

SPACEPORT AMERICA
OUR NATION'S GATEWAY TO SPACE!

Spaceport America Update and Outlook

New Mexico Finance Authority Oversight Committee

2 Nov 2017

Spaceport Update - Outline

1 chart Bottom line Upfront

11 charts NMSA activity status, STEM support – good news - NMSA's vision going forward

6 charts Commercial Space Industry Current events, NMSA competitive edge, comparative analysis

6 charts National Focus – Renewed focus

Dan Hicks
CEO, Spaceport America



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 expand world wide!
- Spaceport America is an economic engine!
Spaceport America is creating jobs (FY18 +100)
\$9.2M customer revenue to date!

Two Requests

- Revert to prior year funding level
\$375k (FY18) + \$625K = \$1M (~FY12)
- Support the Commercial Space Protection Act Legislation



Spaceport America is successful and Operational!

AEROSPACE ACTIVITY



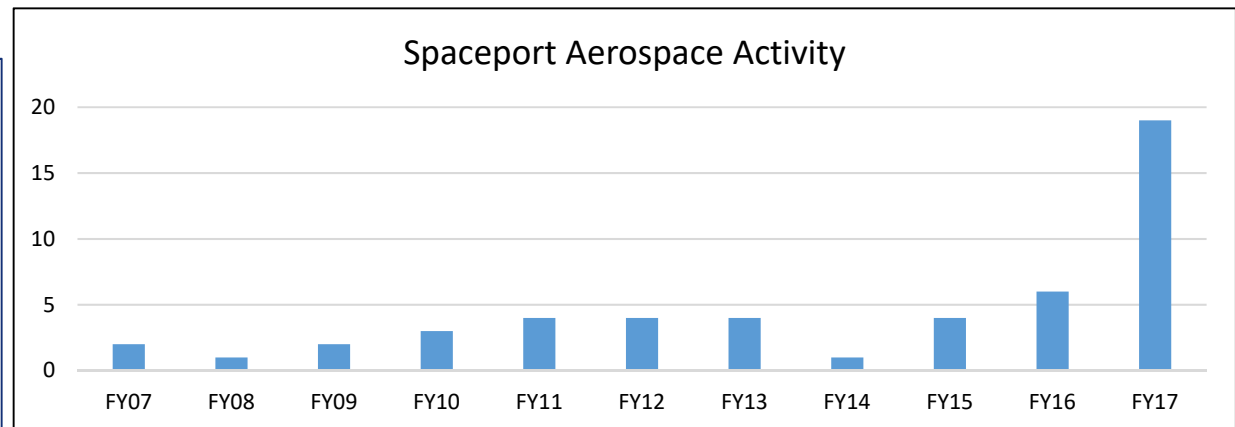
- FY17 Aerospace activity breakdown
 - 14 Launches from VLA
 - 60 Launches during the inaugural Spaceport America Cup
 - 2 Launch system tests
 - 1 Flight mission from HLA
 - 2 Balloon missions

- ## Spaceport activity over time

New jobs created
each year

Estimated **100 new jobs** in FY18

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



*Does not include 60 launches from SA Cup Event

AEROSPACE CUSTOMERS



- **VIRGIN GALACTIC**
- **SPACE X**
- **UP AEROSPACE**
- **EXOS AEROSPACE**
- **BOEING**
- **AND OTHERS IN THE PIPELINE**



VIRGIN GALACTIC GLIDE FLIGHT TEST

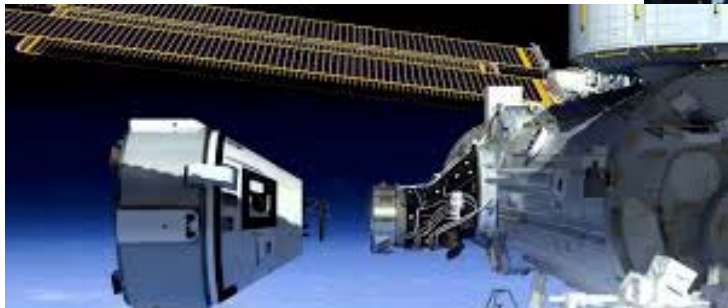


On November 6, 2015
UP Aerospace Deployed
NASA's Maravia Earth
Return Capsule

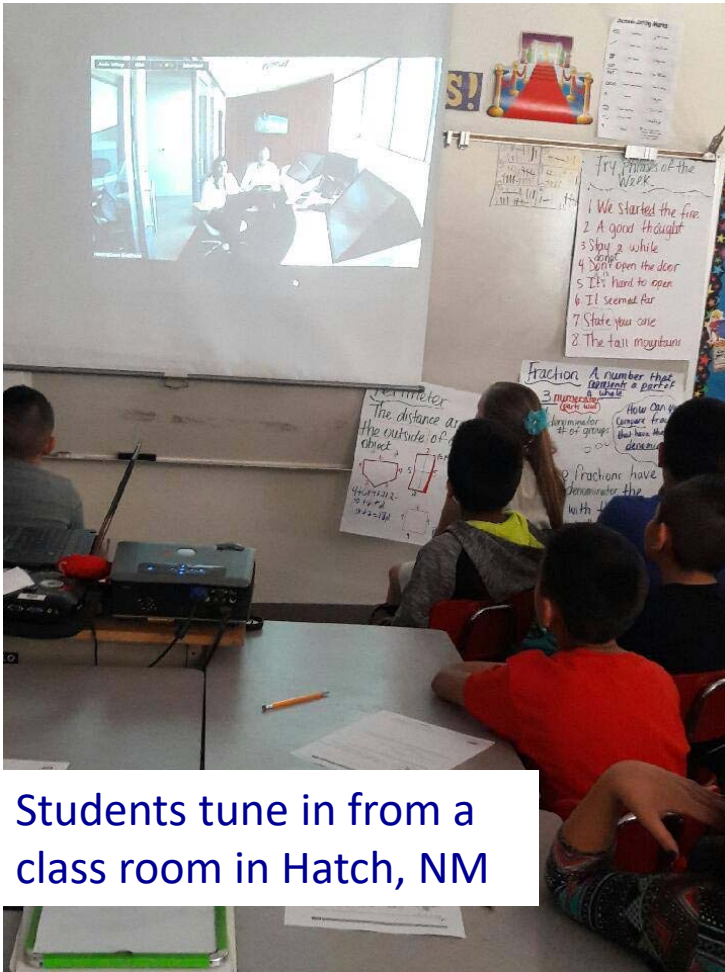
HIGH VISIBILITY SPACE TESTING



- Working with WSMR and Boeing on multiple drop tests of the new Crew Transportation Capsule for the International Space Station – 2016 – 2018
- First successful launch Feb 2017



STEM: VIRTUAL FIELD TRIPS



Students tune in from a class room in Hatch, NM



“WHAT IS SPACEPORT AMERICA” PROGRAM”

17 classrooms across NM i.e. Aztec, Moriarty, Albuquerque, Deming, Las Cruces, Hatch and others

FieldTripZoom is a Unique Educational Partnership to make Spaceport America STEM content available to educators across the world!

No cost to every school in New Mexico! Launched February 2017.



SPACEPORT AMERICA
CUP






Spaceport America Cup

June 20-24, 2017

International Intercollegiate Rocket Engineering Competition

Brought to you by the *Experimental Sounding Rocket Association* and the *Spaceport America Crew*

  Tweet  Like 39

Teams & Spectators

Volunteers

Judges & Sponsors



SPACEPORT AMERICA CUP



- June 19-24, 2017
- 60 student rocket launches
- 91 university teams from 12 countries on 6 continents
- 1,622 visitors on site
- 82% out-of-state visitors
- Event revenue of \$188,852

SPACEPORT AMERICA CUP



IREC Category Awards:

10k ft COTS:

- First Place – Team 70 – University of British Columbia
- Second Place – Team 35 – Massachusetts Institute of Technology

30k ft COTS:

- First Place – Team 57 – Stanford University
- Second Place – Team 53 – Ryerson University

10k ft SRAD Solid:

- First Place – Team 103 – West Virginia University
- Second Place – Team 41 – Missouri University of Science and Technology

IREC Category Awards:

30k ft SRAD Solid:

- First Place – Team 61 – The Ohio State University
- Second Place – Team 69 – University of Arizona AIAA

10k ft SRAD Hybrid/Liquid:

- First Place – Team 96 – University of Waterloo
- Second Place – Team 58 – Texas A&M University

30k ft SRAD Hybrid Liquid

- First Place – Team 79 – University of Michigan, Ann Arbor
- Second Place – Team 95 – University of Washington



Overall Winner/Judges Choice (chosen qualitatively from among the First Place winners of the six IREC Categories):

Spaceport America Cup: Team 79 – University of Michigan, Ann Arbor

FY19 SPACEPORT REVENUE



	FY18	FY19
General Fund Transfers	375,900.00	1,000,000.00
Other Revenues	5,466,600.00	6,610,000.00
Aerospace	4,222,800.00	5,000,000.00
Lease Revenue	2,622,800.00	3,500,000.00
User Fee Revenue	1,600,000.00	1,500,000.00
Non-Aerospace	658,800.00	910,000.00
Venue Revenue	398,800.00	650,000.00
Tour Revenue	50,000.00	50,000.00
Merchandise Revenue	50,000.00	50,000.00
Utility Revenue	160,000.00	160,000.00
GRT	585,000.00	700,000.00
Total	5,842,500.00	7,610,000.00

- Aerospace is 85% of earned Revenue in FY19
- Contractual rent increase in FY19 from Virgin Galactic
- Spaceport funds 78% of total Revenue in FY19

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**

Spaceplane, Single-Stage to Orbit, Returnable Booster, etc.

- **TRANSPORTATION HUB – A FULL SERVICE SPACEPORT!**



**GOAL IS TO DEVELOP A PRIMARY INLAND SPACEPORT
FOR:**

COMMERCIAL SPACE,

CIVIL SPACE,

NATIONAL SECURITY SPACE

VERTICAL LAUNCH/LANDING CAPABILITY

HYPERSONIC SUPPORT/TESTING

HORIZONTAL LAUNCH/LANDING CAPABILITY

CURRENT CAPITAL OUTLAY PROGRAM \$46M

(PAYLOAD ASSEMBLY & INTEGRATION FACILITY, SCIF, ETC.)



THE COMMERCIAL SPACE MARKET: OCT. 2017 REPORT



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

“ONE OF THE FINAL FRONTIERS OF INVESTING”

RECENT SPACE INDUSTRY HEADLINES



Kingdom of Saudi Arabia to invest
\$1Billion in Richard Branson's Space
Companies- Oct. 26, 2017

The
Washington
Post

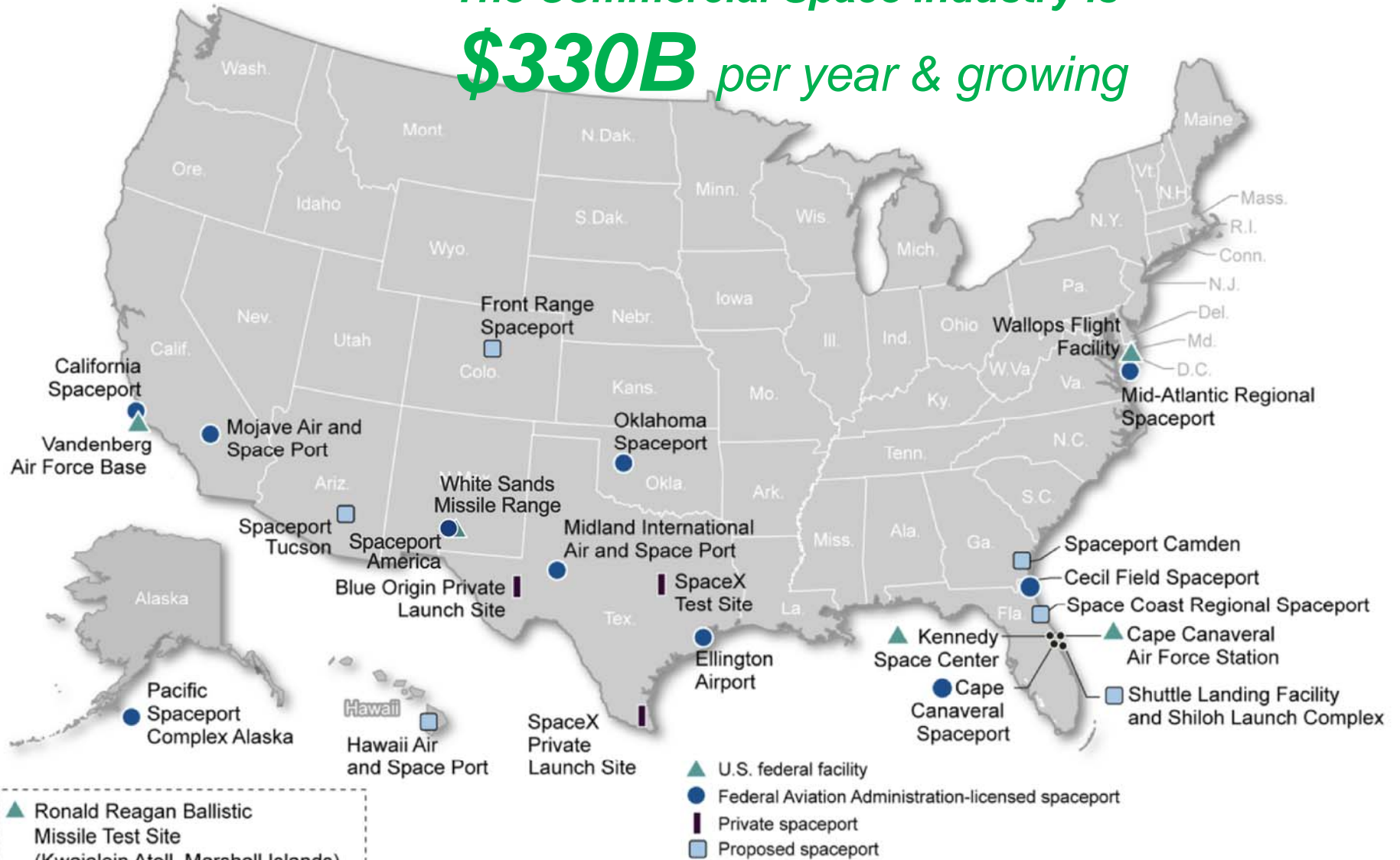
Space Companies Are
Receiving Billions From
Venture Backers-Nov. 1, 2017



US SPACEPORT STATUS

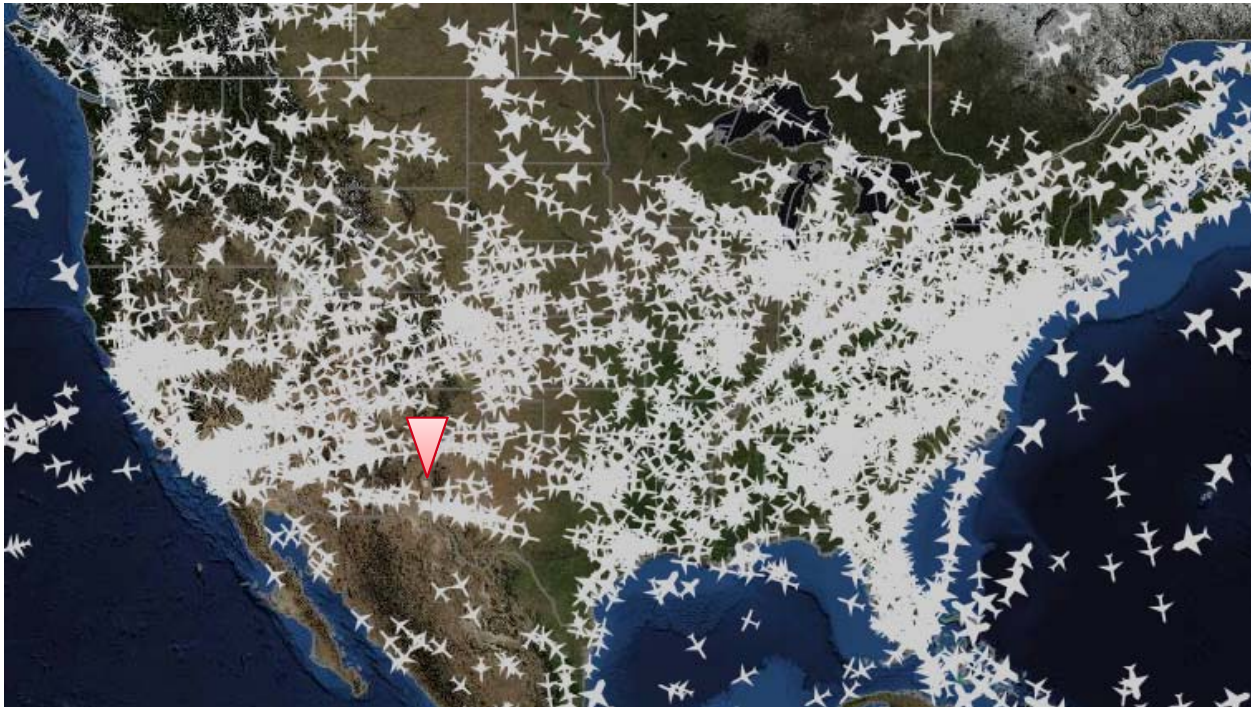


The Commercial Space Industry is **\$330B** per year & growing

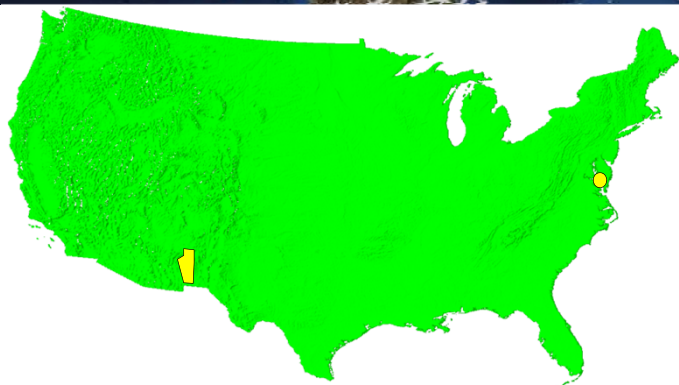



Sources: FAA and Map Resources. | GAO-17-88

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

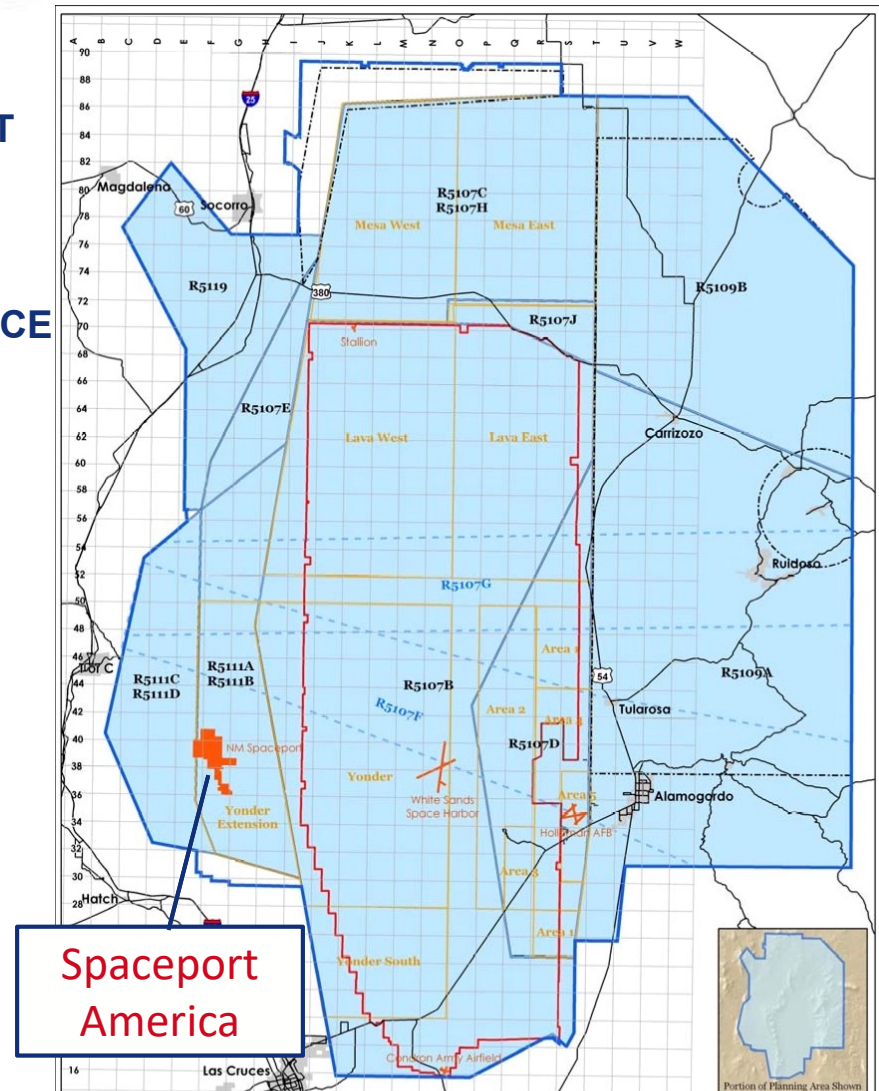
SPACEPORT AMERICA IS A NATIONAL TREASURE



- **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**
- **NO DAMAGE FROM SALT AIR CORROSION**
- **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 COMPARISON



Cape Canaveral Spaceport



Mid-Atlantic Regional Spaceport



Mojave Air and Space Port



Spaceport America



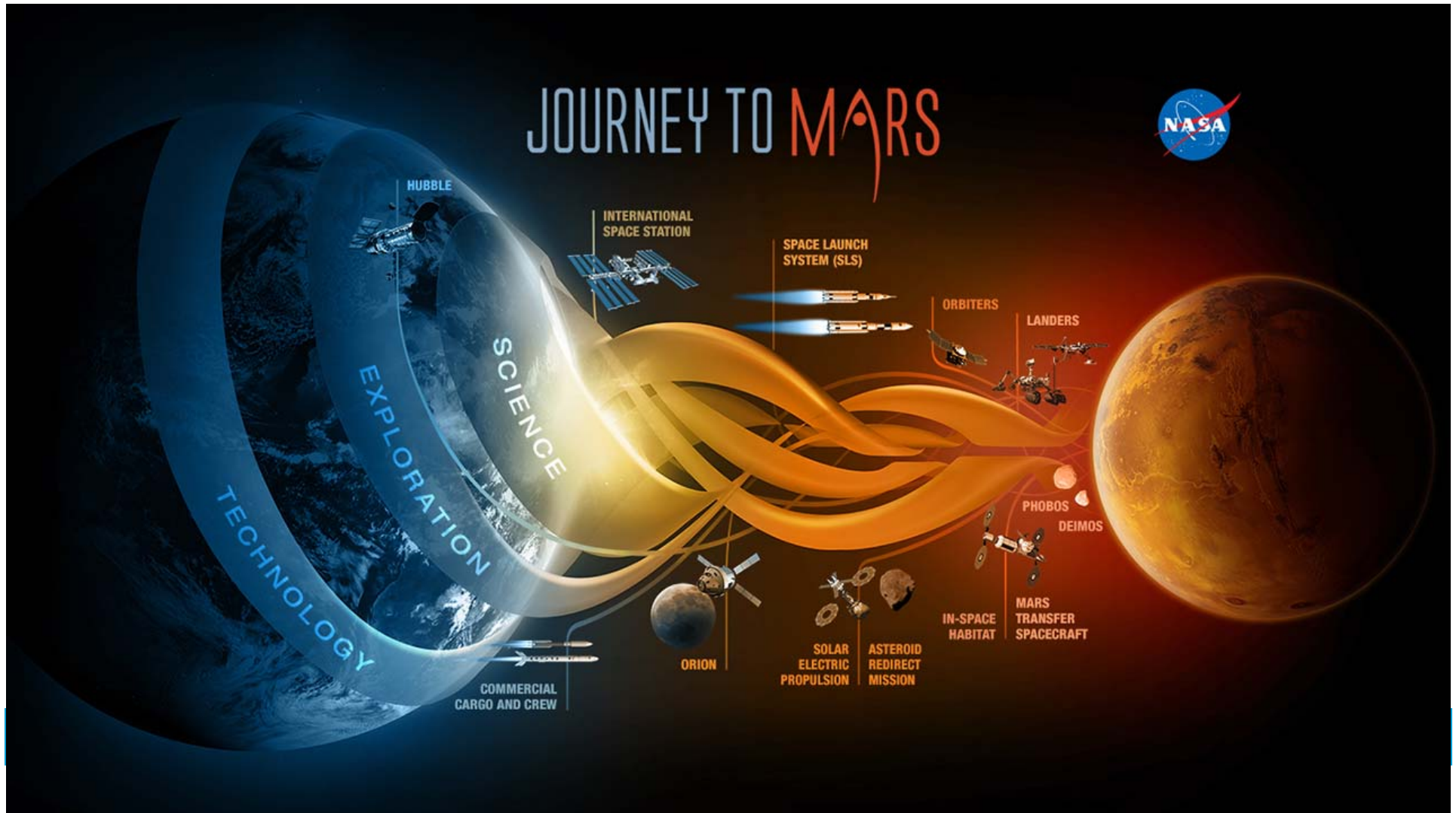
State: Florida	State: Virginia	State: California	State: New Mexico
Budget: \$20M operating / \$7M financing fund / \$20M infrastructure fund	Budget: \$25M operating	Budget: \$7.3M operating (does not include County services)	Budget: \$6.1M
State appropriation: 18.9M (additional 19M in state grants)	State appropriation: 11.8M	State appropriation: local taxes (500k) and airport revenue	State appropriation: 375k (600k local GRT)
Customer revenue: 2.8M	Customer revenue: 16.1M	Customer revenue: 8.1M (space and airport revenue)	Customer revenue: 2.1M
Infrastructure: Old NASA facilities	Infrastructure: Old NASA facilities	Infrastructure: Airport facilities	Infrastructure: Limited existing facilities, new construction \$220M
Geography: Coastal	Geography: Coastal	Geography: Inland	Geography: Inland
Airspace: Heavy air traffic	Airspace: Heavy air traffic	Airspace: Heavy air traffic	Airspace: Restricted air space
Safety: Heavily populated	Safety: Heavily populated	Safety: Heavily populated	Safety: Low population density
Economy: High cost of living	Economy: High cost of living	Economy: High cost of living	Economy: Affordable cost of living
Privacy: IPRA protections for spaceport companies	Privacy: IPRA protections for spaceport companies	Privacy: No IPRA protections for spaceport companies	Privacy: No IPRA protections for spaceport companies
Elevation: 0 ft	Elevation: 0 ft	Elevation: 2,700 ft	Elevation: 4,500 ft
Days of sunshine: 240	Days of sunshine: 210	Days of sunshine: 284	Days of sunshine: 340

INAUGURAL NATIONAL SPACE COUNCIL

5 OCT 2017



HUMANS WILL SOON BE AN INTERPLANETARY SPECIES



SOME EXPERIMENTS CAN'T TAKE PLACE HERE
ON EARTH OR WOULD TAKE MUCH LONGER



It is going to take a lot of advances in life and material sciences to send humans to Mars by the 2030's...

Spaceport America is in an ***excellent position*** to support the micro-gravity research needed for the Commercial Space Industry and NASA's exploration efforts

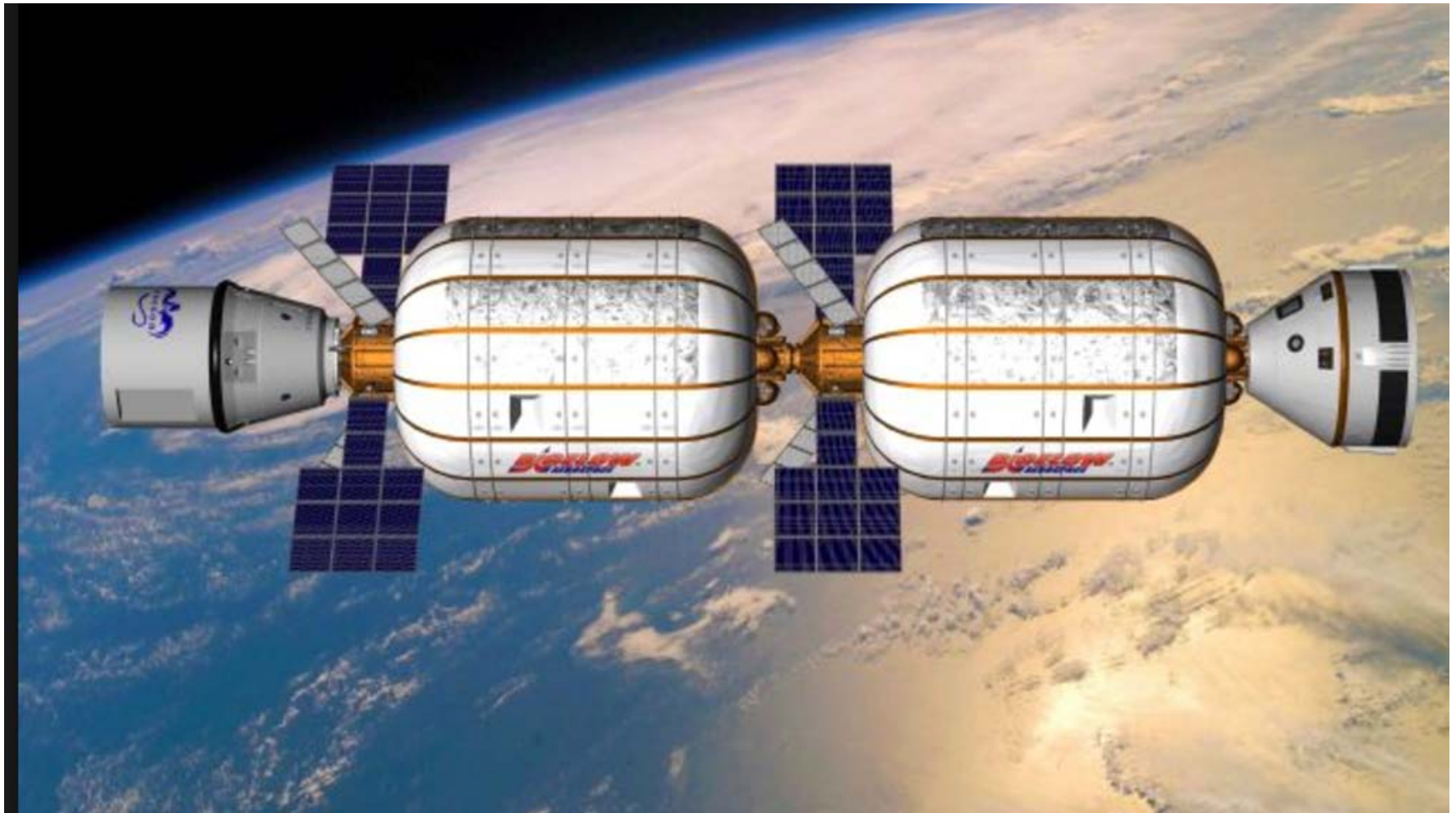
THIS MICRO-GRAVITY RESEARCH IS IMPORTANT AS IT WILL LEAD TO MANY ADVANCES SUCH AS CANCER FIGHTING MEDICATIONS



Photo credit: Team Daniela Grim
Poorly differentiated follicular thyroid cells shortly before launch. The cells were then exposed to microgravity aboard the International Space Station for the Cellbox-Thyroid investigation.

NEAR-MID TERM FOCUS

Launch of Low Earth Orbit (LEO) Satellites and habitats



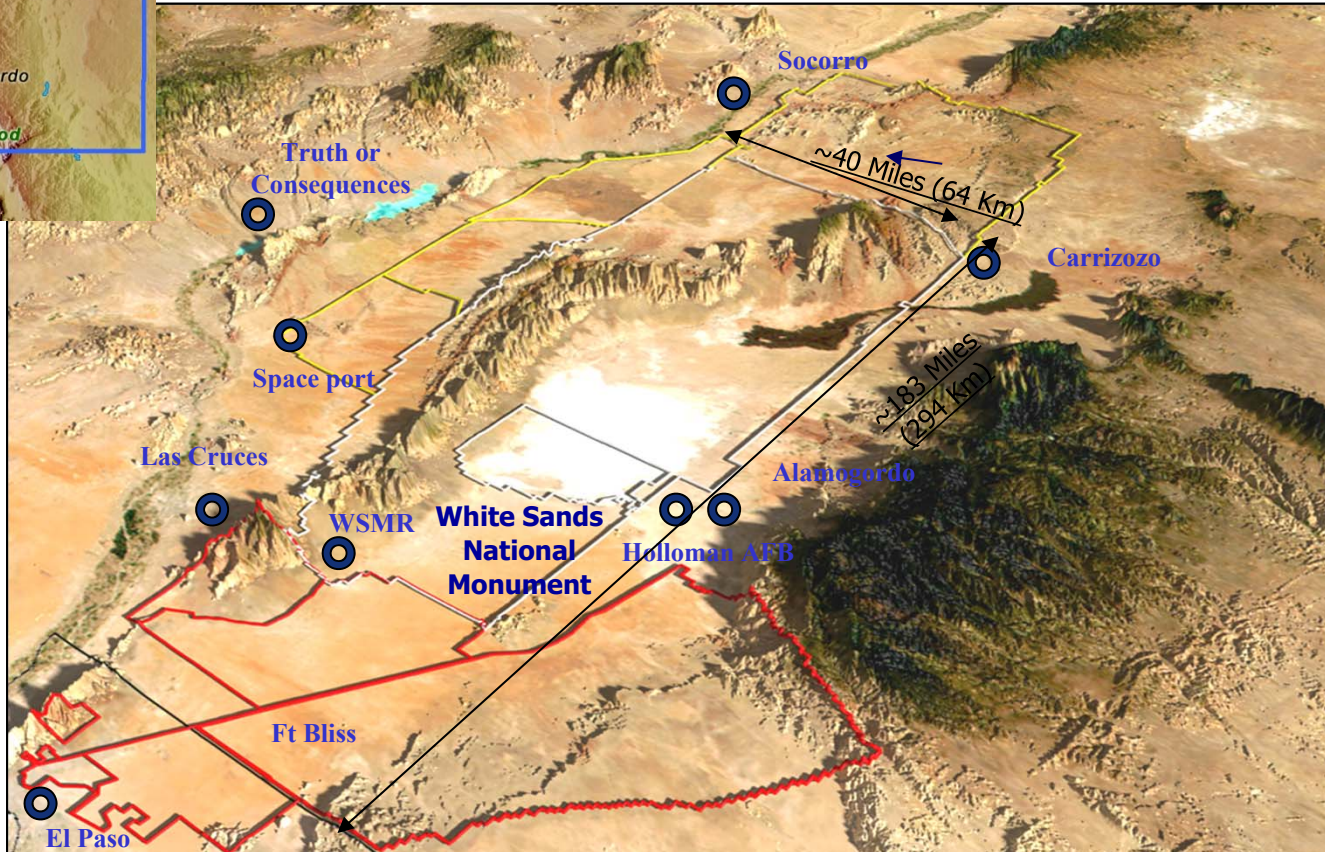
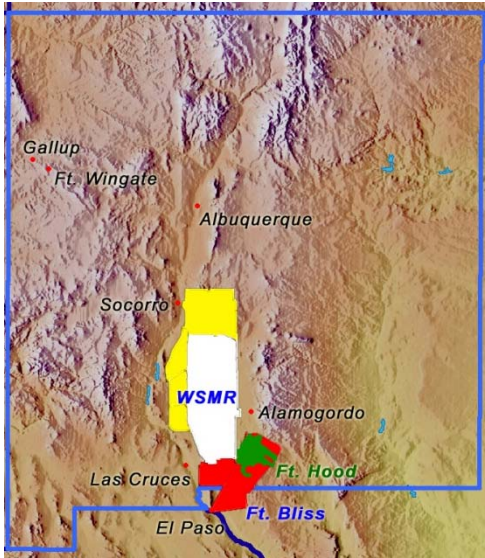
NEAR-MID TERM FOCUS

Point-to-Point transportation with spaceplanes



NEW MEXICO HAS A RICH SPACE HISTORY

Late 40's V2s, Von Braun, Goddard, Tombaugh
1962 NASA Partners with WSMR
1982 The Space Shuttle Lands at WSMR
1994 New Mexico office of Space Commercialization (NMOSC)
2007 New Mexico Space Authority (NMSA)



New Mexico is the Birth Place of our Nations Space Activity

SEE YOU IN SPACE!



BACKUPS

BUDGET SUMMARY



Revenues		<u>FY18</u>	<u>FY19</u>
111	General Fund Transfers	375,900.00	1,000,000.00
130	Other Revenues	5,466,600.00	6,610,000.00
	Total	5,842,500.00	7,610,000.00

Expenses			
200	Personnel	1,814,000.00	2,349,400.00
300	Services	2,285,700.00	3,068,700.00
400	Other Costs	1,742,800.00	2,191,900.00
	Total	5,842,500.00	7,610,000.00

- **Requesting 30% budget increase for agency in FY19**
 Increased Airspace Management Rqmnts (VG flights, HAFB, FAA coord, etc)
 Increased Rocket Launches & Events
 Required Preventative maintenance

CATEGORY 200 - PERSONNEL



Exempt	297k
Perm	791k
Term	654k
Benefits	607k
Total	2,349k

- Staff size is currently 16
- Increase from 20 to 26 slots is needed to accommodate increased activity at 24/7 facility

Current Staff	Required Staff
Admin	Admin
CEO	CEO
General Counsel	General Counsel
CFO	CFO
Accountant	Accountant
Business Ops	Business Ops
	AR Accountant
	Program Manager/Aerospace Lead
Business Development	Business Development
Sales Agent	Sales Agent
PR Coordinator	PR Coordinator
	VP Business Development
	Aerospace Engineer
	Aerospace Engineer
Aerospace Operations	Aerospace Operations
VP Aerospace Ops	VP Aerospace Ops
Aerospace Engineer	Aerospace Engineer
Flight Control Specialist	Flight Control Specialist
	Aerospace Engineer
	Flight Operations Manager
	Flight Control Specialist
Site Operations	Site Operations
VP Site Operations	VP Site Operations
Operations Manager	Operations Manager
Maintenance Tech / General	Maintenance Tech / General
Maintenance Tech / Electrician	Maintenance Tech / Electrician
IT Project Manager	IT Project Manager
IT User Support	IT User Support
	Facilities Engineer
	Maintenance Tech / Plumbing

CATEGORY 300 – SERVICE CONTRACTS



Protective Services	2,724k
Legal	150k
Audit	26k
Environmental	90k
Other	79k
Total	3,069k

- 26% increase from FY18 to cover increased aerospace activity and support new customer agreements

CATEGORY 400 – OTHER PURCHASES



Utilities	240k
Rent of Land/Office Space/Ranchers	252k
DoIT Comms	199k
Facilities Maint	173k
IT Expense	140k
Insurance	196k
Building/Structure	300k
Field Supplies	160k
Equipment	150k
Other Expenses	382k
Total	2,192k

- 26% increase from FY18 to cover increased aerospace activity and support new customer agreements

GENERAL APPROPRIATION REQUEST



- FY09 1,246k
- FY10 1,246k
- FY11 1,129k
- FY12 490k
- FY13 456k
- FY14 456k
- FY15 459k
- FY16 460k
- FY17 420k
- FY18 375k
- FY19 Request: \$1,000k
Base \$375.9k / Expansion \$624.1k
- **Request to return funding to FY09-FY11 level**
- **Expansion allows agency to capture new business for New Mexico**
- **Failure to expand will keep agency at current activity levels and **LOSE business to other states.****

WHAT DOES THE EXPANSION FUND?



- **General Fund expansion covers:**

- **Aerospace Lead** – Charged with oversight of day-to-day project management at Spaceport America

- **Airspace Flight Control Specialist** – Expands personnel coverage to allow airspace use over a 24 hour flight window

- **Aerospace Engineer (Business Development)** – Capture new revenue and aerospace jobs for New Mexico

- **Accounts Receivable Accountant** – Invoices increased 75% in FY17. Admin staff is needed to track contracts, issue invoices, and perform collections on additional revenue.

- **Spaceport America revenue growth covers:**

- **Facilities Engineer** – Manages construction projects, preventative maintenance plan, and facilities master planning

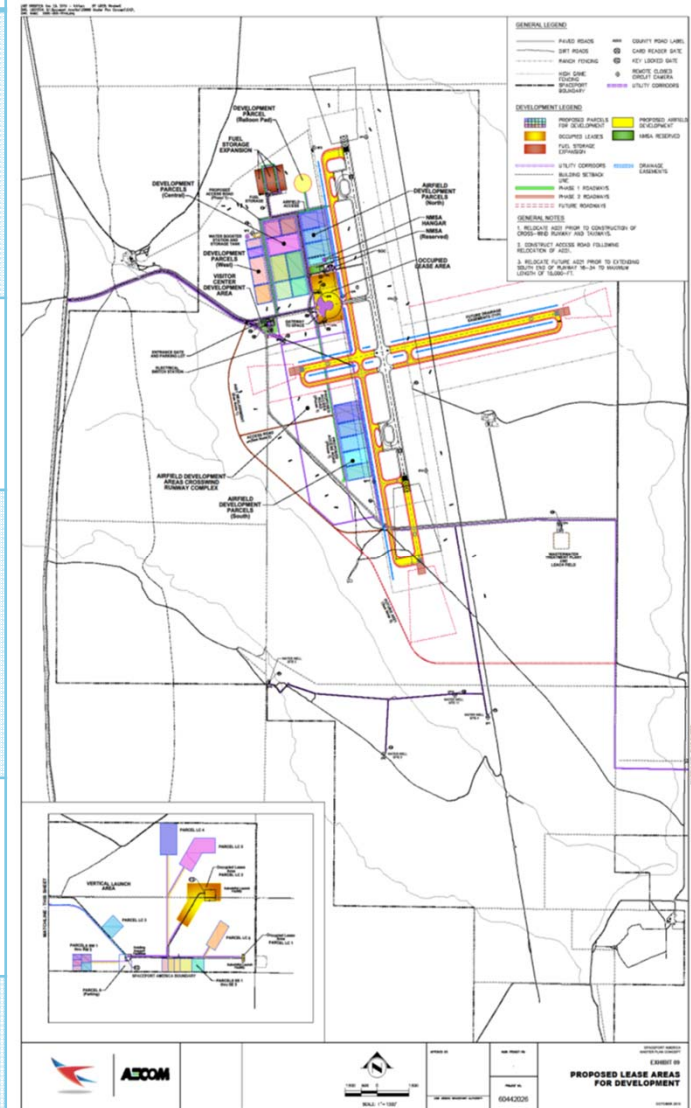
- **Flight Operations Manager** – Expands personnel coverage to allow airspace use over a 24 hour flight window

- **Protective Services increases to support additional operations**

CAPITAL IMPROVEMENT PLAN



Name	Description	Amount
SA Facilities Upgrades	Major repairs and upgrades on existing facilities at Spaceport America to include electrical, HVAC, fire suppression, water, sewage, security, mission control and other building systems.	500,000
Launch Vehicle Integration Facility	Construction for a new facility at Spaceport America for launch vehicle payload integration	20,000,000
Fuel Farm Installation	Construction for new fuel farm installation to include planning, design, and construction of concrete foundation, fuel tanks, electrical, support vehicles, and other infrastructure.	5,000,000
Spaceway Taxiway	Construction for improvements to the Spaceway at Spaceport America including taxiway infrastructure	20,000,000
Vertical Launch Area (VLA) Improvements	Major repairs in the Vertical Launch Area at Spaceport America to include electrical, communications, security, launch infrastructure/facility upgrades.	500,000
		Total cost: \$46,000,000



CAPITAL PROJECTS IMPROVEMENT PLAN FY19-FY23



ID	Year	Rank	Project Title	Funded to date	2019	2020	2021	2022	2023	Total Project Cost	Amount Not Yet Funded	Phases?
33685	2019	001	SA Facilities Capital Upgrades	0	500,000	0	0	0	0	500,000	500,000	No
33686	2019	002	SA Launch Vehicle Integration Facility	0	6,000,000	10,000,000	4,000,000	0	0	20,000,000	20,000,000	No
33687	2019	003	SA Fuel Farm Installation	0	3,000,000	2,000,000	0	0	0	5,000,000	5,000,000	No
33688	2019	004	Spaceway Taxiway	0	10,000,000	5,000,000	5,000,000	0	0	20,000,000	20,000,000	No
33691	2019	005	SA Vertical Launch Area Improvements	0	500,000	0	0	0	0	500,000	500,000	No

Number of projects:	5											
	Funded to date:	Year 1:	Year 2:	Year 3:	Year 4:	Year 5:	Total Project Cost:	Total Not Yet Funded:				
Grand Totals	0	20,000,000	17,000,000	9,000,000	0	0	46,000,000	46,000,000				

Spaceport America is successful and Operational!

STEM: USC LAUNCH MARCH 2017



PIPELINE2SPACE (SMALL SAT CONFERENCE)

