear not to have been aware of the exception to policy or the intent following the five-year period to invade the principal from time to time. On page 10 of their report, in the section dealing with investment returns entitled Projected Sources of Revenue, they state: "The account contained $50 million on July 1, 2012, and any funds raised each year in excess of debt payments will also be put into this account. For forecasting purposes, it is assumed that funds in this account grow at 6% per year."

A January 10, 2013 CADS (Cal Advancement Data System) statement entitled "Allocation Notes" appears to indicate that the purpose of that Endowment had changed sometime in 2012. For example, the statement refers to a previous note of February 24, 2012 with a description: "Revised endowment type." The notes for January 10, 2013 state: "A fund functioning as an endowment, the payout and/or principal of which will be used to provide both programmatic and operations support at the Student Athlete High Performance Center on the Berkeley campus of the University of California. The fund will be administered by intercollegiate athletics."

The original funding model relied heavily on investment earnings from the sale of seat licenses. If the principal of the endowment was withdrawn early, that affected earnings and threatened the viability of the model. Birgeneau was aware of the contradiction and discussed it in his request to Yudof for the exception:

> As you are aware, Intercollegiate Athletics at UC Berkeley has a financial plan that involves anticipated withdrawals from its FFEs that are both greater than five percent and scheduled to occur prior to five years after the inception of the FFE. These withdrawals are a critical part of a multifaceted plan to create a financially and operationally stable Intercollegiate Athletics program at UC Berkeley.
>
> . . . .the Berkeley campus continues to evaluate all FFEs, given that the short term need, withdrawal schedule, and size of withdrawals required in relation to market value are all needs that appear to contradict the purpose of the FFEs as stated in the Guidelines. (February 10, 2012 letter from Birgeneau to Yudof Re: Waiver Request to Policy for Withdrawal from FFE Corpus)

Birgeneau also references in his letter that other Berkeley campus construction projects and their financing models, for example The Berkeley Art Museum/Pacific Film Archive Fund, also require early withdrawals from the principal. Thus, intercollegiate athletic facilities are not the only ones on campus using a mortgage-like approach (long term debt with an anticipated source of revenue to pay it back) based on the use of FFEs with an inherently higher level of risk.

Here is what Birgeneau says in his recently released oral history dealing with intercollegiate athletics (Robert Birgeneau, 2014):

> 01-00:19:56
> Birgeneau: I had conversations with Bob Berdahl about that, but also about many of the other infrastructure challenges on the campus. I would say that the conversations about Memorial Stadium and the Student-Athlete High Performance Center were not qualitatively different from those that we had about the Li Ka Shing building [Center for Biomedical and Health Sciences] or the East Asian Library or the many other projects which were basically frozen at the time that I arrived here at Berkeley.
>
> 01-00:20:24
> Birgeneau: I felt strongly that if we wanted to be a university that is competitive in the twenty-first century, then we needed to have twenty-first century facilities, and that was true across the board. Consequently, I made it one of my priorities as Chancellor to make sure that we moved forward on facilities, whether they were libraries, research, teaching, or athletic facilities.

In querying Birgeneau as to his level of concern over the increased risk of drawing down the endowment for operations as well as debt payment, his response in a January 10, 2015 email was:

> This was not a complicated decision. For many projects the responsible parties need as much flexibility as possible in managing the cash flow and you have to trust that they will do so responsibly. This was one such example. Of course, I have also been consistent in insisting on as robust endowments as possible. That was in the background in this request.

What is the multifaceted plan for intercollegiate athletics that Birgeneau references? Rather than relying so heavily on ESP seat sales, naming rights and FFE investment revenue, Wilton expanded the potential revenue sources by reconceptualizing the stadium and high performance center as a multi-use facility. Campus units could lease space for various purposes. The recreational sports program now utilizes 5,000 square feet for an exercise facility for all students, not just athletes. The Graduate School of Public Policy, the Haas School of Business, and the College of Engineering are, or will soon, lease space for a variety of educational purposes. The campus Visitor Center is now located there. Campus and external organizations also may rent space for various events such as meetings, conferences, and weddings. A July 2014, international soccer match drew a large crowd and generated revenue of about $1 million. Another match, scheduled for July 2015, fell through because the teams believed that Avaya Stadium in San Jose provided a better venue.

No similar events occurred in 2016. How this will affect other professional soccer events at Memorial Stadium is not clear. The stadium is marketed for these purposes but also has a limit on the number of large public events that may be held to appease neighborhood concerns over noise and other disturbances. That limit specifies that: "Subject to further review under the California Environmental Quality Act, a cap on 'capacity' events — programs attended by more than 10,000 spectators, exclusive of Cal Bears games and graduation events — of nine such events in any three-year period, with no more than four occurring in any one-year time frame, of which no more than two may exceed 30,000 spectators, through 2025." (Mogulof, 2010)

A new parking facility was constructed just north of the stadium under Maxwell Family Field. A land lease arrangement with Maxwell Garage, LLP, gave them the right to build and operate the 450 space garage and reconstruct the playing field on the rooftop. This new parking will be used for event attendees at the stadium, including for VIP attendees at football games, particularly those with seat licenses. Campus parking permits are not valid in this structure. Parking rates are set based on current parking rates in the local community. This is a potential source of revenue if Maxwell Garage, LLP exceeds a certain profit level as specified in the contract.

Philanthropy and commercial revenue remain very important in the revised financing model. The naming rights to the stadium field to video game maker Kabam generates $18 million over 15 years. The College Football Playoff will generate $60 million in the coming year for the Pac-12 alone, with the revenue shared among the schools. In an October 7, 2016 email to interested parties from Athletic Director Mike Williams, he states that an additional $7 million annually will result from a new 10 year contract with Under Armor for $86 million, replacing the existing agreement with Nike;[13] and a $100 million ten year media rights contract with Learfield, doubling the existing IMG agreement.[14] He also mentioned the $1 million in additional revenue as a result of Cal's opening football game against Hawaii in Sydney, Australia. He did not mention the fact that the team missed the opening week of classes to bring in this revenue, an example of the compromises undertaken to increase revenue.

While the revenue increase is encouraging, the total of these additional revenues would still be well short of covering the existing $22 million athletic department deficit. It fits within an historical pattern where, during budget crises, a pot of gold at the end of the rainbow is envisioned as the salvation for Cal sports. In the recent past, it was the anticipated success of Jeff Tedford, the expansion of the Pac-10 to the Pac-12, and enhanced TV deals and more money for the participating schools. Some of that did happen but, nevertheless, the athletic department deficits continued to mount, partly because of the debt service payments. Enhanced revenue leads to increased expenditures to keep Cal in the unending arms race to remain competitive.

The sale of ESP seats and the revenue generated from investing the proceeds remain the two largest sources of revenue to pay off the stadium/SAHPC debt. They also pose the greatest long term concern for the success of the revised financing model. The campus hired a seasoned marketing team to increase sales and develop new ways to sell the empty seats on a game day basis in 2012. They categorize the ESP seats sold as "Pledge Seats" and the game day seats as "Premium Seats." The latter include, for example, bundling seats for corporate use on a short-term basis and discounted seats for current ESP seat holders. They then combine both categories of seats and label that "Premium Full Season Equivalents." Table 2 below shows the number of seats sold from December 31, 2011 through August 31, 2016. The high mark was at the end of the 2013 football season when a total of 2225 seats were sold. Since then, the number of seats sold has declined steadily to 1896 as a number of seat holders have pulled out of the program, even as some have bought into the program during that period.

Table 3

Premium Full Season ESP Equivalent Seats Sold	December 31, 2011	December 31, 2012	December 31, 2013	August 31, 2014	August 31, 2015	August 31, 2016
	1782*	1873	2225	2014	1925	1896

*Indicates only seats sold. Equivalent packages did not begin until the following year. The total number of seats for sale is approximately 3000.

With regard to investment returns on the FFE, for the period 2013 - 2016, Table 4 shows a decline in earnings with 2014 being the high mark at $10,285,049 and 2016 showing a loss of -$2,678,097. The model anticipates these fluctuations because of the long term nature of the investments. Rolling averages over a five year period provide a better gauge of likely success. The Regents' endowment has averaged 7.5% over the past ten years and 9% over the last twenty years. Obviously, the larger the corpus, the better, which is why fund raising and ESP sales are so important, and why the decline in sales is so worrisome. It is important to note that the stadium/SAHPC financing model is long term.

The interest rates on the bonds are very low, 3.89% for the SAHPC and 4.25% for the stadium. This is fixed rate debt. As inflation causes revenues to grow, the relative burden of the debt will diminish. $75 million in Century bonds are also included as part of the financing providing very long term financial flexibility. Nevertheless, the trends with regard to ESP sales, the FFE balance, and investment returns on the endowment highlight the management challenge and the risk of the revised financial model.

Table 4

Investment Returns on Endowment			
2013	2014	2015	2016
$6,783,506	$10,285,049	$4,099,035	-$2,678,097

Table 5 shows how the revised facilities financing model is faring against actual revenues and expenses from 2013 - 2016. It shows how the actual FFE balance begins to fall below the model's projections in 2015 and then falls more significantly in 2016.[15] The building of the stadium did not fully take into account the expenses. That includes both the sales and additional support staff related to ESP sales as well as the additional operating costs associated with the renovated stadium and SAHPC facilities. There is also a cost associated with the maintenance on a lot of new equipment. Finally, it did not take into account the affect on overall philanthropy and the ability to raise other gifts. Donors were told that if they bought seats, they would never be asked to make a contribution again. The ability to grow significant philanthropy was significantly reduced. According to David Secor, the athletics budget officer, the net impact of the stadium debt on the operating budget is probably between $6 - $10 million.

Table 5

CAL ATHLETICS

FACILITIES FINANCING MODEL
(in millions)

INCOME

	FY 13 (Facilities Financing Model)	FY 13 (Actual)	FY 14 (Facilities Financing Model)	FY 14 (Actuals)	FY 15 (Facilities Financing Model)	FY 15 (Actuals)	FY 16 (Facilities Financing Model)	FY 16 (Actuals)
ESP Sales	$ 12.07	$ 11.21	$ 12.96	$ 9.90	$ 11.57	$ 8.18	$ 11.28	$ 8.03
Earnings	3.00	6.78	3.16	10.29	3.33	4.10	3.70	(2.68)
Seats (Non-Pledge)	0.79	0.69	0.80	0.89	0.74	1.01	0.68	1.18
Philanthropy / Partnerships	4.69	4.35	5.43	7.76	5.41	6.74	4.95	5.01
Media Revenue	-	-	-	-	2.50	2.50	2.50	2.50
Leases				0.08		0.29		0.37
Rentals	0.45	0.19	0.65	0.46	0.86	0.81	1.07	0.42
Total Revenues	**$ 21.00**	**$ 23.23**	**$ 23.00**	**$ 29.37**	**$ 24.41**	**$ 23.63**	**$ 24.19**	**$ 14.84**
Debt Service	(14.82)	(14.82)	(18.14)	(16.16)	(18.14)	(16.98)	(18.14)	(17.84)
Expenses		(0.15)		(0.48)		(1.59)		(1.02)
To Deferred Benefits		(0.86)		(2.43)		(0.93)		(0.45)
Support to IA Operations	(3.59)	(2.71)	(2.00)	(1.62)	-	(1.25)	-	(0.82)
Net to FFE	**$ 2.59**	**$ 4.69**	**$ 2.86**	**$ 8.68**	**$ 6.27**	**$ 2.88**	**$ 6.05**	**$ (5.30)**

BALANCES

FFE

	FY 13 (Facilities Financing Model)	FY 13 (Actual)	FY 14 (Facilities Financing Model)	FY 14 (Actuals)	FY 15 (Facilities Financing Model)	FY 15 (Actuals)	FY 16 (Facilities Financing Model)	FY 16 (Actuals)
Beginning Balance	50.02	50.02	52.61	54.71	55.47	63.39	61.74	66.27
Add: Net	2.59	4.69	2.86	8.68	6.27	2.88	6.05	(5.30)
Ending Balance	**$ 52.61**	**$ 54.71**	**$ 55.47**	**$ 63.39**	**$ 61.74**	**$ 66.27**	**$ 67.79**	**$ 60.98**

FFE (Deferred Benefits)*

	FY 13 (Facilities Financing Model)	FY 13 (Actual)	FY 14 (Facilities Financing Model)	FY 14 (Actuals)	FY 15 (Facilities Financing Model)	FY 15 (Actuals)	FY 16 (Facilities Financing Model)	FY 16 (Actuals)
Beginning Balance		5.78		6.64		9.06		10.00
Add: Net (Include Earnings)	-	0.86	-	2.43	-	0.93	-	0.45
Ending Balance	**$ -**	**$ 6.64**	**$ -**	**$ 9.06**	**$ -**	**$ 10.00**	**$ -**	**$ 10.45**

*Deferred Benefits represent revenues (ticket sales, parking, concessions) not yet earned but received for future years.
Effective with the FY14 model, earnings associated with the Deferred Benefits FFE remain credited to that balance.

As of October 2016, Intercollegiate Athletics had a budget deficit totaling approximately $22 million, the highest it has ever been.[16] A large deficit may occur in 2017. The entire burden for the payment of the debt for the SAHPC/stadium project and the requirement to maintain a balanced operating budget are exclusively the responsibility of the intercollegiate athletics department. The expectation placed on the department is to produce a broad based, highly competitive program with thirty intercollegiate sports and 900 + student athletes. This is an untenable, perhaps impossible, expectation. If one took the Regents item designating athletic revenues as the source for the debt repayment literally, and if the campus administration enforced a balanced operating budget, the only source of money to cover the $22 million deficit is in the endowment itself. Removing $22 million from the endowment balance of $60.98 million would lead to a collapse of the model. The debt payment and the operating budget are inextricably linked. Chancellor Dirks cannot allow the financing model on the debt to collapse so he will almost certainly cover the $22 million shortfall using central campus monies.

The revised financing model, as Wilton acknowledged, depends on a consistent, highly successful football program. Cal has not produced such teams since the Pappy Waldorf days in the 1950s.[17] One wonders if it is in Cal's DNA to do it again, or if the cost of the arms race is worth the return. Interestingly, AD Mike Williams fired football coach Sonny Dykes, replacing him with Justin Wilcox in early January of this year. He is quoted in the San Francisco Chronicle as saying: "We'd like to have a head coach as soon as possible, but we will be thoughtful and thorough in our search. I think that what we need to do as a community is to commit to championship football. I think that might be the one we're lacking, because we have the resources, we get the right student-athletes, and Cal is a place that produces champions in virtually every other sport." (Kroichick and Saracevic, 2017) Many would consider this a pipe dream, a refrain of AD Gladstone 15 years earlier when Jeff Tedford was hired, and an aspiration that would require untold sums of money that will never be forthcoming.[18]

Apart from the impact mediocre football performance has on ticket sales of all kinds (it is worth noting that football ticket revenues in the renovated stadium with 10,000 fewer seats have yet to reach what they were at the end of the 2010 season in the old stadium when Cal was 5-7), the history of NCAA Division I football is littered with examples of programs where placing paramount importance on winning led to accompanying cheating and scandals. Short of that, a host of decisions are made within athletics that favor football, sometimes at the expense of the campus as a whole or other sports.

A recent decision to provide the football team with a practice field is one example. The decision to convert Maxwell field to a football practice field meant that the women's field hockey team had to find a new field. The artificial turf for football is longer than what field hockey play requires. Underhill Field was the alternative for field hockey but was not big enough so several million dollars were required to upgrade it. A threatened Title IX lawsuit brought by the women players moved the administration to act. And why does football require a practice field when it used Witter Field in the past? Because the campus gave priority for the use of Witter Field, football's old practice field and the home of men's rugby, to the rugby team. Coach Jack Clarke and the Cal Rugby Advisory Board negotiated this agreement with Vice Chancellor Wilton in return for their continued fund raising to make the Rugby team completely self-supporting, and to also contribute toward the women's lacrosse and women's gymnastics programs. At $150,000 annually, that hardly provides sufficient support for those two women's programs. The apparently unanticipated consequence was the expenditure of several million dollars to avoid the threatened Title IX lawsuit from the Women's Field Hockey team.

Vice Chancellor Emeritus Ed Denton's oral history provides another example. In this case, a $3 million surplus was available after the completion of the SAHPC. Coach Tedford wanted electrical outlets and ventilation for each of the football players' lockers so that they had immediate access to their laptops. The administration rejected this request at the outset of the project as being too expensive. The surplus provided another opportunity to make that request even though the lockers were now installed without the electrical amenities.

Denton stated his concern that the lockers requested by the coach were extremely expensive and was not used in any of the other student athlete lockers in the building other than football. The request ultimately required not only installing electrical outlets in each locker, but also providing ventilation to overcome the heat generated by the electronic devices. He felt neither the faculty nor students would have supported spending so much for one team. He surmised that the changes may have been more focused on recruiting than the actual need for football players. (Denton, p. 34) Changes to the football players' lockers totaled $456,000. Coach Tedford requested changes to his conference room as well at a cost of $250,000.

9. *College Football's Current Challenges*

Big time intercollegiate athletics programs live or die on the basis of the success of their football programs. However, football itself at all levels of play is threatened. A growing body of research indicates that concussions as well as sub-concussive hits experienced by players from the Pop Warner leagues to the NFL disrupt normal brain function. The number of parents who now will not permit their children to play the sport is 50% according to a recent Bloomberg News survey. Only 17% of those surveyed believe football will grow in popularity in the next 20 years.[19] The morality of even watching what some refer to as the blood sport of football is a frequent topic of conversation in the press and elsewhere. (Tobar, 2014) How will this impact the ability to pay off the debt?

In the last decade, dramatic changes in the landscape of big-time college football as a result of lawsuits, political pressure at the state and national level and public concern are separating the field between the haves and have-nots, the members of the five power conferences and everyone else. Guaranteeing full ride scholarships for four years, increased health benefits for sports related injury beyond graduation, even the outright payment of college athletes will have an enormous impact on all intercollegiate athletic program budgets. The recent tightening of admissions requirements at Cal will lead to more emphasis on out-of-state recruiting and the higher cost of scholarships for those student athletes. Athletics must absorb tuition increases for their scholarship athletes, something that is beyond their control and pushes expenditures higher. All of these changes propel even more the intercollegiate athletics arms race, the need to spend more to stay competitive. Since repayment of the debt has the highest priority, how much money will be left to maintain Cal's athletic competitiveness?

Such are the risks inherent in large decisions of this kind for any Chancellor. Birgeneau, a strong, forceful, decisive leader was a risk taker, and he was clear about what he felt must be done. Again, this from his oral history:

> If you insist on having every dollar identified before you start a project, then you will almost never be able to move forward and you will end up with a university in decay. So, I felt when I came here that we had simply been too conservative. I decided that for the health of the University and its long-term competitiveness, we needed to bite the bullet and start building the facilities that we needed for our educational and research programs. (page 10)

Was he right or is this an example of a type of overarching risk that makes taking smaller risks more acceptable? Will this model or a variant of it over time pay off the debt and in fact lead to a financially stable intercollegiate athletics program? Only time will tell, but the recent history is not encouraging.

C. Going Forward

Chancellor Dirks announced the creation of yet another task force on intercollegiate athletics in the summer, 2016. This task force, created in light of the then $150 million campus-wide deficit and Intercollegiate Athletics' component of that, $22 million, is to make recommendations on a financially sustainable program for the long term. This effort mirrors various other committees and task forces as far back as 1991, the year the often cited Smelser Report was issued. The Coley report followed in 1999, followed by the Cheit committee report in 2001, the Academic Senate's Task Force on Intercollegiate Athletics report in 2010 and Chancellor Birgeneau's Advisory Council on Intercollegiate Athletics Financial Sustainability report that same year.

All of these well intentioned efforts operated with the same assumptions - intercollegiate athletics adds value to Berkeley; the intercollegiate athletics program should be broad based, highly competitive and mirror the excellence of the academic program, assuming that a financial model can be created to sustain that; a greater emphasis should be placed on fund raising; a reasonable central campus contribution is $7 million, including the student fee component which averages $2 million annually; intercollegiate athletics should be managed more effectively; student athletes should be students first and athletes second; coaches should be rewarded for the academic success of their athletes as well as their athletic success; all coaches must assume a greater responsibility for fund raising. These task forces and committees are composed overwhelmingly of athletics supporters, a limiting factor in thinking differently about these matters. The outcome over the 25 year period is not encouraging. Budgets and deficits have skyrocketed, the salaries of senior athletic administrators and revenue sports coaches have done the same, graduation rates in these same sports have been mediocre at best, and embarrassing scandals have materialized from time to time.

Successive administrations dating back to the 1990s have allowed Intercollegiate Athletics to run substantial deficits without real consequences, as would normally be imposed on other units. Intercollegiate athletics leadership, as a result, has grown increasingly comfortable in engaging in a game of chicken when campus-wide financial exigencies raise the specter of cuts to their program, believing that alumni/donor pressure will inevitably force the administration to back down. Such is the current situation with a lame duck Chancellor, Nicholas Dirks who may not wish to make any significant decisions that will box in his successor who is expected to be named in March, 2017. His successor is unlikely at the beginning of his/her term to alienate an alumni/donor base by cutting sports or imposing other draconian measures on athletics. This cycle, this way of thinking, repeats itself as costs continue to rise and the gap continues to grow between academics and athletics. Cal is not unique in this regard.[20]

What the series of committees and task forces mentioned above show is the limitation of the muddling through approach at Berkeley over the last 25 years. All had roughly the same task, defining the role and purpose of intercollegiate athletics and suggesting ways to make the program financially sustainable without jeopardizing the educational mission. All existed and functioned within the same paradigm, accepting and justifying an intercollegiate athletics program that rested on the shoulders of football players, and to a more limited degree men's basketball players, many of whom were African American and underprepared educationally.

Winning took precedence over academics, as evidenced by fluctuating graduation rates, injuries proliferated, costs skyrocketed, outside media interests dictated campus decisions, and enormously costly facilities contributed to a severe campus budget shortfall. Much of this was done in the name of tradition, of keeping donors happy and of entertaining the campus community. Berkeley is not unique in this regard but it has a greater responsibility as the unquestioned leader of public higher education in the United States. The existing paradigm of big-time intercollegiate athletics at Berkeley has failed. Muddling through is not enough.

ENDNOTES

1 The most recent accounting by UC Berkeley Director of Asset and Capital Management Strategies, Adile Quennarouch, now lists the total projects' costs as $463 million, with $436 million debt financed, as indicated in an email from him to the author on December 8, 2016. This paper continues to use the numbers appearing in many University documents with the understanding that the final numbers may change over time.

2 See http://www.berkeley.edu/news/media/releases/2008/06/stad-update.shtml#archive)

3 All the complexities of managing construction projects on the Berkeley campus, particularly ones as large as the SAHPC and the stadium are discussed in Denton's oral history. (Edward Denton, 2016)

4 A bankable pledge is in writing, from a reputable donor, with a scheduled payout plan. A pledge in process is exactly that, a pledge that is being negotiated but is not in writing. Only bankable pledges count in the Regents' assessment of financial plans.

5 From September, 2009 through January, 2010, Brostrom maintained a 20% appointment as Vice Chancellor at UC Berkeley.

7 The 3,198 number changes in 2012 to 2902 as a result of setting aside about 300 seats for purposes other than the ESP program. This changes the calculation for percentage of seats sold in various campus documents..

8 One question repeatedly raised about the stadium renovation was whether the campus chose to do too much - seismic strengthening plus the elaborate amenities and seating program. The problem with doing less was that there would have been no viable way to raise the money to finance the project. The Development Office believed that a realistic figure for fund raising for both the SAHPC and the stadium was $125 million.

9 All the reports are available at *http://www.calbears.com/ViewArticle.dbml?&DB_OEM_ID=30100&ATCLID=208204189* through June 30, 2016.

10 The bonds were issued at different times and with different interest rates. They can also be refinanced at lower interest rates which would affect the annual payment amounts. Some century bonds were included in the financing which stretched the payment out 100 years. For these reasons, it is difficult to provide precise numbers. A detailed analysis of the bonds can be found on page 5 of the Haas faculty analysis: Evaluation of Financing for U.C. Berkeley's California Memorial Stadium and Simpson Center for Student-Athlete High Performance (William Fuchs, Richard Stanton, and Nancy Wallace March 29, 2013)

11 A later report from David Secor to Vice Chancellor Wilton indicates that about $95 million was raised with $26 million dedicated to the construction, another indicator of the difficulty involved in getting precise data. Secor was new to the job in July, 2013, and indicated that existing records were inadequate.

12 This particular endowment had part of the funds invested by the Regents and part invested by the Berkeley Foundation.

13 That amount includes an average annual $4.8 million in apparel and a signing bonus to be used for "rebranding"; and $3.5 million in cash, according to the Intercollegiate Athletics chief financial officer, David Secor.

14 An interesting contrast is the UCLA deal with Under Armour for $280 million over 15 years, an indicator of the difference in the two "brands." http://www.latimes.com/sports/ucla/la-sp-0525-ucla-under-armour-20160525-snap-story.html UCLA's renewed deal with IMG brings in $14.4 million. http://www.sportsbusinessdaily.com/Daily/Issues/2016/09/12/Media/Learfield-Cal.aspx

15 To clarify "Deferred Benefits" in Table 5, according to David Secor, in an email to me on January 9, 2017, "If you purchase an ESP seat, part of that money is a tax-deductible contribution and part of it is a purchased benefit. When I purchase a University Club seat for $200K, it includes the value of the ticket, the parking benefit, and the hospitality (free food and drink) for the next fifty years. We can recognize the contribution portion as revenue in that year but per GAAP (Generally Accepted Accounting Principles), the ticket sales revenue is recognized in the year that it is earned. So using an approximate 80-20 ratio (we have calculators) we may recognize $160K in Contribution Revenue and the $40K is placed in a deferred benefit account. Then each year we transfer funds out of the deferred benefit account to our operating budget and recognize the ticket and other revenue value for that year."

[16] http://www.mercurynews.com/2016/09/30/cal-athletics-20-million-question-will-sports-need-to-be-axed/

[17] It is true that Jeff Tedford won more games than any other coach in Cal's history but his Conference record was 50-45 and the team was ranked by the Coaches poll in the top 25 in only four of his eleven seasons.

[18] As a comparison, the University of Alabama football program generates $97 million in revenues against expenses of $51 million. Cal's equivalent figures are $44 million and $22 million respectively, according to the latest Equity in Athletics Disclosure Act data.

[19] http://www.bloomberg.com/politics/articles/2014-12-10/bloomberg-politics-poll-half-of-americans-dont-want-their-sons-playing-football
A fuller description of these matters at Berkeley is discussed in the first white paper. (Cummins and Hextrum, 2013) A simple Google search on "intercollegiate athletics scandals" produces a plethora of articles on the subject.

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Appendix A

Lindblom's Science of Muddling Through

Charles E. Lindblom, an emeritus professor of politics and economics at Yale University, wrote two seminal articles, twenty years apart, describing his views on how policy or decision making is done. The first contrasts what he refers to as the 'root' and 'branch' methods of arriving at a decision. The 'root' method involves the defining of values and objectives, in advance and as thoroughly as possible, then analyzing as completely as possible all options available to meet those objectives before deciding. The more complex a particular policy decision is, however, the more impossible it becomes to survey all the relevant and often competing values, and compare and assess them against a range of possible policy decisions. The 'branch' method is better known as incrementalism or gradualism. It involves adjustments and small steps that, over time, can lead to better policy outcomes. Deciding in this context is more manageable because possible, incremental courses of action to meet certain objectives and values are limited. They are not revolutionary. Limited policy options permit the decision maker to intertwine analysis with marginal value benefits in comparing those options and reaching a decision.

Lindblom's first article appeared in 1959, at a time when there was a growing belief that rational, scientific, quantitative analysis could ensure the best decision making. The Rand Corporation and the "whiz kids" of the John F. Kennedy administration embodied this belief. Lindblom professed that the 'root' model was essentially impossible to carry out. It was too costly, too time consuming and could not possibly be comprehensive in dealing with complex policy decisions. There were too many variables to consider and insufficient data to measure and compare them.

The second article states that policy makers have largely concluded that the incremental policy process is largely the only approach possible. However, all involved believe that it can be done better, including Lindblom. "Many critics of incrementalism believe that doing better usually means turning away from incrementalism. Incrementalists believe that for complex problem solving it usually means practicing incrementalism more skillfully and turning from it only rarely." Lindblom expresses his own surprise that the first article received so much attention. It was included in forty anthologies and cited over 10,000 times. He believed it was a statement of the obvious, for the most part. In our view, the article received so much attention because it so resonated with anyone in a position of authority and empowered to make decisions.

Diane Vaughan's Normalization of Deviance

Diane Vaughan, a professor of Sociology at Columbia University, an expert on organizational decision making, risk, misconduct and the intersection of culture and individual action in that process, authored, among several other works, *The Challenger Launch Decision: Risky Technology, Culture and Deviance at NASA (1996).* This book is an in-depth analysis of the causes of the catastrophic failure of the Challenger Shuttle flight on January 28, 1986 that led to the death of seven astronauts. The book is the result of ten years of research that included many interviews and the analysis of a massive number of documents, including those of a Presidential Commission set up by President Reagan to establish what happened, a Congressional investigation, NASA investigations and enormous press coverage. These and other investigations concluded that the cause was attributable to production pressures, scarce economic resources and managerial error due to failure of middle managers to pass critical information up the chain of command.

The information related to engineering concerns about the potential failure of the O-rings in the solid rocket boosters due to unusually cold temperatures on the day of launch. A history of O-ring problems occurred on previous flights but technical fixes rather than a redesign of the element seemed sufficient within the engineering culture. The day of the launch was different, however, because the temperature was several degrees lower than the norm on previous flights. Nevertheless, the decision was made to proceed with the flight. An O-ring failure then led to the escape of super heated gases and fire resulting in catastrophic consequences. The fire led to the separation of the struts holding the shuttle to its external fuel tank that would normally provide the fuel to propel the shuttle to its higher orbit. The shuttle continued to ascend for a short period and then dropped 12 miles, smashing into the ocean at 200 mph.

When Vaughan began her analysis, she had largely accepted the common perception that some form of misconduct occurred by managers at NASA as a result of pressure on a number of fronts to move forward with the launch despite serious misgivings. NASA had previously made the case to Congress that the shuttle program could generate substantial revenue from the private sector through research payloads, and assist in the defense effort by placing surveillance satellites in the sky in cooperation with the United States Air Force. The number of shuttle flights would increase substantially as well to make the program more cost effective. NASA budgets had been reduced over time, creating more pressure as a result of decreases in the workforce. Increased payloads and military requirements added weight to the shuttle and required design changes to balance that increase, including the removal of escape rockets on the Orbiter that would provide a means of escape for astronauts in a failed launch. Competition from the private sector and other countries to perform similar missions began to cut into NASA's economic projections. Past flight delays in the shuttle program made NASA a subject of jokes in the media. These facts provided added confirmation in the public eye that NASA managers succumbed to the pressure by deciding to launch at the expense of astronaut safety.

A large body of research exists on organizational misconduct and NASA would not be the only organization that succumbed to pressure from the lack of resources and external competition, assuming it did. Vaughan was thoroughly familiar with that research and had particular misgivings about one hypothesis to explain it, the amoral calculator. She describes this behavior as follows: "when an organization experiences structural strain to achieve its goals, individuals acting in their organization roles weigh the costs and benefits of their actions, choosing to violate laws and rules to attain organization goals." Vaughan's extensive ten years of research led her to a different, more nuanced conclusion.

Vaughan does not deny the pressures on NASA identified in the other investigations. However, she identifies changes in the culture of the organization over time that led to a normalization of behavior related to acceptable risk that allowed the Challenger to fly despite a major safety concern over the O-rings. Vaughan defines culture as follows: "Culture can be thought of as a set of solutions produced by a group of people as they interact about the situations they face in common. These solutions become institutionalized, remembered and passed on as the rules, rituals, and values of the group (Van Maanen and Barley, 1985)." In sociological terms, culture is the mediating force between structure and agency. Vaughan refers to this with regard to NASA as the "culture of production," the "institutionalized belief system of the aerospace industry, the engineering profession, the NASA organization. . . ." The more embedded the belief system becomes, the more resistant the organization is to fundamental change.

Hierarchy, bureaucratization and the flow of information are common to all organizations and obviously affect decision making as well. They are intrinsically related to the culture of a particular organization. Who knows what, when is an important component of any case study of organizational decision making. The Challenger investigations came to different conclusions about the critical flow of information on the O-rings to higher levels of authority in the decision making chain. The Presidential Commission concluded that certain individuals were responsible for retaining that information. Vaughan refers to this pattern of information flow as "individual secrecy." Her research shows that no such pattern existed. Rather, "structural secrecy," . . .". . .the way that patterns of information, organizational structure, processes, and transactions, and the structure of regulatory relations systematically undermine the attempt to know and interpret situations . . ." was the cause.[20] The culture of the organization with regard to acceptable levels of risk, the operating scientific paradigm, "concealed" the critical problem associated with the O-rings.

Several cultures were at work at NASA over its history, taking on greater or lesser importance as the context within which the organization functioned changed over time. Those cultures included a technical, research based culture in its early Apollo era; a business oriented culture during the shuttle era, relying on an engineering culture that expanded the definition of acceptable risk to technical fixes over redesign; and a political culture driven in part by congressional budgetary concerns and national defense priorities. These cultural shifts are not always obvious and occur slowly over time. Nevertheless, they can have serious unintended consequences despite the best of intentions.

Normalization of deviant behavior is best seen in retrospect whereas the science of muddling through is continually occurring. One would assume, as Lindblom points out, that individual and group decision makers' desire to improve their ability to muddle through. That is not always the case. Laziness, incompetence and even deliberately illegal behavior intervene among decision makers. For those who genuinely wish to improve, it is important to know what interventions may make the normalization of deviant behavior less likely. Vaughan makes the case that increased punishment and regulation, often used to remedy misconduct, will not work to avoid recurrence, unless the underlying "goals, policies, cultures and structures" are thoroughly examined and changed accordingly. In NASA's case, the slowness and difficulty in changing a culture are exemplified seventeen years later in the breakup of the Columbia orbiter on reentry into the earth's atmosphere as a result of damage to the left wing from foam insulation breaking off the propellant tank on takeoff. Heat-resistant tile damage on the wing allowed wind and heat to penetrate the wing, leading to the disintegration of the shuttle. Foam had broken off during previous flights and the risk it posed became normalized over time, as was the case with the O-rings in the Challenger disaster seventeen years before.

Vaughan became a staff member to the Columbia Accident Investigation Board, and was the principal author of chapter 8 of that Board's report. It is titled "History as Cause: Columbia and Challenger." It describes how historical changes in NASA's mission and function, and the interplay of various cultures within that organization led to the normalization of certain beliefs and practices that contributed to the Challenger and Columbia disasters. While not devaluing the role, responsibility and culpability of NASA leadership, the normalization of deviant behavior related to subtle, changing assumptions around risk and redundancy provides a much more comprehensive analysis of what went wrong within the organization that led to these disasters. In her words, "A number of changes to the Space Shuttle Program structure made in response to policy decisions had the unintended (emphasis added) effect of perpetuating dangerous aspects of pre-*Challenger* culture and continued the pattern of normalizing things that were not supposed to happen."

Appendix B

Brief description of key individuals mentioned in the document:

Sandy Barbour: Athletic Director, UC Berkeley, 2004-2014

Brian Barsky: Professor of Computer Science and Affiliate Professor of Optometry and Vision Science, UC Berkeley

Robert Berdahl: Chancellor, UC Berkeley, 1997-2004

Robert Birgeneau: Chancellor, UC Berkeley, 2004-2013

Richard Blum: Investment banker. Serving second 12-year term on UC Board of Regents; Chairman of the Board, 2007-2009

Roy Brophy: Member, UC Board of Regents, 1989-1998; Chairman of the Board, 1989-1991

Nathan Brostrom: Vice Chancellor for Administration, UC Berkeley, 2006-December, 2009; Interim Vice President of Business Operations, University of California Office of the President, September, 2009-December, 2009; Executive Vice President of Business Operations, 2010-Present

Edward Denton: Vice Chancellor for Facilities Services, 1998-2014

Robert Dynes: President, University of California, 2002-2008

Steve Gladstone: Athletic Director, UC Berkeley, 2001-2004

Ira Michael Heyman: Chancellor, UC Berkeley, 1980-1990

Calvin Moore: Professor of Mathematics, Emeritus, UC Berkeley; Chairman, Academic Senate Committee on Academic Planning and Resource Allocation, 2006-2007; Chairman, Academic Senate Task Force on Intercollegiate Athletics, 2010.

Janet Napolitano: President, University of California, 2013 - Present

Karl Pister: Chairman, Memorial Stadium Advisory Committee

David Secor: Chief Financial Officer, Department of Intercollegiate Athletics, UC Berkeley

Jeff Tedford: Cal football coach, 2002-2012

Chang-Lin Tien: Chancellor, UC Berkeley, 1990-1997

John Wilton: Vice Chancellor for Administration and Finance, UC Berkeley, 2011-2016

Frank Yeary: Vice Chancellor and adviser on strategic and financial matters, UC Berkeley, 2008-2012

Mark Yudof: President, University of California, 2008-2013

Appendix C

Chronology of significant events related to the construction of the SAHPC and the renovation of California Memorial Stadium

1980: Ira Michael Heyman named Chancellor at Berkeley, addresses the very beginning of the disinvestment by the State of California in the University, and establishes the first major fund raising unit on the campus.

1986: Newly appointed Regent, Roy Brophy, urges Chancellor Michael Heyman to address seismic deficiencies at Memorial Stadium but no action was taken.

1990: Chancellor Chang-Lin Tien succeeds Heyman and faces the same pressure but does not have the resources or the inclination to address the seismic deficiencies in light of severe budget constraints.

1991: Chancellor Tien's Blue Ribbon Committee on Intercollegiate Athletics, chaired by Professor Neil Smelser, issues its report urging a broad based, highly competitive athletic program.

1992: Chancellor Tien refuses to match an offer from Arizona State to retain Cal football coach, Bruce Snyder, despite an offer from donors to cover the cost, $250,000. then did not believe that a football coach should be paid more than the highest paid professor on the Berkeley campus.

1997: Chancellor Robert Berdahl succeeds Tien and initiates the Seismic Enhancement Plan for Facilities Enhancement and Renewal (SAFER) to address all campus building with seismic deficiencies over a twenty year period.

2001: Chancellor Berdahl hires Steve Gladstone, Cal's Men's Crew Coach, as Athletic Director. Some donors play a key role in this decision, highlighting the increasing role of donors in campus management.

2002: Chancellor Berdahl and AD Gladstone hire Jeff Tedford as head football coach. Tedford's early success leads to enormous salary increases and a retention clause providing a substantial bonus if he continues as Cal's coach when the renovated stadium is completed. Spending money to make money, particularly in the football program, is seen as a way out of continuing intercollegiate athletics budget deficits and as an essential component of producing winning football teams.

2003: Preliminary planning begins for the renovation of the stadium. Chancellor Berdahl requests that Ned Spieker, an alumnus, major donor and successful developer, prepare a plan for the stadium, pro bono.

2004: Chancellor Robert Birgeneau succeeds Berdahl, appoints a Memorial Stadium Advisory Committee chaired by Professor Karl Pister, and appoints Sandy Barbour as Athletic Director to replace Steve Gladstone. The advisory committee concludes that a new building (SAHPC) just west of the stadium should be built as phase one, with seismic renovation of the stadium and additional amenities there as phase two.

2005: Chancellor Birgeneau, AD Barbour and other campus officials announce the Southeast Campus Integrated Project (SCIP) which includes the athletic facilities and new facilities for the Law School and Business School as one plan. Pister's advisory committee then becomes known as the SCIP committee.

January, 2005: Regents approve Berkeley Campus Long Range Development Plan

February, 2005: City of Berkeley sues the University of California over the Long Range Development Plan, claiming plan was too vague to determine environmental impacts.

May, 2005: The City of Berkeley and the Berkeley campus settle the lawsuit after certain agreements are reached.

March, 2006: Nathan Brostrom appointed Vice Chancellor for Administration at UC Berkeley.

November, 2006: Regents approve the Environmental Impact Report for the SCIP plan, of which the SAHPC and the stadium are a part. The Regents also approve the financing for the SAHPC at a cost of $111,948,000.

December, 2006: Three lawsuits challenge various aspects of the SAHPC and the stadium.

December 2, 2006: The tree sitter protest begins and lasts for 21 months.

January, 2007: Superior Court judge Barbara Miller consolidates the lawsuits and grants the petitioners' claim for trial.

October, 2007: The Regents approve funding for the SAHPC at a cost of $117 million, a $100 million of which is financed through debt using, as a pilot, a new approach known as Funds Functioning as an Endowment (FFE).

2007-2008: Under Chairman of the Board of Regents, Richard Blum, an increase in the use of debt financing for various projects occurs.

July 22, 2008: Judge Miller rules in favor of the University on all counts.

September, 2008: Construction begins on the SAHPC.

February, 2009: Regents approve budget augmentation for SAHPC bringing the total cost to $153 million. Eventually, $27 million of that amount would come from gifts with the remainder, $126 million, debt financed.

September, 2009: The Regents approve $321 million, all debt financed, for the renovation of Memorial Stadium.

January, 2011: Construction begins on renovation of Memorial Stadium

June, 2011: John Wilton appointed Vice Chancellor for Administration.

Fall, 2011: The SAHPC opens for use.

September, 2012: Memorial Stadium reopens.

2012 - 2013: Revision of the financing model for the stadium is implemented by Vice Chancellor Wilton.

June, 2013: Nicholas Dirks replaces Robert Birgeneau as Chancellor