

DGS-30-456

(Rev. 02/22)

Construction Management at Risk

Procurement Review Submittal Form

General Project Information

Agency Name:	Virginia Polytechnic Institute and State University (208)		
Is the agency a covered institution per §2.2-4379?			
Project Name:	New College of Business Building		
Project Number:	L00073		

Other Project Information

Advising A/E Name:	Liza Morris NCARB	License Number:	VA 0401018243
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)
The New College of Business (NCOB) Building entails the construction of a new 104,000 gross square foot, four to five story structure that will connect and share a common wall with the 120,000 gross square feet, five-story Data and Decision Sciences (D&DS) building currently under construction. Both structures are intended to function as a fully integrated, single building/facility upon completion of NCOB. The interior D&DS space immediately adjacent to the common wall shared by both buildings consists of a multi-story "commons" area with a floor-to-ceiling height of approximately 43 feet. The NCOB will be one of the first buildings authorized subsequent to the Virginia Tech Board of Visitors' adoption of the Climate Action Commitment in 2021 and will be designed and constructed to help address climate change and establish Virginia Tech as a leading institution in taking bold actions to combat this worldwide crisis. Goals established by the Climate Action Commitment will be pursued throughout the design and construction of NCOB and will include efforts to reach carbon neutrality, 100 percent renewable electricity, zero-waste generation, and highly promote sustainability.

Construction Cost:	\$60.6M	(COV Sections: §2.2-4380.C.3; §2.2-4381.D.3)		
Project schedule:	Design Start Date	Oct-22	Design Compl. Date	Oct-24
(COV Sections: §2.2-4380.C.3; §2.2-4381.D.3)	Const. Start Date	Dec-24	Const. Compl. Date	Dec-26
	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:

Construction Cost: Given project characteristics such as the size of the building, the sustainability features in support of the Climate Action Commitment, the extensive labs/research spaces, and the tightly constrained area where it will be constructed, this building is expected to be high cost. Collaborative involvement by the CMAR with the A/E throughout the preliminary design and working drawings phases well before construction begins will better inform design processes, enhance project cost estimation, ensure sequencing of work is efficiently planned and budgeted, and provide constructability reviews—which are essential to maintain overall project costs within budget. Value Management and dedicated constructability analysis are expected to be key factors to ensure design-to-budget practices are successfully incorporated into each phase of design and throughout the development of the construction contract; further justifying the need for pre-construction services involvement by a CMAR alongside the A/E during design.

Project Timeline and Phasing: The D&DS building was designed with the intent of abutting the NCOB building as an “addition” thus allowing both structures to be fully integrated as a single building. This approach will require the builder to treat the D&DS portion of the facility as a “fully occupied structure” and ensure all life safety, electrical/utilities feeds are tied in with minimal disruptions to maintain continuity of ongoing mission/operations. Use of CMAR will ensure optimal construction techniques and project phases are identified early, well before construction actually begins, thus optimizing cost and time. Additionally, the expected construction duration will be approximately two years and as such will impact several academic semesters when student/faculty staff populations on campus are at their highest. This project will be “logistically intense” because the building site location is within the north academic district in the central core of campus and is adjacent to classroom/research buildings, dining facilities, and administrative buildings that lend to high concentrations of pedestrian and vehicular traffic. The resultant impacts include: high volume and vehicular and pedestrian traffic management challenges, little to no adjacent laydown area, just-in-time material deliveries, extensive underground utilities coordination requirements, shared project borders and associated project site control systems. Involvement by a CMAR will uncover construction logistics challenges that can be addressed with design solutions. Project phasing is also an important consideration because the north academic district is Virginia Tech's highest concentration of ongoing construction projects leading to significant challenges in coordination with other contractors for material deliveries, laydown areas, etc.; this will likely require phased project site boundaries and timed coordination of construction activities within the NCOB and in adjacent areas. Additionally, CMAR early procurement of critical components of the NCOB building for sustainability features (i.e. solar photovoltaic arrays, energy recovery ventilators, building automation and controls strategy systems, etc.) and infrastructure such as structural steel, miscellaneous metals and MEP components such as transformers, air handlers, etc. will help ensure successful project schedule and execution timelines within the expected construction phases.

Project Complexity: As previously stated, this project represents one of Virginia Tech's earliest projects

following adoption of the Climate Action Commitment. Accordingly, there will be significant degrees of complexity in both the design and construction phases beyond that of major construction projects in the recent past. Involvement of the CMAR both during pre-construction and construction coordinating and informing solutions to attain sustainability goals will be critical to success. CMAR participation alongside the A/E during the design phase will help ensure the full integration of both the NCOB and D&DS buildings, particularly at the immediate point where both buildings abut. The 43-feet floor-to-ceiling height space enclosing the "commons" through which both buildings will share open access, will require careful design and construction for optimal integration of HVAC and other sustainability features that will help meet Climate Action Commitment goals and targets--while also meeting code and other life safety requirements for sprinkler and fire protection systems for the fully occupied D&DS building. Seamless integration of the two structures will also span HVAC controls, IT infrastructure and data visualization systems critical to the academic and research activities the completed single building will house—CMAR involvement during design of these features will ensure successful installation and/or implementation of these systems during actual construction. Additionally, a CMAR can uniquely provide market-level costing and availability information which may indicate the need for early package(s) to reduce total project timeline and mitigate cost escalation. Regarding specific complexities of the building site, the area on campus where the site is located is known for karst formations which will influence the design approach to optimize foundation systems, etc. Foundation design likely includes aggregate piers with concrete spread footing systems including significant foundation/below grade excavation, however determination of sub-surface conditions and the presence of bedrock will influence decisions of whether or not alternative foundation systems will need to be considered. Involvement of a CMAR during this critical stage of project development and as site conditions become more fully known will help alleviate project challenges before they actually occur.

Need for Quality Control/Vendor Prequalification: Successful orchestration of this project will absolutely require the expertise of a highly qualified CMaR. Use of two-step procurement procedures will help ensure selection of the best possible qualified CMaR with the expertise and experience best suited for this project. Additionally, subcontractor pre-qualification by the CMaR for certain work packages will also be essential for optimized performance by the contractor team and greatly reduce risk to the university.

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

Submitted by:

Christopher H. Kiwus, PE, PhD

Date: 5/6/2022

Signature:

Christopher H. Kiwus

DS
JCT

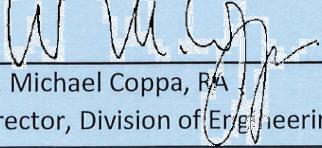
Title:

Interim Vice President and Chief Business Officer
(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:


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