



# THE FRONT PAGE

KSC's front door to Spaceport Planning and Business Development  
FALL 2015



Center Planning and Development (CPD) is the “front door” for partnerships with NASA’s John F. Kennedy Space Center (KSC). We are developing the world’s premier spaceport for government and commercial space industries using comprehensive resource planning and partnerships. For more information about CPD, visit <http://kscpartnerships.ksc.nasa.gov/>.

## Blue Origin chooses Space Coast

### Message from CPD Management

On Sept. 15, Blue Origin announced that it would be the next aerospace company to become a partner of Kennedy Space Center’s multi-user spaceport.

In competition with 10 other states, Florida’s state and local incentives lured Blue Origin founder and CEO, Jeff Bezos, to manufacture and launch a reusable rocket from Florida’s Space Coast later this decade. The Center Planning and Development Directorate has been instrumental in ensuring that processes and agreements are in place, between Blue Origin and Space Florida — the operator of Exploration Park where the manufacturing facilities will be built —

that will allow for these new activities to occur. This sets up Blue Origin to perform several historical “firsts.”

Blue Origin will be the first entity to manufacture rockets in Brevard County in its own, yet-to-be-built plant, creating 330 high-paying jobs and investing \$200 million into launch and manufacturing facilities. When current negotiations are complete, the plant will be constructed at Exploration Park, just west of the Industrial Area at Kennedy. Blue Origin also will refurbish the historic Atlas II launch site, Space Launch Complex 36 (SLC-36) at Cape Canaveral Air Force Station. Additionally at SLC-36, the company will build an acceptance test

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## MULTI-USER SPACEPORT TAKING SHAPE UNDER COMMERCIAL SUCCESS

The times . . . they are exciting. The multi-user spaceport now is more than just a vision; it is reality. We have a new launch pad next to Launch Pad 39B — Launch Pad 39C. This is where we soon will see “smoke and fire” from the launching of newly developed small to medium class rockets. And not just one type of rocket, but more than a dozen companies with as many different rocket designs, have expressed interest in using 39C. It is a capability not seen before at Kennedy Space Center.

Also, we expect SpaceX to launch their new Falcon Heavy vehicle from Launch Pad 39A before too long. If successful, it will demonstrate a return of the heavy payload-to-orbit capability that Kennedy is known for.

Another new entry, Blue Origin, will build a launch capability on Space Launch Complex 36 at Cape Canaveral Air Force Station. Perhaps even more importantly for Kennedy, Blue Origin will build

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Jeff Bezos, founder and CEO of Blue Origin, speaks during an event at Space Launch Complex 36 at Cape Canaveral Air Force Station in Florida where he announced that Blue Origin will build rockets at Exploration Park at NASA’s Kennedy Space Center and launch them from SLC-36 at the Cape. Looking on is Rick Scott, Florida governor.

Photo credit: NASA/Kim Shifflett



# Innovation Expo showcases cutting-edge technologies

If innovation and creativity are the seeds of future technologies, Kennedy Space Center is fertile ground.

New ideas and creativity are central to the spaceport's transition to a 21st century launch complex supporting a variety of users as the agency lays the groundwork for the Journey to Mars. At the spaceport's annual Innovation Expo, held Oct. 15-17, proposals for advanced technologies took center stage as NASA and contractor employees shared their projects and ideas.

Now in its fourth year, the event has grown from a one-day gathering to high-light employee innovations to a three-day showcase. This year's Innovation Expo theme, "From Earth to Mars," featured exhibits and presentations for both the public and center employees from astronauts, a planetary physicist and innovation experts. Subjects included innovations in technology, aeronautics, the International Space Station, and plans to explore Mars, the solar system and beyond.

"This is a special place for me.



Kennedy Space Center Associate Director Kelvin Manning tries out a virtual reality experience at the center's 2015 Innovation Expo. Now in its fourth year, the purpose of the Innovation Expo is to help foster innovation and creativity among the Kennedy workforce. The annual event is designed to encourage NASA and contractor employees to continue to present proposals for advanced technologies. Photo credit NASA/Dan Casper

It's a place where I just feel like anything can happen," said the event's keynote speaker, NASA astronaut Cady Coleman, a veteran of two space shuttle flights and a rotation aboard the International Space Station. She currently works in the agency's Office of the Chief Technologist at NASA Headquarters in Washington.

"It's an atmosphere that I believe feeds you and allows you to do things that are extraordinary."

The first day of the expo was tailored to employees, beginning with the Kennedy Show-

case, in which exhibits and representatives from several organizations and programs shared their capabilities and cutting-edge technologies. Center Planning and Development, International Space Apps Challenge, IT Innovations, Ant-inspired Swarmie Robots, KSC Technology Transfer and KSC Balance Zone were among the more than 15 displays on hand for the showcase.

The Innovation Expo's opening-day lineup also featured the annual KickStart competition, in which Kennedy employees pitched 21 new project concepts. Coleman and several members of Kennedy leadership served as judges, ultimately selecting 12 projects to receive up to \$5,000 for equipment needed to make the proposals a reality.

Employees had the opportunity to explore some of Kennedy's laboratories, such as Swamp Works, where robots practice mining in test bins filled with simulated regolith; the Prototype Development Lab, which designs and builds ground support equipment and flight hardware; the Space Station Processing Facility

high bay, where station components are readied for flight; the Augmented Virtual Reality Lab, where researchers investigate new methods of human-computer interaction; and the Advanced Spaceport Concepts and Technologies Research and Development Lab, which is developing a variety of state-of-the-art innovations.

During the final two days of the Innovation Expo, the event moved to the Kennedy Space Center Visitor Complex, where guests visited exhibits in the Kennedy Showcase and listened to a series of speakers and presentations offering firsthand information on NASA's six programs currently in motion, including Earth Right Now, Technology, ISS, Aeronautics, Mars and the Solar System and Beyond.

NASA's Ground Systems Development and Operations Program, Launch Services Program and Commercial Crew Program were joined by NASA Technology, NASA Aeronautics, Chemical and Biological Sciences and many more, giving visitors a comprehensive view of the technological work in progress in preparation for the journey to Mars.

Innovation begins, Coleman said, with taking on challenges and thinking outside the box to find solutions — and creating an environment where collaboration leads to new ideas.

"Thinking in a different direction is hard to do," she acknowledged. "Everyone has their own kind of jigsaw puzzle and I think what helps is to look around and see what people's jigsaw puzzles are, and support them."

— By Anna Heiney



Employees check out technology exhibits on display at the 2015 Innovation Expo at NASA's Kennedy Space Center. Now in its fourth year, the purpose of the Innovation Expo is to help foster innovation and creativity among the Kennedy workforce. The annual event is designed to encourage NASA and contractor employees to continue to present proposals for advanced technologies. Photo credit: NASA/Dan Casper

# Behind the Scenes: ViTS group always 'on the spot'

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With a combined 63 years of experience, members of the Kennedy Space Center Video Teleconferencing System Operations Office (ViTS) keep Kennedy and other NASA centers connected.

Rob Singer, Kenneth "Buddy" Levitt, and David Petterson are the only team of dedicated ViTS operators at Kennedy. This group has supported the monthly Agency Master Planning ViTS since its first meeting February 2002.

Last October's transition of the Agency Master Planning Working Group lead from Matt Kenney (White Sands Test Facility) to Trey Carlson (Kennedy) changed the ViTS team's role from a participating center to the organizing center. The new duties now involved coordination of the monthly ViTS among all NASA centers.

The ViTS team takes exceptional pride in its work and has no difficulty meeting the demanding challenges of a job that is mostly live, in the moment and "on the spot." And those challenges vary from equipment malfunction to educating customers of ViTS' capabilities; clarifying customer needs as requests are usually received via third party; and keeping pace with dynamic scheduling locally and from other centers. For example, during the days of the space shuttle, the team would work as late as 10 p.m. in order to facilitate a ViTS with Japan or Italy.

Kennedy has not always had video conferencing.

The very first ViTS was used in 1987. Even then, video conferencing was used solely for administrative functions,



Clockwise, from top left are Standing: Robert "Rob" Singer, KSC Video Teleconference Operations Lead; Kenneth "Buddy" Levitt, Video Teleconference Specialist; and David Petterson, Video Teleconference Specialist, who are the only team of dedicated ViTS operators at Kennedy Space Center. Photo credit: NASA/Gisele Altman

such as human resources and personnel training. It was not until the devastating Columbia accident that Kennedy managers started using ViTS services to collaboratively discuss aftermath options and forward steps with NASA Headquarters and other centers. From then, the functionality of Kennedy's video conferencing went from occasional admin use to frequent, standard ViTS, and in some instances, week-long training events.

Additionally, as funding cut-backs made essential business travel more stringent, utilizing on-center ViTS options proved to be a substantial money saver for Kennedy.

Through it all, the group has favorite moments they find rewarding. Most of those memories are from the days of

the space shuttle. They include assisting with Shuttle Mission Manager Team Meetings, Flight Readiness Reviews, Launch Readiness Reviews, and facilitating at the VIP viewing site in OSB II during launches.

In addition to NASA-sponsored ViTS, the team provides ViTS connections to contractor facilities, academia (from elementary to college) and even the International Space Station.

To date, the KSC ViTS Team has assisted with 123 agency master planning ViTS and is poised to facilitate many more.

The team's importance is not limited to just one group as they recently received a much-deserved Space Flight Awareness Award from the Commercial Crew Program.

a rocket manufacturing capability within Exploration Park, just west of Kennedy's Industrial Area. This will mark the first time an entire rocket system will be manufactured, processed and launched from the Space Coast.

Around us we are seeing new buildings, structures and faces as part of the next generation of space exploration.

With them they bring new ideas and new ways of doing business. And we in NASA are meeting the challenges of supporting and encouraging these folks. We are developing new processes to support their needs and new capabilities to help them succeed.

For if we truly are to be the spaceport of the future, then we must ensure they are successful. Their success IS our future. Of course, that means that we have to be open to those new ideas.

We have to be willing to do things differently than we have done before. And we have to embrace these new things and people with open arms.

And I am glad to say I see that attitude every day.

The NASA and Kennedy workforce is diligently making the path for the newcomers and is demonstrating that we can and want to see those changes.

We are opening up this center to all those that see a future full of hope and exhilaration.

Yes, the times they are very exciting. Strap yourselves in; it's going to be one heck of a ride!

— Mario Busacca  
Chief, Spaceport Planning Office

— By Gisele Altman

# AS 'SCENE' ON CENTER



A mural depicting The Boeing Company's newly named CST-100 Starliner commercial crew transportation spacecraft is installed on the company's Commercial Crew and Cargo Processing Facility, or C3PF, at Kennedy Space Center. Photo credit: NASA/Kim Shiflett

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stand for the 550,000-pound-thrust BE-4 engine.

SLC-36 has been in service for 43 years — since 1962 — and has launched 145 rockets. SLC-36 is rich in historical firsts of its own, such as launching the first U.S. spacecraft to visit other planets: the Mariner missions; Pioneer 10, first to travel through an asteroid belt; and Surveyor 1, the first U.S. spacecraft to land softly on the moon. So it only is fitting that Blue Origin's locally built rocket be flown from this location. The last launch from SLC-36 was in 2005.

“The pad has stood silent for more than 10 years . . . too long,” Bezos said. “We can't wait to fix that.”

For now, the BE-4 engine will still be manufactured in Kent, Washington. The new BE-4 engine will power United Launch Alliance's (ULA) Vulcan rocket that eventually will replace the Atlas V. On Sept. 10, ULA and Blue Origin signed a production agreement. According to Bezos, the BE-4 will be qualified in 2017, with Vulcan's first flight planned for 2019.

Most recently, Blue Origin demonstrated another first. On Nov. 24, they successfully launched and landed a suborbital rocket under its own powered

descent at their Texas launch site. This is the first time such a feat has been accomplished, gearing the company to move toward commercial suborbital flights with human passengers.

Blue Origin is human spaceflight-focused, and eventually wants to hone in on space tourism: flying tourists into space to see Earth from a unique vantage point and experience weightlessness. The company also may compete to launch government satellites.

With this historic agreement in place, Bezos is one step closer to his dream of humans becoming a “space-faring civilization.”

## DID YOU KNOW?

. . . that Kennedy Space Center hosts four species of bats, with the most common being the Brazilian Free-Tailed Bat. Many of Kennedy's buildings are used as their roosts. POC: Rebecca Bolt, KSC-IHA-4100

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