

**Research Development Fund – Cover Page Template**

**Application Title:** Innovative Infrastructure Manufacturing Laboratory – A&M Open Megamanufacturing Laboratory (OML)

**Lead contact for RDF Application:**

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**Key Participating Units:** TEES, College of Engineering, College of Architecture

**Anticipated Request Amount (\$):** \$960,000

**Executive summary of the intended application to utilize Research Development Funds.**

We propose herein to develop an Innovative Infrastructure Manufacturing Laboratory, entitled the A&M Open Mega-manufacturing Laboratory (OML) to be located in the new Center for Infrastructure Renewal, a joint center between TEES and TTI. This laboratory will create an experimental environment that will drive the development of creative solutions in infrastructure manufacturing. This is a new area of research at Texas A&M that is emerging fast internationally. The area brings together Civil, Industrial, Mechanical and Electrical Engineering and Computer Science and Material Science with Architecture, Construction Science, Chemistry and potentially the agricultural sciences. The OML will be connected virtually with the Design Studio in Architecture, thus forming a network of laboratories that complement each other, but allow for a joint overall strategy for research, innovation and education. The proposed investment will put Texas A&M in the lead nationally, making us very competitive for major national initiatives in innovative manufacturing. Currently, NSF has a strong focus on manufacturing and NIST Office for Advanced Manufacturing (OAM) is responsible for the NIST Manufacturing USA Institute Program. In addition, the DOD and the U.S. Army Corps have a focus on rapid construction and automation. The proposed investment will make Texas A&M very well placed to receive significant funding from these funding agencies. The new OML will also enable new innovative course offerings in Mega-manufacturing at Texas A&M. The intent is to start with a joint Aggie Challenge course between Engineering and Architecture in Fall, 2018. In addition, our vision is for the OML to be useful not only by TAMU personnel, but also as a tool capable of interfacing us with new industry and research lab partners across the nation. On a societal level, the wider impact of this investment may be huge, since infrastructure forms the backbone of our nation's economy, and the foundation for the quality of life and global competitiveness we enjoy. High quality infrastructure makes America more competitive, creates jobs, and reduces the costs of goods and services for consumers. However, the infrastructure in the United States is aging and has reached or surpassed its intended life span. Modernizing these infrastructures will require interdisciplinary research teams with state-of-the-art research facilities, 21<sup>st</sup> century technologies and materials, and innovative solutions to meet the demands of a growing population. There is a clear understanding nationally that business as usual is not going to deliver the step change needed in the infrastructure sector. The new research focus that the proposed investment will enable, promises to greatly enhance the productivity of the infrastructure sector in the USA, resulting in longer lasting infrastructure that is built in less time at a lower cost.