



***WELCOME TO SPACE COUNTRY!***

**Roosevelt Mercer, Jr.**  
**Major General, USAF (ret)**  
*CEO and Executive Director*



# WHO IS **VSA**?

- The Virginia **Spaceport** Authority (VSA) is a political subdivision of the Commonwealth of Virginia responsible for developing aerospace activities.
  - VSA owns and operates the **Mid-Atlantic Regional Spaceport (MARS)**.
- VSA headquartered in Norfolk, but most employees work at the spaceport.
- VSA is a tenant on NASA Goddard's Wallops Flight Facility.
- The spaceport is **FAA licensed for vertical launches** to orbit.

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# OUR PURPOSE

- Develop and enhance infrastructure that facilitates timely, efficient, safe, and low-cost access to space.
- Provide education and research in aerospace technologies and processes.
- Preserve the expertise and capability for launch operations on the Eastern Shore of Virginia.
  - Stimulate aerospace-related economic development on the Eastern Shore.

*-Virginia Commercial Space Flight Authority Act of 1995 and as amended in 2017.*



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# STEM Education

- Create an educational hub for the Commonwealth and nation.
  - Prepare Eastern Shore workforce for growing space industry.
- Education as a vehicle to improve quality of life via stable, high-paying jobs.
- Increasing focus on K-12.
- Robust partnerships with Commonwealth universities:
  - **Curriculum Development**
  - **Internship Program**
  - **Mentorship Program**
- 20% of full-time VSA employees are former interns

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# OUR *LAUNCH PADS*



Pad 0A



Pad 0B



Pad 0C

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# PAD 0A

- Liquid propellant pad
- Multi-user capabilities
- Accommodates small- and mid-class rockets
- Current customer is Northrop Grumman's Antares rocket
- \$86 million direct capital support

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# PAD 0B

- Solid fuel launch pad
- Launch pad from which Northrop Grumman launched its Minotaur class of vehicles (I, IV, V)
  - Capable of carrying payloads of:
    - Minotaur I: 1,280 lbs.
    - Minotaur IV: 3,825 lbs.
    - Minotaur V: 754 lbs.
- Accommodates small- and mid-class rockets
- \$874 thousand direct capital support

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# PAD 0C

- From groundbreaking to operational status in 11 months
- Liquid propellant pad
- Accommodates small-class rockets
- Rocket Lab's only U.S. launch site for its Electron rocket
  - Services payloads up to 661 lbs.
- \$5 million direct capital support





## **MARS COMMAND FACILITY (MARSCOM)**

- VSA's central launch operations facility, critical for all rocket launches from the Mid-Atlantic Regional Spaceport (MARS).
- Eight miles from launch pad complex.

# MARS PAYLOAD PROCESSING FACILITY (PPF)

- Newest PPF in the United States
- Can process multiple payloads simultaneously – from arrival to encapsulation
- Payload integration
- Payload fueling
- Stage integration
- Multiple segregated processing spaces
- \$20 million direct capital support

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# **MARS UXS TEST RANGE**

## **UAS AIRFIELD**

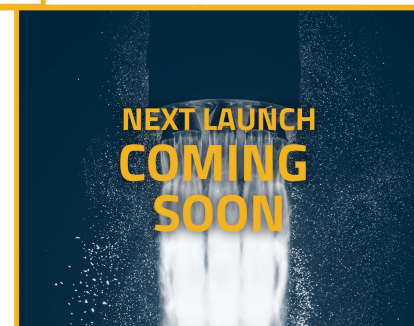
- 3000'x75' UAS Runway
- Concrete VTOL pad
- 50' communications tower
- 95'x50' hangar with 70' tall rollup door
- Full power and communications suite
- Ready room
- UAS built in partnership with VDOT
- \$14.3 million direct capital support

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# OUR LAUNCH CUSTOMERS

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**AGREEMENTS SIGNED.  
PUBLIC ANNOUNCEMENT COMING SOON!**

**CURRENTLY NEGOTIATING  
WITH ADDITIONAL  
CUSTOMER**



# Northrop Grumman: Antares Program

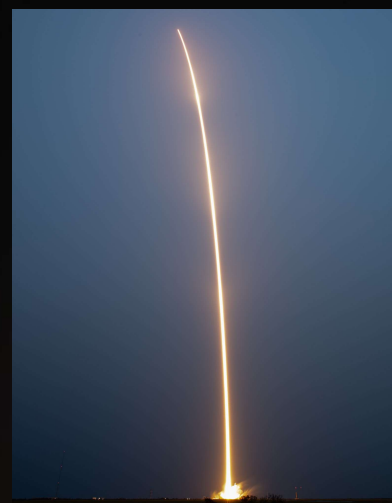
- Started launching Antares missions in 2013 from MARS Pad 0A.
- 25 Northrop Grumman missions have launched from MARS.
  - 17 Antares International Space Station (ISS) resupply missions to date
    - Delivering roughly 130,000 lbs. of equipment/supplies to ISS.
  - 8 Minotaur missions.
- VSA has supported four iterations of Antares rockets
  - Preparing to support the next iteration.

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# End of an Era: Northrop Grumman's Final Antares 230+ Launch

- NG-19, the final Antares 200 series rocket, launched from MARS August 1, 2023.
- 17th successful launch of Antares in ten years.
- Delivered more than 8,200 lbs. of equipment, science experiments and supplies.
- Thousands of spectators in attendance.



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# WHAT'S NEXT

## ANTARES 330/MLV

- Northrop Grumman announced partnership with Firefly Aerospace to develop two new rockets.
- The Antares 330 and MLV rockets will be manufactured with all-American parts.
- 330 projected payload capacity:
  - Significantly greater than the previous 230.
  - Capable of launching more than 22,000 lbs.
- MLV projected payload:
  - Significantly greater than the 330.
  - Capable of launching more than 35,000 lbs.
- Will be able to support government and commercial missions.



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Mack Crawford  
**NASA**  
SPACEFLIGHT.COM



# Pad 0A Modifications Required to Support MLV & Antares 330

- Enabling larger launch vehicles
  - Antares 230, 2 engines, 139ft.
  - Antares MLV, 7 engines, 183ft.
- Enlarging the launch mount and flame trench opening.
  - Allows higher thrust.
- Widening the launch pad ramp to accommodate the larger rocket.
- Increase fuel/oxidizer storage.
- Upgrade inert gas systems.
- Modified deluge system.
- Modified lightning protection system.



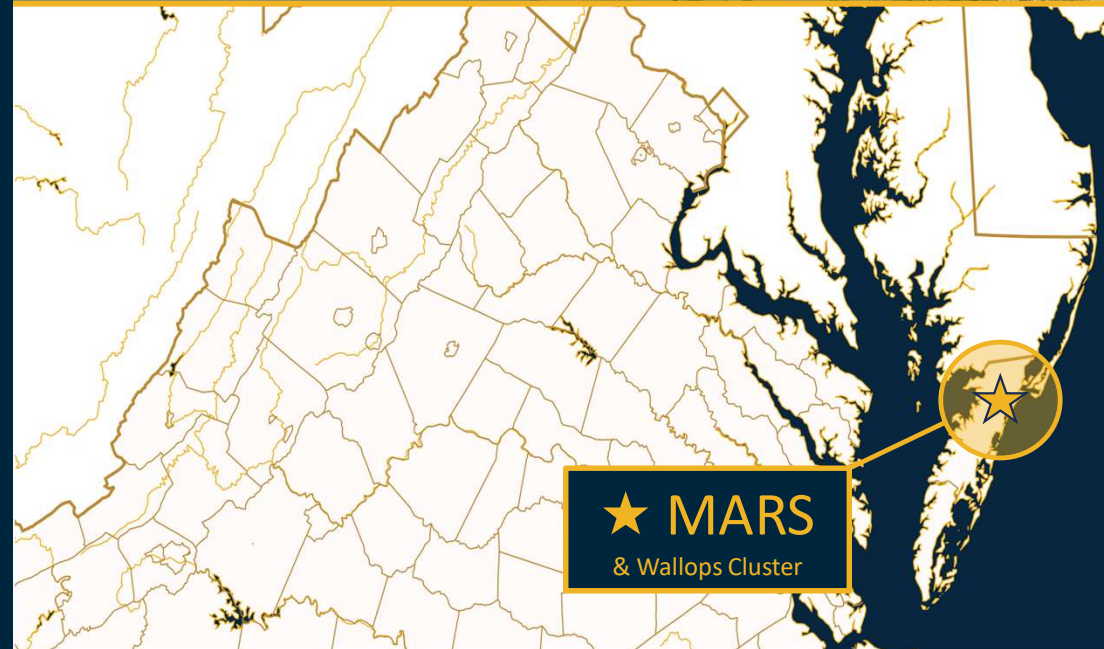
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# ECONOMIC *IMPACT*

- The economic impact remained resilient despite significant headwinds
  - 60% decline in non-employee federal spending
  - Shock of the COVID-19 pandemic.
- Increased annual average employment between 3,336 and 4,597 jobs.
- Jobs paid more than 2 times the average of jobs in surrounding communities.
- Real annual industry output in Virginia between \$1.2 billion and \$1.5 billion in 2023 dollars.
- Every \$1 appropriated for Virginia Space by the Commonwealth of Virginia increased annual average real industry output in Virginia by \$2.9.

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# Commonwealth Additional Direct Capital Spaceport Investments: \$176M to date

• 2004

Pad 0B

\$874K



• 2010

Pad 0A

\$86M



• 2016

Airfield &  
Port

\$14.3M



• 2017

PPF

\$20M



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• 2019

Pad 0C

\$5M



• 2020

ICF

\$5M



• 2021

MMC

\$15M



• 2023

Pad 0D

\$30M



# Questions?



Website: [www. Vaspace.org](http://www.Vaspace.org)



Twitter: [@Virginia\\_Space](https://twitter.com/Virginia_Space)



Facebook: [Virginia Spaceport Authority](https://www.facebook.com/VirginiaSpaceportAuthority)



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