1. Overview
This white paper does not request funds or outline steps for achieving savings or propose restructuring. It is instead intended to serve all science and technology research-oriented departments and schools, and the University as a whole, regardless of where the realignment takes us. The realignment is intended to achieve cost savings and to spur non-state funding. We propose development of an escrow fund, to be filled by grant recipients, to support non-tenure faculty retention. If these ideas are implemented, it is our belief that increased non-state funding for research would be realized by (1) providing new incentives to researchers that will help the University retain the best non-tenure/non-tenure-track grant-getters, and (2) encouraging all grant-reliant investigators to become more active in raising more funds for themselves, their research teams, and the university. There is a small cost to the University; it is our belief that the new funds will exceed costs. We solicit other non-tenure-track research professionals and University leadership to form a committee to develop a realistic plan that will achieve the goal of enhancing job security for our class of University faculty and increase extramural funding for the University.

2. Statement of the status quo and the problem from the researchers’ perspective
Anxiety is the problem’s root. Soft-funded/non-tenure faculty can be highly productive. However, current non-tenure research faculty have no job security at all. When external funding dries up, their job goes away, unless support from other funded employees can be patched together. Contracts are year-to-year. The transition from comparative grant riches to impoverishment can be sudden, because these researchers must rely on statistics of small numbers to gain approval of a baseline of research funding. Major projects then cycle through to completion sometimes before other project money starts flowing. The statistical uncertainty and anxiety of living such a tenuous life-style commonly drives nontenure research faculty to submit proposals for more projects than they can perform, resulting in inordinate time spent writing proposals. There is always a concern, “What if my golden-egg proposal flops? What if my next biggest funded project budget is slashed?” Some agencies, e.g., NASA, have responded by extending the periods per project, under some programs, up to 4 and in some cases 5 years compared to 3 years until recently. This helps, but it still leaves unnecessary uncertainty and anxiety.

Productivity displaced by hyperactivity on asking for money. Too much time is wasted trying to circumvent funding shortfalls. Opportunities for extending research is sometimes foreclosed by the uncertainty of what may happen next year. Invited lectures are cancelled, essential field work is put off, costly experimental analyses are not performed, needed new people are not hired, student projects are not initiated, and software is not purchased. Productivity slows when the funding cliff looms, even when proposals in the review mill may ultimately deliver a few more years of research life. Hyperactive proposal writing is usually done to avert the funding cliff; this results in a disjoint research agenda and some years in which real productivity is almost lost. The current system does not encourage either a more methodical approach with a core of “safe” proposals nor risk-taking for a big potential payoff. This results in fewer discoveries and research publications, smaller proposals, fewer or no big projects, and less grant money.

Hyperactivity has researchers preparing proposals to cover as many areas of interest as possible. With each proposal comes an investment of time not just in writing the proposal but in doing the background research and sometimes publishing papers to become established as an expert in an area that may need some polishing of research credentials to become competitive. Even if a proposal is rejected, the investment has been so considerable, and the researchers’ desire to publish so strong, that further papers may be published so that at least something comes of the effort. All the while, other projects are not getting all the attention they need or could benefit from. From the perspective of some funding agencies there is a reluctance or even prohibition against funding individual researchers at more than 100%
time. Thus, the necessary hedging of bets makes researchers go in more directions than is advantageous or beneficial to science; ultimately, that is not beneficial to the university. For the researcher, unless they land the perpetual golden egg, there is no alternative, unless they accept some years of literal poverty.

Building a team doesn’t help. The uncertainty could be reduced at the PI level by hiring expendable people, effectively placing the burden of uncertainty on others’ shoulders. PI’s can take this route only to a degree, because once a new team member is hired, a strong ethical responsibility requires PI’s to soften the impacts of budget shortfalls for all team members, thus causing the PI to share a shortfall and avoid an assistant’s termination. Another way to soften the load is to become a co-investigator on another researcher’s project; however, this portion of funding can be jeopardized if the other researcher experiences his/her own funding shortfall.

Rich today, gone tomorrow. Incentives to go above and beyond the call of duty are minimal; reaping millions today does not assist job security in 3 years, and hiring people who can’t easily be terminated because of a sense of ethical obligation means that expanding the team doesn’t help with job security, either. In fact, an entire team can collapse if the PI collapses financially. Tenured faculty face a similar dilemma, except that state funding assures a necessary core of support, thus enabling the PI to be fairly gracious with her/his team. A team can help complete science objectives, but a team helps margins or not all with job security for non-tenure people. Even in good times for a PI, team building can be hindered, because potential new hires fear being the last hired where even the PI lives year to year.

Disincentives to raise salaries. Researchers, like everybody else, want bigger salaries. Unlike tenured University faculty, PI’s on soft money can dictate their salary and raises if they can win it from funders. So we raise our salaries to what we think we can get from funders. Raising a salary to too high a level makes it harder to convince a potential funder to fund a project. Researchers usually can find an equilibrium, but that means any given proposal is riskier; hence, the chances of a serious shortfall are increased, and the need to submit more proposals than ever is increased. There is thus a disincentive to push salaries to that equilibrium range. Salaries thus lag other sectors for a given educational/experience level. Furthermore, there is a disincentive to seek mega-project money (e.g., leading instrument teams or major consortia), when those proposals carry a smaller chance of selection than a proposal geared around a small, ordinary research project; the researcher will have a lower likelihood of success if he/she aims for large returns; and even is she/he does, selection might not substantially improve job security.

Disincentives to excel. The University wants prestige from successful research, but also they want a slice of the money pie to help fund other priorities and needs. They want more proposals written for larger budgets, so therefore they want their researchers to be successful, to hire students and postdocs, and serve as mentors for students. There is much common purpose. But there is very little reward given to superior performance aside from a very limited capacity to increase salaries. There is little incentive to fund and advise students or teach classes, except for a more noble aspect shared by tenured faculty of having an impact on the next generation’s science. Job security cannot be purchased or bartered or banked; it is simply unavailable. Without offering incentives, retention depends on tenuous grounds, such as a researcher’s personal preferences to stay. Personal preferences are not immutable, and eventually most job-insecure researchers will find better jobs elsewhere, and with them, most of their money goes.

Zero valuation of research professionals. The current condition of reduced state funding, and a likelihood of future cuts on top of old cuts, places a premium on extramural funding. Market logic would say that this condition would yield a greater valuation of successful grant getters, whether they are tenured, tenure-track, or not on a tenure track. Yet measured by job security, there is zero valuation of non-tenure-track research professionals.

3. The solution: Buying security with an enhanced funding profile

One possible solution. We recommend that personnel classified as nontenured and non-tenure-track research professionals of a grade allowing service as principle investigators on proposals should be permitted to direct a portion of overhead into a job security pool. After the normal overhead on the PI’s salary and benefits and on nominal operating costs (e.g., services and travel) is paid to the University, any further extramural funding would raise additional overhead, a portion of which (we suggest half) will be
directed to a job security escrow account. The escrow funds will be assigned to specific researchers, generally the PI. The PI may negotiate in advance with co-investigators and other researchers in the employ of the University to determine what portion of the job security escrow funds will go to those researchers. The pool funds will accumulate up to a maximum of three times the researchers’ annual salary and ERE. The escrow funds, if not tapped by the researcher, will remain available to the University to draw and expend interest, but when a researcher’s funding profile falls short in a bad year, the shortfall can be pulled from the escrow fund, which later can be replenished, if funding resumes at a healthy level.

To exemplify: Dr. Jane Doe, Senior Research Scientist, makes $100,000/year and has ERE of $30,000 and operating costs of $20,000; she costs the University $150,000/year. $76,500/year overhead is charged on that amount. When Dr. Doe takes in more grant money than $150,000 + $76,500 ($226,500) in a year, then 50% of overhead above and beyond $76,500 is directed to Dr. Doe’s job security escrow fund. If Dr. Doe brings in $400,000/year, and overhead comes to $135,100, then $58,600 will be placed into a job security escrow fund for Jane Doe. If by agreement with her Co-I’s she accepts that half this amount goes instead to a Co-I’s escrow fund, then $29,300 will go into Dr. Doe’s escrow, and $29,300 to the Co-I’s escrow. Those funds will remain available for Dr. Doe and her Co-I to draw in future years if their grant funding falls short. Once escrow funds attain a value of three years of salary plus ERE, then further additions to escrow are on hold until Dr. Doe’s salary or ERE increases. Escrow funds are held for Dr. Doe and the Co-I, except that the University can spend or re-invest interest; if the researcher quits or is fired, the funds revert to full University ownership.

With this incentive, Jane Doe will find it attractive (1) to try to increase her grant funding so as to speed the filling of the escrow fund, (2) to remain at and increase involvement with the University. Potential new hires and students will recognize the enhanced stability of non-tenure research faculty and see the merit of joining the team. Other researchers who currently are barely pulling their weight will find incentive to work harder at drawing more grant money.

Cost impact. We expect that benefits will exceed costs, but there will be start-up costs. Grants that are, under the current system, pulling in full overhead (generally 51% of direct costs) will suddenly deliver only a fraction (we suggest half) of the overhead for immediately expendable purposes. Some of the remaining half will be sequestered into an escrow account. Whereas interest can be drawn on that amount, this part of the overhead will not be immediately available to the University. Furthermore, some fraction of the escrow funds eventually will be drawn as salary by the non-tenure research professional, and so therefore, it will still be unavailable. However, a variety of creative approaches could be implemented to make these costs acceptable. One would be a phase-in of the new system over 5 years, so that the first- and second-year costs would be fairly minimal. Another would be a temporary increase and then ramp-down of overhead rate, where overhead would resume the 51% rate once the escrow fund is filled; however, this approach would impact the fundability of proposals, and so we do not advocate this approach. Another would be an initial state or University investment. And yet another would be implementation initially in only 1 or 2 departments, and a phase-in across the University over a period of five years, thus enabling some experimental results to be gathered to test the program’s merits before full costs are incurred.

Expected outcome. The result will address several areas identified in the CoE white paper call for restructuring and transformation ideas, but without mandating any particular new structure. These incentives will enable better use of non-tenure faculties’ time by making high-performing research professionals better able to focus more on research production and large-dollar-value projects, and less on small-dollar proposal writing; and will spur underperforming research professionals to seek more grants.

4. Call for a Committee to Explore Incentives for Untenured Research Professionals (CEIURF)

A committee of non-tenure research professionals, accounting officials, tenured faculty representatives, and University leadership should be organized and, in 30 days, develop workable alternative plans, estimate cost/benefits, identify possible unintended consequences, address those concerns, outline a process for implementation, outline any needed experiments, and develop the metrics needed to evaluate the program’s success in raising non-state funding and retaining high-performing research professionals.