Major General Martin Whelan
Major General Roger W. Teague
Space Budget Roundtable
6 February 2015

Maj. Gen. Whelan: Good afternoon. Thanks for joining us today. I know that General Teague and I are really happy to be here to talk about the 2016 President's budget. We're mostly excited because we get to represent the 40,000 professional airmen that execute this job every day. He and I have grown up doing the space business and we really enjoy the people that we have out there doing this mission.

If I can provide you some context, and I know many of you have covered the Department of Defense and the space portfolio for a long time, but it's important to reiterate that the Department of Defense and the Air Force have for a long time focused on providing operational capabilities from space. Space capabilities, as you know, are vital to national security, our ability to understand emerging threats, our ability to project power globally, conduct operations, support diplomatic efforts and enable global economic prosperity. However, the same capabilities today we face advanced demonstrated and evolving threats. In light of the emerging strategic environment we've shaped our investment in FY16 and beyond to be focused in two major areas.

The first investment area helps assure the use of space in the face of these increasing threats and help us to better defend and enhance the national security space systems.

One of numerous examples in our effort to modernize is our effort to modernize GPS, the control, the user segment, the space segment, including the continued addition of signals and enhanced anti-jam capabilities.

Second, we're focused on capabilities to help deter and defeat interference with and potential attacks on national security space systems. A foundational piece of this effort is our investments in enhancing our space operational picture through deliberate steps to approve space situational awareness with sensors and data integration. This is to ensure our ability to safely operate in space and our many allies and partners' abilities to operate in space as well. To improve our capability to discover, search and monitor near-earth objects, we continued our funding for the Space Fence, a new system that will provide increased capacity to observe objects in space and improve safe operations over critical space systems. To enhance our ability to manage our space capabilities we've also stepped up our

investments in the Joint Space Operations Center Mission System, JMS.

As we enhance our capabilities we won't be alone. The Air Force and the DoD will leverage two U.S. strengths. You're all aware of them. The ability to work with our alliances and international partnerships and the robust and innovative capabilities of the commercial and industrial space sectors.

It's with the help of the commercial and industrial partners we've now launched 80 consecutive successful Evolved Expendable Launch Vehicle -- EELV -- missions to date, as well as 107 consecutive national security space missions. The eight successful national security space satellite launches in calendar year 2014 really was to bolster our critical space capabilities including precision navigation and timing, and space situation awareness.

The FY16 budget will further advance our space superiority mission as we continue to launch satellites critical to national security space capabilities.

The Air Force is committed to building upon the success and reliability of the current EELV program, searching out opportunities to increase efficiencies and cost effectiveness, introduce competition, and transition off of the Russian-made RD-180 engine. We will fully embrace the need to develop an alternative domestic rocket propulsion system to continue our longstanding commitment to assured access to space.

Our FY16 budget supports rocket propulsion system development, continues the EELV 36 core block buy and associated launch capability. It makes additional launch missions available for competition. We continue to partner with new entrants towards certification to launch the national security space class EELV missions and expect to certify the new entrants in the near term.

Some notable steps you'll see in FY16, we incrementally fund the block buys of AEHF satellites five and six. The program's now firmly in production phase. Three satellites are on orbit. And the program is on track for initial operational capability in June of 2015.

For missile warning, the FY16 PV funds continue development of the ground segment, SBIRS, GEO 4 satellite and the GEO 5-6 satellites.

The budget request also funds the full complement of the mobile ground station upgrades, adding two units to the previously funded three in order to meet the critical U.S. STRATCOM missions.

I mentioned earlier the fundamental importance of space situational awareness and the FY16 budget solidifies a long term stable commitment to several areas that allow us to improve information collection and sharing of space object collision avoidance and aggressively strengthen the capability that can mitigate orbital debris. We're excited about our ability to bring together our architecture which is an investment in near earth sensors, deep space sensors and the data integration.

Our Block 10 Space Based Space Surveillance reaches its end of life in FY2017 and the acceleration of a follow-on is vital to the continued flawless 24x7 detection and tracking of space objects. We've requested investment funds in FY16 to plan for the launch of the SBIRS follow-on in FY2020. In the meantime the Air Force has accepted the risk related to Block 10's end of life and the potential space based SSA coverage gap for assets in geosynchronous orbit.

We are confident that our ORS-5 Pathfinder launch in FY17 will provide some capability to mitigate that risk.

The Joint Space Operation Center Mission System, the JMS system, receives additional funds in FY16 with the goal of replacing the legacy JSPOC capabilities with sustainable hardware, open and evolved software architectures, and modern SSA tools to achieve the earliest possible transition from aging legacy JSPOC systems. The just under $82 million we've received for this program in FY16 will execute a new acquisition approach that better leverages existing prototypes, commercial capabilities and government developed software products to accelerate our transition off the legacy systems.

Lastly, we remain on track for the FY2019 IOC of Space Fence thanks to the $243 million in funding received in the FY16 budget. We're expected to field these capabilities and fulfill the vision that we've pursued for the last number of years. It's imperative that we as a service and the Department of Defense invest smartly in the highest pay off capabilities that enhance the space domain and provide us space domain assurance. This includes growing our resilience, enhancing our defensive operations, and enabling reconstitution of our space systems and architectures to safeguard the use of space through all phases of conflict for the U.S. and our allies.

We're on a good path to enable this fundamental goal and we look forward to your questions.

Roger pointed out, I talked about a SBIRS follow-on. I'm sorry. I had SBSS follow-on. I apologize. I have a hard time talking in public.

Maj. Gen. Teague: I knew some of you would pick up on that. News, news, headline. No, it's SBSS follow-on-here.

Maj. Gen. Whelan: I told you he was smart.

Media: Aaron Meadow with Defense News.

I just wanted to see if you guys could clarify a little bit. In the briefings, the Air Force has said that [VCA] levels aren't changed. One of the EELV contracts for FY16 will get cut from five to four. Is that going to be one of the competitive ones? Or the non-competitive?

Maj. Gen. Teague: We've clarified that, and in fact there are five Air Force launches in '16 regardless of whether --

Media: Okay. Good to know.

Media: Deanne [inaudible] from Inside the NSS.

Could you please speak to GPS 3? There's no advance procurement that I could find in the budget and there appears to be a cut to the GPS 3 acquisition for [inaudible]. How does that fit into the production readiness competition? Could you talk to that?

Maj. Gen. Teague: First, as you know very well, GPS 3 capabilities are needed. WE are looking forward to the enhanced signal protection capabilities that the GPS 3 system will bring to include the higher power and the improved civil signal that that satellite block will bring.

Frankly, we've got a healthy constellation. Our procurement forecast I believe, my guys can verify here, but I believe our procurement forecast shows buying one satellite in '16, one in '17, and then three in '18, '19 and '20 across the FYDP. So that really is the procurement forecast that we've got laid out for the program and will allow us to transition based on the operational need and again, assessing what their current health of the constellation looks like. Then be able to move on and complete that transition to the new block of satellites.

What that does, we are still assessing with regard to alternative capabilities and alternative providers and trying to understand and assess what it may look like. No decision has been made yet regarding a follow-on acquisition or a different path. Those acquisition strategies and plans are still under consideration. It's no secret that the GPS 3 has experienced some development delays particular to the navigation payload. So I think in the end this is good program oversight and responsible and prudent program management to ensure that in fact we are delivering the capabilities that we need when we need them, and to ensure that we're taking full advantage of the industrial base and what the industrial base might be able to bring.

Media: [Inaudible], Defense Daily.

Maybe I missed it but did you guys have any funds for this year for launch range modernization? And to [inaudible].

Maj. Gen. Teague: In the '16 budget there's about $120 million set aside for the range. Of course the ranges just had the benefit of the awards of the LISC contract, the Launch and Integrated Support -- somebody help -- that acronym, which is really going to help us save in the bigger picture, reduce our O&M account and reduce that O&M bill and help consolidate and standardize a lot of range management functions. And of course there are some ongoing projects, communication projects and command destruct projects, contracts that are in the works on both coasts. So that's what that funding that's in the budget will support.

Media: Other than command destruct can you talk about some of those other projects that you're working on?

Maj. Gen. Teague: Beyond that, I know that there's some communication program improvements, COM projects, but I'd have to get back to you with regard to the specifics on the exact benefits of each.

Media: You mentioned the RD-180 replacement earlier. Maybe I missed the explanation on this, but have you figured out exactly how you're going to pursue this new engine or engines? Is there an acquisition strategy that's been worked out? Is all that still [inaudible]?

Maj. Gen. Teague: As General Whelan said in his opening statement, it's important to first know that the Air Force is firmly committed to transitioning off the RD-180. That's an

important objective and we are again grateful to the Congress for their support in helping us shape our objectives there. We had both omnibus reprogramming in ’14 as well as $220 million in ’15 Congressional add and we look forward to working with the Congress to help define what that program and how we come together in terms of bringing forward an acquisition strategy.

Our near term objectives are to complete some ongoing work that we’ve got with -- It’s some tech maturation and risk reduction activities that we’ve got going on with academia and universities and the science and technology communities, NASA. We need to continue to mature those key technologies while at the same time bring forward an acquisition strategy and plan, again as General Whelan noted in his opening statement, that’s going to give us a rocket propulsion capability that will certainly meet our goals and objectives for the future. Our end goal is commercially viable with multiple providers that will address and be able to service our long term national security space launch needs.

Media: Is it pretty much, is preordained the right word that you’re going to go with ULAs and updated Atlas 5 and SpaceX’s rocket? Or is that part of what’s to come?

Maj. Gen. Teague: Certainly there have been no decisions made in advance. We are continuing to look at all sources of supply as well as all vehicle type configurations, whether it be liquid or solid, to be able to meet the challenges associated with meeting our manifest requirements. So we use the term rocket propulsion system so that, again, the idea there is that there is -- We haven’t made a decision. And as I mentioned, we need to be able to consider all the benefits, the unique benefits that each type of system might be able to bring, and really, this is an expanded conversation that we need to understand what industry can bring to the table. What the business case is. What the investment philosophies might be. And there are a lot of differences with regard to variability and the approach of each of the industrial partners. We look forward to having continued dialogue with industry. And as I said, with Congress, on what those solutions might bring and then the viability and maturing our engine technologies to achieve the objective.

Media: Is solid still in the mix even though it says liquid rocket engine?

Maj. Gen. Teague: Absolutely.

Media: If I can follow up on that question about the acquisition plan. What is the time line for developing that plan? And what

is the urgency around getting that developed quickly in order to be able to meet other congressional mandates moving off of it.

Maj. Gen. Teague: Certainly Congress has been, has given us clear direction with regard to the need to transition off the RD-180, so our acquisition planning, while deliberate, we are working this very hard and again, want to be responsible, be able to consider all sources of supply and all technologies that would prove viable to meet our national security space needs.

Media: What is the time line for delivering that --

Maj. Gen. Teague: It varies by system. We really, we're still trying to understand what the potential market looks like. What each system development time line might look like. It's going to vary by maturity of the system, the technologies, and frankly, we need to be able to have continued dialogue with industry to understand what their time lines look like. We're looking for shared investment philosophies, public/private partnerships, and we need to understand what those business cases look like and what we might be able to achieve.

Media: I guess I was sort of looking at the time line for developing that acquisition plan, not necessarily the time --

Maj. Gen. Teague: I would fully expect that the Space and Missile System Center is working this very hard under the leadership of Lieutenant General Sam Greaves, and I expect that we will see an RFP released later this year. But up to that point, recall there was a request for information, an RFI released last summer trying to understand what the industrial base might look like. We are now trying to understand and assess based on the feedback that industry has provided so far, and then be able to shape that input into an acquisition strategy that will allow us to achieve the objectives that I previously described.

Media: Anything more specific about later this year?

Maj. Gen. Teague: No I can't, not at this point.

Media: [Inaudible]?

Maj. Gen. Teague: Yes. I believe there's someone on-line, the question was is it this fiscal year or calendar year, and certainly I would say this calendar year.

Media: If I understand everything correctly, you are not able to get any new RD-180s for military launch, so do you have, have you mitigated the manifest planning to ensure that you can get the payloads up when you need to get them up? Did that require the potential dual manifesting Delta 4? And then how do those [inaudible] hand off from readily available [inaudible]?

Maj. Gen. Teague: We have a fairly robust process to look at the launch manifests. Many of you are familiar with the CLSRB that we gather together and look at that. That team looked at our manifest and we have a pretty good way forward. The [LISN] that they have out there is a, the launch schedule they have out there is make sure that we have room for our priorities. That said, we also have some agility to move things around based on what today would be unknowns. If something happens and we have to surge in a certain area we have that capability in our process. So today we have sufficient RD-180s to support our mission but it does take us a good look at the other providers, new entrants, and it takes a good look at, when I say the other providers, there may be a delta in the mix or there may be the new entrants with SpaceX in the mix. We're looking at all the capabilities that are out there to maximize the use of the RD-180s that we have already under our control.

Media: So what is the time line of [when] you begin to run out of military useable RD-180s?

Maj. Gen. Whelan: If we solely used RD-180s I could give you that answer. But what we're trying to do, I'll call it husband our resources to the point where we're smart about how we use them. If there are other capabilities that can be used then I can move something onto another carrier and then retain that RD-180, because certain of our payloads will require that type of lift.

Media: That's what I'm not tracking on is when the launch services are procured, they're typically procured 18 months to two years out with an eye toward a specific vehicle [meeting] the payload. So my understanding is you probably know two years out if not more that you're not going to go 100 percent RD-180, obviously. So with the forecasting that you're doing, how long does the Atlas 5 get you?

Maj. Gen. Whelan: We have a number of payloads that are already integrated on Delta and Atlas and there are some that are integrated with SpaceX already. So we've looked at the options that we have.

We have a good idea 18 months out, a pretty solid idea, but we revisit that every six months to make sure that we're making the smartest moves. So the statement that I had is we have sufficient RD-180s now as we go forward. I'm very safe in saying that because we have a real good plan going forward. But to give you the specific date, there are decisions in the future that can change that date and that's why I can't commit to a date certain.

Maj. Gen. Teague: I think another important point too, consistent with that thought process if I could add on a bit more, is the fact that we are, we're very near, we're getting very close to SpaceX certification which is obviously another certified provider who will be able to help support our manifest and those requirements. So it's a little difficult, as General Whelan tried to explain, it's difficult to be able to precisely forecast. And the bigger picture, I'm not sure if we've got certified providers and a competitive launch market, we all win. That's the ultimate objective here, and being able to get SpaceX certified certainly as soon as possible is certainly an Air Force objective.

Maj. Gen. Whelan: And as the operators we want to maintain our flexibilities. We want to keep as many capabilities in the mix as possible so we have options, and that's why we revisit this on a regular basis.

Media: Colin Clark.

There's been an enormous amount of talk about SSA, its importance. We don't know, a fair chunk of the budget is classified. But can you give us at least perhaps a percentage, how much it increased this year or [inaudible] strong adjective?

Maj. Gen. Teague: Just to kind of address some of the major programs and efforts, I think that, you know, we've talked about the importance. General Shelton as talked about it, General Hyten has talked about, our senior Air Force leadership has talked about the importance of SSA. Fundamentally it allows us to see our operating environment. As we've transitioned from a domain that was largely -- There weren't a lot of threats, there weren't a lot of concern, if you will. It was more of a sanctuary. And now we have a different operating environment, and it's important that we see and understand that operational environment.

So you're now starting to see the fruition manifested through the budget in investment in these kinds of programs, whether it's the Space Fence -- Last year we announced the launch of the

geosynchronous space situational awareness program satellite. We've got a C-Band radar that's being relocated to Australia. These kinds of investments, and then bringing it all together in the '16 budget, having just under $82 million associated with continued work on the JMS, the Joint Space Operation Center Mission System. You're seeing that vision come to reality and come to fruition in a very concentrated way to be able to see, understand and process the operating environment that our assets are in. And it really, I think taking that step initially and making these assets operational really helps us to understand how real are the potential threats that are out there and what do we need to do about that.

Media: So overall, substantially [inaudible]? Can you give us something?

Maj. Gen. Teague: I'm certainly happy to take that for the record for you in terms of what our investment differences might be, but again, I've tried to lay out some programs that reflect that. I can give you the numbers associated with each program. But understand, we have been talking about this for a while and the importance of that and the change, if you will, in the operational environment that we've seen. And now you're seeing targeted investments towards that objective and I think that's very important.

Maj. Gen. Whelan: So giving you the numbers, I would tell you from the operator's perspective and I'm the dumb operator here, so from the operator perspective we have a marked change in how we look at space over the last couple of years and we've put together a space architecture, as I talked about, that looked at near earth and deep space, and then the ability to bring the data together and we're seeing in this budget the Space Fence SBSS follow-on as part of that. [GSEP] as Roger mentioned, ORS 5. The DARPA program for space surveillance telescope is moving to Australia to complete some of their test sequence and we're starting our effort to operationalize that and sustain it at as a contributing, I'll use that in a lower case, as a sensor that contributes to our network. This contributing sensor means something in our business.

So as a sensor that contributes to SSA. So we're seeing a number of these investments that are starting to bring this whole space picture together. So from an operational perspective to be able to know what's in space, to be able to take the things that are a threat entire environmentally as debris may be or any threat vehicles that may be coming close to our high value assets and

being able to now have a better picture of that capability. The operations community is very excited about where we are.

Media: A quick question on the EELV competition. Tony Capaccio, Bloomberg.

You have 21 of 24 launches in the FYDP were competitive this year. Can you compare that with last year's plan and what accounts for the interest?

Maj. Gen. Teague: I'd have to take that for record, Tony, with regard to comparison to last year's. I'm here to talk about the '16 budget. You're correct, there are 24 launches across the FYDP. We've got, starting with '16 there are three competitive here in '16, three competitive in '17, and then starting in '18 all of them will be competitive.

Media: 21 of 24 then --

Maj. Gen. Teague: I'll let you do the math in public. But your question?

Media: I was trying to get a bounding of this year.

The other question is this, did you move any block buy launch into the competition area when you swept out NRO 79 and put it in the block buy?

Maj. Gen. Teague: I can't address with regard to the specific decisions that were made with regards to NRO 79 and/or the decision process that worked up to that. I would just suffice it to say that we are satisfying the terms of the contract that we have with ULA while doing the best we can, or maximizing our competitive opportunities.

Media: One quick follow-up, maybe [inaudible] very close, very near to SpaceX verification. Eighty percent of the tasks were done by the end of December. Have those remaining 20 been accelerated or you're closing on those fairly quickly?

Maj. Gen. Teague: Again, Lieutenant General Greaves, SMC Commander, is personally meeting with Elon Musk and Gwen Shotwell, the SpaceX team, on a regular weekly basis. Again, the Air Force is committed great resources to achieve this SpaceX certification. We've got 150 folks in plant, $73 million have been invested so far on behalf of the Air Force. Folks literally spending nights, weekends, holidays in plant working as hard as they can. This is real engineering work here. This isn't just a

paperwork exercise. This is hard work for, again, the benefit of our launch enterprise. We believe that they're on a path consistent with the announcement in December to achieve their certification by mid-year.

Media: By [inaudible] basically?

Maj. Gen. Teague: We're on a path to achieve, we believe, that SpaceX will be able to achieve certification by mid-year.

Media: Did the easing of the lawsuit, the settlement, did that help accelerate the certification process? The lifting of the lawsuit?

Maj. Gen. Teague: Anything to do with the lawsuit is under strict control from the U.S. court.

Media: [Inaudible]. I wanted to see if you could explain to us what the consequences are of the delays both [inaudible] program [inaudible]? And then if you could maybe sketch out your vision for the next [inaudible]. How closely can you run a competition? Can you do it on an accelerated basis given the [inaudible]?

Maj. Gen. Teague: Sure.

Media: [Inaudible].

Maj. Gen. Teague: I did talk a little bit earlier about that, but there has been no firm decision made yet with regard to what a future, if there will be a future competition or what that might look like. And towards that end, right now we have a contract with Lockheed Martin for SB's 1 through 8. We have money in the budget for two additional satellites beyond that. I haven't gone through the previous purchase in terms of what's in our procurement forecast. But the good news is that we've got a constellation that's healthy today, but we are certainly mindful of, and the increased warfighting capabilities that are needed to be able to take advantage of the GPS signal, the improved signal strength that the GSP 3 satellite will bring. So we're looking forward to getting that system on orbit.

That said, we're also carefully managing the OCX program. Again, it's received a lot of attention over time because of the development problems that have been experienced so far. We've conducted a number of reviews recently to ensure that that program team frankly delivers. To ensure that we've got a firm foundation that the program can now develop on, excuse me, continue to develop and be able to proceed in an orderly

transition through delivery of Block 0 and Block 1. Of course Block 0 is tied to, if you will, the launch and checkout capabilities for the GSP 3 satellite, so our near term focus is getting Block 0 delivered and then we'll, of course, transition from there.

I think it's important to remember while we've seen developmental challenges for both the GPS 3 system and its navigation payload as well as the OCX ground system, we are, especially with the OCX system, we are pushing for the first time a ground system that will be the most hardened information assurance system ever delivered by the Department of Defense. The 8500.2 information assurance controls are very very complex, they're very robust, and they will provide an assured environment for the control of this system that services the world. We've got to have those kind of protections in place and I think that the contractor has a good understanding now of what's going to be needed not only from a systems engineering and foundational aspect but that they will be able to go forward and continue to move the program forward and deliver.

The thing that we wrestle with, obviously, is making sure that our ground segments and our satellite timing is coordinated and remains in synchronization and that's always going to be a challenge for space programs.

Maj. Gen. Whelan: The industry that follows you is who delivered this capability. It shouldn't be lost that the life time of the satellites continue to exceed what we had asked for and so that capability has put us in the place where we do have the healthy constellation.

Media: You said you hadn't decided yet on whether [inaudible]. What plays into that? What will determine whether you do or do not have a [inaudible]?

Maj. Gen. Teague: Again, I mentioned earlier, but I think it's responsible and prudent with program management that we continually assess the capabilities of the industrial base to try to ensure, and this would be for all of our satellite programs, our space programs, to ensure that we are delivering the capabilities that we need when our operators and our warfighters need them, but to ensure that we also, that we're delivering them affordably, with resiliency. And so all of those factors come into a decision space that ultimately will shape the acquisition strategy if there is one with regard to what might go into a decision to move to a competition or a future competition or a future buy.

Media: Do you have to make that decision sometime in the first of this year to inform the ’17 budget? Is that the driving --

Maj. Gen. Teague: Yes. I think that there’s an attempt to continue to bring these issues forward and look at that in a systematic manner to determine what might, what the requirement might be. If you will, again, validating what that operational requirement is and then lay in a program plan from there.

Again, those elements still have to come forward and whether or not it’s going to necessarily influence the ’17 budget has not yet been determined.

As I mentioned previous, before you came in, there is procurement funding in the budget today for future satellites.

Media: Is there funding to have a competition? In your planning going out, where does the money come to actually have the competition?

Maj. Gen. Teague: Again, if we need to, we’ll address that at the time. Again, there hasn’t been a decision made with regard to whether or not we need to have a competition or not and if so, then we’ll address it at that time.

Media: You guys are pretty far along in the source selection for the NRO 79 mission. What did you learn from the bids you saw there that influenced your budget [inaudible] issues going forward?

Maj. Gen. Teague: Mike, anything associated with NRO 79 is source selection sensitive and I can’t comment on it.

Media: This year for the first time in at least three years there’s money for the ORS office, about $6 million. What changed in the Air Force’s thinking after zeroing it out the last couple of years?

Maj. Gen. Whelan: The commitment to the ORS office is the commitment we’ve had all along which is the ORS principles are the principles that we want to get beyond the ORS office into SMC. We had a methodology that we were following that effectively not everybody was satisfied with, and as we went forward and said hey, what’s the best way to move forward to get to those principles, to share those principles? The ORS office falls underneath SMC. If they’re there and they’re viable then they can continue to develop the systems they do under the ORS

principles and that can then feed through the different SMC offices. So we have right now ORS 4 which is the super stripey launch vehicle, or launcher, and then launching a weather satellite with the University of Hawaii, and then ORS 5 which is this Pathfinder for the SBSS follow-on capabilities. And what we'll be doing now is going through an evaluation of other satellite programs that can be housed within the ORS office. So that the money that's available now for the program office keeps them viable as an office and then we bring in the work that can benefit from the capabilities that they have and the dexterity they have in the ORS office. And some ideas are being worked through and I think some of the ideas in the trade space include the weather satellite follow-on, the SBSS follow-on. As capabilities that we can field through the ORS office.

Maj. Gen. Teague: And take advantage of the principles, the response principles that the ORS office embraces.

Media: So the [ideas] from that office would go to those programs, not --

Maj. Gen. Teague: They would be the ones that we were considering that ORS office would execute those. All that's going to go up through the process that we have, the review process and the XCOM that oversees the ORS office and that will be done over the course of the spring here. But there's opportunities that we're looking to --

Media: -- execute the SBSS follow-on or --

Maj. Gen. Teague: There's a potential for that, yes.

Media: [Inaudible] related to the top line. So in the, I believe the DoD overview or the Air Force overview, I can't remember which one we were [inaudible], but it mentioned that there was some sort of new accounting metric which you're tracking? Space budgeting things. And I'm wondering what that is, how it's useful, how it's different than the virtual [major] force programmings that we've had? What's included? And then as well, I'm sure on the top line trend, I mean obviously we only get to see white space, but can you give us a general sense, not just in '16, but through the FYDP of what the trend is going to be for space. So are we going to see any uptick commensurate with the rhetoric that we've seen about the need for addressing congestion?

Maj. Gen. Teague: To the procurement piece, there's been a new, if you will, the right -- 3021 is the category for procurement.

For space procurement. A new category has been created to specifically account for procurement of space hardware, space-related hardware. And with that I believe it has a five year appropriation with it which gives more flexibility with regard to executing contracts in terms of the appropriation life. And of course there's a separate accounting, if you will, for that. No increase in top line or anything associated with that. It's not, other than just an attempt to establish a separate procurement account specifically for space.

Regarding your question on overall space top line, I think that the department, and certainly there's been considerable review and prioritization with regard to what our investment priorities ought to be and consideration with other priorities not only within the Air Force as well as the Department of Defense. And so without having the specific numbers that you're referencing with me, just know that there's mindful discussion going on with regard to the threat environment as well as the critical capabilities that again space provides and foundational capabilities, and I think there's a good balance there that each year our department works tirelessly to ensure that we've got the right priorities that are balanced across all of the DoD's needs.

Media: Can we get those top line projections for the FYDP? I mean the programmatics [inaudible]. I'm just wondering, you do have [inaudible].

Maj. Gen. Teague: We can follow up with you separately.

Media: Also the Air Force in its [inaudible] was very, I think probably the most articulate service about the kill list risks if sequestration actually goes forward. You actually created a column of red numbers for how many JSF competitors, munitions, that would get terminated.

What is on the sequestration kill list for space?

Maj. Gen. Teague: Within the space, most of the capabilities that we have within our space budget are within either budget.

Media: Do any come to mind that, like maybe pushing [inaudible] or --

Maj. Gen. Teague: The only thing I would qualify in a sequestered budget, and I think it's important to note this because certainly General Hyten would have a very strong opinion here. From an O&M perspective, it is forcing some very very difficult choices on our operational commanders with regard to

their ability to operate and maintain the missions that they work so hard to execute. And I think that's a critical point.

As we look at what the potential sequestration impacts might be in terms of our investment accounts, again, there will have to be a prioritization re-review as directed by the Secretary of the Air Force to ensure that we, given whatever sequestration numbers or direction that might be there, that again our priorities are in line with the overall Department of Defense requirements and priorities.

Maj. Gen. Whelan: And I would echo that. The investment accounts we've looked at, and I think through prioritization you can see, we can find our way forward. But the toughest place is the operations and maintenance budget because it's relatively focused within Air Force Space Command were in the flying Air Force it covers a lot of things. In Air Force Space Command a lot of that is our contract support. Contract support at radar sites, contract support at light ground stations, contract support for a number of things that we do that is covered by this operations and maintenance. So tough decisions will be made on a number of those operational things which go everything from like I said, supporting ground stations to cutting the grass. All of that is paid out of the same type of money. So you have to find those balances and where you can take risk and where you don't. That will be the tough part of the sequester budget.

Media: I want to try the GPS 3 competition question again. If Lockheed had been doing well on the first set, would you be even exploring competition? I.e., what factor is a two year delay playing in when you evaluate the competition?

Maj. Gen. Teague: I think that's a fair question and certainly the two year delay that we experienced certainly has an impact. I mean it influences, just as the decision with regard to OCX. I mean again, we're trying to find a balance between capability, affordability and resiliency, right? Of all of our systems, whether ground or space. And we just can't, on programs that aren't executing you just can't continue to pour money into programs at end. And so we're mindful of what our budgets look like and what we can afford, but at the same time we're trying to understand, as it is with any system over time, you need to eventually evolve or upgrade or move up to the next generation of systems. So there's no magic formula for figuring out what that is. We are encouraged and again, as the question was asked earlier, we are encouraged by the capabilities and look forward to the capabilities that the GPS 3 system will bring, and so we've got to carefully balance and understand at the time, and as

we consider potential alternative acquisition approaches and providers, capability providers, what else might be out there from industry?

None of those other, we haven't gone out there, there hasn't been any release for solicitation or looking for additional capabilities. Again, that decision hasn't been made.

Media: -- pressure was the poor performance the catalyst for you reviewing the competition strategy. I.e., was this a case where bad performance Bosnia-Herzegovina the contractor [inaudible]?

Maj. Gen. Whelan: -- competition too.

Maj. Gen. Teague: Again, as General Whelan was just saying, a competitive environment always, we believe a competitive environment, the Secretary strongly believes in competition in any mission area, and it will always deliver more capability at a more affordable price. So we're mindful in trying to balance all of those competing issues into our decision making.

Media: [Inaudible] when they won, [inaudible] prefer to have a long term relationship with one contractor rather than [inaudible] competition. So it does [inaudible].

Maj. Gen. Teague: Again, Colonel Madden, that was -- I assume you're talking 2007, 2008 time frame when the GPS 3 -- Situations change. Programs change. And it comes back to the fundamental issue that our programs must execute. And we are across the board, across our space enterprise, we're focused on program execution and responsible program management oversight. And where there are issues -- And again, we live in very dynamic times, in a very dynamic industry and things change. Technology changes. Contractor industrial base relationships change. The world changes. So based on that, it's important that we continually assess where our programs are and what we need them to deliver in the future.

Media: But opportunity changes as well. How does the digital payload, the possibility of going all digital factor in?

Maj. Gen. Teague: It absolutely does. As you look at whether it's a GPS satellite, whether you look at potential new protected wave forms for the MilSatcom enterprise, whether you look at wide field of view, staring, focal plan arrays for the OPIR, electric propulsion for rocket engines, excuse me, for satellite vehicle maneuvers. All of those reflect a changing technological advancement of capabilities, which is great for our nation. It's

great for our space enterprise. And we have the job of determining all right, hey, what's the best point in which you either move on to a different block, if you will, or a different system, and/or continue to evolve the existing system that you might be on.

So I've given you several examples there across several different programs, across the space portfolio. We're just trying on a case by case, program by program basis to try to be able to understand what that current state is and then plan forward as we look at what the future might look like to make sure that our space forces have the most modern and capable systems that they will need to do their job.

Media: The budget included funds to [inaudible] the launches, DMSP 20. Is that going to be a competitive launch?

Maj. Gen. Teague: DMSP 20 is in the '16 President's budget. There has been no determination made yet with regard to the launch and how it will be launched. We need to bring those plans forward.

Media: One quick question on SBSS. The acceleration of the program, how much of an acceleration is that for launch? Does that mean a [inaudible] release of [inaudible]?

Maj. Gen. Teague: About two year.

Maj. Gen. Whelan: We're moving that from 2023 to about 2020.

Maj. Gen. Teague: It's about two to three years.

Maj. Gen. Whelan: To close any gap between the mean life expected with the SBSS to the SBSS follow-on. So because industry has done such a wonderful job in delivering capabilities that go longer than projected, the 2017 date is not a hard date. And then the 2020 date is a target date. If we can close that we have no gap. So we have a, with good risk analysis we see that as a good way forward. We also have the ORS 5 prototype, or Pathfinder I think is -- And it will have a residual operational capability. We always use those things to enhance our knowledge and support our missions area, so if we have to rely on this Pathfinder to fill a gap, we have that too. So we're pretty confident that there won't be any unreasonable gap in our SSA mission coming from SBSS.

Remember we also have the GSAT that Roger talked about already on orbit. We have the ground-based SSA sensor. So our architecture

uses multiple methods and multiple domains to cover down on each other so that we have a greater understanding of the space picture.

Media: I wanted to ask you a much bigger picture question. The Obama administration [inaudible] in terms of [inaudible] warfighting needs and strategies, and there's been a move to try to push for more procurement [inaudible] bases. Yesterday, earlier this week the [inaudible] kind of made a new policy shift as well, [inaudible]. To what extent, as you're looking in the architecture going forward, are you planning or counting on coalition approaches to space [inaudible]? Is there [inaudible]? To what extent [inaudible]?

Maj. Gen. Whelan: On the operational side we're continuing, as I said in the opening comments -- I'm sorry, that's right, you may not have heard that. But in the opening comments that international partnership continues to be an area that we're pushing. I continually support a number of international engagements with U.S. STRATCOM and OSD policy. There's SSA sharing agreements with ten other nations right now where we're sharing the data, and a number of industry partners. And that's continuing to grow.

And as I visit these international partners, they're struggling to grow their space cadre, if you will. And so we're continuing to work with them and finding those places of inflection so that our allies can grow their Ministry of Defense space cadre to build up so they can inform not only the operations side but what types of capability they should buy.

We have a fairly robust space cadre in the United States and we're kind of well in front of our UK, Canadian, Australian allies and others. But all of them are investing strongly, they participate with us on a regular basis, they exercise with us. We're just not as matured as you might see like in the air environment where they bring a big capability. They do the best they can and they're continuing to grow and we're trying to help --

Media: I was asking specifically about procurement. The programs are expensive. So to what extent can you defer the costs by sharing it among [inaudible]?

Maj. Gen. Teague: A couple of great examples that we've seen work very successfully is the Advanced EHF program. You've got investments by NATO partner nations as well as WGS where the Australians have bought into I believe it's WGS 6.

Media: [Inaudible] WGS 9.

Maj. Gen. Teague: I believe that's correct, yes.

Media: So are you looking at [inaudible]?

Maj. Gen. Teague: We're always looking as General Whelan indicated, we are always looking for opportunities for international cooperation, participation and investment. I think again, some other great examples in terms of our SSA architecture, the intent is to be able to bring in and share space situational awareness products and data with signatories to these agreements, these agreements that are critical. So we're seeing the kind of investment and understand that there are limits that partner nations, they have limits too. But at the same time the commitment is real and you see that through the participation in many of these exercises and many of these agreements that we've really seen quite a bit of growth in over the last few years.

Media: You mentioned that you're doing technology maturation risk reduction on the RD-180 replacement. Can you give some specific tangible examples that a liberal arts major could understand of that work? And why does the Air Force need to do that work when you're planning to have commercial firms provide the launch vehicles?

Maj. Gen. Teague: The Air Force under Executive Agent for Space responsibilities and for our national security space architectures, we hold the responsibility of the important mission area for launch of our national security space assets. And so it's important that we lead. And certainly I think the team under Lieutenant General Greaves is doing a great job towards that end. And as I indicated, our acquisition strategies with regard to the risk reduction activities that are going on, I can't get into some of the specifics with regards to the key technologies that are currently being demonstrated. We can certainly follow that up for you.

But it's important that we do this foundational work now. This is the seed corn for us that's going to allow us proof of concept, proof of design, test and then be able to take that and understand on a case by case basis as you've got potential entrants, new entrants, new providers into our launch industry, that we're able to work on a case by case basis with each of them to understand you know what those time lines might be, how mature their particular solution is technologically, and then try to

align that with ultimately the direction of the Congress as well as our national security space objectives.

Moderator: That's all we have time for this afternoon. Thank you General Teague, General Whelan, for joining us today. If you have follow-ups, see me afterwards, shoot me an email, give me a call.

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