

Frequently Asked Questions

Who is Maritime Launch Services?

MLS was formed in Nova Scotia in October 2016 by three small specialty companies with decades of combined expertise in the commercial space industry.

What is the project being proposed?

Our intention is to safely and cost effectively build and operate a launch site and provide a low technical risk launch alternative for satellite clients to put their payloads into low earth orbit.

Where is the launch site going to be built?

Following a comprehensive evaluation of fourteen prospective locations across North America, MLS selected a site near the communities of Little Dover, Hazel Hill and Canso. For this location, we are pursuing the provincial regulatory approvals to use a portion of a Crown land parcel for the launch site and conducting studies to further define the launch parameters.

Why was Canso Nova Scotia chosen as the location?

We are excited to move forward with this project in the Canso area. The proposed foot print is a remote coastal area with clear access to the desired orbit. It's also far enough from nearby communities but still close enough to access utilities and infrastructure such as electricity, transportation, and the Port of Canso for the delivery of cargo.

Where else are launch facilities like this located?

Most other launch sites for orbital launch of vertical rockets across North America are associated with US federal and/or State-run government facilities such as Wallops, Virginia, Cape Canaveral, Florida and Vandenberg, California

Why are commercial space satellite clients interested in this particular spaceport location in Nova Scotia?

As previously referenced, the site in Nova Scotia is considered ideal for the needs of a spaceport operation of this scope. MLS, in collaboration with the Ukrainian companies, Yuzhnoye State Design Office and the manufacturing plant, Yuzhmash, offer a low technical risk launch vehicle in the Cyclone 4M at an extremely competitive price of \$45 million USD to place up to 3350 kg of cargo into a sun synchronous orbit. Yuzhnoye and Yuzhmash have a heritage that boasts over 220 successful launches in the Cyclone family of launch vehicles and builds on that legacy with the Cyclone 4M.

What types of people/experts/talent will it take to operate a launch facility like this?

The backbone for staffing a launch facility mostly comes from the engineering and trades industry. There will be a few mechanical and electrical engineers and some orbital mechanic and flight dynamics specialists but mostly there will be mechanical and electrical technicians, IT specialists, plumbers, pipe fitters, welders, protective services personnel, administrative roles and roads & grounds maintenance positions.

What kinds of environmental impact will there be from this project?

MLS was able to get a good preview of the potential affects for the spaceport development project by conducting a detailed review of the environmental assessment performed for the adjacent Sable Wind Farm (<https://www.novascotica/nse/ea/sable-wind-guysborough.asp>). This gave us an understanding of the findings of items such as potential wetland disturbance, migratory bird patterns, First Nations ecological knowledge study findings, etc.... and whether there were any significant concerns. Strum Consulting is in the midst of completing the environmental assessment (EA) for the Project and will assess all potential effects on the environment. Based on our preliminary review and the effort currently underway by Strum, we believe we can minimize and/or mitigate any concerns. MLS is committed to being excellent stewards of the environment and proactive in our efforts to minimize our impact and monitor our activities.

How can MLS provide assurance regarding handling of rocket propellants or other related matters?

The Cyclone 4M is a two stage rocket that uses the first stage for the main launch vehicle lift into space and the second stage for final orbit insertion and on-orbit steering. It is easy to say that we will follow all the federal, provincial and international standards and regulatory requirements for handling the liquid oxygen and kerosene for the larger first stage and the two specialty fuels, unsymmetrical dimethylhydrazine (UDMH) and Nitrogen Tetroxide (N₂O₄) used on the second stage, but it goes a great deal deeper than that. Both of the company's directors have decades of experience working with these propellants for both NASA and the US Air Force. One Director has owned and operated a company in the US whose primary work for over the past 22 years is in the safe handling and storage of propellants and the company has fueled more than 50% of rocket launch payload and upper stages from the US. They have the technical skills, equipment, processes and procedures in place and ready to bring to the new launch site. These skills and processing are continuously reviewed and enhanced through the use of best available technology and industry best practices to ensure safe, reliable performance. The MLS President brings close to 16 years of direct experience working as an engineering manager at a NASA facility that handles tens of thousands of pounds of the propellants which are the same as those used for all of the on-board propulsion systems for the Space Shuttle. In his experience leading these teams, he has received NASA's highest astronaut safety award, the Silver Snoopy, and was also recognized and awarded as a Space Flight honoree for his work. Safety is a keystone to everything we do. MLS understands that the beginning of the safety process starts with the site layout separation analysis with respect to people and the environment. This analysis has been completed already. It follows with good controls planning, good policies and procedures development, training and personal protective equipment and with the practice of responses to unplanned events. It is a core principle of our company. At the end of this entire process are the preparations for localized containment of any spill that may occur and we have laid out our facility away from the ocean and waterways to ensure any event, however remote, is contained.

What are the next steps in the environmental review?

MLS's environmental consultant, Strum Consulting, is finishing the final seasonal data collection and compiling a full year of analysis into an environmental assessment (EA) document. Once complete, the EA will be registered with the Nova Scotia Department of Environment (NSE) for review. The environmental review process will involve a number of other provincial and federal departments and agencies, and their review and feedback will be managed through a One Window process with NSE. NSE will also provide the EA document to the public and other stakeholders for review. Once NSE determines that all comments and questions have been appropriately addressed by the proponent, the Minister then has the option of approving, approving with conditions, seeking clarification from the proponent, or rejecting the project.

Will MLS reserve a number of jobs for Canso and nearby community residents? If so, how many? Where/ when/ how can we apply?

As described above, the backbone for site operations are mostly in the trades types of positions. The community has a great many of these skills already and MLS will work to keep the operations staff local. MLS has also reached out to the Nova Scotia Community College (NSCC) and others to begin a dialogue on localized specialty training. Our initial review of the courses listed at the NSCC shows a strong alignment to the work we need performed. As for design and construction-related company capabilities and individual job applicants, we have added an email address to our website to get that information into the right hands. Site operations contractors and individuals seeking employment may continue to submit those at our website. Please be patient in anticipation of a response, as the interest to date has been extremely strong and the timing for the phases of design and construction and operations are spread over the next 24 months.

Media stories and updates from MLS state that you've secured nearly \$400 million worth of business from prospective satellite clients. What can you tell us about them?

All of the letters of intent signed to date are for commercial payloads that range widely in size. Some are bundled smaller satellites, called cubesats that have manufacturers from science and academia, some are for telecommunications and some are for earth imaging. We expect to be able to publish more details about our payloads but must respect the disclosure rules that come along with those agreements.

Some media stories suggest that there have been reservations about a similar project which failed after a decade-long struggle to get off the ground in Brazil, citing a government review that found too many open questions about its cost and future market success. How can MLS succeed in NS where a similar project has failed elsewhere?

The Nova Scotia spaceport is a strictly commercial project that is working within the strong market demands for the sun synchronous orbit for satellites, and with a different variation of the Ukrainian launch vehicle. Additionally, Yuzhnoye and Yuzhmash are under direct contract to MLS to provide the launch vehicle and support services much like that which is being done successfully for other projects such as for the first stage of the Antares rocket and for the Vega rocket upper stage. The previous effort was a government-to-government joint venture

between the two space agencies from Ukraine and Brazil and the launch trajectory was to a different orbital inclination.

What arrangements are you making to involve First Nations communities?

MLS has been working with the local First Nations communities since our first site visit over a year ago. We have brought aboard a strong partner in the community in Lindsay Construction that has well established training and hiring programs within their company. Over the years, Lindsay has constructed projects in a number of First Nations communities, focused on building collaborative and supportive relationships. There will be tangible opportunities for educational outreach, for construction support, and for operations support as our project matures.

Will the owners / executive team of this launch facility move to Nova Scotia?

The MLS CEO and his family will move to Nova Scotia in 2018 as will our VP for Strategic Development. Other leadership positions that are developing will be staffed locally as much as possible.

What happens in the unlikely event of a launch failure?

Although highly unlikely, a launch failure could happen. If this were the case, the proposed site is far enough away from the town of Canso—or any other community—that the only potential for damage would be to the launch facilities or vehicle. The performance history of Yuhnoye's Cyclone family of vehicle stages (the same type that would be used at the proposed facility) has a success rate of 96% over 228 missions. That said, MLS and Yuzhnoye will go through extensive practice scenarios over a six month period prior to first launch to practice all emergency scenarios and responses. We will be doing all of this under the review and acceptance of the federal regulatory authorities in Canada; no launch is ever conducted without their approval.

Will there be any environmental impacts of site construction?

Construction of the site will have very few short term environmental affects beyond the site footprint itself, such as temporary roads and lay down yards, but the site has been carefully defined to minimize any wetland area impacts and is alongside the Sable Wind Farm which completed a comprehensive environmental review in recent years which found minimal effect on any environmentally sensitive areas such as wetlands, First Nations historical sites or protected flora and fauna The potential for environmental impact from a launch is possible but as history shows, is very limited in size, scope and duration. Many, if not most of the US orbital launch facilities are operated within or very near wildlife refuges such as the Merritt Island National Wildlife Refuge where NASA launches in Florida There are decades' worth of environmental sampling data and reports and the flora and fauna in the area remains vibrant. Fishing, near shore and deep sea, are very popular with over 500 species of fish along the Space Coast. (<http://www.visitspacecoast.com/things-to-do/fishing-water-sports/fishing/>)

How many jobs could be created?

Approximately 30 to 40 full-time MLS employees/contractors would be present at the launch area and/or control centre by late 2019. During a period of six to eight weeks prior to a launch, payload customers and launch vehicle support staff will be working on the launch vehicle and could number an additional 100 people staying in the community. There is also significant potential for indirect job creation in the areas of spacecraft manufacturing, tourism and retail, transportation, food service and lodging, and home construction, among others.

One issue identified at a recent open house meeting was accommodations. The community has one motel, which is not enough to handle the dozens of workers that could be hired, or the countless tourists a rocket launch could attract. How will this obstacle be overcome?

MLS is working with the local community development association to identify the opportunities for the community to accommodate the construction crews expected, as well as the support staff for launch operations. Many in the community have expressed an interest in opening B&Bs and other firms will see the potential for filling hotels and restaurants reaching as far away as Antigonish and Port Hawkesbury.

What does the timeline for approval and then construction and eventual launch look like? What are the key dates that the public should know about?

Our projected first launch to meet our clients' launch needs is during the summer of 2020. Backing up from that with the six-month facility commissioning and eighteen months of site construction, we are hopeful to complete the provincial regulatory approvals such that we can begin construction by the summer of 2018.