

# SURPASS PROGRAM CALL FOR PROPOSALS

## WHITE PAPER SUBMISSION GUIDE

**Dated: 3/19/2025**

### 1.0 SURPASS OVERVIEW

The SURPASS initiative is a multimillion-dollar initiative that will harness the ingenuity and technical abilities of the Whiting School of Engineering (WSE) and the Applied Physics Laboratory (APL), two great divisions at one of the world's leading research universities, to tackle grand challenges by developing transformative innovations and solutions. This is an unprecedented opportunity that it will push our institutions toward new discoveries and deeper relationships.

**Contact Information:** [surpass@jhu.edu](mailto:surpass@jhu.edu)

### Important Dates

Program Call Release	March 24, 2025
White paper Submission Opens	March 24, 2025
White paper Submission Closes	May 9, 2025
Notification of White paper Selection	July 7, 2025
Full Proposal Submission Opens	July 7, 2025
Full Proposal Submission Closes	September 5, 2025
Award Notifications	October 31, 2025
Project Start Date	January 1, 2026

### 2.0 PROGRAM DESCRIPTION

SURPASS will provide ***cross-divisional teams*** funding to support up to 5 projects for investment for projects that have the potential to lead to upwards of \$100 million in external funding. Priority will be given to projects that offer impactful translational research and propose a viable path toward translation.

Successful proposals will

- focus on a singular, compelling challenge
- represent a unique WSE/APL value proposition
- chart a sponsor outreach pathway that could ultimately result in a \$100M+ program

The initial award period will be 18 months with possible extension to a multi-year performance period. Successful projects will be eligible for additional investment by SURPASS and other JHU programs following the primary period of performance. These select projects will be eligible to apply for another round of funding. The goal of this investment is not only to develop revolutionary new technology, but also to build interdivisional teams, facilitate collaboration, and increase joint staff/faculty appointments. SURPASS will break the mold for the way university divisions work together. Additional information on the SURPASS program is available at: <https://surpass.jhu.edu/>

### **3.0 PROPOSALS AND SELECTION**

Proposed research projects for SURPASS will be considered and evaluated in a gated, two-phase proposal process. In Phase I, proposers are requested to submit a white paper outlining their project, which will be reviewed against criteria outlined below. A limited number of white paper submissions will be selected to move forward, and those teams will be invited to submit a full proposal for consideration as well as provide an oral presentation of their concept in Phase II.

Teams invited to proceed to the full proposal phase will be provided with additional resources to develop and refine their concept, including dedicated ideation and development sessions with technical facilitators, and modest funding to support labor efforts for staff requiring a charge number.

#### **3.1 Program Scope**

Proposals to this program will argue for addressing a compelling challenge and present a vision for solutions to that challenge. These challenges are not bounded to any specific field of research or impact, so proposals in any research area of relevance to WSE and APL are encouraged.

#### **3.2 Period of Performance**

Projects submitted should be for an 18-month period of performance, based on the award notification and project start dates provided in Section 1.0.

#### **3.3 Proposer Eligibility**

Each team must have at least one PI with an appointment in APL and at least one PI with a primary appointment in a WSE Department. Anyone at APL can propose a white paper idea but is strongly encouraged to discuss their idea with applicable Program Managers before submission. WSE faculty with a \*primary faculty appointment (i.e., TT-faculty research/teaching professor, research engineer/ scientist, etc.) in a WSE Department may apply as PI. Faculty members who hold primary appointments in the Department of Biomedical Engineering and the Department of Environmental Health and Engineering are also eligible.

***\*Note: Secondary faculty appointment or affiliation with a WSE Department is not eligible.***

U.S. citizenship, while not required, may be necessary for certain proposals and will be considered on a case-by-case basis.

#### **3.4 Publication of Research Results**

Broad publication of research results under this program is expected. Publications with APL authors or co-authors will be reviewed by the standard APL process prior to release.

#### **3.5 Restricted Research Elements**

Proposals for restricted research topics (Controlled Unclassified Information, Controlled Defense Information, Export Controlled data) will be considered for funding, provided sufficient collaboration can be accommodated between both organizations. An alternate submission process will be provided for

restricted submissions compliant with APL security requirements. Prior to engaging in any collaboration that may involve CUI or Export Controlled Data, please contact SURPASS representatives as soon as possible to make proper arrangement for this collaboration to occur. SURPASS staff can be reached at [surpass@jhu.edu](mailto:surpass@jhu.edu).

#### **4.0 WHITE PAPER PROPOSAL SUBMISSION PROCESS**

Submissions for SURPASS white paper proposals should be submitted via webform, at the following address: [SURPASS White Paper Submission 2025 - Formstack](#). Submissions are due no later than 5:00 PM Eastern Time on May 9, 2025. Section 4.2 below outlines the review criteria which will be used in the selection of concepts to move forward to the full proposal submission. Section 4.3 outlines the structure and information required to submit with the proposal.

In addition to the proposal content required in the web form, a biosketch or CV is required for each PI and Key Personnel, and can be uploaded as a file attachment to the webform. Please use PDF format for these attachments.

Either PI may submit the proposal via the webform, but both PI's must sign [SURPASS Principal Investigator Signature Page document](#), available for download from the URL provided above.

#### **4.1 Budget Requirements:**

Rough Order of Magnitude (ROM) budgets must be submitted with proposals, and should cover three broad categories: APL Research Expenditures, WSE Research Expenditures, Equipment and Materials.

**NEW for this cycle:** Teams are required to allocate at least **10% of their budget** to future funding efforts. A line-item for future funding efforts must be present in either APL or WSE or both Research Expenditures.

- APL Research Expenditures: JHU/APL labor, future funding efforts, materials, other direct costs/equipment, travel, subcontractor costs
- WSE Research Expenditures: JHU/WSE labor, future funding efforts, supplies, equipment, travel, subaward expenses
- Equipment and Supplies/Materials: If the total cost of Supplies (WSE)/Materials (APL) and Equipment/Other Direct Costs exceeds 20% of the total cost, please mark the applicable box in the submission. If you select yes, please include an estimate for each APL & WSE in the space provided and brief description of the supplies/materials and equipment/other direct costs.

While there is no minimum or maximum budget limitation at this point, be advised that the total budget allocation for the SURPASS Program is \$3.75M over 18 months, and the total portfolio of projects awarded will be within this cap.

##### **4.1.1 WSE budget considerations**

For development of WSE white paper ROM budgets for SURPASS, PIs should use the full on-campus research F&A rates for labor and appropriate direct expenses. Additionally, this white paper ROM does not need to be submitted to JHURA for review via COEUS. At this stage, a budget narrative is not required.

**For future funding planning,** please consider proposal development, technical writing, graphic design, and sponsor engagement.

#### 4.1.2 APL budget considerations

APL staff who are planning to submit a proposal should assume contract rates with 6.5% fee for all costs, and should fully burden all expenses. The APL Ad-Hoc estimator should be used to calculate budget. Please contact your local financial manager if you need assistance with the budget. Contact [Genna.Marr@jhuapl.edu](mailto:Genna.Marr@jhuapl.edu) for a budget review prior to submitting estimates to the SURPASS site. Please copy [Angela.Jones@jhuapl.edu](mailto:Angela.Jones@jhuapl.edu) for awareness and submission tracking. It is best that budget reviews are submitted no later than May 5, 2025. Task orders under this task will be passed under master collaboration agreement JHU SURPASS No. JAWS 38709 (JH87). Please contact [surpass@jhu.edu](mailto:surpass@jhu.edu) to request a copy of the most recent MCA.

**For future funding planning**, please consider proposal development, sponsor engagement, commercialization efforts, and networking with potential funders.

#### 4.2 Review Criteria

Proposals will be reviewed by a selection team of WSE, APL and independent subject matter experts, and graded against the following criteria:

Sub-criteria	Upper quartile (Q3) 3 points	Median (Q2) 2 points	Lower quartile (Q1) 1 point
<b>Criteria 1 - GAME-CHANGING IMPACT:</b> To what degree does this research set the foundation for transformative impact in the field? How will the research position JHU as a global leader?			
<b>SCOPE</b>	will benefit humanity and/or the planet	creates regional benefits in terms of humans and geography	results in limited scope
<b>COMPETITIVE ADVANTAGE</b>	positions JHU as a global leader	makes JHU competitive among peers in this field	gives JHU no discernible competitive advantage
<b>Criteria 2 - INNOVATIVENESS:</b> How might this lead to defining innovation in the next decade? What elements are truly disruptive?			
<b>FIELD IMPACT</b>	fundamentally transforms the field within the next decade	advances the field	makes incremental advances in the field
<b>RADICALNESS</b>	radical or truly revolutionary innovation to take advantage of, or respond to, disruptive opportunities, or to counter such disruption (horizon 3)	recombinant innovation extends an existing capability to a new mission/market, or a new capability to an existing mission/market (horizon 2)	incremental innovations to existing capabilities (horizon 1)

Sub-criteria	Upper quartile (Q3) 3 points	Median (Q2) 2 points	Lower quartile (Q1) 1 point
<b>Criteria 3 - TECHNICAL FEASIBILITY:</b> What is the novel foundation on which the research will be based? What are the greatest technical challenges that have to be overcome?			
<b>DEVELOPMENT STAGE</b>	Requires <i>discovery</i> of enabling techniques/ technical approaches	Involves the application of <i>existing</i> techniques/ technical approaches in a new way	Involves the application of <i>existing</i> techniques/ technical approaches in traditional ways
<b>CHALLENGE</b>	high risk, high reward as technical obstacles are substantial	medium-risk, medium reward as technical challenges appear surmountable	challenge space is unclear or minimal
<b>Criteria 4 - COLLABORATION:</b> How does the project leverage the strengths of each collaborator? How will your collaboration progress your idea from basic research to a prototype?			
<b>INTERDISCIPLINARY REPRESENTATION</b>	project clearly leverages unique strengths of each collaborator in a powerfully interdisciplinary way	project is suitable for an interdisciplinary approach and leverages team members' strengths	project is minimally interdisciplinary and/or appears dominated by a single collaborator
<b>Criteria 5 - FUTURE FUNDING:</b> How will the research ultimately be sustained through external funding? How does research align with current and anticipated government and/or commercial needs? What level of future funding can be imagined if future efforts are to be undertaken at scale?			
<b>NEED</b>	Proposal articulates a clear unmet research need (either future or existing) in government or industry or globally	Proposal seems to align with current or anticipated research needs (either future or existing) in government or industry or globally	Minimal alignment with, or articulation of, unmet research needs (either future or existing) in government or industry or globally
<b>POTENTIAL</b>	potential for upwards of \$100M in external funding	potential lies in the tens of millions of dollars range in terms of external funding	external funding likely below \$10M

### 4.3 Webform Submission Requirements

The proposal submission form contains the following required elements. Please note that in each case there is a character limit that must be adhered to in the submission.

### Team and Project Intake

- Title (60 characters)
- Team Members
- Keywords (5 word maximum)
- Abstract (1000 characters)

### Section 1. Vision and Impact (2500 characters)

Addresses Criteria: 1 and 2

Describe the challenge being addressed, the solution envisioned, and impact it will have on the field, technology and/or community effected.

- How does this approach set the stage for foundational impact on the field?
- [Who cares?](#) (Identify the stakeholders and users who will benefit)
- [If you're successful, what difference will it make?](#)

### Section 2. Technical Approach (5000 characters)

Addresses Criteria: 2, 3, and 4

Describe the technical approach of the proposed research program.

- [What are you trying to do?](#)
- [How is it done today, and what are the limits of current practice?](#)
- [What is new in your approach and why do you think it will be successful?](#)
- To what extent does it introduce new or improve on current capabilities in the field?

### Section 3. Expected Accomplishments (1000 characters)

Addresses Criteria: 3

Describe the specific accomplishments your team expects to achieve over the course of the program (18 months).

- [What are the midterm and final "exams" to check for success?](#)
- [What are the risks and the payoffs?](#)

### Section 4. Collaboration Plan (3000 characters)

Addresses Criteria: 4 and 5

Identify which elements of the proposed work will be conducted by each team member.

- How does the project play to the specific strengths of each collaborator?
- How does the research program integrate fundamental and applied research elements *together* to address the challenge?
- How will your team collaborate to set the stage for system prototypes and eventual translation out of the research environment and into the world at large?
- How will your team collaborate to engage in sponsor interactions, networking, and pursuing funding opportunities?

### Section 5. Research Growth Plans and Future Funding Opportunities (3000 characters)

Addresses Criteria: 5

Describe your team's vision for prospective follow-on research sponsors.

- Does this research align with known or expected USGOV research needs? Commercial sector needs? International needs?
- What is the path for this research to ultimately be sustained through external funding in 3 years?
- How does this project represent the beginnings of a multimillion-dollar research space that

WSE/APL can lead?

- Have you reached out to potential sponsors and, if yes, what demonstrations did they need to consider investment?

Section 6. ROM Budget. Review Section 4.1 for requirements.

#### **4.4 Collaborative Disclosure Guidance**

Any brainstorming discussions for SURPASS between APL staff and WSE faculty are protected under a master collaboration agreement (MCA, #JAWS 38709) in order to facilitate an open, productive environment. Contact your WSE or JHU collaborators before disclosing any ideas generated during these discussions. Please feel free to reach out to [surpass@jhu.edu](mailto:surpass@jhu.edu) for additional guidance or for a copy of the MCA.