

MANAGEMENT OF AIR TRAFFIC CONTROLLER TRAINING CONTRACTS

HEARING

BEFORE THE

SUBCOMMITTEE ON FINANCIAL AND CONTRACTING
OVERSIGHT

OF THE

COMMITTEE ON
HOMELAND SECURITY AND
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

ONE HUNDRED THIRTEENTH CONGRESS

SECOND SESSION

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TUESDAY, JANUARY 14, 2014

U.S. SENATE,
SUBCOMMITTEE ON FINANCIAL AND CONTRACTING OVERSIGHT
OF THE COMMITTEE ON HOMELAND SECURITY
AND GOVERNMENTAL AFFAIRS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:34 p.m., in room SD-342, Dirksen Senate Office Building, Hon. Claire McCaskill, Chairman of the Subcommittee, presiding.

Present: Senators McCaskill and Johnson

OPENING STATEMENT OF SENATOR MCCASKILL

Senator MCCASKILL. Good afternoon. I apologize for being a few minutes late. We just finished our weekly caucus, and as usual, it was rainbows and unicorns. Just kidding. It was contentious and difficult today, so we went over a little bit.

This hearing will now come to order. We are here today to review the Federal Aviation Administration's (FAA) management of the Air Traffic Control Optimum Training Solution (ATCOTS).

ATCOTS is an important contract because it supports the training of this Nation's air traffic controllers, who, in turn, manage the Nation's air traffic, a critical service. In the next few years, we expect to see more and more retirements from the generation of air traffic controllers that were hired after the 1981 strike. At the time this contract was awarded in 2008, the FAA had a goal to hire and train 17,000 controllers by 2015 in order to meet the expected demand. The FAA also wanted to improve training to meet the needs of the new NextGen air traffic control system.

In order to achieve this goal, the FAA awarded a contract to Raytheon to provide training to facilities across the United States in 2008. In 2010, 2 years into the contract, the Department of Transportation Office of Inspector General (DOT OIG) audited this contract and found significant problems. The contract was premised on certain parameters, that there were going to be 4,000 recruits to train and 159 sites to support. But within just a few months, those numbers had increased dramatically, to 5,620 recruits at 195 sites. The cost of the contract had skyrocketed, and FAA was in danger of running out of money under the contract.

The Inspector General (IG) had several recommendations for the FAA. The most important one was that FAA needed to figure out what training it needed and how much it was going to cost. Unfortunately, FAA failed to take the IG's recommendation to heart. In-

stead, FAA let the contract continue unchanged, racking up at least \$89 million in additional costs to the taxpayer. Finally, as warned by the Inspector General, FAA ran out of money a year early.

Again, FAA had the opportunity to follow the IG's common sense recommendation to figure out what training it needed. Instead, FAA decided the best course of action was to exercise the contract's option period early.

I wrote to the then-Acting Administrator Huerta in 2012, asking FAA to consider its plan carefully and to implement the Inspector General's recommendations by updating cost estimates, defining training requirements, and developing performance measures for the contractor as opposed to the inappropriate notion that the contractor provided their own performance measures, all basic elements of good contracting. But, FAA did not do this.

In 2013, the Inspector General released a second report about the ATCOTS contract. The Inspector General found that while there has been some improvement, FAA still has not figured out its training needs. In addition, it appears that FAA has managed to bring the costs of the contract under control only by cutting the amount of training provided by the contractor and instead relying on Certified Professional Controllers to fill the gaps. FAA has been unable to tell the Inspector General or this Subcommittee how much using these highly paid government employees had added to the costs of training new air traffic controllers.

In addition, more than 5 years and \$512 million later, the FAA has not achieved any of the three critical goals of the original ATCOTS contract: Reduce training costs, reduce training times, and bringing training innovations.

Today's hearing is about learning from the past mistakes, fixing problems, and moving forward. I want to spend some time having a discussion with the Office of Inspector General, the FAA, and Raytheon in order to understand how these problems came about and why they have not been addressed earlier. I want to learn what both the FAA and Raytheon are doing right now to get this contract back on track and what is being done to try and achieve some of the initial goals of the contract.

I also want to understand what the FAA is doing to better manage and oversee its contracts. This is especially important because I understand that the FAA may start the acquisition process on a new training contract later this year. I want this Subcommittee to be satisfied that FAA has learned its lesson and will not make these mistakes again. I want to know that the FAA is taking concrete steps to address deficiencies, is committing to making smart contracting decisions, and will ensure that its own acquisition policies are actually followed. I do not want to be here in a year's time having the exact same hearing again.

Congress and the American public have entrusted the FAA with taxpayer dollars and trust them to maintain the safety of our airspace. Just this weekend in my State, a plane mistakenly landed on the wrong airport in Missouri, coming dangerously close to the end of a runway that was too short for the aircraft in question. While there is no evidence of a connection of what we are exploring here today and what happened in Missouri, it is hard to under-

stand how the air traffic controllers allowed a Southwest Airline—and we are not talking about a small general aviation aircraft, we are talking about a domestic carrier of American citizens—how they allowed them to land at the wrong airstrip, at the wrong airport, on the wrong runway.

It is a timely reminder of the need to ensure that the resources we spend on air traffic safety are spent effectively, and that if we do not have enough in the contract to adequately train our controllers, that we confront that rather than continuing to renew contracts that have not been working or have not had the oversight that common sense dictates.

I thank the witnesses for being here and I look forward to their testimony.

Senator Johnson.

OPENING STATEMENT OF SENATOR JOHNSON

Senator JOHNSON. Thank you, Madam Chairman. You are correct. This is a very timely hearing. I appreciate you calling it.

I did read the Inspector General's report. It raised probably more questions than it answered, so I will certainly second your opening comment in terms of all the questions that you would like to have answered during the hearing.

One of the things I certainly did in reviewing this and getting ready for this hearing is just take a look at the reasonableness of the cost per training. Since 2009, the average cost—this is per the Raytheon contract—was about a little under \$20,000 per air traffic control trainee. It rose to as high as \$29,000, and in 2013 was about \$26,000. That is relatively high training costs. You can compare that to college education. So, based on that information, I do not know if that is appropriate or inappropriate in terms of the total expense. I want to understand exactly how the training occurs, who is doing it, how much is done by the FAA, how much is done by Raytheon, what the breakdown is, how intensive this training is. So, I just really want to understand the complete training process.

I am certainly looking forward to the testimony. I am hoping that is the kind of information I certainly get out of this hearing. But, again, I certainly thank the witnesses for coming here and being willing to testify and look forward to your testimony.

Thank you, Madam Chairman.

Senator McCASKILL. Let me introduce the witnesses today.

First, we have Mary Kay Langan-Feirson, who is the Assistant Inspector General for Acquisition and Procurement Audits at the U.S. Department of Transportation, Office of Inspector General. In this capacity, she oversees audits relating to the Department of Transportation acquisition and procurements, including direct contracts and contracts awarded by grantees. Prior to joining the Office of Inspector General, Ms. Langan-Feirson worked in the Department of Transportation's Office of General Counsel for 30 years.

Patricia McNall is the Chief Acquisition Officer and Deputy Assistant Administrator for Finance and Management at the Federal Aviation Administration, and I will say with a sense of a humor, obviously the person who got the short straw at the FAA. I will say

on the record, I am disappointed—not that I am not thrilled to have you, Ms. McNall, but I think the person who should be sitting there should be the person who has oversight of this program. They declined to attend this and sent you, and that—I will give you a chance to address that when you testify, but I do not think you are in a position to know as much about this as we need to know and it is disappointing, but I will tell you candidly in this particular area, I was not shocked when I heard that you were being sent in terms of getting the short straw.

In your outstanding 30-year FAA Career, you have served in various positions, including Acting Deputy Assistant Administrator for Policy, Planning, and International Aviation, and Deputy Assistant Chief Counsel for FAA's Technical Center. Prior to assuming your current position, you were the FAA's Assistant Chief Counsel for Acquisition and Commercial Law.

Lynn Dugle is a Vice President at Raytheon Company, and President of Raytheon Intelligence, Information, and Services, a position she has held since 2009. Before joining Raytheon in 2004, Ms. Dugle held officer-level positions with ADC Telecommunications and began her career at Texas Instruments.

I thank all three of you for being here. It is the custom of this Subcommittee to swear in all witnesses that appear before us, so if you do not mind, I would ask you to stand and take the following oath.

Do you swear that the testimony that you are about to give before this Subcommittee will be the truth, the whole truth, and nothing but the truth, so help you, God?

Ms. LANGAN-FEIRSON. I do.

Ms. McNALL. I do.

Ms. DUGLE. I do.

Senator McCASKILL. Thank you all very much.

We will be using a timing system today. We are not sticklers about that, but we will ask you to try to keep your testimony to 5 minutes. Obviously, you are welcome to supplant your oral testimony today with any other information you would like to have us put in the record concerning our hearing topic.

And we will begin with you, Ms. Langan-Feirson.

TESTIMONY OF MARY KAY LANGAN-FEIRSON,¹ ASSISTANT INSPECTOR GENERAL, ACQUISITION AND PROCUREMENT AUDITS, OFFICE OF THE INSPECTOR GENERAL, U.S. DEPARTMENT OF TRANSPORTATION

Ms. LANGAN-FEIRSON. Chairman McCaskill, Ranking Member Johnson, thank you for inviting me here today to testify on FAA's Air Traffic Control Optimum Training Solution contract. The \$859 million contract was intended to provide up to 10 years of support to train approximately 17,000 air traffic controllers, most of whom FAA planned to hire over the next decade.

In September 2010, we reported several contract weaknesses that challenged FAA's efforts to effectively manage the ATCOTS program. FAA has made progress in addressing many of the weaknesses we identified. However, more than 3 years after that report,

¹ The prepared statement of Ms. Langan-Feirson appears in the Appendix on page 31.

FAA has yet to address our most important recommendation, which is to clearly define controller training requirements and determine whether they can be achieved within the existing cost baseline of \$859 million.

Specifically, we recommended that FAA update its training requirements and develop criteria for determining whether the agency should exercise contract options beyond the 5-year base contract. Despite our recommendation, the ATCOTS program experienced four consecutive years of cost overruns, totaling about \$89 million, due largely to FAA's lack of clearly defined requirements. In the first 2 years alone, contract costs exceeded negotiated values by \$46 million, and the contractor was required to provide far more training than FAA originally estimated.

As a result, FAA ran out of money in the fourth year of the base contract and was not prepared to make an informed decision on how to best meet its controller training program needs. Ultimately, FAA chose to exercise the contract's first option period a year earlier than planned without first clearly defining its training requirements or determining whether to exercise the option or take a different acquisition approach.

In our most recent report, released last month, we know that FAA has taken some steps to better assess its training needs. For example, FAA reestablished its use of an annual workplan to better identify training requirements. However, the plan still does not capture all of FAA's training needs, including training on new air traffic controller systems, such as the En Route Automation Modernization (ERAM). If FAA does not clarify and update its training requirements, the ATCOTS program remains at risk of cost overruns in the future.

During our recent audit of ATCOTS, we also identified contract management weaknesses that undermine FAA's ability to achieve its training goals. For example, FAA has not used its award fees or incentive fees to manage the contract effectively. One of the FAA's key training goals is to reduce training times, but the award fee performance measures have not been adequately linked to this goal, an issue we first reported in 2010. Between fiscal years 2009 and 2012, controller training times actually increased by an average of 41 percent, taking 9 months longer, on average, to certify each controller. Over the life of the contract, FAA paid the contractor over \$17 million in award fees for performance measures that did not effectively motivate the contractor. FAA also paid \$14 million in incentive fees despite 4 years of cost overruns. This is counterintuitive to the concept in use of award fees.

In its response to our 2013 report, FAA announced that its goal is to award a new contract to replace ATCOTS as early as fall of 2014. To avoid repeating the problems with ATCOTS, it is crucial that FAA address our recommendation to clearly define its training requirements and decide whether it needs to rebaseline before awarding a new contract. We will continue to monitor FAA's progress in implementing our recommendations and provide this Committee, the Secretary, and FAA with future updates on the program.

This concludes my prepared remarks. I would be happy to answer any questions you may have.

Senator McCASKILL. Thank you very much.
Ms. McNall.

TESTIMONY OF PATRICIA McNALL,¹ DEPUTY ASSISTANT ADMINISTRATOR, ACQUISITIONS AND BUSINESS SERVICES, FEDERAL AVIATION ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION

Ms. McNALL. Good afternoon, Chairman McCaskill and Ranking Member Johnson. I am Pat McNall, the FAA's Acquisition Executive, and I am responsible for the agency's acquisitions. I appreciate this opportunity to speak with you today about the FAA's Air Traffic Controller Training Contract.

The FAA's mission is to ensure the safest, most efficient airspace system in the world, but we are also committed to cost effectiveness. The taxpayer expects and deserves nothing less.

In 2005, the FAA projected the need to hire 17,000 controllers by 2015. This unprecedented level of hiring and training was necessary to replace the large number of expected retiring controllers and meet projected increases in air travel demand. To manage this large training effort, the FAA proposed replacing two existing level of effort contracts with a single centrally managed performance-based contract. Simply put, this means we were removing and transitioning from existing contracts where we specified the number of instructors and the method of providing the training to a new contract that would specify the number controllers to be trained, plus or minus 10 percent, allow the contractor to determine the best means of training these controllers, while we measure its effectiveness and ability to do so according to pre-set metrics.

In September 2008, after running a full and open competition, the FAA awarded the contracted titled the Air Traffic Control Optimum Training Solution contract, to Raytheon Technical Services Corporation with a ceiling value of \$859 million. In the early years of the contract, however, we encountered significant challenges and costs. We underestimated the difficulty in transitioning from level of effort contracts in place for over 20 years to the new performance-based ATCOTS contract. We reverted to the methods we knew had been working in the past. Our training needs, both in the number of students and the technology for which we needed to provide the training, accelerated faster than we anticipated. We incurred a substantial cost, accordingly.

We have taken significant steps to improve our management of the ATCOTS contract. I would like to highlight a few of these steps. The FAA provided increased management attention and requirements control by consolidating all training under the FAA's Air Traffic Organization Vice President for Safety and Technical Training. Additionally, we imposed an award fee structure that motivates the contractor to control costs. We implemented a new training planning tool to better define and control our dynamic training needs. We developed guidelines to monitor required performance standards and expected outcomes for the contractor, and we hold our oversight staff accountable for overseeing these stand-

¹ The prepared statement of Ms. McNall appears in the Appendix on page 41.

ards. These changes are improving our oversight, management, and administration of the ATCOTS contract.

We appreciate the Office of Inspector General's audit of the contract. We are confident that the measures we have taken, which fall in line with their recommendations, will allow us to stay on track for the remainder of this contract.

The FAA recently issued a market survey and request for information as the first step to a possible replacement of the ATCOTS contract. If we proceed with this procurement, we will replace the contract before the end of this calendar year. Whether we replace it or not, I am confident that we will continue to provide quality air traffic control training.

The training of air traffic controllers will continue to be a critical need for the agency. We estimate that we will need to hire 11,700 controllers by the year 2022. In order to maintain safety and handle the high volume of air traffic, we need to maintain a steady hiring and training rate through this time. Our ability to do that, however, has been challenged by decreased funding, including the sequestration. All training courses at the FAA Academy were canceled since sequestration was implemented and have only resumed this month.

The FAA was also unable to hire any new air traffic controllers and will have to now accelerate hiring, budget permitting, to ensure that we have a sufficient number of controllers. This increased rate of hiring will bring with it increased training requirements beyond what we predicted for this coming year.

Whenever we face uncertainty about hiring and funding, we face uncertainty about our training requirements. This makes it very difficult to predict, cost, and plan for the best and most effective cost effective contract we can have, but we remain committed to ensuring the safety of the National Airspace System and will not ever compromise safety, even in these uncertain times.

Ms. Chairman, this concludes my statement and I would be happy to take questions at this time.

Senator McCASKILL. Thank you very much.

Ms. Dugle.

TESTIMONY OF LYNN DUGLE,¹ PRESIDENT, INTELLIGENCE, INFORMATION, AND SERVICES, RAYTHEON COMPANY

Ms. DUGLE. Good afternoon, Chairman McCaskill and Ranking Member Johnson. I am Lynn Dugle, President of the Intelligence, Information and Services business of the Raytheon Company, the business which is the prime contractor for the ATCOTS program. Thank you for the opportunity to address the Subcommittee on Raytheon's management of the program, our ongoing efforts to reduce cost, and the new training innovations we can bring to the program.

Before I do so, let me provide some relevant context on Raytheon and our training. We are one of the world's leading providers of mission critical training solutions. We train more than two million people a year whose missions include national defense, U.S. intelligence operations, cybersecurity, and, of course, national airspace

¹ The prepared statement of Ms. Dugle appears in the Appendix on page 49.

management. In addition, our training solutions extend to critical needs in the commercial sector.

Raytheon is also one of the world's largest providers of air traffic management systems. Our systems control more than two-thirds of the world's airspace and our company is an active participant in the FAA's Next Generation program.

By way of starting, let me say that Raytheon agrees with the general conclusion of the IG report that progress has been made, yet much more work remains. Raytheon and the FAA have built a partnership that has addressed the agency's very dynamic training needs for more than 5 years. During the last year, we have accelerated those improvements, and now, we have a solid foundation to get future gains.

Let me now share my thoughts on the three topics that the Committee requested Raytheon to cover, management of the contract, cost reductions, and new training innovations or transformation.

The management of this contract was challenged from the start by those unexpected increases in cost and scope that were identified after the contract began. This included a hiring surge that resulted in a 40 percent increase in year one. There were also new training requirements for 700 of these new trainees. There were new air traffic control system modernization requirements, the ERAM that you mentioned, and new tower simulation needs.

Nevertheless, Raytheon responded to those challenges by training 20 percent more individuals over the 4-year period. We lowered the cost per student on Raytheon-delivered training by 6 percent, lowered the cost—decreased the controller failure rate by 12 percent. We shortened class durations at the Academy by 10 percent. And we achieved a 23 percent increase in the utilization of the complex and expensive tower simulators.

On the topic of cost reduction, Raytheon and the FAA are working together to maximize the training that can be delivered, can be accomplished, within the budget given. Let me cover some of the changes we have already made.

For the first time, FAA's field managers, onsite managers, are involved in deciding local training priorities, which will lead to more effective and more efficient training across the system. Their involvement was enabled by a new planning and execution tool developed by Raytheon at our own expense to assist with that planning. In partnership with the FAA, we have also implemented new workforce practices and scheduling efficiencies at the Academy that will reduce the fiscal year (FY) 2014 costs by an additional 5 percent. We have also reduced our Program Management Office by 20 percent, after working with the FAA to streamline contractual reporting requirements. This reduction will result in \$2 million of annual savings.

Let us shift to the topic of new training innovations. I, again, agree with the IG report that significant opportunities exist to further modernize training and reduce our cost. With support and approval from the FAA, we can implement innovations that will allow us to deliver high-quality training at a much lower cost.

Raytheon has provided numerous proposals and white papers outlining potential areas for important innovations. The biggest opportunity now before us is the implementation of the ATCOTS Cur-

riculum Architecture Project. This project created a blueprint for the systematic modernization and transformation of air traffic controller training by identifying the best training mechanisms, methodologies, and then how to best sequence the training to avoid any duplication. We have also presented and shared other opportunities with the FAA, such as Virtual Classroom Training and the implementation of remote training for the Air Traffic Basics Course, both of which I discussed in more detail in my written testimony.

I would like to conclude by emphasizing that significant progress has been made over the past year in a very complex, challenging, and critically important program. Raytheon and the FAA have established a solid foundation for future performance gains and future cost reductions. I believe Raytheon has the program knowledge, the transformational training capabilities, and the larger air traffic management domain experience to continue to collectively support the FAA and meet the training needs of our air traffic control professionals.

Thank you very much for the opportunity. I look forward to answering any questions you may have.

Senator McCASKILL. Thank you, and once again, I appreciate all of you being here.

I would ask each of you before we begin questioning, if you would, to try to assign a grade to the management and oversight of the ATCOTS contract. Ms. Langan-Feirson, what grade would you give it?

Ms. LANGAN-FEIRSON. An incomplete.

Senator McCASKILL. Ms. McNall. That was kind. Ms. McNall.

Ms. McNALL. I am inclined to agree. Actually, I would also point out, I think the grade has changed over time, all right, so I would say we started off with a C, at best, and then it progressed to a B.

Senator McCASKILL. OK. And Ms. Dugle.

Ms. DUGLE. I think on the management of the program and meeting our budget constraints, none of us would be pleased with our grade. I think on the quality of the training delivered, I would give us a much higher grade. I also would warmly embrace the idea that we have improved through time, improving more and more as each year has progressed.

Senator McCASKILL. I know that the FAA has implemented some of the recommendations from the initial audit, though. I think the thing that is hardest for me is, as was mentioned in Ms. Langan-Feirson's testimony, it did not implement the most critical recommendation, which is to assess your training needs and figure out what you want. That is the most important thing in contracting in government, is to know what you want. You cannot get a bargain if you do not know what you want. You cannot, frankly, adequately oversee a contract unless you know what it is you are actually acquiring, what you want, and how much it is going to cost. And it is still unresolved. Can you address that, Ms. McNall? Why is this so hard to figure out what you want and what it is going to cost?

Ms. McNALL. Yes, ma'am. Actually, let me explain a little bit about the training process. It is a very dynamic situation. The piece that is actually in many ways the easiest, and if I do a new contract it is easy enough that I am even thinking maybe we can fix

price to work, is when we hire controllers, we bring them to the Academy and they provide a very basic FAA air traffic controller training, all right. That is the first step of the training process. That, at least I know I am hiring X-number of people. They are going to come into a class and the class is going to be conducted roughly like this, absent any training innovations.

From there, they go to an air traffic control facility, all right, and they are going to get some additional training at that facility. This is where it becomes a very dynamic situation. Although we know we have a bow wave of retirements coming, because we have a mandatory age cap by which controllers must retire, and as you know, we had to hire a great number of controllers all at one particular point in time, which means they are more or less going to be retiring at the same time—because of that, we know we need to hire a lot. We know we have to train a lot.

But I do not know ahead of time which specific controller is going to retire at which specific facility and what position that controller is on. For the FAA air traffic controller training, it has to be, when you get to the facility level, unique not only to that facility, but unique to that particular position that the controller is on. We predict as best we can, and we have developed a training tool with Raytheon that we have implemented with our field that now involves a rolling process that we know with a fairly good place, at least 30 days ahead, 60 days ahead, and 90 days ahead, what we think that training will be that we can then pinpoint and identify.

Once the controller candidate, so to speak, graduates and changes that applies not only to new trainees, that applies to existing controllers who may need to be trained. If they are going to change positions, they need to be trained for the new position to which they are going to move. If they are going to change facilities, they need training for that new facility as well as the new position on which they are going to be.

At that point, the FAA takes over the training and we use our professional air traffic controllers to provide on-the-job training. On-the-job training accounts for about 75 percent of the total amount of training that our controllers go through. In fact, that is the majority of the cost of our training program.

Senator MCCASKILL. And how much is that training costing you?

Ms. McNALL. We provided some figures for the Committee and I can look it up again, but total cost is around \$250,000 per controller, approximately. That is total cost of both our contractor training and our own employee training.

Senator MCCASKILL. So, 75 percent of that is your employees?

Ms. McNALL. Or more, yes.

Senator MCCASKILL. OK. So, you are saying that 75 percent of \$250,000 is being done by your folks.

Ms. McNALL. In fact, I can provide that for the record, if you like. I do have some figures with me I can go through with you, if you like, on what our labor costs are for our employees to train you.

Senator MCCASKILL. OK. I will come back to this on the second round because I need to talk to my staff, because we discussed this and this is the first I have heard this number and I want to go through it with them while Mr. Johnson is questioning you.

Ms. McNALL. Mm-hmm.

Senator McCASKILL. Why in the world would you go from 4,000 to 5,620 in the first year? How could the contract be that far off that soon, that close to the beginning of the contract?

Ms. McNALL. Yes, ma'am. Actually, we do not agree with that 5,600 number. I understand exactly where the number came from, or at least we think we do, but we cannot match it with our own records. The contract provided that the controller would, for each year, need to train about 4,000 controllers, and it said, plus or minus 10 percent.

Senator McCASKILL. Right.

Ms. McNALL. We do agree the number was higher, and by our calculations was around 4,500 to 4,600. I think, and doing it wrong. It is different data systems that collect the data that I think is helping lead to why there is a bit of a difference—

Senator McCASKILL. OK. Wait. Let us back up here.

Ms. McNALL. Mm-hmm.

Senator McCASKILL. So, you are telling me that you are paying for training for these people and you are not even sure and cannot articulate why the IG would say there was 5,620 and you are saying there was 4,500?

Ms. McNALL. No, I can definitely articulate that. The 5,600 was Raytheon's number, which we believe includes all people initially put into the class, whether or not they graduated from the class or washed out. It includes training that we would otherwise not necessarily have counted, all right. So—

Senator McCASKILL. Well, why did you pay them for it, then?

Ms. McNALL. Oh, one thing, it is a cost reimbursement contract and we treated it like a level of effort contract, and the way we should have is basically a performance-based contract. But they were successful in training this number of personnel, and we do agree—they did put in a request for equitable adjustment and at the end, we agreed they did train more than we expected. So, if you take the plus 10 or minus 10 percent, that makes 4,400 at the op side. We do agree they trained at least 4,500 to 4,600.

In addition, they had to do different kinds of training. There is a separate requirement which says that we can only vary by 3 percent the different categories of training and we varied more than that. So, some of the technology training was increased. Some of the training for controllers that are already trained but now need to be trained for new positions, that was higher than we anticipated, as well.

Senator McCASKILL. OK. So, you thought the most you were going to pay for was 4,500. You paid for 5,600, correct?

Ms. McNALL. I would—

Senator McCASKILL. Is that correct, Ms. Langan-Feirson, that they paid for 5,600 the first year?

Ms. LANGAN-FEIRSON. The numbers that we have are that FAA underestimated the number of controllers by 41 percent. There were 5,620 developmentals rather than 4,000 that was in the solicitation.

Senator McCASKILL. OK. So, here is the problem. You are paying a thousand over. Forty percent is the figure that they are using.

Ms. McNALL. Right.

Senator MCCASKILL. And what happened when that occurred? Were there alarm bells that rang? Did everybody get together and say, we have to look at this contract, we have to change some things and we have to figure out what our number is for next year, and so the next year, it got better?

Ms. McNALL. Yes, ma'am, we did—

Senator MCCASKILL. No, it did not. You still had major cost overruns the next year.

Ms. McNALL. Yes, we did, but the cost runs were less, not nearly—do not get me wrong, the cost overruns were still present and they were present for the third year, as well, and I am horrified by that, as well, all right. But, we started a positive trend, all right. We got our controls. I will tell you, honestly, the first 3 years of the contract, management in particular were very troubling. The fourth year, we got better. That is why I am saying we succeeded in our most important goal, which is getting air traffic controllers trained as needed and providing the quality of training that was needed. The problem was the cost control—

Senator MCCASKILL. Well, I think, there, the issue is that—even in this testimony today, there does not seem to be a clear explanation that can be articulated between the difference in what you contracted for and what you paid for, and it does not even appear that you agree that they were training—that they should have been training all the people they were training, based on the testimony you have just given, that they were doing training you did not even anticipate them doing.

And so you say it was a lot different in the second year, but my recollection is the first year, it was \$40 million over—or \$20 million over?

Ms. McNALL. No, 20 over.

Senator MCCASKILL. The first year 20 over, and then the second year, was it not 20 over again?

Ms. McNALL. Not quite.

Senator MCCASKILL. It was \$29 million the first year and \$31 million the second year.

Ms. McNALL. I will be happy to double-check those numbers for you, with you and confirm back. The issue we had that was—keep in mind, the difference between a level of effort contract or our contract where I am paying per controller, which was an idea we originally contemplated, but the IG appropriately pointed out to us would not be appropriate, it is a performance-based contract. So, we are not training per controller. We are training the volume of controls, whatever that amount might be, so long as it is within 10 percent of 4,000, right. Above that, we recognize, yes, where the contract is entitled to an equitable adjustment, as well as if the mix changes of controllers beyond what we anticipated, and we agreed, that mix also did change. It did entitle the contractor to an equitable adjustment.

One of the things we did that first year, for example, on the incentive fee, they only got their minimum fee. They got nothing more than that.

Senator MCCASKILL. OK. All right. Let me let Senator Johnson ask, and then I will come back and followup.

Ms. McNALL. Mm-hmm.

Senator JOHNSON. Let me use a little accounting lingo here. You have a price variance and you have a—

Ms. McNALL. Yes.

Senator JOHNSON [continuing]. A volume variance. It sounds to me like the problem with the contract was a volume variance. You had to train more air traffic controllers, is that accurate?

Ms. McNALL. That is largely accurate, and the only reason why I am hesitating at all is one of the things the FAA did was require this contractor to mirror the level of services being provided by the prior contractor without first evaluating, were all of those services the prior contractor had providing needed. We just told the contractor, go out, every facility at which our prior contractor was at, provide at least that amount of staffing. While we were running the procurement, which in this case was a little bit longer process than normal, that prior contractor was continuing to expand the sites at which they were present and providing training. In fact, that grew, although it was known within the agency—

Senator JOHNSON. So, you had training overlap between two contractors, which—

Ms. McNALL. Yes.

Senator JOHNSON. OK.

Ms. McNALL. Three contractors, in fact, since we were replacing—

Senator JOHNSON. Let us just back up—

Ms. McNALL. Right.

Senator JOHNSON [continuing]. Because, I mean, I am new to this whole issue. Can you give me a little bit of history of training in the air traffic control system? For example, after the professional air traffic controllers organization (PATCO) strike, we had to hire a lot of people. We had to train a lot of people.

Ms. McNALL. That, we did.

Senator JOHNSON. Was that done internally, on-the-job training? Was that done with an outside contractor?

Ms. McNALL. It was done with the help of an outside contractor, just as it is today. For approximately 20 years before this contract, all right, we started off with training at our Academy in Oklahoma City. The Academy in Oklahoma City contracts, and at that point, they were contracting with Oklahoma University to provide training at the Academy. So, that was the starting point. That was the same up until we competed and Raytheon won the contract.

Senator JOHNSON. So, prior to that, you were actually contracting with a university to do the training?

Ms. McNALL. Yes, at FAA's facilities. So, it is not like we were sending them to college or university.

Senator JOHNSON. Who would be the other potential competitors for this contract, other universities? Other private sector businesses?

Ms. McNALL. Yes to both, because Oklahoma University was only providing Academy training, which was sort of the initial basics course at this one facility. We hired potential air traffic controllers. They take a test so we can determine, are they likely to be good air traffic controller candidates. If they pass that test, we hire them. We send them to the Academy to begin their training.

From there, we send them to the facilities where we think we are going to need the personnel, all right. Again, that is an estimate, because we do not know exactly who is going to retire when. But, based on statistics and historical patterns——

Senator JOHNSON. OK.

Ms. McNALL [continuing]. We do our best guess. At the field, a private sector contractor takes over, historically, a separate contractor. It was a small business company, Washington Consulting Group, held that contract for many years.

Senator JOHNSON. How many different air traffic control positions are there? I mean, how many different classifications of air traffic controllers are you training for, approximately?

Ms. McNALL. I——

Senator JOHNSON. I mean, is there just one kind of air traffic controller, or——

Ms. McNALL. No.

Senator JOHNSON [continuing]. Are there 10? Are there 30?

Ms. McNALL. No. The reason I am hesitating—I will promise I will get back to you for the record with a better answer. I can tell you that we have over 15 levels of facilities, so that is——

Senator JOHNSON. That was my next question.

Ms. McNALL. OK.

Senator JOHNSON. OK. So you have 15 different types of facilities.

Ms. McNALL. No, 15 levels. OK. I will back up a little bit further.

Senator JOHNSON. Because, then I was going to say, different types of equipment configurations. I am trying to get——

Ms. McNALL. Right.

Senator JOHNSON [continuing]. My arms around the complexity of the training situation.

Ms. McNALL. Yes. Absolutely.

Senator JOHNSON. You have different sized airports——

Ms. McNALL. Different sizes of facility.

Senator JOHNSON [continuing]. Different sized towers, different equipment configuration, you have different——

Ms. McNALL. And not just towers, sir, if I may, respectfully.

Senator JOHNSON. OK.

Ms. McNALL. Right. We have towers. Then we have what are called Terminal Radar Control Facilities. They may or may not be located where the tower is. And then we have 22 route facilities across the country that handle air traffic. They basically handle different volumes of air traffic.

So, not only do we have the difference in facility size and the difference in equipment, the layout, et cetera, we also have different positions in that facility. So, one controller, for example, will only handle arriving air traffic. Another controller will handle only departing air traffic. Another controller will be watching, generally, out for field——

Senator JOHNSON. OK. So, let us go back. A number of different types of towers.

Ms. McNALL. Yes.

Senator JOHNSON. Are they all the same, or are there different configurations of that?

Ms. McNALL. They are all——

Senator JOHNSON. Pardon?

Ms. McNALL. They have very different configurations.

Senator JOHNSON. So, how many different configurations, approximately? I mean, are you talking about 100 different configurations? I mean, is each one—

Ms. McNALL. Each—

Senator JOHNSON [continuing]. Totally separate, totally unique?

Ms. McNALL. We have tried to standard the physical layout of the towers, but the physical layout of each airport tends to be a little bit different, which means there are changes for each airport, accordingly, right. If there is a mountain here, if there is a cliff there, right, that is going to alter the procedure. The air routes that the controllers have to guide the pilots along, those vary, as well.

Senator JOHNSON. OK.

Ms. McNALL. And, in fact, we have a variety of different air routes that go into any one facility. In fact, and then what air route can be used depends on the equipment of the aircraft, and the controller has to know and visualize within their mind not only where is that aircraft, but which route can I give this aircraft based on the training of the pilot from that aircraft as well as the equipment onboard the aircraft.

Senator JOHNSON. OK. So, the bottom line here, without getting—

Ms. McNALL. Mm-hmm.

Senator JOHNSON [continuing]. Spend a lot of time on the detail, which I—

Ms. McNALL. Sorry.

Senator JOHNSON [continuing]. Would be glad to get into at some point in time, but the bottom line is there is a great deal of complexity—

Ms. McNALL. Yes.

Senator JOHNSON [continuing]. In trying to anticipate over a 10-year contract what those training requirements are going to be.

Ms. McNALL. Exactly.

Senator JOHNSON. Is that at the core? And I will ask all three of you to comment, because, to me, just writing down, well, you have to define the training requirements, well, yes, of course.

Ms. McNALL. Right.

Senator JOHNSON. But then, all of a sudden, you realize, defining the training requirements is unbelievably complex and it is very hard to anticipate. I mean, is that—

Ms. McNALL. You are absolutely right, Senator.

Senator JOHNSON. Does anybody want to disagree with that?

Ms. LANGAN-FEIRSON. I would say—

Senator JOHNSON. Or chime in?

Ms. LANGAN-FEIRSON. I would agree. It is a very complex task. I would also say that the FAA has been training controllers for a very long time and it is a very important task.

Senator JOHNSON. Ms. Dugle.

Ms. DUGLE. And all I would answer is that one of the steps that we have taken is to actually create a very simple tool, but a very powerful tool, that takes that complexity, decomposes it, puts it into an automated spreadsheet where all of our then-on-site train-

ers—we talked about coming from headquarters predicting and scheduling training out onto the site. We then take that each month, analyze 30 days of history, we look at our current 30 days, and then we do the forward planning that——

Senator JOHNSON. So, Raytheon does its 10 to 25 percent—I am looking at 25,000 versus 250 and I am saying that is 10——

Ms. DUGLE. Yes——

Senator JOHNSON [continuing]. But somewhere in that 10 to 25 percent of the training, you do that on the very front end and then——

Ms. DUGLE. We do that now on a continuous basis.

Senator JOHNSON. But, I mean, in terms of the cycle of an air traffic controller. I mean, are you primarily handling the first year of training of an individual, and then it gets turned over to on-the-job training with FAA personnel?

Ms. DUGLE. It would be approximately a year. So, we do the Academy training. We then do the onsite training and then we transition to the FAA for the actual on-the-job training. So, we handle two of the three components.

Senator JOHNSON. So, we can criticize the FAA for not having defined this training requirement. How critical are you of that? I mean, are you actually pretty sympathetic with the complexity of it, or do you think there could be just a far better job, even within the complexity, that we can always do a better job, but——

Ms. DUGLE. I think we can always do a better job. What I will say, this program came under my responsibility in April and I became a student of air traffic control training. I never had any appreciation for the level of complexity. So, you have the individual component——

Senator JOHNSON. Are you asking for reassignment yet, or——

Ms. DUGLE. Yes, that is right. [Laughter.]

Ms. DUGLE. I do not think I could pass the training, quite frankly. But when you put the variables—and I am from an engineering background, right, so to get a consistent answer, I have to have so many known variables in an equation. When I put in the personal talents, we screen candidates coming in, but this is a very complicated job. Not everyone can do it. Then we have all the factors that Pat talked about. So, I am——

Senator JOHNSON. Let me go over time just a little bit, just because this ties in. How much remedial training are you on the front end having to do just because the applicants coming in, yes, they have a degree, but there are just deficiencies and you have to bring people up to speed in terms of whatever our education system should have done?

Ms. DUGLE. So, probably the best factual indicator of that is our fallout rate. When we assumed responsibility for training, that failure rate was 29.5. Over the time period, we have reduced that to 17 percent. I think in this kind of training, you would always run in some level of double-digits because you just absolutely cannot screen all the temporal and visual talent.

Senator JOHNSON. So, the reduction really is better screening, better application process, better hiring procedures, and that would be——

Ms. DUGLE. Well, and——

Senator JOHNSON [continuing]. On your part or on FAA's part?
 Ms. DUGLE. And on our ownership, constantly improving that training, right, modernizing the techniques so that people are better able to digest and retain knowledge.

Senator JOHNSON. OK. Thank you. Sorry for going over.

Senator MCCASKILL. No, it is no problem.

Ms. McNall, the \$250,000 figure that you cited in your testimony a few minutes ago, that is the first we have ever heard that number.

Ms. McNALL. I apologize.

Senator MCCASKILL. Well, you know, we have been at this since 2010.

Ms. McNALL. Yes.

Senator MCCASKILL. I have been writing letters. We have been trying to communicate with you and your agency. Now, we got some spreadsheets, finally, on Friday—

Ms. McNALL. Yes.

Senator MCCASKILL. and Ms. Langan-Feirson, I am not even sure if you have seen these, but we have on Friday, you finally gave us some information that says your Air Traffic Training Detail for fiscal year 2012 is \$359 million, is that correct?

Ms. McNALL. I believe that would be for the—if that is the sheet that shows the cost of FAA providing the training, I do not believe that sheet necessarily includes the contractor training.

Senator MCCASKILL. You do not know whether it does or does not?

Ms. McNALL. I hate to put it this way. I am trying to—from that sheet, that would be FAA cost only.

Senator MCCASKILL. This is FAA costs only?

Ms. McNALL. Yes.

Senator MCCASKILL. OK. And is there a reason why this was unavailable to us for years and we got it the Friday before the hearing? Would you not have this available?

Ms. McNALL. We do have that available. We have had that information available. I am sorry I did not know, at least personally. I, too, only joined this job fairly—well, 2011. Anyway, I did not know that you wanted that data, but, of course, we will be happy to provide that data—

Senator MCCASKILL. Well, let me just explain what we are trying to do here.

Ms. McNALL. Yes.

Senator MCCASKILL. We are trying to figure out if you know what this costs.

Ms. McNALL. Yes, ma'am.

Senator MCCASKILL. And we are trying to figure out if you know what it is you are buying.

Ms. McNALL. Yes.

Senator MCCASKILL. I get that what you are doing is complicated.

Ms. McNALL. Yes.

Senator MCCASKILL. But, at the end of the day, acquisition is about the people who know what they need buying it and having some idea what it costs.

Ms. McNALL. Absolutely.

Senator McCASKILL. So, you understand my concern that we would have two IG reports and we would have a lot of criticism about cost overruns, and for the first time at this hearing, we finally hear a figure about what you think it costs to train someone to be a functioning, well-informed, well-trained air controller, and the Friday before the hearing, we finally get numbers—do you have these numbers, Ms. Langan-Feirson?

Ms. LANGAN-FEIRSON. No, I do not.

Senator McCASKILL. Have you tried to get these numbers?

Ms. LANGAN-FEIRSON. In our report, we have—those—I do not know what those numbers are, but in our report, basically, one of the findings that we have is that the FAA is responsible for the on-the-job training. Raytheon is responsible for the Academy training and the developmental training, and then they get handed off for on-the-job.

Senator McCASKILL. Right.

Ms. LANGAN-FEIRSON. The point is that the contract costs are under the contract and there are other costs that the FAA incurs to train an air traffic controller. You need to put those two together to get the total cost.

Senator McCASKILL. Absolutely.

Ms. LANGAN-FEIRSON. And when we went into the field and we interviewed people in the field, we asked them whether they were capturing the costs for kind of the off-loading of the courses that Raytheon could not train because they ran up against the cost ceilings, were those being captured, those costs that the controllers were basically—

Senator McCASKILL. Absorbing.

Ms. LANGAN-FEIRSON. They were self-performing and absorbing.

Senator McCASKILL. Right.

Ms. LANGAN-FEIRSON. And we do not think that they are. We know that the FAA is basically capturing what they call OJT costs, which those probably are, but we did not see accounting codes that would then differentiate and kind of pull out those costs that were being self-performed that should have been performed or would have previously been performed under the Raytheon contract.

Senator McCASKILL. So, the issue here is this. Complicated training, but this is to try to simplify the problem we have. They cannot train, under the contract they have been given, do as much work as they need to be doing. You ran out of money. You had to start the option early, because you guys ran out of money, and you have cut staff by, what, 30 percent, that are doing the training?

Ms. DUGLE. At various points in the contract.

Senator McCASKILL. Yes. Well, you have had to cut staff because there is not enough money. So, that means that the agency is absorbing the costs of doing some of the training that Raytheon is not doing now. So, if you are going to recompetete this contract, you cannot do it unless you figure out what everything costs—

Ms. McNALL. Right.

Senator McCASKILL [continuing]. And have any hope that the amount you are paying for the contract is the right number. That is my sense of urgency here. I am very respectful that this is hard. But if you are not even attempting to capture your costs that you are absorbing because the contract amount is clearly not correct,

then all we are going to have is more of this ad nauseam in the future until you figure that out.

So, is the \$250,000 number one I can bank on at this hearing? Is that the number it costs to adequately train air controllers in the FAA?

Ms. McNALL. That is our best calculation. It is an average figure. Keep in mind, individual controllers—

Senator McCASKILL. And that includes both Raytheon money and the money that the agency is spending?

Ms. McNALL. Yes. In addition, if I may, one of the points, as the Inspector General pointed out, was the importance of us tracking costs that our controllers are incurring, particularly if they are going to pick up training that Raytheon otherwise could have performed, right. That sheet that we provided you has different categories of training put on it. One of those categories is on-the-job training, which is the type of training that the FAA controllers have always done. That is work that Raytheon has never done, and, frankly, it is our anticipation no contractor would be doing, right.

Senator McCASKILL. Right.

Ms. McNALL. That is the last step, right.

Senator McCASKILL. Of course.

Ms. McNALL. You will also see a category in there called “Proficiency Training.” That is a type of training that Raytheon has historically performed. That is a type of training that we have moved in-house, and there are a number of very good reasons that I will be happy to go into if you like, but you will see that we are tracking that cost.

Another cost is called “Training, Other.” It is under a “Training, Other” category that we track the time our controllers spend providing training that otherwise would have been done by Raytheon, all right. So, we are tracking all those types of costs.

The other item that the Inspector General quite rightly brought up was the potential of overtime. We are continuing to track overtime to see if there is any increase or decrease. And, in fact, our overtime cost had been, overall, decreasing, and it is less than 1.7 percent currently.

So, yes, I fully agree with the Chairman. It is very critical that we have a good understanding of our cost and what is the right mix to be using between our—when we use a contractor or when we are using our own personnel, along with what is the right capability and skills that are involved. So, that is engaged. We are keenly watching that.

One of the processes that we have changed since the ATCOTS contract was originally awarded was starting to bring the types of tools—and I apologize for going on—but beginning with the types of tools that we have historically used when making capital investments or information technology acquisitions to our service contracts so that we can do that by alternatives analysis.

Senator McCASKILL. Well, that would be—yes, and here is the thing. My colleague, who I have a great respect for because I think that he would agree with me, it would be a good idea if every member of the Senate has had to make a payroll, it would be a great requirement for this job, because I guarantee you, if you were a

private business, you would have figured out these costs before you had cost overruns of \$89 million over a period of just a few years. You would have figured it out. You would have figured out whether or not it was cheaper or more expensive to have Raytheon be doing this and asking for increased contract amounts or whether it is more expensive for the government to be doing it.

To be honest, Ms. McNall, I think you are just now getting your arms around that. I think you went years thinking it was not that big of deal, and I think that is why we are here, because I think if you thought it was that big of deal, you would not have had this same major finding in an audit 2 years after the first one, and that is what brought us here today. I did not know how else to get your attention, because it felt like, to me, that you guys thought we were just bothering you, and if you just held on long enough, we would go away.

I can assure you, I am not going away. We are going to get this fixed. And when you recompetes this contract, I am going to be on it like a rabid dog, watching how this works, whether or not you have finally figured out what you need and what it should cost, and whether it is more cost effective to do some of it in-house and more of it through Raytheon or another contractor, whether you have the right mix, most of all, if you understand what each different potential would cost, and that is what I think really has been lacking.

I have a few more followups, but I have gone over and I want to turn it over to Mr. Johnson.

Senator JOHNSON. Apparently, we have a vote called, so I will keep this pretty short, but just really second what the Chairman has said. It is about information. It is about being able to have the tools and being able to make that evaluation as to whether or not it is better to do it in-house versus hire an outside contractor and who the different contractors are.

Ms. McNALL. Right.

Senator JOHNSON. And this is going to just get more complex as you move on to more technology. From my standpoint, I would think moving forward with technology, particularly in an area like air traffic control—I mean, I have watched my son do in-flight simulators, amazed at the technology there. So, I would think, being a real supporter of the private sector and the innovation of the private sector, I would think the private sector would probably be a little more nimble and be able to bring some real technological advancements to the training process to actually improve quality, which, by the way, that has got to be the first consideration—quality, safety. That is the first. I am concerned about cost, but, boy, we do not want to compromise quality and safety at all.

But really taking a look at technology, and only with the information, really understanding what the true internal costs are in it, and I recognize that can sometimes be difficult to ascertain, but it all depends on how complex it is in terms of the use of personnel.

So, let me quickly ask that question. Do you have full-time trainers within the FAA? Is that their entire task? Or is this also where people have split duties, where they are air traffic controllers at some point in time and—I mean, is just gathering that information also complex, or is it just that there has not really been the desire

within the agency to really make a real push on getting the information?

Ms. McNALL. So, within the agency, we track the time of all of our personnel, including our air traffic controllers, which is then allocated to a particular cost code. That is one of the things the Inspector General—

Senator JOHNSON. So, you should really have very accurate information in terms of really what the training costs would be internally.

Ms. McNALL. And that is the information we have now provided to the Committee.

Senator JOHNSON. OK. And, again, so you are saying it is about \$250,000, add to that about \$25,000—

Ms. McNALL. The \$25,000 includes the contractor cost as well as the FAA employee cost.

Senator JOHNSON. OK. So, it is \$225,000 plus about \$25,000.

Ms. McNALL. Right.

Senator JOHNSON. I mean—

Ms. McNALL. Keep in mind, it, generally speaking, takes about 2½ years to train a controller.

Senator JOHNSON. Right.

Ms. McNALL. That will include the training cost of the controller who is being trained. Their salaries are also in that—

Senator JOHNSON. So, to me, the metric—but even then, what is the differentiation between full training of a raw recruit versus refresher? Do you have some sort of sense of that breakout?

Ms. McNALL. Mm-hmm.

Senator JOHNSON. I mean, how much are your training costs in your annual budget, if it is \$360,000—\$360 million, how much of that is refresher versus brand new?

Ms. McNALL. So, that is a very shifting number. In fact, that was one of the changes, again, that we had not—I hate to go back, but if we go back to the length of time to train and why that did not improve, the year 2009 was an anomaly, and one of the reasons that was an anomaly is because the proportion of that training mix was fewer raw recruits and more training of actual controllers in place, which is a shorter period of time, so—

Senator JOHNSON. OK. So, are you tracking it—as long as we have this—

Ms. McNALL. But we track it all.

Senator JOHNSON [continuing]. The tracking code—

Ms. McNALL. Yes.

Senator JOHNSON [continuing]. So you should be able to say, this training was done for refresher. This training was done on new recruits—

Ms. McNALL. Exactly.

Senator JOHNSON. OK. So, my bottom line, and we have to go to a vote, is the development of better information, not just for the sake of getting information, but actually targeted, and then working with the contractor to actually hone in on what—because it may be a more lucrative contract to Raytheon but save the government money. The total value proposition here is what we are after.

Ms. McNALL. Yes.

Senator JOHNSON. But, you need the information. So, again, I just want to second what the Chairman was talking about, is the desire and the need for accurate information—because, again, reading through the Inspector General’s report, I just had a lot of questions, and there should not be. I mean, we should really have in a management information system the kind of detailed information that would just really point us in the direction of how we should manage this training—

Ms. McNALL. Absolutely.

Senator JOHNSON [continuing]. Because it is crucial.

But, with that, I will finish my questioning remarks. Thank you.

Senator McCASKILL. And we have votes.

Senator JOHNSON. Yes. We have time here.

Senator McCASKILL. So, I have a little bit more. I would ask your forbearance. I am going to run over, vote, and come back. I want to talk about the award fees. It is a thing that I care about. I have done this, and by the way, you should talk to the folks at DOD on award fees and performance fees—Raytheon knows I have been on this—about how we do this and whether or not we are using them as the tools they should be used, and a few other questions. So I am going to run, vote, and come back. It should be 10 to 15 minutes at the max. Thank you.

Senator JOHNSON. She is letting you off the hook. Thank you all. [Recess.]

Senator McCASKILL. I am so sorry. I will tell you, though, it is not lost on me that I sit up here and rail against government agencies for being inefficient and ineffective and I am a member of the U.S. Congress. I just want you to know, I get the joke. [Laughter.]

This is one of those days that I feel that in a painful way, that this is an ineffective and inefficient Congress.

Let me go through just a few more things I want to make sure we get on the record before we close today, and I do not have—we have covered most of it. Who would you say is in charge of this program?

Ms. McNALL. So, the person—

Senator McCASKILL. You need to turn your microphone on.

Ms. McNALL. So, we have a program manager who works within the Air Traffic Organization who is in charge of the program. That person reports directly to the Air Traffic Vice President for Safety and Technical Training.

Senator McCASKILL. Is there an Air Traffic President?

Ms. McNALL. There is an Air Traffic Chief Operating Officer.

Senator McCASKILL. But then there is a Vice President?

Ms. McNALL. There are several Vice Presidents.

Senator McCASKILL. Weird.

Ms. McNALL. We are a little bit of a different agency.

Senator McCASKILL. That is weird. We do not have Vice Presidents in government unless his name is Biden. [Laughter.]

We have it in private companies, but we do not have it typically in agencies. So, you would say that the Vice President is the person who ultimately has the responsibility for the effective operation of this program and the effective use of contracts in support of this function?

Ms. McNALL. He is the one responsible for seeing that air traffic controller training is done effectively and efficiently. I am the one who is responsible for seeing that the contracts he needs to accomplish that are done appropriately.

Senator McCASKILL. OK. Who do both of you report to, in common?

Ms. McNALL. The Administrator.

Senator McCASKILL. So, the boss of this program is really Huerta—

Ms. McNALL. Always.

Senator McCASKILL [continuing]. Because you have one on the programming side, one on the acquisition side, and the only time the two of you meet is at the very top.

Ms. McNALL. From an organizational perspective. Now, of course, I meet with the Vice President at least monthly, and then I have a variety of oversight processes—

Senator McCASKILL. But you do not work for him.

Ms. McNALL. No, I do not.

Senator McCASKILL. And he does not work for you.

Ms. McNALL. Correct.

Senator McCASKILL. So, I am trying—I have learned—

Ms. McNALL. You are right.

Senator McCASKILL. I have learned the hard way that if you do not figure out who is in charge, the chances of you getting something fixed go down exponentially. So, you are telling me that, ultimately, if he is not doing his job or you are not doing your job, the only person who can make you accountable is, in fact, Administrator Huerta.

Ms. McNALL. That would be correct.

Senator McCASKILL. OK. Let us talk about award and incentive fees. What is your understanding of what the contractor had to do to get what I think most Americans would call bonuses?

Ms. McNALL. Yes. What the contractors had to do to achieve both its incentive fee and its award fee has varied over the period of the contract.

Senator McCASKILL. What was the first bonus and incentive fee they got?

Ms. McNALL. Right. So, in the first year of the contract, we established a target cost, right. The share ratio on that target was 50/50. So, for each dollar that the contractor incurred above that target cost, reduced his fee by 50 percent. Each dollar below that target cost reduced that fee by 50 percent. That first year, because of the cost overruns—up to a min and max in each case. So, at some point, the fee that he can add to that target is limited, and the same thing at the top. As cost growth, he gets a minimum fee.

The first year, the contractor ended up with the minimum fee. The same—

Senator McCASKILL. Wait a minute.

Ms. McNALL. Mm-hmm.

Senator McCASKILL. So, he did get the fee that was supposed to be incentivizing costs?

Ms. McNALL. He got the smallest amount of fee possible under the—

Senator McCASKILL. And how much was that?

Ms. McNALL [continuing]. Contract. Roughly \$1.5 million.

Senator McCASKILL. OK. So, he got \$1.5 million in a year that the cost overruns were \$31 million.

Ms. McNALL. Yes.

Senator McCASKILL. Why did he get anything?

Ms. McNALL. When we bid the contract, and this is one thing that is always done when you are bidding a cost plus incentive fee contract, is—at least in best practices—you allow the companies to propose back to the government what that target ratio should be, and then what the minimum and maximum fees should be, and that—you then pick on what you think is the best value for the government. In this—

Senator McCASKILL. Well, how can it be a value for the government if the cost overruns are \$31 million and we still give them money for doing a good job on cost? Do you understand that sounds weird?

Ms. McNALL. I absolutely understand that sounds weird. It was a very small fee for the amount of work done, and the contractor was successful in performing the contract. I fully understand, right, this was not a controlled cost. I have other contracts where the contractor will bid and we will agree and write into the contract, there is no minimum fee, but that was not this contract.

Senator McCASKILL. OK. The FAA's award fee contracting guideline—

Ms. McNALL. Yes.

Senator McCASKILL [continuing]. Says no performance element should be incentivized more than once.

Ms. McNALL. Correct.

Senator McCASKILL. That is exactly what you did when you offered Raytheon an incentive fee and an award fee for containing costs. Why did that happen?

Ms. McNALL. In all honestly, I was not in this job at the time that happened, in their first years of the contract, so I cannot tell you exactly what that happened, other than the fact that the agency at that point was very interested in controlling cost. As you pointed out, we were incurring cost growth and we wanted to bring it under control.

Senator McCASKILL. So, there were \$14 million in the first 4 years of the contract in incentive and award fees. Is that a correct figure?

Ms. McNALL. Excuse me just a moment. [Pause.]

Seventeen million in incentive fee and—but more than that in the award fee.

Senator McCASKILL. Can you help—

Ms. McNALL. Of course, that is going through the first 5 years.

Senator McCASKILL. That is 5 years.

Ms. McNALL. We will be happy to get back to you.

Ms. LANGAN-FEIRSON. During the base period, there were \$14 million in cost incentives and approximately \$17 million in award fees—

Ms. McNALL. Yes.

Ms. LANGAN-FEIRSON [continuing]. For a total of \$31 million.

Senator McCASKILL. OK. Thirty-one million. And during that same period of time, what were the cost overruns?

Ms. LANGAN-FEIRSON. The cost overruns were \$89 million.

Senator McCASKILL. OK. So, we had cost overruns of \$89 million and we had two fees that were supposed to be incentivizing costs—two incentive and award fees incentivizing costs and they got \$31 million.

Ms. McNALL. That is correct. The award fee incentivized more than simply cost control.

Senator McCASKILL. What else did it incentivize?

Ms. McNALL. It incentivized, basically, performance of the contract. It successfully trained the controllers that we needed to have trained.

Senator McCASKILL. And what were the metrics on that?

Ms. McNALL. So, that is where the metrics varied for each performance period.

Senator McCASKILL. Who decided what the metrics were?

Ms. McNALL. So, the FAA did.

Senator McCASKILL. Well, I thought that Raytheon developed the performance metrics early in this contract, that the FAA did not do the performance metrics but, rather, they were drawn up by Raytheon.

Ms. McNALL. As part of the contract bidding process, each company bid metrics, proposed metrics, for the award fees. One of the reasons why we asked for them to bid the proposed metrics for the award fee was to see how well they understood what the contract was aiming for and how good they were at metrics development, which would give us a clue as to how good they might be at actually achieving those metrics. So, Raytheon bid proposed metrics. The FAA changed those metrics before we awarded the contract. But we did accept some of them, the basic underlying premise of them.

Senator McCASKILL. OK. So, you had a set of metrics before this contract was—before you had the competition on this contract, you had a set of metrics developed within FAA that you were going to measure a contractor by.

Ms. McNALL. In all honestly, again, I was not here at the time, so I do not know that we had those metrics prepared. I can tell you, I guess, that we did allow the offerors to bid proposed metrics to us, and that in this case, before we awarded the contract to Raytheon, we accepted some of their metrics and we changed others and that is what went into the contract for the first award fee period. Thereafter, the agency established the award fee criteria.

Senator McCASKILL. All right. Do you believe that she has characterized this accurately, Ms. Langan-Feirson?

Ms. LANGAN-FEIRSON. Senator, we had a great deal of difficulty going through the performance measures, because the performance measures on this contract varied from period to period. In the beginning, in our first report, it was reported that some of the performance measures, Raytheon was assisting with the development of the measure.

But, I will tell you, in the second report, we did look at Award Fee Periods 5, 6, and 7 of the base contract and there were essentially four performance measures, two of them associated with cost, that were totally ineffective because the costs kept changing, and there was one associated with quality assurance which was rel-

atively effective, and then there was the one about staffing efficiency that we put in the report——

Senator McCASKILL. Right.

Ms. LANGAN-FEIRSON [continuing]. Which we did not find effective. So, we did not find that the award fee performance measures were very effective on the contract.

Senator McCASKILL. And the new fee structure, the new award fee structure after the exercise of the option, it is my understanding, Ms. Langan-Feirson, that your report—in looking at your report, you saw some conflict there. Could you talk about that?

Ms. LANGAN-FEIRSON. There were five performance measures in the first period. We were only able to audit what is called Award Fee Period 8, which is the first performance period in the option, and there were basically five performance measures. It is the first one that was the most troubling to us, which basically required that Raytheon deliver the performance work State and the annual workplan requirements, but also stay within the cost target. If they did not do one or the other, they would fail. If they had an unsatisfactory, they would fail all of the other performance measures. So, while there might have been other performance measures that would have incentivized the contractor, those all went out the window if you achieved an unsatisfactory on either one.

We also felt it was very troubling, because if you met the target cost, what essentially happened was you were not delivering enough training, and vice-versa. If you delivered enough training, you might not have been under the target cost. We did not think this was a very effective performance measure.

Senator McCASKILL. And that has got to be really hard for Raytheon, because you cannot do both. That is impossible with this contract, correct?

Ms. DUGLE. It is correct. What we are trying to do is optimize the value of every training dollar, but at some point, we are capped on the amount of training that we can deliver due to the constraints of the budget.

If I may, Senator, I just wanted to clarify or expand upon one point that you made. It is obviously factual that Raytheon received approximately \$31 million in fee over the time period.

Senator McCASKILL. In addition to cost-plus.

Ms. DUGLE. Well, that is the entire fee that we earned, and that is what I wanted to clarify, is that it was not a bonus on top of any kind of normal fee. It was simply those were the dollars that we earned on the work that we did. And I would make the point that, yes, the budget, we expended more than was budgeted, but we trained between 40 percent more students in year one and in net over the 4-year, 20 percent more students. And so it is a bit counterintuitive to say the contract was overrun and you are being paid fee, but you have to equate it back to the volume of students. Otherwise, it would be an unfair burden on a company.

Since year one of this contract, each year, we sat down with the FAA. We target the amount trained and the dollars. And since that time, since year one and the 1.5 percent fee that Ms. McNall referenced, in years two, three, and four, we have hit our targets and we have delivered to those numbers. I bring that forward because we are improving progressively as we go and I just wanted to go

on record that incentive and award fee is the only monies earned. It is not in addition to any other kind of base beyond the program.

Senator MCCASKILL. OK; I am confused. So, I thought this was a cost-plus contract.

Ms. DUGLE. It is.

Senator MCCASKILL. So, you get your costs plus a margin of profit.

Ms. DUGLE. We get our costs plus an incentive fee award and an award fee. Those comprise our fee.

Senator MCCASKILL. So, both the incentive fee and the award fee are the only things that you are getting above your costs?

Ms. DUGLE. Yes, ma'am.

Senator MCCASKILL. So, this is not a cost-plus-award contract. This is just a cost plus incentive fee or award program.

Ms. McNALL. Yes.

Ms. DUGLE. Yes.

Senator MCCASKILL. Oh, OK. Well, that makes a difference. Well, you guys need to redo this. This is a mess, because it is too hard—all of it is counterintuitive. You all are being asked to train X-amount of people on not enough money to do that. You all are absorbing all the costs that they cannot do without really having a handle on what that is costing you every year. And, meanwhile, the only way they make any profit on them is giving them award and incentive fees for holding down costs when you have paid them more than the contract was worth most of the years they have had the contract. And you wonder why people shake their head. I mean, we have to do better at this.

So, are you ready with performance metrics for the rebid?

Ms. McNALL. We have not yet decided whether or not we will use performance metrics for the rebid. One of the concerns we have is exactly what you have raised. We have had a great deal of difficulty of establishing good award fee criteria and a question of—incentive fee works absolutely wonderful if we can hold the target cost accurately, right, so there are no changes to the contract.

Senator MCCASKILL. Right.

Ms. McNALL. If I cannot do those two things, then I have to question whether or not I should do either an award or incentive fee.

Senator MCCASKILL. So, what is wrong with price certain? You know the different kinds of training, right? You may not know how much you are going to do in each category, but you are going to have just as much luck predicting that as you have had predicting everything through this whole contract. What is wrong with a price certain?

Ms. McNALL. So, what we are considering is a combination of firm fixed price, for example, possibly for the Academy training—this is not to say we have made any decisions, and, of course, I do not want to give any—too much advance information that I have not otherwise released to—

Senator MCCASKILL. Well, I think people, if you are in this hearing room—

Ms. McNALL. Yes.

Senator MCCASKILL [continuing]. They know I like price certain a lot better than cost-plus.

Ms. McNALL. And I fully agree with you. So, mixed with a time and material contract is what we are looking at.

Senator McCASKILL. So, do you think that you all are prepared on the innovation front? Do you think it is realistic that you can get real innovation with 2 percent? I think \$16.7 million of the \$859 million that has been spent was spent on innovation. Do you think that is a realistic percentage to actually achieve innovation?

Ms. McNALL. No, I do not. The reality is the agency does not currently have the budget we would need to do the innovation that we know we need to do. Long-term with the innovation, it will save the agency money.

Senator McCASKILL. Right.

Ms. McNALL. We also know that. It is short-term funding that I am struggling to find.

Senator McCASKILL. What was going on internally, after the IG made the recommendation to assess the long-term outlook of the ATCOTS program, prior to exercising the option? Why was that recommendation ignored before you exercised the option? What was going on internally that caused that particular recommendation to be set aside?

Ms. McNALL. With the greatest respect, actually, we took the recommendation very seriously. So, before we exercised the option on the contract, we asked ourselves the following questions. Do we now have enough basis to understand what our training requirement is? Do we understand it well enough that we can establish a target cost? And can we now manage this contract like a performance-based contract rather than the level of effort contract, which, in all honesty, for the first few years of the contract, we treated it much more like a level of effort contract than performance-based.

At the same time, our No. 1 priority is always safety and efficiency, so the one thing we knew we could not let drop is that steady rate of training. We need that rate of training to continue without interruption. So that was No. 1.

Then it became a question of, well, what is the best vehicle? What is my best acquisition vehicle to get to the spot I need to be right now, right, as we are using money, and then where do I want to go in the longer term?

Senator McCASKILL. Could you speak to what you think, Ms. Langan-Feirson, in terms of the exercising the option? It appears from the outside that it looked like that they just decided to ignore it, but you have spent a lot more time inside this agency than, obviously, I have. I want to get your take on what you think occurred.

Ms. LANGAN-FEIRSON. I think the most troubling thing for us was that in our first report, we basically recommended that FAA, after the first couple of years of the overruns, get their arms around this. So, we gave them forewarning. Three years later, OK, they were backed up against the wall in contract year four. Eight months in, they were almost at 80 percent of the contract ceiling and they did not have very much time. They basically briefed a business case up the chain and the business case was, we are out of time, OK. They did not have many options left. This was due to lack of advanced planning, plain and simple. That is what was going on.

Senator McCASKILL. I have other questions, but you have waited. I have had you here for a long time, especially in light of the fact that I had to leave and do votes. Do you feel like that—you have been there since when, Ms. McNall?

Ms. McNALL. 2011.

Senator McCASKILL. And what part of 2011?

Ms. McNALL. January.

Senator McCASKILL. OK. So, you now have three full years.

Ms. McNALL. Yes.

Senator McCASKILL. Do you have the adequate resources and the expertise available to you that you can plan for this next competition in a way that the recommendations that have been made in two different IG reports will be fully embraced?

Ms. McNALL. Yes.

Senator McCASKILL. OK. That is the answer I wanted. That means we have had success. I thank you.

I thank all three of you. I think you are all strong, competent, smart women that are working hard at the task you have been given and I hope that you understand that I am weird. I like contract oversight, and this is, as you know, I do this in many agencies.

Somebody said something, because I have been on the FAA about electronic devices, somebody tweeted me today, “What’s up with you and the FAA?” I said, well, I just love the FAA. [Laughter.]

I hope I have as much success with the rebidding of this contract next year as I had with finally allowing us all to use our electronic devices when we take off and land.

So, thank you very much, and we will get you more questions for the record.

Ms. DUGLE. Thank you, Senator.

Ms. McNALL. Thank you.

[Whereupon, at 4:36 p.m., the Subcommittee was adjourned.]

A P P E N D I X

**Before the Committee on Homeland Security and Governmental Affairs
Subcommittee on Financial and Contracting Oversight
United States Senate**

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The Success of FAA's Air Traffic Controller Optimum Training Solution Relies on Sound Contracting and Program Management Practices

**Statement of
Mary Kay Langan-Feirson
Assistant Inspector General for Acquisition
and Procurement Audits
U.S. Department of Transportation**



Chairman McCaskill, Ranking Member Johnson, and Members of the Subcommittee:

Thank you for inviting me here today to testify on the Federal Aviation Administration's (FAA) \$859-million Air Traffic Control Optimum Training Solution (ATCOTS) contract. The contract was intended to provide up to 10 years of support to train approximately 17,000 new air traffic controllers FAA planned to hire. However, since the contract was awarded in September 2008, we have identified significant weaknesses that undermine efforts to meet three key ATCOTS goals: reduce training costs, reduce training time, and leverage training innovations to make the training program more efficient. In addition, FAA exhausted the contract's 5-year base funding 1 year earlier than planned after experiencing cost overruns totaling about \$89 million.

Our reviews have identified four primary weaknesses that undermine FAA's efforts to achieve its ATCOTS training goals and to maintain a sufficient cadre of fully trained air traffic controllers. Those weaknesses concern (1) training requirements, (2) training innovations, (3) use of award and incentive fees, and (4) contract oversight.

IN SUMMARY

FAA has yet to clearly define its controller training requirements for the ATCOTS contract, including the number of controllers who will need to be trained and the types of training needed. Without clearly defined training requirements, FAA cannot develop realistic estimates of its controller training costs or hold the contractor accountable for desired outcomes. FAA also has not provided sufficient contract funding for training innovations—even though the contractor's proposal was dependent on training innovations to stay within proposed costs, which were 29 percent lower than FAA's estimates. Further, FAA paid over \$17 million in award fees and \$14 million in incentive fees that were not effective in motivating the contractor to achieve desired outcomes. While FAA has taken certain actions to improve program and contract oversight—such as implementing a tool to better prioritize where training is needed and consolidating training operations under one office—FAA has not adequately maintained ATCOTS contract files or effectively communicated with contract oversight staff at air traffic facilities regarding contract management issues, such as instructor staffing reductions and program office roles and responsibilities.

BACKGROUND

ATCOTS is a performance-based¹ contract that includes cost-plus-incentive-fee, cost-plus-award-fee, and firm-fixed-price components. The contract consisted of a 5-year base

¹ Performance-based contracting lets Government agencies acquire services using contracts that define what is to be achieved, not necessarily how the work is done. The idea is that contractors have the freedom to define how they will achieve the objectives, which allows them to use innovative approaches.

period, worth \$437 million, and two option periods (a 3-year period and a 2-year period), worth \$422 million. The ATCOTS contract outlines six key training goals: (1) improve quality and consistency of training, (2) reduce training costs, (3) reduce training time, (4) leverage best practices and innovation to provide comprehensive training, (5) develop flexible training that can be adapted to meet changing requirements, such as new Next Generation Air Transportation System (NextGen) systems, and (6) develop flexible training that can be adapted around candidate competencies.

Under the terms of the contract, the contractor provides classroom and simulator instruction, course and curriculum development, and administrative and program support services at the FAA Academy and air traffic facilities nationwide primarily for new and developmental² controllers. The contractor also provides proficiency and specialized training to Certified Professional Controllers (CPC).³ In addition, the contractor must train Certified Professional Controllers in Training (CPC-IT)—controllers who are already certified but require site-specific training when they transfer to different facilities or move to different areas within a facility. FAA retains control for the overall training program as well as for recruiting and hiring controller candidates and conducting on-the-job training⁴ at air traffic facilities.

In September 2010, we reported that FAA's weak acquisition practices—including a failure to clearly define requirements and a lack of effective contract oversight—contributed to cost overruns of \$46 million in the first 2 years of the program.⁵ At the Chairman's request, we initiated a follow-up review of the ATCOTS contract. In our report issued in December 2013,⁶ we determined that FAA exhausted the contract's 5-year base funding after 4 consecutive years of cost overruns totaling about \$89 million. As a result, 1 year of training support was eliminated from the contract. During our audit, we met with the FAA Acting Administrator in July 2012, to discuss our concerns that the contract was about to run out of funds. FAA ultimately exercised the first 3-year option period to continue training; however, FAA did not evaluate its additional training requirements for that period.

² Developmental controllers are newly hired controllers that have graduated from the FAA Academy and been assigned to air traffic facilities for field training (classroom and lab instruction and on-the-job training).

³ CPCs are controllers who have been certified on all areas within their assigned location.

⁴ On-the-job training occurs when a developmental controller is directing live traffic one-on-one with a CPC. This training begins after developmental controllers complete ATCOTS-related classroom and simulator training.

⁵ *FAA's Air Traffic Controller Optimum Training Solution Program: Sound Contract Management Practices Are Needed To Achieve Program Outcomes* (OIG Report Number AV-2010-126), Sept. 30, 2010.

⁶ *FAA Needs To Improve ATCOTS Contract Management To Achieve Its Air Traffic Controller Training Goals* (OIG Report Number ZA-2014-018), Dec. 18, 2013.

LACK OF WELL-DEFINED TRAINING REQUIREMENTS CONTINUES TO IMPEDE FAA'S EFFORTS TO ESTIMATE COSTS AND REDUCE TRAINING TIMES

Since our September 2010 report, FAA has taken some steps to better assess training needs, such as use of enhanced program management tools to better prioritize where training is needed. However, FAA has yet to clearly define its controller training requirements or determine the number of controller training hours needed—recommendations we made in 2010.⁷ Without clearly defined training requirements, FAA cannot develop realistic estimates of its controller training costs or hold the contractor accountable for desired outcomes. The lack of well-defined requirements has also contributed to increases in the time it takes to train controllers.

FAA Has Yet To Clearly Define Its Controller Training Requirements

Within the first year of the ATCOTS contract, it became clear that FAA had greatly underestimated its developmental and CPC training needs and had not anticipated the impact of new training requirements, such as those needed for the introduction of new NextGen systems into the National Airspace System. For example:

- During the first year, the ATCOTS contractor estimated that a total of 5,620 developmental controllers needed training—41 percent more than FAA's original pre-award estimate of 4,000 total developmental controllers. As a result, the contractor was required to train significantly more controllers than expected;
- FAA's original requirements did not quantify the number of CPC-ITs who required training. Over 600 CPC-ITs required training in 2009—a number that grew to over 1,100 in 2012—which increased the number of training hours the contractor was expected to provide.

Consequently, the ATCOTS contract costs grew by 35 percent during the first year alone. However, FAA has still not yet clearly defined its total controller training requirements. For example, the ATCOTS contract requires the contractor to provide proficiency training on both new and existing air traffic controller systems,⁸ but FAA has not quantified these requirements. As a result, the contractor's proposal did not include sufficient training hours for new systems—such as the En Route Automation Modernization, a key NextGen program—which required 77,736 hours of training during the first contract year.

⁷ Specifically, we recommended that FAA determine (1) if the existing contract mechanism could be effectively modified to achieve ATCOTS program goals within the original contract estimate of \$859 million or (2) update the cost estimates and requirements for its training needs and develop criteria for determining whether the Agency should exercise options in the contract.

⁸ These systems include En Route Automation Modernization, Standard Terminal Automation Replacement System, and Automatic Dependent Surveillance-Broadcast.

In September 2010, we reported that FAA's Annual Work Plan (AWP)—a tool for identifying and reporting training needs to the contractor—did not adequately capture FAA's training requirements. Since we issued that report, FAA has established additional controls to better capture training requirements. For example, FAA has improved its AWP, which now defines the number and types of students, student training levels, training locations, and the dates by which students must be trained. FAA also created a tool to better verify training hours being incurred at individual air traffic facilities. However, the AWP still does not capture all of FAA's training requirements, such as proficiency training requirements for both new and existing systems. Without a sound AWP or clearly defined training requirements, FAA remains at risk for underestimating its training costs.

Increases in Training Requirements Have Contributed to Cost Overruns

Without clearly defined requirements that include all of FAA's air traffic controller training needs, FAA could not develop a realistic estimate of its training costs to ensure that sufficient funding is available for training. For 4 consecutive years, ATCOTS experienced cost overruns totaling about \$89 million, which exhausted the contract's 5-year base funding in 4 years. Specifically, FAA chose to exercise the contract's first 3-year option period 1 year ahead of time to continue training support when the base period funding ran out, reducing the contract's total performance period by 1 year.

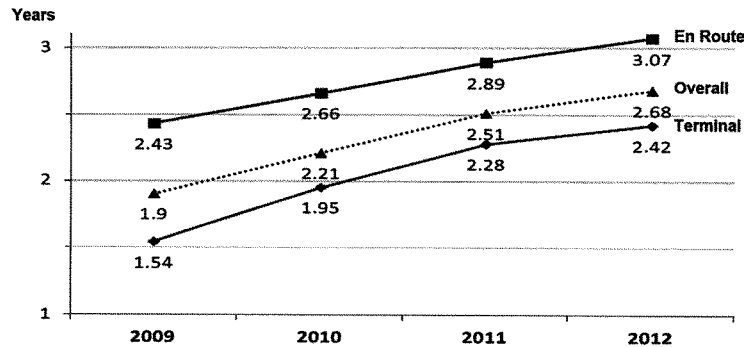
To limit future cost overruns on the ATCOTS contract, the contractor reduced contractor training staff by about 44 percent—from 1,312 to 738 employees—between September 2008 and August 2012. To compensate for this reduction, FAA plans to increase the amount of internal training performed by CPCs. FAA acknowledged that the contractor can provide training at a lower cost than CPCs, who are paid higher salaries than contractor staff. In addition, internal training may also lead to increases in CPC overtime pay. CPC overtime costs can include overtime hours for CPCs conducting training as well as overtime hours for CPCs taking on the controller responsibilities of those taken off the floor to conduct training.

However, FAA does not account for its total internal training costs. For example, FAA only tracks costs associated with time CPCs spend conducting on-the-job training. FAA does not account for the costs of using CPCs to conduct classroom and simulator training or the associated backfill overtime costs to replace CPCs on the control room floor. As a result, FAA cannot truly assess whether there might be a more cost-efficient way to provide training to its air traffic controllers.

Controller Training Times Have Significantly Increased

Between fiscal years 2009 and 2012, the time to certify controllers increased by an overall average of 41 percent—taking 9 months longer on average to certify each controller. While average training times are the longest at en route facilities,⁹ certification times increased the most at terminal facilities, with an average increase of 57 percent, or almost 11 months longer on average to certify controllers (see figure 1).

Figure 1. Average Time To Certify Controllers Between Fiscal Years 2009 and 2012



Source: FAA training data

Air traffic and training managers attribute the increased training times to decreased contractor support; increases in training requirements, including training related to airspace redesign and new technology; and increased proficiency training and refresher training for CPCs in response to changes in regulations.

FAA facility managers we spoke with also warn that contractor staffing reductions may further increase training delays. While officials from FAA's ATCOTS program office told us that lower hiring and retirement rates have reduced the Agency's overall training needs, more than half of the managers at 13 air traffic facilities we contacted believe they do not have the capacity to provide internal training, given current staffing levels and workload demands. Further, FAA has not collected data on whether facilities have the capacity to provide training, especially at high-traffic facilities. If CPCs are not immediately available to teach, there may be training backlogs.

⁹ En route facilities manage high-altitude air traffic. Terminal facilities vary in complexity and manage air traffic in and around airports.

TRAINING INNOVATIONS INTENDED TO REDUCE COSTS HAVE NOT BEEN ACHIEVED

FAA's independent Government cost estimate determined that the 10-year ATCOTS contract would cost \$1.2 billion—nearly \$358 million, or 29 percent, more than the contractor's proposed costs. To close this gap, the ATCOTS contractor planned to implement training innovations—such as pilot programs for new capabilities to reduce training time and cost, and a proposed “hub and spoke” system to provide services at multiple locations.

Prior to award, FAA's technical management evaluation team determined that the contractor's proposed costs were unrealistic and concluded that there was a 60- to 80-percent likelihood that training needs would not be achieved. However, FAA's source selection board did not require the contractor to revise its proposal and ultimately determined that the contractor could overcome weaknesses in its proposed approach.

However, FAA budgeted less than 2 percent of the ATCOTS base contract value for training innovations—a key factor for reducing costs. The contractor's lower bid was based on the assumption that it could reduce training hours by 30 percent by implementing training innovations. In practice, the \$16.7 million that FAA dedicated for training innovation proved insufficient to adequately implement the contractor's innovation ideas. According to the contractor, FAA rejected the majority of the 11 proposals it submitted for training innovations. FAA officials told us that the contractor's process improvement and training innovation proposals were technically deficient and too costly. Instead, FAA used most of the budget associated with innovation to implement the Agency's innovations rather than the contractor's.

The lack of training innovations is particularly problematic given the need to make large-scale, technological improvements to the training program and train controllers on future NextGen technologies. FAA facility managers stated that the introduction of NextGen technologies has substantially increased controller training requirements. Without training innovations that can be adapted to new technologies, the arrival of future NextGen systems may lead to additional training backlogs.

FAA HAS NOT EFFECTIVELY USED AWARD AND INCENTIVE FEES TO HOLD THE CONTRACTOR ACCOUNTABLE FOR ACHIEVING DESIRED OUTCOMES

FAA has not leveraged contract incentives to hold the contractor accountable for achieving desired outcomes. Specifically, FAA paid the contractor over \$17 million in award fees and paid another \$14 million in incentive fees despite 4 consecutive years of cost overruns totaling about \$89 million.

The ATCOTS contract allows the contractor to earn both incentive fees and award fees for containing costs, a practice that is inconsistent with FAA's Acquisition Management System (AMS) guidance. AMS states that care must be exercised to ensure that combinations of cost-control award and incentive fees do not result in contractors making trade-off decisions inconsistent with FAA's objectives. In addition, FAA's Award Fee Contracting Guidance states that no performance element—such as cost—should be incentivized more than once. Contrary to its guidance, FAA paid the contractor \$5 million in cost-related award fees and \$14 million in incentive fees despite 4 consecutive years of significant cost overruns. The incentive fees were not effective at controlling costs because FAA continually increased target costs. However, FAA's AMS states that an incentive fee should only be used when a reasonable and attainable cost target can be established.

In addition to cost-related award fees, the Agency paid another \$12.3 million in award fees that were intended to motivate the contractor to achieve FAA's training goals but sometimes forced the contractor to make trade-off decisions inconsistent with other goals. For example, FAA paid the contractor a portion of the award fee for meeting a performance measure related to staffing efficiency, which called for the contractor to stay within a set range of staffing hours. However, the contractor stated that it was not motivated to optimize staffing or lower staffing costs because any efforts to reduce staffing below the set range of hours would have lowered its award fee in this category.

In September 2012 (the beginning of the first option period), FAA introduced a new award fee structure for controlling costs that requires the contractor to make trade offs that defeat the contract's larger goal of providing sufficient controller training. Specifically, the new structure provides that FAA will not pay the contractor any award fees if (1) contract costs exceed the cost target or (2) the contractor does not deliver sufficient training. However, in April 2012 the contractor decreased its instructor staffing to avoid exceeding cost targets and, therefore, could not provide sufficient training support. As a result, FAA did not pay the contractor an award fee for any performance measure for this period. This represents an ineffectively designed measure because it offset the ability to motivate the contractor to achieve various quality, cost, and schedule objectives for the contract. Specifically, if the contractor pays the amount needed to

ensure training levels, then it is penalized for exceeding cost targets. Conversely, if the contractor remains within cost targets, then it is penalized for not meeting training levels. An effective contract award structure requires each contract goal to be separately measured and incentivized without impeding the achievement of other measures.

FAA HAS NOT PROVIDED ADEQUATE CONTRACT OVERSIGHT

While FAA has taken certain actions to improve program and contract oversight, such as implementing a tool to better prioritize where training is needed and consolidating training operations under one office, oversight weaknesses remain. Specifically, FAA has not adequately maintained ATCOTS contract files or effectively communicated with FAA contract oversight staff at air traffic facilities who help manage the contract.

In September 2010, we reported that FAA did not have controls to ensure it received services billed by the contractor. During the first year of the contract, the ATCOTS program office authorized payment for 11 contractor invoices, totaling \$45 million, without the FAA Academy verifying whether the services billed were actually provided. Since our 2010 report, FAA has made some improvements to its oversight controls and contract administration. For example, FAA reorganized and consolidated training operations under one office and implemented a tool to better prioritize where training is needed. In addition, an FAA program representative stated that the Agency has implemented the following improvements in contract management:

- Implemented performance and cost boards to monitor contractor performance;
- Required the contractor to provide more detail about the costs incurred, improving invoice review procedures; and
- Required the contractor to reorganize its management structure to reduce inefficiency.

Despite these reported actions, other weaknesses persist. For example, FAA has not adequately maintained contract files, which exist in two separate locations and do not contain a complete history of all contract actions. Complete contract files allow newer staff to readily access and understand the contract's complete history, which has proven especially important for ATCOTS given the high turnover in critical program staff that the program has experienced. Since September 2010, FAA has completely re-staffed its ATCOTS program office and contract management office. In total, the ATCOTS program has had four program managers, six contracting officers, and eight contracting officer representatives since the contract award, making it all the more critical to have complete contract files.

FAA's ATCOTS program office depends on FAA contract oversight staff at individual air traffic facilities to help manage the contract, but during this review we determined that

the program office does not effectively communicate with the facilities or provide adequate oversight on matters such as staffing reductions and expectations about program office roles and responsibilities. Many facility managers did not know who managed the ATCOTS program and were not always provided with detailed guidance. Moreover, FAA's ATCOTS program office did not enforce the requirement that FAA contract oversight staff conduct semi-annual evaluations of the contractor's performance. The lack of evaluations prevents the program office from identifying problems and taking appropriate corrective actions.

Finally, FAA has yet to perform an integrated baseline review (IBR) of the ATCOTS program, despite cost overruns and limited training delivery. An IBR can help agencies pinpoint problems and make decisions on the amount of services required and additional funding needed to obtain them. Specifically, an IBR examines whether (1) all program requirements have been addressed, (2) all risks have been identified and appropriate mitigation plans are in place, and (3) planned resources are sufficient to complete the work. Without an IBR, it will be difficult for FAA to determine whether it can achieve its air traffic controller training goals under the current ATCOTS contract.

Last month, we issued our audit report updating the status of the ATCOTS contract. In its response to our report, FAA generally agreed with our recommendations and stated that it has begun taking actions to address them. For example, FAA stated that it rolled out a new training planning tool and designated two quality reliability officers to provide surveillance. However, we are requesting further information from the Agency to verify whether these actions meet the intent of our recommendations. Additionally, FAA announced that it plans to award a new contract to replace ATCOTS as early as fall 2014. To avoid repeating the problems with ATCOTS, FAA will need to ensure that it completes an IBR and clearly defines its training requirements before awarding the new contract—one of the recommendations from our December report. Since FAA recently stated its intentions to address our report recommendations, we will continue to monitor FAA's progress in implementing them and provide this Committee, the Secretary, and FAA with future updates on the ATCOTS program.

That concludes my statement Chairman McCaskill and Ranking Member Johnson, I will be happy to answer any questions you or the other Members of the Subcommittee may have.

STATEMENT OF PAT MCNALL, ACQUISITION EXECUTIVE, FEDERAL AVIATION ADMINISTRATION, BEFORE THE COMMITTEE ON HOMELAND SECURITY AND GOVERNMENT AFFAIRS, SUBCOMMITTEE ON FINANCIAL AND CONTRACTING OVERSIGHT, ON MANAGEMENT OF AIR TRAFFIC CONTROLLER TRAINING CONTRACTS, JANUARY 14, 2014.

Chairman McCaskill, Senator Johnson, members of the Subcommittee:

Thank you for the opportunity to speak to you today about the management of air traffic controller training. A well-trained and fully-staffed air traffic control (ATC) workforce plays an essential role in fulfilling the Federal Aviation Administration's (FAA's) duty to ensure aviation safety. The FAA's most recent controller workforce plan calls for approximately 14,900 air traffic controllers in 2014. Controllers work in air traffic facilities of varying sizes, safely guiding tens of thousands of aircraft through the National Airspace System (NAS) each day. These employees provide air navigation services to aircraft in the U.S. domestic airspace and in the 24.6 million square miles of international oceanic airspace delegated to the United States by the International Civil Aviation Organization. Air traffic controllers are critical to the management and separation of air traffic and the safety of our entire system.

The ATCOTS contract and the need for ATC training

Following the air traffic controller strike in 1981, the FAA hired a large number of controllers to replace the previous workforce. By 2005, the FAA faced a unique staffing situation and a profound challenge: more than 70 percent of the ATC workforce would become eligible to retire over the next decade. At the same time, there was an increasing demand for air travel. The FAA projected that it would be necessary to hire and train approximately 17,000 new air traffic controllers over the next ten years (by 2015) in order to meet these challenges. In addition, the

environment for ATC training was changing due to the FAA's efforts to improve training and modernize the NAS, in part by implementing technological enhancements under the Next Generation Air Transportation System (NextGen).

To manage this large training effort, the FAA proposed replacing two existing level of effort training contracts with one performance based services contract. In February 2008, the agency began soliciting offers for the Air Traffic Control Optimum Training Solution (ATCOTS) contract. The ATCOTS contract was designed to provide supplemental training support for new and existing air traffic controllers. The agency set out to ensure that high levels of safety and operational excellence in the air traffic control system continued while it created a cost-efficient air traffic controller training process and trained enough controllers to meet the agency's burgeoning needs.

In September 2008, after running a full competition, the FAA awarded the \$859-million ATCOTS contract to Raytheon Technical Services Corporation (Raytheon). Under this contract, Raytheon was to assist in modernizing the FAA's air traffic controller training program and provide training support for new and existing controllers. In the early years of the contract, however, we encountered significant challenges and cost overruns. At the time, the FAA was facing the challenge of transitioning from two separate contracts for training support (one providing support to the FAA Academy and the other providing support for on the job and field training at over fifty facilities nationwide) to the FAA's first-ever Performance-Based contract for air traffic training. FAA's management was focused on maintaining system safety and training continuity, so the FAA required Raytheon to provide the same level of services as the

prior contractor and, consequently, prescribed performance levels that exceeded Raytheon's proposal (and proposed costs). And, because of a rapidly changing training environment, the FAA underestimated the full scope of training requirements.

These issues contributed to higher-than anticipated costs and led Congress to direct the OIG to initiate an audit of ATCOTS in early 2009. In August 2010, the Office of Inspector General (OIG) released its first report. The OIG made nine recommendations, eight of which had been completed by the time the OIG conducted a follow-up review in 2012 and 2013. The OIG issued its most recent report last month. The latest OIG report contained ten additional recommendations; the FAA concurred with nine of the recommendations and concurred in part with one.

FAA continues to improve ATCOTS administration

The FAA has readily acknowledged that we faced challenges in executing the ATCOTS contract, particularly in the early years. We recognized that we must implement new measures and controls to ensure that the benefits of ATCOTS are realized without undue cost to the government. We have taken significant steps to improve the ATCOTS contract management, oversight, and maintenance of costs. I'd like to highlight a few of the improvements we have made in recent years.

The FAA consolidated training under the Office of the Vice President of Safety and Technical Training in order to bring increased management attention to the training program. The goal of this new organization was to improve overall program management. It implemented a new

management framework, which provided the vision, metrics, strategy, and accountability needed to meet the needs and expectations of the FAA.

There were cost overruns in the early years of the ATCOTS contract. In contract year one, costs exceeded the yearly projected ceiling by 35% and in contract year two by 33%. The pace of growth was reduced in years 3 and 4 due to the implementation of stronger contract management controls. During the fourth year of the contract, the FAA was faced with a decision: to determine whether there was a valid single source basis to negotiate an increase to the contract ceiling due to the initial cost overruns or to issue a new sole source bridge contract, or to exercise the first 3-year option and not exceed the total contract ceiling over the 10-year contract period. The FAA decided to not raise the ceiling and live within the total limits of the contract, to exercise the option one year early, and to implement significant adjustments to the existing contract. This option provided the best cost protection for the Government. It also allowed the FAA have necessary training continue and avoid potential cost growth to other programs that are dependent on the ATCOTS contract, while the FAA prepared for a possible competition to replace the ATCOTS contract.

The FAA recently issued a market survey as the first step toward a possible replacement of the ATCOTS contract. It is possible that we will end the ATCOTS contract and replace it with a new competitively awarded contract before the end of this calendar year. If the FAA determines that the existing ATCOTS contract offers the FAA the best value for these services, as compared to any offers that might be received for a replacement contract, the FAA may choose to exercise the last option period under the ATCOTS contract. But, before doing so, we will verify the

continued need for the training services, ensure sufficient funds are available, and evaluate whether the contractor's performance is satisfactory.

In August 2012, the FAA implemented the use of a more precise Annual Work Plan and enhanced program management tools to better prioritize its training needs and ensure that we have timely and accurate cost estimates. While the FAA updates the cost estimate for ATCOTS on an annual basis, it also receives monthly updates to ensure that we are continually responsive to the changing needs of the agency. The very nature of training means that it is somewhat dynamic, since trainees will proceed through the course at various speeds and with varying needs. We are, therefore, constantly assessing our needs and determining our requirements. We now do that in 30-day periods to allow for both precision and flexibility in executing the contract.

With the cooperation of Raytheon and in coordination with the Office of the Inspector General, we restructured how the FAA measures performance and renegotiated the complete set of Acceptable Performance Levels. Those went into effect in September 2012. The renegotiated APLs were crafted to motivate the service provider to improve quality and consistency of training delivery, reduce the time to train, and leverage best practices and innovation within the yearly target cost, which are all consistent with the contract goals. In addition, the current contract calls for a cap on awards and does not allow the service provider to maximize the incentive fee unless the acceptable performance levels and associated performance measures are also maintained. Raytheon is not eligible for any increases in incentive fee if the contractor does not receive at least a "Satisfactory" rating in all award fee determinations made during each

individual six-month performance period. In other words, maintaining quality and cost controls are now linked under to the contract structure and Raytheon does not get the financial reward of meeting one without meeting the other.

We have also implemented a new process for defining monthly requirements and improved communications with the field and contractor to identify training requirements, schedules and resources. In August 2013, the FAA ATCOTS Program Office, in collaboration with Raytheon, developed, completed and rolled out a new training planning tool for use where ATCOTS services have been deployed in the field. This training planning tool:

- integrates the Rolling Wave Planning Book; the Training Staffing Support Plan (TSSP) incorporates training schedules
- identifies resources by category for budget planning to support training requirements in the field
- features a one month look-back (status), current month activities, and a two month look ahead and is updated on a monthly basis.
- identifies developmental, proficiency, certification and recurrent training, and the resources required to perform these activities.

In July 2012, the FAA released a Quality Assurance Surveillance Plan. This plan provides the FAA Integrated Product Team with guidelines to monitor required performance standards and expected outcomes for the service provider. The FAA Contracting Officer has designated two Quality Reliability Officers (QROs) for this contract. The QROs provide surveillance to the overall training requirements under the contract and have the authority to verify that the contractor's quality plan complies with contract requirements. The QROs conduct quality audits, setting up quality standards, and ensure compliance with FAA policies and standards.

The FAA has also implemented procedures to hold FAA oversight staff accountable for overseeing contractor performance at the facilities, including additional training and semi-annual performance evaluations.

These improvements have been instrumental in improving the oversight, management, and administration of the ATCOTS program. I am confident that they will continue to yield benefits as we move forward with our important efforts to provide quality ATC training at the FAA academy and in the field.

Going forward

We appreciate the OIG's thorough review of the ATCOTS contract and we are confident that the measures we have taken, which fall in line with the OIG's recommendations, will allow us to stay on track for the remainder of this contract. We continue to assess our staffing needs and determine whether it is most advantageous to exercise the remaining option under the ATCOTS contract or issue a new contract to meet the agency's continued ATC training needs. There is no doubt, however, that training air traffic controllers will continue to be a critical need for the agency as we continue to ensure the safety of our skies. We estimate that the FAA will hire over 11,700 air traffic controllers through fiscal year 2021 and, in order to meet the demands of the system and maintain safety, we must continue to hire and train ATCS at a steady rate.

Decreased funding, including the effects of sequestration, has created an additional challenge to our ability to hire and train air traffic controllers. All training courses at the FAA Academy have been cancelled since sequestration was implemented and training courses are only resuming this month. The FAA was also unable to hire any new air traffic controllers and will have to

accelerate hiring, pending budget constraints, to ensure that we have a sufficient number of well-trained, competent air traffic controllers to handle the high volume of air travel in the national airspace. This increased rate of hiring will bring with it increased training requirements, beyond what was initially predicted for the coming year. Whenever we face uncertainty about hiring, we also face uncertainty about our training needs and it becomes difficult to predict costs and plan for the best, most cost-efficient training possible. We remain committed, however, to ensuring the safety of the NAS and have not and will not compromise safety, even in these uncertain times.

Ms. Chairman, this concludes my statement. I would be happy to take questions at this time.

**Testimony of Lynn Dugle
President, Intelligence, Information and Services
Raytheon Company**

**Before the
Senate Committee on Homeland Security and Governmental Affairs,
Subcommittee on Financial and Contracting Oversight**

January 14, 2014

Good afternoon, Chairman McCaskill, Ranking Member Johnson, and committee members.

I am Lynn Dugle, President of Intelligence, Information and Services (IIS) for Raytheon Company. The business I lead is the prime contractor for ATCOTS, the Air Traffic Control Optimum Training Solution program. Thank you for the opportunity to address the subcommittee on Raytheon's management of the program, our ongoing efforts to reduce costs, and new training innovations we are bringing to the program.

Before I do so, let me provide some relevant context on Raytheon. My own IIS business is one of the world's leading providers of mission-critical training solutions. In fact, Raytheon trains more than two million people a year whose missions include national defense, U.S intelligence operations, cyber security and, of course, national air space management.

Our training solutions also extend to critical needs in the commercial sector. As an example, Raytheon provides one of the world's largest automobile manufacturers with transformational training to ensure vehicle safety and highly cost-effective repair and maintenance operations. This particular customer recently renewed our contract, and has been able to achieve savings of more than 50 percent while also increasing the training population by 50 percent.

I would also like to point out Raytheon's position as one of the world's largest providers of air traffic management systems. Our systems control more than two thirds of the world's airspace, and our company is an active participant in the FAA's NextGEN initiative. We believe that our world-class mission critical training capabilities, scale and transformational approaches, program knowledge, and familiarity with air traffic management have been important factors in our ability to contribute to the ATCOTS program.

Since this hearing is intended to address the Department of Transportation's Inspector General's (DOT IG) most recent report on the ATCOTS program, let me say that Raytheon agrees with the general conclusion of the report that progress has been made in improving the program and that more work remains. Raytheon and the FAA have built a partnership that has worked at addressing the Agency's dynamic and unprecedented training needs over the past six years. During the last year, we have accelerated progress in making improvements to the program, and I strongly believe that we now have a solid foundation for further gains. I can assure you that Raytheon remains completely committed to the program and is uniquely positioned to provide cost-efficient and effective training of the controllers who operate the safest, largest, and most complex air traffic management system in the world.

Let me now share our thoughts on three topics the committee requested Raytheon cover:

Management of the Contract:

As the IG report states, the management of this contract was challenged from the start by unexpected increases in cost and scope that were identified after the contract began. This included a hiring surge that resulted in a 40 percent increase in the number of trainees (from 4,000 to 5,600) during the first year of the contract. Raytheon identified the cost of moving the larger number of students through the system in our formal cost and performance reviews and

went through the normal change proposal process. All of our work was agreed to by the FAA, including revised performance measures.

In addition, there were also higher costs associated with previously unidentified FAA training requirements for nearly 700 of these trainees; meeting Air Traffic Control system modernization needs; and implementing new tower simulation training.

Raytheon responded to these challenges and trained 20 percent more individuals during the first four years of the contract than originally anticipated in the program budget. The company also lowered the cost per student at the Academy by six percent; decreased the controller training failure rate by twelve percent; shortened class durations at the Academy by 10 percent; and achieved 23 percent more efficient use of costly tower simulators. In addition, we received instructor approval ratings of 99.6 percent from the FAA during the last grading period. Raytheon has met and continues to meet the training performance requirements and goals identified by the FAA.

Our progress goes beyond the metrics and includes the lessons that both the FAA and Raytheon have learned from this experience. These have led to changes in personnel at both organizations, and much stronger collaboration on methodology, budgets, trade-off decisions, and performance. This was critical to making the adjustments needed to comply with sequestration and last year's government shutdown.

Cost Reduction in the First Option Period:

As the committee knows, during the contract's first four years, total ATCOTS program spending exceeded the budget by 20 percent and the FAA decided to initiate the first contract option a year early to continue the program's funding.

Raytheon and the FAA are working to maximize the training that can be accomplished within the allocated budget. Let me cover some of the changes we have made. For the first time, FAA field managers are involved in deciding local training priorities, which will lead to more efficient and effective training across the system. Their involvement has been enabled by a new planning and execution tool developed and implemented by Raytheon at our own expense. In collaboration with the FAA, we have also implemented new workforce practices and scheduling efficiencies at the Academy that are expected to reduce the remainder of FY14 costs by five percent. Further, we reduced our program management office by 20 percent after working together with the FAA to streamline contractual reporting requirements. This reduction should lead to \$2 million in annual savings.

New Training Innovations:

As the IG report suggests, training transformations that could have had a material effect on either cost or certification times have not yet been achieved during the first four years of the contract. I agree with that conclusion. Some of the reasons for the lack of progress have been the team's focus on meeting the more immediate mission training needs; addressing expanded training requirements; and finding near-term cost efficiencies. That said, Raytheon has provided numerous proposals and white papers outlining potential areas for important innovations. Through our Six Sigma process we have found ways to lean out the process and achieve better utilization and productivity. With support and approval from the FAA, we could implement innovations that would allow us to deliver higher quality training at a lower cost.

The biggest opportunity now before us is the **ATCOTS Curriculum Architecture Project**, which was started in August, 2013. Raytheon, working in collaboration with the FAA and the National Air Traffic Controllers Association (NATCA), created a blueprint for the

systematic modernization and transformation of the ATC training program. This strategic approach identifies the best training methodology (instructor-led, web-based, simulation, etc.) to use for specific training requirements, and how to best sequence training to avoid duplication while enhancing knowledge acquisition. This approach is practiced by the leading training organizations in the world, and based on our own experience with both commercial and government customers, could result in savings of up to 50 percent. While significant up-front effort is involved, the architecture project could be a game-changer leading to transformational air traffic controller training.

Other innovations we have presented to the FAA include Virtual Classroom Training (VCT), Remote Simulation, and the development of a remote Air Traffic Basics Course. VCT would allow a single instructor to deliver training to multiple classrooms at once. The same concept can be applied to high-cost simulators, saving on travel time and delivery service costs. However, these strategies conflict with various contractual requirements for the instructors to be physically located at each field facility. The FAA is considering the request and the associated modifications, along with Raytheon's plan to ensure instructors will have the proper knowledge and experience for quality instruction.

The implementation of a remote Air Traffic Basics course also has promise. Instead of attending this five week course at the Academy, a new hire would learn the fundamentals, such as aircraft identification and runway numbering, and complete this computer-based training prior to arriving at the Academy, thereby reducing student and instructor costs.

I would like to conclude by emphasizing that significant progress has been made over the past year in this complex, challenging, and critically important program. Raytheon and the FAA have established a solid foundation for further performance gains and cost reduction. In the ten

months since I have assumed responsibility for the program, it has been become very clear to me that Raytheon has the program knowledge, transformational training capabilities, scale, and the larger air traffic management domain experience to continue to meet the dynamic needs of the FAA while helping to implement beneficial changes. We pride ourselves in being a leader in providing affordable and effective mission critical training and we believe we have already accomplished much on the ATCOTS program.

Thank you for the opportunity to speak with you today and I look forward to responding to any questions you may have.

**Post-Hearing Questions for the Record
Submitted to Ms. Patricia McNall
From Senator Claire McCaskill**

**“Management of Air Traffic Controller Training Contracts”
January 14, 2014**

1. **During the hearing, the Federal Aviation Administration (FAA) cited \$250,000 as the average cost to train an air traffic controller, and that 25% of this cost was associated with contractor work and 75% was associated with costs to the FAA.**

Q. Please clarify what the \$250,000 averages covers, and the average amount of time this cost is based on.

A. That figure is based on a study conducted by Grant Thornton under contract to the FAA.¹ At the time of the hearing, Ms. McNall believed that this figure included the total cost of training delivered by FAA personnel and by the ATCOTS contractor (Raytheon). The FAA wishes to correct the record on that point. That figure does not represent the total average cost to train a new controller. Rather, it represents the salary paid by the FAA while a new air traffic controller is in training. It includes the salary paid to a newly hired air traffic controller, as well as the premium salary paid to FAA air traffic controllers who train new hires. It is based on an average training time of 2.6 years for a new controller. This cost does not include Academy or contract support (such as the ATCOTS contract) costs.

The FAA does not track the training costs associated with individual air traffic controllers. The FAA tracks its training costs by category in order to measure the initial costs of training new air traffic controllers. Those are reflected in Attachment A. The cost associated with training individual controllers varies greatly. And, after initial air traffic controller training at the FAA Academy, the training needed by a controller depends entirely on the facility to which he or she is assigned, the person's position at that facility, the specific equipment at the facility, and the specific airspace for which the controller will be responsible. All of those factors impact the amount it costs to train an individual air traffic controller.

As Attachment A reflects, approximately 22% of the initial costs associated with training a new air traffic controller are attributable to the contractor.

Q. Please provide an analysis of the \$250,000 cost over each year of the contract, from 2008 to the present, and a breakdown of the costs per year associated with Raytheon's performance and those associated with FAA providing training.

A. Please see Attachment A for information concerning the cost for each training element, including contractor and FAA-provided training, for each year of the ATCOTS contract. Since the contract was awarded in September 2008, it begins with fiscal year 2009.

¹ Internal analysis by FAA personnel yielded similar results.

Q. Please provide detailed information as to what training is being performed by Raytheon and by FAA, and the cost for that particular training element.

A. The controller training process encompasses two main elements: Academy Training and Field Training. We maintain detailed cost data under the ATCOTS contract and we are in the process of differentiating and aggregating the costs of training supplied by FAA personnel.

- Academy training consists of Initial Qualification training for new hire controllers and transfer controllers. This training involves academic classroom and simulation training focused on air traffic control regulations, fundamental skills and application of procedures in a synthetic environment. Academy training also consists of specialized courses such as "Airspace and Procedures" and "Enhanced Traffic Management Coordinator" which are provided to fully certified controllers, managers and supervisors based on Field facility requirements.
- Field training consists of furthering new hire and transfer controller "Qualification" training at assigned facilities via classroom and simulation training followed by On-the-Job Training (OJT), as the student progresses through a series of training stages based on the type of facility (tower, terminal radar or en route). Field training also includes "Proficiency" training consisting of three types: 1) Skill Enhancement, 2) Refresher and 3) Supplemental and is required and provided for every controller in the National Airspace System. Field training reinforces the fundamentals taught at the Academy and applies real world conditions, procedures, and the teamwork required for air traffic control in the ATC facility.
- Academy training, field classroom and field simulation training is provided by the ATCOTS contractor at specific FAA locations, and provided by FAA certified professional controllers. Field OJT is always provided by FAA certified professional controllers because it involves training under live operational conditions.

The table below provides a breakdown for the five completed contract years. ATCOTS contractor training costs are identified by type of training at both the Academy and in the Field.

Training Type	Total
Academy Training	\$ 120,627,740
Initial Qualification Cost	\$ 119,488,696
Specialized Cost	\$ 1,139,044
Field	\$ 269,340,060
Qualification Training Costs	\$ 194,401,694
Dev/Prof Training Costs	\$ 74,938,366
Program Management Costs	\$ 51,421,275
5-Year Contractor Training Costs	\$ 441,389,075

2. The FAA's acquisition guidelines require that FAA address any cost discrepancies when there is a deviation of more than 15% from the government's estimate. Raytheon's cost proposal was 29% less than the FAA's Independent Government Cost Estimate.

Q. Why did the FAA not follow its own guidelines and take any remediation action, such as asking Raytheon for a revised proposal?

- A. The FAA acquisition guideline referred to in this question was not in effect at the time the ATCOTS contract was awarded.

The FAA modified its acquisition guidelines in July 2012 to require an explanation to the Chief Financial Officer if a selected vendor's proposal is greater than 15% below the Government's Independent Cost Estimate (IGCE). Prior to that time, the acquisition guidance only required additional review by the Chief Financial Officer's office if the selected vendor's proposal is greater than 15% above the IGCE. The Air Traffic Control Optimum Training Solution (ATCOTS) contract was awarded in September 2008, four years before this policy change.

The FAA's decisions concerning the cost and technical evaluations were consistent with FAA policy at that time, the solicitation criteria and solicitation evaluation plan, and best practices.

3. The FAA did not take sufficient steps to stem cost overruns after the Inspector General's report, and costs continued to increase over the next two contract years. By year four, the contract had run out of money.

Q. When, approximately, did the FAA determine that the contract would run out of money?

A. Due to unanticipated cost growth during the initial performance years, the FAA determined at the end of the third performance year that the contract would reach the total contract base period ceiling amount during fourth year of contract performance. This determination was based on the program continuing to operate at the average contract burn rate, but with a few adjustments; the FAA provided written direction to the contractor to continue providing training delivery support in accordance with the Performance Work Statement and Annual Work Plan to the maximum extent possible within the contract ceiling.

Q. What, if any, steps did FAA take to mitigate hitting the contract ceiling?

A. The first step the FAA took was to issue Contract modification 0063 which established the revised contract year 4 ceiling value and target cost. Raytheon was expected to continue to provide training delivery support in accordance with the ATCOTS Performance Work Statement, Annual Work Plan, and the FAA's revised requirements noted in correspondence submitted to the contractor in June 2012. As part of the Monthly Status Report, the contractor was expected to identify and describe separately any issues and/or concerns. Assessments of critical and time sensitive issues/concerns so identified should have included sufficient detail to provide the FAA insight on the necessary actions to overcome the situation. This combination of steps was geared to assuring that Raytheon stayed within the fourth year of the contract's ceiling and that any risks to staying within that amount were quickly and efficiently handled.

The FAA also implemented other steps to reduce the contract's costs, including the use of FAA instructors where available, an award fee designed to further encourage cost control, and implementation of a tool to aid the agency to better forecast and control our field training requirements.

- 4. At the hearing, you testified that there was a discrepancy about the number of controllers that Raytheon was required to train in the first year. You provided the number of 4,600 and Raytheon has cited the number 5,260. Both numbers are over the initial proposed number of 4,000 controllers to be trained.**

Q. How does FAA explain this discrepancy?

A. The manner in which the number is calculated will lead to different results. The FAA believes the best method to identify training demand is to identify the number of "in process" ATC trainees at a particular point in time. The FAA calculates that approximately 4,600 ATC trainees were in process at any given time in the first year of the contract. That number will vary at different points throughout the year. For example, in August 2009, the FAA reported that there were 4,375 controllers in training. That is merely a "snap shot" in time. If the FAA added all controllers that had completed training earlier in the year, or who would be trained later in the year to that number, it would naturally be higher.

One can also use that method, however, and count the total number of individuals that received any type of training during the calendar (or fiscal) year. That will yield a higher estimate. While such a figure would not be inaccurate, the FAA believes that this method of calculation overstates the actual demand for services.

Q. Does the FAA's number include recruits that washed out and started training over again?

A. Yes.

Q. Please provide detailed estimate of the number of persons in training by location or facility.

A. The FAA has provided a chart that contains details about the number of individuals in training at each facility. Please see Attachment B.

Q. What levels of controller training does the 4,600 number account for?

A. The FAA does not use the term "levels" of controller training, but it does categorize training. The 4,600 number accounts for Qualification Training for new hire controllers and transfer controllers. This training involves academic classroom and simulation training focused on air traffic control regulations, fundamental skills and application of procedures in a synthetic environment.

5. Raytheon submitted several proposals aimed at innovation. The FAA has stated that the contractor did not submit Class B proposals and submitted white papers instead. Raytheon has reported that FAA directed it not to submit formal proposals and to submit white papers.

Q. Did the FAA tell Raytheon not to submit Class B proposals?

A. No.

Q. Why has the FAA not responded to these proposals at all?

A. The FAA has not responded to the white papers submitted because they do not provide sufficient information to allow the Agency to make a decision.

Last year, Raytheon submitted a combination of proposals and pre-proposal documents, also referred to as white papers. Several of the white papers are still under consideration. However, these documents do not address the minimum requirements that are needed for the FAA to adequately evaluate and approve or disapprove the proposed process improvement. The ATCOTS contract requires the proposals to describe the proposed change, assumptions, transition, schedule, cost, and risks. If the proposal is categorized as a Class B proposal, then the proposal must also address safety, property, governing documents, connectivity, and a testing plan. The proposals submitted by Raytheon do not contain that information.

Initial costs to train a new controller

Contractor Provided Training

	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Academy	\$ 32,743,677	\$ 29,989,046	\$ 25,487,443	\$ 28,542,526	\$ 19,786,176
Enroute	\$ 35,355,311	\$ 34,147,037	\$ 26,724,988	\$ 20,646,468	\$ 14,494,194
Terminal	\$ 32,811,247	\$ 35,983,411	\$ 35,144,221	\$ 35,943,649	\$ 33,589,681
Total New Controller Training ATCOTS *	\$ 100,910,235	\$ 100,119,494	\$ 87,356,653	\$ 85,132,643	\$ 67,870,051

FAA Academy Training

From MMAC					
Academy Student Per Diem (CTTMS)	\$ 11,854,163	\$ 6,886,825	\$ 6,162,718	\$ 7,644,087	\$ 4,936,550
FAA Instructors (Fed Salaries)	\$ 9,334,550	\$ 8,731,220	\$ 8,897,717	\$ 8,950,793	\$ 8,762,967
Academy Operations and Maintenance Costs	\$ 3,993,079	\$ 3,660,444	\$ 3,845,537	\$ 3,551,721	\$ 2,932,852
Academy Administrative Costs	\$ 411,700	\$ 395,400	\$ 418,199	\$ 449,725	\$ 328,100
Total Federal Academy Training Costs	\$ 25,593,491	\$ 19,673,889	\$ 19,324,171	\$ 20,596,326	\$ 16,960,468

Field Federal Employee Costs to Deliver Controller Training

Enroute					
TN 0400 Design/Develop Training	\$ 573,728	\$ 233,278	\$ 341,776	\$ 296,811	\$ 496,171
Perform OIT - Premium Only (Object Class 115X0)	\$ 3,843,524	\$ 3,743,334	\$ 3,380,102	\$ 2,886,509	\$ 2,625,315
TN 0800 Training Briefing	\$ 1,348,152	\$ 1,531,050	\$ 1,368,244	\$ 1,167,345	\$ 1,171,087
TN 0900 Training Documentation	\$ 175,573	\$ 140,647	\$ 107,403	\$ 72,432	\$ 131,810
TN 1000 Training Other	\$ 13,605,532	\$ 9,722,242	\$ 1,344,339	\$ 1,403,081	\$ 2,101,582
Subtotal Enroute Field Delivered Training	\$ 19,550,529	\$ 15,370,851	\$ 6,541,864	\$ 5,726,178	\$ 6,525,945

Terminal

TN 0400 Design/Develop Training	\$ 615,262	\$ 653,394	\$ 832,167	\$ 940,896	\$ 764,386
Perform OIT - Premium Only (Object Class 115X0)	\$ 3,319,002	\$ 3,367,200	\$ 3,221,050	\$ 2,952,017	\$ 2,755,425
TN 0800 Training Briefing	\$ 1,968,531	\$ 2,139,369	\$ 1,879,594	\$ 1,696,410	\$ 1,625,411
TN 0900 Training Documentation	\$ 737,291	\$ 595,181	\$ 565,884	\$ 675,916	\$ 835,745
TN 1000 Training Other	\$ 19,814,035	\$ 15,148,943	\$ 3,019,048	\$ 3,367,280	\$ 3,362,844
Subtotal Terminal Field Delivered Training	\$ 26,454,121	\$ 21,903,987	\$ 9,517,743	\$ 9,632,519	\$ 9,343,811

Total Federal Field Training Delivery *

Total Federal Field Training Delivery *	\$ 46,004,650	\$ 37,274,838	\$ 16,059,607	\$ 15,358,697	\$ 15,869,756
Total Training Delivery Costs	\$ 172,418,376	\$ 157,068,321	\$ 122,740,931	\$ 121,087,666	\$ 100,700,275

Trainee (Pre-CPC) Salaries

Academy Salary PCB	\$ 13,072,164	\$ 8,441,421	\$ 6,456,289	\$ 7,645,085	\$ 4,470,972
Developmental Salary PCB	\$ 270,953,674	\$ 305,049,593	\$ 289,897,519	\$ 248,525,011	\$ 209,187,776
Total Pre-CPC Trainee Salaries	\$ 284,025,838	\$ 313,490,914	\$ 296,353,818	\$ 256,170,096	\$ 213,658,748
Total Costs of Training **	\$ 456,444,214	\$ 470,559,235	\$ 419,094,749	\$ 377,257,762	\$ 314,359,023

End of Year Headcount ACAD + AG + D1 + D2 + D3

1743

New Hires (To Academy or Field)

554

Trainee Attrition (From Academy or Field)

209

* Note: These amounts include a portion of recurrent training for certified controllers (CPC) that is not separately broken out

** Note: The amounts presented are from FY2009 to FY2013. The ATCOTS contract began on 8 September 2008, therefore data presented begins in FY2009.

Headcount Data for March Work Plan Current as of	People in each category							Total People	Total Trainees
	CPC	CPC-IT	AG	Dev 1	Dev 2	Dev 3	TMC		
12/14/2013	10948	1466	257	247	630	637	556	14741	3237
ARB	7	0	0	0	0	1	0	8	1
AZO	10	2	1	0	7	0	0	20	10
D21	41	14	0	0	0	0	5	60	14
DTW	32	4	0	0	0	0	4	40	4
FNT	15	2	0	2	2	0	0	21	6
GRR	16	1	0	0	5	1	0	23	7
LAN	17	2	0	0	1	3	0	23	6
MBS	11	2	1	0	1	3	0	18	7
MKG	15	0	0	0	0	5	0	20	5
PTK	13	0	0	0	0	1	0	14	1
TOL	16	2	0	0	5	0	0	23	7
TVC	7	1	0	0	0	1	0	9	2
YIP	11	0	0	0	0	1	0	12	1
GREAT LAKES	211	30	2	2	21	16	9	291	71
CAK	26	2	0	0	1	0	0	29	3
CLE	35	10	0	1	6	1	1	54	18
CMH	43	6	0	0	1	1	0	51	8
CMI	13	0	0	0	0	3	0	16	3
DAY	16	1	0	0	0	0	0	17	1
EVV	18	0	0	0	2	1	0	21	3
FWA	16	1	0	0	3	3	0	23	7
HUF	10	1	1	0	4	3	0	19	9
IND	43	5	0	0	2	2	0	52	9
LAF	8	0	2	0	0	0	0	10	2
MFD	11	1	0	0	0	7	0	19	8
PIA	12	1	0	0	4	1	0	18	6
SPI	9	0	0	0	0	1	0	10	1
YNG	15	1	0	0	2	4	0	22	7
HEARTLAND	275	29	3	1	25	27	1	361	85
ARR	10	0	0	0	0	0	0	10	0
C90	69	21	1	0	0	0	5	96	22
DPA	12	1	0	0	0	2	0	15	3
GRB	23	1	0	0	0	0	0	24	1
MDW	22	4	0	0	0	0	0	26	4
MKE	38	10	0	4	1	1	0	54	16
MLI	6	1	0	4	0	5	0	16	10
MSN	19	4	0	1	1	0	0	25	6
ORD	47	26	0	0	0	0	3	76	26
PWK	10	2	0	0	0	1	0	13	3
RFD	14	3	0	0	5	0	0	22	8
SBN	13	2	0	0	5	0	0	20	7
LAKE EFFECT	283	75	1	9	12	9	8	397	106
ALO	8	0	0	2	0	0	0	10	2
BIS	12	0	0	0	0	1	0	13	1
CID	14	0	0	0	4	0	0	18	4
DLH	14	0	0	0	4	3	0	21	7
DSM	17	3	0	0	3	1	0	24	7

FAR	14	3	0	0	0	3	0	20	6
FCM	12	0	0	0	0	0	0	12	0
FSD	12	1	0	0	4	0	0	17	5
GFK	20	3	0	0	1	0	0	24	4
LNK	12	0	0	0	0	0	0	12	0
MIC	12	0	0	0	0	0	0	12	0
MSP	32	4	0	0	0	0	4	40	4
M98	46	12	0	0	0	0	4	62	12
OMA	15	0	0	0	0	3	0	18	3
R90	19	1	0	0	0	0	0	20	1
RST	12	0	0	0	0	4	0	16	4
STP	14	0	0	0	0	0	0	14	0
SUX	7	0	3	0	0	6	0	16	9
NORTHERN PLANES	292	27	3	2	16	21	8	369	69
ZAU	316	23	2	9	15	16	16	397	65
ZID	289	4	10	4	12	1	19	339	31
ZMP	237	7	10	9	10	1	16	290	37
ZOB	310	17	0	5	25	8	23	388	55
CSA North	2213	212	31	41	136	99	100	2832	519

ABI	14	0	0	0	3	2	0	19	5
ABQ	29	1	0	2	2	0	0	34	5
ACT	9	2	0	0	5	3	0	19	10
ADS	13	0	0	0	0	0	0	13	0
AFW	14	2	0	0	0	1	0	17	3
AMA	14	1	0	0	2	3	0	20	6
D10	55	20	0	0	0	2	5	82	22
DAL	24	3	0	0	0	0	0	27	3
DFW	48	8	0	0	0	0	4	60	8
FTW	12	2	0	0	0	2	0	16	4
GGG	12	0	1	0	4	0	0	17	5
LBB	13	2	0	0	1	3	0	19	6
MLU	9	0	1	0	0	3	0	13	4
ROW	12	1	0	0	0	1	0	14	2
SHV	11	1	1	1	8	4	0	26	15
GREATER SOUTHWEST	289	43	3	3	25	24	9	343	98

CPS	9	2	0	0	0	1	0	12	3
FSM	24	0	0	1	0	0	0	25	1
ICT	27	7	0	2	0	0	0	36	9
LIT	23	0	0	0	3	2	0	28	5
MCI	30	6	0	0	1	0	0	37	7
MKC	13	1	0	0	0	2	0	16	3
OKC	21	7	2	0	3	4	0	37	16
RVS	14	1	0	0	0	1	0	16	2
SGF	22	1	0	0	6	1	0	30	8
STL	18	6	0	0	0	1	0	25	7
SUS	10	1	0	0	0	3	0	14	4
T75	29	3	0	0	0	0	0	32	3
TUL	25	6	0	1	1	1	0	34	9
MID AMERICA	265	41	2	4	14	16	0	342	77

AUS	24	12	0	0	1	1	0	38	14
BPT	11	0	0	0	0	0	0	11	0

BTR	9	4	0	0	3	2	0	18	9
CRP	24	6	0	0	4	3	0	37	13
DWH	14	1	0	0	0	1	0	16	2
ELP	14	1	0	0	4	2	0	21	7
HOU	27	2	0	0	0	0	0	29	2
I90	74	11	0	0	4	0	5	94	15
IAH	32	13	0	0	0	0	4	49	13
LCH	12	1	0	0	0	2	0	15	3
LFT	13	2	0	0	3	2	0	20	7
MAF	13	2	1	0	7	1	0	24	11
MSY	25	8	0	0	1	0	0	34	9
NEW	9	0	0	0	0	0	0	9	0
SAT	35	8	0	1	2	2	0	48	13
TEXANA	336	71	1	1	29	16	9	463	118
ZAB	180	2	2	9	10	8	14	225	31
ZFW	261	22	5	14	10	4	17	333	55
ZHU	234	14	7	4	7	11	18	295	43
ZKC	213	11	9	8	10	4	12	267	42
CSA South	1778	204	29	43	105	83	79	2321	464
Central Service Area	3991	416	60	84	241	182	179	5153	983

ADW	11	3	0	0	1	0	0	15	4
BWI	27	2	0	0	0	0	3	32	2
CKB	16	1	0	0	0	2	0	19	3
CRW	18	0	0	0	5	1	0	24	6
DCA	21	9	0	1	1	0	3	35	11
HEF	10	0	0	0	0	0	0	10	0
HTS	14	0	0	0	0	10	0	24	10
IAD	28	8	0	0	1	0	1	38	9
ORF	28	3	1	2	4	2	0	40	12
PCT	136	29	0	4	5	4	12	190	42
PHF	12	0	0	0	0	2	0	14	2
RIC	13	0	0	0	0	8	0	21	8
ROA	19	2	4	0	2	3	0	30	11
CAPITAL	353	57	5	7	19	32	19	492	120
COMMAND CENTER	1	0	0	0	0	0	55	56	0

A90	58	5	0	0	0	0	4	67	5
ACK	9	0	1	0	0	0	0	10	1
ALB	16	4	0	0	5	0	0	25	9
BDL	14	1	0	0	0	4	0	19	5
BED	11	1	1	1	0	2	0	16	5
BGR	18	2	0	0	0	1	0	21	3
BOS	27	9	0	0	0	0	4	40	9
BTW	14	2	0	0	5	0	0	21	7
K90	21	3	0	0	0	1	0	25	4
MHT	14	1	0	1	0	0	0	16	2
PVD	25	0	0	1	2	1	0	29	4
PWM	16	3	0	0	4	3	0	26	10
Y90	17	8	4	0	1	0	0	30	13

NEW ENGLAND	260	39	6	3	17	12	8	345	77
CDW	10	0	0	0	0	0	0	10	0
EWB	21	12	0	1	1	0	3	38	14
FRG	14	0	0	0	0	3	0	17	3
HPN	10	0	0	0	0	10	0	20	10
ISP	12	1	0	0	0	6	0	19	7
JFK	26	6	0	1	1	2	2	38	10
LGA	29	4	0	0	2	0	2	37	6
MMU	11	1	1	0	0	1	0	14	3
POU	8	0	0	1	0	2	0	11	3
TEB	19	6	0	0	0	3	0	28	9
NEW YORK	160	30	1	3	4	27	7	232	65
NEW YORK TRACON	146	18	14	0	2	0	9	189	34
ABE	21	5	0	0	3	2	0	31	10
ACY	19	3	0	0	3	0	0	25	6
AGC	12	1	0	0	0	3	0	16	4
AVP	19	0	0	0	2	0	0	21	2
BGM	14	3	0	0	0	2	0	19	5
BUF	25	1	0	0	6	3	0	35	10
ELM	9	1	1	0	0	4	0	15	6
ERI	15	3	1	2	0	2	0	23	8
ILG	8	1	0	0	0	4	0	13	5
MDT	21	2	0	0	3	3	0	29	8
PHL	56	30	1	0	1	6	6	100	38
PIT	38	6	0	0	0	3	0	47	9
PNE	7	3	0	0	0	2	0	12	5
RDG	13	0	0	0	0	1	0	14	1
ROC	23	2	1	0	5	0	0	31	8
SYR	19	0	2	0	4	0	0	25	6
SUSQUEHANNA	319	61	6	2	27	35	6	456	131
ZBW	219	15	9	9	9	2	20	283	44
ZDC	263	16	4	16	25	28	19	371	89
ZNY	234	12	24	6	11	35	19	341	88
ESA North	1955	248	69	46	114	171	162	2765	648
BHM	20	2	0	0	4	0	0	26	6
BNA	24	12	0	1	1	1	0	39	15
GPT	10	3	2	0	5	0	0	20	10
HSV	16	0	0	0	5	1	0	22	6
JAN	11	3	0	0	2	2	0	18	7
M03	26	5	0	1	2	4	2	40	12
MEM	26	3	0	0	0	0	0	29	3
MGM	10	5	0	0	2	1	0	18	8
MOB	18	3	0	1	3	1	0	26	8
NMM	7	0	5	0	0	0	0	12	5
P31	32	2	0	0	2	1	0	37	5
PNS	14	1	0	0	0	0	0	15	1

MAGNOLIA	214	39	7	3	26	11	2	302	86
DAB	41	11	0	0	1	1	0	54	13
F11	22	33	1	0	0	0	2	58	34
FLL	26	2	0	0	0	0	0	28	2
FPR	11	0	0	0	0	1	0	12	1
FXE	15	1	0	0	0	3	0	19	4
MCO	26	2	0	0	0	0	0	28	2
MIA	57	26	0	2	4	9	5	103	41
ORL	11	0	0	0	0	0	0	11	0
PBI	28	11	1	4	2	2	0	48	20
PIE	12	1	0	0	0	3	0	16	4
RSW	18	9	0	0	2	0	0	29	11
SFB	16	2	1	0	1	0	0	20	4
SJU	14	1	0	0	0	6	0	21	7
SRQ	12	0	0	0	0	1	0	13	1
STT	9	1	0	0	0	1	0	11	2
TMB	13	1	0	0	2	2	0	18	5
TPA	43	10	0	1	2	0	0	56	13
VRB	12	0	0	0	0	3	0	15	3
PARADISE	386	111	3	7	14	32	7	560	167
AVL	11	1	0	1	2	0	0	15	4
CLT	63	24	0	0	0	1	4	92	25
CVG	54	1	0	0	0	1	1	57	2
FAY	20	4	0	0	4	0	0	28	8
FLO	8	2	1	0	3	3	0	17	9
GSO	20	4	0	0	5	2	0	31	11
GSP	17	1	0	0	6	0	0	24	7
ILM	17	1	0	0	2	3	0	23	6
LEX	20	0	1	0	5	1	0	27	7
LOU	9	0	0	0	0	3	0	12	3
MYR	12	2	0	0	2	4	0	20	8
RDU	37	9	0	0	0	0	0	46	9
SDF	29	12	0	2	2	1	0	46	17
TRI	14	1	2	0	1	2	0	20	6
PIEDMONT	331	62	4	3	32	21	5	458	122
A80	78	12	0	0	0	0	7	97	12
AGS	13	0	2	0	3	1	0	19	6
ATL	36	20	0	0	0	0	5	61	20
CAE	22	0	0	0	5	1	0	28	6
CHA	12	0	0	0	6	3	0	21	9
CHS	21	3	0	0	2	2	0	28	7
CSG	5	0	4	1	0	0	0	10	5
JAX	19	15	7	1	5	2	0	49	30
PDK	15	6	0	0	0	1	0	22	7
SAV	21	1	4	0	1	0	0	27	6
TLH	18	3	0	0	1	0	0	22	4

TYS	17	4	0	0	5	1	0	27	10
SOUTHERN SKIES	277	64	17	2	28	11	12	411	122
ZJX	258	11	1	4	13	18	17	322	47
ZMA	223	8	1	3	19	12	16	282	43
ZME	233	10	13	3	8	13	16	296	47
ZSU	35	8	0	3	7	1	0	54	19
ZTL	351	9	2	10	6	19	23	420	46
ESA South	2308	322	48	38	153	138	98	3105	699
Eastern Service Area	4263	570	117	84	267	309	260	5870	1347

A11	18	4	0	0	0	0	0	22	4
ANC	21	3	0	0	0	0	0	24	3
FAI	17	2	0	0	3	0	0	22	5
JNU	8	0	0	0	0	1	0	9	1
MRI	13	0	0	0	0	0	0	13	0
ALASKA	77	9	0	0	3	1	0	90	13

BFI	19	4	0	0	4	0	0	27	8
BOI	20	7	0	0	4	2	0	33	13
EUG	16	5	0	0	1	0	0	22	6
GEG	22	3	1	0	0	2	0	28	6
HIO	11	1	1	0	0	2	0	15	4
MWH	10	0	0	1	0	1	0	12	2
P80	21	6	0	0	0	0	0	27	6
PAE	9	2	2	0	0	1	0	14	5
PDX	19	5	0	0	0	0	0	24	5
PSC	15	1	0	0	1	0	0	17	2
S46	37	21	0	0	0	1	4	63	22
SEA	26	4	0	0	0	0	0	30	4
TWF	5	0	0	0	0	5	0	10	5
NORTHWEST	230	59	4	1	10	14	4	322	88

APA	20	2	0	0	1	0	0	23	3
ASE	6	1	0	0	0	6	0	13	7
BIL	16	1	0	0	4	1	0	22	6
BJC	11	1	0	0	0	0	0	12	1
COS	20	7	0	0	3	1	0	31	11
CPR	8	0	0	0	0	6	0	14	6
D01	57	20	0	0	0	0	4	81	20
DEN	35	6	0	0	0	0	5	46	6
GTF	10	1	3	1	0	4	0	19	9
HLN	6	0	2	0	0	3	0	11	5
PUB	10	2	0	0	0	4	0	16	6
S56	33	10	1	3	2	1	4	54	17
SLC	21	9	0	1	2	0	0	33	12
ROCKY MOUNTAIN	253	60	6	5	12	26	13	375	109
ZAN	72	6	2	5	7	2	4	98	22
ZDV	245	21	9	14	8	8	16	321	60

ZLC	171	2	5	1	5	6	10	200	19
ZSE	140	4	10	3	14	1	11	183	32
WSA North	1188	161	36	29	59	58	58	1589	343

HCF	70	12	3	6	6	7	3	107	34
ITO	13	1	0	0	0	1	0	15	2
OGG	8	3	0	0	0	4	0	15	7
HAWAII- PACIFIC	91	16	3	6	6	12	3	137	43

APC	8	0	0	0	0	0	0	8	0
BFL	11	5	1	1	4	1	0	23	12
CCR	10	0	0	0	0	0	0	10	0
FAT	18	6	1	0	1	1	0	27	9
HWD	9	1	1	0	0	3	0	14	5
LVK	7	1	0	0	0	1	0	9	2
MRY	8	2	0	0	0	1	0	11	3
NCT	152	28	0	2	1	0	9	192	31
OAK	21	9	0	0	1	0	0	31	10
PAO	8	1	1	0	0	2	0	12	4
RHV	9	2	1	0	0	0	0	12	3
RNO	14	2	0	0	0	0	0	16	2
SBA	20	13	0	0	0	2	0	35	15
SCK	7	0	2	0	0	0	0	9	2
SFO	28	6	0	0	0	0	2	36	6
SJC	15	1	0	0	0	3	0	19	4
SMF	15	0	0	0	0	0	0	15	0
STS	6	2	1	1	0	1	0	11	5
SIERRA-PACIFIC	366	79	8	4	7	15	11	490	113

BUR	16	1	0	2	0	1	0	20	4
CMA	5	6	1	0	1	2	0	15	10
CNO	8	3	0	1	0	2	0	14	6
CRQ	12	0	0	0	0	0	0	12	0
EMT	9	1	0	1	0	2	0	13	4
LAX	35	19	0	0	0	0	2	56	19
LGB	11	12	0	0	1	0	0	24	13
MYF	11	0	0	0	0	3	0	14	3
ONT	10	3	1	1	0	4	0	19	9
POC	10	2	0	0	0	0	0	12	2
PSP	8	1	0	0	0	3	0	12	4
SAN	25	3	0	0	0	0	0	28	3
SCT	199	36	2	1	1	4	11	254	44
SEE	12	1	0	0	0	0	0	13	1
SMO	10	4	0	0	0	0	0	14	4
SNA	20	11	0	0	0	1	0	32	12
TOA	12	0	1	1	0	0	0	14	2
VNY	16	4	3	0	2	0	0	25	9
SOUTHERN CALIFORNIA	429	107	8	7	5	22	13	591	149

DVT	18	1	0	0	2	1	0	22	4
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E10	20	1	5	2	0	4	0	32	12
FFZ	12	1	0	0	0	0	0	13	1
GCN	4	3	0	0	0	3	0	10	6
L30	28	26	1	4	0	1	3	63	32
LAS	24	17	1	0	0	0	3	45	18
P50	44	16	0	0	0	0	4	64	16
PHX	26	9	0	0	0	0	1	36	9
PRC	12	0	1	0	0	0	0	13	1
SDL	11	1	0	0	0	2	0	14	3
TUS	11	2	0	0	0	1	0	14	3
U90	15	3	0	0	1	1	0	20	5
VGT	9	6	0	0	0	0	0	15	6
WESTERN DESERT	234	86	8	6	3	13	11	361	116
ZLA	218	16	6	17	22	13	8	300	74
ZOA	154	15	11	10	15	13	13	231	64
ZUA	14	0	0	0	5	0	0	19	5
WSA South	1506	319	44	50	63	88	59	2129	564
Western Service Area	2694	480	80	79	122	146	117	3718	907

RAYTHEON PROPRIETARY / COMPETITION SENSITIVE

**Post-Hearing Questions for the Record
Submitted to Ms. Lynn Dugle
From Senator Claire McCaskill**

**“Management of Air Traffic Controller Training Contracts”
January 14, 2014**

1. During the hearing, the Federal Aviation Administration (FAA) cited \$250,000 as the average cost to train an air traffic controller, and that 25% of this cost was associated with contractor work and 75% was associated with costs to the FAA.

Q. Please provide an analysis of Raytheon’s cost to train over each year of the contract, from 2008 to the present, and a breakdown of the costs per year associated with training provided by Raytheon.

Q. Please provide detailed information as to what training is being performed by Raytheon and the cost for that particular training element.

RAYTHEON PROPRIETARY / COMPETITION SENSITIVE

The controller training process encompasses two main elements: Academy Training and Field Training. Academy training consists of classroom and simulation training focused on regulations, fundamental skills and application of procedures in a synthetic environment. Specialized courses such as "Airspace and Procedures" and "Enhanced Traffic Management Coordinator" which are provided to fully certified controllers, managers and supervisors based on Field facility requirements are also a significant component of Academy operations. Field training consists of classroom and laboratory training as well as On-the-Job Training (OJT). Field training reinforces the fundamentals taught at the Academy and applies real world conditions, procedures, and the teamwork required for "live" air traffic control. Raytheon provides the Academy training as well as classroom and laboratory training in the field. All On-the-Job training is provided by the FAA.

The table below provides a detailed breakdown of the costs per year associated with training provided by Raytheon. As shown in the data below, the costs and number of students trained each year fluctuates as the stages, mix (Terminal versus En Route), and progression of students through the system changes.

Performance Year	08-09	09-10	10-11	11-12	12-13	Total
Contract Line Item (CLIN)	1001	2001	3001	4001	5001	
Academy Training	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Academy Student Cost						
Academy Students	2,145	1,706	2,036	1,654	1,297	8,838
Cost/Student	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Specialized Cost	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Specialized Students	1,122	234	270	410	280	2,316
Cost/Student	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Field						
Qualification Training Costs	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Qualification Training Students	6,005	5,621	5,524	5,174	4,660	26,984
Cost/Student	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Dev/Prof Training Costs	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Dev/Prof Training Students	15,770	15,696	15,418	14,879	14,818	76,581
Cost/Student	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Student Training Total						
Cost Per Student	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Fee/Other						
Other (FFP, CPFF, CDC)	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Award Fee	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
Incentive Fee	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]	\$ [REDACTED]
ATCOTS Total	110,553,044	116,229,801	104,530,016	96,756,231	74,136,493	504,505,585

RAYTHEON PROPRIETARY / COMPETITION SENSITIVE

Academy Training:

Performance Year	08-09	09-10	10-11	11-12	12-13	Total
Contract Line Item (CLIN)	1001	2001	3001	4001	5001	
Academy Training	\$	\$	\$	\$	\$	\$
Academy Student Cost	\$	\$	\$	\$	\$	\$
Academy Students	2,145	1,706	2,036	1,654	1,297	8,838
Cost/Student	\$	\$	\$	\$	\$	\$
Specialized Cost	\$	\$	\$	\$	\$	\$
Specialized Students	1,122	234	270	410	280	2,316
Cost/Student						

Raytheon conducts classroom and simulator lab instruction, supports the development and maintenance of Academy classroom and simulation lab training materials, maintains student training records and provides training management of services provided.

In the table above, "Academy Student Cost" includes:

- Air Traffic Basics – En Route and Terminal courses, students assigned based on FAA hire source.
- Terminal Tower – for students to be assigned to field tower facilities
- Terminal TRACON – Introduction to Terminal Radar and Radar Training Facility (RTF) courses, for students assigned to field TRACON facilities
- En Route – for students assigned to field En Route facilities

The "Academy Students" includes both new hires, as well as, Academy graduates that come back for additional qualification training once they achieve a level of field qualification.

In the table above, "Specialized Cost" includes:

Specialized – includes various non- Qualification related training courses such as Quality Assurance Program Administration and Airspace and Procedures.

The "Specialized Students" are certified controllers that require supplemental training on job specific topics usually to support various staff support functions.

Raytheon staffing in support of each course is based on a specific staffing models co-developed by FAA and Raytheon to achieve efficiency objectives while maintaining FAA directed student/instructor ratios for classroom and simulation lab session within each course. Each course has a unique staffing model tailored to a specific number of students attending.

RAYTHEON PROPRIETARY / COMPETITION SENSITIVE

Field Training:

Performance Year	08-09	09-10	10-11	11-12	12-13	Total
Contract Line Item (CLIN)	1001	2001	3001	4001	5001	
Field						
Qualification Training Costs	\$ 6,005	\$ 5,621	\$ 5,524	\$ 5,174	\$ 4,660	\$ 26,984
Qualification Training Students						
Cost/Student						
Dev/Prof Training Costs	\$ 15,770	\$ 15,696	\$ 15,418	\$ 14,879	\$ 14,818	\$ 76,581
Dev/Prof Training Students						
Cost/Student						

Raytheon provides classroom and laboratory training for new-hire students, students transferring from facility to facility, and proficiency training for all controllers at each assigned facility. Specific tasks performed include the conduct of classroom and simulator lab instruction, the development and maintenance of field classroom and simulation lab training materials, the maintenance of student training records and management of training services provided.

Proficiency training includes several categories: Supplemental, which supports the deployment of a variety of NextGen initiatives including new NAS systems such as ERAM, TAMR, RNAV/RNP, ADS-B; Skill Enhancement which targets specific performance improvement subjects; and Refresher/Recurrent training which focuses on seasonal and safety related topics among others. Also included are Mandatory Briefing Items (MBIs) as directed nationally. The table above shows the combined annual costs for overall training development and Proficiency training.

The "Qualification Training Students" includes qualification in-progress students, successful student certifications, and the number of unsuccessful students (failures) during the period. The source that Raytheon uses to identify the Field Qualification total student count is the FAA's National Training Database (NTD).

The "Development / Proficiency Students" includes all actual onboard, which includes certified controllers and developmentals that require proficiency training as described above.

Total Student Training:

Performance Year	08-09	09-10	10-11	11-12	12-13	Total
Contract Line Item (CLIN)	1001	2001	3001	4001	5001	
Student Training Total						
Cost Per Student						

This value represents all training costs provided by Raytheon as part of the ATCOTS contract.

RAYTHEON PROPRIETARY / COMPETITION SENSITIVE

Fee/Other:

Performance Year	08-09	09-10	10-11	11-12	12-13	Total
Contract Line Item (CLIN)	1001	2001	3001	4001	6001	
Fee/Other						
Other (FFP, CPFF, CDC)						
Award Fee						
Incentive Fee						

The "Other" category includes all non-training costs including the Fixed Price (FFP) and Cost Plus Fixed Fee (CPFF) task orders and the Central Development Center (CDC). The CDC efforts were performed during contract years one through four by a team located at the FAA Academy. The team developed supplemental course material as requested by FAA for use at the Academy and at Field Sites.

Total ATCOTS Cost:

Performance Year	08-09	09-10	10-11	11-12	12-13	Total
Contract Line Item (CLIN)	1001	2001	3001	4001	6001	
ATCOTS Total						

This value represents all of Raytheon's committed costs against the ATCOTS contract as noted above. Note that all costs associated with program management have been allocated against the training elements listed above. This includes performing all necessary actions to manage the program as well as provide deliverables to the FAA in accordance with the contract. Notable items included in these costs are Earned Value Management as well as a quality management program.

RAYTHEON PROPRIETARY / COMPETITION SENSITIVE

2. At the hearing, FAA testified that there was a discrepancy about the number of number of 4,600 and Raytheon has cited the number 5,260. Both numbers are over the initial proposed number of 4,000 controllers to be trained.

Q. How does Raytheon explain this discrepancy?

The source that Raytheon uses to identify the Field Qualification student count is the FAA's National Training Database (NTD). Raytheon includes qualification in-progress students, successful student certifications, and the number of unsuccessful students (failures) during the period which equates to the total discrete students in field training.

The table below shows Raytheon's measurement of the distribution of Field Qualification students for program year 2 which totals 5,621. The data is sourced from the FAA NTD on 10/18/10.

DISTRIBUTION OF DEVELOPMENTAL AS OF SEPT 30 2010 (ALL HIRE SOURCES)					
		FY2009	%FY2009	FY2010	%FY2010
ENROUTE	IN PROGRESS	1529	68.87%	1404	70.41%
	COMPLETED	553	24.91%	460	23.07%
	ALL UNSUCCESSFULL	138	6.22%	130	6.52%
ENROUTE TOTAL DEVELOPMENTALS		2220	100.00%	1994	100.00%
TERMINAL	IN PROGRESS	2475	65.20%	2458	65.99%
	COMPLETED	1054	27.77%	970	26.04%
	ALL UNSUCCESSFULL	267	7.03%	297	7.97%
TERMINAL TOTAL DEVELOPMENTALS		3796	100.00%	3725	100.00%
TOTAL (E AND T) DURING FISCAL	IN PROGRESS	4004		3862	
	COMPLETED	1607		1430	
	ALL UNSUCCESSFULL	405		427	
**MINUS UNSUCCESSFUL STILL AT FACILITY		11		98	
TOTAL DEVELOPMENTALS - FY TOTAL		6005		5621	
**TOTAL DEVELOPMENTALS NOTE: UNSUCCESSFUL DEVELOPMENTALS WHO ARE STILL AT THE FACILITY ARE COUNTED AS "IN PROGRESS" UNTIL THEY ARE PERMANENTLY REMOVED FROM THE FACILITY. THESE ARE SUBTRACTED OUT SO THAT THEY ARE NOT DOUBLE COUNTED IN FINAL TOTAL					

Q. Does the Raytheon's number include recruits that washed out and started training over again? Yes, those students are included in Raytheon's in-progress numbers. Under an FAA approved Employee Requested Relocation (ERR) students may be transferred from their originally assigned facility and training programs to another facility. As noted in the table above, these students are not being "double-counted," although these students do represent an increased cost to the training program.

Q. What levels of controller training do the 5,620 number account for?

The number accounts for all qualification training for controllers in all field stages or levels of training (except On-the-Job Training which is provided 100% by the FAA) during that government fiscal year.