

**REMARKS FOR ADMINISTRATOR BOLDEN
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Thank you for that introduction, Mark (Hamrick), and to the members of the Press Club for inviting me to speak this afternoon. I also want to thank my NASA team, who supports me every day, especially my deputy, Lori Garver, who is here with us today.

Also with us is one of the amazing astronauts who made the Space Shuttle Program what it is. Commander Mark Kelly led the final mission of the space shuttle *Endeavour* and flew three other shuttle missions, all while continuing to serve his country in the U.S. Navy.

Thank you, Mark, for all you've done for our nation and our space program. Our continued thoughts and prayers are with you and your wife, Gabbie, for her ongoing, miraculous recovery. We're all rooting for her and your families.

One week from today, NASA will launch its final Space Shuttle mission, turning the page on a remarkable period in America's history in space, while beginning the next chapter in our nation's extraordinary story of exploration. From the early exploits of Daniel Boone, Lewis and Clark and Robert Peary to the breakthrough journeys of Alan Shepard and John Glenn, Americans have always been a curious people – bold enough to imagine new worlds, ingenious enough to chart a course to them and courageous enough to go for it.

And the gifts of knowledge and innovation that we have brought back from the unknown have played their part in the building of our more perfect union.

Some say that our final Shuttle mission will mark the end of America's 50 years of dominance in human spaceflight.

As a former astronaut and the current NASA Administrator, I'm here to tell you that American leadership in space will continue for at least the next half-century because we have laid the foundation for success – and for NASA failure is not an option.

Once again, we have the opportunity to raise the bar, to demonstrate what human beings can do if we are challenged and inspired to reach for something just out of our grasp but not out of our sights.

President Obama has given us a Mission with a capital "M" -- to focus again on the big picture of exploration and the crucial research and development that will be required for us to move beyond low Earth orbit. He's charged us with carrying out the inspiring missions that only NASA can do, which will take us farther than we've ever been –to orbit Mars and eventually land on it. He's asked us to start

planning a mission to an asteroid, and right now our *Dawn* spacecraft is approaching one of the biggest in the solar system, Vesta, and we're scheduled to drop into orbit around that asteroid the middle of this month. What it finds out could help inform such a mission.

The President is asking us to harness that American spirit of innovation, the drive to solve problems and create capabilities that is so embedded in our story and has led us to the Moon, to great observatories, and to humans living and working in space, possibly indefinitely.

That American ingenuity is alive and well, and it will fire up our economy and help us create and win the future now, but only if we put aside our differences and come together to work hard, dream big and imagine endless possibilities.

The Space Shuttle is an amazing vehicle, and the incredible program it pioneered has taught us many things and helped make tomorrow's exploration possible.

Every shuttle mission has showcased the amazing talents and expertise of our astronauts in robotics and science. Each mission was different. Each was exceptional and challenging and expanded our capabilities as a nation and a world.

Atlantis' destination next week, the International Space Station, or ISS as we call it, is the centerpiece of our human space flight activities for the coming decade, and what a centerpiece it is! With almost a million pounds of hardware, measuring over the length of a football field and with an interior volume greater than a 747 aircraft, traveling at 17,500 miles per hour around the Earth 16 times a day, it is occupied by an international crew of 6 actively participating in over 100 research investigations at any given time.

In just a little over a decade, the ISS has expanded our knowledge of man's ability to live and work in space; and it has become one of the most important beacons of international cooperation as it orbits our Earth. The Station is the pinnacle of our current achievement, a stepping-stone to the rest of the solar system and the tip of what comes next.

The Shuttle allowed us to build and support the Station, and the orbiting outpost's research capabilities are unprecedented. The Station has housed more than 1,200 experiments to date, supporting more than 1,600 scientists representing 59 countries worldwide.

Every research investigation and all of the systems that keep the ISS operational help us figure out how to explore farther from our planet and improve life here. Studies of how our bodies respond to a microgravity environment ensure we can live and work successfully as we travel farther from Earth and help us better

understand the impacts of medical conditions encountered both in space and on Earth.

Solar power and water processing are two examples of how we are learning to better operate a spacecraft independent of resources supplied from Earth. We need to break the ties to our home planet and learn to live and work in space without direct dependence on Earth. The ISS can be a platform for us to learn these skills.

Technology demonstrations on the ISS will support future missions and help us improve the reliability, for instance, of future life support systems and all of the many other things we'll need to understand in depth to really become a spacefaring people who can safely reach our destinations.

So when I hear people say – or listen to media reports – that the final Shuttle flight marks the end of U.S. human spaceflight, I have to say . . . these folks must be living on another planet. We are not ending human space flight, we are *recommitting* ourselves to it and taking the necessary – and difficult – steps today to ensure America's pre-eminence in human space exploration for years to come.

But we have to do things differently. For one, we have to get out of the business of owning and operating low Earth orbit transportation systems and hand that off to the private sector, exercising sufficient oversight to ensure the safety of our astronauts.

We need to focus on deep space exploration, while empowering today's innovators and entrepreneurs to carry out the rest. This new approach to getting our crews and cargo into orbit will create good jobs and expand opportunities for the American economy.

And let me be crystal clear about this: I believe that *American* companies and their spacecraft should send our astronauts to the International Space Station, rather than continuing to outsource this work to foreign governments. That is what this Administration is committed to, and that is what we are going to do. Along with supporting the ISS and commercial crew transportation, NASA will pursue two critical building blocks for our deep space exploration future -- a deep space crew vehicle and an evolvable heavy-lift rocket. And we will make the technology investments required to begin the era of deep space exploration today.

Our destinations for humans beyond Earth remain ambitious. They include: the Moon, asteroids, and Mars. Our investments in the systems, research and technology for deep space will prioritize a logical sequence of future human exploration missions and forge a tighter bond between robotic and human exploration.

The debate is not *if* we will explore, but *how* we'll do it.

Not *if* there will be human spaceflight, but the right path to the next generation of systems.

The shuttle is an expensive system to maintain. It has served us well. But now is the time to cut the cost of transportation to low Earth orbit and foster the American aerospace base and its amazing potential to become a job-creating engine for decades to come.

NASA's 21st century mission will focus on the transportation systems that will carry us beyond where we have been, to new destinations and new milestones in the annals of human history.

So we're one week from a very important human spaceflight milestone, but far from the final one. We celebrate the shuttle's 30 years of success, which is longer than any other U.S. human spaceflight program. The shuttle has expanded our picture of what it means to be an astronaut. And we salute the hundreds of men and women who have carried out the program's missions both in space and on the ground.

We also remember the hard lessons learned that have helped us to continually improve safety. We shall always remember the crews of STS-51L, *Challenger*, and STS-107, *Columbia*, who made the ultimate sacrifice.

I spent 14 years at NASA before leaving and then returning to head the agency. Some of the people I respect most in the world are my fellow astronauts. Some of my best friends died flying on the shuttle.

And I'm not about to let human spaceflight go away on my watch. I'm not going to let it flounder because we pursued a path that we couldn't sustain.

It is vital that we keep exploring, not only so we can learn to live and work other places and find out what that means for us as the human race, but also so the benefits of that exploration continue to return to the Earth. So we keep generating new knowledge about our planet and our universe and new solutions to the challenges our planet faces on many levels.

President Obama has put NASA and several other technology-focused agencies at the forefront of the innovation agenda for this country.

We're pleased to be an essential part of this national focus on research and development, which will greatly improve our future and give coming generations more choices in how they face planetary challenges and seek knowledge about the universe beyond.

We will maintain and grow U.S. leadership in space and derive all the benefits that flow from it. Tomorrow's space program is taking shape right now.

Earlier this year, I made a decision to base the new multi-purpose crew vehicle, or MPCV – our deep space crew module -- on the original work we've done on the Orion capsule. The spacecraft will carry four astronauts for 21-day missions and be able to land in the Pacific Ocean off the California coast. It is designed to be much safer during ascent and entry than the shuttle.

We're nearing a decision on the heavy lift rocket, the Space Launch System, or SLS, and will announce that soon. Complemented by a host of technology developments, these two systems will open up the entire solar system to us.

I have established program offices for both MPCV and SLS at the Johnson Space Center in Houston, and the Marshall Space Flight Center in Huntsville, Alabama, respectively.

I have established our Commercial Crew program office at the Kennedy Space Center, and we're going to work on upgrading the center's launch facilities, one of our most valuable national resources, to accommodate more kinds of users.

And speaking of those facilities at KSC and across the agency, we have had tremendous interest from our commercial space partners in re-using or leasing these assets – and are close to making some major announcements about them soon. The re-use of our unique NASA assets, like the Orbiter Processing Facilities, will help these companies keep their costs down and create jobs for the space industry of tomorrow. The Mid-Atlantic Regional Spaceport is taking shape at our Wallops Flight Facility in Virginia. One of the first customers will be Orbital Sciences Corporation, with its Taurus II rocket.

Last week, we issued a call for proposals for mission concept studies of a solar electric propulsion system demonstration, just one of many technologies we need to advance and validate as we seek to reach those farther destinations. Consider how the architectural options for human exploration of our solar system will change as we develop the space technologies for which there is wide consensus we need: better in-space propulsion systems; refueling depots in orbit; inflatable habitats; high-reliability life support systems; high-bandwidth communications; adaptive avionics; radiation protection; integrated human/robotics operations; and precision navigation systems.

Our partners in the Commercial Orbital Transportation Service program, SpaceX and Orbital Sciences, continue to meet milestones. The new participants in the second round of our Commercial Crew Development Program have just met their first set of milestones required by NASA, and are on a path for continued success.

Recently, my deputy Lori Garver and I have had the chance to visit the facilities of some of our industry partners like Blue Origin and Sierra Nevada. They're working diligently, and the hardware and systems they're creating and testing are amazing. The energy and ideas in the field are palpable.

All of this is just the early days of our push into the next chapter of human spaceflight.

In addition to this human space flight progress, we have a large number of amazing science missions coming up. Just in the next six months, we launch the *Juno* mission to Jupiter. We put the *Dawn* satellite I mentioned into orbit around a giant asteroid in the main asteroid belt for the first time later this month.

In September, we launch the twin *GRAIL* probes that will use changes in the Moon's gravity to study its interior. The *Curiosity* rover heads for Mars in November. In the coming years we'll undertake many more world-class science missions to observe our planet, reach destinations throughout the solar system and peer deeper into the universe.

At the same time, we'll advance aeronautics research, in partnership with other agencies and the aircraft industry, to create a safer, more environmentally friendly and efficient air travel network called NextGen.

It's true that the aerospace field faces many significant challenges; but challenges can also serve as catalysts for innovation.

No doubt, we're going to have to develop new ways of doing business. The Orion government and industry team, for example, has shown exceptional creativity in finding ways to keep costs down through new management techniques, technical solutions and innovation.

But right now, at this historic moment, America is leading once again by making hard choices that will define us anew. We're taking these bold actions because that's what we need to do to create and win the future.

Thanks to the many achievements of NASA and its partners, the brave and talented men and women who have soared into space and developed so many cutting edge science missions, we now have a strong foundation from which to pursue those larger goals.

The space shuttle gave us tremendous insight into how humans can live, travel and work in space. Because of the shuttle, we have the ISS, which is giving us the breakthroughs in human health research that will help us reach and return from those new destinations and inspire the next generation of leaders.

We have choices today. Do we want to keep repeating ourselves, or do we want to look at the big horizon and do the inspirational things we have always challenged ourselves to do?

My generation touched the moon. Together with those that followed, we built the ISS. Today, NASA – and the nation – wants to touch an asteroid and eventually send humans to Mars.

NASA is moving forward and making change, because the status quo is no longer acceptable. We need future generations to be able to do more than we can today.

The students and early career scientists and engineers I speak to around the world have a ton of energy and enthusiasm. They're excited about the chance to do something new – to be on the ground floor of the next big frontier of human exploration; to put their big ideas into practice; and they should be.

If you're studying in a STEM discipline today, you are going to have a great career ahead of you. Not just at NASA, but at other government agencies or in private industry or academia.

So when that final shuttle landing occurs, and the cheers and tears subside, we will keep on moving toward where we want to go next.

Your kids and my grandkids – they're going to do things that today we can barely dream about.

Our nation has made great progress throughout its history by innovating solutions to meet grand challenges: to build an intercontinental railway, or land a man on the moon and return him safely to the Earth.

These challenges not only motivated a technological workforce – they also created new technologies and innovation along the way. These achievements inspired generations to pursue challenging goals, created new industries and ultimately improved our country and our world.

Fifty years ago, a young President gave NASA a grand challenge, one chosen not for its simplicity, but for its audacity, to "best measure and organize our collective energies and skills." In accomplishing that goal, NASA not only defined America, it made a lasting imprint on the economic, national security and geopolitical landscape of the time.

Today, we have another young President, Barack Obama, who has outlined an urgent national need to out-innovate, out-educate, and out-build our competitors and create new capabilities that will take us farther into the solar system and help us learn even more about our place in it.

President Obama not only honors the Kennedy space legacy, but also again challenges the nation with his vision for the NEXT ERA of exploration. And NASA is ready for this grand challenge.

Thanks. I'll be glad to take your questions.