

SPACEPORT AMERICA
OUR NATION'S GATEWAY TO SPACE!

NMFA Oversight Committee

9 November 2018

Outline

- 2 chart Bottom line Upfront and current Spaceport activity
- 2 charts Our renewed National focus on space
- 5 charts Commercial Space Industry - NMSA's competitive advantage and Vision forward
- 7 charts Current efforts
- 3 Charts Spaceport America Cup (including video)
- 3 Charts Budget and Capital Outlay

Dan Hicks
CEO, Spaceport America



SPACEPORT AMERICA

A HISTORIC LOCATION....

...AND WE CONTINUE TO MAKE HISTORY!



BOTTOM LINE UPFRONT

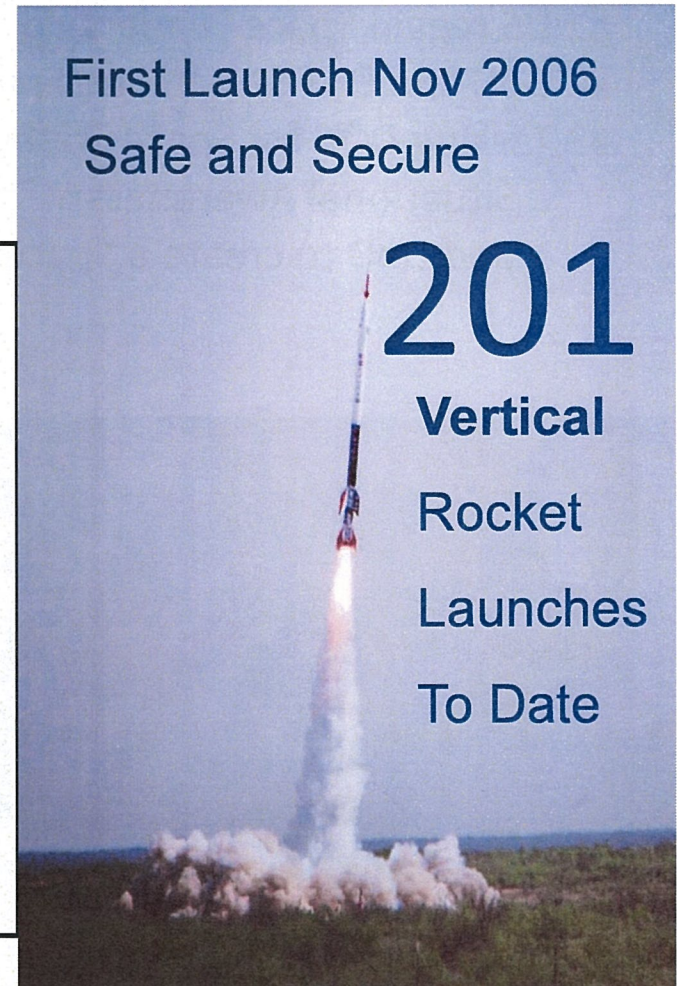


Three Key Takeaways

- Our Nation has a renewed focus on leading the world in Space Exploration.
- The Commercial Space Industry continues to be an economic driver world wide.
- Spaceport America is an economic engine with unique capabilities for the commercial, civil, and national security space sectors.

First Launch Nov 2006
Safe and Secure

201
Vertical
Rocket
Launches
To Date



Spaceport America launch operations started 2006 – continued strong growth!

NATIONAL SPACE COUNCIL

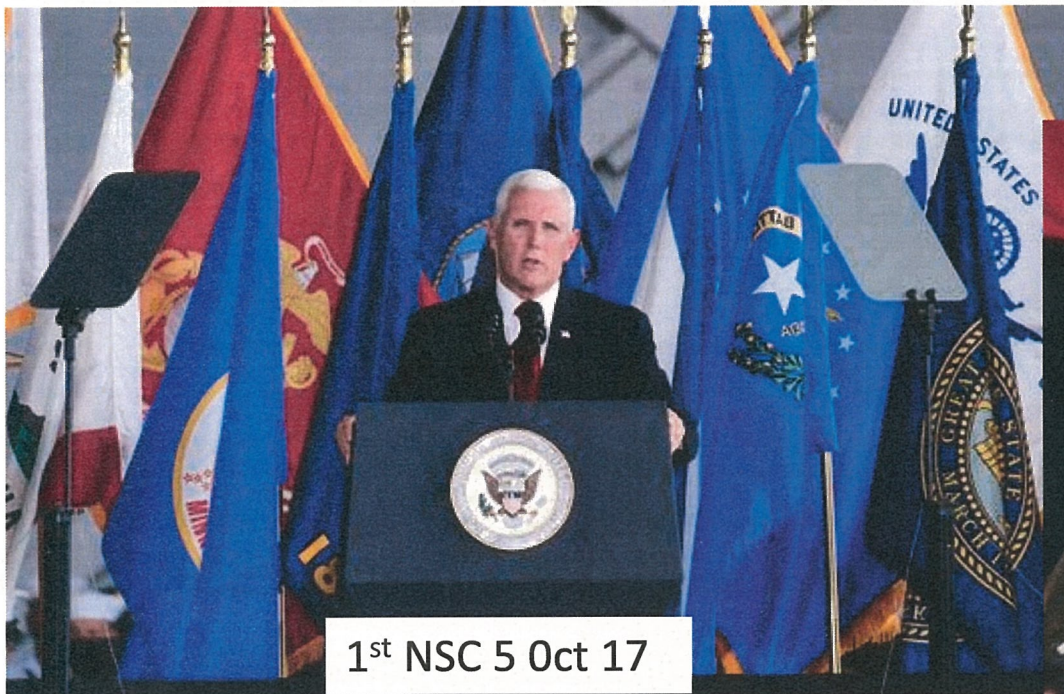


Presidential Space Policy Directives:

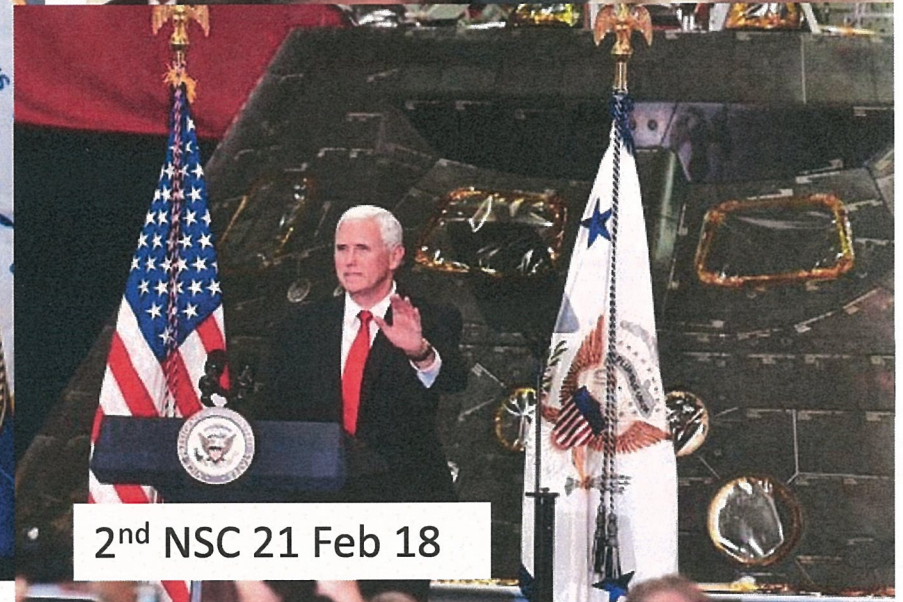
- #1 US regain Space Leadership,
- #2 DoC and DoT Streamline Space Access,
- #3 Tasking DOC for Space Traffic Mgt & Situational Awareness and DoD to create a **Space Force**



3rd NSC 18 Jun 18

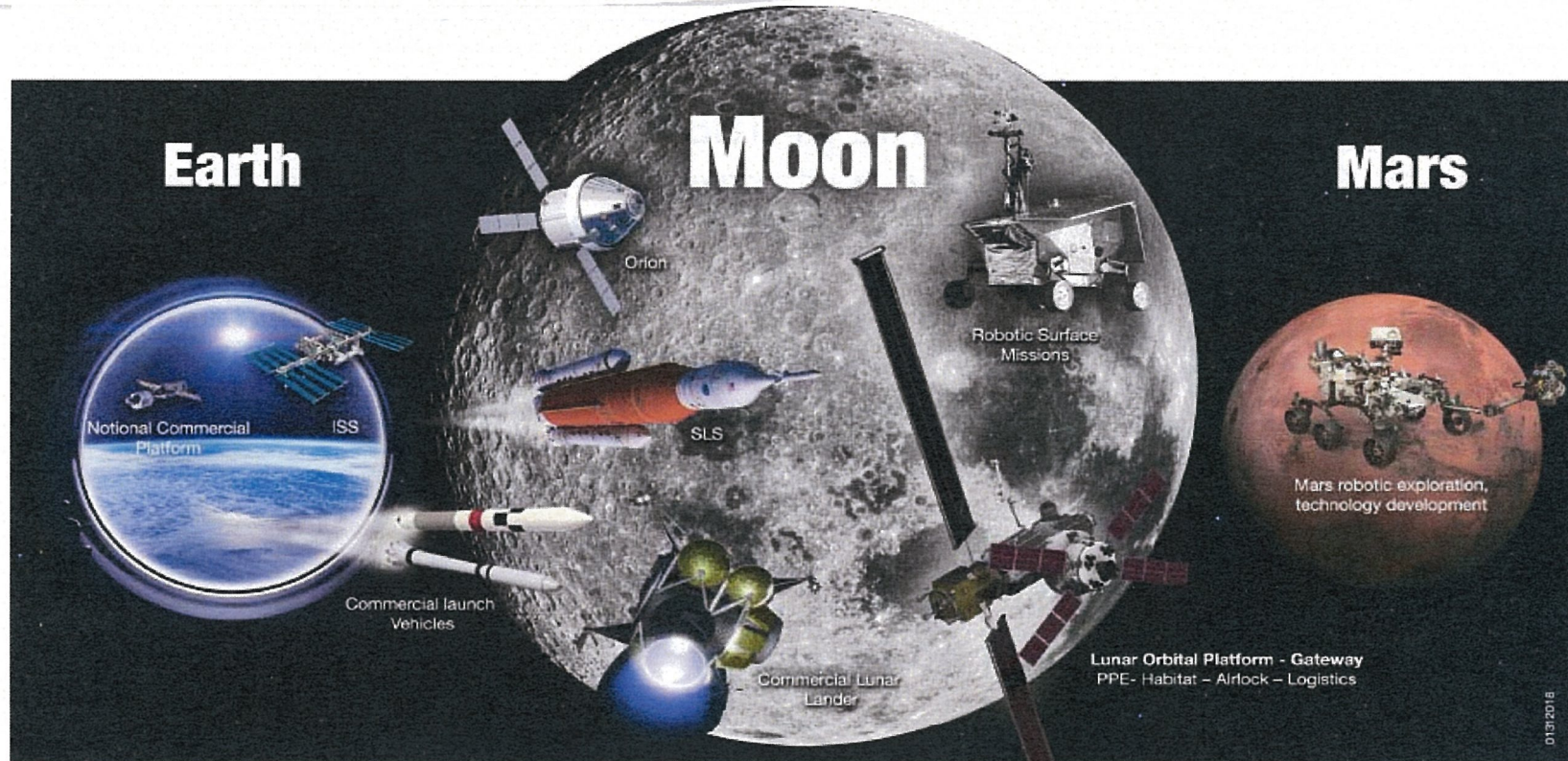


1st NSC 5 Oct 17



2nd NSC 21 Feb 18

US LEADERSHIP IN SPACE EXPLORATION



In LEO
Commercial & International
partnerships

In Cislunar Space
A return to the moon for
long-term exploration

On Mars
Research to inform future
crewed missions

This journey to Mars will require a tremendous amount of research in life and material sciences; new propulsion technologies; and enhanced robotics with unique C2, artificial intelligence, self learning modules

THE COMMERCIAL SPACE MARKET: OCT. 2017 REPORT



Bank of America
Merrill Lynch



“ONE OF THE FINAL FRONTIERS
OF INVESTING”

Commercial Space Market: 2016 \$339 Billion (\$36B US Gov't)
2045 \$2.7 Trillion

Space Companies Are Receiving
Billions From Venture Backers-Nov.
1, 2017



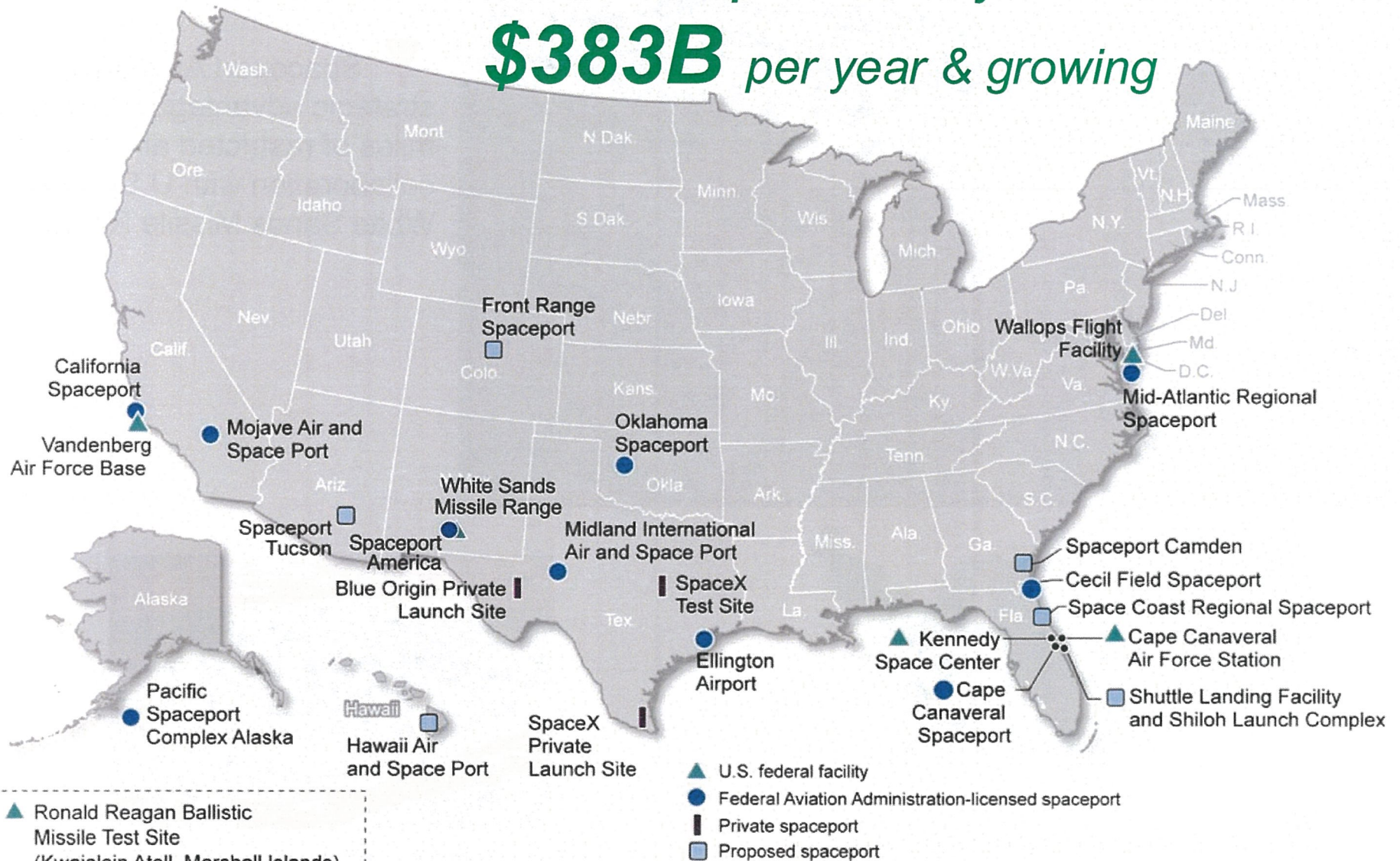
CNBC

***The 2018 Space Foundation Report shows Global
Space spending in 2017 at \$383.5 Billion***

US SPACEPORT STATUS

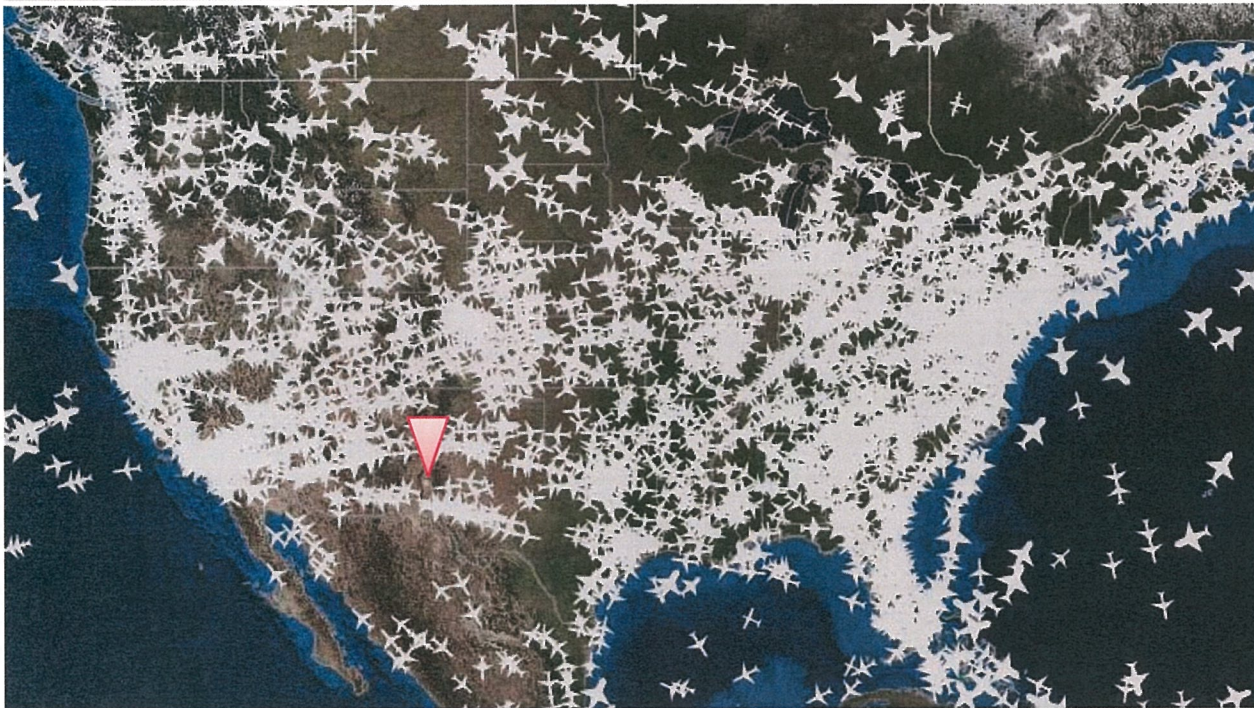


The Global Space Industry is **\$383B** per year & growing

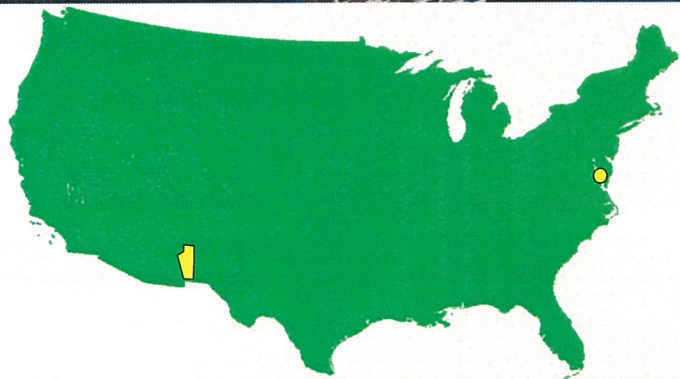




Sources: FAA and Map Resources. | GAO-17-88

NATIONAL AIR TRAFFIC



▼ Spaceport America's strategic advantage = 6,000 sq. miles of restricted airspace in collaboration with U.S. Army White Sands Missile Range



 FAA Command and Controlled Airspace
 Other Air Space



Commercial Air Traffic routes around WSMR

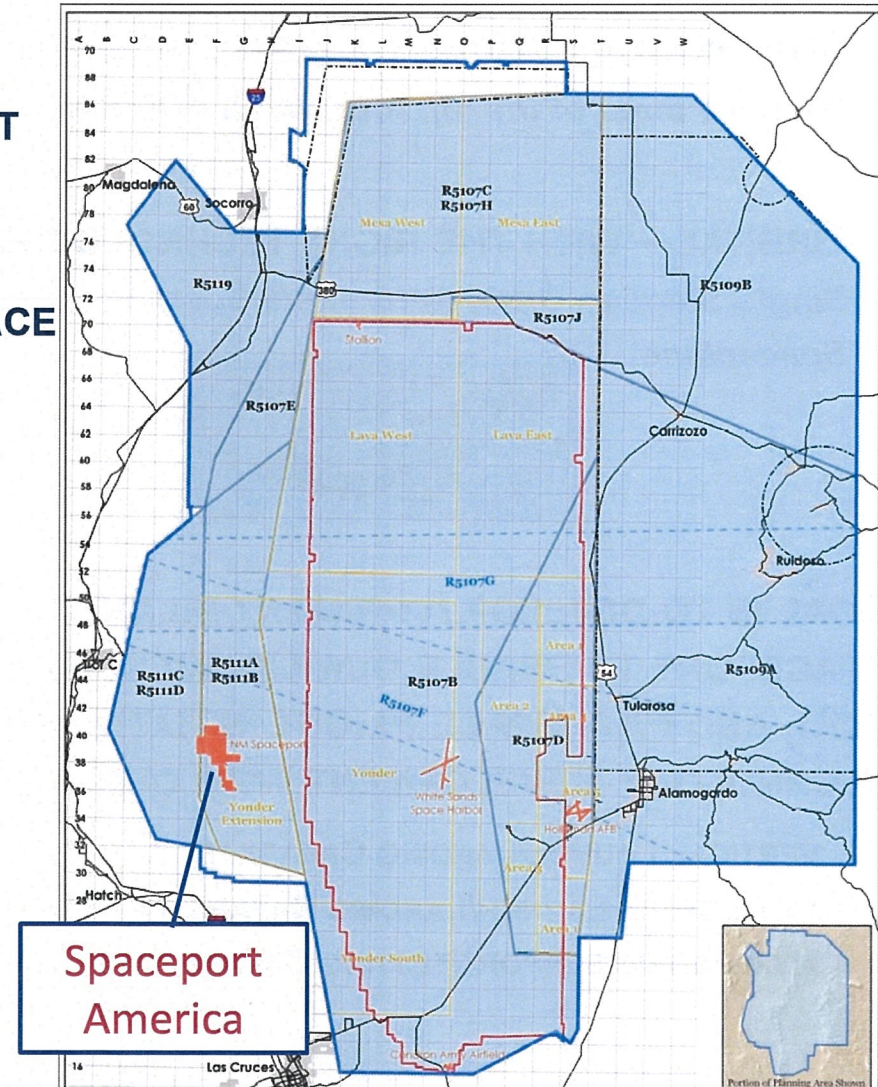
SPACEPORT AMERICA IS A UNIQUE CAPABILITY



- **WE ARE UNIQUELY LOCATED AND PROVIDE ROUTINE ACCESS TO SPACE THAT DOES NOT EXIST ANYWHERE ELSE IN THE COUNTRY!**
- **THE R5111 & R5107 COMPLEX ARE SURFACE TO UNLIMITED CONTROLLED BY DoD**

SPACEPORT AMERICA KEY ATTRIBUTES

- **340+ DAYS OF SUNSHINE**
- **LAUNCH STARTS AT ELEVATION OF 4,600 FT ABOVE SEA LEVEL**
- **SALT AIR CORROSION DAMAGE LESSENED**
- **LOW POPULATION DENSITY**
- **REMOTE LOCATION AND 24/7 SECURITY OFFERS PRIVACY**
- **ACCESS TO 6,000 SQ MI OF RESTRICTED AIRSPACE**



Access to Space - 24/7 through our WSMR partnership!

SPACEPORT AMERICA CURRENT & FUTURE GROWTH



SUB-ORBITAL- FOCUS ON RESEARCH/ASTRONAUT EXPERIENCE/UNIVERSITY SUPPORT

We have three of the top four NASA FOP Sub-orbital Vertical Launch Operators!

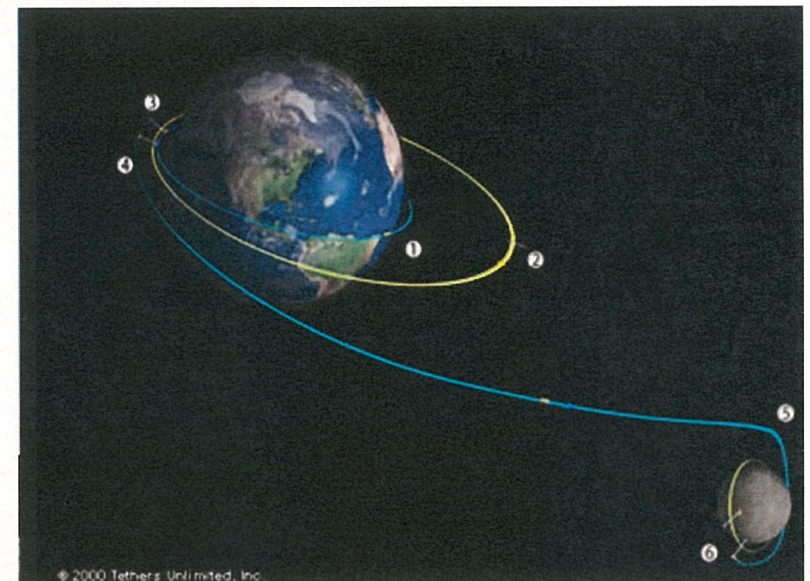
ORBITAL – WITH THE RIGHT TECHNOLOGIES

*Single-Stage to Orbit, Returnable Booster, New rocket capabilities
Spaceplane*



**GOAL IS TO DEVELOP A PRIMARY INLAND
SPACEPORT TO ENABLE OUR COMMERCIAL, NASA,
DoD, AND FAA SPACE FLIGHT INITIATIVES AND
TECHNOLOGY DEVELOPMENT WITH OUR:**

- VERTICAL LAUNCH/LANDING CAPABILITY
- HORIZONTAL LAUNCH/LANDING CAPABILITY
- HYPERSONIC SUPPORT/TESTING CAPABILITY



**ULTIMATELY WE'LL GROW INTO A SPACE TRANSPORTATION HUB
A FULL SERVICE SPACEPORT (RAIL, AIR, ROADS)**

SPACEPORT INFLUENCES: FEDERAL, STATE AND LOCAL



DOT ADVISORY AND RULEMAKING WITH FAA

- **NATIONAL AIRSPACE ACCESS ARC**--FOCUSES ON INTEGRATION OF SPACE ACTIVITY INTO THE NATIONAL AIRSPACE
- **SPACEPORT CATEGORIZATION ARC**--FOCUSES ON DEFINING SPACEPORT CAPABILITIES
- **REGULATORY STREAMLINING** -- TO STREAMLINE REGULATORY LAUNCH AND RE-ENTRY

COMMERCIAL SPACEFLIGHT FEDERATION'S - SPACEPORT COMMITTEE --CHAIRMANSHIP

NEW SPACE NEW MEXICO—NM INNOVATION SPACE HUB DEVELOPMENT FOR THE EMERGING SPACE INDUSTRY

SPACEPORT AMBASSADORS—PROMOTING NM'S SPACE LEADERSHIP THROUGH SPACEPORT ACTIVITIES

CURRENT WORKLOAD

- Up Aerospace – two flights conducted 12 & 17 Sep

Multiple payloads on both flights

NASA Flight Opportunities & AMES Research Center

-Spacecraft Aerobraking System for Mars and other Planets

Rocket motors from new Spaceport America Up/Cesaroni facility



- Exos Aerospace – first flight of new system conducted 25 Aug

New SARGE Pathfinder system – supports sub-orbital research

Multiple payloads on this demonstration flight



- Boeing CST-100 Starliner support – additional flights this fall

- NM Tech

Fourth mission completed 25 Apr 2018

Working with company for commercial application

- Spaceport America Cup
- Other – non aerospace

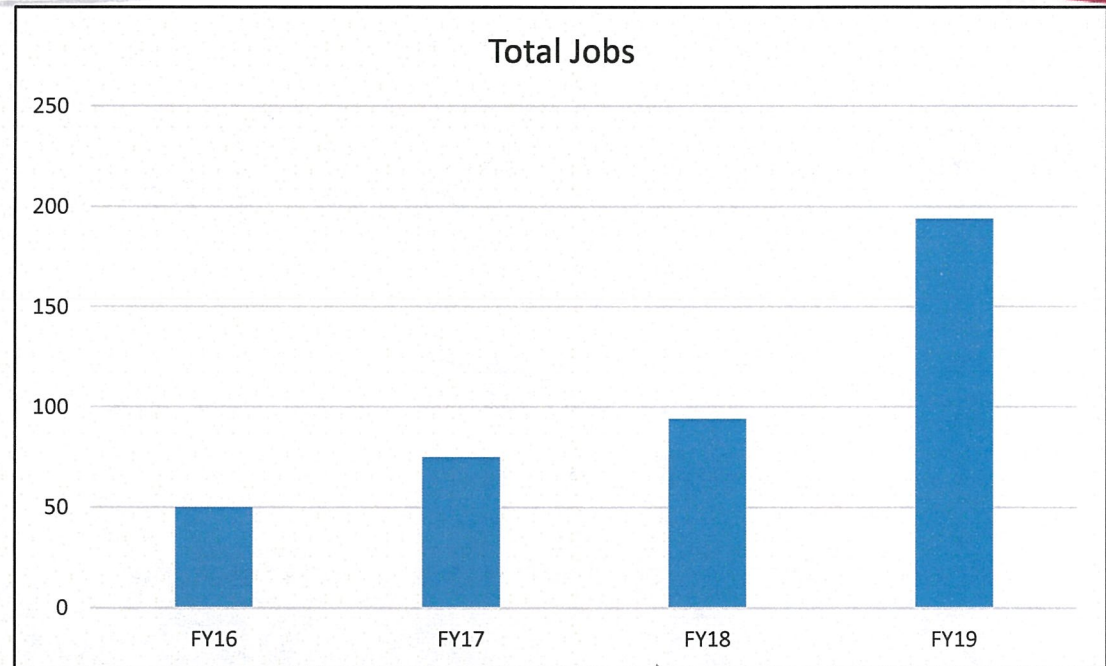


JOB CREATION



- New jobs created each year
- Estimated **100 new jobs** in FY19

Estimated Avg 60k salary generates 6M in first-order economic stimulus in FY18



	<u>FY16</u>	<u>FY17</u>	<u>FY18</u>	<u>FY19</u>
Total Jobs*	50	75	94	194
SA	18	18	16	26
VG	15	25	43	128
Contractors	20	32	35	40

*Note: This does not include other ongoing operations (Boeing, Up, Exos, etc.)

Space Operations are Ongoing and Growing!

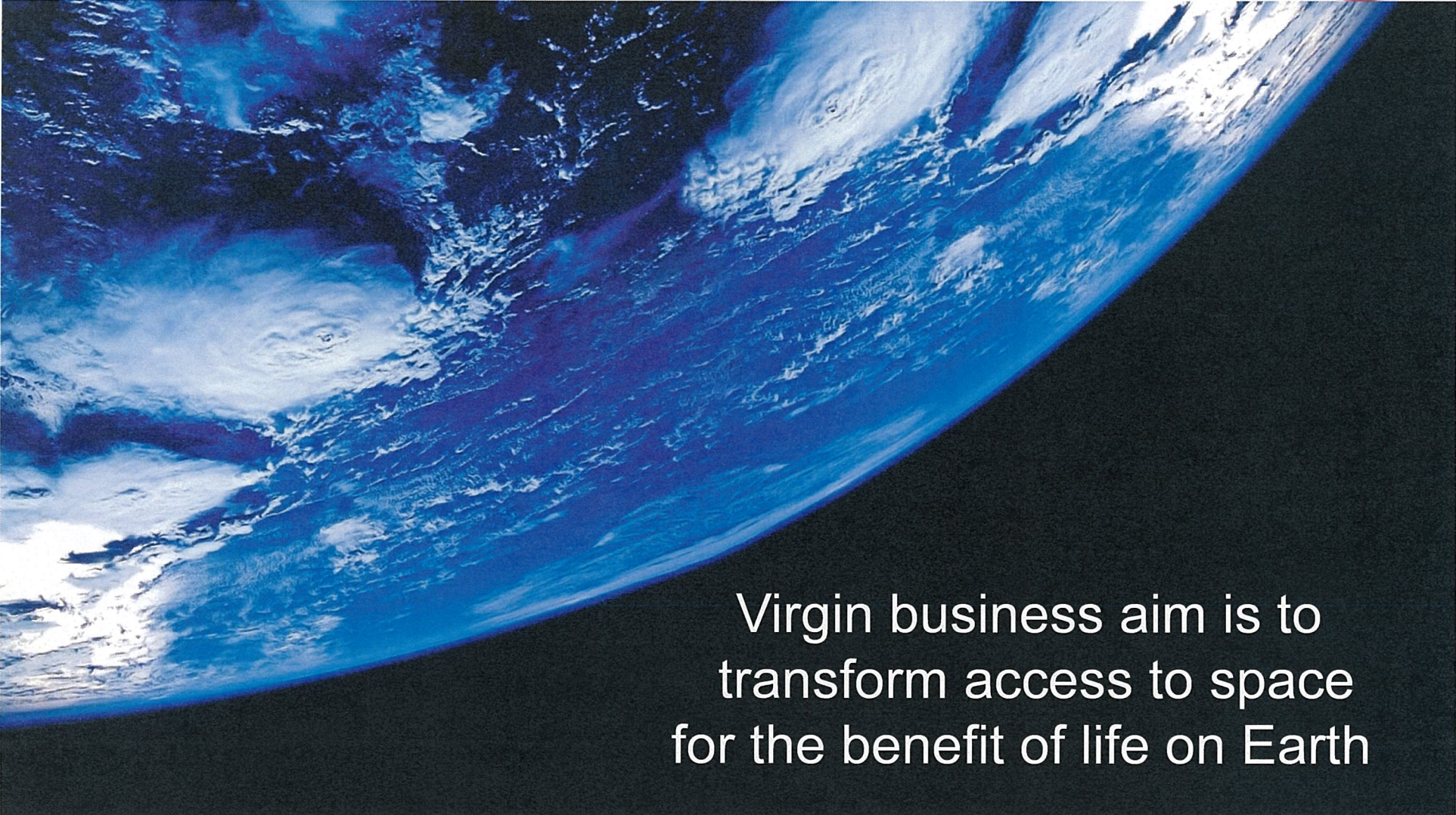
● NM FINANCE AUTHORITY COMMITTEE ●

Virgin Galactic Update



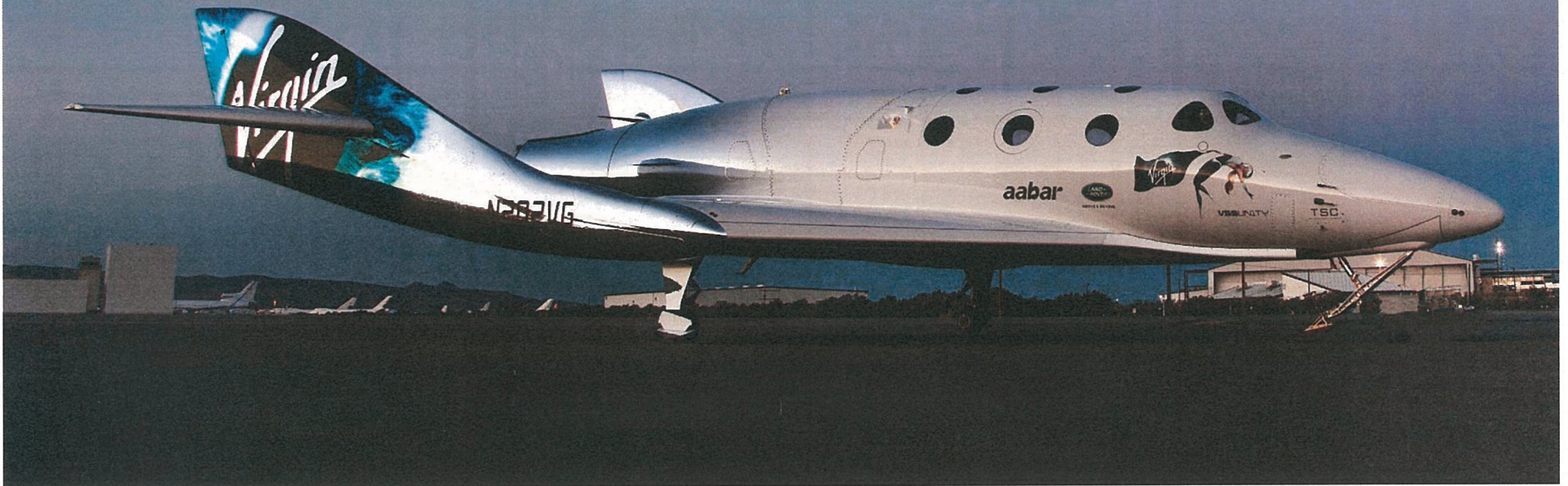
Jason Lazich
Director of Spaceline
Infrastructure and
Ground Services, VG
November 9th, 2018
Truth or Consequences, NM





Virgin business aim is to
transform access to space
for the benefit of life on Earth

Virgin Galactic's SpaceShipTwo: 'Unity'



VG's Economic Impact in New Mexico to date

VG now has **45 people** permanently based in Las Cruces, NM (was 26 people 12 months ago) – more than half are from New Mexico or the Borderlands

Other employees visit from VG's Mojave CA facility on a regular basis, and VG plans to move **at least 85 employees** permanently from Mojave to NM before starting operations

In preparation for operations, VG also expects to make further local hires

VG leases office space and a warehouse in Las Cruces



Virgin Galactic (VG) is Spaceport America's anchor tenant, and supports the Spaceport's efforts to reach its full, sustainable potential with many tenants

VG plans to operate from Spaceport America and signed a 20 year lease with the State for the "Galactic Gateway to Space" terminal & hangar facility

VG started paying monthly rent and associated fees in January 2013

To date, VG has paid the State of New Mexico **more than \$11 million in rent and associated fees** (was \$7.6 million 12 months ago)





Also, since 2010, **VG has paid more than \$11.1 million to 127 different New Mexico suppliers** (was \$9.5 million 12 months ago), including: Ultramain Systems, HB Construction, Progressive Construction Management, RMKM Architecture, Hotel Encanto de Las Cruces, Dickerson's Catering, World Class Gourmet, Elegant View Office Properties and New Mexico Office Furniture
In 2018 to date, VG has placed orders with **46 NM suppliers**

Total spend in-state is more than \$ 22.5 million to date (was 18.2 million 12 months ago), *not* including the salaries paid to VG's New Mexico based staff

In addition, VG has customer-related hospitality agreements valued at **\$2.5-3 million** awarded to New Mexico firms

NEAR TERM EFFORTS



- Continued Prep for Virgin Galactic Operations
- Continued Prep for HyperSciences (Energetics-Pipeline to Space)
- Strategic planning – Business Plan update, Capital Outlay projects, SPA Master Plan (FY19)
- Quickly staff up to meet customer requests/inquires – currently have 13 NDAs in place

#1 VLA – small rocket company - tropospheric hypervelocity research (Apr 2019)

#2 VLA/Bootheel – Stratospheric research

#3 VLA & HLA – large company – LEO satellite launch capability

#4 VLA & HLA - large company w/small research effort – Stratospheric (Oct 2019)

#5 HLA & VLA - large company w/med effort rocket tracking inst/dev (Nov 2018)

#6 HLA – large new company – LEO satellite launch capability

#7 HLA – large new company – LEO servicing

#8 VLA - small new company – LEO small sat launch

#9 VLA – small new company – LEO small sat launch – RDTE (Jan 2019)

#10 VLA – small new company – LEO small sat launch – RDTE (Nov 2018)

#11 HLA – small new company – payload processing/integration (Nov 2018)

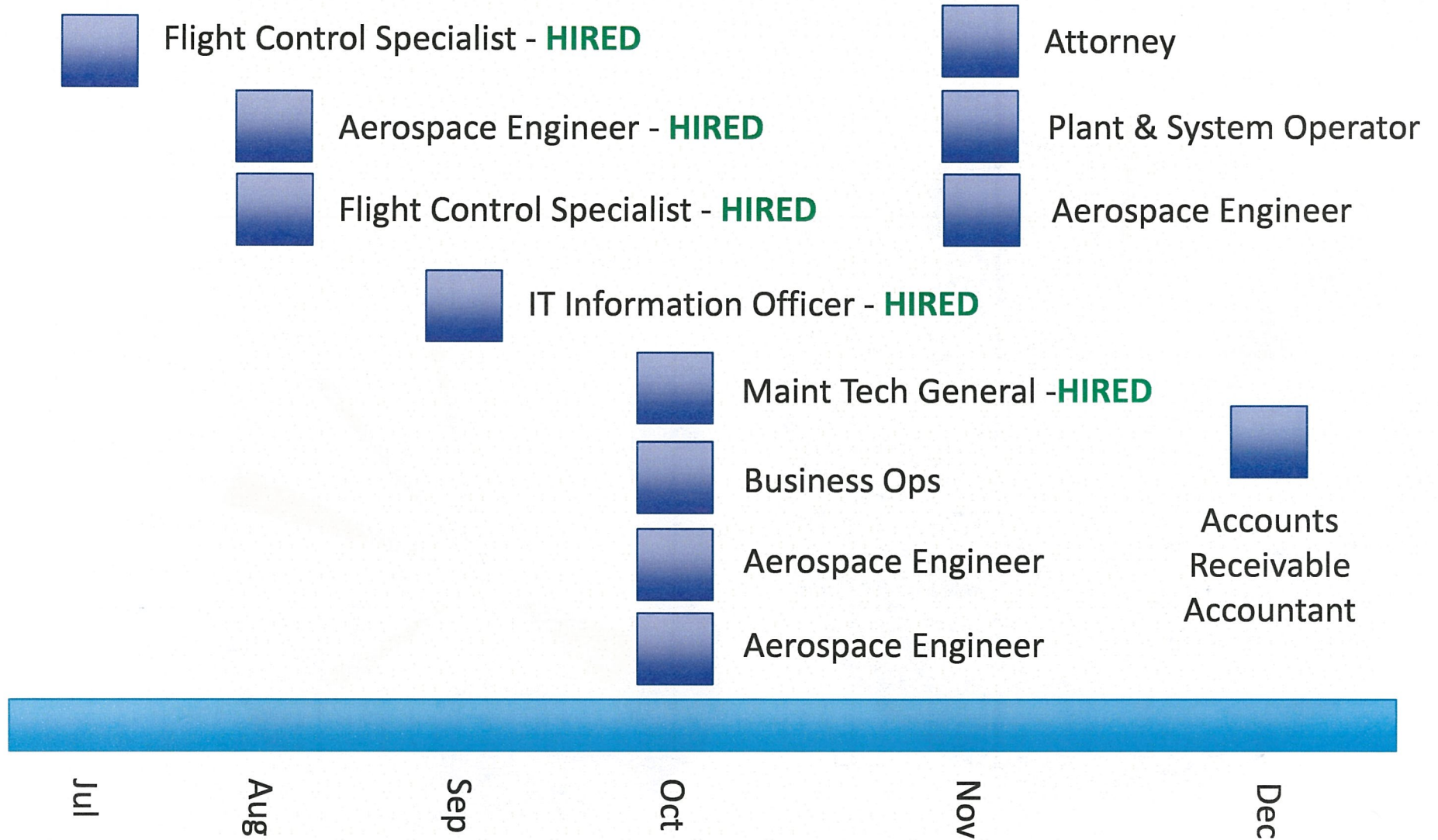
#12 VLA – med new company – LEO small sat launch

#13 VLA – small new company – LEO small sat launch

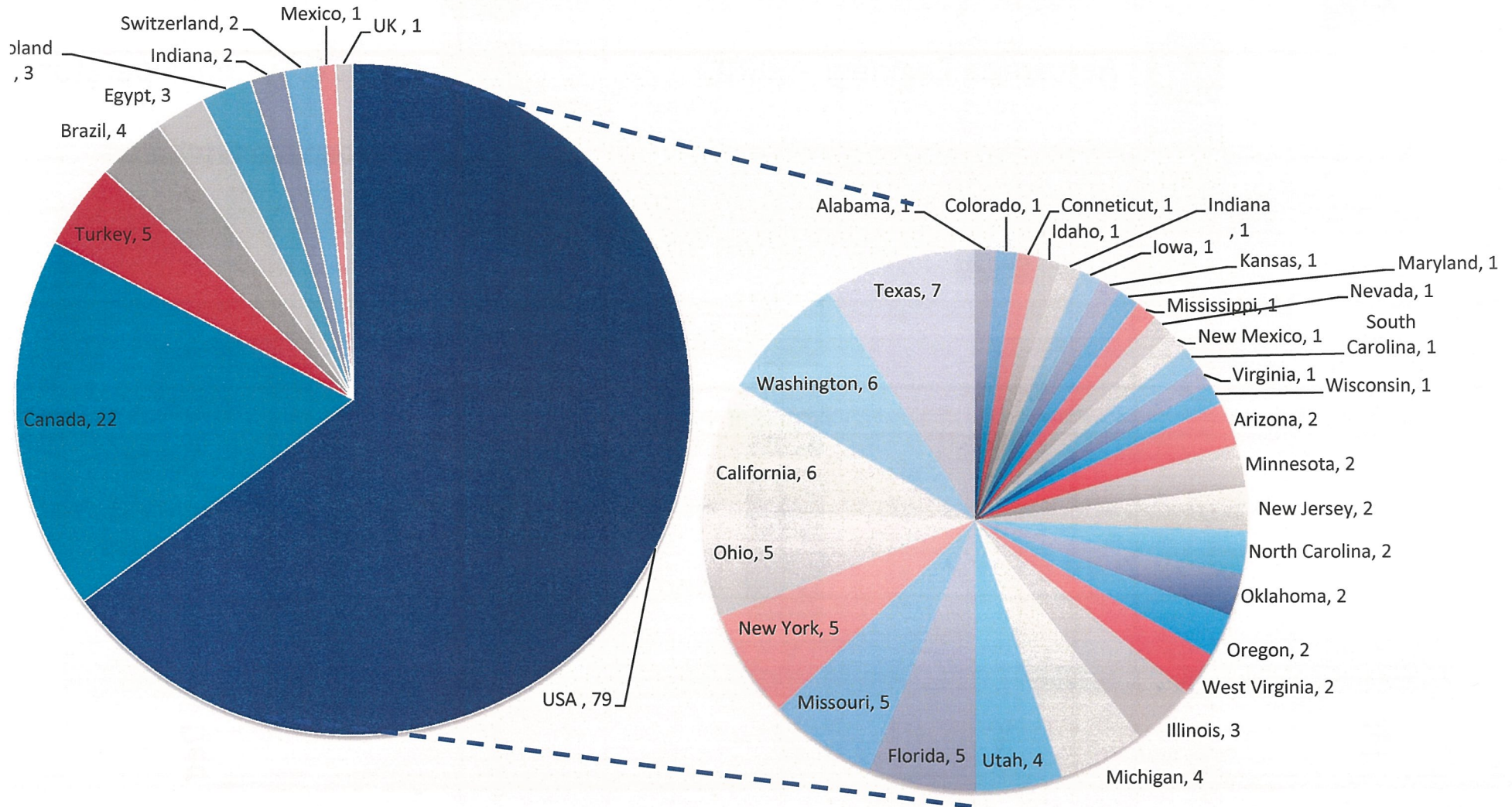
#14 VLA – small new company – LEO small sat launch

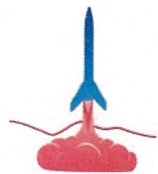
#15 VLA – small new company – LEO small sat launch

FY19 HIRING PLAN



2018 TEAMS REPRESENTED AT THE CUP: 124 TEAMS, 10 COUNTRIES, 31 STATES





SPACEPORT AMERICA® CUP 2018



10K Commercial Of The Shelf Components

First Place - Team 47 McGill University

Second Place - Team 84 Brigham Young University

30K Commercial Of The Shelf Components

First Place - Team 79 Concordia University

Second Place - Team 111 Stanford University

10K Solid Rocket-Student Research and Developed Components

First Place - Team 60 The Ohio State University

Second Place - Team 85 West Virginia University

30K Solid Rocket-Student Research and Developed Components

First Place - Team 65 University of Illinois-Chicago

Second Place - Team 53 University of Minnesota

10K Hybrid/Liquid Rocket Student Research and Developed Components

First Place - Team 38 University of Waterloo

Second Place - Team 108 University of California-Los Angeles

30K Hybrid/Liquid Rocket Student Research and Developed Components

First Place - Team 9 University of Washington

Second Place - Team 105 AGH University of Science and Technology



FY19 BUDGET ADJUSTMENT



Revenues	<u>FY19 Original</u>	<u>Change</u>	<u>FY19 Adjustment</u>
General Appropriation	985,400		985,400
Other Revenues	6,627,200	1,200,000	7,827,200
Total	7,612,600		8,812,600

Expenses	<u>FY19 Original</u>	<u>Change</u>	<u>FY19 Adjustment</u>
200	2,763,800		2,763,800
300	2,656,900	600,000	3,256,900
400	2,191,900	600,000	2,791,900
Total	7,612,600		8,812,600

- Increase in forecast for aerospace operations THIS FY will increase revenues and costs by 1.2M
- Start operation of new fuel farm mid-year
- Increased aerospace operations from multiple customers

FY20 BUDGET



Revenues	<u>FY19 Adjusted</u>	<u>Change</u>	<u>FY20</u>
General Appropriation	985,400	700,000	1,685,400
Other Revenues	7,827,200	1,000,000	8,827,200
Total	8,812,600		10,512,600

Expenses	<u>FY19 Adjusted</u>	<u>Change</u>	<u>FY20</u>
200	2,496,600	327,700	2,824,300
300	3,668,700	700,000	4,368,700
400	2,612,700	672,300	3,285,000
500	34,600		34,600
Total	8,812,600		10,512,600

Guiding Principles:

- Target 20% growth
- Requesting increase from General Appropriation of 700k
- Continue to fund majority of operations with other revenues (84%)

CAPITAL PROJECTS IMPROVEMENT PLAN FY20-FY24



Rank	Project	Funded	2020	2021	2022	Total Cost	Amount not yet funded	Phases?
1	Vertical Launch Area / Bootheel Improvements	0	2,000,000	0	0	2,000,000	2,000,000	No
2	Spaceway Taxiway	0	10,000,000	10,000,000	0	20,000,000	20,000,000	Yes
3	Ground Support Equipment Aviation Hangar	0	10,000,000	0	0	10,000,000	10,000,000	No
4	Payload Processing Center	500,000	19,500,000	0	0	20,000,000	19,500,000	Yes
5	Visitor Center	0	20,000,000	0	0	20,000,000	20,000,000	No
6	Rocket Motor Test Stands	0	0	1,500,000	1,500,000	3,000,000	3,000,000	Yes
	Totals	500,000	61,500,000	11,500,000	1,500,000	75,000,000	74,500,000	