

# Blast Off: How northern Michigan is launching as an aerospace contender

Satellites, spaceports, and heat-treated aircraft parts: these are a few elements of Traverse City's growing aerospace industry.

Up until a couple years ago, no one would have mentioned "Traverse City" and "space technology" in the same breath. Now, northern Michigan is a growing epicenter for activity, innovation, manufacturing and talent in the aerospace industry. How did we get here, and where are we going next?

Ground zero likely could be the May 2017 arrival of ATLAS Space Operations in Traverse City. The company uses a network of antennas and a groundbreaking cloud-based software platform to deliver faster and more affordable solutions for satellite communications, management and control.

Previously, ATLAS had operated as a small startup in Encinitas, Calif. When the company started looking for a new spot to set up a headquarters, Michigan was attractive. Two of the co-founders, including Chief Strategy Office Mike Carey, had ties to the state, and Carey had heard about the growing climate of technology entrepreneurship and capital investment in Traverse City. When Carey connected with local businessman Casey Cowell, co-founder of U.S. Robotics and principle of Boomerang Catapult, Cowell offered a \$500,000 investment with one condition: ATLAS Space Operations would set up shop in Traverse City.

Since then, ATLAS Space Operations has grown from having less than 10 full-time employees to having a staff of 23 people – 14 of whom work at the company's Traverse City location. Cowell, meanwhile, is working to build northern Michigan into a "concentration cluster of expertise" in numerous technology fields, space included. He's currently in conversation with four different companies in the space technology arena, all of which are considering Traverse City as a business location. The growth, he says, is due in part to the fact that most space operations can happen anywhere.

"The space industry is really sort of location-agnostic," Cowell said. "Parts of rockets get built in one place and then they're assembled in another place before being hauled to a different place to get launched, and that's true of satellites as well. There are centers for space around the country, but space technology development is distributed broadly, all over the place."

Even before ATLAS Space Operations started the local conversation about space tech innovation, Traverse City was home to several major aerospace manufacturing companies. One example is Skilled Manufacturing, Inc. (SMI), which operates a 50-employee aerospace division on Aero Park Drive. SMI Aerospace manufactures a range of airframe and jet engine components for clients spanning the private jet, commercial air and defense industries.

Another example is Century, Inc., a company that uses its precision machining and heat-treating capabilities to manufacture key components for numerous industries, including aerospace. According to Jennifer Borkovich, Century's communications director, the company started a concentrated effort to expand into the aerospace market about seven years ago. Today, Century is a trusted parts manufacturer for aerospace companies throughout the country and around the world, thanks to its high-level industry certifications and unique equipment capabilities.

Specifically, Century has a 110-inch deep salt bath system that is ideal for heat treating flight-critical rotating parts, such as helicopter rotor masts or disks that go into jet engines. By dipping these components in molten salts, Century can change the molecular structure of the metal to strengthen it and make it wear better. Executing this process to

in-demand industry specifications allows Century to serve the aerospace market in the same “location-agnostic” fashion that Cowell described.

“There are a lot of machine shops around, and a lot of heat-treating shops around, but not many have the aerospace expertise that we do,” Borkovich said. “We have companies in California that send their heat treat business to Traverse City, because we’re an approved vendor for a certain specification they need.” With no location barriers to speak of, what are the next steps to making Michigan an epicenter of space and aerospace technology?

For Carey, the answer is focus. By shining a light on the opportunities in this field and going after those opportunities with intent, capital funding, education, and leadership, he thinks Michigan – and Traverse City in particular – has the potential to change the game.



That kind of focus does seem to be growing. In 2018, Traverse City hosted two separate space-centered conferences. The first, the Michigan Space Forum, featured panelists from across the space industry and saw 100 attendees split between industry folks, investors and members of the general public. The event also included a sizable youth-focused component – something Carey says is crucial for the development of a robust and sustainable space industry in Michigan.

“You can’t go up to a junior in high school and say ‘Hey, how would you like to go into space?’ when they’ve spent the past three to four years not thinking about a STEM field,” Carey said. “But if you capture them at 13 or 14, and they are motivated by what they see, now you’ve got someone on track. So that’s what we’re looking at.”

The second event, the Michigan Space Symposium, which brought industry experts to northern Michigan to talk about issues facing the space industry. One topic of conversation was the prospect of bringing a space launch facility to Michigan – something that could be closer to happening than many people realize. The symposium was hosted by the Michigan Aerospace Manufacturers Association (MAMA), which is also the organization leading the charge to build a spaceport in northern Michigan. According to MAMA Executive Director Gavin Brown, building a launch facility and command center in Michigan – with the specific purpose of launching small satellites into low-Earth orbit – would help meet a rapidly growing need in the space industry.

“There are roughly 1,800 satellites up in space, currently,” Brown said. “The Federal Aviation Administration has already given licenses to 12,000 more. So, there is a capacity constraint in launch facilities to put those up in orbit.”

Currently, MAMA is considering 10 Michigan sites for a launch facility and three for the command center. This process will involve detailed site analyses to determine which locations meet the requirements for the project. The plan is for the launch facility to accommodate both vertical and horizontal launches, meaning it would need both a launch pad and a runway. The vertical launch facility would require a two-square-mile blast zone, while the runway would need to be about 11,500 feet in length.

MAMA’s spaceport would also have numerous value propositions to set it apart from other launch facilities in the United States. First, since the facility would be meant exclusively for low-orbit satellite launches, it would be smaller and more affordable for satellite owners to use than other facilities. Second, Brown says MAMA would build “the first green spaceport” by exclusively using biofuels for its launches. Third, MAMA is hoping to offer rapid deployment and turnaround time for its launches. Most spaceports require weeks of setup time, meaning they can only support about one launch per month. MAMA’s facility would be capable of one launch per week, to help get more satellites into space.

Brown says numerous industries are driving the need for more launches. Autonomous cars, for instance, need to be able to communicate with each other seamlessly to provide full efficiency, safety, and smart navigation. Low-orbit satellites are the way to provide this level of communication, but no one currently has the launch capabilities to support this growing need. If Michigan were to become a leader in low-Earth orbit launches, that would be a major shot in the arm to the state’s already-growing aerospace industry.

“This spaceport would actually support the buildout of space launch vehicles, space communication satellites, satellite vehicle design, and other space technology in the state of Michigan itself,” Brown said. “It would create an entire ecosystem around itself.”