



Speech – "FAA Commercial Space Conference"

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Remarks as Prepared for Delivery

Good afternoon, everyone. And George, thank you very much. It's great to be here for this 20th anniversary conference.

It's rather intimidating, as well – to be in a room full of rocket scientists. Because, as you all know, I am not a scientist myself.

But like many of you, when I was growing up, seeing the early Apollo missions in the 1960's and the 1970's, I remember the feeling I had when Apollo 11 land on the moon.

You know, those of us who were around then, if you're as old as I am, you remember Neil Armstrong and Buzz Aldrin taking those first steps. And hearing that crackling sound, but nonetheless the clear voices, as they reported every moment of what they were seeing.

And after seeing that, I think many of us all shared the same ambition. And that was to grow up and to be an astronaut. Who wouldn't want to do that?

Some of us remember the first time we saw the Space Shuttle. And maybe you saw the live shot of an intrepid pioneer – someone named Sally Ride – to become the first American woman who flew in space.

Today is an important anniversary. February 7th marks the anniversary during Space Shuttle Challenger's fourth flight. Astronaut Bruce McCandless untethered himself from a lifeline and became the first human to fly alone in space.

Now he used a gas-operated jet-pack to power himself more than 300 feet away from the Shuttle and back again. But he did that while they were both streaking in tandem at about 17,500 miles per hour above the blue Earth below.

Now it's moments like these that make many of us dream about what the next giant leap is going to look like. It's made us wonder what we could do, and how far we might be able to go.

Now of course, I, like a lot of people, grew up and realized – came to grips with the realization, that not everyone can be an astronaut. But that doesn't mean that all of us can't play a meaningful role.

And that's what I think unites everyone in the room here today. In your own way, each person in this room is building on the legacy of those early space missions.

Democratization of Space

Space transportation, as you all know, is no longer the exclusive domain of the government. The industry is accomplishing something truly remarkable. It's what George Whitesides of Virgin Galactic, calls the “democratization of space.”

And we're seeing more launches. And we're seeing more types of vehicles, carrying more types of payloads, from more launch sites than we have ever had before.

And just look at the history-making feats that you in this industry have accomplished just in the last year:

- Blue Origin demonstrated the reusability of its launch vehicle by launching and landing the same rocket multiple times.
- SpaceX has shown repeatedly that it can successfully launch and land its Falcon 9 rocket booster on a barge off of both coasts in a variety of conditions.
- Virgin Galactic was issued its first launch license for the SpaceShipTwo vehicle to begin testing for human suborbital spaceflight.
- The FAA is working with NASA commercial crew partners to begin the licensing process for the first commercial human orbital launches to ferry astronauts to and from the International Space Station. And last year, both Boeing and SpaceX made fantastic headway toward this effort.
- The FAA also issued a positive payload review of Moon Express's lunar lander, the first payload review of its kind. And this review enables Moon Express to take another step in their effort to compete for the \$20 million *Google Lunar X Prize*. The prize will be awarded to the first privately funded team that can land a robot on the moon and make it travel 500 meters or more.

Today, what we're seeing at the FAA is a 55% increase in the number of applications compared to this time last year.

Now these applications include some innovative launch concepts. They include small payload launch vehicles, balloons, and carrier aircraft.

But the enormously high cost that we have traditionally faced in getting into orbit and ensuring safety remain big issues that we need to continue to work on. And the companies that can continue to make space transportation the safest and the most cost-effective will help us to achieve those next giant steps.

And in many ways, we're seeing it happen already. A few years ago we weren't talking a whole lot about reusable rockets. And now, they've become almost routine.

A New Space Economy

Now, through feats like these, people who dare to dream, innovate and invent are establishing a new space economy.

As the commercial space industry continues to push the boundaries of what might be possible, we will see the growth of industries that are now only in their infancy.

Industries such as asteroid mining, commercial space stations, point-to-point suborbital transportation – all of these are on the horizon.

And one day, the commercial space industry may even be part of our national goal to deliver humans to another planet – to Mars.

Now I heard something the other day that, at least for me, put that goal in perspective. If you use our history with the Apollo program as a guide, Neil Armstrong was 38 years old when he walked on the moon. Now based on current estimates, that would mean that the first person to walk on Mars is somewhere out there – maybe in middle school, maybe a little older. And they're thinking about and beginning to dream what that might be like.

Now the industry is becoming more complex as it grows. And this makes it more challenging for all of us at the FAA to regulate and to integrate these operations into our national airspace system.

For example, we're seeing how this complexity affects our policy on how space ports might be classified.

As you might imagine and you well know, a wide range of commercial space launch vehicles could potentially operate from a commercial launch site.

These run the gamut from the large, classic vertically launched rockets to the more modern winged vehicles that could take off like an airplane.

We've seen countless variations and combinations in between, including balloons that can carry capsule gondolas to the very edge of space.

Now because of this range, it's time to look at how we at the FAA designate launch sites. The simple fact is, not every commercial space launch site, or "spaceport," can safely accommodate all of these types of launches.

So we need to work with you in industry to discuss how to develop a system for categorizing the various types of spaceports that are out there being talked about and being considered.

We are examining several possibilities for the best way to incorporate a categorization scheme into the decision-making process so that we all have greater clarity on the availability and the use of various sites.

And this will also be helpful to potential spaceport operators and other stakeholders – to understand the factors for safely conducting commercial space launches.

And as launches ramp up, we're looking at how we integrate commercial space operations into our national airspace system.

Now up until now, our airspace and our procedures have been built for traditional aircraft – aircraft that fly horizontally from Point A to Point B.

Every time we license a commercial space launch, it's effectively an exception to the rules of operating in the airspace.

Now thinking ahead, what does that system look like when we have more and more operations that can climb vertically to 100,000 feet in a matter of seconds and descend almost as quickly?

Well until now, we've tended to think of them as rare events, and we block off huge swaths of airspace each time a launch occurs.

We know this is not sustainable. And we want to develop a more sustainable traffic management system that will enable this industry to thrive as a regular player in a larger air traffic system.

You may be aware that the FAA has been prototyping a tool called the Space Data Integrator. This tool – we call it SDI – receives time-accurate data directly from the launch or reentry vehicle, formats it, and routes it to the FAA's air traffic systems and is used by air traffic controllers.

This data could help us determine in advance of a launch, or a reentry operation, how much airspace to block off to ensure that the operation is safe, without imposing too much of a burden on the other users of the system. And it could also help us to release blocked airspace more quickly so it's available to the other users of the system.

In December, we tested SDI during the United Launch Alliance's Atlas V launch of the EchoStar-19 from Cape Canaveral.

The comments from air traffic controllers on the initial run were extremely positive.

They see the benefits of this capability, and we're going to continue to conduct these exercises at all of the upcoming launches at Cape Canaveral.

Now we're also exploring the feasibility of providing space situational awareness data to commercial space operators. This data includes things like the location of space debris and how that might conflict with a space operation.

As you know, this is a service that is currently provided by the Department of Defense.

The FAA and the Defense Department are now working through a number of technical and legal issues to see if it makes sense to create a Civil Space Situational Awareness system.

Now there are still many, many factors that we need to consider, and I expect that we'll be having a lot of thoughtful discussions before we can determine whether this is a mission that the FAA should take on. But it is something that it's important that we get right. And we want to work with you in doing this.

Inspiring a New Generation

As I look out in the room, I'm thinking a bit more about the successes that you have had in the commercial space industry. And the accomplishments that you've achieved – not only in the last year, but in the last several years.

And it dawns on me that while you followed in the footsteps of the men and women who inspired you... the industry collectively, all of you individually, are inspiring yet another generation of dreamers in the young people of this country.

Just imagine the kids that are sitting at home and what their reaction will be to seeing a robot – privately developed – roll across the surface of the moon.

Or when they hear the first commercial space tourists come back and talk about seeing the curvature of the earth with their own eyes.

Or watching that first person when they set foot on Mars.

It's the private sector that is taking the lead in helping us to accomplish all of these goals.

And at the FAA, we look forward to working with you for that next giant leap – whatever it might be.

So I thank you very much for joining us today. And I hope you have a great conference. Best of luck to you.

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