

NM Spaceport Authority Status Brief

Legislative Finance Committee

Santa Fe

September 22, 2021

Scott McLaughlin, Executive Director



SPACEPORT AMERICA

THE SPACE TO BE...

OUTLINE

- Activity
- Budget
- Outlook



RECENT ACTIVITY

- Two space flights by **Virgin Galactic**; one more likely in October
- Liquid rocket engine testing by **C6 Launch** and **Ursa Major**
- **Intuitive Machines** tested laser assisted landing system to be used for moon
- First operations by **SpinLaunch** for kinetic launch system
- High Altitude Pseudo-Satellite (HAPS) flights by **Swift Engineering**
- Space flight by **UP Aerospace** with **LANL** as customer
- Start of operations by **AeroVironment Jump 20** and **AeroVironment TUAS**
- Rocket launches by **NM Tech, NMSU Atomic Aggies, U.S. West Point Academy**
- Virtual **Spaceport America Cup** (June 2021) with 70 teams from 16 countries
- Developed lesson plans for virtual **NMSU STEM Outreach**, as well as provided **virtual tours and STEM speakers** in classrooms throughout NM
- Recognized for arts integration in **STEM project with LCPS**; working with Global Spaceport Alliance for **STEM International Space Station research**
- Working with several good aerospace prospects

VIRGIN GALACTIC



- Completed two flights to space this year (May 22, & July 11).
- Unveiled new spaceship, *VSS Imagine*.
- Currently about 180 employees living and working in NM (will increase next year).

SMALL LAUNCHES

- New Mexico Tech



- NMSU Atomic Aggies



- U.S. West Point Academy



- Vaya Space Systems



UNMANNED AERIAL VEHICLES (UAV)

- **Swift Engineering**

Operating at Spaceport since 2020. Returned recently for multi-month long campaign



- **Stratodynamics**

Balloon- launched UAV. Returns autonomously and collects meteorological and turbulence data



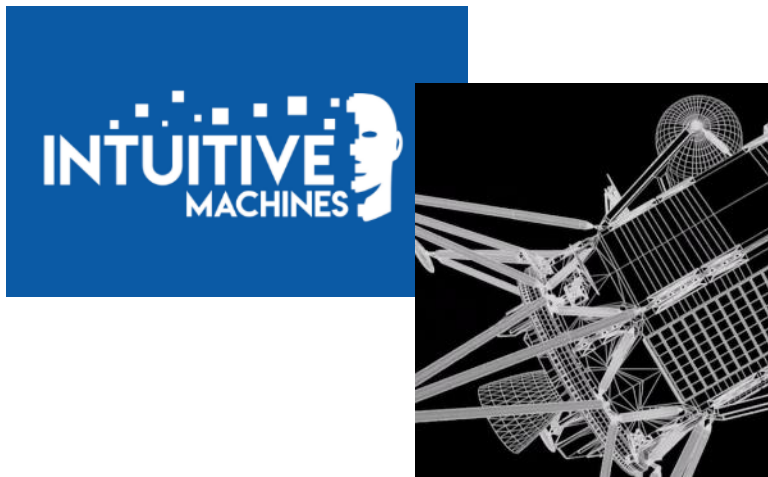
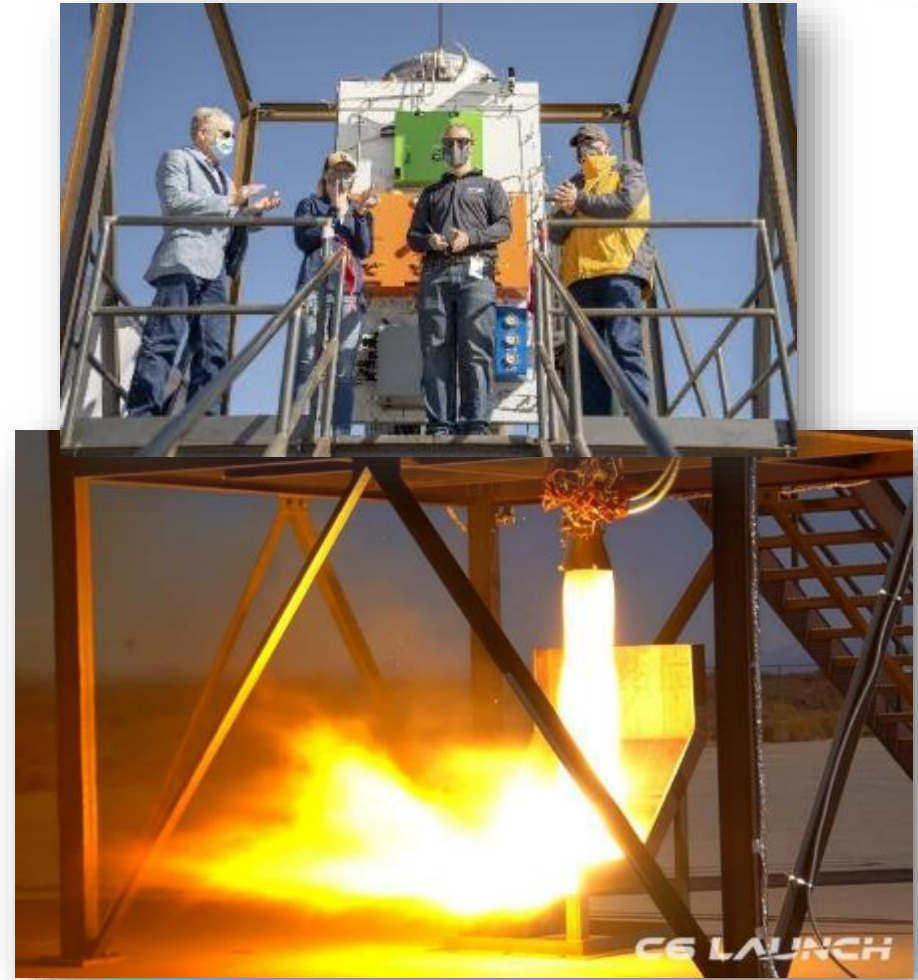
- **AeroVironment**

Increasing presence on site with additional **two new programs**



OTHER ACTIVITY

- **C6 Launch and Ursa Major**
Customer built new rocket engine test stand (now an SpA asset) and ran rocket engine tests over several weeks
- **Intuitive Machines**
Tested laser assisted landing system to be used for moon or other celestial body landing



UP AEROSPACE & LOS ALAMOS NATIONAL LABORATORIES



“Normally, these tests are made over the Pacific Ocean. And to test a new piece of technology on a rocket takes years of planning with the DOD and can cost more than \$100 million. But by partnering with private companies, the Lab can conduct these tests much more frequently and at a fraction of the cost within the State of New Mexico. The flight at New Mexico’s Spaceport America, Aug. 11, cost only \$1 million and occurred only 15 months after the initial concept.”

LANL Deputy Director of Weapons Bob Webster

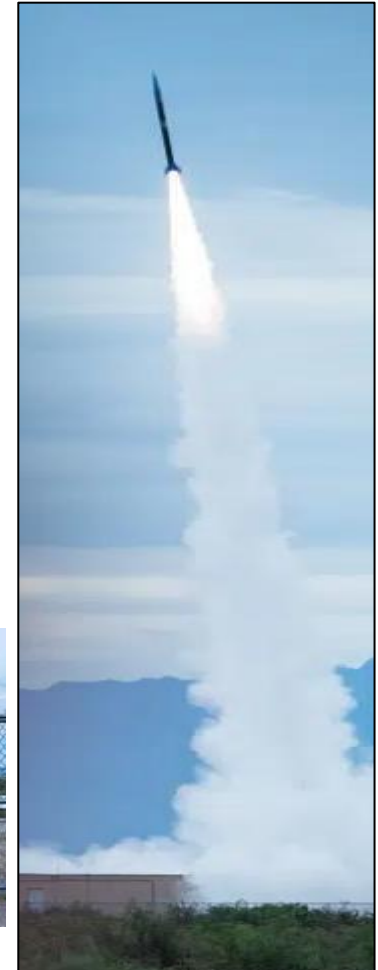


Spaceport America: LANL And UP Aerospace Partner On Suborbital Flight Experiment

Submitted by Carol A. Clark on September 1, 2021 - 2:53 pm



UP Aerospace SpaceLoft Rocket on its rail at Spaceport America. Courtesy/Spaceport America



September 22, 2021, Legislative Finance Committee

SPINLAUNCH

- Continuing construction of 30-meter diameter evacuated centrifuge (world's largest)
- Suborbital now, but technology will act as first stage for eventual larger orbital version at other locations in the world
- Currently about 55 personnel onsite for construction, installed cost: >\$40M
- On completion, expect stable workforce of more than 30 and multiple tests per year



- <https://www.wired.com/story/inside-spinlaunch-the-space-industrys-best-kept-secret/>
- <https://spacenews.com/spinlaunch-expands-new-mexico-test-site/>



- Premier event hosted by Spaceport America since 2017
- 2019 Cup included 122 teams, about 1500 students in attendance (representing 14 different countries), 80 sponsors, 100 judges.
- 2020 cancelled, 2021 successfully held virtually
- *The in-person event delivers an estimated \$1.5 million in economic impact (hotels, restaurants, etc.) and realizes large earned media and marketing windfall for the Spaceport, Las Cruces, and New Mexico.*



2019 SA Cup Participants

STEM OUTREACH & WORKFORCE DEVELOPMENT

- Ongoing production of educational videos with aerospace related science
- Podcasts on social media
- Visits to local schools (before and after COVID)
- Working with NM Public Education Department (PED) for additional outreach
- Student visits to SpA and partnership with tenants
- Work to create excitement about STEM and cultivate ongoing workforce pipeline for spaceport customers
- Foster entrepreneurship and keep young New Mexicans in New Mexico



NMSA BUDGET



NMSA BUDGET BACKGROUND



- Operations have increased significantly in the last few years, requiring additional NMSA (still pending) and protective services personnel.
- Current NMSA budget is about \$10 million per year. Customer revenue provides around \$6 million; \$4 million needed from GF.
- NMSA had relied on about \$2 million per year of GRT Excess Pledged Revenues (EPR) . . . this is no longer an option.
- NMSA operating expenses contain fixed costs that cannot be cut (facilities maintenance and 24/7 site operations)
- If the \$2 million EPR amount is not replaced, NMSA will be in deficit, and will have to make severe cuts to the operational budget, staff, and onsite services, directly jeopardizing the ability to deliver obligatory contractual services, and negatively impacting tenant operations.

NMSA BUDGET (THOUSANDS)

Item	FY21 (20 FTE)	FY22 (~28 FTE)	FY23 (~ 28 FTE)	Notes
Operating Revenue	5,829	6,245	6,859	From customers (fees, leases, utilities, fuel)
General Fund	1,918	1,825	4090.9	\$2M added to GF for FY23 & going forward
Revenue Total	7,747	8,070	10,949.9	
200 Personal Services	2,294	2,707	2,907.3	Expenses increase with tenant activities but are charged back.
300 Contract Services	4,883	5,187	5,638.1	
400 Other Costs	2,119	2,467	2,404.5	
Expense Total	9,296	10,361	10,949.9	
Fund Balance Used		291		
Supplemental	1,750	2,000	0	*To replace GRT EPR
Result	201	0		
Fund Balance*	1,201	910	910	

- SPA is approximately 60% customer funded but will need a **supplemental for FY22** to balance the budget.
- SPA is continuing to work to increase client revenue, but the **additional \$2M from the GF** is needed for future years as base funding to stabilize operations and meet contractual obligations

Note that SPA has variable revenue and expenses and should **keep a minimum 5-10% Fund Balance to stabilize from year-to-year to avoid customer service funding emergencies and to avoid multiple requests to the legislature.*

ECONOMIC IMPACT

- Current private sector tenants provide more than 230 full-time jobs, with *indirect and induced jobs* exceeding 460+ (at 2 times multiplier), with an estimated payroll at over \$26M.
- New tenant new construction costs on site amounted to about \$60 million during the last two years. (Virgin Galactic, SpinLaunch, and AeroVironment)
- Customer salaries, construction, and services all add to collected GRT and state collected income taxes
- When Virgin Galactic achieves forecasted steady-state operations, there will be substantial additional employment, with concurrent increase in tourism
- Spaceport customers fill hotel rooms, add per diem, and spend other money in the local area throughout the year
- NMSA is working to attract new long-term tenants and short-term customers, and expects the spaceport's growth to be aligned with the quickly growing commercial space industry
- The Spaceport America brand is helping sell NM as an entrepreneurial destination for the “new space” economy

POINTS TO CONSIDER

- The spaceport helps NM **diversify** its economy
- NM must continue to create good jobs and retain its younger population
- NM has **significant competitive advantages** for aerospace over other states:
NM has a full “aerospace ecosystem” with national laboratories, numerous DoD facilities, an FAA licensed spaceport, numerous aerospace companies, aerospace connections with other nearby states, high quality research universities, good weather, and a workforce with space expertise.
- NM took a chance with a state-funded spaceport, but there are direct benefits and synergies for the state, besides localized economic impact
- Aerospace is a rational target for the state to invest in. While approved and created with VG in mind, the spaceport is acting as an **enabler** to increase NM’s aerospace business sector

OUTLOOK



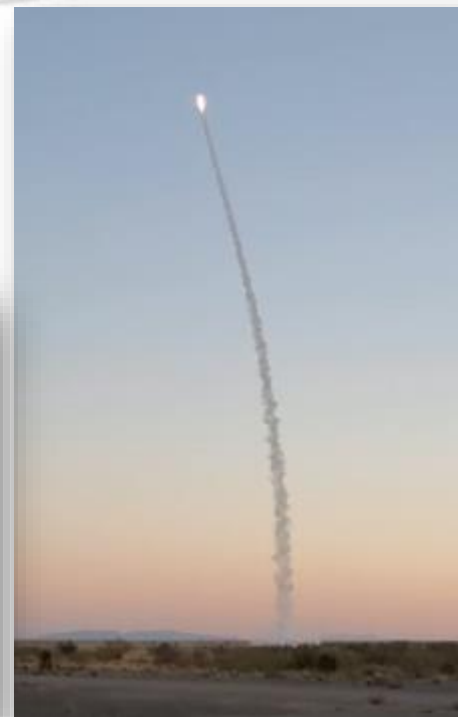
GROWTH STRATEGY – NEXT FIVE YEARS

- Continue to work with Virgin Galactic to maximize economic impact of regular space tourism flights and space operations
 - As Virgin Galactic moves toward 2 carrier aircraft and 3 spaceships, the region will see significant and consistent positive economic benefits
- Target appropriate markets and find new tenants that increase local private sector jobs, and help enable the entire NM aerospace ecosystem
 - Continually update business development targets and operational plans as the commercial space marketplace continues to grow
- Acquire FAA reentry license and work toward attracting viable partners
 - Suborbital point-to-point and orbital re-entry programs are upcoming markets and will be carefully and objectively considered, dimensioned, and cultivated
- Watch new technologies...
 - Continue watching for other emerging markets, technologies, and requirements. Adjust our operational capabilities to meet them

Spaceport America is well positioned for the growing commercial space and aerospace market.

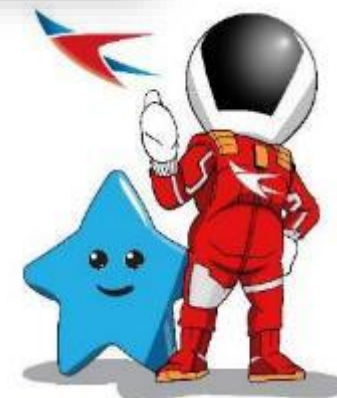
THANK YOU FOR THE OPPORTUNITY TO TALK ABOUT SPACEPORT AMERICA

Questions?



Recent launch by
U.S. Army
West Point

- URL: WWW.SPACEPORTAMERICA.COM
- EMAIL: SCOTT.MCLAUGHLIN@SPACEPORTAMERICA.COM
- MAIN PHONE: (575) 267-8500
- GOOGLE EARTH LINK TO SITE: [HTTPS://TINYURL.COM/Y4GRKVCA](https://tinyurl.com/y4grkvca)



THE SPACE TO BE...

EXTRA SLIDES



The New Mexico Spaceport Authority shall:

- A. Encourage and foster development of the state and its cities and counties by **developing spaceport facilities** in New Mexico;
- B. Actively promote and assist public and private sector infrastructure development to attract new industries and businesses, thereby **creating new job opportunities** in the state;
- C. Create the statutory framework that will enable the state to **design, finance, construct, equip and operate spaceport facilities** necessary to ensure the timely, planned and efficient development of a southwest regional spaceport; and
- D. Promote educational involvement in spaceport activities and **education and training of the workforce** to develop the skills needed for spaceport operations.

Stipulated in the New Mexico Spaceport Development Act, 2005

- Approximately \$38M available
- In progress items include
 - Spaceport Operations Center (SOC) Repairs
 - Fabric Hangar Improvements (fire alarm, fire suppression, and HVAC)
 - Spaceport Technology and Reception Center (STARC)
 - Rocket Launch Rail
 - Vertical Launch Area Improvements
 - Roads, electricity, water, restrooms, rentable buildings, and concrete pads
 - General Purpose Hangar(s)
 - Master Plan

NM Statewide Pricing Agreement contractors are being utilized to access project management services to increase development and implementation speed.

WHAT IS COMMERCIAL SPACE?

- Also known as “**New Space**” & “**Space 2.0**”
- DoD and NASA are becoming a customers, and investments are made by private companies and using venture capital
- The May 2020 SpaceX *Dragon* capsule was the first U.S. launched human spaceflight since 2011.
- The SpaceX *Dragon* flew again just a few days ago on September 16. The Inspiration 4 mission successfully completed a three-day flight that carried four citizen astronauts for the first time ever into Earth orbit.
- We now have Blue Origin’s *New Shepard*, Virgin Galactic’s *VSS Unity*, and SpaceX with the first non-NASA civilians in orbit
- In 2010, Apollo astronauts heavily criticized the move to commercial launch providers for astronauts, stressing the need for Federal involvement. It is amazing how quickly SpaceX and others have moved since then.
- With vertical and horizontal launch capability, remote wide-open spaces, and restricted airspace, **Spaceport America** is competitively well positioned, and becoming a premiere site for commercial aerospace operations

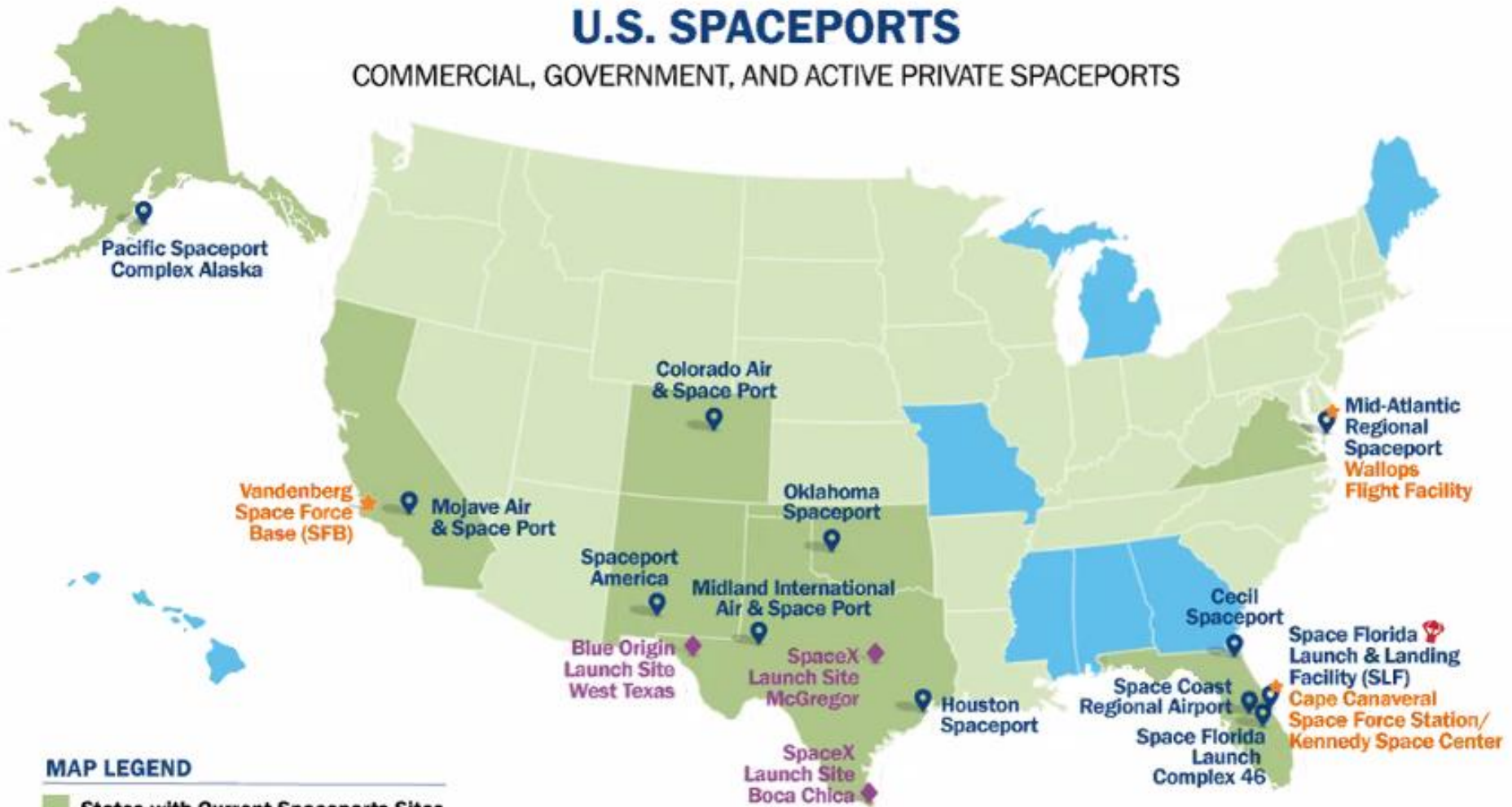


SPACE ECONOMY

- **Morgan Stanley:** Space economy will be 1.7 trillion by 2040, <https://tinyurl.com/yh8dfnu2> (2019)
- **CNBC:** Space economy is ~\$420B and growing, <https://tinyurl.com/y2m3oh93> (July 2020)
- **Financial News Now:** References to continued and strong growth of the space industry; <https://tinyurl.com/yfjp5rop> (April 2021)
- **AP Article:** *60 years since 1st American in space: Tourists lining up*, <https://tinyurl.com/yjq9k8bf> (May 2021)
- **SpaceNews:** *Space industry in midst of transformation following record private and public investments*, <https://tinyurl.com/yejbx5h> (April 2021)
- Commercial space is where the internet was in the 1990's. New Mexico needs to be part of this technology sector. Other states are competing for the same business.

U.S. SPACEPORTS

COMMERCIAL, GOVERNMENT, AND ACTIVE PRIVATE SPACEPORTS



MAP LEGEND

- States with Current Spaceports Sites
- States with Potential Spaceport Sites
- 📍 FAA-Licensed Site
- ★ U.S. Federal Site
- 🚀 FAA-Licensed Reentry Site
- ◆ Exclusive Use Site (Non-FAA Licensed)

FAA-LICENSED SITES

LAUNCH HORIZONTAL

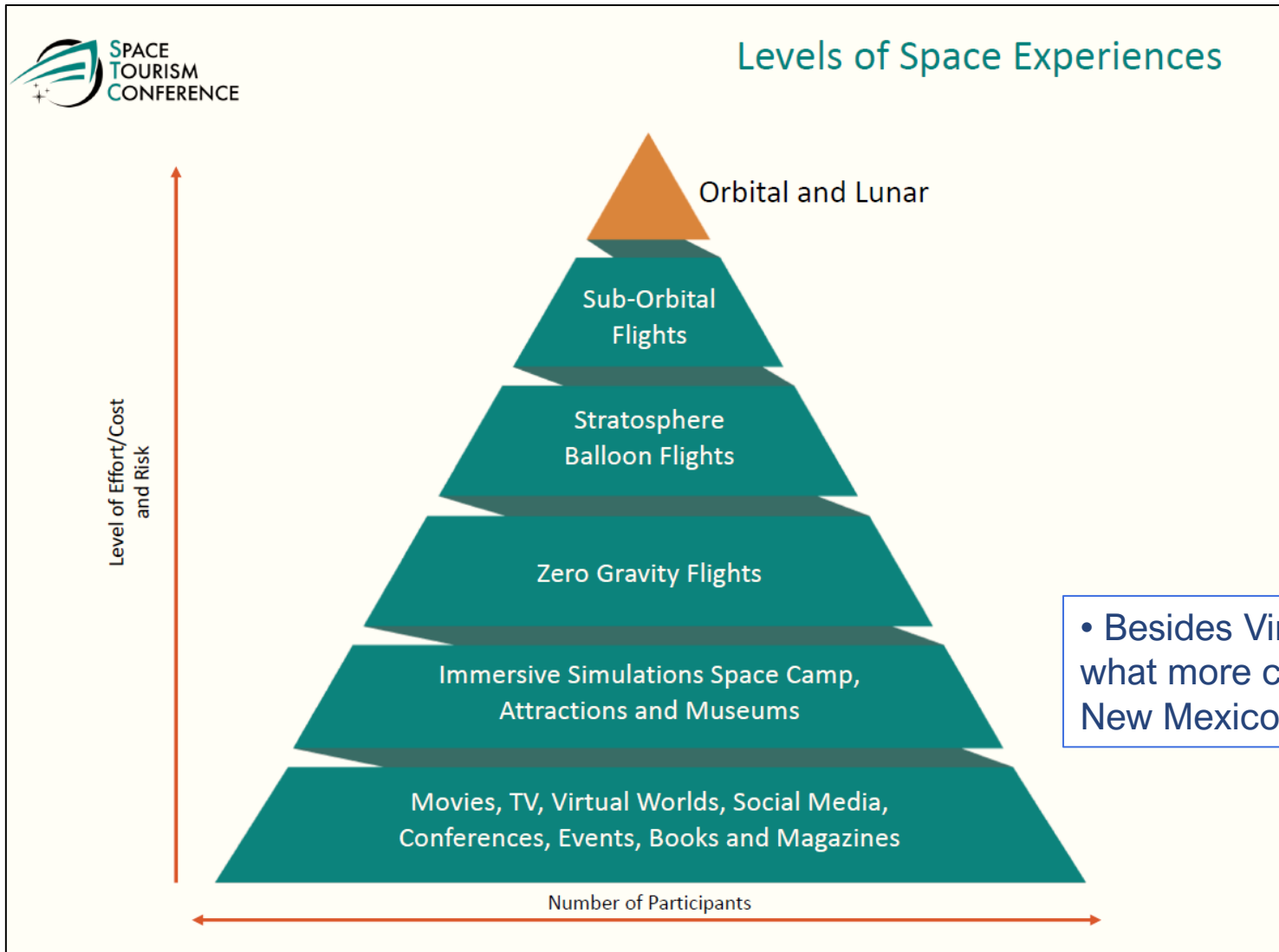
- 📍 Cecil Spaceport
- 📍 Colorado Air & Space Port
- 📍 Houston Spaceport
- 📍 Midland International Air & Space Port
- 📍 Mojave Air & Space Port

- 📍 Oklahoma Spaceport
- 📍 Space Coast Regional Airport
- 📍 Space Florida Launch & Landing Facility (SLF)
- 📍 Spaceport America

LAUNCH VERTICAL

- 📍 Mid-Atlantic Regional Spaceport
- 📍 Pacific Spaceport Complex Alaska
- 📍 Space Florida Launch Complex 46
- 📍 Spaceport America

Source: FAA/AST June 2021



Space Consumer Tourism

