AUDIT & BUSINESS COMMITTEE

October 6, 2022

Roaden University Center, Room 282

AGENDA

I. Call to Order

II. Approval of Minutes

III. Financial Update

IV. Master Plan Amendment

V. Land Acquisition

VI. Capital Budget FY2023-24

VII. Disclosed Project

VIII. TTU Policy 511.1 (Fees, Charges, Refunds and Adjustments)

IX. Performance Evaluation & Performance-Based Compensation Analysis

X. Tenure Upon Appointment Recommendation

XI. Adjournment of Open Session and Call to Order of Non-Public Executive Session to Discuss Audits, Investigations, Litigation, and Matters Deemed Not Subject to Public Inspection Pursuant to T.C.A. § 4-35-108(b)(1)-(3)

XII. Adjournment

AUDIT & BUSINESS COMMITTEE

June 23, 2022

Roaden University Center, Room 282

MINUTES

Meeting was streamed live via link found on this web page:
https://www.tntech.edu/board/meetings/

AGENDA ITEM 1 – Call to Order

The Tennessee Tech Board of Trustees Audit & Business Committee met on June 23, 2022 in Roaden University Center Room 282. Chair Johnny Stites called the meeting to order at 10:24 a.m.

Chair Stites asked Mr. Lee Wray, Secretary, to call the roll. The following members were present:

- Johnny Stites
- Thomas Lynn
- Trudy Harper

Fred Lowery was absent and Trudy Harper participated as a voting member in his absence as designated by policy. Other board members also in attendance were Tom Jones (via zoom), Rhedona Rose, Teresa Vanhooser, Barry Wilmore, and Hannah Willis. A quorum was physically present. Tennessee Tech faculty, staff and members of the public were also in attendance.

AGENDA ITEM 2 – Approval of Minutes

Chair Stites asked for approval of the minutes of the March 10, 2022 Audit & Business Committee meeting. Chair Stites asked if there were questions or comments regarding the minutes. There being none, Mr. Lynn moved to recommend approval of the minutes. Ms. Harper seconded the motion. Mr. Wray called a roll call vote. The motion carried unanimously.

AGENDA ITEM 3 – Maintenance and Mandatory Fees

Dr. Stinson recommended no increase for maintenance and mandatory fees. This is due to the exceptional level of State funding and THEC Commissioners voted for zero-to-zero binding range.

This was an informational item therefore no action was required.

AGENDA ITEM 4 – FY2021-22 Estimated & FY2022-23 Proposed Budget

Dr. Stinson presented information on the reconciliation of changes in E & G revenues, reconciliation of change in expenses and reconciliation of change in natural expenses (Attachments A-F).

Mr. Lynn moved to send the FY2021-22 Estimated and FY2022-23 Proposed budget to the Board for approval and to place it on the Board's regular agenda. Ms. Harper seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 5 – FY2022-23 Disclosed Projects

Dr. Stinson presented two campus funded projects. The projects included pavement repairs to selected streets and parking lots campus wide and New Hall North roof replacement.

Mr. Lynn moved to send the FY2022-23 disclosed projects for the pavement repairs and New Hall North roof replacement to the Board for approval and to place it on the Board's regular agenda. Ms. Harper seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 6 – Capital Budget FY2023-24

Dr. Stinson presented the FY23-24 Capital Budget requests. The capital outlay request is for an academic classroom building which includes demolish of Matthews-Daniel Hall, construct new academic classroom building on same site and to renovate the adjacent Crawford Hall and connect to the new building. The Capital Maintenance projects requests for state funding in order of priority is: Roaden University Center HVAC upgrades, elevator upgrades, intramural field lighting replacement, utility infrastructure upgrades, Bell Hall and Ray Morris Hall roof replacements, Foundation Hall upgrades 1.1, Bryan Fine Arts building exterior repairs, University Services building mechanical upgrades and Foundation Hall upgrades 1.2. Dr. Stinson advised the capital maintenance total request is $4,000,000 over Tech's allocation due to a large project in the last fiscal year being removed from our list, which resulted in losing $4,000,000 according to THEC's calculations. The first 3 priorities are to be covered by the $4,000,000 then the remaining requests fall within our allocation. Dr. Stinson stated the Bryan Fine Arts and Derryberry Auditorium projects have come in 150% over estimated budget. There is a potential for flexibility to collapse the funds from both projects and spend all on one

project. If that were to be approved by the state it will become priority number four on this list and we would bring this list back to the October committee meeting.

Mr. Lynn moved to send the FY2023-24 Capital Budget requests to the Board for approval and to place it on the Board's regular agenda. Ms. Harper seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 7 – Land Acquisition

Dr. Stinson presented the proposed land acquisition of the Coomer property as identified in the Master Plan. The university will be purchasing from the TTU Foundation for the lesser of $425,000 or appraised value at the time of purchase. The TTU Foundation has already purchased this property as identified in the acquisition plan in the 2014 Master Plan. This property would be used for the relocation of Facilities Services Complex.

Mr. Lynn moved to send the proposed land acquisition for 520 E. Eleventh Street and 1108 N. Washington Ave. to the Board for approval and to place it on the Board's regular agenda. Ms. Harper seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 8 – Craft Center Lease

Dr. Stinson presented the renewal of the lease with the U.S. Army Corps of Engineers. The initial lease was for twenty-five years. The lease ended in November 2020 and TN Tech staff have been working with the Army on renewal terms since then. The renewal is same as the current lease for the facilities and 451 acres, 25-year lease ending November 2045. The consideration for this lease is operations and maintenance of the premises with an annual use and development plan files with Army Corps of Engineers. One-time state appropriations covers the initial 5-year development plan.

Mr. Lynn moved to send the proposed lease for the Craft Center with the Department of the Army to the Board for approval and to place it on the Board's regular agenda. Ms. Harper seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 9 – Dual Enrollment Tuition Rate

Dr. Stinson presented the change of dual enrollment tuition rate due to changes in the Student Assistance Corporation Dual Enrollment Grant. This discounted rate applies to high school students taking courses for both high school and college credit. TN Student Assistance Corporation provides Dual Enrollment grants to cover costs for up to 5 courses for dual enrolled students. The university accepts the Dual Enrollment Grant with no additional charge to dual enrolled students. TSAC increased grants from $400 per 3-hour course to $538.65 per credit hour course. The recommendation is to increase from $166 per credit hour to $179.55 per credit hour effective Fall semester 2022.

Mr. Lynn moved to send the Dual Enrollment tuition rate of $179.55 per credit hour to the Board for approval and to place it on the Board's regular agenda. Ms. Harper seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 10 – Emeritus President Contract

Dr. Stinson stated that Dr. Robert Bell had a President Emeritus Contract with the university and TN law required the contract to be reviewed annually. A report for Dr. Bell and what he accomplished the past year along with a copy of his agreement was provided in Diligent.

Mr. Lynn moved to send the 2022-23 emeritus contract for Dr. Bell to the Board for approval and to place it on the Board's consent agenda. Ms. Harper seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 11 – TTU Policy 506 (General and Group Travel Policies)

Dr. Stinson advised the revisions resulted from the biennial review to update the policy that incorporates the travel expense management system, clarification on allowable expenses, adds State's automobile accident reporting requirement, clarification on when employees may request travel advances and updated CONUS rates (federal rates for continental U.S. travel).

Mr. Lynn moved to send TTU Policy 506(General and Group Travel Policies) as presented effective July 1, 2022 to the Board for approval and to place it on the Board's consent agenda. Ms. Harper seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 12 – TTU Policy 600 (Code of Conduct)

Dr. Stinson presented changes made to provide improved clarity of TTU employees subject to policy, clarification on due process application in cases of appearance of unethical or irresponsible conduct and clarification that employee failure to follow lawful directives constitutes insubordination. Substantial changes only require Audit & Business Committee approval.

Mr. Lynn moved to approve TTU Policy 600(Code of Conduct) as presented effective July 1, 2022. Ms. Harper seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 13 – Faculty Promotions

Dr. Bruce advised that twenty-nine faculty members were awarded promotion by the President beginning August 2022. This accounts for about six percent of faculty. The promotion includes six from Lecturer to Senior Lecturer, 9 from Assistant to Associate Professor and 14 from Associate Professor to full Professor. Details of the promotions were provided in Diligent.

This was an informational item therefore no action was required.

AGENDA ITEM 14 – Tenure Recommendations

Dr. Bruce advised the President's recommendations for tenure beginning August 2022 include 10 faculty members. If the recommendations are approved by the Board the percentage of tenured faculty will be 54%. Details of the candidates were provided in Diligent.

Mr. Lynn moved to send the tenure recommendations to the Board for approval and to place it on the Board's consent agenda. Ms. Harper seconded the motion. Mr. Wray took a roll call vote. The motion carried unanimously.

AGENDA ITEM 15 – Adjournment of Open Session & Call to Order on the Non-Public Executive Session

There being no further business, the meeting adjourned at 11:41 a.m. After a short break, the Non-Public Executive Session began at 11:48 a.m. Trustees and Administration were present for the meeting.

AGENDA ITEM 16 – Adjournment

There being no further business, the Non-Public Executive Session adjourned at 12:19 p.m.

Approved,

Lee Wray, Secretary

Attachment A

Reconciliation of Changes in E&G revenues

	October Revised Budget FY2021-22	Current Estimate FY2021-22	Difference	July Proposed Budget FY2022-23	Difference
Tuition & Fees	$99,019,300	$100,995,900	$1,976,600	$100,785,900	($210,000)
State Approp	$64,128,100	$64,128,100	$0	$78,863,600	$14,735,500
Other	$12,175,200	$13,741,900	$1,566,700	$12,798,400	($943,500)
Total E&G	$175,322,600	$178,865,900	$3,543,300	$192,447,900	$13,582,000

Attachment B

E&G Revenues Reconciliation of Difference

Revised vs Current Estimate

- Tuition and Fees
  - Conservative estimate in enrollment driven maintenance and fees $1,976,600
- Other
  - Increase in indirect cost revenue $857,900 (catch up)
  - Increase in Athletics $632,500
  - Career Services $64,100

Current Estimate vs Proposed

- Tuition and Fees
  - Reduction in Summer ($304,250)
  - Undergraduate Increase $733,400
  - Graduate Decrease ($500,000)
  - Out-of-state increase $47,250
  - SAF and mandatory fee decline ($213,500)
- State Appropriations
  - Outcomes Adjustment ($497,500)
  - Share of new funding $4,380,400
  - Matching Cybersecurity Grant $700,000
  - Insurance Adjustment $611,100
  - Salary Pool $2,201,500
  - Rural Reimagined $1,000,000
  - Evins Appalachian Craft Center $2,840,000
  - Crossville Wind Tunnel Research $3,500,000
- Other
  - Indirect Cost ($857,900)

Attachment C

Change in Expenses

	October Revised Budget FY2021-22	Current Estimate FY2021-22	Difference	July Proposed Budget FY2022-23	Difference
Instruction	$89,399,100	$86,171,200	($3,227,900)	$86,981,400	$810,200
Research	$4,458,400	$5,518,400	$1,060,000	$2,750,800	($2,767,600)
Public Service	$2,486,000	$2,568,400	$82,400	$2,056,600	($511,800)
Academic Supp.	$14,979,100	$16,243,900	$1,264,800	$14,308,000	($1,935,900)
Student Serv	$22,767,500	$23,490,400	$722,900	$22,823,600	($666,800)
Institutional Supp.	$19,308,600	$20,766,900	$1,458,300	$19,915,000	($851,900)
Maint & Oper.	$16,281,900	$16,511,400	$229,500	$16,319,900	($191,500)
Scholarship	$16,309,200	$16,514,600	$205,400	$17,536,300	$1,021,700
Total E&G	**$185,989,800**	**$187,785,200**	**$1,795,400**	**$182,691,600**	**($5,093,600)**

Attachment D

Reconciliation of Change in Expenses

Revised vs Current Estimate

- Instruction
  - Reallocate Lapse Strategic Funds to Capital Projects, legal fees, research, recruitment and scholarships ($2,263,000)
  - Reallocate portion of College online fee to Provost for course development ($338,750)
  - Summer School transferred to Un Exp. Plant-Summer Projects ($617,868)
- Research
  - $857,881 Indirect Cost Distribution catch up
  - Reallocation $60,000 from Lapse Strategic Funds
- Public Service
- Academic Support
  - TAF increase due to conservative fall budget $115,250
  - Reallocate portion of College online fee to Provost for course development $338,750
  - IT Market Adjustments and new IT positions $658,618
- Student Services
  - Athletics $632,500
  - Disability Services $75,000
  - Maxinet Software $9,000
- Inst. Support/Maint. & Operation
  - Property Insurance $475,000
  - Legal Fees Increase $715,000
  - Fund Strategic Leader GA's & Stipends $120,000
  - Transfers to Capital Projects $424,350

Current Estimate vs Proposed

- Faculty Promotions $203,897
- Maintenance Contracts $65,000
- One-time carryforward removed
  - Instruction ($11,320,171)
  - Research $(2,507,921)
  - Academic Support $(1,795,653)
  - Public Service $(196,328)
  - Student Services $(318,822)
  - Institutional Support $(481,306)
  - Plant $(707,897)
- Permanent Budget Reallocation ($1,941,868)
- Instruction/Research
  - Crossville Wind Tunnel $3,500,000
  - CEROC $1,200,000
  - Rural Reimagined $1,000,000
  - Craft Center $2,840,000
- Institutional Support
  - Marketing $650,000
  - Increase health insurance $611,100
- Plant – increase utilities $427,000
- New Presidential Scholarships $1,000,000
- Salary increase 4% and Fringe Benefits - $3,891,342

Attachment E

Change in Natural Expenses

	October Revised Budget FY2021-22	Current Estimate FY2021-22	Difference	July Proposed Budget FY2022-23	Difference
Salary and Wages	$83,091,597	$82,075,661	($1,015,936)	$85,226,469	$3,150,808
Fringe Benefits	$35,758,386	$36,128,286	$369,900	$37,031,368	$903,082
Travel	$1,685,364	$2,154,059	$468,695	$1,584,615	($569,444)
Operating & Utilities	$48,044,509	$49,119,709	$1,075,200	$40,394,442	($8,725,267)
Scholarships & Fellowships	$16,872,770	$17,080,640	$207,870	$18,093,623	$1,012,983
Capital	$537,328	$1,226,926	$689,598	$361,094	($865,832)
Total E&G	**$185,989,954**	**$187,785,281**	**$1,795,327**	**$182,691,611**	**($5,093,670)**

Attachment F

Reconciliation of Change in Natural Expenses

Revised vs Current Estimate

- Salary and Wages
  - Lapse Strategic Investment Pool ($2,781,127)
  - Funds transferred for GA's $1,056,856
  - IT and Police Market adjustments $324,277
  - Director of Infrastructure, Systems Administrator and AVP of Student Engagement $401,800
- Benefits
  - Funds transferred to cover GA fee Waivers $268,605
- Travel
  - Units transferred dollars from operating or temporary wages to cover travel expenditures $509,902
- Operating & Utilities
  - Lapse invested back at College/VP level $1,117,585
- Scholarships
  - Funds added to cover new Presidential Scholarship Program $300,000
- Capital
  - Funds transferred from Lapse investment to cover infrastructure $624,350

Current Estimate vs Proposed

- Salary and Wages
  - Faculty promotions $203,897
  - Salary increase 4% - $2,993,339
  - Permanent Budget Reallocation ($1,274,057)
  - Re-establish lapse salaries $2,781,127
  - Remove temporary budgets for GA's ($1,056,856)
  - Remove temporary budgets for Adjuncts and Summer School ($624,061)
  - New Positions for CDL, Chief Diversity Officer, Music $121,000
- Fringe Benefits
  - Estimated FB for 4% salary increase $898,003
  - Permanent Budget Reallocation ($111,898)
- Travel
  - Remove one-time departmental transfers ($509,902)
  - Permanent Budget Reallocation ($45,593)
- Operating & Utilities
  - Remove temporary budgets for carryforwards ($17.3M)
  - Remove temporary budget lapse salary ($1,117,585)
  - Permanent Budget Reallocation ($510,400)
  - Crossville Wind Tunnel $3,500,000
  - CEROC $1,200,000
  - Rural Reimagined $1,000,000
  - Craft Center $2,840,000
  - Increased Utilities $427,000
  - Increased Marketing $650,000
- Scholarships
  - New Presidential Scholarships $1,000,000
- Capital
  - Remove one-time departmental transfers $624,350

Agenda Item Summary

Date: October 6, 2022

Agenda Item: Financial Update

☐ **Review** ☐ **Action** ☒ **No action required**

PRESENTER: Dr. Claire Stinson, Vice President for Planning & Finance

PURPOSE & KEY POINTS: Update on University finances including tuition and fee revenue projections based on fall semester enrollments.

4.1

Agenda Item Summary

Date: October 6, 2022

Agenda Item: Master Plan Amendment

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTER: Claire Stinson, Vice President for Planning & Finance

PURPOSE & KEY POINTS: Master Plan amendment to include the TAP property and the change from renovation of Crawford Hall to demolish Crawford Hall and construction of a new building.

Crawford Hall Master Plan Amendment

BAUER ASKEW
architecture . pllc

615
T726.0047
F726.4891
615

1615
sixteenth
avenue south

nashville
tennessee
37212

05 August 22

Mr. Jim Cobb
Tennessee Technological University
220 W. Tenth Street, Room 115
Cookeville, Tennessee 38505

RE: TTU Master Plan
SBC #364/000-02-2019
Subject: Master Plan Amendment
Academic Classroom Project use of Crawford Hall site

Jim,
The intent of the new Master Plan was to renovate Crawford Hall and utilize it as part of the upcoming Academic Classroom project. The goal was to repurpose the existing dormitory structure to create office space connected to classroom functions. Based upon further investigation and the ongoing programming work, the project will be better served by demolition of Crawford Hall than by its renovation.

This recommendation is based upon several factors which limit the viability for using the existing structure. These factors include vertical height, accessibility, rigidity of fenestration and physical presence. The short floor to floor height of the building is a significant issue. This height issue will cause considerable alignment issues with any new construction as well as challenges with the introduction of infrastructure into the building. While existing accessibility issues could be more gracefully address, the misaligned floors when tied to a new structure will provide compounded accessibility issues. The placement of the existing fenestration will likely drive the placement and sizing of offices to make to program adapt to the space available.

The physical presence of the existing building will be another significant obstacle in development of an efficient and functional new building. Retaining the existing structure will drive the majority of the program with its larger scale spaces into the north half of the project site. While adding these larger scale spaces, the scale of the Historic Mall should still be closely addressed and maintained with any new structure. Therefore, the ability to utilize the whole Matthews|Daniel|Crawford site will allow the design of the new building more freedom to be develop into a cohesive solution.

Our expectation is that while the renovation work will save a modest amount of money, the overriding limitations of the existing structure will cause it to be a perpetually limited solution. Our recommendation is to demolish all three buildings to provide a clean slate for the new building.

As this project will be summited as a capital outlay request in the near future, the request is that the current master plan be amended to acknowledge this refinement to the implementation of the project.

Please don't hesitate to call with any questions and comments.

Respectfully,

J. Garry Askew, AIA
Architect
cc: Christine Daniels, TTU

AMENDMENTS

1. ACADEMIC CLASSROOM BUILDING

Page 07	Clarify renovation goal
Page 11	Revised list to show Crawford to be demolished
Page 13	Updated footprint for new Academic Classroom Building
Page 14	Updated footprint for new Academic Classroom Building
Page 35	Crawford rating revised to be <60 and to be demolished
Page 75	Updated narrative for Academic Classroom Building
Page 77	Updated Capital Improvement list and footprint of Academic Classroom Building
Page 81	Updated footprint for new Academic Classroom Building
Page 97	Updated Implementation table
Page 98	Updated footprint for new Academic Classroom Building
Page 99	Updated footprint for new Academic Classroom Building

EXECUTIVE SUMMARY

Tech Tomorrow represents a dynamic strategic plan for the University. The plan incorporates new mission and vison statements, a list of core principles and four guiding strategic goals. The strategic goals are:

Education for Life
Tennessee Tech provides education that unleashes the potential and passion within our students and prepares them for successful careers and culturally enriched lives. Tech also provides educational opportunities, programs, credentials, and degrees to fuel the lifelong learning necessary for enduring achievement.

Innovation in All We Do
Tennessee Tech innovates in all we do, embracing and deploying our technological foundation in our education, research, service, and stewardship.

Exceptional Stewardship
Tennessee Tech is committed to optimizing resources and continuously improving effectiveness, efficiency, and return on investment for students.

Engagement for Impact
Tennessee Tech fosters partnerships with government, business, and non-profit organizations to advance economic and workforce development, create and disseminate knowledge, serve the public good, and generate cultural impact.

The primary purpose of the University is to serve the citizens of the state, in particular, those in the rural Upper Cumberland Region. The university's focus is to provide a technologically advanced education to empower students. The goal of the Master Plan is to enhance the physical environment that will provide the setting for the mission and goals of the University to be accomplished. Therefore, the master plan will address issues such as space needs, existing building and infrastructure maintenance, potential new building placement, vehicular and pedestrian circulation, parking and greenspace as well as more subjective issues such as the perception of the University and the creation of an open, engaging and collaborative environment.

The 2014 Master Plan presented 10, 20, and 30 year visions. The major initiatives were:

- Development of an Integrated Science Building
- Greening the Campus
- Reallocation of Parking
- Refinement of Vehicular Circulation
- Development of an Intramural Building
- General Athletic Improvements

To a great degree, as of this writing, most of these priorities have been accomplished, are in progress or have a portion which is significantly under way. As illustrated on the following page, the improvements represent the realization of a significant portion of the 30-year Vision.

Building upon the concepts generated in the 2014 Master Plan, the 2022 Master Plan is intended to provide a comprehensive tool for planning in the future. The plan supports current and future institutional goals and initiatives that strive to enhance academic quality, improve student collaborative learning, and continue the overall beautification of campus. The proposed strategies and recommendations provide a blueprint for flexible growth that allows TTU to achieve the following objectives:

- Elevate perception of the campus to help recruit students and faculty and engage alumni and donors
- Develop an engaging environment to encourage students to remain on campus
- Maintain the academic core by locating all learning facilities within the central district
- Enhance the Historic Quadrangle by defining renovation and repurposing strategies, where functional and feasible
- Maintain architectural integrity of the campus vernacular
- Enhance and create campus greenspace with expanded and interconnected linking of quadrangles
- Relocate parking from the campus core by distributing lots around the perimeter of campus
- Develop strategically located parking garages
- Promote a pedestrian and bike friendly campus with reduced vehicular circulation
- Strengthen the campus perimeter to create a clear and perceivable boundary for the University
- Create a "front door" to the campus from the Seventh Street and Willow Avenue intersection and from the approach onto the campus along University Drive.
- Continue the progressive rehabilitation of aging buildings and infrastructure

The Tennessee Technological University 2022 Master Plan provides a combination of text and diagrams that provide an overview of existing campus conditions along with corresponding recommendations for future improvements. The student population at TTU was nearing 12,000 around 2010. Due to specific anticipated factors, the population declined over the following decade to the current population of 10,177 students paralleling a similar decline statewide. This master plan involves measures to improve and enhance the overall student experience and education to pave a path back to a 12,000-student population and beyond. Therefore, instead of setting an artificial date horizon, the goal of this master plan is to envision a campus that can accommodate 12,000 students and then establishing the next horizon as 15,000 students.

The master plan document is divided into three primary sections: Existing Campus, Future Vision and an Appendix with various detailed studies and supporting documentation.

CAPITAL IMPROVEMENT PROJECTS

1. JOHNSON HALL RENOVATION
   1a. FOSTER DEMOLITION
2. NEW ENGINEERING BUILDING #1/ FOUNDRY REPLACEMENT
   2a. LEWIS HALL DEMOLITION AND FOUNDRY DEMOLITION
3. ACADEMIC CLASSROOM BUILDING
   3a. MATTHEWS/DANIEL DEMOLITION
   3b. CRAWFORD DEMOLITION
4. BROWN HALL RENOVATION
5. PRESCOTT HALL RENOVATION
6. MEMORIAL GYM RENOVATION
7. NEW ENGINEERING BUILDING #2
   7a. SOUTHWEST HALL DEMOLITION
8. BIOLOGY BUILDING
   8a. PENNEBAKER HALL RENOVATION
9. PHYSICS BUILDING
10. CLEMENT HALL RENOVATION
11. ACADEMIC WELLNESS CENTER RENOVATION
12. BELL HALL EXPANSION
13. VOLPE LIBRARY RENOVATION
14. BRYAN FINE ARTS IMPROVEMENTS
    14a. BRYAN FINE ARTS RENOVATION
    14b. BRYAN FINE ARTS ADDITION
15. OAKLEY HALL EXPANSION
16. NEW ENGINEERING BUILDING #3
17. JOHNSON HALL EXPANSION

NOTE: Capital Improvement Projects are listed with the highest priority projects listed first. the first 8-10 projects define a sequence which should be the most linear, cost effective progression of implementation. (refer to Plan on page 74.)

DISCLOSURE PROJECTS

A. FACILITIES SERVICES COMPLEX

B. MAJOR ATHLETICS PROJECTS
   B1. FOOTBALL OPERATIONS BLDG
   B2. WEST STADIUM REPLACEMENT
   B3. BASEBALL/SOFTBALL COMPLEX

C. PARKING GARAGE(S)
   C1. WINGS UP WAY GARAGE
   C2. PEACHTREE GARAGE
   C3. LIBRARY GARAGE

D. FOOD SERVICE IMPROVEMENTS

E. INNOVATION HOUSING - PHASE II

F. SORORITY ROW

G. ROADEN UNIVERSITY CENTER EXPANSION

H. PARKING & TRANSPORTATION IMPROVEMENTS - PHASE II

I. UNIVERSITY TOWER

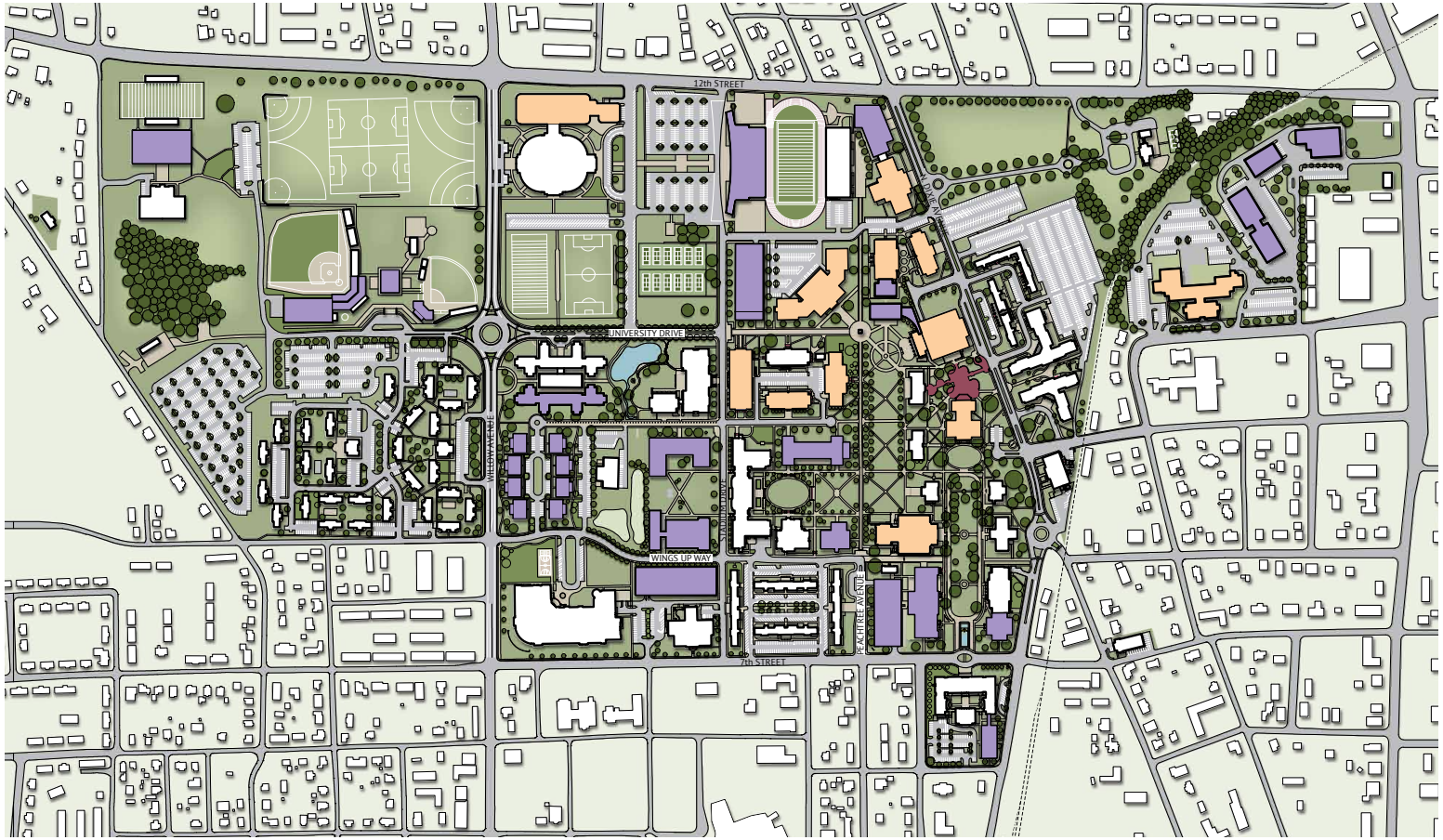
J. ART TRAIL

K. PEACHTREE QUADRANGLE

L. FOUNDATION HALL DEMOLITIONS

NOTE: The Disclosure Projects are listed by group and are not in a particular priority order. (refer to plan on page 78).

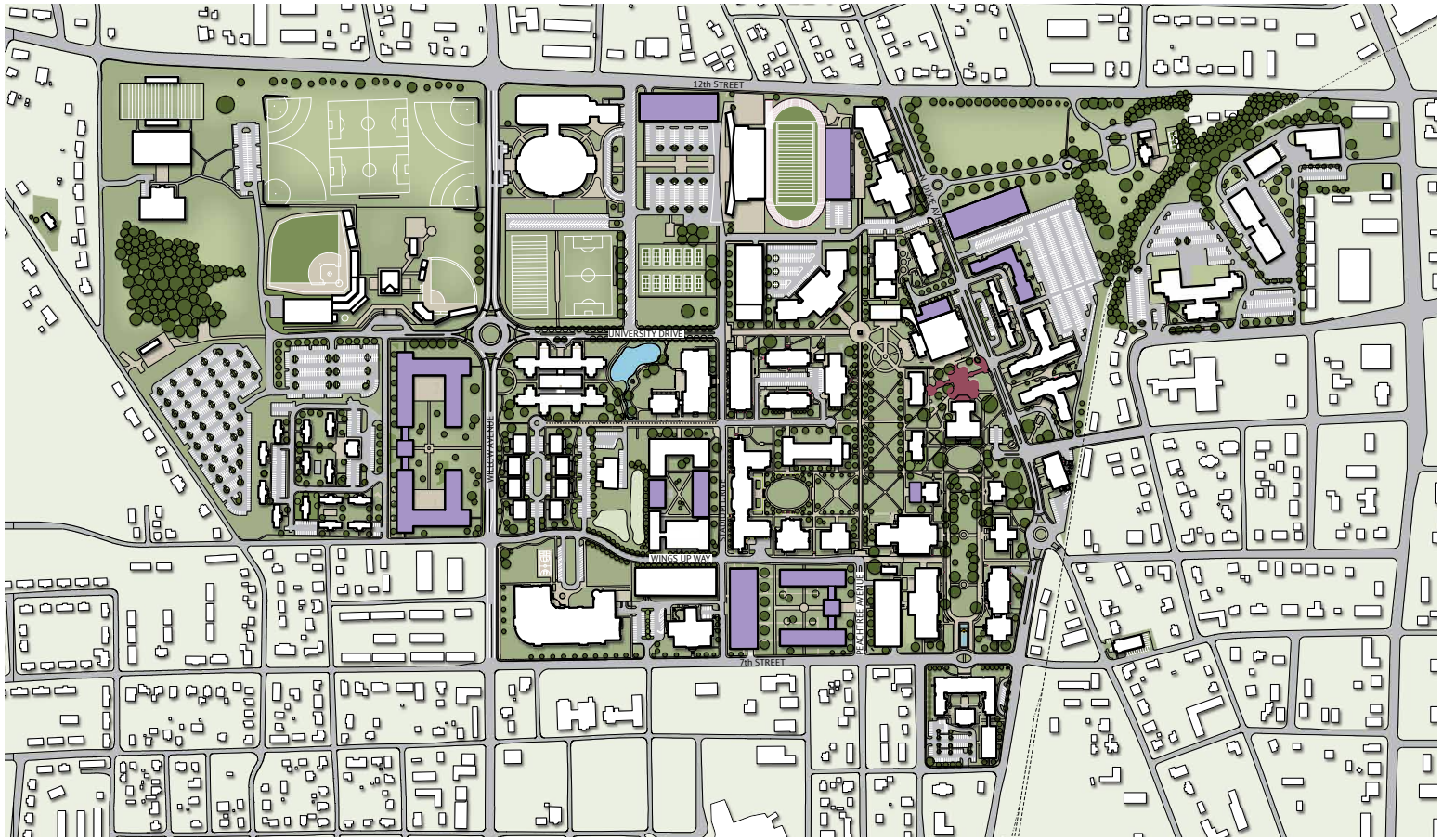
2022 MASTER PLAN BUILDING PROJECTS - 12,000 STUDENT CAMPUS



The Campus Master Plan drawing represents the Vision for the 12,000 Student Campus. Refer to the Campus Vision section and the keyed plan on page 98.

Figure 1.5 12,000 Student Campus Master Plan

12,000 STUDENT CAMPUS MASTER PLAN



The Campus Master Plan drawing represents the Vision for the 15,000 Student Campus. Refer to the Campus Vision section and the keyed plan on page 99.

LEGEND

- NEW BUILDING
- RENOVATED BUILDING

Figure 1.6 15,000 Student Campus Master Plan

15,000 STUDENT CAMPUS MASTER PLAN

PHYSICAL BUILDING RATING

- A - 80 - 100
- B - 70 - 80
- C - 60 - 70
- D - < 60

BUILDING ANTICIPATED FOR DEMOLITION

Figure 2.18 Physical Conditions

PHYSICAL CONDITIONS

CAPITAL IMPROVEMENTS

The proposed Capital Improvements are based upon the needs of the University to serve the academic functions. The projects include new construction to address current shortfalls in space per the THEC Guidelines as well as the projected shortfalls as the University grows. The proposed projects also include renovations to upgrade existing facilities as well as the elimination and replacement of antiquated space. The projects are listed in order of priority at the time of this writing. The established priorities are likely to shift over time as needs evolve and funding is available. The list, however, does provide a chronological path for the sequencing of projects for an efficient implementation that minimizes temporary measures to accommodate the refurbishment and growth of the campus.

1. Johnson Hall Renovation

The Johnson Hall renovation will continue the effort to methodically renovate the older buildings on campus updating program spaces as needed while upgrading and replacing building systems that are well past their expected operational life. Since upstream campus infrastructure systems run through and immediately adjacent to Foster Hall, located next door to Johnson Hall, it is recommended that the Foster Hall Demolition be incorporated as part of this project. Combining these initiatives will provide the most efficient and cost-effective process while limiting the intermediate accommodations required to maintain the downstream buildings (Johnson and Pennebaker) in operation while the Foster Hall demolition process is underway.

2. Advanced Construction and Manufacturing Bldg

Due to the overwhelming need for engineering space and the condition of the existing spaces, a new engineering building is proposed. The building is proposed to accommodate Advanced Construction and Manufacturing program providing the consolidation of the shops and materials testing for the college. It will also provide for the relocation of the Advanced Manufacturing department and the Foundry. This will allow for the demolition of Lewis Hall and the Foundry to clear their location for future development. Likewise, with the consolidation of the shops, the new building will open space within Prescott, Brown and Clement Halls for renovation.

3. Academic Classroom Building

The Academic Classroom Building will replace the Matthews and the Daniel Buildings, as well as Crawford Hall, which are among the lowest ranked buildings according to the PFI scores. Each has a PFI score of less than 60. This initiative will allow the academic building program to utilize the whole site on the southwest corner of the Historic Quadrangle without the compromises that renovation of any of the three structures would demand. The building will, however, comply with the scale and historical vernacular of the Historic Quad. The building will serve needs of the College of Arts and Sciences and the College of Education as well as the Office of Research and the Office of Communications & Marketing.

Figure 3.8 Bell Hall courtyard

CAPITAL IMPROVEMENTS

4. Brown Hall Renovation
The Brown Hall renovation is envisioned to be the first in a series of Engineering Quad Renovations. It is recommended that the Engineering Quad buildings (other than Bruner Hall which completed its renovation in 2021) be combined as a multi-phased project. This will continue the effort to methodically renovate the older buildings and provide for programmatic refinements as well as systems upgrades. Even with the current new Ashraf Islam Engineering Building, the engineering program will still represent the greatest space need on campus. Refer to the Appendix for a comprehensive master plan for the engineering program.

5. Prescott Hall Renovation
The Prescott Renovation is proposed as the second of the multi-phased engineering quad upgrades. As the largest of the Derryberry Era buildings in need of programmatic and systems upgrades, the Prescott renovation will require considerable temporary space to accomplish these improvements. This will likely involve utilizing most of the Foundation Hall Building as swing space, as other building renovations have done, as well as utilizing portions of the Laboratory Science Commons building to accommodate the fume hood needs of specific programs. However, the optimal phasing allows the Chemical Engineering department to move into a renovated Brown Hall as envisioned by the Engineering Master Plan.

6. Memorial Gym Renovation
While still functional, the ninety-two year old gym building is in need of renovation to improve the programmatic utilization of the space as well as update the building systems. The renovations will include the development of the adjacent parking lot as a campus quadrangle outdoor space.

7. New Engineering Building
To address more of the outstanding current space need, a second new engineering building is proposed. The building will combine certain aspects of the engineering and interdisciplinary studies programs to develop an emphasis on Environmental Engineering. The location in the southwest quadrant of the Engineering and Laboratory Science district will provide a synergy with civil engineering, biology, chemistry and earth science for the environmental programs. The project will include the demolition of the existing Southwest Hall on the building site as well as the relocation of the university's Child Development Lab to the Foundation Hall area of the campus.

8. Biology Building
The remainder of the Biology Department is proposed to be relocated from Pennebaker Hall to the north side of the Laboratory Science Quadrangle. This will allow these programs to be located in the vicinity of the Micro and Molecular Biology programs at the Laboratory Science Commons and further define the Science Quadrangle. As part of the project, it is proposed that the Art Program be relocated from the north end of Foundation Hall to a renovated Pennebaker Hall. This will accomplish the needed Pennebaker systems replacement as well as provide a permanent space for Art. Therefore, the Art program will be adjacent to Bryan Fine Arts and the remaining programs within the School of Fine Arts. The initiative is also proposed to include the demolition of the north end of Foundation Hall which is separated from the remainder of the building where the Art program has been housed. This will allow the development of parking at the area of the demolition.

9. Physics Building
To provide space within Bruner Hall for the Computer Science program to expand, a new Physics building is proposed to the east of the new Stonecipher Lecture Hall. This will provide a third building to complete the definition of the proposed Science Quadrangle. The project will allow for all three of the programs currently in Bruner Hall to address their growing space needs.

10. Clement Hall Renovation
The Clement Hall renovation will be the last of the phased engineering quad renovations. It will continue the effort to methodically renovate the older buildings on campus, updating program spaces as needed while upgrading and replacing building systems that are well past their expected operational life. As described in the Engineering Master Plan (see Appendix), Clement Hall is envisioned to progressively evolve to become a Math Building as well as maintain its current function as the campus Data Center, and home of Information Technology Services.

11. Academic Wellness Center Renovation
This renovation is proposed to convert the former student recreation building into an academic building. The renovation will include programmatic as well as building systems upgrades. The existing pool is proposed to be infilled. The building will be renovated to provide program space for the growing Exercise Science, Physical Education and Wellness program.

12. Bell Hall Expansion
The Bell Hall Expansion will provide additional academic space for the expansion of the Nursing program with the addition of post graduate programs.

13. Volpe Library Renovation
The Library renovation will provide programmatic as well as building systems upgrades.

14. Bryan Fine Arts Renovation and Addition
The renovation and addition will provide programmatic as well as building systems upgrades.

15. Oakley Hall Expansion
The addition will provide added space for the anticipated growth in the School of Agriculture and Human Ecology.

16. New Engineering Building #2
Another new engineering building will complete the engineering master plan and provide space to fulfill the needs of the college. The building is envisioned to connect the engineering buildings within the new southwest Engineering Quadrangle. (see the Engineering Master Plan in the Appendix).

Figure 3.9 Capital Improvement Projects

CAPITAL IMPROVEMENT PROJECTS

#	PROJECT	NEW	RENOVATION	STORIES	AREA (SF)
1	JOHNSON HALL RENOVATION	X	X	4	68,171
1a	FOSTER DEMOLITION				60,743
2	ADVANCED CONSTRUCTION AND MANUFACTURING BUILDING	X		3	80,000
3	ACADEMIC CLASSROOM BLDG	X		2-3	91,000
3a	MATTHEWS/DANIEL DEMOLITION				43,555
3b	CRAWFORD DEMOLITION				42,042
4	BROWN HALL RENOVATION		X	4	55,001
5	PRESCOTT HALL RENOVATION		X	5	111,955
6	MEMORIAL GYM RENOVATION		X		87,181
7	NEW ENGINEERING BUILDING	X		3	100,000
7a	SOUTHWEST HALL DEMOLITION				23,500
8	BIOLOGY BUILDING	X		3	93,785
8a	PENNEBAKER HALL RENOVATION		X	4	59,679
8b	PARTIAL FOUNDATION HALL DEMOLITION				
9	PHYSICS BUILDING	X		3	38,378
10	CLEMENT HALL RENOVATION		X	4	62,887
11	ACADEMIC WELLNESS CENTER RENOVATION		X	2	77,895
12	BELL HALL EXPANSION	X		3	27,635
13	VOLPE LIBRARY RENOVATION		X	3	132,645
14a	BRYAN FINE ARTS RENOVATION		X	3	55,110
14b	BRYAN FINE ARTS ADDITION	X		2	60,965
15	OAKLEY HALL EXPANSION	X		2	38,922
16	NEW ENGINEERING BUILDING #2	X		3	90,000
17	JOHNSON HALL EXPANSION	X		4	25,000

LEGEND

- CAPITAL IMPROVEMENT NEW CONST.
- CAPITAL IMPROVEMENT RENO.
- ON-GOING PROJECT

CAPITAL IMPROVEMENT PROJECTS

Figure 3.11 Disclosure Projects

DISCLOSURE PROJECTS

#	PROJECT	NEW	RENOVATION	STORIES	AREA (SF)
A	FACILITIES SERVICES COMPLEX	X			
B	MAJOR ATHLETICS PROJECTS	X			
	B1 - FOOTBALL OPERATIONS BLDG	X			
	B2 - WEST STADIUM REPLACEMENT	X			
	B3 - BASEBALL/SOFTBALL COMPLEX	X			
C	PARKING GARAGE(S)	X			
	C1 - WINGS UP WAY GARAGE	X			
	C2 - PEACHTREE GARAGE	X			
	C3 - LIBRARY GARAGE	X			
D	FOOD SERVICE IMPROVEMENTS		X		
E	INNOVATION HOUSING - PHASE II	X			
F	SORORITY ROW	X			
G	ROADEN UNIVERSITY CENTER EXPANSION	X	X		
H	PARKING & TRANSPORTATION IMPROVEMENTS - PHASE II		X		
I	UNIVERSITY TOWER	X			
J	ART TRAIL	X			
K	PEACHTREE QUADRANGLE		X		
L	FOUNDATION HALL DEMOLITIONS		X		

LEGEND

- DISCLOSED PROJECT NEW CONST.
- DISCLOSED PROJECT RENO.
- ON-GOING PROJECT

IMPLEMENTATION PLAN

The Implementation Plan incorporates the anticipated projects envisioned to facilitate the vision of the University in the coming years. The Master Plan outlines a series of projects within the Capital Improvements section which address current space deficits and building maintenance deficiencies. The plan also includes initiatives which will address the projected growth of the University in the future.

The Implementation Plan supports the Ongoing Capital Improvement Plan for the campus. This Improvement Plan includes Capital Outlay, Capital Maintenance, and major Disclosure Projects. The University is required to maintain a five-year capital improvement plan that can be developed from the Improvement Plan listing of initiatives and based upon the emerging priorities of the University reviewed annually. An itemization of the Capital Outlay, Capital Maintenance and major Disclosure Projects is provided on the following page. Also included is a listing of other items which may be considered at the capital appropriation level or incorporated as part of the three major categories.

Note: The projected budgets can change significantly in inflationary times. Therefore, the overall budget request for any given project should be evaluated carefully and adjusted for items such as scope refinement and current inflationary environment. These adjustments should account for the anticipated "bid" date of the actual expenditure of the funding.

2022 Capital Outlay Cost Projections

Priority	Building Name	Projected Budget
2	Advanced Construction and Manufacturing Building	$62,400,000
3	Academic Classroom Building	$45,000,000
9	Physics Building	$23,000,000
8	Biology Building	$72,000,000
7	Engineering Building	$68,600,000
11a	Academic Wellness Center	$4,000,000
13	Bell Hall Expansion	$16,500,000
15b	Bryan Fine Arts Expansion	$36,100,000
16	Oakley Hall Expansion	$23,200,000
17	Engineering Building #2	$54,000,000
18	Johnson Hall Expansion	$14,000,000
		$418,800,000

2022 Disclosed Projects Cost Projections

Item	Building Name	Project Budget
A	Facilities Services Complex	$21,500,000
B1	Football Operations Building	$22,000,000
B2	West Stadium Replacement	$29,900,000
B3	Baseball Softball Complex-Turf	$2,260,000
C1	Wings Up Way Garage- Phase II	$13,925,000
C2	Peachtree Garage	$6,500,000
C3	Library Garage/ Remote Chiller Plant	$18,250,000
D	Food Service Improvements	$3,000,000
E	Innovation Housing- Phase II	$53,650,000
F	Sorority Row	$41,500,000
G	University Center Expansion	$17,000,000
H	Parking /Trans. Imp.- Phase III	
I	University Tower	$1,500,000
J	Art Trail	$3,250,000
K	Peachtree Quadrangle	$1,750,000
L	Foundation Hall Demolition(s)	$1,000,000
		$236,985,000

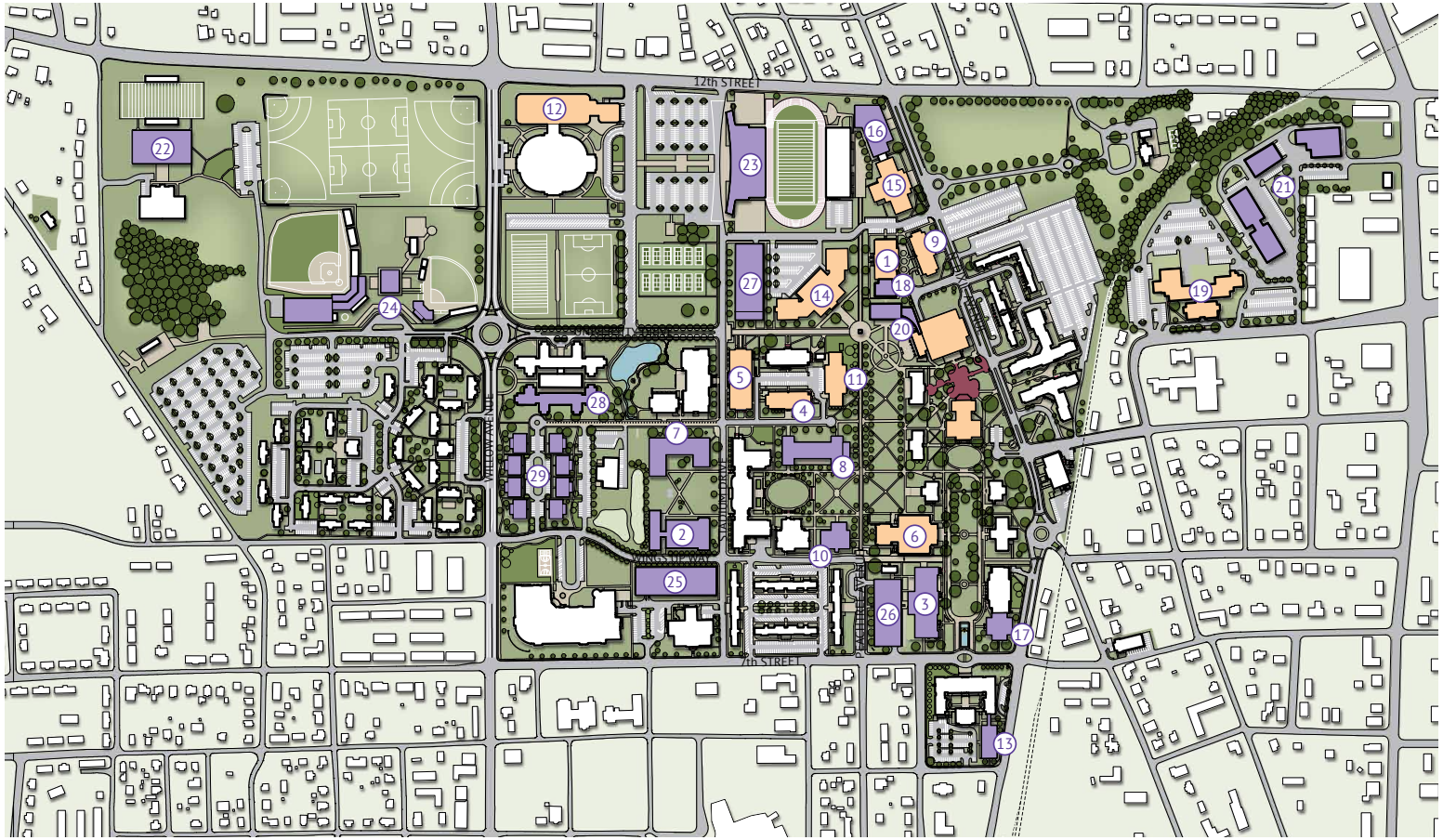
Table 3.12 Implementation Table

2022 Capital Renovation Cost Projections

Priority	Building Name	Projected Budget
1	Johnson Hall	$14,200,000
4	Brown Hall	$16,978,078
5	Prescott Hall	$37,992,178
6	Memorial Gym	$20,500,000
8a	Pennebaker Hall	$13,750,000
10	Clement Hall	$17,750,000
11	Academic Wellness Center	$17,800,000
12	Derryberry Hall	$13,250,000
14	Volpe Library	$23,500,000
15a	Bryan Fine Arts	$12,600,000
		$188,320,256

2022 Campus Maintenance Cost Projections

Item	Project	Project Budget
A	Electrical- Campus Service	$2,480,000
B	Steam Upgrades/Replacement (6 Phases)	$16,000,000
C	Steam West Campus Loop	$3,800,000
D	Satellite Chiller Plant	$25,500,000
E	Data Telecom Ductbank	$800,000
F	Sewer System Survey and Inspection	$160,000
G	Sewer upgrades near TJ Farr	$320,000
H	Foundation Hall Manhole Replacement	$32,000
I	STEM Center Manhole Replacement	$32,000
J	University Services Stormwater Upgrades	$650,000
K	Storm System Survey and Inspection	$200,000
L	Establish GIS for campus infrastucture	$40,000
M	Annual GIS update and verification	$20,000
N	New Steam/Condensate Johnson to Jobe	$650,000
O	CH-1/CT-1 Replacement - 2027	$3,795,000
P	CH-3/CT-3 Replacement - 2031	$6,325,000
Q	CH-2/CT-2 Replacement - 2033	$7,590,000
		$68,394,000



LEGEND

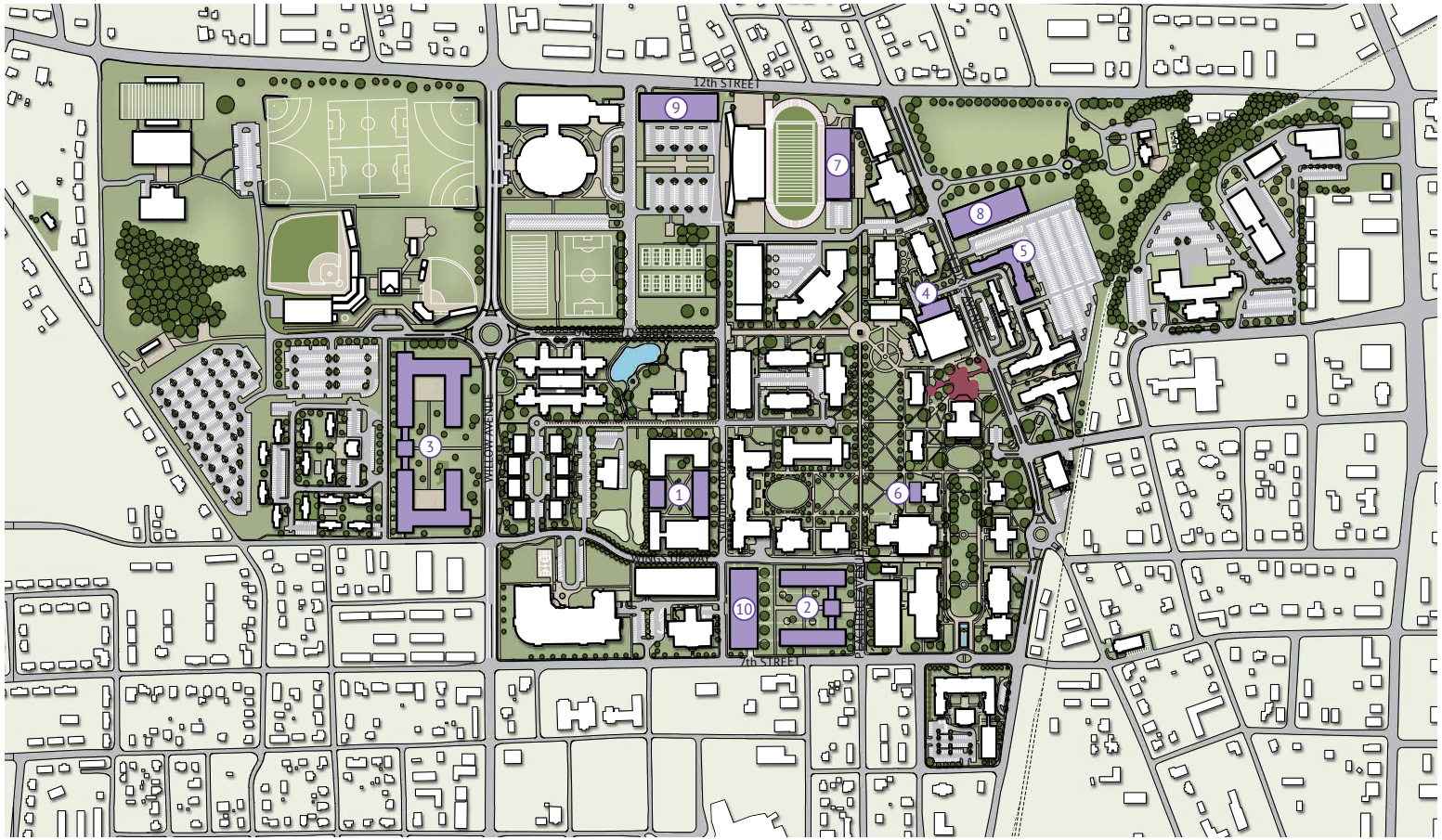
1 JOHNSON HALL RENOVATION
2 ADVANCED CONSTRUCTION AND MANUFACTURING ENGINEERING BLDG
3 ACADEMIC CLASSROOM BLDG
4 BROWN HALL RENOVATION
5 PRESCOTT HALL RENOVATION
6 MEMORIAL GYM RENOVATION
7 NEW ENGINEERING BUILDING
8 BIOLOGY BUILDING
9 PENNEBAKER HALL RENOVATION
10 PHYSICS BUILDING
11 CLEMENT HALL RENOVATION
12 ACADEMIC WELLNESS CENTER RENOVATION
13 BELL HALL EXPANSION
14 VOLPE LIBRARY RENOVATION
15 BRYAN FINE ARTS RENOVATION
16 BRYAN FINE ARTS ADDITION
17 OAKLEY HALL EXPANSION
18 JOHNSON HALL EXPANSION
19 FOUNDATION HALL RENOVATION
20 ROADEN UNIVERSITY CENTER RENOVATION / ADDITION
21 FACILITIES SERVICES COMPLEX
22 FOOTBALL OPERATIONS BLDG
23 WEST STADIUM REPLACEMENT
24 BASEBALL/SOFTBALL COMPLEX
25 WINGS UP WAY GARAGE
26 PEACHTREE GARAGE
27 LIBRARY GARAGE
28 INNOVATION HOUSING - PHASE II
29 SORORITY ROW

LEGEND

NEW BUILDING
RENOVATED BUILDING

Figure 3.28 12,000 Student Campus Master Plan

12,000 STUDENT CAMPUS MASTER PLAN



LEGEND

1 NEW ENGINEERING BUILDING #2
2 NEW ACADEMIC BUILDING AT CAPITAL QUAD
3 CAPITAL QUAD HOUSING REPLACEMENT
4 ROADEN UNIVERSITY CENTER EXPANSION
5 JOBE | MURPHY HOUSING REPLACEMENT
6 BARTOO EXPANSION
7 EAST STADIUM REPLACEMENT
8 DIXIE GARAGE
9 STADIUM GARAGE
10 CAPITAL QUAD GARAGE

LEGEND

NEW BUILDING
RENOVATED BUILDING

Figure 3.29 15,000 Student Campus Master Plan

NORTH 0' 500' 1,000'

15,000 STUDENT CAMPUS MASTER PLAN

Crossville Property Master Plan Amendment

BAUER ASKEW
architecture . pllc

615
T726.0047
F726.4891
615

1615
sixteenth
avenue south

nashville
tennessee
37212

14 September 22

Mr. Jim Cobb
Tennessee Technological University
220 W. Tenth Street, Room 115
Cookeville, Tennessee 38505

RE: TTU Master Plan
SBC #364/000-02-2019
Subject: Master Plan Amendment #2
Crossville Campus

Jim,

A unique opportunity arose recently that the University would like to accept. Funding has been provided by the state for the purchase and operation of a facility in Crossville. The property is the former Trade-A-Plane campus in downtown Crossville which includes three interconnected buildings and three properties within two adjacent city blocks. The buildings include approximately 120,000 sf of space with approximately half in a three-story office building and the remainder in two connected warehouse structures. Since this opportunity came to fruition recently, it was not included in the master plan. Therefore, we are providing the attached documents to submit as an amendment to the Master Plan.

As an overview, the new Crossville campus will begin as a research facility for the College of Engineering and other university interests. The facility will house the large-scale wind tunnel that was recently purchased by the TTU Foundation within the warehouse space. Several opportunities with local businesses and agencies exist for partnering as well as the leasing of a portion of the facility. In addition, the local city and county officials have requested that the university provide four-year academic offerings at the facility. This has the opportunity to pair with the RSCC Cumberland Center, TCAT Crossville and the two county high schools, all of which are nearby, to offer an array of higher education choices.

As this project will be funded by reoccurring state funds, we have included it as a special section in the Master Plan behind the Capital Improvement Projects. We have also updated the University Property and Property Acquisition sections to incorporate the addition of the Crossville Campus. Therefore, we recommend submitting these documents to amend the current master plan and allow for the implementation of the project.

Please don't hesitate to call with any questions and comments.

Respectfully,

J. Garry Askew, AIA
Architect

cc: Christine Daniels, TTU
Attachments: Revised Master Plan Pages 28, 30 and 78a, Executive Summary

BAUER ASKEW
architecture . pllc

615
T726.0047
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sixteenth
avenue south

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tennessee
37212

14 September 22

Tennessee Tech University
Master Plan Amendment #2- Crossville Campus
SBC #364/000-02-2019

Executive Summary

The property at 174 Fourth Avenue in downtown Crossville includes three interconnected buildings and three properties. The facilities include a three story 61,500 sf office building and two single story warehouse buildings. The larger 49,500 sf warehouse was the former printing shop and is concrete masonry unit construction. The smaller 10,000 sf warehouse is a metal building. The buildings are located on a 2.51 acres property. The .50 and .11 acre lots across the street are part of the overall property and have 52 and 15 parking spaces respectively. The state has provided $3,500,000 in reoccurring funding to own and operate the facility.

The facility is envisioned to become a satellite campus for the university to serve Cumberland County and the nearby Upper Cumberland region. The primary focus of the new campus will begin as research. The university, through the TTU Foundation, has purchased a large-scale wind tunnel which will be housed in the warehouse portion of the facility. The wind tunnel will offer research opportunities for the university which will utilize graduate and primarily undergraduate students to support the research activities. The wind tunnel is also expected to be utilized by related private industry for research activities. Likewise, federal agencies located in Oak Ridge also offer potential collaborations such as the placement of a supercomputer at the new campus. Other opportunities include association with the anticipated test track facility in eastern Cumberland County.

Per the request of the local city and county government, the facility is also envisioned to provide bachelor level academic opportunities. The new campus is located between the Roane State Community College Cumberland Center and the TCAT Crossville campuses (within 3.4 miles and 6 blocks respectively). Likewise, the new campus is located between the two Cumberland County high schools, Stone Memorial and Cumberland County (within 3.6 miles and 5 blocks respectively). Therefore, the synergy of the various levels of higher education and opportunities for dual enrollment for high school students will provide a diverse level of options for students in the region.

UNIVERSITY PROPERTY

Tennessee Tech University is located in the city of Cookeville within Putnam County, Tennessee. Situated on the northern side of Cookeville and surrounded by the hospital and residential neighborhoods, TTU's Main Campus is positioned between 12th Street and 7th Street and is bisected by North Dixie Avenue and by North Willow Avenue. In addition to the main campus and local properties, TTU owns several other properties outside of Cookeville. These regional properties are Shipley Farm (Putnam County), Oakley Farm (Overton County), and the Appalachian Center for Craft (Dekalb County). While the University owns a variety of sites, the planning efforts for this 2022 Master Plan focus on TTU's main campus.

The Shipley Farm property, approximately 2.2 miles west of the campus, represents a significant resource for the University. While currently dedicated primarily to agriculturally oriented endeavors including the agriculture pavilion and TTU farm, the property with its gently rolling topography could be considered for supplemental land uses in the future.

The Oakley Farm property was a gift by Millard V. Oakley and wife, J.J. Oakley to Tennessee Tech. This donation helped broaden the University's horizon and improve the School of Agriculture. The property has been recognized by the Tennessee Historical Society as a Pioneer Century Farm. The family of Millard Oakley had farmed this land for more than 200 years. Since 2009, TTU students have worked with the cattle and in the hydroponic greenhouses to study plant growth and genetics. Oakley Farm is one of the largest laboratories of its kind for producing research on livestock, water quality, soils, and crop production.

The Austin Farm is located in Cumberland County. It is just north of I-40 and the city of Crossville approximately 36 miles from the main campus.

The Appalachian Center for Craft is a satellite campus of the nationally accredited School of Art, Craft & Design within TTU's College of Fine Arts. The craft center property is located within the Center Hill Lake area and is leased from the US Corp of Engineers. The mission of the Appalachian Center for Craft is to promote excellence in American craft by teaching both tradition and innovation in professional studio craft, and fostering access to the highest quality craft education, craft artists, craft works, and events in a community arts context.

The Crossville Campus will be a satellite campus within the downtown area of Crossville. The facility consists of a three-story office building and two single story interconnected warehouse buildings. The campus includes the 2.5 acres site with the buildings as well as a .50 and .11 acre lots across the street with 52 and 15 parking spaces respectively. The campus will begin as a research facility with opportunities to lease space to businesses and agencies with similar research focuses. The office building is anticipated to be redeveloped as an academic facility to serve as a satellite teaching facility for the Cumberland County and Upper Cumberland area. The property is currently owned by the TTU Foundation.

University Property	
Property	**Acres**
Main Campus	**256.98**
Primary Campus Area	239.26
Foundation Hall	13.30
E. 11th Street & N. Washington Ave	3.38
1145 North Franklin Ave	0.55
TTU Alumni Building	0.49
Local Property (TTU Foundation Owned)	**126.04**
TTU Golden Eagle Golf Club	126.04
Regional Property	**2639.42**
Shipley Farm (Putnam County)	303.70
Hyder Farm (Putnam County)	27.70
Oakley Farm (Overton County) (Tech Farms, LLC)	1,400
Austin Farm (Cumberland County)	405
Appalachian Center for Craft (Dekalb County)- (Leased)	500
Crossville Campus (Cumberland County)	3.02
Total Property	**3022.44**

Table 2.1 TTU Property

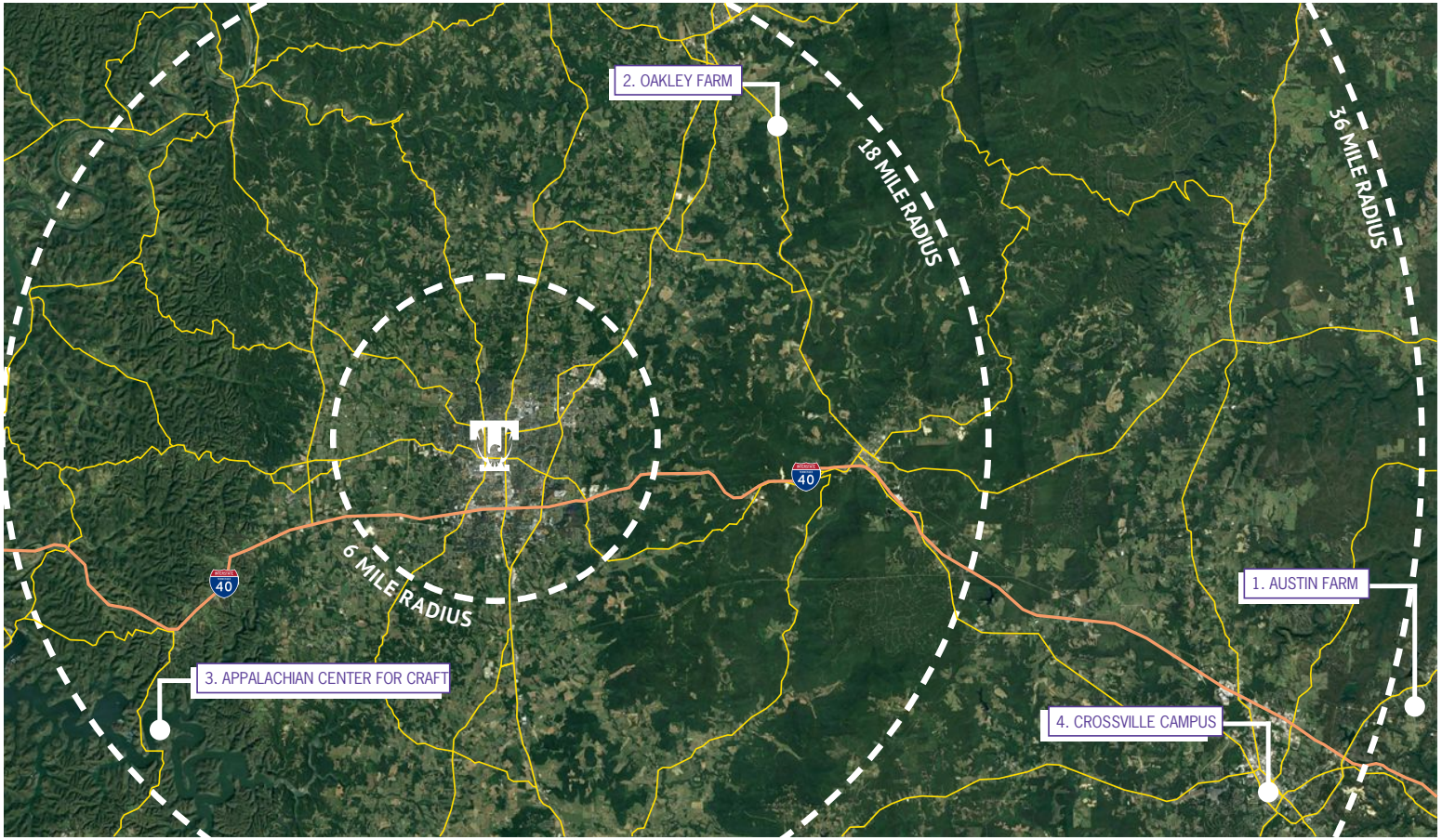

Figure 2.14 Regional Aerial Map

REGIONAL AERIAL MAP

TTU REGIONAL PROPERTY

1. Austin Farm (Cumberland County)
   884 Swicegood Road
   Crossville, TN 38555

2. Oakley Farm (Overton County)
   1198 Rickman Monterey Hwy
   Livingston, TN 38570
   - The Oakley Farm property is a Pioneer Century Farm used by the School of Agriculture where students work with cattle and in hydroponic greenhouses.

3. Appalachian Center for Craft - (Leased) (Dekalb County)
   1560 Craft Center Dr
   Smithville, TN 37166
   - The Appalachian Center for Craft is a satellite campus of TTU's School of Art, Craft & Design.

4. Crossville Campus - (Cumberland County)
   174 Fourth Street
   Crossville, TN 38555
   - The Crossville Campus is expected to be a satellite campus for research and general academic offerings in the local upper Cumberland area

TENNESSEE TECH UNIVERSITY (MAIN CAMPUS)

LAND ACQUISITION

Since its founding in 1915, Tennessee Technological University has continued to expand its presence in Cookeville to accommodate its growing population. The 2014 Acquisition Plan outlined a significant number of properties to acquire. The four blocks of property at the corner of Willow and Seventh are now owned by the University and have been developed into the new Recreation and Fitness Center. Other properties that have been added to the main campus include several properties at N. Franklin Avenue and 11th Street.

The current Acquisition Plan outlines multiple properties that the University should consider for acquisition. These properties are identified in two categories: high priority and long range. The high priority sites represent properties that could be utilized in the near future. They are located along the south border of Tech Village, the block between Dixie and Mahler Avenue, and the remaining properties that fill up the corner of Twelfth and North Washington Avenue. The long range areas include properties that should be considered, if available, and will likely require accumulation over time. The long range sites lie within the residential neighborhood blocks adjacent to the main campus to the north, west, and east, as well as the two blocks to the south directly west of the Bell Hall site. Likewise, land that becomes available near or adjacent to other currently owned property should also be considered, such as an expansion of the Shipley Farm property.

Away from the main campus, the property acquired by the TTU Foundation on Fourth Street in downtown Crossville should be considered the Crossville Campus of TTU.

Figure 2.15 Mahler Avenue, north of West 7th Street

REOCCURING FUNDS PROJECTS

A. CROSSVILLE CAMPUS

The new Tennessee Tech Crossville Campus is envisioned at the former Trade-A-Plane facility at 174 Fourth Avenue in downtown Crossville. The property includes three interconnected buildings and three properties. The facilities include a three story 61,500 sf office building and two single story warehouse buildings. The larger 49,500 sf warehouse was the former printing shop and is concrete masonry unit construction. The smaller 10,000 sf warehouse is a metal building. The buildings are located on a 2.51 acres property. The .50 and .11 acre lots across the street are part of the overall property acquisition and have 52 and 15 parking spaces respectively. The state has provided $3,500,000 in reoccurring funding to own and operate the facility.

The facility is envisioned to become a satellite campus for the university to serve Cumberland County and the nearby Upper Cumberland region. The primary focus of the new campus will begin as research. The university, through the TTU Foundation, has purchased a large-scale wind tunnel which will be housed in the warehouse portion of the facility. The wind tunnel will offer research opportunities for the School of Engineering which will utilize graduate and primarily undergraduate students to support the research activities. The wind tunnel is also expected to be utilized by related private industry for research activities as well. In particular, a local business is expected to lease a portion of the facility and wind tunnel time once the facility is operational. Likewise, federal agencies located in Oak Ridge also offer potential collaborations such as the placement of a supercomputer at the new campus. Other opportunities include association with the anticipated test track facility in eastern Cumberland County.

Per the request of the local city and county government, the facility is also envisioned to provide bachelor level academic opportunities. The new campus is located between the Roane State Community College Cumberland Center and the TCAT Crossville campuses (within 3.4 miles and 6 blocks respectively). Likewise, the new campus is located between the two Cumberland County high schools, Stone Memorial and Cumberland County (within 3.6 miles and 5 blocks respectively). Therefore, the synergy of the various levels of higher education and opportunities for dual enrollment for high school students will provide a diverse level of options for students in the region.

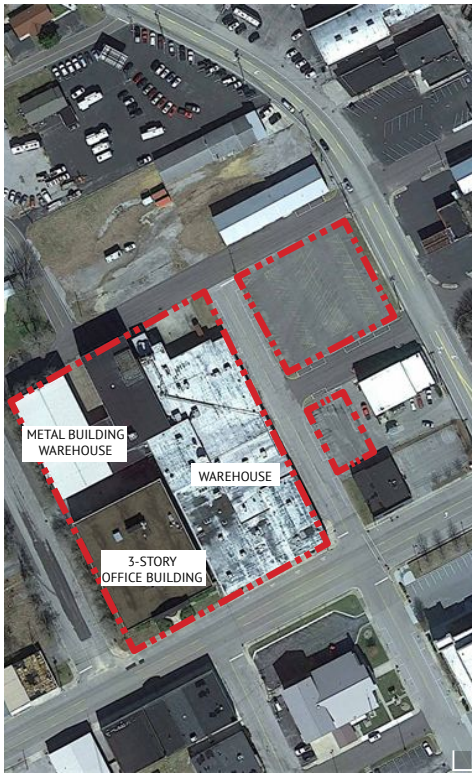

Figure 3.9A Crossville Campus Property

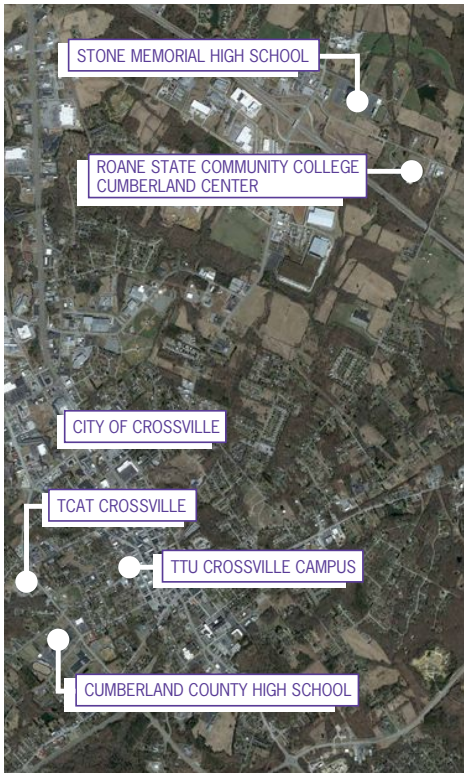

Figure 3.9B Crossville Proximity Map

AMENDMENTS

1. ACADEMIC CLASSROOM BUILDING

Page 07	Clarify renovation goal
Page 11	Revised list to show Crawford to be demolished
Page 13	Updated footprint for new Academic Classroom Building
Page 14	Updated footprint for new Academic Classroom Building
Page 35	Crawford rating revised to be <60 and to be demolished
Page 75	Updated narrative for Academic Classroom Building
Page 77	Updated Capital Improvement list and footprint of Academic Classroom Building
Page 81	Updated footprint for new Academic Classroom Building
Page 97	Updated Implementation table
Page 98	Updated footprint for new Academic Classroom Building
Page 99	Updated footprint for new Academic Classroom Building

2. CROSSVILLE CAMPUS

Page 26	Updated narrative and University Property chart
Page 28	Added the Crossville Campus to the map
Page 29	Updated narrative
Page 78A	Added page to show Crossville Campus property and proximity map

5.1

Agenda Item Summary

Date: October 6, 2022

Agenda Item: Land Acquisition

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTER: Claire Stinson, Vice President for Planning & Finance

PURPOSE & KEY POINTS: Review and approval for acquisition of the TAP property located in Crossville, TN.

6.1

Agenda Item Summary

Date: October 6, 2022

Agenda Item: Capital Budget FY2023-24

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTER: Claire Stinson, Vice President for Planning & Finance

PURPOSE & KEY POINTS: Review of changes made to FY2023-24 Capital Budget request approved by Board of Trustees at June 23, 2022 meeting. Board of Trustee approval is being requested for revised FY2023-24 Capital Budget request.

CAPITAL OUTLAY REQUEST

FY 2023-24 thru 2027-28

								A	B	C = B / A	D = A - B
FY	**Priority**	**Institution**	**Project Name**	**Project Description****	**Project Type**	**New Square Footage**	**Reno. Or Replaced SF**	**Project Cost**	**Committed External Funds**	**Percent Match***	**State Funds Request**
2023-24	1	TTU	Academic Classroom Building	Demolish Matthews, Daniel and Crawford Halls. Construct a new building that will provide classrooms, faculty offices and support spaces for the Colleges of Education and Arts & Sciences. The project will provide additional flexible academic space to address campus-wide space shortages for classrooms and faculty offices. Provide administrative offices for Communications & Marketing and Research & Development	New Construction	91,000	-	$66,500,000	$5,320,000	8%	$61,180,000
2023-24	2									0%	$0
2023-24	3									0%	$0

** Provide a duplicate of the Project Description from the DB70 sheet. Additional brief summary comments may be added for support justification.

Out-Years

FY	Priority	Institution	Project Name	Project Description	Project Type	New Square Footage	Reno. Or Replaced SF	Project Cost	Committed External Funds	Percent Match	State Funds Request
2024-25	1	TTU	Renovate Prescott and Brown Halls	Complete renovation of Prescott and Brown Halls.	Major Renovation		166,956	$64,500,000	$2,580,000	4%	$61,920,000
2024-25	2									0%	$0
2024-25	3									0%	$0
										0%	$0
2025-26	1	TTU	Biology Building	Construct a new facility for the Biology department.	New Construction	93,785		$80,600,000	$6,448,000	8%	$74,152,000
2025-26	2									0%	$0
2025-26	3									0%	$0
										0%	$0
2026-27	1	TTU	New Engineering Building	Construct a new building for engineering and interdisciplinary studies with a focus on environmental engineering.	New Construction	100,000		$75,000,000	$6,000,000	8%	$69,000,000
2026-27	2									0%	$0
2026-27	3									0%	$0
										0%	$0
2027-28	1	TTU	Memorial Gym Renovation	Complete renovation of Memorial Gym.	Major Renovation		87,181	$45,000,000	$1,800,000	4%	$43,200,000
2027-28	2										
2027-28	3									0%	$0

Capital Maintenance Request: FY2023-24

Governing Board: Tennessee Tech

2023-24 Maintenance Allocation: $0 **Total costs must fall within allocation.**

Fiscal Year	Priority*	Institution	Project	Project Cost	Project Description
2023-24	1	TTU	Roaden University Center HVAC Upgrades	$ 1,150,000	Replace air handlers 1 and 3, and the air handler serving Which Wich. Clean the coils and ductwork on air handler 2.
2023-24	2	TTU	Multiple Buildings Elevator Upgrades Phase 1	$ 870,000	Upgrades or replacement of several elevators on campus. Thirty one elevators are included in the scope of work. This is the first phase of a multi-phase project.
2023-24	3	TTU	Campus-Wide Building Controls Upgrades PH 2	$ 2,025,000	Upgrade pneumatic controls to digital controls on several buildings, including replacement of devices and equipment required to complete digital control of the HVAC systems. Project includes all related work.
2023-24	4	TTU	Derryberry Hall Upgrades Phase 1	$ 2,480,000	Evaluate/replace/update the mechanical, electrical and plumbing systems as needed. Add a sprinkler system. Replace materials and finishes impacted by system replacements. Complete any needed repairs to the building's exterior envelope, including window replacements. Abate asbestos materials as required. This is the first phase of a planned 3 - 4 phase project.
2023-24	5	TTU	Bryan Fine Arts Auditorium Upgrades	$ 2,300,000	Upgrade MEP systems, stage lighting and sound systems, and seating for ADA and code compliance,and all related work.

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Fiscal Year	Priority*	Institution	Project	Project Cost	Project Description
2023-24	6	TTU	Roof Replacements	$ 1,140,000	Replace the shingle roofs on Bell Hall and Ray Morris Hall, and all related work
2023-24	7	TTU	Utility Infrastructure Upgrades 1.1	$ 3,030,000	Replacement and repair of utilities campus-wide including, but not limited to, underground steam, steam condensate, chilled water, domestic water and backflow preventors, sanitary sewer, storm sewer, Telecom/ITS fiber optic and copper, gas, electric, manholes and valve pits, and all related work. This is the first phase of a multi-phase project.
2023-24	8	TTU	Utility Infrastructure Upgrades 1.2	$ 1,940,000	Replacement and repair of utilities campus-wide including, but not limited to, underground steam, steam condensate, chilled water, domestic water and backflow preventors, sanitary sewer, storm sewer, Telecom/ITS fiber optic and copper, gas, electric, manholes and valve pits, and all related work. This is the first phase of a multi-phase project.
2023-24	9	TTU	University Services Building Mechanical Upgrades	$ 1,120,000	Replace the air handler, VAV boxes, piping, ceiling grid and lighting.
			Total Project Cost	$ 16,055,000	

* Requests are not limited to 10. Insert more rows if there are more projects to recommend.

Capital Maintenance Out-Years: FY 2024-25 through 2027-28

Fiscal Year	Priority	Institution	Project	Project Cost	Project Description
2024-25	1	TTU	Boiler Replacement	$ 2,025,000	Replace Boiler/Requires Building Addition

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Fiscal Year	Priority*	Institution	Project	Project Cost	Project Description
2024-25	2	TTU	Bryan Fine Arts Building Exterior Repairs	$ 1,200,000	Clean, tuckpoint, caulk, repair, and waterproof brick walls, stone coping, brick patios, window sills, stone caps, retaining walls, concrete expansion joints, seating areas, and all related work. Remove and replace brick as required.
2024-25	3	TTU	Hyder-Burks Arena Upgrades	$ 1,140,000	Install air conditioning and replace the sound system Hyder Burks Ag. Pavilion arena.
2024-25	4	TTU	Foundation Hall Upgrades 1.1	$ 20,500,000	Provide building systems and related space upgrades. Abate asbestos materials as required.
2024-25	5	TTU	Derryberry Hall Upgrades Phase 2	$ 8,400,000	Evaluate/replace/update the mechanical, electrical and plumbing systems as needed. Add a sprinkler system. Replace materials and finishes impacted by system replacements. Complete any needed repairs to the building's exterior envelope, including window replacements. Abate asbestos materials as required.
2024-25	6	TTU	Utility Infrastructure Upgrades 2	$ 5,000,000	Replace underground utilities including steam, chilled water, domestic water, sanitary and storm sewer, telecom, ITS, gas and electric.
2024-25	7	TTU	Stormwater System Repairs	$ 500,000	Repair underground stormwater piping in the campus area west of Willow Avenue.
2024-25	8	TTU	Multiple Buildings Elevator Upgrades Phase 2	$ 2,100,000	Upgrades or replacement of several elevators on campus. Thirty one elevators are included in the scope of work.
2024-25	9	TTU			
2025-26	1		Foundation Hall Upgrades 1.2	$ 13,100,000	Provide building systems and related space upgrades. Abate asbestos materials as required.

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Fiscal Year	Priority*	Institution	Project	Project Cost	Project Description
2025-26	2		Utility Infrastructure Upgrades 3	$ 5,000,000	Replace underground utilities including steam, chilled water, domestic water, sanitary and storm sewer, telecom, ITS, gas and electric.
2025-26	3		Memorial Gym Pool Dehumidification	$ 500,000	Install pool dehumidification
2025-26	4		University Services Building Exterior Updates	$ 1,500,000	Clean, repair, replace masonry. Replace windows and doors. Repair/replace stairs and related components. Repair/replace metal mansard.
2025-26	5		Military Science Building MPE Systems Replacement	$ 500,000	Replace MPE systems in the building.
2025-26	6		Multiple Buildings Elevator Upgrades Phase 3	$ 2,000,000	Upgrades or replacement of several elevators on campus. Thirty one elevators are included in the scope of work.
2025-26	7		Steam Plant Improvements	$ 1,750,000	Provide upgrades to steam plant equipment, remove obsolete coal and ash handling equipment, reconfigure and re-route ductwork feeding abandoned baghouse.
2026-27	1		Utility Infrastructure Upgrades 4	$ 5,000,000	Replace underground utilities including steam, chilled water, domestic water, sanitary and storm sewer, telecom, ITS, gas and electric.
2026-27	2		Campus-Wide Building Controls Upgrades PH 3	$ 1,825,000	Upgrade pneumatic controls to digital controls on several buildings, including replacement of devices and equipment required to complete digital control of the HVAC systems. Project includes all related work.

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Fiscal Year	Priority*	Institution	Project	Project Cost	Project Description
2026-27	3		Campus-wide Building Envelope Repairs	$ 3,000,000	Building envelope repairs to include repair/replacement of building envelope components. Exterior repairs will include stairs, handrails, railings, seating, doors, windows, columns and all other exterior building components.
2027-28	1		Utility Infrastructure Upgrades 5	$ 5,000,000	Replace underground utilities including steam, chilled water, domestic water, sanitary and storm sewer, telecom, ITS, gas and electric.
2027-28	2		Campus-wide Building Envelope Repairs	$ 3,000,000	repair/replacement of building envelope components. Exterior repairs will include stairs, handrails, railings, seating, doors, windows, columns and all other exterior building components.

Agenda Item Summary

7.1

Date: October 6, 2022

Agenda Item: Disclosed Project

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTER: Claire Stinson, Vice President for Planning & Finance

PURPOSE & KEY POINTS: Review and approval of 3rd quarter FY2022-23 Capital Budget Disclosed project.

3.1 DB70

1 Department: Tennessee Higher Education Commission
Institution: TTU
Project: Football Operations Center
City/County: Cookeville/Putnam

2 Fiscal Year: 2022-2023 **Priority** 999

3

		New		Reno/Maint
	Capital Outlay			
	Capital Maintenance	0	Gross Sq.Ft.	0
X	Disclosure	0	Net Sq.Ft.	0
X	Designer Required	0.00	Cost/Sq.Ft.	0.00

4 Project Description:
Construct a Football Operations Center.

Proj. Typ: Improvement
If new const., is it in the Master Plan: Yes
Will the project add to E&G area?: Yes

5

Total Project	This Request				
		Estimated Building Construction Cost:			0
10,400,000	10,400,000	Building Construction			
1,000,000	1,000,000	Site & Utilities			
0	0	Built-in Equipment			
11,400,000	11,400,000	**Bid Target**			
570,000	570,000	Contingency:	5.00	5.00	percent
11,970,000	11,970,000	**MACC** (Maximum Allowable Construction Cost)			
706,719	706,719	Fee:	5.90408977		New
1,500,000	1,500,000	Movable Equipment			
350,000	350,000	first other *ction Service and Commissioning*			
50,000	50,000	second other *Consultants*			
423,281	423,281	Administration & Miscellaneous			
15,000,000	15,000,000	**Total Cost**			

6 Funding Request:

THIS REQUEST		
0	0	STATE funds
0	0	FEDERAL funds
15,000,000	15,000,000	Local and Institutional Funds — Gifts

7 Previous SBC Approved Funding:

	fund year	description
already approved for existing SBC project	0	
0	0	
plus This Request	0	
15,000,000	0	

8 SBC Action: If an existing project, SBC Project No.: NA

Action Date	SBC Action

9 Designer: Unassigned

Excerpt from Master Plan

DISCLOSURE PROJECTS

The remainder of the lower area (southern portion) is proposed to be supplemental student parking with shuttle service. The chiller plant is the only building that is proposed to remain at the existing Facilities Complex.

B. Athletics Projects

The Athletics Department's projects and priorities are outlined in the Athletics Master Plan. The major imminent projects include:

B1. Football Operations Building
B2. West Stadium Replacement
B3. Baseball | Softball Complex

C. Parking Garages

Parking garages are proposed to add on-campus parking density for those who would like to park closer to the campus activities. The order of implementing the garages is subject to change.

C1. Wings Up Way Garage - The first garage is proposed to be located just north of Ray Morris Hall on Wings Up Way. The garage will serve the southern portion of the campus including the Marc L. Burnett Student Recreation and Fitness Center and the Capital Quad residence halls. Due to its location, the garage should be considered for housing the future chiller plant expansion to minimize the upgrades needed in the campus chilled water piping system.
NOTE: This Garage is part of the currently ongoing Disclosed Campus Improvements Project

C2. Peachtree Garage - A second garage is proposed just west of the proposed Academic Classroom Building. The garage will be two levels and will be integrated into the hillside with the first level at the Peachtree Avenue level and the upper level at existing parking level. The garage will provide parking for students as well as faculty and staff. The Peachtree Garage will also provide a replacement for the parking eliminated to create the Peachtree Mall green space in the core of the campus.

C3. Library Garage - A third parking garage is proposed at the west side of the Library site. The garage will serve faculty and commuting students as well as athletic events. This garage is also proposed to include an Admissions Center with dedicated visitor parking at the southern end to provide a convenient location at the entry to the campus for prospective students and their families to begin their visit to the campus. The garage is also a potential site for a remote chiller plant.

D. Food Service Improvements

The food services project(s) represent ongoing projects related to providing continually improving food service for the University.

E. Innovation Housing- Phase II

The Innovation Housing is proposed to be a two-building residential complex with a separate Innovation Center. The buildings are proposed to be organized about the centerline from the engineering quad through the center of the new engineering building. Phase II will include the southern residential hall.

F. Sorority Row

The sorority row is envisioned as an eight-building grouping of houses. The row is envisioned to be designed as a cohesive neighborhood grouping to provide a central outdoor commons space. While serving as the combining element of the community, the commons will provide space for group functions such as sorority rush events. Each house is envisioned to serve 30-32 women. Currently, there are five sororities on campus as well as other women's organizations.

G. Roaden University Center Expansion

The Roaden University Center Expansion is envisioned to serve a variety of programmatic needs. The expansion should also provide a visual element to serve as the northern end to the Peachtree Quadrangle. The expansion should also consider the renovation needs within the existing facility as well as maintain the delivery access for the kitchen on the north-west side of the lower level.

H. Parking & Transportation Improvements - Phase II

Road Improvement projects are envisioned to extend the current work throughout the campus. The initial work could include the roads surrounding the new Ashraf Islam Engineering Building and the J.J. Oakley Innovation Center and Residence Hall.

I. University Tower

The university tower is envisioned as an iconic element within the Peachtree Quadrangle. The classic Georgian features of the tower should reflect the campus architecture and provide a vertical element on the axial center of University Drive and the Peachtree Promenade. The tower could incorporate a clock, a bell or carillon, or simply exist as a vertical feature.

J. Art Trail

The art trail is envisioned as a series of art elements throughout the campus. Several concepts are presented later in the master plan which form a walking "trail" through the campus. The integration of art throughout the campus, however, should not be limited to the proposed locations.

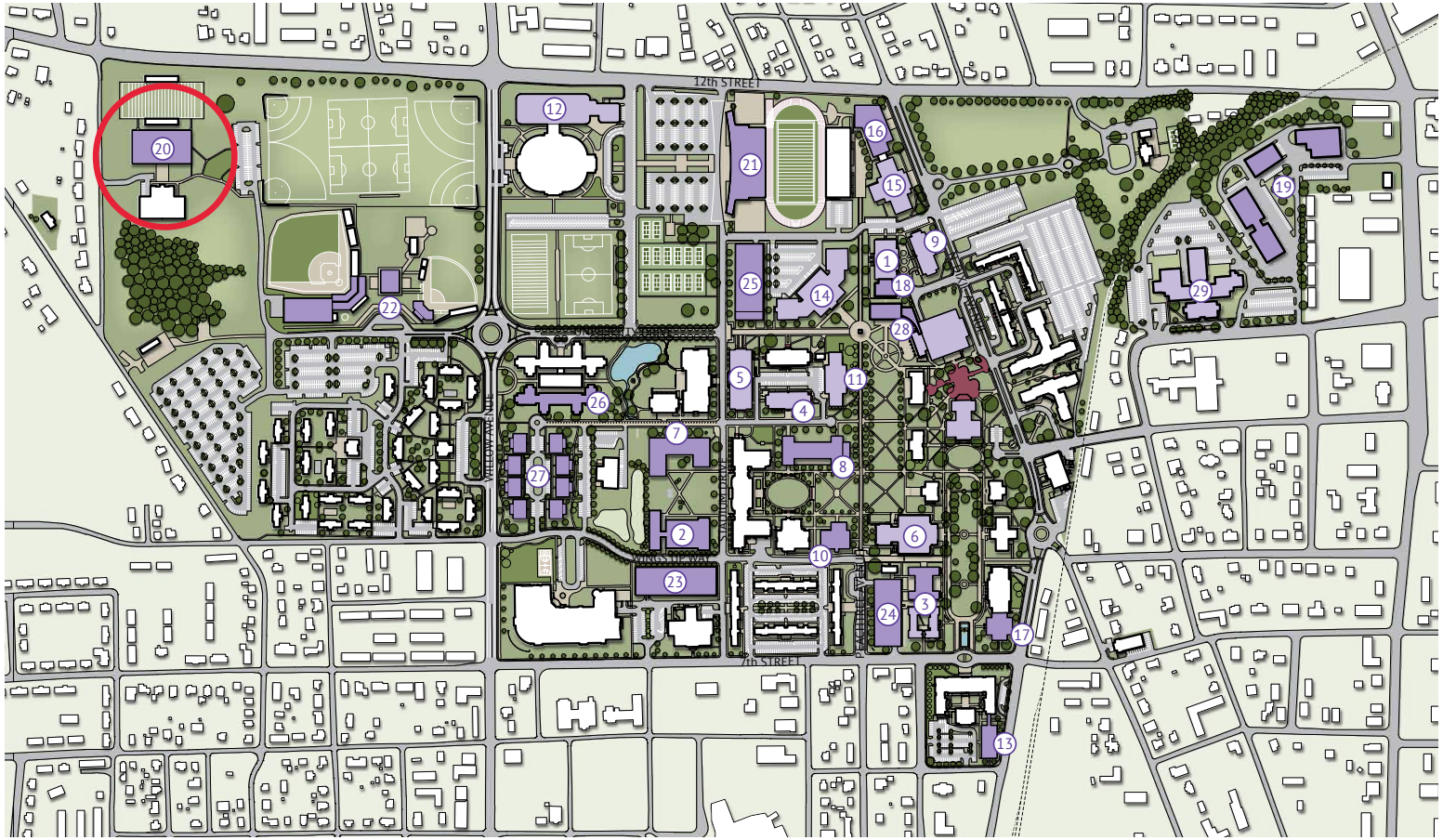
K. Peachtree Quadrangle

The Peachtree Quadrangle is envisioned as the third major quadrangle on the campus. The Quadrangle will interconnect with the other Quads to provide linked greenspace throughout the core of the campus.

L. Foundation Hall Demolition(s)

Foundation Hall provides a valuable resource for the University as a swing building for campus renovations as well as for permanent campus support space. The building, however, does have portions that are underutilized, in need of renovation, or detached from the remainder of the building. Therefore, portions could be considered for demolition.

7.2



LEGEND

1 JOHNSON HALL RENOVATION
2 NEW ENGINEERING BUILDING #1
3 ACADEMIC CLASSROOM BLDG/ CRAWFORD RENOVATION
4 BROWN HALL RENOVATION
5 PRESCOTT HALL RENOVATION
6 MEMORIAL GYM RENOVATION
7 NEW ENGINEERING BUILDING #2
8 BIOLOGY BUILDING
9 PENNEBAKER HALL RENOVATION
10 PHYSICS BUILDING
11 CLEMENT HALL RENOVATION
12 ACADEMIC WELLNESS CENTER RENOVATION
13 BELL HALL EXPANSION
14 VOLPE LIBRARY RENOVATION
15 BRYAN FINE ARTS RENOVATION
16 BRYAN FINE ARTS ADDITION
17 OAKLEY HALL EXPANSION
18 JOHNSON HALL EXPANSION
19 FACILITIES SERVICES COMPLEX
20 FOOTBALL OPERATIONS BLDG
21 WEST STADIUM REPLACEMENT
22 BASEBALL/SOFTBALL COMPLEX
23 WINGS UP WAY GARAGE
24 PEACHTREE GARAGE
25 LIBRARY GARAGE
26 INNOVATION HOUSING - PHASE II
27 SORORITY ROW
28 ROADEN UNIVERSITY CENTER RENOVATION / ADDITION
29 FOUNDATION HALL RENOVATION

LEGEND

NEW BUILDING
RENOVATED BUILDING

Figure 3.28 12,000 Student Campus Master Plan

12,000 STUDENT CAMPUS MASTER PLAN

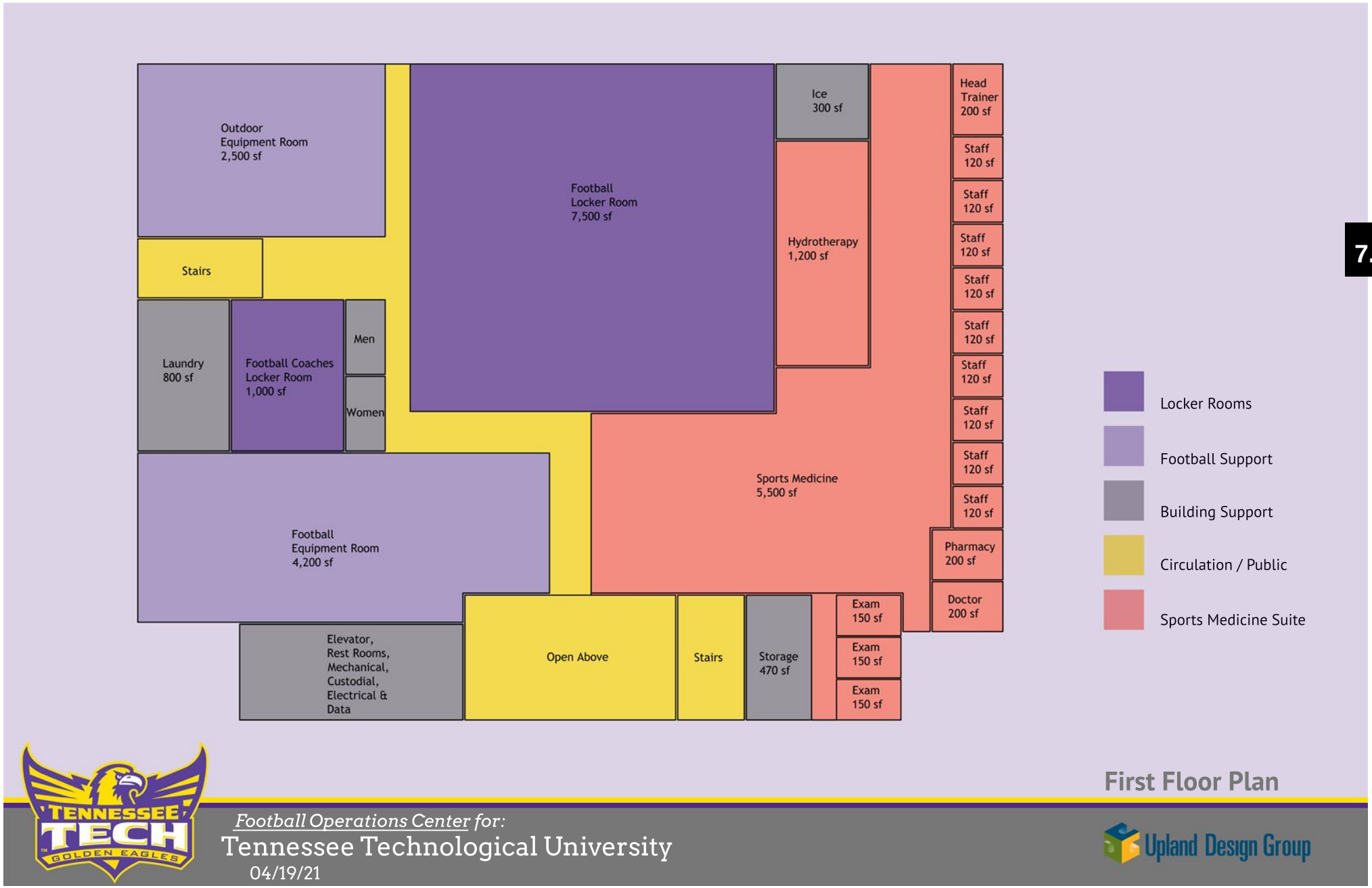
Isometric View

Football Operations Center for:

Tennessee Technological University

04/19/21

Upland Design Group



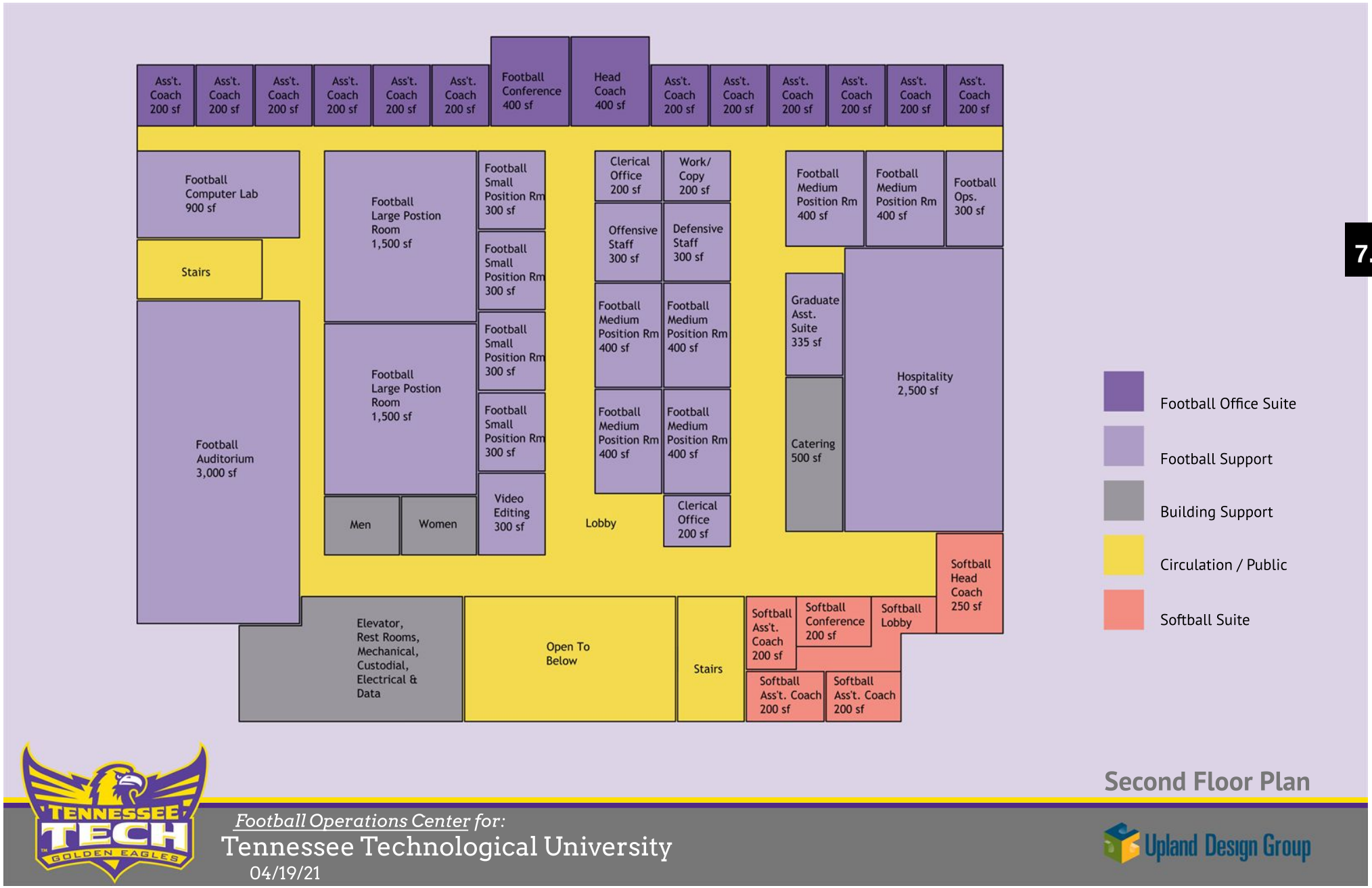
First Floor Plan

Football Operations Center for:

Tennessee Technological University

04/19/21

Upland Design Group



Second Floor Plan

Football Operations Center for:

Tennessee Technological University

04/19/21

Upland Design Group


7.2
Northeast Corner
Football Operations Center for:
Tennessee Technological University
04/19/21
Upland Design Group

7.2


Northwest Corner
Football Operations Center for:
Tennessee Technological University
04/19/21
Upland Design Group


Southeast Corner
Football Operations Center for:
Tennessee Technological University
04/19/21
Upland Design Group


Southwest Corner
Football Operations Center for:
Tennessee Technological University
04/19/21
Upland Design Group

Agenda Item Summary

8.1

Date: October 6, 2022

Agenda Item: TTU Policy 511.1 (Fees, Charges, Refunds and Adjustments)

☐ **Review** ☒ **Action** ☐ **No action required**

PRESENTER: Claire Stinson, Vice President for Planning & Finance

PURPOSE & KEY POINTS: Revision to policy to include residency classifying of military-affiliated students and resulting fee assessment pursuant to new state law T.C.A. § 49-7-1303.

Tennessee Technological University
Policy No. 511.1

8.2

Fees, Charges, Refunds, and Adjustments

Effective Date: July 1, 2017

Policy No: 511.1
Policy Name: Fees, Charges, Refunds, and Adjustments
Revised Date: July 1, 2020, April 8, 2022

I. Purpose

The purpose of the following guideline is to outline significant provisions for consistent administration of fees, charges, and refunds at Tennessee Tech. These policies largely represent a consolidation of existing statements and practices. They are intended to serve as a reference document for institutional staff responsible for implementing and communicating fee-related matters. The policy contents include general and specific provisions for: Maintenance Fees, out-of-state tuition, debt service fees, student activity, miscellaneous and incidental fees, deposits, residence hall fees, and refunds.

II. Review

This policy will be reviewed every four years or whenever circumstances require review, whichever is earlier, by the Director of Financial Services in consultation with the Associate Vice President for Business and Fiscal Affairs and the Vice President for Planning and Finance, with recommendations for revision presented to the Administrative Council, University Assembly, and the Board of Trustees.

III. Definitions

A. Maintenance Fees: a charge to students enrolled in credit courses calculated based on the number of student credit hours, also known as in-state tuition

B. Mandatory Fees: fees consistently applied to all students regardless of major or class selection

C. Withdrawal: the formal process whereby a student informs Tennessee Tech of the decision to cease attendance in all classes for the term

D. LGIs: Locally Governed Institutions is the term used to refer to the six universities previously under the Tennessee Board of Regents that now have local governing boards after passage of the FOCUS Act including Austin Peay State University, East Tennessee State University, Middle Tennessee State University, Tennessee State University, University of Memphis, and Tennessee Tech

E. Save Your Seat: the program whereby students who have not sufficiently paid their fees can retain their schedule by acknowledging during pre-registration that they will attend the current semester

F. Domestic Student: any non-resident student as defined by Tennessee Tech Policy 253, Residency Classification, who is a United States citizen

G. International Student: any non-resident student as defined by Tennessee Tech Policy 253, Residency Classification, who is not a United States citizen

H. Military-affiliated: active-duty military personnel, reservists, members of the national guard, and reserve officer training corps program cadets.

IV. Policy/Procedure

A. Establishment of fees and charges

1. The Tennessee Tech Board of Trustees must approve all institutional fees and charges unless specific exceptions are provided.

2. The Tennessee Higher Education Commission (THEC) Pursuant to T.C.A § 49-7-202(n) provides binding Maintenance Fee ranges for Tennessee Tech each year during the budgeting process. The binding ranges apply to resident, undergraduate students on the Maintenance Fee rate, as well as the sum total maintenance and Mandatory Fee changes. Rates locally approved must abide by these ranges. THEC will not issue binding recommendations on graduate, out-of-state tuition, or other fee rates.

3. The Tennessee Tech President is responsible for the enforcement and collection of all fees and charges. Fees and charges that specifically do not require Board of Trustee approval must receive formal approval by the President or his/her designee.

4. Tennessee Tech will attempt to follow a general format in publishing information on fees and charges, including, but not limited to, the following:

a. All statements which include the fee amount should be complete and specific enough to prevent misunderstanding by readers.

b. When a fee is quoted, the refund procedures should be clearly stated including all qualifying conditions. If there is no refund, it should be labeled as non-refundable.

c. Whenever possible, specific dates related to the payment of fees and refund procedures should be stated.

d. It should be made clear that all fees are subject to change at any time.

B. Approval of exceptions

1. In accordance with these guidelines, the President or his/her designee has the authority to determine the applicability of certain fees, fines, charges, and refunds and to approve exceptions in instances of unusual circumstances or for special groups.

2. All such actions should be properly documented for auditing purposes.

C. Appeals process

1. The appeals process is detailed in TTU Policy 511.2 (Student Fee Adjustments, Refunds, and Appeals).

2. Separate appeals processes may exist for different types of fees, charges, and refunds.

3. The final appeal may be directed to the Vice President for Planning and Finance.

D. Payment of student fees

1. As provided in the TTU Policy 511 (Payment of Student Fees and Enrollment):

a. An applicant for admission to Tennessee Tech is considered and counted as a student when all assessed fees have been paid, when the initial minimum payment due under the deferred payment plan has been paid, or when an acceptable commitment from an agency or organization approved by Tennessee Tech has been received.

b. An applicant shall possess an acceptable commitment when he/she has submitted a timely application(s) for financial aid with the reasonable probability of receiving such.

2. Pursuant to the above conditions, students who do not (1) prepay all fees, (2) have an approved financial aid deferment, or (3) participate in Save Your Seat will forfeit pre-registration privileges and have their schedule deleted prior to the start of classes for the semester. Students may then re-enroll under the normal registration process.

E. Maintenance Fees

1. Fees are established by the Tennessee Tech Board of Trustees.

2. The same fee is applicable to courses for which the student is enrolled on an audit basis.

3. Rates are established by the Tennessee Tech Board of Trustees and incorporated in a fee schedule by student level (undergraduate and graduate).

a. Undergraduate Students

1) Undergraduate students admitted to Tennessee Tech fall 2020 forward will be assessed an hourly rate for hours 1-11 or charged a flat rate once enrolled in at least 12 hours unless stated otherwise elsewhere in this policy

2) Undergraduate students admitted to Tennessee Tech prior to fall 2020 will be assessed an hourly rate for hours 1-12. The hourly rate will be discounted when undergraduate students enroll in more than 12 hours unless stated elsewhere in this policy.

b. Graduate Students

1) The hourly rate will be discounted when graduate students enroll in more than 10 hours unless stated otherwise elsewhere in this policy.

4. For summer sessions, Maintenance Fees and tuition are assessed using the current hourly rate for both undergraduate and graduate students with no maximum amount for total credit hours enrolled.

5. Maintenance Fees may not be waived; however, specific exceptions are provided in the following instances:

a. Pursuant to T.C.A. § 49-7-113, exceptions exist for certain disabled and elderly students, as well as state service retirees.

1) For audit courses, no fee is required for persons with a permanent, total disability, persons 60 years of age or older and domiciled in Tennessee, and persons who have retired from state service with 30 or more years of service, regardless of age.

2) For credit, a fee of $70 per semester may be charged to persons with a permanent, total disability, and persons who will become 65 years of age or older during the academic semester in which they begin classes and who are domiciled in Tennessee. This fee includes all Mandatory Fees; it does not include course-specific fees such as all miscellaneous course fees, materials fees, application fee, online course fees, and parking fees. This only applies to enrollment on a space available basis, which permits registration no earlier than four (4) weeks prior to the first day of classes.

b. Pursuant to T.C.A. § 49-7-102, certain statutory fee exceptions exist for dependents and spouses of military personnel killed, missing in action, or officially declared a prisoner of war while serving honorably as a member of the armed forces during a period of armed conflict. If a student invokes these provisions, the correct applicable law should be determined by the

Business Office and Military and Veteran Affairs.

c. Military reserve and national guard personnel who are mobilized to active military service within six months of attendance at Tennessee Tech and whose mobilization lasts more than six months shall be charged upon re-enrollment at such institution the tuition, Maintenance Fees, student activity fees, and required registration or matriculation fees that were in effect when such student was enrolled prior to mobilization.

1) After re-enrollment, no increase in tuition, Maintenance Fees, student activity fees, or required registration or matriculation fees shall be assessed to such student until a period of time equal to one year plus the combined length of all military mobilizations has elapsed.

2) In no event, however, shall a student's tuition and fees be frozen after re-enrollment for more than four years.

3) To be eligible for the tuition and fee freeze, the student shall have completed military service under honorable conditions and shall re-enroll at Tennessee Tech within six months of release from active duty.

4) A student eligible for the tuition and fee freeze may transfer from one state institution of higher education to another state institution of higher education one time with such student's tuition and fees calculated at the institution to which the student transfers as if the student had been in attendance at that institution before the mobilization that resulted in the student's tuition and fee freeze at the initial institution.

d. Pursuant to T.C. A§ 49-7-1303 and 49-7-1304 Tennessee Tech University may classify a veteran or military-affiliated individual as a Tennessee resident who is not required to pay out-of-state tuition or an out-of-state fee if the veteran or military-affiliated individual is:
1) Enrolled at Tennessee Tech University
2) Resides outside the state of Tennessee

F. Accounting treatment and relations to other state schools

1. A revenue account for Maintenance Fees is used to record both the revenue assessed and refunds made.

2. As provided in the Governmental Accounting Standards Board (GASB) Statements 34 and 35, summer school revenues and expenditures must be accrued at fiscal year-end. Summer school activity will not be allocated to only one fiscal year.

3. In some cases, full fees are not assessed to students. These occur when statutes establish separate rates for such groups as the disabled, elderly, and military dependents. The difference between normal fees and special fees is not assessed. Fees not assessed in these cases do not represent revenue.

4. Agreements/contracts may be executed with a third party (federal agency, corporation, institution, etc.), but not with the individual student, to deliver routine courses at a fixed rate or for the actual cost of delivering the course and may provide for fees not to be charged to individual students. Individual student fees will be assessed as usual and charged to the functional category Scholarships and Fellowships. The amount charged to or paid by the third party is credited to the appropriate Grants and Contracts revenue account.

5. In some cases, a non-credit course provides an option to grant regular credit. If a separate or additional fee is collected because of the credit, that amount is reported as Maintenance Fee revenue.

6. Full-time employees of the Tennessee Board of Regents (TBR), the University of Tennessee systems (UT), and LGIs may enroll in one course per term at any public postsecondary institution, with fees waived for the employee.

7. No tuition-paying student shall be denied enrollment in a course because of enrollment of TBR, UT, and LGI employees.

8. Spouses and dependents of employees of the TBR system and other LGIs may be eligible for a student fee discount for undergraduate courses at TBR institutions, the University of Tennessee, and other LGIs.

9. Tennessee Board of Regents institutions and the LGIs may exchange funds for tuition fees of employees' spouses and dependents who participate in a TBR and LGIs' educational assistance programs.

10. To the extent they are not reimbursed by the State, fee waivers for full-time State employees and fee discounts to children of certified public school teachers shall be accounted for as a scholarship.

G. Out-of-state tuition is an additional fee charged to students classified as non-residents as defined by Tennessee Tech Policy 253, Residency Classification, who are enrolled for credit courses, including audit courses. This fee is in addition to the Maintenance Fee.

1. Out-of-state tuition fee rates are established by the Tennessee Tech Board of Trustees and are incorporated in the annual fee schedule by student level

a. A separate hourly rate and/or flat rate for out-of-state tuition will be set for undergraduate and graduate students.

b. Domestic Students

1) Undergraduate students will be assessed an hourly rate for hours 1-11 or charged a flat rate once enrolled in at least 12 hours.

2) Graduate students will be assessed an hourly rate for hours 1-9 or charged a flat rate once enrolled in at least 10 hours

c. International Students

1) The hourly rate will be discounted when undergraduate students enroll in more than 12 hours.

2) The hourly rate will be discounted when graduate students enroll in more than 10 hours.

3) For summer sessions, out-of-state tuition fees are assessed using the current hourly rate with no maximum amount for total credit hours enrolled.

2. Applicability of out-of-state tuition is determined pursuant to Tennessee Tech Policy 253, Residency Classification, governing a student's in-state and out-of-state classification for admission purposes. The business office will collect fees based upon student classification as determined by the appropriate authority within the institution.

3. Accounting treatment

a. A revenue account for out-of-state tuition is used for recording both credits for fees and debits for refunds.

b. Other accounting is the same for out-of-state tuition as that outlined under Maintenance Fees except that separate out-of-state accounts are used.

c. In the case of fees not collected from students under grants and contracts, the same expense account under Scholarships and Fellowships may be used.

H. Program Service Fee

1. Debt service fees

a. The amount of debt service fees will be approved by the Tennessee Tech Board of Trustees.

b. For simplicity of administration and communication, Tennessee Tech may combine debt service with Mandatory Fees in quoting fee rates, in fee billings and charges, and in making refunds.

c. Revenue from debt service fees will be recorded in the unrestricted current fund and then transferred to the retirement of indebtedness fund as either a mandatory transfer or a non-mandatory transfer. The portion of debt service fee revenue used for current-year debt service will be reported as a mandatory transfer. Any additional debt service fee revenue will be transferred to the retirement of indebtedness fund as a non-mandatory transfer.

d. At the conclusion of the debt retirement for a given project, the debt service fee attributed to the project will cease. Any new project requires the approval of a new debt service fee on its own merits without the reallocation of any existing fee. Any continuation of fees necessary for renewal and replacement of a project for which the debt is totally retired must be approved for that purpose by the Tennessee Tech Board of Trustees.

2. Student Activity Fees

a. A student government activity fee may be established pursuant to T.C.A. § 49-8-109. Any increase in this fee shall be subject to a referendum for student body approval or rejection. These fees will be restricted current funds additions. These fees are refundable on the same basis as Maintenance Fees or as established by Tennessee Tech Board of Trustees.
b. Student activity fees (other than student government activity fees) will be approved by the Tennessee Tech Board of Trustees. Such fees may be recommended based on services to be provided which are related to the activity fee. These fees will be unrestricted current funds revenues. These fees are refundable on the same basis as Maintenance Fees or as established by the Tennessee Tech Board of Trustees.

3. Technology Access Fees (TAF)

a. A fee shall be levied by Tennessee Tech for the purpose of providing student access to computing and similar technologies.

b. TAF is refundable on the same basis as Maintenance Fees.

c. Tennessee Tech shall establish expenditure accounts and designated revenue accounts for purposes of recording technology access fees and expenditures.

d. The TAF should be used by Tennessee Tech for direct student benefit, for items such as new and improved high technology laboratories and classrooms, appropriate network and software, computer and other equipment, and technological improvements that enhance instruction. Examples of TAF use include the following items:

1) Computers and other technical laboratory supplies, equipment, and software and maintenance.

2) Network costs (WWW internet, interactive video, etc.)

3) "Smart" or multimedia classroom equipment and classroom modifications.

4) Lab and course staffing - student and staff assistance for lab and classroom uses.

5) Renewal and replacement reserves as necessary.

6) New machines for faculty use when faculty are actively engaged in developing and conducting on-line courses.

7) Faculty and staff development directly related to the introduction or application of new technology that impacts students. These guidelines should have the flexibility to place instructional technology in a faculty lab where course materials are being prepared. For example, TAF funds can be used to create faculty labs to include the purchase of computers and to conduct faculty training and course development. (Travel costs for faculty and staff are excluded; however, consultants may be hired as needed for training.)

8) Infrastructure (wiring, network, servers, etc.) necessary to provide students maximum computing capability. A ceiling is established of 50% of the total project costs from which TAF can be used.

9) Expand technology resources in library, i.e., video piped anywhere on campus, interactive video room for distance education, network for web video courses.

4. Facilities Fee

This fee will be used to improve facilities and fund expenditures such as replacing carpets in student lounges, remodeling classrooms, etc. The fee will not be used for routine maintenance, but will be used to make improvements to areas that have an impact on students. The intended projects will be disclosed during the normal budget cycles. The fee is refundable on the same basis as Maintenance Fees.

I. Specialized academic fees

1. Certain academic programs require expensive maintenance/updating of equipment and software and the employment of highly qualified staff. The high costs of instruction for these programs can be offset by establishing specialized academic fees, with the Tennessee Tech Board of Trustees approval.

2. To receive approval for a specialized academic fee, a program will be required to meet criteria a., High Cost of Instruction, as defined below. Additionally, the program should document meeting criteria b - g., as applicable.

a. High Cost of Instruction. Programs qualifying for charging specialized academic fees must demonstrate that they are more costly than other programs offered by Tennessee Tech. If appropriate, the extraordinary cost of the program must be validated including benchmarking with similar programs in the region and nation.

b. High Demand. The number of students enrolled in the program and the student credit hours generated are sufficient to justify additional fees.

c. High Cost of Updating/Maintaining Equipment and Software. Programs qualifying for charging specialized academic fees are expected to be those that require extensive maintenance and regular updating of equipment and/or software. An average hardware/software cost per student credit hour serves as the basis for determining the amount of the fee.

d. Accreditation. Meeting standards of specific accrediting agencies may also qualify a specialized program for charging specialized academic fees. The accrediting standards that justify a fee are those that specify the possession and use of certain equipment and unique software that are extraordinarily costly and/or the employment of faculty with specific credentials that demand high salaries.

e. High Recognition and Quality. The programs approved for specialized academic fees are expected to be distinctive and with a regional or

national reputation. The program must demonstrate that it has achieved exceptional recognition in its particular enterprise.

f. High Value to Tennessee. The program must demonstrate that it is a good investment for the State of Tennessee to justify charging extra fees to the student. The graduates' earning potential and the associated benefit to the state economy should be projected, as well as the efforts taken by the institution to aid graduates in finding appropriate employment in Tennessee.

g. Impact on Affected Students. Through surveys, questionnaires, or other suitable means, the program must demonstrate that the charging of additional fees will not diminish enrollment. The program should demonstrate that enrolled students realize that the potential earning power in the work force justifies their additional investment.

3. Tennessee Tech's Colleges and Schools must submit documentation of the above applicable criteria when requesting approval of a specialized academic fee. Specialized academic course fee revenues are limited to funding related costs accumulated in the instruction function.

J. All miscellaneous fees must be approved by the Tennessee Tech Board of Trustees. Fees for courses requiring special off-campus facilities or services do not require Board approval but should reflect the cost of the facilities or services.

K. Incidental fees and charges are subject to approval by the Tennessee Tech Board of Trustees including:

1. Application fees: undergraduate $25.00, graduate $30.00, international $40.00.

2. Returned check fees: Tennessee Tech will charge a nonrefundable returned check fee that is the maximum set by state law. This fee will apply to all returned checks received by the institution, whether from students, faculty, staff, or other parties. The university will review state statutes each spring to determine any changes.

3. Parking: A nonrefundable fee may be levied per academic year, per fiscal year and/or per academic term for motor vehicle registration, and such fee shall be applicable to each student, faculty and staff member.

4. Traffic fines: These nonrefundable fines apply to all employees and students.

5. Applied music fees: These fees are charged for private music lessons or small group training sessions and are refundable on the same basis as Maintenance Fees.

6. Late registration fee: Up to $100 will be charged during the entire period of late registration.

L. The following fees and charges may be approved by the Vice President for Planning & Finance and the President and established and administered by Tennessee Tech. No specific approval or notification to the Tennessee Tech Board of Trustees will be required unless subject to other Board or State requirements.

1. Sales of goods and services of a commercial nature, including bookstores, food services, vending, laundry, and similar activities.

2. Rental of non-student housing and facilities.

3. Admissions fees to athletic and other events open to the public, including special events sponsored by campus organizations and activities.

4. Sales and services of educational activities such as clinical services, publications, etc.

5. Registration for conferences, institutes, and non-credit activities.

6. Fees for use of campus facilities for recreational purposes.

7. Parking permits and parking meters for use by guests and visitors.

8. Nonrefundable library fines, which will apply to students, faculty, staff, and other library users.

9. Nonrefundable thesis and dissertation fees determined based upon cost to the institution.

10. Child care fees for kindergarten, preschool, early childhood, day care, or similarly defined activities. The refund policy will be established by Tennessee Tech.

11. Nonrefundable special exam fee determined based upon cost to Tennessee Tech.

12. Nonrefundable standardized test fees determined based upon the cost for administering the tests.

13. Nonrefundable identification card replacement. There will be no charge for the original identification card. A fee may be set by Tennessee Tech to offset

the cost of replacing the card. This fee applies only to student ID cards and not to faculty and staff ID's.

14. Replacement of damaged or lost Tennessee Tech property and equipment. Fee must be based on reasonable cost to replace.

M. Deposits

1. Breakage deposits may be recommended by Tennessee Tech for Board approval for courses in which it can be shown that there is a reasonable chance of loss or damage to items issued to students. The amount of the deposit should be related to the materials issued and subject to a 100% refund.

2. A deposit may be established by Tennessee Tech for rent or lease of buildings and facilities or for the issuance of other institutional property or equipment. Deposits should be subject to a 100% refund if no damage or loss occurs. The amount of such deposits should be related to the value of the facilities or equipment subject to loss and the general ability of the institution to secure reimbursement should loss or damage occur.

3. Tennessee Tech is authorized to require a security deposit for residence hall facilities which may be forfeited by the student for failure to enter into a residence agreement or non-compliance with applicable agreement terms.

N. Student residence hall and apartments

1. All regular and special rental rates for student dormitories and student apartments will be approved by the Tennessee Tech Board of Trustees upon the recommendation by the President. Special rates for non-student groups during summer periods may be approved by the Vice President for Planning and Finance and the President.

2. Rental for student dormitory or residence hall units shall be payable in full in advance of the beginning of a term. However, Tennessee Tech shall offer an optional payment plan under which a prorated amount of the rental shall be payable monthly in advance during the term. A monthly service charge and a late payment charge may be assessed. Residence Hall students can participate in the deferred payment plan (TTU Policy 511.3 Deferred Payment Plan).

O. Tennessee Tech may submit for Board of Trustee approval of fees and charges not specifically covered by this policy.

P. Fees may be established to control the utilization of facilities and services or to offset the cost of extraordinary requirements as a result of specific programs or activities.

Q. When fees and charges are incorporated in agreements with outside contractors and vendors, specific rates, refunds, and conditions must be clearly stated.

R. Fees for auxiliary services must take into consideration that Auxiliary Enterprises should be at least a break-even operation with rates and charges generating revenue sufficient to cover all expenses as defined in operating budget guidelines.

S. Fees established for non-credit courses and activities shall be sufficient to cover the total costs incurred in providing the program, including any indirect costs, plus a minimum of 25% of the annual instructional salary costs including contractual salary costs or personal services contracts.

T. Students enrolled for six or more hours are eligible for full-time privileges, i.e., access to social, athletic, and cultural functions, pursuant to T.C.A. § 49-8-109.

U. Refunds and fee adjustments

1. Adjustments to all fees and charges must be in accordance with the following provisions except as previously stated, or when required by federal law or regulation to be otherwise.

2. Pursuant to T.C.A. §§ 49-7-2301 and 49-7-2302, students called to active military or National Guard service during the semester are entitled to a 100% adjustment or credit of Mandatory Fees. Housing and meal ticket charges may be prorated based on usage.

3. Maintenance Fee refunds and adjustments

a. Refunds are 100% for courses canceled by Tennessee Tech.

b. Changes in courses involving the adding and dropping of equal numbers of SCH's for the same term at the same time require no refund or assessment of additional Maintenance Fees, unless the dropping and adding involves TN eCampus courses.

c. The fee adjustment for Withdrawals or drops during regular terms (fall and spring) is 75% from the first day of classes through the fourteenth calendar day of classes and then reduced to 25% for a period of time which extends 25% of the length of the term. When the first day of the academic term falls on a Saturday, the 100% refund period is extended through the weekend until the following Monday morning (12:01 am). There is no fee adjustment after the 25% period ends. Dropping or withdrawing from classes during either the 75% or the 25% fee

adjustment period will result in a fee adjustment of assessed Maintenance Fees based on the total credit hours of the final student enrollment.

d. For summer sessions and other short terms, the 75% fee adjustment period and the 25% fee adjustment period will extend a length of time which is the same proportion of the term as the 75% and 25% periods are of the regular terms.

e. All fee adjustment periods will be rounded to whole days and the date on which each fee adjustment period ends will be included in publications. In calculating the 75% period for other than the fall and spring and in calculating the 25% length of term in all cases, the number of calendar days during the term will be considered. When the calculation produces a fractional day, rounding will be up or down to the nearest whole day.

f. A full refund (100%) is provided on behalf of a student whose death occurs during the term. Any indebtedness should be offset against the refund.

g. A 100% refund will be provided for students who enroll under an advance registration system but who drop a course or courses prior to the beginning of the first day of class.

h. A 100% refund will be provided to students who are compelled by Tennessee Tech to withdraw when it is determined that through Tennessee Tech error they were academically ineligible for enrollment or were not properly admitted to enroll for the course(s) being dropped. An appropriate official must certify in writing that this provision is applicable in each case.

i. When courses are included in a regular term's registration process for administrative convenience, but the course does not begin until later in the term, the 75%/25% fee adjustment periods will be based on the particular course's beginning and ending dates. This provision does not apply to classes during the fall or spring terms which may meet only once per week. Those courses will follow the same refund dates as other regular courses for the term.

j. The fee adjustment is calculated as the difference between (1) the per credit hour cost of originally enrolled hours and (2) the per credit hour cost of the courses at final enrollment after adjustments have been applied for all courses dropped. Adjustments are calculated at the full per credit hour rate less the fee adjustment credit at the applicable fee adjustment percentage (regardless of the original number of hours enrolled). Not all drops/Withdrawals will result in fee adjustments.

4. The fee adjustment provision for out-of-state tuition is the same as that for Maintenance Fees. The 75% fee adjustment period and the 25% fee adjustment period will follow the same dates as the fee adjustment periods for Maintenance Fees. When 100% of Maintenance Fees are refunded, 100% of out-of-state tuition also is refunded. Calculation procedures are the same as those specified for Maintenance Fees.

5. Program Service Fee will be subject to the same refund policy as Maintenance Fees.

6. Refund of residence hall rent after registration will be prorated on a weekly calendar basis when the student is forced to withdraw from the residence hall:

a. Because of personal medical reasons confirmed in writing by a licensed physician, or

b. Full refund will be made in the case of the death of the student.

c. Withdrawals for other reasons will be subject to the same 75%/25% amounts and time periods as Maintenance Fees.

d. No refund will be made other than under the above conditions.

7. Residence hall reservations and any deposits will be refunded in full if:

a. Tennessee Tech is notified by a specific date which it establishes, but which may not be later than fourteen (14) calendar days prior to the first official day of registration,

b. The student is prevented from entering Tennessee Tech because of medical reasons confirmed in writing by a licensed physician, or

c. Residence hall space is not available.

d. Full refund will be made in the case of the death of the student.

8. The Tennessee Tech meal plan refund policy is described in Policy 511.2 (Student Fee Adjustments, Refunds, and Appeals).

V. Interpretation

The Vice President for Planning and Finance or his/her designee has the final authority to interpret the terms of this policy.

VI. Citation for Authority for Policy

T.C.A. § 49-8-113; T.C.A. § 49-8-201(f)(8)(C); TBR Guideline B-060; TBR Rule 0240-1-2.01 et seq.; T.C.A § 49-7-2301; T.C.A § 49-7-2302; T.C.A §49-7-1303; T.C.A. § 49-7-1304

Approved by:

Administrative Council: February 22, 2017

University Assembly: April 19, 2017

Board of Trustees: March 23, 2017; September 29, 2020

President on September 3, 2020 and September 21,2020, pursuant to Policy 101, Section VII.A.

Received by:

Administrative Council: September 30, 2020

University Assembly: November 18, 2020

Tennessee Technological University
Policy No. 511.1

Fees, Charges, Refunds, and Adjustments

Effective Date: July 1, 2017

Policy No: 511.1
Policy Name: Fees, Charges, Refunds, and Adjustments
Revised Date: July 1, 2020, April 8, 2022

I. Purpose

The purpose of the following guideline is to outline significant provisions for consistent administration of fees, charges, and refunds at Tennessee Tech. These policies largely represent a consolidation of existing statements and practices. They are intended to serve as a reference document for institutional staff responsible for implementing and communicating fee-related matters. The policy contents include general and specific provisions for: Maintenance Fees, out-of-state tuition, debt service fees, student activity, miscellaneous and incidental fees, deposits, residence hall fees, and refunds.

II. Review

This policy will be reviewed every four years or whenever circumstances require review, whichever is earlier, by the Director of Financial Services in consultation with the Associate Vice President for Business and Fiscal Affairs and the Vice President for Planning and Finance, with recommendations for revision presented to the Administrative Council, University Assembly, and the Board of Trustees.

III. Definitions

A. Maintenance Fees: a charge to students enrolled in credit courses calculated based on the number of student credit hours, also known as in-state tuition

B. Mandatory Fees: fees consistently applied to all students regardless of major or class selection

C. Withdrawal: the formal process whereby a student informs Tennessee Tech of the decision to cease attendance in all classes for the term

D. LGIs: Locally Governed Institutions is the term used to refer to the six universities previously under the Tennessee Board of Regents that now have local governing boards after passage of the FOCUS Act including Austin Peay State University, East Tennessee State University, Middle Tennessee State University, Tennessee State University, University of Memphis, and Tennessee Tech

E. Save Your Seat: the program whereby students who have not sufficiently paid their fees can retain their schedule by acknowledging during pre-registration that they will attend the current semester

F. Domestic Student: any non-resident student as defined by Tennessee Tech Policy 253, Residency Classification, who is a United States citizen

G. International Student: any non-resident student as defined by Tennessee Tech Policy 253, Residency Classification, who is not a United States citizen

H. Military-affiliated: active-duty military personnel, reservists, members of the national guard, and reserve officer training corps program cadets.

IV. Policy/Procedure

A. Establishment of fees and charges

1. The Tennessee Tech Board of Trustees must approve all institutional fees and charges unless specific exceptions are provided.

2. The Tennessee Higher Education Commission (THEC) Pursuant to T.C.A § 49-7-202(n) provides binding Maintenance Fee ranges for Tennessee Tech each year during the budgeting process. The binding ranges apply to resident, undergraduate students on the Maintenance Fee rate, as well as the sum total maintenance and Mandatory Fee changes. Rates locally approved must abide by these ranges. THEC will not issue binding recommendations on graduate, out-of-state tuition, or other fee rates.

3. The Tennessee Tech President is responsible for the enforcement and collection of all fees and charges. Fees and charges that specifically do not require Board of Trustee approval must receive formal approval by the President or his/her designee.

4. Tennessee Tech will attempt to follow a general format in publishing information on fees and charges, including, but not limited to, the following:

a. All statements which include the fee amount should be complete and specific enough to prevent misunderstanding by readers.

b. When a fee is quoted, the refund procedures should be clearly stated including all qualifying conditions. If there is no refund, it should be labeled as non-refundable.

c. Whenever possible, specific dates related to the payment of fees and refund procedures should be stated.

d. It should be made clear that all fees are subject to change at any time.

B. Approval of exceptions

1. In accordance with these guidelines, the President or his/her designee has the authority to determine the applicability of certain fees, fines, charges, and refunds and to approve exceptions in instances of unusual circumstances or for special groups.

2. All such actions should be properly documented for auditing purposes.

C. Appeals process

1. The appeals process is detailed in TTU Policy 511.2 (Student Fee Adjustments, Refunds, and Appeals).

2. Separate appeals processes may exist for different types of fees, charges, and refunds.

3. The final appeal may be directed to the Vice President for Planning and Finance.

D. Payment of student fees

1. As provided in the TTU Policy 511 (Payment of Student Fees and Enrollment):

a. An applicant for admission to Tennessee Tech is considered and counted as a student when all assessed fees have been paid, when the initial minimum payment due under the deferred payment plan has been paid, or when an acceptable commitment from an agency or organization approved by Tennessee Tech has been received.

b. An applicant shall possess an acceptable commitment when he/she has submitted a timely application(s) for financial aid with the reasonable probability of receiving such.

2. Pursuant to the above conditions, students who do not (1) prepay all fees, (2) have an approved financial aid deferment, or (3) participate in Save Your Seat will forfeit pre-registration privileges and have their schedule deleted prior to the start of classes for the semester. Students may then re-enroll under the normal registration process.

E. Maintenance Fees

1. Fees are established by the Tennessee Tech Board of Trustees.

2. The same fee is applicable to courses for which the student is enrolled on an audit basis.

3. Rates are established by the Tennessee Tech Board of Trustees and incorporated in a fee schedule by student level (undergraduate and graduate).

a. Undergraduate Students

1) Undergraduate students admitted to Tennessee Tech fall 2020 forward will be assessed an hourly rate for hours 1-11 or charged a flat rate once enrolled in at least 12 hours unless stated otherwise elsewhere in this policy

2) Undergraduate students admitted to Tennessee Tech prior to fall 2020 will be assessed an hourly rate for hours 1-12. The hourly rate will be discounted when undergraduate students enroll in more than 12 hours unless stated elsewhere in this policy.

b. Graduate Students

1) The hourly rate will be discounted when graduate students enroll in more than 10 hours unless stated otherwise elsewhere in this policy.

4. For summer sessions, Maintenance Fees and tuition are assessed using the current hourly rate for both undergraduate and graduate students with no maximum amount for total credit hours enrolled.

5. Maintenance Fees may not be waived; however, specific exceptions are provided in the following instances:

a. Pursuant to T.C.A. § 49-7-113, exceptions exist for certain disabled and elderly students, as well as state service retirees.

1) For audit courses, no fee is required for persons with a permanent, total disability, persons 60 years of age or older and domiciled in Tennessee, and persons who have retired from state service with 30 or more years of service, regardless of age.

2) For credit, a fee of $70 per semester may be charged to persons with a permanent, total disability, and persons who will become 65 years of age or older during the academic semester in which they begin classes and who are domiciled in Tennessee. This fee includes all Mandatory Fees; it does not include course-specific fees such as all miscellaneous course fees, materials fees, application fee, online course fees, and parking fees. This only applies to enrollment on a space available basis, which permits registration no earlier than four (4) weeks prior to the first day of classes.

b. Pursuant to T.C.A. § 49-7-102, certain statutory fee exceptions exist for dependents and spouses of military personnel killed, missing in action, or officially declared a prisoner of war while serving honorably as a member of the armed forces during a period of armed conflict. If a student invokes these provisions, the correct applicable law should be determined by the

Business Office and Military and Veteran Affairs.

c. Military reserve and national guard personnel who are mobilized to active military service within six months of attendance at Tennessee Tech and whose mobilization lasts more than six months shall be charged upon re-enrollment at such institution the tuition, Maintenance Fees, student activity fees, and required registration or matriculation fees that were in effect when such student was enrolled prior to mobilization.

1) After re-enrollment, no increase in tuition, Maintenance Fees, student activity fees, or required registration or matriculation fees shall be assessed to such student until a period of time equal to one year plus the combined length of all military mobilizations has elapsed.

2) In no event, however, shall a student's tuition and fees be frozen after re-enrollment for more than four years.

3) To be eligible for the tuition and fee freeze, the student shall have completed military service under honorable conditions and shall re-enroll at Tennessee Tech within six months of release from active duty.

4) A student eligible for the tuition and fee freeze may transfer from one state institution of higher education to another state institution of higher education one time with such student's tuition and fees calculated at the institution to which the student transfers as if the student had been in attendance at that institution before the mobilization that resulted in the student's tuition and fee freeze at the initial institution.

d. Pursuant to T.C. A§ 49-7-1303 and 49-7-1304 Tennessee Tech University may classify a veteran or military-affiliated individual as a Tennessee resident who is not required to pay out-of-state tuition or an out-of-state fee if the veteran or military-affiliated individual is:
1) Enrolled at Tennessee Tech University
2) Resides outside the state of Tennessee

F. Accounting treatment and relations to other state schools

1. A revenue account for Maintenance Fees is used to record both the revenue assessed and refunds made.

2. As provided in the Governmental Accounting Standards Board (GASB) Statements 34 and 35, summer school revenues and expenditures must be accrued at fiscal year-end. Summer school activity will not be allocated to only one fiscal year.

3. In some cases, full fees are not assessed to students. These occur when statutes establish separate rates for such groups as the disabled, elderly, and military dependents. The difference between normal fees and special fees is not assessed. Fees not assessed in these cases do not represent revenue.

4. Agreements/contracts may be executed with a third party (federal agency, corporation, institution, etc.), but not with the individual student, to deliver routine courses at a fixed rate or for the actual cost of delivering the course and may provide for fees not to be charged to individual students. Individual student fees will be assessed as usual and charged to the functional category Scholarships and Fellowships. The amount charged to or paid by the third party is credited to the appropriate Grants and Contracts revenue account.

5. In some cases, a non-credit course provides an option to grant regular credit. If a separate or additional fee is collected because of the credit, that amount is reported as Maintenance Fee revenue.

6. Full-time employees of the Tennessee Board of Regents (TBR), the University of Tennessee systems (UT), and LGIs may enroll in one course per term at any public postsecondary institution, with fees waived for the employee.

7. No tuition-paying student shall be denied enrollment in a course because of enrollment of TBR, UT, and LGI employees.

8. Spouses and dependents of employees of the TBR system and other LGIs may be eligible for a student fee discount for undergraduate courses at TBR institutions, the University of Tennessee, and other LGIs.

9. Tennessee Board of Regents institutions and the LGIs may exchange funds for tuition fees of employees' spouses and dependents who participate in a TBR and LGIs' educational assistance programs.

10. To the extent they are not reimbursed by the State, fee waivers for full-time State employees and fee discounts to children of certified public school teachers shall be accounted for as a scholarship.

G. Out-of-state tuition is an additional fee charged to students classified as non-residents as defined by Tennessee Tech Policy 253, Residency Classification, who are enrolled for credit courses, including audit courses. This fee is in addition to the Maintenance Fee.

1. Out-of-state tuition fee rates are established by the Tennessee Tech Board of Trustees and are incorporated in the annual fee schedule by student level

a. A separate hourly rate and/or flat rate for out-of-state tuition will be set for undergraduate and graduate students.

b. Domestic Students

1) Undergraduate students will be assessed an hourly rate for hours 1-11 or charged a flat rate once enrolled in at least 12 hours.

2) Graduate students will be assessed an hourly rate for hours 1-9 or charged a flat rate once enrolled in at least 10 hours

c. International Students

1) The hourly rate will be discounted when undergraduate students enroll in more than 12 hours.

2) The hourly rate will be discounted when graduate students enroll in more than 10 hours.

3) For summer sessions, out-of-state tuition fees are assessed using the current hourly rate with no maximum amount for total credit hours enrolled.

2. Applicability of out-of-state tuition is determined pursuant to Tennessee Tech Policy 253, Residency Classification, governing a student's in-state and out-of-state classification for admission purposes. The business office will collect fees based upon student classification as determined by the appropriate authority within the institution.

3. Accounting treatment

a. A revenue account for out-of-state tuition is used for recording both credits for fees and debits for refunds.

b. Other accounting is the same for out-of-state tuition as that outlined under Maintenance Fees except that separate out-of-state accounts are used.

c. In the case of fees not collected from students under grants and contracts, the same expense account under Scholarships and Fellowships may be used.

H. Program Service Fee

1. Debt service fees

a. The amount of debt service fees will be approved by the Tennessee Tech Board of Trustees.

b. For simplicity of administration and communication, Tennessee Tech may combine debt service with Mandatory Fees in quoting fee rates, in fee billings and charges, and in making refunds.

c. Revenue from debt service fees will be recorded in the unrestricted current fund and then transferred to the retirement of indebtedness fund as either a mandatory transfer or a non-mandatory transfer. The portion of debt service fee revenue used for current-year debt service will be reported as a mandatory transfer. Any additional debt service fee revenue will be transferred to the retirement of indebtedness fund as a non-mandatory transfer.

d. At the conclusion of the debt retirement for a given project, the debt service fee attributed to the project will cease. Any new project requires the approval of a new debt service fee on its own merits without the reallocation of any existing fee. Any continuation of fees necessary for renewal and replacement of a project for which the debt is totally retired must be approved for that purpose by the Tennessee Tech Board of Trustees.

2. Student Activity Fees

a. A student government activity fee may be established pursuant to T.C.A. § 49-8-109. Any increase in this fee shall be subject to a referendum for student body approval or rejection. These fees will be restricted current funds additions. These fees are refundable on the same basis as Maintenance Fees or as established by Tennessee Tech Board of Trustees.
b. Student activity fees (other than student government activity fees) will be approved by the Tennessee Tech Board of Trustees. Such fees may be recommended based on services to be provided which are related to the activity fee. These fees will be unrestricted current funds revenues. These fees are refundable on the same basis as Maintenance Fees or as established by the Tennessee Tech Board of Trustees.

3. Technology Access Fees (TAF)

a. A fee shall be levied by Tennessee Tech for the purpose of providing student access to computing and similar technologies.

b. TAF is refundable on the same basis as Maintenance Fees.

c. Tennessee Tech shall establish expenditure accounts and designated revenue accounts for purposes of recording technology access fees and expenditures.

d. The TAF should be used by Tennessee Tech for direct student benefit, for items such as new and improved high technology laboratories and classrooms, appropriate network and software, computer and other equipment, and technological improvements that enhance instruction. Examples of TAF use include the following items:

1) Computers and other technical laboratory supplies, equipment, and software and maintenance.

2) Network costs (WWW internet, interactive video, etc.)

3) "Smart" or multimedia classroom equipment and classroom modifications.

4) Lab and course staffing - student and staff assistance for lab and classroom uses.

5) Renewal and replacement reserves as necessary.

6) New machines for faculty use when faculty are actively engaged in developing and conducting on-line courses.

7) Faculty and staff development directly related to the introduction or application of new technology that impacts students. These guidelines should have the flexibility to place instructional technology in a faculty lab where course materials are being prepared. For example, TAF funds can be used to create faculty labs to include the purchase of computers and to conduct faculty training and course development. (Travel costs for faculty and staff are excluded; however, consultants may be hired as needed for training.)

8) Infrastructure (wiring, network, servers, etc.) necessary to provide students maximum computing capability. A ceiling is established of 50% of the total project costs from which TAF can be used.

9) Expand technology resources in library, i.e., video piped anywhere on campus, interactive video room for distance education, network for web video courses.

4. Facilities Fee

This fee will be used to improve facilities and fund expenditures such as replacing carpets in student lounges, remodeling classrooms, etc. The fee will not be used for routine maintenance, but will be used to make improvements to areas that have an impact on students. The intended projects will be disclosed during the normal budget cycles. The fee is refundable on the same basis as Maintenance Fees.

I. Specialized academic fees

1. Certain academic programs require expensive maintenance/updating of equipment and software and the employment of highly qualified staff. The high costs of instruction for these programs can be offset by establishing specialized academic fees, with the Tennessee Tech Board of Trustees approval.

2. To receive approval for a specialized academic fee, a program will be required to meet criteria a., High Cost of Instruction, as defined below. Additionally, the program should document meeting criteria b - g., as applicable.

a. High Cost of Instruction. Programs qualifying for charging specialized academic fees must demonstrate that they are more costly than other programs offered by Tennessee Tech. If appropriate, the extraordinary cost of the program must be validated including benchmarking with similar programs in the region and nation.

b. High Demand. The number of students enrolled in the program and the student credit hours generated are sufficient to justify additional fees.

c. High Cost of Updating/Maintaining Equipment and Software. Programs qualifying for charging specialized academic fees are expected to be those that require extensive maintenance and regular updating of equipment and/or software. An average hardware/software cost per student credit hour serves as the basis for determining the amount of the fee.

d. Accreditation. Meeting standards of specific accrediting agencies may also qualify a specialized program for charging specialized academic fees. The accrediting standards that justify a fee are those that specify the possession and use of certain equipment and unique software that are extraordinarily costly and/or the employment of faculty with specific credentials that demand high salaries.

e. High Recognition and Quality. The programs approved for specialized academic fees are expected to be distinctive and with a regional or

national reputation. The program must demonstrate that it has achieved exceptional recognition in its particular enterprise.

f. High Value to Tennessee. The program must demonstrate that it is a good investment for the State of Tennessee to justify charging extra fees to the student. The graduates' earning potential and the associated benefit to the state economy should be projected, as well as the efforts taken by the institution to aid graduates in finding appropriate employment in Tennessee.

g. Impact on Affected Students. Through surveys, questionnaires, or other suitable means, the program must demonstrate that the charging of additional fees will not diminish enrollment. The program should demonstrate that enrolled students realize that the potential earning power in the work force justifies their additional investment.

3. Tennessee Tech's Colleges and Schools must submit documentation of the above applicable criteria when requesting approval of a specialized academic fee. Specialized academic course fee revenues are limited to funding related costs accumulated in the instruction function.

J. All miscellaneous fees must be approved by the Tennessee Tech Board of Trustees. Fees for courses requiring special off-campus facilities or services do not require Board approval but should reflect the cost of the facilities or services.

K. Incidental fees and charges are subject to approval by the Tennessee Tech Board of Trustees including:

1. Application fees: undergraduate $25.00, graduate $30.00, international $40.00.

2. Returned check fees: Tennessee Tech will charge a nonrefundable returned check fee that is the maximum set by state law. This fee will apply to all returned checks received by the institution, whether from students, faculty, staff, or other parties. The university will review state statutes each spring to determine any changes.

3. Parking: A nonrefundable fee may be levied per academic year, per fiscal year and/or per academic term for motor vehicle registration, and such fee shall be applicable to each student, faculty and staff member.

4. Traffic fines: These nonrefundable fines apply to all employees and students.

5. Applied music fees: These fees are charged for private music lessons or small group training sessions and are refundable on the same basis as Maintenance Fees.

6. Late registration fee: Up to $100 will be charged during the entire period of late registration.

L. The following fees and charges may be approved by the Vice President for Planning & Finance and the President and established and administered by Tennessee Tech. No specific approval or notification to the Tennessee Tech Board of Trustees will be required unless subject to other Board or State requirements.

1. Sales of goods and services of a commercial nature, including bookstores, food services, vending, laundry, and similar activities.

2. Rental of non-student housing and facilities.

3. Admissions fees to athletic and other events open to the public, including special events sponsored by campus organizations and activities.

4. Sales and services of educational activities such as clinical services, publications, etc.

5. Registration for conferences, institutes, and non-credit activities.

6. Fees for use of campus facilities for recreational purposes.

7. Parking permits and parking meters for use by guests and visitors.

8. Nonrefundable library fines, which will apply to students, faculty, staff, and other library users.

9. Nonrefundable thesis and dissertation fees determined based upon cost to the institution.

10. Child care fees for kindergarten, preschool, early childhood, day care, or similarly defined activities. The refund policy will be established by Tennessee Tech.

11. Nonrefundable special exam fee determined based upon cost to Tennessee Tech.

12. Nonrefundable standardized test fees determined based upon the cost for administering the tests.

13. Nonrefundable identification card replacement. There will be no charge for the original identification card. A fee may be set by Tennessee Tech to offset

the cost of replacing the card. This fee applies only to student ID cards and not to faculty and staff ID's.

14. Replacement of damaged or lost Tennessee Tech property and equipment. Fee must be based on reasonable cost to replace.

M. Deposits

1. Breakage deposits may be recommended by Tennessee Tech for Board approval for courses in which it can be shown that there is a reasonable chance of loss or damage to items issued to students. The amount of the deposit should be related to the materials issued and subject to a 100% refund.

2. A deposit may be established by Tennessee Tech for rent or lease of buildings and facilities or for the issuance of other institutional property or equipment. Deposits should be subject to a 100% refund if no damage or loss occurs. The amount of such deposits should be related to the value of the facilities or equipment subject to loss and the general ability of the institution to secure reimbursement should loss or damage occur.

3. Tennessee Tech is authorized to require a security deposit for residence hall facilities which may be forfeited by the student for failure to enter into a residence agreement or non-compliance with applicable agreement terms.

N. Student residence hall and apartments

1. All regular and special rental rates for student dormitories and student apartments will be approved by the Tennessee Tech Board of Trustees upon the recommendation by the President. Special rates for non-student groups during summer periods may be approved by the Vice President for Planning and Finance and the President.

2. Rental for student dormitory or residence hall units shall be payable in full in advance of the beginning of a term. However, Tennessee Tech shall offer an optional payment plan under which a prorated amount of the rental shall be payable monthly in advance during the term. A monthly service charge and a late payment charge may be assessed. Residence Hall students can participate in the deferred payment plan (TTU Policy 511.3 Deferred Payment Plan).

O. Tennessee Tech may submit for Board of Trustee approval of fees and charges not specifically covered by this policy.

P. Fees may be established to control the utilization of facilities and services or to offset the cost of extraordinary requirements as a result of specific programs or activities.

Q. When fees and charges are incorporated in agreements with outside contractors and vendors, specific rates, refunds, and conditions must be clearly stated.

R. Fees for auxiliary services must take into consideration that Auxiliary Enterprises should be at least a break-even operation with rates and charges generating revenue sufficient to cover all expenses as defined in operating budget guidelines.

S. Fees established for non-credit courses and activities shall be sufficient to cover the total costs incurred in providing the program, including any indirect costs, plus a minimum of 25% of the annual instructional salary costs including contractual salary costs or personal services contracts.

T. Students enrolled for six or more hours are eligible for full-time privileges, i.e., access to social, athletic, and cultural functions, pursuant to T.C.A. § 49-8-109.

U. Refunds and fee adjustments

1. Adjustments to all fees and charges must be in accordance with the following provisions except as previously stated, or when required by federal law or regulation to be otherwise.

2. Pursuant to T.C.A. §§ 49-7-2301 and 49-7-2302, students called to active military or National Guard service during the semester are entitled to a 100% adjustment or credit of Mandatory Fees. Housing and meal ticket charges may be prorated based on usage.

3. Maintenance Fee refunds and adjustments

a. Refunds are 100% for courses canceled by Tennessee Tech.

b. Changes in courses involving the adding and dropping of equal numbers of SCH's for the same term at the same time require no refund or assessment of additional Maintenance Fees, unless the dropping and adding involves TN eCampus courses.

c. The fee adjustment for Withdrawals or drops during regular terms (fall and spring) is 75% from the first day of classes through the fourteenth calendar day of classes and then reduced to 25% for a period of time which extends 25% of the length of the term. When the first day of the academic term falls on a Saturday, the 100% refund period is extended through the weekend until the following Monday morning (12:01 am). There is no fee adjustment after the 25% period ends. Dropping or withdrawing from classes during either the 75% or the 25% fee

adjustment period will result in a fee adjustment of assessed Maintenance Fees based on the total credit hours of the final student enrollment.

d. For summer sessions and other short terms, the 75% fee adjustment period and the 25% fee adjustment period will extend a length of time which is the same proportion of the term as the 75% and 25% periods are of the regular terms.

e. All fee adjustment periods will be rounded to whole days and the date on which each fee adjustment period ends will be included in publications. In calculating the 75% period for other than the fall and spring and in calculating the 25% length of term in all cases, the number of calendar days during the term will be considered. When the calculation produces a fractional day, rounding will be up or down to the nearest whole day.

f. A full refund (100%) is provided on behalf of a student whose death occurs during the term. Any indebtedness should be offset against the refund.

g. A 100% refund will be provided for students who enroll under an advance registration system but who drop a course or courses prior to the beginning of the first day of class.

h. A 100% refund will be provided to students who are compelled by Tennessee Tech to withdraw when it is determined that through Tennessee Tech error they were academically ineligible for enrollment or were not properly admitted to enroll for the course(s) being dropped. An appropriate official must certify in writing that this provision is applicable in each case.

i. When courses are included in a regular term's registration process for administrative convenience, but the course does not begin until later in the term, the 75%/25% fee adjustment periods will be based on the particular course's beginning and ending dates. This provision does not apply to classes during the fall or spring terms which may meet only once per week. Those courses will follow the same refund dates as other regular courses for the term.

j. The fee adjustment is calculated as the difference between (1) the per credit hour cost of originally enrolled hours and (2) the per credit hour cost of the courses at final enrollment after adjustments have been applied for all courses dropped. Adjustments are calculated at the full per credit hour rate less the fee adjustment credit at the applicable fee adjustment percentage (regardless of the original number of hours enrolled). Not all drops/Withdrawals will result in fee adjustments.

4. The fee adjustment provision for out-of-state tuition is the same as that for Maintenance Fees. The 75% fee adjustment period and the 25% fee adjustment period will follow the same dates as the fee adjustment periods for Maintenance Fees. When 100% of Maintenance Fees are refunded, 100% of out-of-state tuition also is refunded. Calculation procedures are the same as those specified for Maintenance Fees.

5. Program Service Fee will be subject to the same refund policy as Maintenance Fees.

6. Refund of residence hall rent after registration will be prorated on a weekly calendar basis when the student is forced to withdraw from the residence hall:

a. Because of personal medical reasons confirmed in writing by a licensed physician, or

b. Full refund will be made in the case of the death of the student.

c. Withdrawals for other reasons will be subject to the same 75%/25% amounts and time periods as Maintenance Fees.

d. No refund will be made other than under the above conditions.

7. Residence hall reservations and any deposits will be refunded in full if:

a. Tennessee Tech is notified by a specific date which it establishes, but which may not be later than fourteen (14) calendar days prior to the first official day of registration,

b. The student is prevented from entering Tennessee Tech because of medical reasons confirmed in writing by a licensed physician, or

c. Residence hall space is not available.

d. Full refund will be made in the case of the death of the student.

8. The Tennessee Tech meal plan refund policy is described in Policy 511.2 (Student Fee Adjustments, Refunds, and Appeals).

V. Interpretation

The Vice President for Planning and Finance or his/her designee has the final authority to interpret the terms of this policy.

VI. Citation for Authority for Policy

T.C.A. § 49-8-113; T.C.A. § 49-8-201(f)(8)(C); TBR Guideline B-060; TBR Rule 0240-1-2.01 et seq.; T.C.A § 49-7-2301; T.C.A § 49-7-2302; T.C.A §49-7-1303; T.C.A. § 49-7-1304

Approved by:

Administrative Council: February 22, 2017

University Assembly: April 19, 2017

Board of Trustees: March 23, 2017; September 29, 2020

President on September 3, 2020 and September 21,2020, pursuant to Policy 101, Section VII.A.

Received by:

Administrative Council: September 30, 2020

University Assembly: November 18, 2020

Agenda Item Summary

Date: October 6, 2022

9.1

Agenda Item: Performance Evaluation and Performance-Based Compensation Analysis

☐ **Review** ☐ **Action** ☒ **No action required**

PRESENTER: Mr. Kevin Vedder, Associate Vice President of Human Resources

PURPOSE & KEY POINTS: Overview of FY2022 Employee Performance Outcomes and Performance-Based Compensation.


THE WINGS UP WAY
OUR PROMISE TO PUT PEOPLE OVER PROCESS.
STUDENTS FIRST!
We WILL always put PEOPLE over process.
We WILL treat everyone with kindness and give them our full attention.
We WILL serve students first, along with their families, and assist and support the Tech faculty and staff that inspire and guide students.
We WILL go the extra mile every day to help students reach their goal to graduate from Tennessee Tech and launch successful careers!
We WILL take personal responsibility to provide excellent service and do the job right the first time.
We WILL constantly look for ways to make the process easier, not harder.
We WILL work hard to find solutions, not excuses.

Agenda Item Summary

Date: October 6, 2022

Division: Planning and Finance

Agenda Item: Tenure Upon Appointment Recommendation

☐ **Review** ☒ **Action** ☐ **No action required**

10.1

PRESENTER: Dr. Lori Bruce, Provost

PURPOSE & KEY POINTS:

This tenure recommendation is being presented at the October Board meeting, as Dr. Shaw was hired after the June Board meeting. Dr. Shaw was hired as Director for the School of Agriculture in the College of Agriculture and Human Ecology. All supporting documents are included.

Joey N. Shaw
Curriculum Vitae

Professor of Soil Science
Crop, Soil and Environmental Sciences Department
Auburn University

Table of Contents
J.N. Shaw

1. Academic Appointments

Position	Location	Date
Professor of Soil Science/Pedology	Auburn University	2007-present
Environmental Science Undergraduate Program Coordinator		2014-present
Alumni Professor (5-yr term)		2008-2013
Associate Professor	Auburn University	2003-2007
Assistant Professor	Auburn University	1998-2003

2. Education

Degree	Institution	Subject	Date
Ph.D.	University of Georgia	Soil Science/Pedology	1998
M.S.	University of Maryland	Soil Science/Pedology	1993
B.S.	James Madison University	Biology	1988

3. Professional Experience (Summary)

Professor of Soil Science, Auburn University *1998-present*

- 50:50 Research/Instruction appointment

Research:

- Total Grant Involvement: $8.9M, 157 total grants (52 PI, 105 co-PI)
- Refereed Journal Articles 76; Published Proceedings 54; Published Abstracts 141; Published Experiment Station, Popular Press and Cooperative Extension Publications 43.
- Development and supervision of productive research program with management of budgets and professional research staff, graduate and undergraduate students.
- Extensive interaction with stakeholders including funding agencies, commodity groups, and state and federal agencies.

Instruction:

- Courses taught: Soil Morphology, Genesis, and Classification; Soil Judging; Introductory Environmental Science; Soil Mineralogy; Internship; Senior Seminar.
- Instructor of Natural Resource Conservation Service (USDA-NRCS), Certified Crop Advisor (CCA), Alabama Professional Soil Classifier (APSC), Alabama Crop Management (ACMA), and Alabama Department of Public Health (ADPH) seminars and workshops.
- Chair or co-chair of 18 graduate students and served on 48 graduate student committees (66 total).

Environmental Science (ENVI) Undergraduate Program Coordinator *2014-present*

- ENVI is a university-wide interdisciplinary program contained within the College of Agriculture with faculty involvement from three colleges and four departments.
- Coordinate program activities through leadership of departmental and university committees and provide day to day program leadership.
- Coordinated transition of the ENVI program into our Crop, Soil and Environmental Sciences (CSES) department, developed ENVI student learning outcomes (SLOs) and assessment strategies (received exemplary status by University three times), improved experiential learning opportunities, facilitated development of revised curriculum and new courses, developed faculty hiring proposals.

Supervisor, Soil Characterization (Pedology) Laboratory, University of Georgia *1994-1998*

- Supervised personnel and performed field survey, soil morphological, physical, hydraulic, chemical and mineralogical property analyses, and data management in support of research, the National Cooperative Soil Survey, and other agencies (USDA-ARS, EPA, etc).

Additional Relevant Experience

- Argillan LLC, Consulting Soil Scientist; Auburn AL *2019-present*
- R.S. Fields and Associates, Consulting Soil Scientists; Manassas VA *1988-1991*

4. Honors and Awards

- Elected Chair, Soil Science Society of America Pedology Division – 2015
- Elected Chair, Soil Science Society of America Soil Mineralogy Division – 2004
- Appointed as Associate Editor, Soil Science Society of America (SSSA) Publications:
  - *Soil Science Society of America Journal* – 2005 to 2007
    - Citation of Excellence for Associate Editors – 2007
  - *Soil Survey Horizons* – 1999 to 2001
- Appointed to Editorial Board of *Geoderma* – 2011 to 2017
- Auburn University Student Government Association College of Agriculture Outstanding Faculty Award – 2015 and 2020
- College of Agriculture Dean's Award for Teaching Excellence – 2015
- Auburn University Alumni Association Undergraduate Teaching Excellence Award – 2008
- Agronomy and Soils Department Outstanding Teacher Award – 2002, 2008, 2010 and 2012
- Appointed to Auburn University Alumni Professorship – 2008
- Coached Auburn University Soil Judging team to two National and six Southeastern Regional Collegiate Soil Judging Championships.
- Nominated and coached the United States Soil Judging Team at the International Year of Soils Field Course and Soil Judging Contest at Szent Istvan University, Gödöllő, Hungary (2015). Contestants from 28 countries were in competition. The U.S. won the contest and had the top individual judger.
- Appointed to Advisory Council of State Registration Board for Alabama Professional Soil Classifiers –2000 to 2015
- Served on Auburn University Promotion and Tenure, Faculty Dismissal, Distinguished Professorships, Alumni Professorships, College of Agriculture Promotion and Tenure, advisory member to Agriculture Committee of AU Board of Trustees, Faculty Mentoring (eight), Faculty Search (12), and several other committees. Served as chair of College Promotion and Tenure, faculty search, and faculty mentoring committees.
- Served on USDA-NRCS National Cooperative Soil Survey (NCSS) Advisory Group to the Director of the Soil Survey Division, Steering Committee for the Soil Survey Division Focus Groups, and National Standards, Illustrated Guide to Soil Taxonomy, Southeastern Regional Taxonomy, and several other committees.
- Served on Soil Science Society of America (SSSA) Soil Taxonomy Task Force, Soil Judging, Soil Micromorphology, and Nominations committees.
- President, Auburn University's Gamma Sigma Delta - Honor Society for the College of Agriculture – 2000 to 2002
- American Society of Agronomy (ASA)-Southeastern Branch *Early Career Research Award* – 2002
- Alabama Professional Soil Classifier License #60.
- ARCPAC Certified Professional Soil Scientist.

5. Environmental Science (ENVI) Undergraduate Program Coordinator

In 2014, I was appointed the Environmental Science (ENVI) Undergraduate Program Coordinator. ENVI is an interdisciplinary program housed within the College of Agriculture with faculty involvement from three colleges and several departments. The program currently has approximately 75 undergraduate students. A summary of my activities includes:

- Coordinated and Developed Proposal to move ENVI program into the Department of Crop, Soil and Environmental Sciences (2015-2016).

- Solicited and coordinated input from both departmental and university-wide Environmental Science Faculty.
- Received support from university-wide ENVI committee to transition program.
- Developed and submitted proposal that was approved.

- Developed the Interdisciplinary Environmental Science, B.S., assessment approach and report.
  - Solicited and coordinated input from environmental science faculty.
  - Coordinated, developed and revised program student learning outcomes, curriculum map, common written communication rubric, and exit exam, which serve as foundation of assessment.
  - Developed and submitted annual report.
  - Environmental Science, B.S., assessment received "Exemplary Status" citation by the Office of Assessment in 2018, 2019 and 2020.
- CSES department ENVI committee chair.
  - Coordinate and organize departmental committee meetings to strategize, review and improve program.
  - Developed an ENVI student survey and utilized results for program improvement.
  - Meet with university ENVI committee members on program issues.
  - Coordinated and developed ENVI grant submissions (e.g. Auburn's Academy of Writing, High Impact Practices program 2018).
- Environmental Science *Writing in the Curriculum* Plan.
  - Developed the Environmental Science Program *Writing in the Curriculum* report and coordinated activities (2014-2016).
    - Solicited and coordinated input from Environmental Sciences Faculty.
    - Meetings and correspondence with the Office of University Writing.
    - Report Development.
- ENVI curriculum development.
  - Developed ENVI teaching schedule/commitment.
  - Coordinated development and approval of new ENVI courses.
    - Utilized ENVI survey and other input to strengthen program.
    - Coordinated proposal and approval of Environmental Regulation and Management Application course (ENVI 4000).
  - Proposed, developed, and submitted revisions to improve ENVI curriculum.
  - Reviewed course transfer credit requests, articulations and course substitutions.
  - Reviewed ENVI Professional Track courses (with Liz Smith).
  - Reviewed ENVI curricula for DegreeWorks update/development.
- Instruct Fundamentals of Environmental Science (ENVI 1020) course (fall semesters) (approximately 60 students).
- ENVI student advising and mentoring.
- Other activities (assisting student services advisor Liz Smith).
  - ENVI student visits, inquiries and communications.
  - ENVI program promotional material review.
  - Improve ENVI internship process and program.
    - Worked with College of Agriculture for companies invited to Career Fair (2019).
  - Participated in student recruitment activities including Successfully Orienting Student (SOS), Camp War Eagle, TALONS, and Tiger Friday sessions.
  - ENVI program presentations to Ag Ambassadors, Admissions Advisors, etc.

6. Scholarly Contributions

A. Teaching

1. Courses Developed and Taught
   - 1998-2021:
     - Fundamentals of Environmental Science (2hr) (ENVI 1020)
     - Soil Morphology, Genesis, and Classification (4hr w/lab) (CSES 5150/6150)
     - Soil Judging (2hr) (CSES 4200)
     - Advanced Soil Judging (2hr) (CSES 4210)
     - Soil Mineralogy (4hr w/lab) (CSES 7560)
     - Internship (3hr) (CSES 3920)
     - Senior Seminar (2hr) (CSES 4950)
     - Instructor of approx. 1000 students
   - Instructor of Natural Resource Conservation Service (USDA-NRCS), Certified Crop Advisor (CCA), Alabama Professional Soil Classifier (APSC), Alabama Crop Management (ACMA), and Alabama Department of Public Health (ADPH) seminars and workshops.

2. Graduate Student Advising
   - Ph.D. Chair: 6, Member: 16
   - M.S. or M.Ag. Chair: 12, Member: 32
   - 66 total students

3. Other Courses Developed
   - Participated in Auburn University Biggio Center Course ReDesign. Week of activities developed around Active Learning Concepts (July 9th-13th, 2018).
   - Exercises for Geospatial Applications in Soil Science for Special Topics courses (AGRN 4970).
   - Coordinated, co-developed (with US Space and Rocket Center) and instructed (3hr) workshop on Geospatial Technologies in Agriculture at Alabama Crop Management Association 2001 Summer Meeting. Approximately 20 participants from industry.
   - Coordinated, co-developed (with US Space and Rocket Center) and instructed workshop (2hr) on Geospatial Technologies in Agriculture at Certified Crop Advisor Training, in Auburn, AL (2001). Approximately 20 participants from industry.

Curriculum Development
   - Developed "Soil, Water and Land Use" option in Crop, Soils and Environmental Sciences curriculum (2011).

Soil Judging
Coached Auburn University at these Southeastern Regional Soil Judging Contests (* indicates qualified for National contest):
   - *Virginia Tech (10/6 to 10/9/19) (1st place finish, SE regional champions).
   - *Western Kentucky University (10/14 to 10/18/18) (2nd place).
   - University of Tennessee-Martin (10/8 to 10/12/17).
   - Murray State University (10/11 to 10/15/15).
   - *Clemson University (10/5 to 10/9/14) (1st place finish, SE regional champions)
   - *Tennessee Tech University (10/20 to 10/24/13) (4th place).
   - *University of Kentucky (10/7 to 10/11/12) (1st place finish, SE regional champions)
   - *West Virginia University (10/4 to 10/7/11) (3rd place).
   - *University of Georgia (10/18 to 10/23/10) (4th place).
   - *University of Tennessee (10/19 to 10/23/09) (3rd place).
   - *Virginia Tech (10/20 to 10/24/08) (5th place).

- Eastern Kentucky University (10/15 to 10/19/07).
- *Western Kentucky University (10/16 to 10/20/06) (2nd place).
- *N.C. State University (10/24 to 10/28/05) (1st place finish, SE regional champions)
- *University of Tennessee-Martin (10/20 to 10/24/03) (5th place).
- *Clemson University (10/7 to 10/11/02) (1st place finish, SE regional champions)
- *Murray State University (10/16 to 10/19/01) (1st place finish, SE regional champions)
- *Tennessee Tech University (10/23 to 10/28/00) (5th place).
- University of Kentucky (10/11 to 10/15/99).
- *University of Tennessee (10/15 to 10/18/98) (3rd place).

Coached Auburn University at these National Soil Judging Contests:

- Cal-Poly, San Luis Obispo, CA (4/13 to 4/20/19) (9th place).
- University of Arkansas Monticello (4/18 to 4/24/15) (national championship)**
- Delaware Valley College, Doylestown, PA (3/29 to 4/14/14) (7th place).
- University of Wisconsin, Platteville, Platteville, WI (4/20 to 4/27/13).
- West Virginia University, Morgantown, WV (3/24 to 4/1/12) (7th place).
- Oregon State University, Bend, OR (4/24 to 5/1/11) (2nd place).
- Texas Tech University, Lubbock, TX (3/20 to 3/27/10).
- Utah State University, Logan, UT (4/14 to 4/21/07).
- Cal-Poly, San Luis Obispo, CA (3/18 to 3/25/06).
- Texas A&M University, College Station, TX (3/29 to 4/4/03) (national championship)*
- Univ. of Minnesota, Red Wing, MN (4/20 to 4/27/02).
- University of Arizona, Tucson, AZ (3/21-3/26/99).

*Coached Auburn University Soil Judgers at 43rd Annual National Soil Judging contest held at Texas A&M University (3/29 to 4/4/03). Auburn finished first (against 22 universities), and won National Championship.

Presented with AU Board of Trustee Resolution for National Soil Judging Championship (9/03).

** Coached Auburn University Soil Judgers at 55th Annual National Soil Judging contest held at the University of Arkansas-Monticello (4/18 to 4/24/15). Auburn finished first (against 20 universities), and won National Championship.

Auburn won the contest, finished first in group judging and had the high individual (first time accomplished in 55 years of Soil Judging).

- Invited coach for the United States Soil Judging Team (Team USA) for the International Year of Soils Field Course and Soil Judging Contest in Gödöllő, Hungary, at the Szent Istvan University (8/29 to 9/5/15). Contestants from 28 countries competed in this event. Coached students from Auburn University, Kansas State University, Delaware Valley College and West Virginia University.
  - Team USA finished first in the contest, won the international contest, and had the high individual contestant.
  - Team USA invited by USDA (Washington, D.C.) to meet with officials and participate in International Year of Soils Ceremony (12/2 to 12/4/15).

- Organized and hosted the 2016 Southeastern Regional Soil Judging Contest (10/2/16 to 10/6/16). This contest evaluates the student's ability to describe, classify, and interpret soils. Practice and contest sites established at several locations. A week of activities including a banquet, coaches

meeting, and awards ceremony were developed. Teams from 9 universities throughout the SE region participated in the contest. Approximately 70 students involved in the contest.

- Organized and hosted the 45th Annual National Soil Judging Contest at Auburn the week of April 3rd to 8th (2005). Teams from 22 universities from California to New Hampshire, with approximately 150 students, participated in the contest. Activities included establishing practice sites at 19 locations in Lee, Tallapoosa and Macon County, establishing five contest sites at two locations, organizing a contestant banquet, a coaches meeting, and awards ceremony.

- Organized and hosted the 2004 Southeastern Regional Soil Judging Contest (10/18/04 to 10/22/04). This contest evaluates the student's ability to describe, classify, and interpret soils. Practice and contest sites established at several locations. A week of activities including a banquet, coaches meeting, and awards ceremony were developed. Teams from 12 universities throughout the SE region participated in the contest. Approximately 80 students involved in the contest.

Guest Lectures (AU)

- Several including: AGRI 1000, WILD 1100, AGRN 3040, BSEN 3260, FORY 4230, AGRN 4000, AGRN 1000, ENVI 1010.

Advising

- Undergraduate student advisor (1998-2017) before college transitioned to professional advising in 2017.

Certified Crop Advisor Training

- Invited talk to Certified Crop Advisor Training (12/19/07). Shaw group conducted two (2) sessions, one session on *Soil Survey* (Shaw speaker), one session on *Soil Sampling* (Owen speaker).
- Invited talk to Certified Crop Advisor Training (12/18/02). Shaw group conducted two (2) sessions, one session on *Soil Survey* (Shaw speaker), one session on *Soil Sampling* (Owen speaker).
- Invited talk to Certified Crop Advisor's (CCA) on *Soil & Water relationships* (12/16/99).
- Invited talk to Certified Crop Advisor's (CCA) on *Soil & Water relationships* (12/15/98).

Student Activities

- Mentor for Auburn University Undergraduate Competitive Research Fellow
    - Brooke Johnson, 2019-2020
    - Hunter Stone, 2006-2007
    - Christina van Santen, 2001
- Judge for College of Agriculture Graduate Student Poster Session (10/28/21).
- Invited presentation to High School FFA Land CDE (Judging) workshop at USDA-NRCS (6/27/13).
- Represented Agronomy and Soils Department at College Recruiting visit to Southern Union State Community College (Wadley, AL) (9/11/12). Presented talk to Intro Biology class.
- Faculty supervisor of Agronomy Club speech contest (9/1/09).
- Assisted in student fund raising activities (e.g. corn sale, multiple years).
- Coordinated SSSA Division S-9 graduate student Dixon award selection (2005).
- Co-hosted (with NRCS-Soil Survey) University of Florida student soil tour of central AL (07/07/00).

- Organizer of Graduate Student Poster awards competition at 1999 Southern Branch ASA meetings in Memphis, TN (2/1 and 2/2/99).
- Invited judge by the AU Research Forum Committee of the Graduate Student Council for graduate student presentations at the research forum (5/12/99).
- Represented Agronomy and Soils Department at University Graduation (6/98; 8/4/03, 8/4/12).
- Employed more than 50 undergraduate students in our soil and environmental research program.

B. Research

1. Publications

The author contribution generally decreases from first to last author.

Refereed
(Student of Shaw shown with asterik)

76. Kazaz, B., M. A. Perez, W. N. Donald, X. Fang and J.N. Shaw. Detection of Residual Flocculant Concentrations in Construction Stormwater Runoff. Transportation Res. Record. *In press*

75. Sweeney, L.C., E.A. Brantley, T. Knappenberger, and **J.N. Shaw**. 2021. Zeolite Amended Bioretention Media Improves Nitrogen Removal from Stormwater. Agricultural & Environmental Letters. *In press*

74. LeFevre, O., T. Knappenberger, **J.N. Shaw** and Y. Olshansky. 2021. Camera Illustration of IRIS Reduction Dynamics. Agricultural & Environmental Letters. https://doi.org/10.1002/ael2.20051

73. Bhatta, A., D. Chakraborty, R. Prasad, **J.N. Shaw**, J. Lamba, E. Brantley, A. Torbert. 2021. Mehlich 3 as a Generic Soil Test Extractant for Environmental Phosphorus Risk Assessment across Alabama Soil Regions. Agrosystems, Geosciences & Environment. https://doi.org/10.1002/agg2.20187

72. Stolt, M.H., A.T. O'Geen, D.E. Beaudette, P.J. Drohan, J.M. Galbraith, D.L. Lindbo, H.C. Monger, B.L. Needleman, M.D. Ransom, M.C. Rabenhorst, and **J.N. Shaw**. 2021. Changing the hierarchical placement of soil moisture regimes in Soil Taxonomy. Soil Sci. Soc. Am J. (Accepted)

71. C. Liggett, T. Knappenberger, **J.N. Shaw**, E. Brantley and A. Gamble. 2020. Comparison of Constructed Wetlands to a Preservation Wetland in the Nashville Basin, Tennessee (USA). Wetlands. (Accepted)

70. Poncet, A., T. Knappenberger, C. Brodbeck, M. Fogle, **J. N. Shaw** and B. V. Ortiz. 2019. Multispectral UAS Data Accuracy for Different Radiometric Calibration Methods. Remote Sensing (Accepted)

69. Poncet, A., J.P. Fulton, T.P. McDonald, T. Knappenberger, and **J.N. Shaw.** 2019. Corn Emergence and Yield Response to Row-Unit Depth and Downforce for Varying Field Conditions. Applied Engineering in Agriculture. 35(3): 399-408. (doi: 10.13031/aea.12408)

68. Poncet, A., J.P. Fulton, T.P. McDonald, T. Knappenberger, **J.N. Shaw,** and R.W. Bridges. 2019. Effect of Heterogeneous Field Conditions on Corn Seeding Depth Accuracy and Uniformity. Applied Engineering in Agriculture. 34(5): 819-830. (doi: 10.13031/aea.12238)

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16. Fulton, J., M. Dougherty, **J. N. Shaw**, L. Curtis, C. Burmester, C. Brodbeck, B. Durham, D. Harkins, A. Winstead, and S. Norwood. 2008. Evaluating Pressure-Compensating Subsurface Drip Irrigation (SDI) for No-till Row Crop Production on Rolling, Irregular Terrain. p. 11. *In* K.S. Lawrence, D. Monks and D. Delaney (ed.) Cotton Research Report 2007. Research Report Series No. 32. Alabama Agricultural Experiment Station.
15. Fulton, J., **J. N. Shaw**, D. Sullivan, M.P. Dougherty, and C. Brodbeck. 2008. Use of remote Sensed Thermal Imagery for In-season Stress Detection and Site-Specific Management of Cotton. p. 26. *In* K.S. Lawrence, D. Monks and D. Delaney (ed.) Cotton Research Report 2007. Research Report Series No. 32. Alabama Agricultural Experiment Station.
14. Fulton, J., S.H. Norwood, **J. N. Shaw**, C.H. Burmester, C. Brodbeck, R.W. Goodman, P.L. Mask, M.H. Hall and C. Dillard. 2008. Evaluation of Variable-Rate Seeding of Cotton. p. 27. *In* K.S. Lawrence, D. Monks and D. Delaney (ed.) Cotton Research Report 2007.Research Report Series No. 32. Alabama Agricultural Experiment Station.
13. Fulton, J., M. Dougherty, **J. N. Shaw**, L. Curtis, C. Burmester, C. Brodbeck, D. Harkins, B. Durham, A. Winstead, and S. Norwood. 2007. Evaluating Pressure Compensating Subsurface Drip Irrigation (SDI) for No-Till Row Crop Production on Rolling, Irregular Terrain. p32. *In* K.S. Mclean, D. Monks and D. Delaney (ed.) Cotton Research Report 2006. Research Report Series

No. 30. Alabama Agricultural Experiment Station.

12. Fulton, J.P., S.H. Norwood, **J.N. Shaw**, M. Hall, C.H. Burmester, P. Mask, C. Brodbeck, and C. Dillard. 2007. Evaluation of variable-rate seeding for cotton. p.31. *In* K.S. Mclean, D. Monks and D. Delaney (ed.) Cotton Research Report 2006. Research Report Series No. 30. Alabama Agricultural Experiment Station.
11. Fulton, J.P., S.H. Norwood, **J.N. Shaw**, M. Hall, C.H. Burmester, P. Mask, C. Brodbeck, and C. Dillard. 2006. Evaluation of variable-rate seeding for cotton. p.23. *In* K.S. Mclean, D. Monks and D. Delaney (ed.) Cotton Research Report 2005. Research Report Series No. 28. Alabama Agricultural Experiment Station.
10. Fulton, J.P., M. Dougherty, **J.N. Shaw**, L.M. Curtis, C. Burmester, C. Brodbeck, D. Harkins, and B. Durham. 2006. Evaluating Pressure Compensating Subsurface Drip Irrigation (SDI) for No-Till Row Crop Production on Rolling, Irregular Terrain. pp. 32-33. In K.S. Lawrence, D. Monks and D. Delaney (eds.) Cotton Research Report 2005. Research Report Series No. 28. Alabama Agricultural Experiment Station
9. Curtis, L.M., J.P.Fulton, **J.N. Shaw**, R. Raper, C. Burmester, B.E. Norris and H.D. Harkins.. 2005. Evaluation of Pressure-Compensating Subsurface Drip Irrigation (SDI) on Rolling Terrain for Cotton Production. p.25. *In* K.S. Mclean, D. Monks and D. Delaney (ed.) Cotton Research Report 2004. Research Report Series No. 26. Alabama Agricultural Experiment Station.
8. Featured in "Farming with Precision Article", AAES Ag Illustrated, Vol.1, No.4, Summer Issue, 2004.
7. Reeves, D.W., **J.N. Shaw**, L. Curtis and C. Burmester. 2003. Irrigated cotton management with conservation tillage. p.22. *In* K.S. Mclean, D. Monks and D. Delaney (ed.) Cotton Research Report 2002. Research Report Series No. 24. Alabama Agricultural Experiment Station.
6. *Thompson, A.N., **J.N. Shaw**, P.L. Mask, C. Dillard, and J.T. Touchton. 2001. Site-specific farming in Alabama. Alabama Agricultural Experiment Station Highlights. 48 (2).
5. Sullivan, D.G., C.W. Wood, W.F. Owsley, M.L. Norfleet, and **J.N. Shaw**. 2000. Ammonia Volatilization from Swine Waste Amended Bermudagrass Pasture. Alabama Agricultural Experiment Station Highlights. 47(1): 22-23.
4. **Shaw, J.N.**, and E.A. Guertal. 2000. Getting it from the air - remote sensing of stress in turfgrass. AAES Highlights. Alabama Agricultural Experiment Station Highlights. 47(1):18-19.
3. *Beck, J.M., **J.N. Shaw**, and J. E. Hairston. 2000. Moving soil survey into the digital age.Alabama Agricultural Experiment Station Highlights. 47(2) 23-24.
2. Derrick, C., E. A. Guertal, and **J.N. Shaw**. 2000. Deep-tine aerification of heavily compacted athletic fields: research results. Alabama Agricultural Experiment Station Highlights. 47(3) 21-22.
1. Featured in Article: *The Appeal of More Questions than Answers*. Alabama Agricultural Experiment Station Highlights. 47(1) 17.

Popular Press

12. Causarano, H.J., A.J. Franzluebbers, D.W. Reeves, **J.N. Shaw**, and M.L. Norfleet. 2005. Potential for soil carbon sequestration in cotton production systems of the southeastern USA. White paper commissioned by Cotton Incorporated, Memphis, TN. 30 pp.
11. Fulton, J.P., **J.N. Shaw**, P.L. Mask, and R. Raper. 2005. Merging sub-surface drip irrigation (SDI) and auto-guidance. Winter 2004 publication of John Deere's Ag Management Solutions Growing Innovations. AMS: Urbandale, Iowa.
10. Research featured in "Less Tillage, More Yield, Right Now", Farm Journal, Spring 2005.

9. Fulton, J.P., **J.N. Shaw**, P.L. Mask, and R. Raper. 2005. Merging sub-surface drip irrigation (SDI) and auto-guidance. Winter 2004 publication of John Deere's Ag Management Solutions Growing Innovations. AMS: Urbandale, Iowa.
8. Guertal, E.A., C.L. Derrick and **J.N. Shaw**. 2003. Deep Tine Aerification of Tifway Bermudagrass Growing in Compacted Soil. Golf Course Management. 71(12) 87-90.
7. Rickman, D., J.C. Luvall, **J.N. Shaw**, P. Mask, D. Kissel, and D. Sullivan. 2003. Precision Agriculture: Changing the face of farming. Geotimes. November. p. 26-29.
6. Wehtje, G.R., **J.N. Shaw**, R.H. Walker and W. Williams. 2003. Using inorganic soil amendments to improve a native soil. Golf Course Management. 71(11) 95-99.
5. **Shaw, J.N.** 2001. Soil Mineralogy at the 2000 Soil Science Institute. NRCS- Soil Profile Newsletter (MO 14 publication), April, 2001.
4. Guertal, E.A., **J.N. Shaw**, and D. Han. 2000. Multispectral radiometry: Opportunities for detecting stress in turfgrass. Turfgrass Trends (9):1-3.
3. Guertal, E.A., **J.N. Shaw**, and K. Copenhaver. 1999. *Spying on Fairway Turf.* Golf Course Management, July.
2. **Shaw, J.N.** 1999. The excitement builds/ Southern Soils Conference. Coastal Plainer, NRCS Publication, Fall, 1999.
1. **Shaw, J.N.** 1998. "Year 2000". Coastal Plainer, NRCS publication, Summer, vol 3, # 3.

Extension Publications

12. Ortiz, B. V., **J.N. Shaw**, J. Fulton. 2011. Basis of Crop Sensing. ACES publication ANR- 1398.
11. Ortiz, B. V., **J.N. Shaw**, J. Fulton, A. Winstead. 2011. Management Zones I - Role in Site-Specific Management. ACES Timely Information Sheet – February 2011 http://www.aces.edu/timelyinfo/Ag%20Soil/2011/February/MZ_I_02212011.pdf
10. Ortiz, B. V., **J.N. Shaw**, J. Fulton, A. Winstead. 2011. Management Zones II - Basic Steps for Delineation. ACES Timely Information Sheet – February 2011http://www.aces.edu/timelyinfo/Ag%20Soil/2011/February/02212011.pdf
9. Soil electrical conductivity mapping: A tool for within-field soil variability assessment. 2009. B.Ortiz, **J.N. Shaw**, J.P. Fulton and S. Norwood. ACES Timely Information Sheet.
8. Precision soil sampling for Alabama farms. 2007. A.T. Winstead, **J.N. Shaw**, P.L Mask and S.H. Norwood. 2007. ACES Timely Information Sheet.
7. Water Corrosivity and Your Plumbing System. 2002. J.E. Hairston, **J.N. Shaw**, E. Brantley, and J.M. Beck. Alabama Cooperative Extension System (ACES) Timely Information Sheet. WQ-07-02.
6. Acid Rain: An Overview. 2002. J.E. Hairston, **J.N. Shaw**, E. Brantley, and J.M. Beck. Alabama Cooperative Extension System (ACES) Timely Information Sheet. WQ-08b-02. ANR-1229.
5. Land Grants and USDA Programs Help Protect Drinking Water Sources. 2000. J.E. Hairston, **J.N. Shaw**, and J.M. Beck. Alabama Cooperative Extension System (ACES) Timely Information Sheet.
4. MTBE, a Common Gasoline Additive, is Causing Water Quality Concerns. 2000. J.E. Hairston, **J.N. Shaw**, and J.M. Beck. ACES Timely Information Sheet.
3. Despite reductions in exposure, Lead still remains a potential health threat. J.E. Hairston, **J.N. Shaw**, and J.M. Beck. 2000. ACES Timely Information Sheet.
2. General Introduction to GIS. J.E. Hairston, **J.N. Shaw**, and J.M. Beck. 2000. ACES Timely Information Sheet.

1. Antibiotics and other chemicals are showing up below wastewater treatment plants. J.E. Hairston, **J.N. Shaw**, and J.M. Beck. 2000. ACES Timely Information Sheet.

Web Publications

1. Southeast Association of Soil Judging Coaches. 2008. Handbook for American Society of Agronomy Collegiate Soils Contest, Southeastern Region. (Eds.) J.A. Thompson, J.M. Galbraith, and **J.N. Shaw**. Available online at: https://sites.google.com/a/vt.edu/se_region_soil_judging/. [Last Updated: 08-03-18.]
2. Hatch, U., B. Brooks, P.L. Mask and **J.N. Shaw**. 2000. Spatial analysis in agriculture: An overview of precision agriculture. http://srdc.msstate.edu/newsite/publications/223.htm

Theses or Dissertations Directed

16. Platt, J. 2021. Southeastern U.S. Upper Coastal Plain Ecological Sites for Dynamic Soil Property Characterization. M.S. thesis. Auburn Univ., Auburn, AL.

15. May, C. 2019. Groundwater Quality and Physical Setting Evaluation in South Texas Aquifers. M. Ag. Auburn Univ., Auburn, AL.

14. Lane, A. 2018. Compaction Susceptibility of Select Alabama Piedmont and Upper Coastal Plain Ultisols. M.S. thesis. Auburn Univ., Auburn, AL.

13. Croy, A. 2012. Agroecosystem Effects on Carbon Sequestration and Soil Function in Tennessee Valley (Alabama) Paleudults. M.S. thesis. Auburn Univ., Auburn, AL.

12. Cochran, F. 2010. Management-dependent soil variability and surface hydraulic properties of Southeastern U.S. Coastal Plain Plinthic Kandiudults.

11. Gacengo, C. 2008. Agroecosystem management effects on carbon and nitrogen cycling across a Coastal Plain catena.

10. Levi, M. 2007. Management dependent soil properties of cultivated versus non-cultivated Southeastern Coastal Plain ecosystems. M.S. thesis. Auburn Univ., Auburn, AL.

9. Smith, R. 2007. Hydromorphology and plinthite characterization of some Alabama Coastal Plain soils. M.S. thesis. Auburn Univ., Auburn, AL.

8. Causarano, H. 2006. Management and landscape influences on soil carbon in the southeastern Piedmont and Coastal Plain. Ph.D. diss. Auburn Univ., Auburn, AL.

7. White, M. 2005. A multivariate approach for high resolution soil survey development. M.S. thesis. Auburn Univ., Auburn, AL.

6. Terra, J. 2004. Soil management and landscape variability impacts on field-scale cotton and corn productivity. Ph.D. diss. Auburn Univ., Auburn, AL.

5. Fesha, I. 2004. Management-dependent properties and pedotransfer functions for soil map unit characterization. Ph.D. diss. Auburn Univ., Auburn, AL.

4. Sullivan, D. 2003. Remote sensing for quantification of agronomic properties. Ph.D. diss. Auburn Univ., Auburn, AL.

3. Beck, J. 2003. Quantitative and qualitative analysis of highly weathered clays. Ph.D. diss. Auburn Univ., Auburn, AL.

2. Fleming, S. 2002. Using geospatial technologies to relate terrestrial factors to surface water quality. M.S. thesis. Auburn Univ., Auburn, AL.

1. McIlwain, K. 2002. Seasonal high water table indicators and landscape characterization of sandy Coastal Plain soils. M.S. thesis. Auburn Univ., Auburn, AL.

2. Papers or Lectures

Papers at Professional Meetings
Note: List of itemized paper presentations at Society and Professional meetings are shown in Proceedings and Abstracts section of Publications (see above section for titles of presentations).

- Attended and presented at the International Union of Soil Science (IUSS) 21st World Congress of Science (August 12-17th, 2018, Rio De Janiero, Brazil).
- Attended and presented at the International Union of Soil Science (IUSS) 19th World Congress of Science (July 7-17th, 2006, Philadelphia, PA).
- Attended (see abstracts if presented) at American Society of Agronomy (ASA) - Soil Science Society of America (SSSA) meetings in San Antonio, TX (11/10 to 11/13/19), San Diego, CA (1/6 to1/9/19), Tampa, FL (10/22 to 10/25/17), Phoenix, AZ (11/6 to 11/9/16), Long Beach, CA (10/15 to 11/5/14), Tampa, FL (11/3 to 11/6/13), Cincinnati, OH (10/21-10/24/12), San Antonio, TX (10/16 to 10/19/11), Pittsburgh PA (11/1/09-11/4/09), Houston TX (10/5-10/9/08), New Orleans LA (11/4-11/8/07), Salt Lake City UT (11/6-11/10/05), Seattle WA (10/30-11/5/04), Denver CO (11/2-11/6/03), Indianapolis IN (11/10-11/14/02), Charlotte NC (10/21-25/01), Minneapolis MN (11/5-9/00), Salt Lake City UT (10/31-11/4/99), Baltimore MD (10/18-10/22/98).
- Attended and presented poster (Plinthite in Southeastern U.S. Coastal Plain Soils) at Fourth International Union of Soil Science (IUSS) Soil Classification Conference, Lincoln, NE (6/11-6/15/12).
- Attended and presented research results at regional project meeting (S-280) in Auburn (6/20 to 6/22/01) and Blacksburg, VA (6/9 to 6/11/99).
- Attended and presented at ASA Southern Branch meetings, Memphis, TN (1/31 to 2/2/99).
- Attended and presented at National Remote Sensing Conference in Auburn (11/15/99 to 11/17/99).
    - Invited Session Chair at National Remote Sensing Conference (11/16/99).

Invited lectures/Presiding officer
Note: Other invited lectures included in *Teaching* (see section 4.A.7) and *Outreach* (see section 4.C).

- Invited speaker at Soil Science Society of America meetings on "Gulf Coastal Plain Soils" in Mineralogy (S-9/S-5) symposium, Tampa, FL (10/24/17).
- Invited speaker at Soil Science Society of America meetings on "Highly Weathered Soil Mineralogy in SE U.S. Landscapes" in Landscape Mineralogy (S-9/S-5) symposium, New Orleans, LA (11/5/07).
- Invited talk to Southern AgriBusiness Services (CCA's) on remote sensing (Montgomery, 1/9/03).
- Invited speaker at Soil Science Society of America meetings on "Management Dependent

Properties" in Use-Dependent Property (S-5/S-6) symposium, Indianapolis, IN (11/11/02).

- Invited speaker to Auburn University Environmental Institute Sponsored Lectures: *Remote Sensing Applications in Agronomy* (5/09/02).
- Invited presiding officer at Soil Science Society of America National Meeting technical session (Charlotte, NC) (S6: Site-Specific Soil Management) (10/24/01); (S9: Characterizing the Nature of Soil Minerals) (10/25/01); (Baltimore, MD) (S-10: Soil Hydromorphology) (10/19/98).
- Invited speaker at the 12th annual Alabama Department of Public Health on-site sewage treatment and disposal conference (1/23/01).
- Invited participant at forest tillage meeting between timber industry (e.g. Mead Coated Board, IP) and USFS, USDA-ARS, and AU researchers (9/8/00, 12/7/01).
- Invited Session Moderator at 13th Annual AL Water Resources Conference, Gulf Shores, AL (9/9/99).
- Invited speaker to IMC Agri-Business (*Soils of the SE*) - Certified Crop Advisor's Continuing Education Seminar (11/11/98)

3. Grants and Contracts

Funded Projects
(Student of Shaw shown with an *)

157. Project title: Irrigation Strategies for Alabama Black Belt Soils.
Investigator: T. Knappenberger, **J.N. Shaw (30%)**, and E. Brantley.
Sponsor: Alabama Wheat and Feed Grain Producers
Amount: $12,900
Duration: 03/01/2021 to 02/28/22

156. Project title: Effect of Cover Crops on Infiltration and Irrigation Management.
Investigator: T. Knappenberger, A. Gamble, **J.N. Shaw (20%)**, and K.Balkcom.
Sponsor: Alabama Wheat and Feed Grain Producers
Amount: $2,618
Duration: 03/01/2020 to 02/28/2021

155. Project title: Yield Analyses of Irrigated Soils
Investigator: T. Knappenberger, **J.N. Shaw (20%)**, and A. Rabinowitz.
Sponsor: Alabama Wheat and Feed Grain Producers
Amount: $20,520
Duration: 03/01/2021 to 02/28/2022

154. Project title: Effect of Cover Crops on Infiltration and Irrigation Management.
Investigator: T. Knappenberger, A. Gamble, **J.N. Shaw (20%)**, and K. Balkcom
Sponsor: Alabama Soybean Producers.
Amount: $7,000
Duration: 03/01/2021 to 02/28/22

153. Project title: Irrigation Strategies for Alabama Black Belt Soils
Investigator: T. Knappenberger, **J.N. Shaw (30%)**, and E. Brantley
Sponsor: Alabama Soybean Producers.
Amount: $5,600
Duration: 03/01/2021 to 02/28/22

152. Project title: Variable Rate Irrigation Based on Soil Sampling and Sensor Techniques.
Investigator: T. Knappenberger, **J.N. Shaw (30%)**, E. Brantley, and G. Pate
Sponsor: Alabama Soybean Producers
Amount: $8,000
Duration: 03/01/2021 to 02/28/22

151. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $12,000
Duration: 10/1/20 to 9/31/21

150. Project title: Auburn University Hosting the 2021 NCSS National Meeting
Investigator: **J.N. Shaw**
Sponsor: NRCS CESU 68-3A75-17-466
Amount: $60,000
Duration: 10/1/20 to 9/31/21

149. Project title: Land PKS collaboration with Auburn University
Investigators: **J.N. Shaw** and E.A. Guertal
Sponsor: International Fertilizer Development Center (Lead Institution), Muscle Shoals, AL; Feed the Future Innovation Lab for Collaborative Research on Sustainable Intensification (SIIL) at Kansas State University (KSU)
Amount: $26,869
Duration: 1/1/20 to 12/31/20

148. Project title: A decision support tool for phosphorus application in cotton fields that have a "high" soil test phosphorus rating
Investigators: R. Prasad, **J.N. Shaw,** A. Gamble and K. Stanford
Sponsor: Alabama Cotton Commission
Amount: $18,000
Duration: 3/1/20 to 2/28/21

147. Project title: Effect of Cover Crops on Infiltration and Irrigation Management.
Investigator: T. Knappenberger, A. Gamble, **J.N. Shaw**, and K.Balkcom.
Sponsor: Alabama Wheat and Feed Grain Producers
Amount: $5,000
Duration: 03/01/2020 to 02/28/2021

146. Project title: Irrigation Strategies for Alabama Black Belt Soils.
Investigator: T. Knappenberger, **J.N. Shaw**, and E. Brantley.
Sponsor: Alabama Wheat and Feed Grain Producers
Amount: $12,996
Duration: 03/01/2020 to 02/28/21

145. Project title: Effect of Cover Crops on Infiltration and Irrigation Management.
Investigator: T. Knappenberger, A. Gamble, **J.N. Shaw**, and K. Balkcom
Sponsor: Alabama Soybean Producers.
Amount: $6,978
Duration: 03/01/2020 to 02/28/21

144. Project title: Irrigation Strategies for Alabama Black Belt Soils
Investigator: T. Knappenberger, **J.N. Shaw**, and E. Brantley
Sponsor: Alabama Soybean Producers.
Amount: $5,600
Duration: 03/01/2020 to 02/28/21

143. Project title: Variable Rate Irrigation Based on Soil Sampling and Sensor Techniques.
Investigator: T. Knappenberger, **J.N. Shaw**, E. Brantley, and G. Pate
Sponsor: Alabama Soybean Producers
Amount: $7,000
Duration: 03/01/2020 to 02/28/21

142. Project title: Best Practices for Construction Site Stormwater Treatment using Flocculants
Investigator: M. Perez, W. Donald, X. Fang and **J.N. Shaw**
Sponsor: Alabama Department of Transportation Montgomery, Alabama
Amount: $369,300
Duration: 1/1/20 to 12/31/23

141. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $12,000
Duration: 1/1/20 to 9/31/20

140. Project title: Soil Characterization, Classification, and Quality of Agroecosystems in the Toledo District of Belize
Investigators: **J.N. Shaw**
Sponsor: York International Scholars Program
Amount: $2,000
Duration: 1/1/20 to 4/30/20

139. Project title: A decision support tool for phosphorus application in cotton fields that have a "high" soil test phosphorus rating
Investigators: R. Prasad, **J.N. Shaw**, and A. Gamble
Sponsor: Alabama Cotton Commission
Amount: $15,000
Duration: 3/1/9 to 2/28/20

138. Project title: Irrigation Strategies for Alabama Black Belt Soils
Investigators: T. Knappenberger, **J.N. Shaw**, and E. Brantley
Sponsor: Alabama Wheat and Feed Grain Committee
Amount: $13,000
Duration: 3/1/19 to 2/28/20

137. Project title: Irrigation Strategies for Alabama Black Belt Soils
Investigators: T. Knappenberger, **J.N. Shaw**, and E. Brantley
Sponsor: Alabama Soybean Producers
Amount: $8,000
Duration: 3/1/19 to 2/28/20

136. Project title: Drone Image Assessment to Improve Variable Rate Irrigation
Investigators: T. Knappenberger, B. Ortiz, **J.N. Shaw**, C. Brodbeck
Sponsor: Alabama Soybean Producers
Amount: $4,000
Duration: 3/1/19 to 2/28/20

135. Project title: Variable Rate Irrigation Based on Soil Sampling and Sensor Techniques
Investigators: T. Knappenberger, **J.N. Shaw**, D. Monks, G. Pate,
Sponsor: Alabama Soybean Producers
Amount: $10,000
Duration: 3/1/19 to 2/28/20

134. Project title: Support for Auburn University Soil Judging Team
Investigator: **J.N. Shaw**
Sponsor: Alabama State Soil and Water Committee, ALFA Foundation
Amount: $5,500
Duration: 1/1/19 to 4/30/19

133. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $12,000
Duration: 1/1/19 to 9/31/19

132. Project title: Quantitative Tools for Developing Ecological Sites in the Southeastern U.S.
Investigators: **J.N. Shaw** and T. Knappenberger
Sponsor: USDA-NRCS, Soil Survey Collaborative Research Projects (by way of subcontract from NC State)
Amount: $50,000 to Auburn ($250,000 total)
Duration: 9/30/18 to 12/31/20

131. Project title: Irrigation Strategies for Alabama Black Belt Soils
Investigators: T. Knappenberger, **J.N. Shaw**, and E. Brantley
Sponsor: Alabama Soybean Producers
Amount: $8,000
Duration: 3/1/18 to 2/28/19

130. Project title: Variable Rate Irrigation Based on Soil Sampling and Sensor Techniques
Investigators: T. Knappenberger, J. Howe, **J.N. Shaw**, D. Monks, and G. Pate
Sponsor: Alabama Soybean Producers
Amount: $10,000
Duration: 3/1/18 to 2/28/19

129. Project title: Drone Image Assessment to Improve Variable Rate Irrigation
Investigators: T. Knappenberger, B. Ortiz, **J.N. Shaw**, C. Brodbeck, and A. Poncet
Sponsor: Alabama Soybean Producers
Amount: $8,500
Duration: 3/1/18 to 2/28/19

128. Project title: A decision support tool for phosphorus application in cotton fields that have a "high" soil test phosphorus rating
Investigators: R. Prasad, **J.N. Shaw,** A. Gamble and K. Stanford
Sponsor: Alabama Cotton Commission
Amount: $15,000
Duration: 3/1/18 to 2/28/19

127. Project title: Improvement of Irrigation Management on Alabama Black Belt Soils
Investigators: T. Knappenberger, **J.N. Shaw** and E.A. Brantley
Sponsor: Alabama Wheat and Feed Grain Committee
Amount: $13,000
Duration: 3/1/18 to 2/28/19

126. Project title: Needs assessment of Guyana upland and coastal communities for sustainable soil and water collaborations
Investigators: T. Knappenberger, E. Brantley, **J.N. Shaw**, and J. Lindner
Sponsor: York International Scholars Program (ISP)
Amount: $6,000
Duration: 3/1/18 to12/31/18

125. Project title: Investigating Benchmark Soil Landscapes in the South: Linking soils, landscapes, vegetation and hydrology
Investigators: **J.N. Shaw** and T. Knappenberger
Sponsor: USDA-NRCS (by way of subcontract from UT-Martin)
Amount: $30,000 to Auburn ($100,000 total)
Duration: 1/1/18 to 12/31/19.

124. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $10,000
Duration: 10/1/17 to 9/31/18

123. Project title: Evaluation of Agronomic Management on Soil and Environmental quality of Red Ferralitic Landscapes in Mayabeque Province, Cuba
Investigators: B. Ortiz, E. Brantley, T. Knappenberger and **J.N. Shaw**
Sponsor: Auburn University AAES-Cuba grants program 2017
Amount: $9,000
Duration: 10/1/17 to 9/31/18

122. Project title: Relating Soil Morphological and Management-Dependent Properties to Trafficking Machine Pressures
Investigator: **J.N. Shaw**
Sponsor: USDA Forest Service
Amount: $10,000 (addition to original)
Duration: 7/1/17 to 12/31/17

121. Project title: Soil characterization work associated with the Soil Survey Update of Mobile County, Alabama
Investigators: **J.N. Shaw**

Sponsor: NRCS
Amount: $5,000
Duration: 3/1/17 to 12/31/17

120. Project title: Drone Image Assessment to Improve Variable Rate Irrigation
Investigators: T. Knappenberger, B. Ortiz, **J.N. Shaw**, and C. Brodbeck
Sponsor: Alabama Soybean Producers
Amount: $8,500
Duration: 3/1/17 to 2/28/18

119. Project title: Variable Rate Irrigation Based on Soil Sampling and Sensor Techniques
Investigators: T. Knappenberger, J. Howe, **J.N. Shaw**, D. Monks, and G. Pate
Sponsor: Alabama Soybean Producers
Amount: $10,000
Duration: 3/1/17 to 2/28/18

118. Project title: Drone Image Assessment to Improve Variable Rate Irrigation
Investigators: T. Knappenberger, B. Ortiz, **J.N. Shaw** and C. Brodbeck
Sponsor: Alabama Wheat and Feed Grain Committee
Amount: $8,500
Duration: 3/1/17 to 2/28/18

117. Project title: Improvement of Irrigation Management on Alabama Black Belt Soils
Investigators: T. Knappenberger, B. Ortiz, **J.N. Shaw**, and D. Delaney
Sponsor: Alabama Wheat and Feed Grain Committee
Amount: $14,000
Duration: 3/1/17 to 2/28/18

116. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $10,000
Duration: 5/1/17 to 4/28/18

115. Project title: Soil Surface Temperature and Relative Humidity Effects on 2,4-D Volatilization
Investigators: T. Knappenberger, **J.N. Shaw**
Sponsor: Alabama Agricultural Experiment Station Hatch/Multistate Program
Amount: $50,000
Duration: 8/31/16 to 9/1/17

114. Project title: USDA Haitian Soil Survey Training
Investigators: D.Shannon, **J.N. Shaw** and G. Huluka
Sponsor: USDA, Cochran Fellowship
Amount: $84,881
Duration: 7/1/16 to 8/15/16

113. Project title: Develop strategies to evaluate land use management for sustainable food production and environmental protection
Investigators: B. Ortiz, E. Brantley, J.A. Howe, T. Knappenberger and **J.N. Shaw**
Sponsor: Auburn University AAES-Cuba grants program 2016

Amount: $13,750
Duration: 5/1/16 to 4/30/17

112. Project title: Auburn University EASL 2 Go Program
Investigators: T. Knappenberger, J.A. Howe, Y. Feng, **J.N. Shaw**, and E. Brantley
Sponsor: Auburn University Active Learning and Teaching Technology Grant
Amount: $22,000
Duration: 6/1/16 to 5/31/17

111. Project title: Variable Rate Irrigation Based on Soil Sampling and Sensor Techniques
Investigators: T. Knappenberger, J. Howe, **J.N. Shaw**, D. Monks, G. Pate, and Luke Carter
Sponsor: Alabama Soybean Producers
Amount: $4,000
Duration: 3/1/16 to 2/28/17

110. Project title: Improvement of Irrigation Management on Alabama Black Belt Soils
Investigators: T. Knappenberger, B. Ortiz, **J.N. Shaw**, and D. Delaney
Sponsor: Alabama Soybean Producers
Amount: $14,000
Duration: 3/1/16 to 2/28/17

109. Project title: Relating Soil Morphological and Management-Dependent Properties to Trafficking Machine Pressures
Investigators: **J.N. Shaw** and E.A. Carter
Sponsor: USDA Forest Service
Amount: $19,998.74
Duration: 9/1/15 to 12/31/17

108. Project title: Impact of Seed Meter and Down Pressure Technology on Planter Performance in Cotton
Investigators: J.P. Fulton, K. Balkcom, **J.N. Shaw**, S. Virk, A. Poncet, G. Pate, M. Hall
Sponsor: Alabama Cotton Commission
Amount: $4,500
Duration: 3/1/14 to 2/28/15

107. Project title: Impact of Seed Meter and Down Pressure Technology on Planter Performance in Corn
Investigators: J.P. Fulton, K. Balkcom, **J.N. Shaw**, S. Virk, A. Poncet, G. Pate, M. Hall
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $4,500
Duration: 3/1/14 to 2/28/15

106. Project title: Impact of Seed Meter and Down Pressure Technology on Planter Performance in Soybean
Investigators: J.P. Fulton, K. Balkcom, **J.N. Shaw**, S. Virk, A. Poncet, G. Pate, M. Hall
Sponsor: Alabama Soybean Producers
Amount: $4,500
Duration: 3/1/14 to 2/28/15

105. Project title: X-ray Diffraction and Fluorescence for Material, Energy, Earth and Environmental Research
Investigators: M.K. Lee, W. Hames, **J.N. Shaw**, and A. Son.

Sponsor: Auburn University Intramural Equipment Grants Program (AU-IGP Level IV)
Amount: $58,677
Duration: 6/13

104. Project title: Eco-Morphological Mitigation Design and Assessment Tools for the Alabama and Tennessee Appalachian Plateau
Investigators: E.Brantley, B. Helms, A.Ludwig, **J.N. Shaw**, G. Jennings, C. Anderson, D. Werneke, and J. Feminella
Sponsor: US EPA Region 04 Wetland Program Development Grants
Amount: $355,330
Duration: 10/1/12 to 9/30/15

103. Project title: Rapid Assessment of Soil Carbon Assistance for MLRA 15 Soil Survey Region
Investigators: **J.N. Shaw**
Sponsor: USDA-NRCS
Amount: $18,300
Duration: 4/1/11 to 3/31/12

102. Project title: Evaluating the Impact of Double Planted Rows on Corn Yield
Investigators: J.P. Fulton, A. Winstead, K. Balkcom, **J.N. Shaw**, G. Pate, M. Hall, D. Mullinex
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $3,000
Duration: 3/1/11 to 2/28/12

101. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $15,000
Duration: 10/1/10 to 9/31/11

100. Project title: Precision Agriculture, Alabama
Investigators: B. Ortiz, J. Fulton, P. Mask, **J.N. Shaw** and T. McDonald,
Sponsor: CSREES-Federal Administration Research Grants
Amount: $389,950
Duration: 8/1/10 to 7/31/12

99. Project title: Development of a Cotton Fertilizer Prescription for Variable Rate Application in the Coastal Plain
Investigators: K. Balkcom, **J.N. Shaw** and J.P. Fulton.
Sponsor: Alabama Cotton Commission
Amount: $8,000
Duration: 3/1/10 to 2/28/11

98. Project title: Precision Agriculture, Alabama
Investigators: B. Ortiz, J. Fulton, P. Mask, T. McDonald, **J.N. Shaw**, E.A. Guertal, K. Bowen and S. Taylor
Sponsor: CSREES-Federal Administration Research Grants
Amount: $390,628
Duration: 8/1/09 to 7/31/11

97. Project title: Precision Agriculture Technologies for Improved Crop Production in the Tennessee Valley of Alabama.
Investigators: J.P. Fulton, P. Mask, B. Ortiz, **J.N. Shaw**, J. Howe and T.P. McDonald.
Sponsor: CSREES-Federal Administration Research Grants
Amount: $388,440
Duration: 8/1/09 to 7/31/11

96. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $13,200 (reduced from $15k by budget cuts)
Duration: 10/1/09 to 9/31/10

95. Project title: Eco-Morphological Stream Design and Assessment Tools for the Alabama Piedmont
Investigators: E. Brantley, B. Helms, **J.N. Shaw**, G. Jennings, C. Anderson, J. Stoeckel
Sponsor: US EPA 104(b) grants
Amount: $319,043
Duration: 1/15/10 to 9/30/13

94. Project title: Utilizing Farm Data for Management Zone Creation
Investigators: A. Winstead, S. Norwood, D. Rodekohr, B. Ortiz, **J.N. Shaw** and J. Fulton
Sponsor: Alabama Soybean Commission
Amount: $1,500
Duration: 3/1/09 to 2/28/10

93. Project title: Utilizing Farm Data for Management Zone Creation
Investigators: A. Winstead, S. Norwood, D. Rodekohr, B. Ortiz, **J.N. Shaw** and J. Fulton
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $1,500
Duration: 3/1/09 to 2/28/10

92. Project title: Utilizing Farm Data for Management Zone Creation
Investigators: A. Winstead, S. Norwood, D. Rodekohr, B. Ortiz, **J.N. Shaw** and J. Fulton
Sponsor: Alabama Cotton Commission
Amount: $1,500
Duration: 3/1/09 to 2/28/10

91. Project title: Evaluation of Greenseeker for variable rate N application
Investigators: S. Norwood, A. Winstead, C. Burmester, D. Monks, J. Fulton, **J.N. Shaw**
Sponsor: Alabama Cotton Commission
Amount: $3,500
Duration: 3/1/09 to 2/28/10

90. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $4,125
Duration: 10/1/08 to 9/31/09

89. Project title: Precision Agriculture, Alabama
Investigators: J.P. Fulton, P.L. Mask, **J.N. Shaw**, T.P. McDonald and S.E. Taylor
Sponsor: CSREES-Federal Administration Research Grants
Amount: $415,769
Duration: 8/1/08 to 7/31/10

88. Project title: Precision Agriculture Technologies to Increase Production Efficiency in Alabama (Tennessee Valley).
Investigators: Mask, P.L., J. A. Howe, J.P. Fulton, **J.N. Shaw**, T.P. McDonald, A.M. Adrian and S.E. Taylor
Sponsor: CSREES-Federal Administration Research Grants
Amount: $413,605
Duration: 8/1/08 to 7/31/10

87. Project title: Evaluation of Greenseeker for variable rate N application
Investigators: S. Norwood, A. Winstead, C. Burmester, D. Monks, J. Fulton, **J.N. Shaw**
Sponsor: Alabama Cotton Commission
Amount: $3,500
Duration: 3/1/08 to 2/28/09

86. Project title: Addressing Poultry Litter Management Challenges through Improved Understanding of Fundamental Hydrologic and Nutrient Transport Processes (continuation)
Investigators: Srivastava, P, J.P. Fulton, K.H. Yoo,T.Way, W. F. Owsley, C.W. Wood, and **J.N. Shaw.**
Sponsor: AU Natural Resource Initiative - Alabama Agriculture Experiment Station Initiative
Amount: $77,371 (2nd yr funding)
Duration: 1/1/08 to 9/31/08

85. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $4,125
Duration: 9/31/07 to 10/1/08

84. Soil Characterization Data Input Contract
Investigators: **J.N. Shaw**
Sponsor: USDA-NRCS, Univ. of Idaho
Amount: $7,000
Duration: 10/1/07 to 9/30/08

83. Project title: Evaluation of Greenseeker for variable rate N application
Investigators: S. Norwood, A. Winstead, C. Burmester, D. Monks, J. Fulton, **J.N. Shaw**
Sponsor: Alabama Cotton Commission
Amount: $4,000
Duration: 3/1/07 to 2/28/08

82. Project title: Evaluation of variable rate seeding for cotton
Investigators: J. Fulton, S. Norwood, **J.N. Shaw**, C. Burmester, C. Brodbeck, A. Winstead, M. Hall, P. Mask
Sponsor: Alabama Cotton Commission
Amount: $5,500

Duration: 3/1/07 to 2/28/08

81. Project title: Evaluation of variable rate seeding for corn
Investigators: J. Fulton, S. Norwood, **J.N. Shaw**, C. Burmester, C. Brodbeck, A. Winstead, M. Hall, P. Mask
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $5,500
Duration: 3/1/07 to 2/28/08

80. Project title: Addressing Poultry Litter Management Challenges through Improved Understanding of Fundamental Hydrologic and Nutrient Transport Processes
Investigators: P. Srivastava, J.P. Fulton, K.H. Yoo, T.Way, W. F. Owsley, C.W. Wood, and **J.N. Shaw.**
Sponsor: AU Natural Resource Initiative - Alabama Agriculture Experiment Station Initiative
Amount: $93,185 (1st yr funding)
Duration: 1/1/07 to 8/30/08

79. Project title: Developing techniques and alternative paradigms for Order 1 soil surveys
Investigators: **J.N. Shaw**
Sponsor: Alabama Agriculture Experiment Station
Amount: $17,144
Duration: 1/1/07 to 8/31/07

78. Project title: A systems approach to sustain and stimulate the agricultural economy of Alabama: Optimal on- and off-farm management of poultry litter.
Investigators: J. Fulton, P. Srivastava, O. Fasina, F. Owley, R. Muntifering, C.W. Wood, Y. Feng, **J.N. Shaw**, E. van Santen, H. Fadamiro.
Sponsor: AAES Poultry Initiative
Amount:$312,740 (2nd yr funding)
Duration: 10/1/06 to 9/30/07

77. Project title: Order 1 Soil Survey, Landscape Attributes, and Simulation Modeling to Predict Seasonal Saturation of Plinthic Soils in the Coastal Plain of Alabama and Georgia
Investigators: **J.N. Shaw** and J. P. Fulton
Sponsor: USDA-NRCS
Amount: $73,040
Duration: 9/1/06 to 8/31/09

76. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $2,750
Duration: 9/31/06 to 10/1/07

75. Project title: Precision agriculture and precision forestry- Alabama
Investigators: J.P. Fulton, P.L. Mask, T. McDonald, **J.N. Shaw**, M. Dougherty, P. Srivastava, S. Taylor
Sponsor: CSREES-Federal Administration Research Grants
Amount: $555, 057
Duration: 8/1/06 to 7/31/08

74. Project title: Evaluation of variable rate seeding for cotton

Investigators: J. Fulton, S. Norwood, C. Burmester, M. Hall, P. Mask, **J.N. Shaw**, C. Dillard
Sponsor: Alabama Cotton Commission
Amount: $5,500
Duration: 3/1/06 to 2/28/07

73. Project title: Evaluation of variable rate seeding for corn
Investigators: J. Fulton, S. Norwood, C. Burmester, M. Hall, P. Mask, **J.N. Shaw**, C. Dillard
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $5,500
Duration: 3/1/06 to 2/28/07

72. Project title: Airborne Imagery for Rapid Crop Productivity Assessments
Investigators: G. Huluka, P. Mask, and **J.N. Shaw**
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $10,000
Duration: 3/1/06 to 2/28/07

71. Project title: Cotton production systems to sequester Soil Organic Carbon in the Southeastern U.S.A.
Investigators: A. Franzluebbers, H. Causarano*, **J.N. Shaw**, D. Wayne Reeves
Sponsor: Cotton Incorporated
Amount: $5,000
Duration: 1/1/06 to 12/31/06

70. Project title: A systems approach to sustain and stimulate the agricultural economy of Alabama: Optimal on- and off-farm management of poultry litter.
Investigators: J. Fulton, P. Srivastava, O. Fasina, F. Owley, R. Muntifering, C.W. Wood, Y. Feng, **J.N. Shaw**, E. van Santen, H. Fadamiro.
Sponsor: AAES Poultry Initiative
Amount:$290,000 (1st yr funding)
Duration: 10/1/05 to 9/30/06

69. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $2,750
Duration: 9/31/05 to 10/1/06

68. Project title: Precision agriculture and precision forestry- Alabama
Investigators: J.P. Fulton, P.L. Mask, T. McDonald, **J.N. Shaw**, S. Taylor, and M. Dougherty
Sponsor: CSREES-Federal Administration Research Grants
Amount: $560, 821
Duration: 8/15/05 to 8/14/07

67. Project title: Innovative on-site wastewater treatment for the Black Belt
Investigators: M. Dougherty, **J.N. Shaw**, C.W. Wood
Sponsor: AL Land Grant Alliance
Duration: Amount: $25,000

66. Project title: Cotton production systems to sequester Soil Organic Carbon in the Southeastern USA

Investigators: A. Franzluebbers, H. Causarano*, **J.N. Shaw**, D. Wayne Reeves
Sponsor: Cotton Incorporated
Amount: $5,000
Duration: 1/1/05 to 12/31/05

65. Project title: Evaluation of variable rate seeding for cotton
Investigators: J. Fulton, S. Norwood, C. Burmester, M. Hall, P. Mask, **J.N. Shaw**, C. Dillard
Sponsor: Alabama Cotton Commission
Amount: $7,500
Duration: 3/1/05 to 2/28/06

64. Project title: Using Equipment-Mounted Sensor to Optimize Nitrogen Rates for Wheat
Investigators: S. Norwood, P. Mask, G. Huluka, **J.N. Shaw**, K. Balkcom, C. Dillard
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $7,400
Duration: 3/1/05 to 2/28/06

63. Project title: Airborne Imagery for Rapid Crop Productivity Assessments
Investigators: G. Huluka, P. Mask, and **J.N. Shaw**
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $10,000
Duration: 3/1/05 to 2/28/06

62. Project title: Evaluation of variable rate seeding for corn
Investigators: J. Fulton, S. Norwood, C. Burmester, M. Hall, P. Mask, **J.N. Shaw**, C. Dillard
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $7,500
Duration: 3/1/05 to 2/28/06

61. Project title: Calibration of Granular Variable-Rate Application Equipment: Volume versus Mass Measurement for Pattern Assessment
Investigators: J. Fulton, S. Norwood, C. Burmester, M. Hall, P. Mask, **J.N. Shaw**, C. Dillard
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $4,200
Duration: 3/1/05 to 2/28/06

60. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $2,750
Duration: 9/31/04 to 10/1/05

59. Project title: Cooperative Agreement- Soil Characterization for MO18
Investigators: **J.N. Shaw**
Sponsor: USDA-NRCS
Amount: $10,000
Duration: 5/1/04 to 9/20/05

58. Project title: Support for AlabamaView
Investigators: J.M. Wersinger, L. Marzen, **J.N. Shaw**, P.L. Mask

Sponsor: AmericaView Inc.
Amount: $89,500
Duration: 7/1/04 to 6/30/05

57. Project title: Precision agriculture and precision forestry- Alabama
Investigators: T.P. McDonald, P.L. Mask, J.P. Fulton, **J.N. Shaw** and S. E. Taylor
Sponsor: CSREES-Federal Administration Research Grants
Amount: $544,330
Duration: 4/1/04 to 3/31/05

56. Project title: AlabamaView Consortium Development
Investigators: J.M. Wersinger, L. Marzen, **J.N. Shaw**, P.L. Mask
Sponsor: AmericaView Inc.
Amount: $89,500
Duration: 4/1/04 to 3/31/05

55. Project title: Airborne Imagery for Rapid Crop Productivity Assessment
Investigators: G. Huluka, P. Mask, and **J.N. Shaw**
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $10,000
Duration: 3/1/04 to 2/28/05

54. Project title: Variable-Rate Nitrogen Management for Tennessee Valley Corn
Investigators: J. Fulton, P. Mask, C. Burmester, **J.N. Shaw**, S. Taylor, S. Norwood
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $7,000
Duration: 3/1/04 to 2/28/05

53. Project title: Using Equipment-Mounted Sensor to Optimize Nitrogen Rates for Wheat
Investigators: S. Norwood, P. Mask, G. Huluka, **J.N. Shaw**, K. Balkcom, C. Dillard
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $6,000
Duration: 3/1/04 to 2/28/05

52. Project title: Potential for Soil Carbon Sequestration in Cotton Production Systems of the Southeastern USA
Investigators: A. Franzluebbers, **J.N. Shaw**, D.W. Reeves, H. Causarano*
Sponsor: Cotton Incorporated
Amount: $5,000
Duration: 1/1/04 to 12/31/04

51. Project title: Field-Scale Aflatoxin Risk Index Development and Validation
Investigators: J. Owen, **J.N. Shaw**, K.L. Bowen
Sponsor: National Peanut Board
Amount: $10,000
1/1/04 to 12/31/04

50. Project title: Precision Agriculture, Tennessee Valley Research and Extension Center, Alabama
Investigators: P. L. Mask, T. P. McDonald, **J.N. Shaw**, S. E. Taylor and J.M. Wersinger
Sponsor: CSREES-Federal Administration Research Grants
Amount: $446,360

Duration: 9/15/03 to 9/30/05

49. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $2,750
Duration: 9/31/03 to 10/1/04

48. Project title: Thermogravimetric Analyzer for Soil Mineralogy
Investigators: **J.N. Shaw**
Sponsor: Auburn University General Fee Equipment Awards
Amount: $38,000

47. Project title: Impact of Cropping System, Soils, and Terrain Attributes on Greenhouse Gas Emissions and Carbon Sequestration of Row Crop Lands
Investigators: Co-PI's: C.W. Wood and **J.N. Shaw**, R.L. Raper, D.W. Reeves, K. Cummins, and P.L. Mask
Sponsor: AAES Foundation Grant
Amount: $62,421
Duration: 10/1/03 to 10/1/05

46. Project title: Evaluation of Integrated Technologies Including Pressure Compensating Subsurface Drip Irrigation (SDI), Precision Vehicle Guidance, Field Mapping and Yield Monitoring for Minimum Till Row Crop Production on Rolling Terrain.
Investigators: J. Baier, **J.N. Shaw**, R. Raper, P.L. Mask, C. Burmester, L. Curtis, S. Taylor, B. Norris and D. Harkins
Sponsor: AAES Foundation Grant
Amount: $118,430
Duration: 10/1/03 to 10/1/05

45. Project title: A molecular approach to determine the origin of fecal bacteria in Catoma Creek of the Alabama River Basin
Investigators: Y. Feng, C.W. Wood, and **J.N. Shaw**
Sponsor: Water Resources research Institute Program
Amount: $24,863

44. Project title: Development of environmental surface condition indicators from satellite data for delivery to users on the Alabama from Space website
Investigators: J.M. Wersinger, L.J. Marzen and **J.N. Shaw**
Sponsor: AUEI Small Competitive Grants Program
Amount: $38,494

43. Project title: Field-Scale Assessment of Non-irrigated Crop Management Systems for Minimizing Short-term Drought Risk, Improving Soil Productivity, and Delineating Management Zones
Investigators: **J.N. Shaw**, D.W. Reeves, R.L Raper, H.A. Torbert, P.L. Mask
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $10,000
Duration: 3/1/03 to 2/28/04

42. Project title: Using an Equipment-Mounted Sensor to Optimize Nitrogen Rates for Wheat

Investigators: P.L. Mask, G. Huluka, **J.N. Shaw**, K. Balkcom
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $11,550
Duration: 3/1/03 to 2/28/04

41. Project title: Irrigated Corn Production Utilizing Subsurface Drip Irrigation (SDI) with Fertility Rate and Fertility Management Variables on Rolling Terrain
Investigators: L. Curtis, P.L. Mask, **J.N. Shaw**, J. Baier, C. Burmester, R. Raper and C. Norris
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $12,000
Duration: 3/1/03 to 2/28/04

40. Project title: Airborne Imagery for Rapid Crop Productivity Assessments
Investigators: D. Sullivan*, G. Huluka, P.L. Mask, and **J.N. Shaw**
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $10,100
Duration: 3/1/03 to 2/28/04

39. Project title: Evaluation of Pressure Compensating Subsurface Drip Irrigation (SDI) on Rolling Terrain for Cotton Production
Investigators: L. Curtis, J. Baier, **J.N. Shaw**, R. Raper C. Burmester, and C. Norris
Sponsor: Alabama Cotton Commission
Amount: $12,000
Duration: 3/1/03 to 2/28/04

38. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $11,000
Duration: 10/1/02 to 9/31/03

37. Project title: Assessing Soil Quality of Southeastern U.S. Timber Lands
Investigator: **J.N. Shaw**, E.A. Carter, and C.W. Wood.
Sponsor: USDA-Forest Service
Amount: $15,000
Duration: 7/1/02 to 12/31/03

36. Project title: Precision Agriculture, Tennessee Valley Research and Extension Center, Alabama
Investigators: Paul L. Mask, **J.N. Shaw**, S. Taylor, D.W. Reeves
Sponsor: CSREES-Federal Administration Research Grants
Amount: $449,280
Duration: 6/01/02 thru 5/31/04

35. Project title: Evaluation of Veris Electrical Conductivity Mapping for Soil Survey Applications
Investigators: **J.N. Shaw,** M.L. Norfleet, and W.E. Puckett
Sponsor: Solicitation to USDA- NRCS Soil Survey Program
Amount: $30,000
Duration: 3/1/02 to 12/31/03

34. Project title: Utilizing Yield Maps and Remote Sensing Imagery to Optimize Nitrogen Fertilizer Rates

for Corn
Investigators: P. L. Mask, **J.N. Shaw**, D. Sullivan*, and C. Dillard.
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $8,000
Duration: 3/1/02 to 2/28/03

33. Project title: Analyzing Remote Sensing Data for Grain Crop Improvement
Investigators: D. Rickman, J. Luvall, P.L. Mask, **J.N. Shaw**
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $12,000
Duration: 3/1/02 to 2/28/03

32. Project title: Field-Scale Assessment of Non-irrigated Crop Management Systems for Minimizing Short-term Drought Risk, Improving Soil Productivity, and Delineating Management Zones
Investigators: **J.N. Shaw**, D.W. Reeves, P.L. Mask, J.E. Bannon
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $12,000
Duration: 3/1/02 to 2/28/03

31. Project title: Field-Scale Assessment of Non-irrigated Crop Management Systems for Minimizing Short-term Drought Risk, Improving Soil Productivity, and Delineating Management Zones
Investigators: **J.N. Shaw**, D.W. Reeves, P.L. Mask
Sponsor: Cotton Commission
Amount: $9,000
Duration: 1/01/2002 to 12/31/2002

30. Project title: Irrigated Cotton Management with Conservation Tillage/Remote Sensing of Irrigated Cotton
Investigators: D. W. Reeves, **J. N. Shaw**, L. M. Curtis, C. H. Burmester, P.L. Mask
Sponsor: Cotton Commission
Amount: $10,000
Duration: 1/01/2002 to 12/31/2002

29. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $11,000
Duration: 10/1/01 to 9/31/02

28. Project title: Development of Geospatial Training for Precision Agriculture Practitioners
Investigators: P.L. Mask, **J.N. Shaw**, and K.L. Flanders
Sponsor: CSREES-Federal Administration Research Grant Program
Amount: $174,360
Duration: 9/01/01 to 9/31/02

27. Project title: Aflatoxin Risk Index Development and Validation
Investigators: **J.N. Shaw** and KL Bowen
Sponsor: AL PEANUT, APPA
Amount: $10,621
Duration: 9/01/01

26. Project title: Precision Agriculture/ Tennessee Valley Research and Extension Center: Key Research Needs for Improving the Sustainability of Tennessee Valley Cotton Production
Investigators: **J.N. Shaw**, P.L. Mask, D.W. Reeves, C. Burmester, and J. Baier
Sponsor: CSREES-Federal Administration Research Grants
Amount: $137,592
Duration: 6/01/01 to 5/31/02

25. Project title: Smith's Station Onsite Sewage Subdivision Monitoring Project
Investigators: **J.N. Shaw** and C.W. Wood
Sponsor: Alabama Department of Public Health
Amount: $10,000
Duration: 3/31/01 to 2/28/03

24. Project title: Field-Scale Assessment of Non-irrigated Crop Management Systems for Minimizing Short-term Drought Risk, Improving Soil Productivity, and Delineating Management Zones
Investigators: **J.N. Shaw**, D.W. Reeves, P.L. Mask, J.E. Bannon
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $12,000
Duration: 3/1/01 to 2/28/02

23. Project title: Evaluating Percent Residue Cover as it Relates to Soil Organic Matter via Remote Sensing
Investigators: D.G. Sullivan*, **J.N. Shaw**, and P.L. Mask.
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $7,500
Duration: 3/1/01 to 2/28/02

22. Project title: Evaluation of Soil Sampling Techniques for Optimum Profitability
Investigators: A.N. Thompson*, **J.N. Shaw**, and P.L. Mask
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $8,000
Duration: 3/1/01 to 2/28/02

21. Project title: Site-Specific Tillage to Alleviate Site Specific Compaction, Is There a Need?
Investigators: R.L. Raper, P. Mask, **J.N. Shaw**, D.W. Reeves, E. Van Santen, and T. Grift.
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $12,000
Duration: 3/1/01 to 2/28/02

20. Project title: Utilizing Yield Maps and Remote Sensing Imagery to Optimize Nitrogen Fertilizer Rates for Corn
Investigators: P. L. Mask, **J.N. Shaw**, D. Sullivan*, and C. Dillard.
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $8,000
Duration: 3/1/01 to 2/28/02

19. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee

Amount: $11,000
Duration: 10/1/00 to 9/31/01

18. Project title: Using Remote Sensing for Precision Agriculture
Investigators: co PI's: J.M. Wersinger and **J.N. Shaw**, D. Rickman, P.L. Mask, J. Luvall
Sponsor: Alabama-NASA Epscor- Preparation grants program
Amount: $123,819 (including $30k data acquisition)
Duration: 9/1/00- 8/31/01

17. Project title: Development of Geospatial Training for Precision Agriculture Practitioners (Part I)
Investigators: P.L. Mask and **J.N. Shaw**
Sponsor: USDA-CSREES Special Research Grants Program
Amount: $79,560
Duration: 9/15/2000 to 9/30/2001

Project title: Development of Geospatial Training for Precision Agriculture Practitioners (Part II)
Investigators: T.R. Blackwell, P.L. Mask and **J.N. Shaw**
Sponsor: USDA-CSREES Special Research Grants Program
Amount: $318,240
Duration: 9/15/2000 to 9/30/2001

16. Project title: Soil Data Characterization for Soil Survey of Ft McLellan
Investigator: **J.N. Shaw**
Sponsor: USDA-NRCS
Amount: $5,068
Duration: 3/1/00-9/31/00

15. Project title: Soil Data Characterization for Soil Survey of Redstone Arsenal
Investigator: **J.N. Shaw**
Sponsor: USDA-NRCS
Amount: $5,000
Duration: 3/1/00-9/31/00

14. Project title: Estimating Soil Organic Matter in Grain Fields Using Remotely Sensed Imagery
Investigators: D.G. Sullivan*, **J.N. Shaw**, and P.L. Mask.
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $4,800
Duration: 3/1/00 to 2/28/01

13. Project title: Site-Specific Tillage to Alleviate Site Specific Compaction, Is There a Need?
Investigators: R.L. Raper, P. Mask, **J.N. Shaw**, D.W. Reeves, E. Van Santen, and T. Grift.
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $6,000
Duration: 3/1/00 to 2/28/01

12. Project title: Utilizing Yield Maps and Remote Sensing Imagery to Optimize Nitrogen Fertilizer Rates for Corn
Investigators: P. L. Mask, **J.N. Shaw**, D. Sullivan*, and C. Dillard.
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $8,000
Duration: 3/1/00 to 2/28/01

11. Project title: Evaluation of Soil Sampling Techniques for Optimum Profitability
Investigators; P. L. Mask, **J.N. Shaw**, and D. G. Sullivan*
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $8,000
Duration: 3/1/00 to 2/28/01

10. Project title: Site-Specific Variation in Soil Quality in North Alabama
Investigators: D.W. Reeves, P.L. Mask, R.L. Raper, **J.N. Shaw**
Sponsor: Alabama Farmers Federation Wheat and Feed Grain Committee
Amount: $6,000
Duration: 3/1/00 to 2/28/01

9. Project title: Reducing NPS Pollution from Onsite Sewage Disposal Systems through Improved Soil Assessment
Investigators: **J.N. Shaw**
Sponsor: Water Resources Research Institute, 2000 program
Amount: $23,184
Duration: 3/1/00

8. Project title: Development of a Rapid Bioassessment Technique to Prioritize Areas Needing Reclamation of Acid Mine Drainage
Investigators: E. Irwin, C.W. Wood, and **J.N. Shaw**
Sponsor: ADEM 319 program
Amount: $44,448
Duration: 3/1/00

7. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil and Water Committee
Amount: $10,815
Duration: 1/1/00 to 9/31/00

6. Project title: Remote Sensing for Site Specific Agriculture in Alabama. Yield Variability Prediction, Management Practices, and Environmental Impact.
Investigators: Wersinger, J.M., P. Mask, **J.N. Shaw**, D.M. Rickman, and H. Clonts
Sponsor: Alabama-NASA Epscor- Preparation grants program
Amount: $94,550
Duration: 6/1/99 to 8/31/00

5. Project title: Competition Effects on the Accuracy of α,α dipyridyl as an Indicator of Reducing Conditions in Wetlands
Investigators: **J.N. Shaw**
Sponsor: Competitive research grant support of research faculty (AU)
Amount: $2,874
Duration: 5/1/99 to 4/31/00

4. Project title: Using Spectral Reflectance to Evaluate Compaction
Investigators: **J.N. Shaw** and E.A. Guertal
Sponsors: AL. Space Grant Consortium/ Joint Industry/University proposal

Amount: $10,040
Duration: 3/1/99 to 10/31/00

3. Project title: Slope Aspect Effects on Soil Properties and Timber Harvesting Induced Compaction in Piedmont Forests
Investigators: **J.N. Shaw**, E.A. Carter, M.L. Norfleet
Sponsor: U.S. Forest Service
Amount: $26,349
Duration: 9/1/98 to 12/31/99

2. Project title: Utilizing NLEAP to Predict N Losses in Different Soils
Investigator: **J.N. Shaw**
Sponsor: USDA-NRCS
Amount: $12,000
Duration: 5/1/98 to 4/31/99

1. Project title: AL State Soil and Water Committee Contract for Soil Characterization Services for Soil Survey Activity
Investigator: **J.N. Shaw**
Sponsor: State Soil Water Committee
Amount: $10,525
Duration: 10/1/98 to 9/31/99

*(57 other grant proposal submissions not funded)

C. Outreach

1. Program Description

Program 1: Representative to the National Cooperative Soil Survey
The National Cooperative Soil Survey (NCSS), established in 1899, is the program by which the Soil Surveys of our lands are produced and published. These surveys serve as the foundation of natural resource assessment. The NCSS is a program administered and funded through the USDA-Natural Resource Conservation Service (NRCS), and cooperators such as Auburn University- Alabama Agricultural Experiment Station (AAES) and other state and federal agencies play a significant role. The NCSS program is widely recognized as the premier natural resource inventory success story.

One of my roles at Auburn is to serve as the AAES representative to the National Cooperative Soil Survey. This is an activity by which I provide quality control, technical assistance, and leadership to the Soil Survey program, and I consider this one of my primary activities. The target audience of my direct activities is the USDA-NRCS, however, soil surveys are a fundamental resource on which society relies on for natural resource decision-making. In these duties, I facilitate soil survey activities by: 1) serving on a committee that advises the USDA-NRCS Soil Survey Director, 2) providing technical laboratory services, interpretations, and reports for on-going survey activity, 3) participating in field reviews of soil survey activity (by county), 4) hosting and participating in Regional, State, and National Soil Survey work-planning conferences and activities, 5) instructing workshops for field NCSS soil scientists, 6) reviewing soil survey progress reports and documents, and 7) assisting in special projects. The impact of my participation in the program is evidenced by published soil survey reports (and associated publications) and the generation of extramural funding.

Program 2: Geospatial Training

The utilization of geospatial technologies (geographic information systems, global positioning systems, remote sensing) in society is increasing. Auburn University and the AAES have a responsibility to the citizens of Alabama to provide training in these technologies and demonstrate their applications in agronomic and environmental problem-solving. I consider this to be an important responsibility in my duties.

My target audience for these outreach activities has been the geospatial technology user-community of Alabama and agents of the Alabama Cooperative Extension System (ACES), with emphasis on the applications of these technologies in soil science, environmental science, and crop production. The majority of my activities centered on development of workshops, training sessions, and invited talks. The workshops were conducted jointly with ACES faculty. We trained many Alabama Cooperative Extension System agents, producers, and other professionals in geospatial applications through our workshops conducted in cooperation with the U.S. Space and Rocket Center.

Program 3: Professional Soil Classifiers of Alabama

Alabama has a Professional Registration act for Professional Soil Classifiers (PSC). Similar to a Professional Engineering (PE) license, this registration is required by soil scientists working in Soil Classification for evaluating and mapping soils for waste disposal, urban development, wetland determination, forestry production, and various other environmental applications. I served on the advisory council for the State Board of Registration for Professional Soil Classifiers for fifteen years (2000-2015).

Soil Classifier's play a vital role in society, with most employed in the environmental consulting industry. One area in which we made a significant impact is with regard to the on-site waste disposal regulations. During this process, the PSC advisory council interacted with the Alabama Department of Public Health and the Professional Engineering Board on the proper expertise and techniques for evaluating sites for waste disposal suitability. Working with these groups, we were developed an approach by which soil classifiers evaluate sites for on-site waste disposal. This better protects the Alabama consumers and environment.

In my advisory council capacity, I: 1) serve as the academician responsible for reviewing and screening applicants, and for developing, administering, and grading the registration examination for the state licensing board, 2) participate in advisory council meetings and represent the PSC's in professional discussions with other boards, 3) host and participate in PSC Association meetings, 4) provide continuing education to Soil Classifiers through workshops and field tours.

2. Activities and Products

2. a. Instructional Activities

AAES representative to the NRCS-National Cooperative Soil Survey

- Meeting Development and Coordination
    - Co-chair of steering committee, developer, organizer and host (Auburn University) of the virtual 2021 USDA-NRCS National Cooperative Soil Survey National Conference (June 8th-10th, 2021). The conference theme was "Evolution from Soil Quality to Dynamic Soil Survey".
        - Participants of the NCSS conference include representatives from the 1862 and 1890 land-grant universities, experiment stations, NRCS, U.S. Forest Service, National Park Service, Bureau of Land Management, Bureau of Indian Affairs, Environmental Protection Agency, U.S. Fish and Wildlife Service, National Association of State Conservation Agencies, and the National Association of

Consulting Soil Scientists.
    - My responsibilities include establishing agenda, developing program, inviting speakers, developing research presentation format, soliciting and review of abstracts, conducting the meeting, and process meeting information.
    - 450 participants registered for meeting.
    - The meeting consisted of over 200 live and pre-recorded presentations.
  - Co-organized (chairman of steering committee) (with NRCS), co-hosted, and co-edited proceedings of the *National Cooperative Soil Survey- Year 2000 Southern Soils Conference* (from 6/18 to 6/23/00). Conference is held every two years with 80 participants from Land Grant Universities, Experiment Stations and the USDA-NRCS in attendance.
  - Co-organized and co-hosted 2005 AL Cooperative Soil Survey Work Planning Conference (10/5/05). Duties included moderator of meeting, and a presentation on AU Soil Survey activities. Cooperators from universities, state and federal agencies in attendance.

- Presentation (*A Pedological Approach to Compaction Susceptibility of Alabama Kanhapludults*) at 2019 National Cooperative Soil Survey Work Planning Conference (Kingstown, RI) (June 9th-13th, 2019).

- Invited presentation (*Dynamic Soil Properties and Ecological Sites in Southeastern Coastal Plain Kandiudults*) at 2018 Northeast-South Regional National Cooperative Soil Survey Work Planning Conference, hosted by West Virginia University, Summersville, WV (June 24th-28th, 2018).

- Invited presentation (*Dynamic Soil Properties of Some Alabama Soils*) at 2009 National Cooperative Soil Survey Work Planning Conference at New Mexico State University, Las Cruces, NM (May 9th -14th, 2009)

- Invited lecture (*Alabama soils*) at USDA-NRCS Soil Geomorphology Institute hosted by Alabama A&M University (6/10/09).

- Invited presentation (*Land Grant Universities and the National Cooperative Soil Survey*) at USDA-NRCS MLRA Leaders meeting (2/7/07).
  - Attended USDA-NRCS MLRA Leaders meeting hosted by Auburn (2/6-7/07).

- Presented talks at Natural Resources Conservation Service National Agronomy Meeting, May 23-25, 2006 (Causarano-student on 5/23, Shaw on 5/25). Approximately 100 NRCS Agronomists in attendance.
  - Presented talks at Field Day associated with Natural Resources Conservation Service National Agronomy Meeting (5/24/06).

- Co-developed presentation (on the National Cooperative Soil Survey) for Dean Richard Guthrie to present at Southern Dean and Director meeting (4/1/06).

- Invited presentation on the *Experiment Station perspective on the NCSS* to the Southeastern Region (MO 14, 15, 16 and 18) Soil Survey Board of Directors (State Conservationists from 13 Southern states) meeting in Biloxi, MS (6/10/04).

- Invited presentation on *Innovative Technologies in Soil Survey* to Alabama – 2003 AL Cooperative Soil Survey Work Planning Conference and Soil Scientist Workshop (3/11/03).

- Invited instructor (4 hrs) of *Soil Mineralogy* at the National Program- Natural Resource Conservation Service-Soil Science Institute. This program provides training of NRCS field Soil Survey personnel. Institute was held at Alabama A&M University (3/23 and 3/24/00).

- Invited instructor at Natural Resource Conservation Service (NRCS) Workshop (MO15).
    - Instructed sessions on "Interpreting Lab data" (5/19/98) and "Describing Soils" (5/20/98).

Geospatial Training

- Meeting Organization
    - Assisted ACES faculty in development of ACES advanced Extension Agent Training (15 agents) workshop on Geospatial Applications in Agriculture, Belle Mina Research and Extension Center (7/23/02).
        - Instructed soil survey portion (7/23/02).
    - Assisted in development of ACES Extension Agent Training (14 agents) workshop on Geospatial Applications in Agriculture, Belle Mina Research and Extension Center (5/14/02).
        - Instructed soil survey portion (5/14/02).
    - Coordinated, co-developed (with US Space and Rocket Center) and instructed workshop on Geospatial Technologies in Agriculture at Certified Crop Advisor Training, Auburn, AL (12/12/01). Approximately 20 participants from industry.
    - Coordinated, co-developed (with US Space and Rocket Center) and instructed (3hr) workshop on Geospatial Technologies in Agriculture at Alabama Crop Management Association 2001 Summer Meeting (8/9/01). Approximately 20 participants from industry.
    - Assisted in development of ACES Extension Agent Training (10 agents) workshop on Geospatial Applications in Agriculture, Auburn (5/23 and 5/24/00).
        - Instructed Remote Sensing portion (5/24/00).

- Presented Alabama Cooperative Extension System webinar on Soil Survey (9/26/17).

- Invited presentation (*Characterizing management zones*) to Precision Ag Management Zone Workshop hosted by the Alabama Cooperative Extension System (6/28 & 29/11).

- Presented (Belle Mina field-scale research) at Alabama Cotton Field Day at Tennessee Valley Research and Extension center (8/4/05).

- Shaw group (Owen) presented (field-scale research) at Southwest Alabama crops tour hosted by ACES at Gulf Coast Regional Research and Extension center (8/9/05).

- Attended and presented (15 minute) at Precision Ag and Field Crops Day, Lawrence Co., AL (7/20/04).

- Attended and presented on "Zone Management" at South Alabama Precision Ag and Field Crops Day (8/17/04) (Henry, Dale counties).

- Invited instructor and assisted in development of the U.S. Space and Rocket Center Precision Agriculture Workshop (2/8 and 2/9/01). Participants (approximately 20) included commodity reps, industry reps, and growers.

- Developed presentation (presented by Dr. John Fulton) for *Implementing Precision Ag: Guidance Systems and Variable-Rate Technologies, Alabama Producer Workshop* at Tennessee Valley Research and Extension Center - presentation on *Management Zone Data: A Case Study* (2/1/06).

- Co-developed presentation by: Rodekohr, D.A., Shaw, J, White, M*. 2005. Delineating Management Zones for Precision Agriculture applications. IPM and Precision Agriculture Workshop, Belle Mina, Alabama, (5/4/05).

- Two presentations by Shaw group (Norwood and Owen) at Belle Mina field tour for Alabama Seedsman's Association & Alabama Ag Chemical & Fertilizer Dealers Association (7/17/03).

- Provided Precision Agriculture overview at Alabama Cotton Field Day at Tennessee Valley Research and Extension Center (7/31/03).

- Provided presentation (15 minutes) on Precision Ag to 2002 ALFA Commodity Conference Cotton and Feed Grains Tour (8/3/02).

- Invited talk on field-scale EV Smith experiment and Precision Agriculture to Alabama Association of Conservation Districts Conservation Practices and Research Committee at EV Smith (7/16/02).

- Invited talk (*Remote Sensing Applications in Agriculture*) to the Alabama Crop Management Association Meetings, Gulf Shores, AL (8/6/99).

- Invited talk (*Remote Sensing Applications in Agriculture*) to AL Soil and Water Conservation Society - Certified Crop Advisor Continuing Education Unit Session in Huntsville, AL (6/17/99).

- Invited participant in the NASA-USDA-Commodity Group Remote Sensing Workshop (8/12-8/13/99), Stennis Space Center, Bay St. Louis, MS. Participants included Undersecretary Gonzalez, USDA and NASA representatives, CSREES representatives, and rep's from the National wheat, soybean, cotton and corn commodity associations.

Professional Soil Classifiers of Alabama

- Meeting Organization
    - Developed and conducted a Soil Taxonomy Workshop (Spanish Fort, AL) for the Alabama Professional Soil Classifier Association (25 participants) (5/30/07).
        - Participated in AL Professional Soil Classifier Association meeting (5/31/07).
    - Hosted the Alabama Professional Soil Classifier Association annual meeting in Auburn (6/22-23/06). Approximately 40 participants from around the region.
        - Presented field tour on Innovative Soil Mapping at E.V. Smith (6/23/06).

- Invited presentation (*Highly Weathered Soil Development Using Fluvial Chronosequences*) at the 2019 Professional Soil Classifiers of Alabama Association (Millbrook, AL) (6/7/19).

- Invited presentation at the 2017 Annual Meeting of the Alabama Chapter of the Soil and Water Conservation Society Workshop: Geology, Soils, Erosion and Sediment Control, on Basic Soil Science (6/7/17, 80 attendees).

- Invited presentation (Basic Soil Science) to Geology, Soils and Erosion Sediment Control

Workshop in Clanton AL (8/20/13).

- Attended and provided an invited presentation (Precision Ag Management Zones) at the 2012 AL Professional Soil Classifier Association meeting at Weeks Bay (6/8-9/12).

- Invited presentation (Hydropedology Concepts) to Professional Soil Classifiers of Alabama at Soil and Soil Water Relationships Workshop (Prattville, AL). Approximately 120 environmentalists, engineers, soil classifiers in attendance (6/4/08).
    - Assisted in presentation of field sites at the field tour (6/5/08).

- Invited talk on Innovative Techniques in Soil Survey to Professional Soil Classifier Association, Gulf Shores, AL (6/5/03).

- Invited speaker on Soil Classification at the 37th Annual AL Society of Professional Land Surveyors Conference, Montgomery, AL (2/11/00).

- Invited instructor at AL Professional Soil Classifier/Alabama Department of Public Health workshop: On-site sewage evaluation- Instructed Soil Morphology section (9/30/99).

2. b. Technical Assistance

AAES representative to the NRCS-National Cooperative Soil Survey

- Provide soil characterization laboratory data, analyses, interpretation, and reports for NRCS Soil Survey Activity in Alabama. These data reported in Soil Survey reports published on Web Soil Survey.

Attendance of technical activities to facilitate Soil Survey activity including:

- Participated in USDA-NRCS First Coastal Zone Soil Survey work planning workshop in Savannah, GA (1/9 and 10, 2018).
- Appointed to USDA-NRCS Overall Steering Committee for the Soil Survey Division Focus Groups (2017-2020).
- Appointed to USDA-NRCS Densic Soils Working Group (2018) (multiple teleconferences).
- AU-AAES representative to NRCS National Cooperative Soil Survey Conferences: Kingstown, RI (6/9 to 6/13/19), Corpus Christi, TX (5/20 to 5/25/05), Las Cruces, NM (5/11to 5/16/09), Asheville, NC (5/24 to 5/25/11), Annapolis, MD (6/16 to 6/20/13)
- AU-AAES representative to NRCS Southern Regional Cooperative Soil Survey Conferences: Summersville, WV (6/24 to 6/28/18), Gainesville, FL (7/14 to 7/17/08), Biloxi, MS (6/7 to 6/9/04), Savannah, GA (6/3 to 6/6/02), Baton Rouge, LA (6/22 to 6/26/98).
- AU-AAES representative and invited presentation to AL Cooperative Soil Survey Work Planning Conferences (Auburn, AL) (11/20/19, 4/18/17, 7/30/15, 7/22/14, 4/3/12, 3/8/11, 10/21/09, 2/20/08, 3/14/07, 10/5/99, 8/19/98).
- Appointed to USDA-NRCS National Cooperative Soil Survey (NCSS) Strategic Plan Committee (9/14). Conference calls (10/29/14, 12/16/14, 1/20/15, 2/24/15, 3/10/15).
- Appointed to USDA-NRCS National Standards Committee (2013-2015) (teleconferences 5/2/13, 5/9/13, 5/23/13, 5/30/13).
- Appointed (5/11) to USDA-NRCS Soil Classification Field Guide Workgroup (teleconferences 9/14/11, 6/3/13, 7/23/13, 2/24/14). Resulted in Development and Publication of:

  - Soil Survey Staff. 2015. Illustrated guide to soil taxonomy. U.S. Department of Agriculture, Natural Resources Conservation Service, National Soil Survey Center, Lincoln, Nebraska. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/class/?cid=nrcs142p2_053580# illustrated V. 9/10/14
- Invited visit to USDA-NRCS National Soil Survey Center (Lincoln, NE) (5/28-30/13) for various discussions.
- Invited reviewer of "Field Book for Describing and Sampling Soils" (v 3.0) National Soil Survey Center, USDA-NRCS.
- Participant in USDA-NRCS Alabama Soil Survey National Program Review (3/8/10).
- Supervised project to digitize soil characterization data (300 pedons) from Auburn Pedology Laboratory and upload to NRCS National Database. Auburn selected to be a component of a nationwide program.
- Appointed by USDA-NRCS to the National Cooperative Soil Survey (NCSS) Advisory Group to the USDA-NRCS Director of the Soil Survey Division (teleconferences 5/12/06, 8/3/06, 10/30/08, 9/11/09, 3/23/11, 1/18/12, 1/9/13, 7/23/13).
- Invited reviewer by USDA-NRCS Soil Survey Director for *Benchmark Soil Sampling Guide for Dynamic Soil Properties* (v 1.0).
- Invited to participate by NRCS in nationwide field-validation of Soil Active Carbon Field Kits.
- Appointed as co-chair of National Cooperative Soil Survey-Southern Regional Soil Taxonomy and Standards Committee (07-11).
- Appointed to USDA-NRCS National Cooperative Soil Survey (NCSS) committee on Training and Marketing Soil Scientists for the Future.
- Appointed as AU's-AAES representative to Natural Resources Conservation Service State Technical Committee (2/8/05) (2/17/05, 9/27/06).
  - Represented AU-AAES at the NRCS State Technical Committee Meeting (5/22/03).
- Represented AU-AAES at NRCS region-wide water table study (7/22/03).
- AU-AAES representative to the State Soil and Water Conservation Committee meeting (9/15/99, 6/28/00, 3/21/01, 6/27/01, 9/19/01, 6/19/02, 6/18/03, 9/29/04).
- Attended and represented Auburn University-AAES and provided technical support at these NRCS Soil Survey field reviews:
  - Washington Co. soil survey review (5/3 to 5/4/10)
  - Lowndes Co. soil survey review (2/17/10).
  - Bibb Co. soil survey review (8/8/06).
  - Bibb Co. soil survey review (8/22 to 8/23/05).
  - Crenshaw Co. field assist (5/29/03).
  - Harris/Talbot Co.(Ga) soil survey review (7/9/02).
  - Soil sampling at Redstone Arsenal (8/30/01).
  - Barbour Co. soil survey review (8/31/99).
  - Hale Co. soil survey review (6/20/99).
  - Tallapoosa Co. soil survey review (5/26/99).
  - Barbour Co. soil survey review (9/1/98).
  - Hale Co. soil survey review (7/1/98 to 7/3/98).
- Participated in NRCS teleconference on Densic Soil Properties (12/7/06).
- AU-AAES representative to MLRA 13,14,15,16 and 18 NRCS-Soil Survey Board of Directors Meeting in Huntsville, AL (6/5 and 6/6/01).
- Assist NRCS personnel in developing the Legacy poster of Alabama soils (10/14/00).
- Assisted personnel from USDA-NRCS Soil Quality Institute on field investigations for

developing use-dependent database (11/30 and 12/1/99).
- Assisted in field review/inspection of Baldwin County soil survey with NRCS personnel (12/6 to 12/7/99).
- AU-AAES representative to the commemoration ceremony for the Soil Survey Centennial at the State Capital, Montgomery (7/2/99).

Professional Soil Classifiers of Alabama
- Appointed to Advisory Council of State Licensing Board (2000 to 2015) (3 terms)
  - Head of examining committee of State Licensing Board of Professional Soil Classifiers. Develop, administer, and grade examination (99-continuing) for State Licensing of AL Professional Soil Classifiers. Exam administered annually every June.
  - Represented AL Professional Soil Classifiers at meetings with the Professional Engineer's Board regarding ADPH on-site sewage disposal regulations (9/27/99 and 12/1/99)
  - Attend Advisory Council Meetings (twice yearly 2000-2015).
  - Chairman of Professional Soil Classifier Association Scholarship Committee (03-06).
  - Numerous correspondence/communications with persons interested in pursuing AL PSC licensing.
- Alabama Professional Soil Classifiers Association Member
  - Hosted the Alabama Professional Soil Classifier Association annual meeting in Auburn (6/22-23/06).
  - Attended the Alabama Professional Soil Classifier annual meetings in: Millbrook (6/7/19); Auburn (7/13-14/17) (assisted with field tour); Marion Junction (6/17/15) (hosted field tour at Blackbelt substation); Weeks Bay (6/8-9/12); Birmingham (6/23/11); Auburn (assisted with field tour)(6/5/09); Spanish Fort (5/31/07); Auburn (6/22-23/06); Autaugaville (5/6/04), Gulf Shores (6/5 - 6/6/03), Ft. Payne (6/20 - 6/21/02), Livingston (6/8 - 6/9/00), and Greensboro (5/20-5/21/99).
  - Co-hosted Alabama Professional Soil Classifiers Association annual meeting in Auburn, AL (6/7/01) and tour "Soils and Rocks of the Piedmont" (6/8/01).
  - Presented Professional Soil Classifier position at Alabama Public Hearing on proposed ADPH on-site sewage disposal regulations (11/23/99).

3. International Activities
- My international activity has involved instructing workshops, soil judging, advising graduate students, providing training and hosting international scientists, and attending International Union of Soil Science (IUSS) meetings.

Workshops
- Traveled to Guyana and met with representatives of Iwokrama International Ecological Preserve, University of Guyana, and Guyana Geology and Mines Commission (Ministry of Natural Resources) (March 23rd-March 30th, 2018).
- Participated in Auburn delegation to Cuba for workshop on "Developing strategies to evaluate land use management for sustainable food production". Participants included scientists from Auburn University, the Universidad to Agraria de La Habana (UNAH), Instituto Nacional de Ciencias Agricolas (INCA), and Instituto de Suelos (IS) (2/27/17 to 3/3/17).
- Provided workshop (*Fundamentals of Soil Taxonomy*) for Haitian Soils Cochran Fellowship Training in cooperation with the NRCS World Soil Resources, Soil Survey Region 7, and National Soil Survey Center staff (7/18 and 7/19/2016). Workshop included both classroom and field components and training. 14 Haitian scientists involved with training.

Graduate Student Training

- International graduate students I have advised include: Dr. Hector Causarano, Paraquay (06); Dr. Jose Terra, Uraguay (04); Dr. Iyassu Fesha, Eritrea (04); Dr. Catherine Gachengo, Kenya (08). I have or currently serve on graduate student committees of many others.

Short term programs

- Mentored Science w/o Borders student from Brazil: Luciano Bastos Moreira ("Brazil Scientific Mobility Program (BSMP) J-1 student exchange visitor for "Academic Training") (Summer 2015).
- Sponsored 3 month invited scholar research program for Marco A. de Mello Machado, Department of Soil Science, Center of Agricultural Sciences, Federal University of Parana, Brazil (10/01 to 1/05/02).
- Supervised Teklu Zeremichael from Soil Research Center in Eritrea in training program on Soil Survey in Eritrea (8 weeks) (3/29 to 5/28/99).
- Supervised Iyassu Ghebretatios Fesha from Soil Research Center in Eritrea in training program on U.S. Soil Classification correlation with FAO System and a preliminary GIS soil coverage of Eritrea (8 weeks) (1998).

International Visitors

- Provided Soil Tour for Dr. Muniz Olegario Ugarte, senior scientist with the Cuban Ministry of Agriculture's Soil Institute in Havana (11/15/15).
- Met with Dr. Hiatao from Chinese Research and Development Center for Grass and Environment in Beijing (10/23/09).
- Provided Precision Agriculture overview at E.V. Research Center to Chinese Agronomists (10/19/05).
- Provided Precision Agriculture overview at E.V. Research Center to Chinese Extension Agent Protective Cultivation Group (2/18/04).
- Chinese Extension Plant Protection Delegation tour of ALRIC GIS lab (8/15/01).
- Hosted Dr. Vyachesla "Slava" Torbik- International Programs Director, Altai State Agricultural University, Barnaul, West Siberia, Russia- on a soils/agronomy tour of EV Smith (5/17/01).

D. Service
1. University Service

1. a. University Service

- University Committees:
  - AU Faculty Dismissal (2017-2020).
  - AU Distinguished Professorships (2010-2012).
  - AU Alumni Professorships (2010-2012) (2018-2020).
  - AU Radiological Safety (2005-2008).
  - AU Undergraduate Research Fellowship (2004).
  - AU GIS User Group (Bob Cook-chair) (2002).
  - AU Instrumentation (2000-2002).
    - Committee administered AU Small Equipment Grant Program in 2000.
  - Agronomy and Soils Representative to Spatial Technology Committee (1999).
    - Committee established under Associate Provost Curtis to review a proposal by Department of Geography for Undergraduate Spatial Technology instruction.
- University search committees (external to college and department):
  - Geology Department Geomorphologist faculty position (2013).
- Faculty Representative for the University wide *Camp War Eagle Academic Representative*

program. Presentation representing faculty provided (5/23/19, War Eagle Welcome to students).

- Faculty Representative for University wide *Camp War Eagle Academic Representative program*. Two presentations representing faculty were provided (5/24/18, War Eagle Welcome to students) and (5/25/18, Academics at Auburn Presentation Panel to parents).
- Faculty Representative for University wide *Camp War Eagle Academic Representative program*. Two presentations representing faculty were provided (5/25/17, War Eagle Welcome) and (5/26/17, Academics at Auburn Panel).
- Mentor in the Auburn University Early Career Faculty Mentoring Program.
    - Assigned Dr. Brenda Ortiz as mentee (09-10).
    - Attended Auburn University Early Career Faculty Mentoring Program "Best Practices for Mentoring New Faculty" (3/3/10).
- Faculty representative to Alabama Water Resources Research Institute's- Alabama Water Resources Council (term from 7/1/99 to 6/30/01).
    - Committee reviewed proposals to the State Water Resources Competitive Grants Program.
- Invited reviewer:
    - ACES, Space Grant, Mini-Grant program (4/15/03).
    - U.S. Geological Survey and National Institute for Water Resources National Competitive Grants Program Review (2001).
    - AU COSAM program: Seed Funding for New Research Initiatives (2001).
    - AU Environmental Institute-National Remote Sensing Conference held at Auburn (1999).
- AU Graduate School outside reader for dissertations:
    - John D. Wigginton, Soil Organic Matter Formation and Sequestration during Floodplain forest succession (School of Forestry) (2000)
    - Alexandra Cunha, Influence of landscape patterns on spatial dynamics of larval fish in two rivers of the southeast United States (Fisheries) (2000)
    - Leonard James Rogers, A Dynamic Habitat Suitability Index Model Developed For American Oysters in Mobile Bay, Alabama (Fisheries) (2001)
    - Yalcin Tepe, Sodium nitrate as nitrogen source in aquaculture fertilizers (Fisheries) (2002)
    - Taworn Thunjai, Bottom soil quality in fish ponds of different ages in Thailand and suggestions for its management (Fisheries) (2002)
    - Rachel Jolley, Effects of Sedimentation on Productivity, Nutrient Cycling, and Community Composition in Riparian Forests Associated with Ephemeral Streams at Ft.Benning, GA (School of Forestry) (2008)
    - Marissa Daniels, A New Era for Forest Operations in the Southeastern Region of the United States (School of Forestry) (2018)

1. b. College Service

- Appointed to:
    - Administrative Review Committee (Dean, Paul Patterson) (2019-2020)
    - College of Agriculture Instructional Advisory Committee (2019-2021)
    - Review panel for the 2017 AAES Production Agriculture Research program.
    - College of Agriculture Strategic Plan Task Force (2016-2017).
    - Elected non-voting advisory member to Agriculture Committee of AU Board of Trustees (2010-2011) (BOT meetings 9/24/10, 11/12/10, 2/4/11, 4/15/11, 6/17/11).
    - Alabama Agricultural Experiment Station Research Advisory Committee (2008) (meeting 3/26/08, 2/1/10, 6/25/12).
        - AAES Equipment Grant Review Panel (meeting 4/25/12).
    - College committee on 9-month appointment and gift-fund policy (2004).

- College of Agriculture Promotion and Tenure Committee (2015-2017).
  - P&T Chair (2016).
  - Developed "Evidence of Scholarship" guidelines (2016).
- College/AAES search committees:
  - Director of Academic Advising (2017-2018).
  - AAES Soil Testing Director (2017).
  - Associate Dean of Instruction (twice) (2009, 2017).
  - Director of Blackland Prairie Research and Extension Center (2013).
  - Director of Gulf Coast Research and Extension Center (2010).
  - Superintendent of Farm Services portion of EV Smith (2006).
  - Biosystems Engineering Precision Agriculture faculty position (2015).
- President, Auburn University's Gamma Sigma Delta - Honor Society for the College of Agriculture (00-02).
  Secretary, Auburn University's Gamma Sigma Delta (99-00)
- Reviewed AAES Hatch or Mcintire/Stennis projects:
  - Dr. S. Brown (3/21), Dr. Yaniv Olshansky (5/21), Dr. S. McElroy (CSES) (2018), Dr. C. Anderson (FORY) (2015), Dr. E. Brantley (CSES) (2010 and 2014), Dr. N. Twarakavi (AGRN) (2009), Dr. J. Dane (AGRN), Dr. Fulton and McDonald (BSEN), Dr. E. Loewenstein (FORY) (2005).

1. c. Department Service

- Crop, Soil and Environmental Sciences search committees:
  - Lead Administrative Assistant (2021).
  - Crops Lecturer Position (2021).
  - Soil Chemistry faculty position (2018-2019) (chair).
  - Distance Education Specialist position (2016).
  - Agroclimatologist faculty position (2015-2016).
  - Extension Soil Management faculty position (2015-2016).
  - Environmental Soil Scientist faculty position (2014-2015) (twice).
  - Departmental Field technician (2015).
  - Student Services coordinator (2015).
  - Soil Physics faculty position (2014).
  - Soil Physics faculty position (2007-2008).
  - Soil Chemistry faculty position (2006-2007).
  - ALWRIC-GIS lab director (chair) (2003).
  - Soil Microbiology research associate (2005).
- Crop, Soil and Environmental Sciences committees:
  - Environmental Science committee (2015-2021) (chair).
  - Distance Education committee (2016-2021).
  - Space committee (2015-2021).
  - Policy and Strategy committee (2015-2021).
  - Undergraduate Curriculum committee (2001-2004, 2013-2015, 2016-2018).
  - Co-chair of Agronomy and Soils Positions committee (2006).
  - Department Scholarship committee (1999-2021).
  - Mentoring committees
    - Dr. Yaniv Olshansky (2020) (chair).
    - Dr. Rishi Prasad (2017).
    - Dr. Jasmeet Lamba (BSEN) (2017).
    - Dr. Di Tian (2016).
    - Dr. Matt Waters (2016).

        - Dr. Joyce Ducar (2015).
        - Dr. Thorsten Knappenberger (2014) (chair).
    - Elected by department to serve on Administrative (Department Head) review committee (2012 and 2018).
    - Department representative to the Gamma Sigma Delta Honor Society.
- Provided internal teaching peer review for:
    - Dr. Julie Howe's Soil Chemistry (AGRN 5300/6300) and Plant Nutrition (AGRN 7540) courses.
    - Intro Soils labs (Soil Mineralogy, Soil Classification) for Dr. Julie Howe (5/14).
- Co-developed CSES Departmental Strategic Investment from the Mission Enhancement Fund Proposal for an *Internationally Recognized Agroecosystem Carbon Cycling Position* (8/21). Co-Developed (w/ J. Koebernick) Mission Enhancement Fund proposal to hire an Eminent Scholar in Agroecosystem Carbon Cycling (8/21).

2. Professional Service

2. a. Service to Professional Associations

- AU-AAES representative to S-280 Regional Project (98-03): *Mineralogical Controls on Colloid Dispersion and Solid-Phase Speciation of Soil Contaminants*
    - Elected Secretary of S-280 Regional Project (6/00).
    - Hosted S-280 regional project meeting and field tour in Auburn (6/20-6/22/01).
- AU-AAES representative and member of IEG-22 (SCC-022): *Experiment Station Representatives to the National Cooperative Soil Survey*
    - Appointed to National Cooperative Soil Survey-Southern Regional Soil Taxonomy Committee at Southern Soil Conference (02-04, 07-11).
    - Elected secretary of IEG-22 (6/02-6/04).

Service activities for the American Society of Agronomy and/or the Soil Science Society of America

- Elected chair of Soil Science Society of America Division S-5 (Pedology): Chair-Elect in 2013, Chair in 2014, and Past Chair in 2015.
    - Chair Activities in 2014 included:
        - Planning, developing and coordinating the Pedology Division program at the Annual SSSA meetings at Long Beach, CA (10/31 to 11/15/14).
            - Meeting activities included coordinating two symposia and five topical sessions, a colloquium, business meeting, and associated activities.
        - Other chair activities included developing annual report on division activities, administering the Pedology Division SSSA listserv, committee membership (described below), etc.
    - Committees associated with Chair:
        - S-Nominations Committee for Pedology Division Officers Member 2014- 2016
        - S-Nominations Committee for Fundamental Soil Science Group Rep. to the Board Member 2014
        - S-101: Nominations for President-Elect Committee Chair, Soil Pedology Division 2014
        - S- Nominations Committee for Pedology Division Officers Chair 2014
        - S- 711: 2014 Program Planning Committee

- Elected chair of Soil Science Society of America Division S-9 (Soil Mineralogy) (duties started11/15/02).
    - Organized Soil Mineralogy Division (S-9) technical program for 2004 SSSA meetings.

  - Organized Soil Mineralogy (Division S-9 of SSSA) retreat in unison with the 2004 American Society of Agronomy/Soil Science Society of America meetings in Seattle, WA (10/30-31/04).
  - Member of S111.09 Nominations committee for Division S-9 (05-07).
  - Program Planning Committee 2004.
  - Attended and participated in S-9 Soil Mineralogy retreat in Breckenridge, CO (10/30-11/1/03) and Park City, Utah (11/5-11/6/05).
  - Coordinated S-9 graduate student Dixon award selection (05).

- Appointed to Soil Science Society of America Soil Taxonomy Task Force (S201.4.12).
  - Developed and submitted proposal to amend portions of Soil Taxonomy related to identification of diagnostic horizons found in certain temperate, subtropical and tropical soils (kandic and oxic horizon) (approved 2019).

- Member, Arctic Soils Working Group (S838) (2014-2015).

- Associate Editor (S-5) and Editorial Board (S302) of the Soil Science Society of America Journal (6/1/05 to 12/31/07). In this capacity, I handled several manuscripts/yr through the publication process.
  - Received Citation of Excellence for Associate Editors for Soil Science Society of America Journal (2007).

- Associate Editor SSSA Publication: Soil Survey Horizons (1/1/2000 to 1/1/2002).
- Appointed to Soil Science Society of America S-5 (2001 business meeting, Charlotte, NC) committee on ARCPACS and Consulting Soil Scientists (10/23/01).
- Appointed to American Society of Agronomy committee to Select SSSA presidential nominations (A101) (05).
- Appointed to Soil Science Society of America (SSSA) Soil Judging committee (S425) (03-05) (chair 05).
- Appointed to Soil Science Society of America (SSSA) Soil Micromorphology committee (S884) (04).
- Appointed to American Society of Agronomy (ASA) committee to select ASA presidential nominations (A101) (05).
- Selected as exam proctor for AU for CSSE-ARCPAC examination (04-08).

- Appointed to Editorial Board for Geoderma (2011-2017)

- Manuscript Reviewer for: Soil Science Society of America Journal, Agronomy Journal, Journal of Env. Quality, Journal of Soil and Water Conservation, Clays and Clay Minerals, Catena, Geoderma, Soil Science, Soil and Tillage Research, Journal of Environmental Management, Journal of Natural Hazards, Environment, Development and Sustainability, ARS Internal Manuscript Reviews, USFS Internal Manuscript Reviews, Chapter for CRC/Lewis book on Biogeochemistry of Trace Elements, Chapter for Mineralogical Methods monograph on Selective Dissolution Techniques for Mineral Analysis of Soils and Sediments, Chapter for Applications of GIS in Agriculture (ed. Pierce) for CRC Press, Chapter for Handbook of Soil Science, Processes of Pedogenesis chapter, Chapter for Encyclopedia of Soil Science (Iron oxides)

- Society Memberships
  - American Society of Agronomy
  - Soil Science Society of America

- ARCPAC Certified Professional Soil Scientist
- Alabama Professional Soil Classifier

2. b. Service to Academic, Industry and Government Institutions

- Invited reviewer of USDA-Agricultural Research Service (ARS) Soil Dynamics Research Unit, *Conservation Systems to Improve Production Efficiency, Reduce Risk, and Promote Sustainability*, five-year workplan on Conservation Systems Research (1/30/18).
- Participated in video for Alabama Cooperative Extension System Soil Health video (1/25/18).
- Presented *Soils* to Pike Road Elementary School 4th graders. Approximately 80 students attended (3/9/16).
- Presented workshop on Soil Texture at the 2016 High School Spring Judging Clinics. There were approximately 50 participants (teachers and students) from Alabama High Schools (2/17/16).
- Presented workshop on Soil Texture at the 2015 High School Spring Judging Clinics. There were 45 participants (teachers and students) from Alabama High Schools (2/11/15).
- Invited presentation (Basic Soils) to Wetland Environmental Land Projects (http://www.welpprojects.com/) youth education workshop, Guntersville, AL (6/3/15).
- Invited talk on soils to Auburn Camellia Club (5/9/11).
- Invited national reviewer for Texas A&M Department of Soil and Crop Sciences undergraduate curriculum review (Soil Science component). Web based assessment consisting of three separate exercises (9-11/09).
- Report on published soil survey information for Gopher Tortoise suitability to Alabama State Lands Division (Mr. Greg Lein) on a 1266 acre Mobile County site.
- Organized seminar presentation by Dr. Jose Terra, Research Scientist from Instituto Nacional de Investigacion Agropecuaria, Uruguay, on "Conservation Systems in Uruguay" (7/25/08).
- Shaw group (Owen, Arriaga), in cooperation with AUEI, coordinated Soils Field Day for 5th and 6th graders (55 total students) (4/26-27/07), 6th graders (25 students) (10/12/07), 5th and 6th graders (46 total students) (10/15-16/09), and 5th graders (41 total students) (4/20-21/11) from D.C. Wolfe Elementary (Shorter, AL).
  - This activity was part of a Mid-South RC&D Grant Environmental Science and Arts Program, Auburn University's Environmental Institute.
  - AUEI reported our group participated in nine events over the years and interacted with 270 children.
- Selected as Agronomy and Soils faculty member to meet with the USDA Civil Rights Compliance Review (3/8/07).
- Assisted Chatom (Washington County) city officials on Spray Irrigation of Municipal Waste site problem (6/22/07).
- Completed 2006 Assessment of Research Doctorate Programs Survey administered by the National Research Council (NRC) (1/26/07).
- Hosted these groups (Shaw group) in tours of the Alabama Land and Water Resource Information Center (ALWRIC):
  - Student group from COA learning community (AGRI 1000) (2/3/05, 2/7/07, 2/7/08).
  - AL Association of Conservation District Conservation Practices and Research Committee (7/19/00).
  - Peanut commodity group (4/18/00).
- Represented AU-AAES at 2006 East Alabama Agriculture and Industries Tour hosted by Congressman Mike Rogers. Toured several Ag operations in East, AL (8/23/06).
- Hosted James Wallner at USDA-ARS, Congressional Staffer for Congressman Terry Everett (11/13/06).
- Presented EV Smith field-scale agronomic research to legislative aide to Senator Sessions (5/31/05).

- Organized visit to department and seminar by Dr. Clint Truman: USDA-ARS, SE Watershed Laboratory, Tifton, GA (4/16/99).
- Provided assistance to Larkin Farms (Lawrence, Co.) on precision agriculture applications (11/05).
- Provided written review of "Critical Research Needs" for the USDA-FS Forest Operations Research Laboratory, to Dr. Robert Rummer, Auburn, AL.
- Attended USDA Forest Service Southern Research Station 500 Publication Awards ceremony (11/13/01).
- Visited logging sites with Mead-Westvaco representatives to review soil mapping program (8/19/02, 1/13/99, 2/23/99, 2/24/99).
- Provided laboratory analyses and forensic interpretation for a Dekalb County Sheriff's department investigation (98).
- Provided recommendation letters (list available on request) for students, colleagues and peers (250+ since 2001, list available)
- AU-AAES representative to Alabama Department of Public Health (ADPH) Onsite Sewage Management Committee. In this capacity:
    - Invited speaker (Soil Hydrology and Redoximorphic Features) at Alabama Department of Public Health, 4th Environmental Health Symposium, Opelika, AL. (2/4/15)
    - Met with AL Dept. of Public Health representative (David Gray) for a 1-hr discussion of saprolite hydraulics (8/28/07).
    - Site visit for AL Dept. of Public Health in Elmore County (Elmore) (1/16/07), Cullman County (9/21/12).
    - Site visit to proposed development for AL Dept.of Public Health (Marengo County) (7/6/06).
    - Invited speaker at 12th annual Alabama Department of Public Health on-site Sewage Treatment and Disposal Conference (Soils lab: A refresher course for site evaluators) (1/23/01).
    - Attended committee meetings (1/20/00, 8/04/00, 6/28/01, 1/16/02).
    - Visited failing onsite sewage system sites with ADPH Environmentalists (Lee, Marshall, Tallapoosa counties) (8/27/99, 8/17/00).
    - Met with ADPH personnel regarding soils sections of proposed ADPH OSDS regulations (8/24/01 and 4/5/02).
    - Reviewed video script by ADPH on on-site sewage disposal systems (1/28/00).
    - Provided written comments (via e-mail) to ADPH personnel regarding proposed OSDS regulations (1/21/02).
    - Attended portions of the 13th (1/16 and 1/17/02), 11th (1/19/00) and 10th (1/21/99) annual AL Dept. Public Health On-site Sewage Treatment and Disposal conferences.

- Grant Reviews
    - Invited review of Multistate Project: NE_TEMP1938, "Carbon Dynamics and Hydromorphology in Depressional Wetland Systems (2/19).
    - Invited review of Multistate Project: NE_TEMP2162-Hydropedology of Vernal Pool Systems (2/14).
    - Invited review for National Science Foundation (NSF)-Division of Earth Sciences Major Research Instrumentation (NSF 13-517) program, proposal # 1337450, Acquisition of a Powder X-Ray Diffractometer for Research and Teaching in Earth and Environmental Sciences at Rutgers University in Newark (5/13)
    - Invited review of CSREES proposal (Multi-scale Assessment of SOC Dynamics in Agricultural Landscapes) (7/9/09).
    - Invited review for National Science Foundation (NSF)- Career Proposals, proposal #

0953559, The Importance of Aeolian Deposition in Mid-Atlantic (11/09)

- Invited review for SARE Grant program (Pigeon Pea: A multipurpose, drought resistant forage, grain and vegetable crop for sustainable southern farms) (completed 1/2/07).
- Invited review for CSREES Multistate Research Project "Hydropedology: Genesis, properties and distribution of hydromorphic soils" (completed 3/31/04).
- Invited review for CSREES Multistate Research Project "Hydropedology: Genesis, properties and distribution of hydromorphic soils (NE_TEMP1601)" (completed 2/17/09).