

DGS-30-456

(Rev. 10/18)

## Construction Management at Risk Procurement Review Submittal Form

### General Project Information

Agency Name:	George Mason University (247)		
Is the agency a covered institution per §2.2-4379?			Yes
Project Name:	Construct Bull Run Hall IIIB Addition		
Project Number:	247-18000-000		

### Other Project Information

Advising A/E Name:	EYP INC	License Number:	411000924
COV Sections: §2.2-4380.B.2, §2.2-4381.C.2			
Attach written determination for use of CM at Risk.			
COV Sections: §2.2-4380.C.2, §2.2-4380.B.1; §2.2-4381.D.2, §2.2-4381.C.1			
Is the procurement process proposed a two-step process?			Yes
COV Sections: §2.2-4380.C.2, §2.2-4380.B.7; §2.2-4381.D.2, §2.2-4381.C.7			

### Agency Reasons for Use of CM at Risk

Construction Cost (COV Sections: §2.2-4381.B.1, §2.2-4380.C.3, §2.2-4381.D.3)	Yes
Building Use (COV Sections: §2.2-4381.B.1, §2.2-4380.C.3, §2.2-4381.D.3)	Yes
Project Timeline (COV Sections: §2.2-4381.B.1, §2.2-4380.C.3, §2.2-4381.D.3)	Yes
Need for Project Phasing (COV Sections: §2.2-4380.C.5, §2.2-4381.D.5)	Yes
Project Complexity (COV Sections: §2.2-4381.B.1, §2.2-4380.C.4, §2.2-4381.D.4)	Yes
Value Eng. and/or Constructability Analysis Concurrent with Design (COV Sections: §2.2-4381.A)	Yes
Need for Quality Control/Vendor Prequalification (COV Sections: §2.2-4380.C.5, §2.2-4381.D.5)	Yes
Need for Cost/Design Control (COV Sections: §2.2-4380.C.5, §2.2-4381.D.5)	Yes

### Supporting Information for Procurement Method Selection

Project Use (i.e. lab, classroom, office, etc.): (COV Sections: §2.2-4380.C.3; §2.2-4381.D.3)
<p>The Bull Run Hall IIIB Addition and related renovations will provide state-of-the-art facilities for programs in mechanical engineering, engineering technology, forensic science, anatomy, chemistry, human performance including athletic training &amp; Kinesiology, game design, virtual reality and animation. This highly complex and programmatically integrated facility will support the Volgenau School of Engineering, the College of Science, the College of Education and Human Development and the College of Visual and Performing Arts.</p> <p>This project will construct a 100,000 GSF academic building on the Sci Tech Campus of Mason as well as renovate 5,000 ASF in the Kathrine G. Johnson Building (Formerly Bull Run Hall) also on the Sci Tech Campus. The program for the project includes the following: instructional wet labs and the associated support spaces for applied fluids and thermodynamics, materials/characterization, advanced manufacturing, chemistry, and forensics; instructional cadaver &amp; anatomy labs and associated support spaces; instructional dry labs and associated support spaces including mechatronics/robotics and forensics; instructional and open computer labs;</p>

animation labs including virtual reality, audio production, and motion capture; human performance labs including therapeutic interventions, evaluation and anatomy, strength and physical activity; a student design space; a fabrication lab; and limited office and conference space.

Construction Cost:	\$42,951,000	(COV Sections: §2.2-4380.C.3; §2.2-4381.D.3)		
Project schedule: (COV Sections: §2.2-4380.C.3; §2.2-4381.D.3)	Design Start Date	5/1/2019	Design Compl. Date	2/1/2021
	Const. Start Date	4/1/2021	Const. Compl. Date	6/1/2023
Attach bar chart schedule to illustrate fast tracking or other schedule complexities. (COV Sections: §2.2-4380.C.3, §2.2-4380.C.4; §2.2-4381.D.3, §2.2-4381.D.4)				

Additional description to highlight key attributes that affect the project complexity, need for value engineering/constructability analysis, quality control/vendor prequalification, and cost/design control as indicated by "Yes" answers above:

**Building Use / Project Complexity** - The Bull Run Hall Addition IIIB will be a complex facility which will include multiple labs including a BSL 2 lab with sophisticated systems and space requirements that as a result will require significant corresponding construction expertise and related knowledge of materials and methods to ensure the proper installation of building systems and components. The precise installation of these critical systems and components is essential to ensure the proper functioning of these systems and as a result the protection of the health, safety and welfare of students and faculty. These critical building systems and components are vital to safeguard against safety hazards posed by flammables, gases, biological pathogens, and hazardous materials which will be frequently encountered in laboratory instruction. In addition, the precise nature of laboratory experiments also mandates highly specialized systems to support the demands of lab instruction.

**Hazardous Materials and Gases** - Occupants in labs will be utilizing hazardous materials and gases which will require fume hoods, snorkels, downdraft exhaust, lab exhaust systems, and HVAC systems to meet the significant make up air requirements; and safety stations, emergency showers and eye washes. The presence of these materials and gases in the labs and of these systems has significant construction implications to ensure the health, safety and welfare of building users.

**Flammables and Biological Pathogens** - The building will also include flammable storage and a biological waste room. The presence of these program elements will have significant construction implications for complex fire separations and fire protection systems as well as construction implications for infectious disease control related to biological pathogens.

**Specialized Equipment and Systems** - In addition systems to provide for the health, safety and welfare of building occupants, to support the demands of lab instruction, labs will be equipped with specialized plumbing systems to provide distilled water and reverse osmosis water as well as lab gases and compressed air; large scale specialized built-in equipment such as freezers; and high-performance mechanical systems to provide for a high level of temperature stability and control.

**Structural Complexity** – The project includes several program elements which have specialized structural requirements including force plates recessed into the slab for human performance, high bay spaces for motion capture and specialized vibration requirements. Weight and performance implications of some equipment will

require increased structural capacities and depth.

**Need for Quality Control/ Vendor Prequalification** - Given the building program which includes multiple highly specialized and highly unique labs with varying technical requirements and the resulting complexity of the project, it is critical to ensure the selection of qualified contractors and vendors with the necessary experience and knowledge of these specialized spaces and systems to provide for optimal functional and performance outcomes.

**Construction Cost / Value Eng. and/or Constructability Analysis Concurrent with Design / Need for Cost/Design Control** - These complex building systems can have dramatic implications for construction costs and building area efficiencies. Therefore, it is critical to provide for constructability analysis, cost estimating and value engineering input throughout the preliminary design and working drawing phases of the project to ensure that the overall project costs are within the project budget and project quality expectations are achieved to realize the best value for the Commonwealth. Equally critical to support the design process will be careful evaluation of the cost and constructability of alternative solutions and design options to inform the design decisions as they are made in real time to optimize project outcomes with regard to cost and quality. Informed cost and constructability evaluation will decrease the risk of costly design change orders and design delays to achieve a project which meets programmatic and quality expectations within the project budget.

**Project Timeline / Need for Project Phasing** - The Bull Run Hall IIIB Addition and related renovations of the Katherine G. Johnson Building will also support Mason's broader plans for the Science and Technology Campus in Prince William County. Mason is relocating instructional programs from the Fairfax Campus to the Sci Tech Campus to relieve significant pressures on classroom and class lab spaces at the Fairfax Campus which experiences very high classroom and class lab utilization rates. To address these issues, Mason is increasing the enrollment at Sci Tech from the current enrollment of slightly more than two thousand students to approximately seven thousand students. The program functions included in the Bull Run Hall IIIB Addition and related renovations of the Katherine G. Johnson Building are essential to support the academic programs which either are already located on the Sci Tech Campus partially or have been identified as programs which are well suited to relocation to the Sci Tech Campus. To allow for the planned academic program migration to occur on schedule it is critical that the project schedule for the Bull Run Hall IIIB Addition is maintained. The timely delivery of this project is critical to avoid interruptions in the ongoing migration of programs and students to Sci Tech Campus to meet the enrollment growth of Mason. Accordingly, it is essential that the delivery process during design include reviews of constructability to ensure the design allows for proper phasing, design details to allow for reasonable construction sequencing that does not delay the project delivery, and project specifications to ensure the exclusion of long lead items that could affect the project schedule. Additionally, careful coordination of the design and the related implications for phasing are essential as renovations of some of the backfill spaces in Katherine G. Johnson Building cannot commence until their replacement is complete in the Bull Run Hall IIIB Addition.

(COV Sections: §2.2-4380.C.4; §2.2-4381.D.4)

Submitted by: Frank Strike

Date: 9/4/19

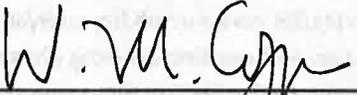
Signature: 

Title: Vice President

(Agency Head or Authorized Representative)

**For DGS Use Only**

Based upon the information provided by the Agency, the use of Construction Management at Risk IS recommended for this project.

Recommended by:  9/9/19

W. Michael Coppa, RA  
Director, Division of Engineering and Buildings