

**AGENDA ITEM BRIEFING**

**Submitted by:** Billy Hamilton, Deputy Chancellor and Chief Financial Officer  
The Texas A&M University System

**Subject:** Approval of the Revised Project Scope and Budget, Appropriation for Construction Services, and Approval for Construction for the Ballistic, Aero-Optics, and Materials Facility Project, Texas A&M Engineering Experiment Station, Bryan, Texas (Project No. 28-3321)

**Background and Prior Actions:**

The Ballistic, Aero-Optics, and Materials (BAM) Facility Project was approved by the Board to be added to the FY 2020 – FY 2024 A&M System Capital Plan for \$25,000,000 at the May 2020 meeting. The project was approved for construction and was included as an approved project on the FY 2021 – FY 2025 A&M System Capital Plan at the Board’s August 2020 meeting. A revised project scope and budget of \$38,600,000 was approved by the Board at the November 2020 meeting. Additionally, \$3,860,000 was appropriated under the chancellor’s supplemental appropriation authority per System Policy [51.04, Delegations of Authority on Construction Projects](#) on February 9, 2021, resulting in the current project budget amount of \$42,460,000.

**Proposed Board Action:**

- (1) Approve the revised project scope and budget.
- (2) Appropriate \$3,500,000 for construction services and related project costs. \$42,460,000 has been previously appropriated, contingent upon a signed contract amendment with the Army which will provide this \$3.5 million funding.
- (3) Approve for construction the additional work scope outlined in this agenda item for the Ballistic, Aero-Optics, and Materials Facility Project for Texas A&M Engineering Experiment Station (TEES).

**Funding/Budget Amount:**

<u>Funding Source</u>	<u>Project Budget</u>	<u>Proposed Adjustment</u>	<u>Proposed Budget</u>	<u>Average Estimated Annual Debt Service</u>	<u>Debt Service Source</u>
Revenue Financing System Debt Proceeds	\$14,601,356.54	\$0.00	\$14,601,356.54	\$3,173,677.00	Contract Revenue/ Indirect Cost Recoveries
Revenue Financing System Debt Proceeds	\$9,460,000.00	\$0.00	\$9,460,000.00	\$703,060.00	Indirect Cost Recoveries
Cash (General Revenue)	\$18,000,000.00	\$0.00	<u>\$18,000,000.00</u>	N/A	N/A
Cash (Contract Revenue)	<u>\$398,643.46</u>	<u>\$3,500,000.00</u>	<u>\$3,898,643.46</u>	N/A	N/A
Total Project Funds	<u>\$42,460,000.00</u>	<u>\$3,500,000.00</u>	<u>\$45,960,000.00</u>		

**Project Justification:**

TEES has formally executed a cooperative agreement with the Combat Capabilities Development Command (CCDC)-Army Research Laboratory (ARL) to conduct research that will discover and mature technologies leading to an ecosystem capable of generating novel approaches which will accelerate technology transfer across disparate science and technology fields, specifically for the Army Futures Command (AFC) modernization mission. This is a five-year, \$65M research agreement. Included in the agreement is \$15M in funding for TEES to equip and operate a unique Ballistic, Aero-Optics, and Materials (BAM) Facility at the RELLIS Campus. In addition, the 86th Texas State Legislature appropriated \$50M to the Governor to transfer to TEES for AFC efforts. These funds were to be used for the purpose of engaging the state's public institutions of higher education with private sector industries to establish and equip a proving ground site and to commercialize and manufacture critical emerging technologies for infrastructure networks, public safety, and national defense. \$8M of the \$50M will be used for the BAM facility. The BAM facility will be an integral part of the research efforts being built at the Bush Combat Development Complex (BCDC) and the ongoing research efforts with the AFC. It will provide TEES and TEES' clients a contained test environment to bridge the gap between "lab-scale" research and development and national/government scale testing and evaluation.

**Scope:**

The additional investment from the Army will provide significant support for equipment components including materials blast/target tanks, hypersonic rail assembly and a hypersonic projectile soft catch assembly. These three specified components will enable critical capabilities at the BAM Test Range. The materials blast/target tank is required to perform hypervelocity impact testing of materials and structures. The hypersonic rail assemblies enable the ballistic hypersonics capabilities in BAM, while ensuring accurate and repeatable projectile paths for synchronization with novel diagnostic sensors. Finally, the hypersonic projectile soft catch assembly will enable the capability to safely recover flown hypersonic projectiles for post-flight analysis and data collection.

Procurement will begin April 2021 and construction is expected to start in July 2021 with substantial completion scheduled for December 2022. The total project budget is \$45,960,000.

**Deferred Maintenance:**

There is no deferred maintenance associated with this project.

**Other Major Fiscal Impacts:**

None.

**Strategic Plan Imperative(s) this Item Advances:**

Approval of this agenda item will advance The Texas A&M University System's (A&M System) Strategic Imperative #4 of increasing the A&M System's prominence by developing a state-of-the-art hypersonic research facility that will enhance defense and industry-based research.

Agenda Item No. 3.3

**THE TEXAS A&M UNIVERSITY SYSTEM**  
**FACILITIES PLANNING AND CONSTRUCTION**  
Office of the Deputy Chancellor and Chief Financial Officer  
April 5, 2021

Members, Board of Regents  
The Texas A&M University System

Subject: Approval of the Revised Project Scope and Budget, Appropriation for Construction Services, and Approval for Construction for the Ballistic, Aero-Optics, and Materials Facility Project, Texas A&M Engineering Experiment Station, Bryan, Texas (Project No. 28-3321)

I recommend adoption of the following minute order:

**“The project scope along with a project budget of \$45,960,000 for the Ballistic, Aero-Optics, and Materials Facility Project is approved.**

**The amount of \$3,500,000 is appropriated from Account No. 28-513630-00001, ARL: Innovative Ecosystem Performance Research – BAM, for construction services and related project costs. This appropriation is contingent upon a signed contract amendment with the Army which will provide this additional \$3.5 million in funding.**

**The Ballistic, Aero-Optics, and Materials Facility Project, Texas A&M Engineering Experiment Station, Bryan, Texas, is approved for construction.**

**The Board of Regents of The Texas A&M University System (Board) reasonably expects to incur debt in one or more obligations for this project, and all or a portion of the proceeds received from the sale of such obligations is reasonably expected to be used to reimburse the account(s) for amounts previously appropriated and/or expended from such account(s).**

**As required by Section 5(a) of the Master Resolution of the Revenue Financing System, the Board hereby determines that it will have sufficient funds to meet the financial obligations of The Texas A&M University System, including sufficient Pledged Revenues to satisfy the Annual Debt Service Requirements of the Revenue Financing System and to meet all financial obligations of the Board relating to the Revenue Financing System and that**

**the Participants, on whose behalf the debt is issued, possess the financial capacity to satisfy their Direct Obligations.”**

Respectfully submitted,

**[ORIGINAL SIGNED BY]**

Billy Hamilton  
Deputy Chancellor and  
Chief Financial Officer

**Approval Recommended:**

**Approved for Legal Sufficiency:**

**[ORIGINAL SIGNED BY]**

John Sharp  
Chancellor

**[ORIGINAL SIGNED BY]**

Ray Bonilla  
General Counsel

**[ORIGINAL SIGNED BY]**

Phillip Ray  
Vice Chancellor for Business Affairs

**[ORIGINAL SIGNED BY]**

M. Katherine Banks, Ph.D., P.E.  
Vice Chancellor of Engineering and National Laboratories  
The Texas A&M University System  
Director, Texas A&M Engineering Experiment Station

<b>BALLISTIC, AERO-OPTICS, AND MATERIALS FACILITY</b> <b>TEXAS A&amp;M ENGINEERING EXPERIMENT STATION</b> <b>PROJECT NO. 28-3321</b>	<b>PROJECT BUDGET</b>
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1. Construction .....	\$37,327,000
2. Project Contingency .....	1,262,457
3. Program of Requirements.....	327,700
4. Pre-Construction Services .....	4,750,490
5. Commissioning Services .....	50,000
6. Construction Testing .....	249,000
7. Campus Services & Technology .....	498,000
8. Furnishings .....	113,000
9. Equipment .....	50,000
10. Other Project Costs.....	145,855
11. FPC Management .....	<u>1,186,498</u>
12. TOTAL PROJECT COST.....	<u>\$45,960,000</u>

<b>BALLISTIC, AERO-OPTICS, AND MATERIALS FACILITY</b> <b>TEXAS A&amp;M ENGINEERING EXPERIMENT STATION</b> <b>PROJECT NO. 28-3321</b>	<b>PROJECT SCHEDULE</b>
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1. BOR Approval to Include in Capital Plan ..... May 14, 2020
2. Issue A/E Request for Qualifications (RFQ) ..... June 30, 2020
3. Issue Construction Manager at Risk (CMAR) RFP ..... July 7, 2020
4. Receive A/E RFQ Response ..... July 14, 2020
5. Shortlist A/E Firms ..... July 21, 2020
6. Select A/E Firms ..... July 21, 2020
7. Receive CMAR RFP Response ..... July 28, 2020
8. Chancellor Approval of A/E Rank Order ..... August 11, 2020
9. Shortlist CMAR Firms ..... August 11, 2020
10. BOR Approval for Construction ..... August 20, 2020
11. Interview CMAR Firms ..... August 26, 2020
12. CMAR Ranked Order Approved by Chancellor ..... September 25, 2020
13. Execute A/E Agreement ..... October 23, 2020
14. Execute CMAR Agreement ..... October 28, 2020
15. A/E Design Kick-Off ..... October 29, 2020
16. Complete Schematic Design ..... January 29, 2021
17. Receive GMP from CMAR ..... March 30, 2021
18. Submit THECB Application ..... April 1, 2021
19. Notice to Proceed ..... April 5, 2021
20. Complete Design Development ..... May 14, 2021
21. BOR Approval of Budget Increase ..... May 20, 2021
22. Begin Construction ..... July 2021
23. Complete Construction Documents ..... August 27, 2021
24. Substantial Completion ..... December 2022

**TEXAS A&M ENGINEERING EXPERIMENT STATION  
REVENUE FINANCING SYSTEM  
28-3321 Ballistic Aero Optics Materials Facility  
Contract Revenue/Indirect Cost Recoveries**

Dates	Outstanding Principal	Principal Amount	Interest Amount	Annual Total	Coverage 1.15x
Coml Paper	14,601,356.54				
YEAR 1	14,000,000.00	601,356.54	292,027.13	893,383.67	1,027,391.22
YEAR 2	13,000,000.00	1,000,000.00	350,000.00	1,350,000.00	1,552,500.00
YEAR 3	8,000,000.00	5,000,000.00	325,000.00	5,325,000.00	6,123,750.00
YEAR 4	4,000,000.00	4,000,000.00	200,000.00	4,200,000.00	4,830,000.00
YEAR 5	-	4,000,000.00	100,000.00	4,100,000.00	4,715,000.00
		<u>\$ 14,601,356.54</u>	<u>\$ 1,267,027.13</u>	<u>\$ 15,868,383.67</u>	<u>\$ 18,248,641.22</u>

Short-term rates are assumed to be 2.00% for the first year and 2.50% for year 2-5. Rates are subject to market change.  
Assuming that project will remain in commercial paper until paid off in five years.  
Principal will be repaid with Contract Revenue and interest will be repaid with Indirect Cost Recoveries.  
Prepared by the Office of the Treasurer - Treasury Services 03/01/2021

**Rates are variable and subject to market change.**

**TEXAS A&M ENGINEERING EXPERIMENT STATION  
REVENUE FINANCING SYSTEM  
28-3321 Ballistic Aero Optics Materials Facility  
Indirect Cost Recoveries**

Dates	Outstanding Principal	Principal Amount	Interest Amount	Annual Total	Coverage 1.15x
BONDS	9,555,000.00				
YEAR 1	9,235,000.00	320,000.00	382,200.00	702,200.00	807,530.00
YEAR 2	8,900,000.00	335,000.00	369,400.00	704,400.00	810,060.00
YEAR 3	8,550,000.00	350,000.00	356,000.00	706,000.00	811,900.00
YEAR 4	8,190,000.00	360,000.00	342,000.00	702,000.00	807,300.00
YEAR 5	7,815,000.00	375,000.00	327,600.00	702,600.00	807,990.00
YEAR 6	7,425,000.00	390,000.00	312,600.00	702,600.00	807,990.00
YEAR 7	7,020,000.00	405,000.00	297,000.00	702,000.00	807,300.00
YEAR 8	6,600,000.00	420,000.00	280,800.00	700,800.00	805,920.00
YEAR 9	6,160,000.00	440,000.00	264,000.00	704,000.00	809,600.00
YEAR 10	5,705,000.00	455,000.00	246,400.00	701,400.00	806,610.00
YEAR 11	5,230,000.00	475,000.00	228,200.00	703,200.00	808,680.00
YEAR 12	4,735,000.00	495,000.00	209,200.00	704,200.00	809,830.00
YEAR 13	4,220,000.00	515,000.00	189,400.00	704,400.00	810,060.00
YEAR 14	3,685,000.00	535,000.00	168,800.00	703,800.00	809,370.00
YEAR 15	3,130,000.00	555,000.00	147,400.00	702,400.00	807,760.00
YEAR 16	2,550,000.00	580,000.00	125,200.00	705,200.00	810,980.00
YEAR 17	1,950,000.00	600,000.00	102,000.00	702,000.00	807,300.00
YEAR 18	1,325,000.00	625,000.00	78,000.00	703,000.00	808,450.00
YEAR 19	675,000.00	650,000.00	53,000.00	703,000.00	808,450.00
YEAR 20	-	675,000.00	27,000.00	702,000.00	807,300.00
		<u>\$ 9,555,000.00</u>	<u>\$ 4,506,200.00</u>	<u>\$ 14,061,200.00</u>	<u>\$ 16,170,380.00</u>

Estimated Issuance Costs of \$95,000.00 are included in this schedule.  
Long-term rates are assumed to be 4.00%. Rates are subject to market change.  
Prepared by the Office of the Treasurer - Treasury Services 03/01/2021

**Rates are subject to market change. Amounts are preliminary estimates that will be revised at the time bonds are issued.**





## **Ballistic, Aero-Optics, and Materials Facility**

**Texas A&M Engineering Experiment Station**

**Project No. 28-3321**