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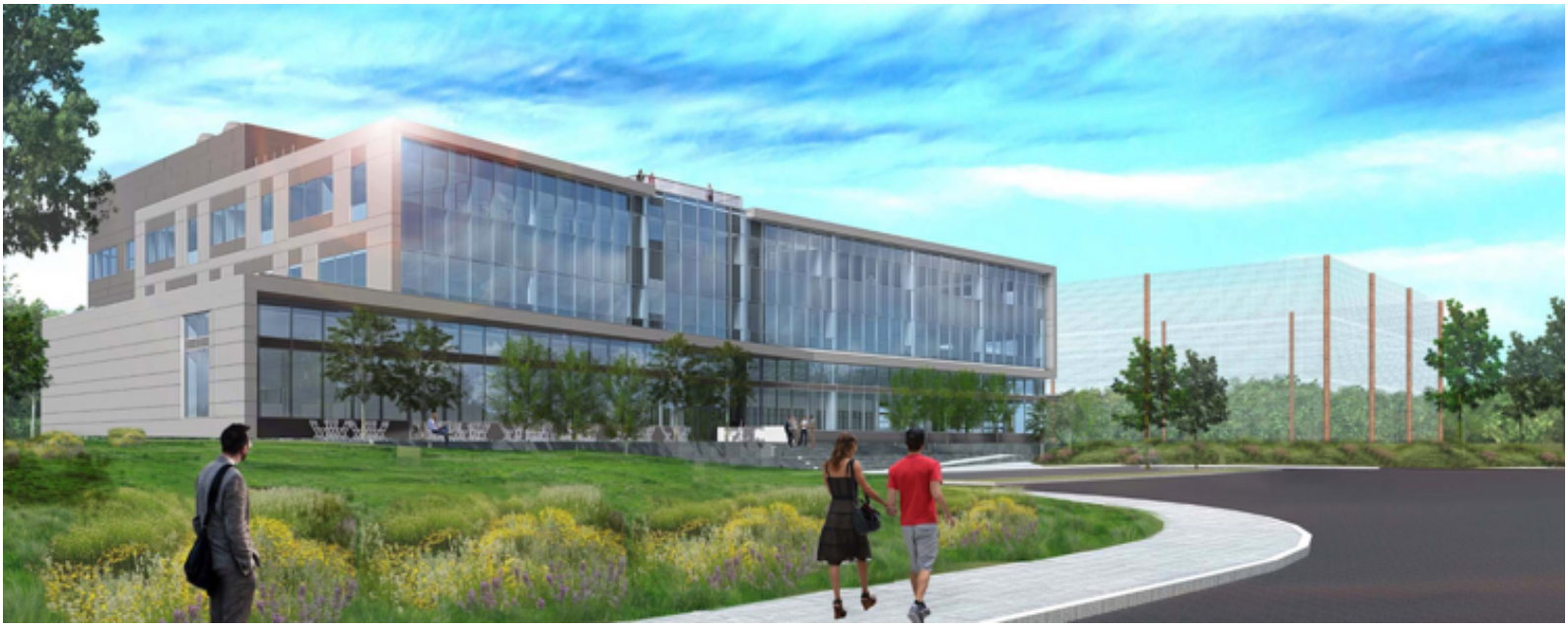
U.S. Army Research Laboratory to be built at Northeastern

BY PAT BLAIS Apr 27, 2018



Proposed new building - The above rendering shows the proposed building at the Northeastern campus off South Bedford Road in Burlington. The collaboration is between academia, tech companies, and the defense department's U.S. Army Research Laboratory.

BURLINGTON - With the promise of the high-tech era giving rise to innovations once considered limited to the pages of science fiction lore, the country's top military brass and homeland security experts say laboratory researchers in rogue nations could easily tip the balance of world power.

But on a 14-acre parcel off South Bedford Road, situated not far from the Woburn line and just a few miles away from the Burlington Mall, the U.S. Army's best and brightest intend to wipe away any and all enemy advantages by creating the world's most formidable technological partnership.

Earlier this month, a host of dignitaries descended upon Northeastern University's George J. Kostas Research Institute for Homeland Security to formalize a unique collaboration between academia, tech companies, and the defense department's U.S. Army Research Laboratory (ARL).

Within the secretive 70,000 square foot facility, where researchers are already experimenting with drones, explosive and force-resistant building materials, and nanotechnology or microscopic robotics and electronics, the ARL plans to house its northeastern regional partnership headquarters.

In the undertaking, staff from the ARL's 3,000-plus strong civilian and military workforce will labor directly alongside some of the state's preeminent university and corporate researchers to move innovations in the laboratory directly to those serving on the battlefield.

Already, the U.S. military has inked similar agreements, which are expected to bring millions of dollars in research funding, with three other universities as part of a larger mission to coordinate similar partnerships in all regions of the United States.

"I'm honored to be here and represent the Army as we develop the newest regional partnership. The character of war is changing, and the pace and speed of technology has a lot to do with that," said Maj. General Cedric T. Wins, the commanding officer of the U.S. Army Research Laboratory.

"We work on a wide-range of national security and Homeland Security issues, from cyber-at-the-tactical edge, to advanced materials and manufacturing, to the development of state-of-the-art mobile commands," later commented David Lozzi, Northeastern University's provost for research and development. "Today's most forward-looking government laboratories, research universities, and corporations recognize that going it alone doesn't get it done anymore."

Governor Charles Baker, who attended the ceremony alongside U.S. Senators Edward Markey and Elizabeth Warren and Congressman Seth Moulton, recognized the promise of Northeastern's Kostas Institute for Research shortly after the three-story building opened its doors in 2013.

Funded through a $12 million donation from the late Northeastern University alumnus George Kostas, a one-time synthetic rubber researcher who worked for the U.S. Government during World War II, the facility last year received a $3 million state grant for work in advanced nano manufacturing.

Already, those in the nanotechnology field have created a second-generation 3D printer capable of manufacturing biosensors, medical implants, and electronics that in one application, were deemed capable of measuring sugar levels in athletes sweat.

The secure research facility also features a one-of-a-kind lab and innovation center, in which model buildings and structures - standing up to 20-feet tall and weighing 40,000 pounds — can be dropped on four-foot thick, reinforced concrete floors with anchors that can withstand forces in excess of 200,000 pounds.

The specialized quarters are utilized to test building materials and products capable of withstanding blasts and other natural forces.

"If you take a look at the arc of all the work that's been done in supplying our military and warfighters, nobody plays more out of their weight class than Massachusetts," said Baker.

Expansion continues

To the envy of its neighbors, Burlington, once known for its mall site and a few mid-sized office parks, has lured wave after wave of software, defense, biomedical and advanced technology firms to its borders, including MilliporeSigma, Oracle, Nuance Communications, Booz Allen Hamilton, and BAE Systems.

Around those industry anchors, developers have subsequently poured millions of dollars into further office park expansions, as well as investments for new new hotels, apartment complexes, and high-end shopping centers and restaurants to serve that clientele.

In many ways, Burlington's exponential growth has marked a revitalization of the larger Route 128 corridor, which through the high-tech sector, has rebounded after long-being known as one of the nation's original computer technology hubs.

During the recent ceremony to mark the town's latest partnership between Northeastern University and the U.S. Army's Research Laboratory, members of the state's congressional delegation were quick to boast of Burlington's growing clout along Route 128 and Route 3's "high-tech corridor".

"We're right here on America's technology highway, and Burlington is the belt-buckle of that highway," quipped Markey, a proud Northeastern University alumnus.

"The challenges we face around the globe today are coming in the innovation space, and we have to stand up and meet them. That begins right here," Moulton said in separate remarks.

Development pressures

While neighboring communities often cite Burlington's growth as a model to be emulated, its economic boon has come with some drawbacks, including increased strain on town infrastructure and and friction between town residents and the community's corporate interests.

Northeastern's George J. Kostas Research Institute for Homeland Security, situated on a 13.5-acre parcel off of South Bedford Road, is no exception, as it is situated near the 200-acre Mary Cummings Trust Park and by the heavily trafficked intersection of South Bedford, Cambridge, and Bedford Road.

Less than a decade ago, the parcel housed a little-noticed suburban college campus in an underutilized two-story concrete building, but in 2011, the Boston-based university celebrated the construction of its first 70,000 square foot research and office building.

In August of 2013, during what was considered one of the first partnerships of its kind, Northeastern University joined with the Rogers Corporation, a publicly-traded electronics and advanced materials manufacturer, to open a 4,000 square foot innovation center at the flagship Kostas Research Institute.

The innovation center, which blends together academic and corporate level research interests from the initial design to commercial rollout phase, established the model now being utilized by the U.S. Army Research Laboratory.

"Northeastern was prepared to change the traditional sponsored research model by including friendly intellectual property rights and processes, allowing the co-location of industry and academic researchers, and allowing industry to have input into hiring new talent," said Rogers Corp. spokesman Bob Daigle.

"There's now 17 active partners on this campus, but Rogers was the first. And the fruits of this collaboration are beginning to be introduced to the market," he added.

In recent months, after Burlington officials granted Kostas Research Institute officials permission to construct a 150-by-200 foot exterior net for drone research, Northeastern University has been seeking permission to erect a new three-story, 104,000 square foot research facility.

If approved, the building would become the fourth on the campus, but with the newest structure being proposed for the southwestern portion of the site, the endeavor has drawn criticism from Burlington residents and Mary Cummings Trust proponents like Monte Pearson and Jonathan Sachs.

The parkland, technically under the jurisdiction of the City of Boston, is the 10th-largest conservation land spaces within Greater Boston and one of the last significant, unprotected open green spaces in Burlington, where some 60-acres of the land are considered delicate habitats for rare and endangered species.

“I want people to know not to mess with [Mary Cummings Park]. You are going to be able to see the building from [Mary Cummings Park vista], which is one of the most beautiful vistas in town," said Sachs, during a Planning Board meeting on the expansion in March. "If you force this through, you are going to take one of the two open meadows left in all of Burlington and put in a huge building.”

“I do not see any value of putting this building in. [Northeastern] does not pay any taxes and there is no special provision for Burlington residents to use the campus. We should not be cow-towing to them just because they want to do research,” Pearson later commented.

The Planning Board, though conceding there's likely little they can do to block the expansion from moving ahead, has also cited concerns about traffic by South Bedford and Cambridge Road, which is currently the site of constant commuter-hour gridlock.

Northeastern consultants have proposed a $1.4 million fix of the crossroads, but have not committed to footing the bill for those improvements, which would add new traffic signals, dedicated turning lanes, and pedestrian safety enhancements.