For the revision (Draft 6):

- Discussions with >15 groups of faculty and e-mails from many individual faculty guided the revision.

- The body of the report contains recommendations while the analysis was moved to the Appendix.

- “Primary Recommendations” (page 2) were items that came up over and over again in discussions. These ideas appear to be key to building a transformative research strategy for UTHSC.

- “Other Recommendations” (pages 3-7) were also discussed and are important with regard to building and facilitating research at UTHSC.

- Past sections which detailed hires, and projections on resources needed have been removed. Once priorities are set, multiple sources of support (Chancellor, Colleges, Hospitals, etc) will need to be identified.

- Please note this “Analysis with Recommendations” is not a strategic research plan. It is part of the analysis and all-faculty discussion phase needed prior to a plan. A UTHSC Strategic Research Plan will be, in part, based on the present recommendations and undertaken by the new Vice Chancellor of Research.

- The UTHSC short-term research goal is to grow our portfolio in all areas by 5% per year, i.e. in number of publications, increase in collaborations, in extramural funding from federal and non-federal sources, etc.

- One step in reaching that goal is the current document which:
  - orients all of us and the new Vice Chancellor of Research on our current research status (see Appendix)
  - provides a platform by which faculty can help define ways to facilitate research and promote faculty development in research, and
  - identifies ways in which we can increase cross-disciplinary research in strategic research areas, i.e. the start of our roadmap for strategic planning.
Primary Recommendations

1. Recruit New Research Faculty
   To significantly increase the research portfolio of UTHSC, new researchers must be hired over time. Our hiring focus should initially be on clinician-scientists, either basic bench science or patient based investigators, with protected time to do research. The majority of these faculty should be at the rank of Assistant or Associate Professor. New faculty research interests should be consistent with the defined focus of our research growth and/or our building around entrepreneurship (see points below).

2. Retain Existing Faculty
   Faculty are our greatest resource. Recruitment has a high initial cost and turnover has high financial and morale costs. Thus, we must retain our productive researchers. As such, we should maintain our research incentive bonus, improve faculty recognition, and work to facilitate research.

3. Focus Research Growth and New Hires
   Research efforts of existing faculty and new hires should be focused in specific areas to get the most out of our resources. Three possible mechanisms have been suggested to assist in this focusing.
   1. Faculty-proposed growth in areas of expertise: “Request for Proposals” would allow small groups of interdisciplinary researchers to propose and obtain support for a specific new recruit or funds to support other activities to build in that highly specific area.
   2. Vice Chancellor of Research-defined interdisciplinary, high-return research areas: Examples of this are Human Genetics, Biomarkers, and Personalized Medicine, and Health Disparities Research.
   3. Creation of specific Centers or Institutes: Groups of faculty, with the support of Deans and the Vice Chancellor of Research, would organize around a niche such as diabetes and/or an area in which UTHSC has a unique strength such as in transplantation. The Institutes would be formed with multiple senior investigators involved (i.e. not based on one star), and with an eye to attracting hospital partners. This third possibility has many advantages as it emanates from faculty, is based on their shared research interests and expertise, and creates an Institute that can be recognized /supported by administration and clinical activity.

4. Actively Encourage a Culture of Entrepreneurship
   NIH is in a period of reduced funding and reassessing their policies, i.e. number of allowed R01 grants / investigator and limits on PI salary. As such, now is the time for UTHSC to aggressively build up non-NIH support such as through intellectual property/patents, technology transfer, industry and marketing of UTHSC expertise to increase industry contracts, a Phase I Center, and/or testing for other federal agencies. However, this requires a change in culture such that entrepreneurship is facilitated and mentored at UTHSC. To this end, a specific plan is needed with goals, roadmap, and metrics to determine success.

5. Establish a UTHSC Pre-Award Unit/Research Support Unit
   This unit would do whatever it takes to facilitate research and applying for grants. For examples, provide staff support for large multi-PI R01 or PPG grant applications, help with biostats, study design, research informatics, provide a grant editor, graphics and budget help, IRB/IACUC assistance, templates for grant sections, research education, research career development awards, research mentoring, campus-wide forums and information sharing, training seminars or workshops in research skills and methodology, locate funding opportunities and e-altering specific PIs, facilitate industry contracts, and maintain a faculty data base with profiles. A specific plan is needed to advance this idea with stated goals, roadmap, and metrics to determine success.
Other Recommendations

1. **Assess New Research Efforts: Metrics**
The Office of Research should establish a system for gauging success of immediate past and future research growth strategies that are implemented.

2. **Support Clinician-Scientists**
It is recommended the Vice Chancellor of Research is involved in and help facilitate discussion around the following:
   - Increasing Clinical Fellows Research – We need to identify additional ways to provide excellent research training to clinical trainees. For a few trainees, support other than hospitals (to reduce their extensive hospital commitment) should be identified. Our goal is to nurture and retain the most promising trainees as faculty.
   - Protected Time Policy for Clinicians - If we want to develop Clinician – Scientists, then our most promising researchers must have time for research. A policy and criteria are needed.
   - Assistant Professors in clinical depts are typically not recruited just out of mentored research. To establish and sustain junior faculty recruiting, we must develop a stronger research base in the clinical departments, arrange mentoring by both MD and PhD faculty, and training opportunities at the resident and fellow level. This will take a substantial investment of new faculty, and rearrangement of the contributions by existing faculty.
   - Drug company/industry research must be supported in clinical departments. This will help sustain other clinical endeavors, such as outcomes research.
   - PharmDs are not currently allowed to be the PI on studies at some hospitals, such as the MED, and this greatly reduces their incentive to work with MD colleagues on hospital-based clinical studies. This should be addressed.
   - Hiring research coordinators to help with grants in clinical departments will increase research capacity.
   - Hiring PhDs into clinical depts will help reach critical mass of scientists and support growth of clinician-scientists.
   - For some recruits, having the primary appointment in basic science depts with a secondary appointment in a clinical dept may better insure critical mass of researchers, research mentoring, and protected time to do research. This may also facilitate translational research moving into basic science depts.
   - A SPECIFIC plan is needed to advance this concern with stated goals, roadmap, and metrics to determine success of such a program.

3. **Return a Portion of Grant F&As to Departments**
It is recommended the some F&As are returned to departments to be used to repair/replace old equipment, support maintenance or service contracts on equipment, provide new equipment for developing or continuing projects, support cost of hosting seminar speakers, etc.

4. **Increase Bridge Support**
Bridge support has a high return on investment, and demonstrates institution commitment to job candidates. Consideration should be given to increasing the total amount available/year. Further, transparency of details regarding bridge support is needed (i.e. process to apply, total amount/year, recipients), and the eligibility criteria for support should be reviewed and potentially changed.

5. **Attract Excellent Graduate and Postdoc Trainees**
It is recommend that the Office of Research do a needs assessment of trainees and a recruitment plan be completed. Possible considerations: investigate joint programs with U of M (neuroscience), request Graduate College and Postdoc Steering Committee assess best way to recruit, stimulate submittance of T32s (good for trainees and PIs), determine if the Graduate program would be more responsive to the individual College needs if the Graduate function was fully assumed by individual Colleges, childcare assistance, “Postdoc Festival” to bring in postdocs to visit our campus, and for highly promising postdocs facilitate an appointment to non-tenure faculty rank and promise of space if an R21 or R01 is obtained.

6. **Assist Faculty Move from a Borderline Priority Score to Funded**
It is recommended the Office of Research offer review services for revised grants prior to being resubmitting. Reviewers would be currently funded and study section experienced faculty. Although this kind of assistance is
7. **Maximize Preparedness for RFA Opportunities**
   One time RFAs from federal granting institutions need to be addressed in a timely way. It is recommended the Office of Research keep abreast of impending announcements and inform / facilitate interactions between groups of faculty experts related to the topic prior to announcement. This prepared team can then respond rapidly.

8. **Improve How We Recruit**
   It is recommend the Office of Research look at and work to improve the efficiency of our recruiting efforts. For example, recruiting of new faculty should be done with the help of funded UTHSC faculty in a closely aligned research field as the recruit. Recruits should be supported and recruited by researchers in basic science and clinical departments, and joint appointments (between colleges and/or departments) should be considered. Priority should be given to recruits that fill a “hole” in an established research area at UTHSC, play to the strengths of our existing facilities or faculty, and/or can combine with existing faculty expertise for a unique approach.

9. **Integrate College Plans with any UTHSC Plan:**
   It is recommended the Vice Chancellor of Research work to maximize growth of research through integration of various research strategies at UTHSC. College plans can be found in Appendix B. Intrinsic in this is the idea of pulling faculty from different colleges and/or departments together as interdisciplinary research efforts can provide an edge in extramural grant proposals. The Vice Chancellor’s office might consider UTHSC roundtables, newsletters, promotion of faculty research, database to identify faculty by areas. A specific plan is needed to advance this issue with stated goals, roadmap, and metrics to determine success of such a program.

10. **Connect Philanthropy and Research**
    Gifts and Endowments are and will be a source of continued research support. Over the last 5 years the Office of Development has brought, on average, ~$20 million/year to UTHSC. Of that ~$20 million, $4 million has been designated for research use. These uses include things such as building up of endowed chair funds and large equipment purchases. It is recommended the Chancellor identify research support as a priority to the Office of Development and request they define a strategy to address this priority.

11. **Establish Research Growth Program for Large Extramural Grants**
    It is recommend this program would be run out of the Office of Research and would provide support for investigators in developing new or expanded lines of research that have the potential for multi-investigator extramural support. A competitive internal grant application mechanism would be used. A requirement would be that proposals be designed for and have the end goal of obtaining significant, new extramural funding. Example of proposals:
    - Support for collection of preliminary data to validate concept or establish working group for multi-PI external grants/contracts.
    - Travel to establish partnerships; either bringing in outside faculty for visit/seminar or our faculty/trainees visiting / learning technique at another institution
    - Support for release time or other expenses associate with preparation of large grants

12. **Create Institutional Support Mechanism for Large Equipment Grants**
    It is recommended the Office of Research have a pool of money to be used for UTHSC support of large equipment. An extramural large equipment grant is to be the primary support for the equipment, and modest UTHSC support will be used to demonstrate institutional support to granting organization.

13. **Identify a Way for Total Compensation to Be Put on Grant Applications**
    Faculty who receive compensation from UTMG can only place the UTHSC portion of their salary on grants. Hence, for example, a PI with 30% grant effort with $60,000K UTHSC salary can only put $18,000 in salary on the grant. It is
recommended the Office of Research work to find a way to allow total compensation to be placed on grants. Hence, 30% effort of $160K total compensation (inclusive of UTMG salary) or $54,000 in salary could be placed on grant.

14. Strengthen Core Facilities and Available Large Equipment
It is recommended the Office of Research assess existing core facilities, determine needs, complete cost/benefit analysis, and make recommendations of equipment to Chancellor. Further, the process used to determine which equipment might be purchased should be publicized and it should be a process which seeks input from all research faculty. Suggested purchases at this point in time: small animal imaging capabilities such as MRI, a 440 MHz NMR upgrade, a new nano-LC module to upgrade LC-MS/MS instrument system, flow cytometer, costly statistical software for genetic analysis. It is also recommended the Office of Research web publish an up-to-date inventory of large equipment across campus to help investigators locate equipment and allow us to avoid duplication of under-utilized costly equipment.

15. Facilitate Industry Contacts
Many researchers do not have local industry contacts, full knowledge of what industry partners will support, or know how to successfully approach industry. It is recommend the Office of Research designate a “Business Development Officer” to learn the UTHSC research portfolio and identify projects and scientists that would be good industry partners, identify what industry wants from partnering, and facilitate interactions between scientists and industry representatives. Efforts should be in synchrony with UTRF efforts. It should be noted recent state rules barring pharmaceutical representatives on campus have dramatically reduced initial pharmaceutical contacts that facilitated interactions leading to contracts.

16. Focus and Support Neuroimaging and Biomarker Research
It is recommended the Vice Chancellor of Research Office facilitate gaining access to new neuroimaging equipment at LeBonheur, i.e. perhaps weekend use for adult studies.

17. Maximize Association with VA
Faculty with VA grants allow us to diversify our grant portfolio, and with the VA grant pay line at 20-25% this is an opportunity for UTHSC. Of particular interest to the VA system are outcomes research and health services research and development. Joint hires in these areas should be considered.

18. Support for Sabbaticals and Retooling Efforts
It is recommend the Office of Research consider supporting sabbaticals or research skills retooling efforts. Faculty benefiting in such a program should, on the front end, commit to future grant applications post-experience.

19. Address Real/Perceived Problems with Human Resources
The Office of Research should work with HR to be a service unit that helps investigators hire, compensate, and promote support staff in compliance with UT and state regulations. Mechanisms to streamline hiring of technicians paid on grants should be considered; this would involve various offices of finance and HR. Further, a mechanism to stop the migration of trained technicians to St Jude must be established with HR, i.e. ability to $5,000-10,000 raises off grants at the discretion of the PI.

20. Identify Mechanism to Help Pay for Large Equipment Service Contracts
It is recommended the Office of Research help identify a way to support costly service contracts that fee for service cannot always cover. It is noted that although many researchers can pay full freight on user fees, faculty gathering pilot data are frequently not able to pay.

21. Develop Research Partners in City, State and Nation
It is recommended the Office of Research help in the development of plans to further foster partnerships with the VA, St Jude, University of Memphis, Bioworks, local industry, Academic Health Science Center in Little Rock, Erlanger Health System, Oakridge, and others.
22. Continue to Increase Ease-of-Use of IACUC and IRB
   Strides have been made in facilitating investigator use of IACUC and IRB. The Office of Research and IACUC/IRB should continue to work to make these functions as service friendly as possible.

23. Address Issues with MTAs and CDAs (Material Transfer Agreements and Confidential Disclosure Agreements)
   Strides have been made in facilitating MTAs and CDAs. It is recommended the Office of Research help to further decrease the time and effort it takes to finalize these agreements.

24. Clinical Trials
   It is recommended the Vice Chancellor of Research work to reduce barriers to faculty use of clinical trial units, and consider if it is possible to integrate and/or merge TCTN, the CRU, and UTRF. Further, a policy should be established so that residuals from clinical trials stay with the investigator. Consideration should also be given to having a clinical trial unit with weekend and night hours to serve school age children. Finally, consideration should be given to increasing the number of study nurses so that some excess capacity exists for small, non-industry studies/pilots.

25. Improve Computing and IT
   Computing is central to research efforts. As such, it is recommended a mechanism be created in which the Office of Research be consulted in computing decisions and policies.

26. Develop a Pilot or Seed Money Program
   The Office of Research should consider a 2 tiered internal seed money program:
   • Program 1 Goal: provide significant support ($50K) to obtain pilot data such that we increase R01 applications. A post-seed obligation would be that the recipient apply for a large grant by stated deadline.
   • Program 2 Goal: provide lower level support ($10K) for supplies to do pilots for non-NIH extramural grants. In time, large grants will be pursued. Might also support travel to meetings to connect with collaborators and build ideas.

27. Maximizing Library Subscriptions
   On-line subscriptions are central to research efforts. As such, it is recommended a mechanism be created in which the Office of Research be consulted in library decisions and budget.

28. Invest in a Mobile Unit for Community Research
   The Vice Chancellor of Research should consider if a mobile unit is warranted. Goal of this unit would be to reach underrepresented populations. Such a unit has precedent in a successful clinical mobile unit. A Mobile Research Unit would transport research equipment into the community and facilitate assessments and interventions in the community settings rather than requiring participants come in to the CRU. Alternatively, transport for participants to the clinic might be considered.

29. Attract Excellent Technical Staff
   Excellent technical staff can be the deciding factor in the quality of research, publications, and grants. Thus, it is recommended the Office of Research consider ways to improve recruiting, the technical staff environment, and compensation. For recruiting, added focus on benefits, such as college tuition paid by UTHSC, is needed.

30. Address Real/Perceived Problems with Purchasing
   Purchase of equipment and reagents is essential to research. Thus it is recommended a mechanism be created in which the Office of Research be consulted on purchasing policies. For example, concern was expressed over why the bid process is needed when there is only one company that offers a particular piece of equipment.
31. Pursue State Support of Research
   It is recommended that the Vice Chancellor of Research work to get state support for centers that conduct research in diseases that touch a high percent of Tennessee’s population, i.e. cancer or obesity.

32. Address Real/Perceived Problems with the Office of Finance
   It is recommended the Vice Chancellor of Research work with the Vice Chancellor of Finance to have Finance become more service oriented. In addition, research faculty are concerned about the lack of transparency in F&As, the sweeping of surplus animal charges rather than staying in the unit, and the lack of cross training between staff to reduce response times when specific individuals are not available.

33. Jump Starting Training Grants
   Consideration should be given to starting intramural training grants in order to create a “track record”. This would then be used to apply for NIH training grants.

34. Obtain Contracts for Core Services
   It is recommend we establish contracts with companies that provide services, i.e. proteomics, to get better rates.

35. Increase Communication Between Investigators and Building a Sense of Community
   It is recommended the Office of Research create a standing committee to address this issue. Examples of what might be done: create an online annual report of our research activities to help clinicians and basic scientist connect, create a database which contains methodologies and animal models use by investigators, create a way by which basic scientists can access patient samples and clinicians can find who on campus might be able to do an analysis on patient samples.

36. Promotion and Tenure
   Consideration should be given to if 3 missions is fractionating faculty time and not allowing them to do what they do best. Another issue related to faculty promotion and tenure is a lack of recognition and value for collaborative grant efforts and the sense that faculty are penalized for not having their own R01 even though they are on a multi-PI grant. Discussions regarding these types of P&T issues that impact on researchers and research should be spearheaded by the Vice Chancellor of Research.