UNITED STATES OF AMERICA

NATIONAL TRANSPORTATION SAFETY BOARD

In the matter of:	*	
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NTSB MOST WANTED LIST ROUNDTABLE	*	Docket No. DCA19RT001
ALASKA PART 135 FLIGHT OPERATIONS - CHARTING A SAFER COURSE	*	
	*	

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Anchorage, Alaska

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A P P E A R A N C E S

ROBERT L. SUMWALT, Chairman
National Transportation Safety Board (NTSB)

KERRY LONG, Alaskan Regional Administrator
Federal Aviation Administration (FAA)

DANA SCHULZE, Director, Aviation Safety
NTSB

Panel Members:

KYLE CHRISTIANSEN, IFR Airports and Airways-State of Alaska, Flight Procedures Team, FAA
JOANN Y. FORD, Navigation Programs Engineering, FAA
RON HABERMAN, Alaska District Manager, U.S. Postal Service
JOHN HELLEBERG, Principal Human Factors Engineer, The MITRE Corporation
JENS HENNIG, Vice President, Operations, General Aviation Manufacturers Association (GAMA)
BRIAN JOHNSON, Western Service Center, Quality Control Group, Team Manager, FAA
STACIA JOYCE, Senior Pilot, Air Methods
JOEL KAIN, Director of Safety, TEMSCO Helicopters (Alaska)
HARRY KIELING, Chairman, Alaskan Aviation Safety Foundation/FAA Master Pilot
DAN KNESEK, Vice President, Operations, Grant Aviation
HOWARD MARTIN, Regional Counsel, Alaska Region, FAA
WILL MAYO, Executive Director, Tribal Government and Client Services, Tanana Chiefs Conference (TCC)
ANDREW McCLURE, Alaska Flight Service Information Area Group, FAA
WAYNE McGHEE, Manager, Northwest Regional Sales, Garmin
RICHARD McSPADDEN, Executive Director, Aircraft Owners and Pilots Association (AOPA)
JEFFREY M. OSIENSKY, Alaska ROC Duty Officer, NOAA/NWS
DAVE PFLIEGER, President/CEO, Ravn Alaska
NOREEN PRICE, Aviation Accident Investigator, NTSB
GORDON (GORDY) ROTHER, AFS 220 Air Carrier Operations Branch, FAA
JENNIE SANDLAND, Air Traffic Controller, Anchorage En Route Air Traffic Control Center, FAA

A P P E A R A N C E S (Cont.)

Panel Members (Cont.):

GEORGE H. SNYDER, President/CEO, GHS Aviation Group, LLC
JOE SPRAGUE, CEO, Wings Airways
COREY STEPHENS, Accident Investigation and Prevention Operations Research Analyst, FAA
MAX TIDWELL, Vice President, Safety and Security, Alaska Airlines
THOMAS TILSON, Aviation Safety Inspector, FAA
RICHARD VAN ALLMAN, Manager, Planning and Requirements Group, Western Service Center, Air Traffic Organization, FAA
RAYMOND WEBER, Ph.D., Associate Professor, Aviation Technology Division, University of Alaska
SHAUN WILLIAMS, Senior Aviation Accident Investigator, NTSB
JIM WRIGHT, Senior Systems Engineer, Surveillance and Broadcast Services, FAA
MIKE YORKE, FAASTeam Program Manager, FAA
DARREN YOUNG, Director, Operations, Warbelow's/Air Arctic

I N D E X

AGENDA	PAGE
Welcome - Mr. Kerry Long	5
Introduction - Chairman Robert L. Sumwalt	9
Presentation: Alaska Accident Statistics and Areas of Concern - Ms. Dana Schulze	14
PANEL 1: Training Solutions	26
PANEL 2: Risk Management Solutions	59
Audience Q&A	102
PANEL 3: Technology Solutions	110
PANEL 4: Infrastructure Solutions	149
Audience Q&A	185
Final Thoughts	190
Closing Remarks - Chairman Robert L. Sumwalt	215
Adjournment	217

P R O C E E D I N G S

(8:30 a.m.)

MR. LONG: Good morning. Can you all hear me? There's so many folks I'd like to say hello to personally, and I will do my darnedest, but that's not the purpose of today's meeting. So I'm going to stick to the script because otherwise, I'll go off script and take too long, so please excuse my looking at the paper.

So good morning. For those of you who don't know me, my name is Kerry Long and I serve as the regional administrator for the Federal Aviation Administration up here in the Alaskan Region. It's my privilege, personally as well as professionally, to welcome the National Transportation Safety Board to Alaska for a roundtable on the subject of "Alaska Part 135 Flight Operations - Charting a Safer Course." The folks here, all of us, are very interested in what's going to come out of this meeting and we're looking forward to it.

Mr. Chairman, thank you for assembling such a fine staff and for the decision to have this meeting, and we understand your folks are very burdened with Santa Cruz and some other issues and sad issues, but we appreciate your not canceling and sticking with us.

Before we get started, safety first. There are emergency exits at the end of just about every aisle in the auditorium. In the event of an emergency where we need to evacuate the building, you will use the nearest exit, please, and then convene on the

lawn on the south side of the building along Providence Drive, which is the main drag outside. In the event of an earthquake, Mr. Chairman, please duck and cover next to your seat and await further instructions. It's only a couple of pages here.

So I mentioned my welcome is personal. That's because in between my time as the FAA's chief counsel and my trip to this amazing and last frontier, I spent about 3 years on the legal staff at the NTSB. I'm just echoing what we all believe, I believe, which is that the NTSB is the premier transportation accident investigative body in the world. No qualification, none whatsoever. I saw that professionalism that causes that with the investigators and the staff every day. Every day. I saw folks unwilling to stop investigations until they had answers.

I was reading in the Chairman's book, actually, about one that lasted 4 years, because until we found the answer, the NTSB, we didn't stop. They knew that lives would be saved by what they did. They walked that extra mile every day because they knew it would save lives. Many of them are here today to participate in an exchange of information we also know will save lives.

Briefly, the NTSB, among many other things, investigates every civil aviation accident in the United States. The purpose of today's roundtable and the reason for the visit of Chairman Sumwalt and his colleagues today, and you all, is that improving the safety of Part 135 aircraft flight operations is one of this year's top 10 safety improvements that will save lives. And I

think what we all know, that -- we think that all the NTSB does is take care of us, but they're also involved in highway accidents, marine accidents, pipelines, and so it's all over and, sadly, we're reminded of that by what's going on down in Santa Cruz at this point where the NTSB has fielded a large team.

So what we should not forget is that 4 of the remaining top 10, which are eliminate distractions, end alcohol and other drug impairment in transportation, reduce fatigue-related accidents, and strengthen occupant protection, are all aircraft related, aviation related, in addition to the relation they have, you know, to highways and marine and so on. So there are 10 of them, and remember that we're talking mostly about 1 of them today, safety in 135 operations, but there are 4 others that apply to our safety in aviation that you ought to think about.

So to the NTSB's Mike "Blue Skies" Folkerts -- where's Mike? Oh, he's not here? He probably knew I'd mention his name, so he ran out -- supported by Clint Johnson, who is here somewhere. There's Clint. Mike, thank you. I mentioned your middle name of "Blue Skies." Thank you both for your tireless efforts, which were very successful, to assemble the panelists. I don't want to accuse the panelists of being cats, but it was a bit like herding cats, and Mike was involved in it the whole way and thank you, Mike. And thanks, Clint, for the support you gave him.

(Microphone noise.)

MR. LONG: That's the drum roll after -- I mean before.

(Laughter.)

MR. LONG: So to our audience and the panelists, esteemed panelists, thank you for joining us today to participate in what I consider to be a unique opportunity. By my count, since I've been here, which is about 5 years, we've had the Chairman twice and other members at least once, which I find amazing. That's four out of five, and I think that's just amazing, sir, and it's an indication of how seriously you take the challenges up here.

So Robert L. Sumwalt, III, sitting right there, is the 14th chairman of the National Transportation Safety Board. He was appointed to a second 2-year term as chairman by President Trump just last month, following his, and get this, unanimous confirmation by the Senate. The last time I heard unanimous was I don't know when. Since his initial appointment in 2006, he has served as member, vice chairman, acting chairman, and for the past 2 years, as I mentioned, as chairman.

Prior to Chairman Sumwalt's NTSB service, he was a pilot for 32 years with Piedmont Airlines and US Airways, accumulating over 14,000 flight hours. He also chaired the Airline Pilots Association Human Factors and Training Group, and served as a consultant to NASA's Aviation Safety Reporting System. In his spare time, he co-authored a book on aircraft accidents and published more than 100 articles on transportation safety and aircraft accident investigations. A very busy man. He's a graduate of the University of South Carolina, proudly, and is

chairman, and he received his master's degree with distinction from Embry-Riddle. Both those institutions subsequently gifted him with honorary doctorate degrees, which I think is amazing.

Folks, the work of the day awaits, so without further delay, may I introduce to you --

(Microphone noise.)

MR. LONG: Are those your drums, Jackie?

(Laughter.)

MR. LONG: Folks, the work of the day awaits, so without further delay, assuming we don't get any more noise like that, may I introduce you to a fierce advocate for improving aviation safety and safety in all other transportation modes, who also happens to be one of the nicest people I know, the Honorable Robert L. Sumwalt.

Chairman.

(Applause.)

CHAIRMAN SUMWALT: Good morning. I don't know what we've got here. Do we have any -- no? No. Let's see if we can get some microphones.

(Off microphone comment.)

CHAIRMAN SUMWALT: I know. I know, that always happens. So I guess I'll have to -- can we get a mike on this thing here? No? Did I mention that we lack infrastructure in the state of California?

(Laughter.)

CHAIRMAN SUMWALT: Kerry, thank you for that warm introduction. As Kerry was reading that -- I got it. Thank you. So I'll stand here, then.

As Kerry was reading that, I was thinking gosh, where did Kerry get all that information about me, and then it occurred to me that, hey, I'm the one that wrote it.

(Laughter.)

CHAIRMAN SUMWALT: But anyway, Kerry, thank you. We're thrilled to be here. I think that Kerry's departure from the NTSB was certainly the FAA's gain and Alaska's gain.

I want to welcome everybody. Thank you for being here. I don't know if online, if you can see how many people we have in the audience, but we certainly do have a number of people here in the audience. We've got a number of panelists here.

You know, when the FAA Reauthorization Bill was passed last year, Senator Dan Sullivan put out a press release and he noted that aviation and aviation infrastructure are a critical component of the Alaska economy and our way of life, and he pointed out that 169 communities in Alaska are reliant on aviation for goods and services.

The Alaska Air Carriers Association said that 82 percent, 82 percent of Alaska's communities are not accessible by roads and, as a result, those communities rely on aviation for life-sustaining goods and services. And as many of you know, in some of these communities, if you're going to the hospital, you're

going by aviation. Most of that is by Part 135. So by extension, not only is aviation essential to Alaska, but so is Part 135; it's essential to Alaska.

At the NTSB, we're concerned about Part 135 safety in Alaska. Over the last 11½ years, the NTSB has investigated over 200 Part 135 accidents in the State of Alaska and those accidents collectively have claimed over 80 lives. So yes, the NTSB is concerned. We're concerned about Part 135 safety overall, but we're very concerned about Part 135 safety in the State of Alaska.

We've added improving the safety of Part 135 operations, we've added that to our Most Wanted List. We've also made recommendations about the need for an improved infrastructure in the state of Alaska for aviation.

Now I'm not from here, but I do recognize that Alaska has challenging weather. It has absolutely beautiful but precipitous terrain. And it lacks aviation infrastructure, things that we take for granted in the Lower 48, but those things must not be an excuse for the lack of safety. They can't be an excuse for those accidents.

Oftentimes, in the wake of an accident, our investigators meet with the grieving family members, and they can't very well go to those family members and say, well, I'm sure you're going to understand because, as you know, we have challenges in the state of Alaska. We don't have the infrastructure that you might've had if your family member would've been traveling in New Mexico or

Colorado or California. We cannot accept those factors as an excuse.

What we need, we need training. We need to ensure that the pilots who are operating those airplanes have adequate training for the mission, for the flight that they're planning, as well as any reasonable contingencies. We need to make sure that the operators are practicing aggressive risk management. We need to make sure that the technology is adequate. And we need to make sure that infrastructure is in place so that when a passenger boards a flight there is an expectation of safety. It's not if something happens we can just say, well, Alaska is different. Yes, Alaska is different in many aspects, but it is no different in terms of the consequences of a tragic plane crash.

Today we are here to pose provocative questions and we hope to get very good answers, meaningful answers. Today we have four panels, each about 4 hours -- excuse me -- each about 1 hour in length, and they center around those four topics that I mentioned a few minutes ago: training solutions -- training solutions; risk management solutions; technology solutions; infrastructure solutions. And notice that the word that I said four times was solutions, because that's what we're here today to seek is solutions to those difficult questions.

We're not here just to have another conversation. I was with Richard McSpadden last night as we spoke at the Alaska Air Carriers Association -- or the Alaska Airmen Association, and

Richard said we don't want just another conversation, we want solutions.

So our panelists, they are the real experts about the day-to-day challenges for what Alaska Part 135 safety faces here. They're also the ones who know many of the solutions. Thank you all for taking your time not only to be here today but prepare for being here today.

So as we sit here today and you listen, we want to think of takeaways, things that are aggressive solutions that we can actually work towards as we work to improve safety in Alaska.

Those of you in the audience, we will be taking questions from you. You should have some note cards that you would've gotten at the registration desk, and we'll have folks going through to collect your questions.

And if you're watching online, yes, you may submit your questions, and I think it's going to pop up here in a moment. Your questions can go to Part135roundtable@ntsb.gov, if you can see it right there on the screen, right? That's right. So here we go again, Part135roundtable@ntsb.gov. There it is.

The FAA has been a vital part of this event, as well, and they are offering WINGS credit if you attend in person or online. And if you're here in person, there's a table to sign up for WINGS credit out front. If you're online, you can watch -- you can email your questions to Mike Yorkie [sic], and Mike's address, there it is right there, mike.y-o-r-k-e@faa.gov.

That music sounds good. So I will do so when I return to my desk, but if you would, kindly put your phones on silent.

It's now my pleasure to introduce Dana Schulze. Dana has been with the NTSB since 2002. Prior to that, she had extensive experience in the aviation industry. Dana has been the chief of our Major Investigations Division at the NTSB. That is the division that heads up -- that is in charge of our Go Teams, our aviation Go Teams. In 2012, she became the acting -- excuse me -- 2012, she became the deputy director of the NTSB's Office of Aviation Safety. In July, we were proud to promote Dana to become the director of the NTSB's Office of Aviation Safety. She has somewhere around 125 employees that work under her, under her management. She has been involved with several investigations, including the investigation of Alaska Flight 261.

So I will in just a moment introduce Dana, but I do want to thank each of you for being here, I want to thank the panelists, and I really want to acknowledge the NTSB staff who's been involved in putting all of this together. We hope to have more recognition in that area at the end of the day, but I wanted to say that.

Dana, welcome, and hope you have better luck with the microphone than I did.

(Applause.)

MS. SCHULZE: Thank you. Good morning. And good morning to the panelists. And I just want to extend an additional thanks to

the panelists for all the work that you've done so far to prepare for coming here, for being part of the conversation, for being willing to have some of these difficult discussions that the Chairman mentioned, and those of you in the audience that are participating, as well as those on webcast. Hopefully, the webcast is working better than the microphone and the display.

So I wanted to start off by just level-setting us, that the Chairman mentioned these challenges that are very unique and difficult in the Alaska aviation environment, the weather and the terrain, and talk a bit about safety priorities.

I'll walk through today -- next slide, please, Josh.

I'll walk through today, essentially, the NTSB accident data for Part 135 accidents. The Chairman talked a little bit about it and I'll show you some of the occurrence categories. I don't think any of them will surprise most of you. I'll talk about the safety issues that we identified in the investigations we conducted at those accidents, and then I'll talk a bit about our recommendations, what we think the safety priorities need to be, and how those weave together with some of the other issues we're going to talk about in the panels today with regard to infrastructure in particular.

But most importantly, I want -- we want the conversation to be about collaboration and talking about these solutions jointly, talking about the difficult issues, but talking about how we can use some methods and technologies to focus on priority. Everybody

has limited resources and we recognize in the 135 community that all of the solutions need to be scalable for size and complexity of operation, and that's an important issue to address because, while some of the bigger operators might have the resources to do more, I think the message is there are a lot of things that can be done even with a small operation.

And so it's very important to have some of these tools and methods and strategies in place at every operation, but perhaps most importantly at the smaller operators, because I think what some of these methods that I'll talk about involved with NTSB safety recommendations, like flight data management and safety management systems, in particular, can help an operator do, of any size, is prioritize their safety resources that are very scarce. Everybody in the organization is part of safety and so getting them all focused on a common mission is very important.

So I think the other aspect to talk about today, as we start the conversation, is that safety is a non-punitive endeavor. It's very difficult to come forward and talk about mistakes of the past, but it's important to learn those lessons and make changes to move forward. It's also important to monitor your progress and hopefully do it in a way that you can identify where solutions maybe aren't working as you expected before they result in an accident, before an accident can occur. So it's really important to look at what we do here as lessons learned and reinvigorating and enhancing safety through that. It's not a punitive activity

that focuses on failure.

Next slide, Josh.

So I'll start with the data. And the one thing I also want to really get everybody to think about as you look at accident data is that this is the most rudimentary form of flight data management, if you will, that you would do is we look at the data after the fact. The better way to do it, less costly to life, to business, and to the community, communities that the flights operate into and the 135 community in general, is to have a mechanism to be able to identify the hazards that might lead to an accident before that occurs. And this is the genesis of our idea, our recommendation on flight data monitoring and safety management systems. Very critical. But for us at NTSB, we are the official U.S. repository for accident data, and so that's what I'm going to walk through with you today.

As the Chairman mentioned, since 2008 there have been 209 accidents involving Part 135 operations in the state of Alaska. And this Pareto diagram reflects the occurrence numbers from highest to lowest from left to right. And if you're familiar with the Pareto principle, it essentially says that 20 percent of the issues, and let's just say hazards, cause 80 percent of the problems or, in this case, accidents. And so one concept in safety is that we want to identify those few core hazards that maybe contribute to 80 percent of the accidents. And so if you look at all accident data, which is what this Pareto diagram

represents, there's a handful of occurrence categories that top the list, that contribute the most to accident occurrence. They're not categories that you would be surprised with: CFIT, loss of control in flight, midair collision.

So if we move then to look more precisely at the fatal accidents -- next slide; thanks, Josh -- of those 209 accidents, as the Chairman mentioned, 29 of them were fatal and, out of that, 81 people lost their lives, as well as untold cost in reputation, to the community, to the company. So a significant threat to the Alaska aviation system, but the economy as well. So it's something that we want to focus on, obviously you want to focus on, and look at ways to improve.

So if we apply the Pareto principle here, there's really four categories of accident -- again, probably not surprising to you -- that lead the list and really contribute to almost 80 percent of the fatal accidents: controlled flight into terrain, loss of control in flight, midair collision, and unintended encounter with IMC.

So again, we're looking in the rear-view mirror here at occurrences that resulted in fatalities, but we don't want to rely on this strategy to improve safety, right? We want to find a way to get in and identify the problems before they result in accidents, and I know that a number of experts on this panel are going to talk a bit about strategies for doing that through flight data monitoring programs and SMS and how those hopefully can be

scaled to any size operator doing any level of complexity of operation.

Now, before we leave this chart, I think it's important to note, again, not unsurprisingly, that three of those top four categories heavily involve weather, weather-related hazards.

So -- next slide.

So this is the first safety issue that the NTSB has identified in the course of our investigations. We found that CFIT training is conducted in many cases but it's really not yielding the effectiveness that one would hope. So this is where that monitoring comes in, understanding how effective the training programs are before an accident happens.

But what we see are improvements needed in the training programs themselves, their coverage of the most current TAWS technologies, the application of TAWS alerts and how they're inhibited in terms of the TAWS usage. We recognize that the TAWS design, the equipment, has limitations in that regard, but understanding how to manage the operational procedures to maximize the protections that TAWS can afford and maybe being able to drive the data back to the manufacturers of the systems to even improve them more.

And then lastly, the weather minimums, ensuring that there are conservative minimums in place and that pilots are complying with those, adhering to those minimums and the operating procedures for weather conditions.

So overall, managing weather risks is a big issue area and we believe CFIT training, enhanced CFIT training, could really take us to the next level to enhance safety.

Next slide.

Second issue area: operational monitoring. Again, as I've mentioned, it's a way and offers data that can be used in structured methods, safety risk assessments, to be able to understand where your most significant hazards lie, how you're operating your aircraft, the routes you're flying, the technologies, the equipment that you're using, how the pilots are trained, but really having data to look before the accident happens to understand where shortcomings might lie. And again, the importance of the operational monitoring is that we can identify these risks and hazards before an accident occurs.

Next slide, please.

And this is the third and last safety issue area that we've identified, the safety management practices. And, of course, this is the cornerstone, safety management, that really the first two areas of improvement opportunity, the safety issue areas, really could benefit and rely on, are safety management practices and so, of course, safety management systems is a structured way to improve in these areas.

So what are the issues we've seen? We've seen some issues with safety policies themselves, they're not effective or they're not consistently implemented. The safety risk, as well, we don't

necessarily see operators sitting down -- subject matter experts to sit down and really talk through the risks, the hazards in their operation and how those risks could manifest in terms of the worst-case, an accident.

And then as part of that, the safety risk assessment process itself, just being able to prioritize. The whole reason that you would conduct safety risk assessments is to identify potential mitigations. But as I mentioned at the beginning, everybody's got tight resources so you can't do everything. What are those few things that you can do that are going to make a difference? That's what safety risk assessment is about, helping you identify your safety priorities and being able to communicate that effectively all the way up and down the chain within your organization.

And with flight data monitoring, real data aggregated over multiple flights, that starts to help you build a credible story with your employees, with the FAA, and with the industry, with your colleagues, your partners, for where the issues lie and what are effective solutions.

And then lastly, those lessons learned. Part of the safety management process, being able to look at how effective the changes that you're putting in place really are, monitoring your operation over time; did that procedural change work, did that training activity show improvement, those sorts of questions that can be answered more objectively with data, but it also helps

build the credibility and trust with your employees, which is critical to building that culture.

Next slide.

So as I mentioned, at NTSB we've made some recommendations. We believe that preventing the next accidents on Part 135 operations, particularly in Alaska, really, if there are priorities to be set, we think CFIT training, operational monitoring through flight data management systems and programs, and safety management systems will really help move the needle on safety, recognizing that they need to be scalable and they need to be adaptable to all types of operations. Again, I think that's a key part of the conversation today, is how do we do that?

So lastly, we have -- in terms of doing that and trying to get some collaborative knowledge sharing across all the experts on the stage, we've got four session areas we want to talk about today: the training, risk management, technology, and infrastructure. And I think that, again, the concept being how can we find those few activities, those few solutions that will get us where we need to go and be able to move that safety needle ahead.

So again, I want to thank the members of the panel who are going to be here to talk and share their expertise and knowledge, and with that, I think we should get the conversation started. Thank you.

(Applause.)

CHAIRMAN SUMWALT: Great.

Why don't we go around the room just real quickly and introduce our panelists? Ron, please.

MR. HABERMAN: Good morning, Mr. Chairman. I'm Ron Haberman, I'm the district manager with the U.S. Postal Service.

MR. MAYO: Good morning. I'm Will Mayo, and I'm a co-chairman of the Alaska Federation of Natives, and I work at the Tanana Chiefs Conference. I'm here as a consumer of these services.

CHAIRMAN SUMWALT: Thank you, and welcome.

DR. WEBER: Hi, I'm Ray Weber, associate professor of aviation here. My areas of focus tend to be human factors safety.

CHAIRMAN SUMWALT: And Ray, we want to thank you for providing this beautiful venue, the Wendy Williamson Auditorium at the University of Alaska Anchorage. So thank you very much.

DR. WEBER: You're welcome. And I would like to take credit, but I can't.

(Laughter.)

MR. SNYDER: Good morning, Mr. Chairman. I'm George Snyder, I'm the president and CEO of GHS Aviation Group. We're an international aviation safety auditing, training, and consulting group in Washington, D.C.

CHAIRMAN SUMWALT: Harry.

MR. KIELING: Good morning. I'm Harry Kieling. I'm chairman of the board of the Alaskan Aviation Safety Foundation. We are a

statewide nonprofit educating and advocating for aviation safety.

MR. MARTIN: Howard Martin, regional counsel for the FAA, and I represent, I guess, the darkest side of the dark side. We do the enforcement that comes out of the various investigations.

MR. TILSON: Good morning. Tom Tilson. I'm currently assigned to the FAA academy in Oklahoma City with a specialty in SMS training and Part 135 flight operations. I'm also an Alaskan mutt from Ketchikan, and grew up in Juneau and joined the FAA in 2014, in Juneau, as a field inspector.

MR. YORKE: Good morning. Mike Yorke, aviation safety. I have the opportunity to circulate throughout the state of Alaska, mostly south central, discuss issues, safety, with the operators in Part 91. I also have another assistant in that division, Kyle Weinzirl. Thank you.

MS. JOYCE: Hello, my name is Stacia Joyce. I'm a senior pilot with Air Methods and also a small 135 air charter with my husband.

CHAIRMAN SUMWALT: And I believe, from here on, you'll be with us in the morning and then we'll change out this side of the room at lunch, I believe, or after lunch. I believe that's the way that's going to work. Thank you, Stacie.

And Mike, sorry I pronounced it Yorkie. It's Yorke.

MR. YORKE: Most people say Yorkie. You're good.

(Laughter.)

MR. SPRAGUE: Good morning. I'm Joe Sprague with Wings

Airways, a floatplane tour operator in Juneau.

MR. YOUNG: Good morning. Darren Young. I'm the director of operations for Warbelow's and Air Arctic out of Fairbanks, Alaska, here.

MR. KAIN: Good morning, Mr. Chairman. I'm Joel Kain. I'm the director of safety for TEMSCO Helicopters. We're headquartered in Ketchikan but have operations throughout the state.

MR. PFLIEGER: Good morning, Mr. Chairman. I'm Dave Pflieger, and I'm the president and CEO of Ravn Air Group. We're the largest regional airline in the state.

MR. KNESEK: Dan Knesek, vice president of operations for Grant Aviation.

MR. TIDWELL: Good morning. Max Tidwell, vice president of safety and security for Alaska Air Group.

MR. HENNIG: Jens Hennig with the General Aviation Manufacturers Association. Good morning. I co-chair the FDM initiative here with Corey Stephens on the industry side, and I also have the pleasure of co-chairing an ADS-B deployment initiative with the FAA. So plenty of topics here to discuss today.

MR. STEPHENS: Hello, Mr. Chairman. Corey Stephens, FAA Office of Accident Investigation and Prevention, government co-chair for the Safety Analysis Team of the General Aviation Joint Steering Committee.

MR. McSPADDEN: Good morning. Richard McSpadden with the AOPA Air Safety Institute.

MS. SANDLAND: Good morning. Jennie Sandland. I'm an air traffic control specialist at Anchorage en route control center.

MR. McCLURE: Good morning, sir. My name is Andy McClure. I work for Alaska Flight Service. I facilitate a monthly PIREP improvement work group up here and have been working in Alaska for probably 22, 23 years out of my FAA career.

MS. PRICE: Good morning. I'm Noreen Price, aviation accident investigator for the NTSB in Alaska.

MR. WILLIAMS: Shaun Williams. I'm a senior investigator with the NTSB.

CHAIRMAN SUMWALT: Well, good morning and welcome.

So this first panel is going to be on training. And Ray, since you're the host, why don't we start with you. And tell us about the aviation program here at the University of Alaska Anchorage, and what are some of the key areas that you're focusing on to develop the next generation of pilots.

DR. WEBER: Excellent. Yeah, I can do that for you. First of all, the University of Alaska Anchorage has a pretty sizable aviation program of about 400 to 450 students, variable, and three -- four primary areas: piloting, management, air traffic control, and maintenance. But with the focus on 135 operators today, we'll focus on the piloting. And what we really do is we try and work with the students, first and foremost, to get them thinking about

safety at the start. This happens to include discussions at length for safety management systems and risk management including hazard analysis, starting at the beginning, and we work through all of the classes -- safety, human factors, private pilot all the way through commercial -- we are discussing risk management techniques.

Now what tends to end up becoming unique is towards the end. Several of the FAA members here and several of the other organizations have attended our 492 presentations. Our 492 presentations happen to be -- we pick a problem and we have all of the students work towards a solution to that problem, and this can be anywhere from aviation fatigue issues all the way through -- we had someone talking, one group talking about privatization options for air traffic control. But at the end, they actually use their time to analyze the information and it starts to get them thinking about analysis techniques for things such as risk management, and they get to do it, actually practice it.

And then we also run with the standard foundation of you will have the proper stick and rudder skills, you will be able to understand it, and we also have a focus on weather. So those are our three primary areas that we look towards.

CHAIRMAN SUMWALT: Thank you very much.

By the way, I want this to be informal. If it's okay with you all, I'll refer to you by your first name and you can refer to me by my first name, which is Mr. Chairman.

(Laughter.)

CHAIRMAN SUMWALT: But actually, yeah, I would prefer if you do refer to me by my first name, which is Robert. So thanks for the formalities, I'm honored to have that title, but let's keep it informal today.

So Ray, thank you very much. And since we're on you, why don't we go to Dave Pflieger because you have just, as I understand it, introduced a program to partner with UAA to help recruit pilots or to train pilots. Can you talk just a little bit about that?

MR. PFLIEGER: Sure, Mr. Chairman, real quick.

So actually it was our senior vice president of flight operations, who's in the audience, Deke Abbott, who got together with the staff over at UAA, and what we did was create a program for young men and women who were finishing their either associate's degree or their bachelor's degree at UAA, to, in their last semester, if they're already qualified as a commercial airline pilot and meet our standards, come and fly for us as an airline pilot out in the bush, flying in our 135 operation while at the same time they're at UAA finishing up their degree, and it's a pre-req that they have to finish their degree before they move over and start flying for us. But it's a great program, great partnerships, early, early days in terms of its infancy, but what we're trying to do is create an incentive for young men and women to want to get into aviation and, more importantly, do it

the right way through UAA as a flight school and other flight schools, obviously, but UAA has got a great robust program, and then bring them on to fly for us, starting off on the right seat and then moving to the left seat.

CHAIRMAN SUMWALT: Great. Thank you for that innovative approach there, because we all hear about a pilot shortage. In fact, I'm hearing, and I don't know how -- yeah, I suspect this is variable. I'm hearing as much as 40 percent of pilot turnover in the 135 community each year here in Alaska, and of course the major airlines are hiring, which means the regional airlines are hiring, so it has an effect, I suspect.

If you're a 135 carrier, kind of let me know -- I'd like to hear from you if you're a 135 carrier, what percentage of turnover are you having each year. Dave, of course, you're 135 and 121. What's your pilot turnover looking like?

MR. PFLIEGER: It's probably about in that same ballpark. I mean, we've got a different mix here with the 121 folks who want to stay and, you know, spend the night, have a domicile right here in Anchorage, but the 135 tends to be -- they're two on/two off schedules, like a lot of the 135 carriers up here, a lot of folks who come up and either stay for a lifetime or come up and transit through on their way to the big guys.

CHAIRMAN SUMWALT: So you're saying that 40 percent figure is not atypical for what you're seeing?

MR. PFLIEGER: That's pretty close.

CHAIRMAN SUMWALT: Dan, how about you at Grant?

MR. KNESEK: Yeah, 40 percent sounds about the right number.

CHAIRMAN SUMWALT: And Joel?

MR. KAIN: Mr. Chairman, I think that's pretty accurate.

CHAIRMAN SUMWALT: Yeah.

MR. KAIN: We have a year-round population as well as seasonal, but the seasonal tends to affect us that way.

CHAIRMAN SUMWALT: Darren?

MR. YOUNG: Yeah, I would even say more with us. I mean, a lot of our pilots are senior. We have some of ours -- pilots have been here for years, but the pilots that are coming through, they realize this is just a steppingstone to their next career path, and we can't keep pilots and then what's out there is not very experienced. So working with the university and stuff like that is a perfect way to create that pipeline.

CHAIRMAN SUMWALT: Great.

And Dave?

MR. PFLIEGER: If I may, Mr. Chairman, I think one of the things that all of us are doing to address that, too, is retention bonuses and incentivizing folks to stick around. So we want to get the return on investment in training, we want good employees, and they obviously want to get compensated appropriately for being up here and on their way up, if they're going to move out to another carrier.

CHAIRMAN SUMWALT: Fantastic. So yeah, I mean, so that sort

of validates what I've heard there, so I appreciate the feedback here.

So at the NTSB, we have recommended CFIT avoidance training for Part 135 pilots. Now, as I recall, back when the helicopter, when the rotorcraft rules were changed back in around 2014 or so, it did require CFIT avoidance training for commercial helicopter pilots. But, Stacie, can you talk a little bit about that, how it's affected the -- of course, you're required to do it on your helicopter side. How about on the fixed-wing side, are you doing anything in that respect, CFIT avoidance training?

MS. JOYCE: Yes, we are. When I first started flying up here, it was my first job in Part 135 with Era and even -- we didn't have simulators at that time, but CFIT avoidance was certainly at the top of the priority, flying in the mountains, flying glaciers, and then that's just evolved in time as technology comes up.

We implemented use of the Medallion Foundation simulators for our CFIT avoidance by reducing, you know, the weather in the simulator and how to recognize deteriorating visibility and when to make the decision to turn around rather than continue. And of course that doesn't replace the valuable training in the aircraft, but it's a tool -- the simulators are a great tool for CFIT training and I'm a huge advocate. And in airplanes, the same thing, you know, we try and use the Medallion Foundation as much as we can to implement and, you know, help us with our real-life

situations.

CHAIRMAN SUMWALT: Thank you.

And so one of the things we noted in our investigation of a Part 135 accident down in Ketchikan a few years ago, we looked at the fidelity of the simulators. Now, of course, the simulators aren't there to teach you how to fly stick and rudder, but it was really more of a cue-based thing that you look out the window, which is a CRT, which is a TV screen, LCD screen, whatever it is, and -- but we noted that some of the fidelity of the simulations of the weather seemed to be not realistic. Maybe that can be changed with technology, but has that problem -- is that problem being addressed in terms of being able to improve the replication of weather situations?

Darren?

MR. YOUNG: Yeah, with -- we've actually incorporated the CFIT training as part of our basic training program and we do utilize a simulator. It's actually pretty useful for that tool. We use it for basic instrument skills, as well, just the stick and rudder, if you will. Just flying instruments in a simulator is a pretty tough thing to do. But we specifically use it for the CFIT avoidance training with -- and the technology and the programs that we have, that you can get nowadays, we can actually fly the same routes that we do. We actually practice the route to Cold Foot, we practice the route to Anaktuvuk, and use those specific routes that we fly as part of the CFIT training.

CHAIRMAN SUMWALT: Great.

Ray.

DR. WEBER: I apologize for interrupting in here, but that actually was an area of research that I did. The fidelity has certain aspects to it that does help, but at the same time it depends on what you're trying to accomplish. What I have found time and again is if you're using it more for allowing decision making, you actually can get away with a lower fidelity, less expensive unit, as long as you're using it primarily for that decision making. It works in conjunction with ground training to a superior level.

CHAIRMAN SUMWALT: Great. So it does help, according to your research, it does help with the decision making and we do know that the decision-making aspect is what oftentimes leads us into, or allows us to get into weather that we probably should not be into. So would you like to talk a little bit more about that research and the decision-making aspects of that?

DR. WEBER: I can, but cut me off as soon as I get too long. It happened to be my dissertation research. What I was comparing was the use of ground-based instruction versus simulation strictly on the effectiveness of decisions made.

Now I will say one of the areas that I found problematic was both groups always tried to fly into the weather. But in the later group, the group that did the simulation, after they flew into weather, got lost and plowed into a mountain in the

simulator, they were significantly more cautious. But that also meant I had to let them complete the simulator scenario to its ending. So as I continued to do that, that group started to improve and turn around significantly earlier than any of the groups that just strictly did ground or they also did video training in the AOPA, the AOPA mountain training.

CHAIRMAN SUMWALT: So basically, in the simulator, you would allow them to make the poor decision, they would fly into the mountain, but then in subsequent exercises they did significantly better.

DR. WEBER: That is correct.

CHAIRMAN SUMWALT: So if we have to run into a mountain, it would be much better to do it in a fixed-motion simulator than in real life. So it is having the effect, according to your research, of improving it downstream. Because oftentimes when we run into a mountain in real life, we don't have the opportunity to repeat that mistake.

MR. McSPADDEN: Mr. Chairman, over here.

CHAIRMAN SUMWALT: That would be Richard.

MR. McSPADDEN: If I may, one of the things we should put on the table to discuss at some point is the Medallion group and the retiring in the Medallion group and those CFIT simulators that they've been operating and how that's going to be picked up and continued and who.

CHAIRMAN SUMWALT: Great. Thank you.

MR. McSPADDEN: So I just didn't want to leave that topic without us putting a marker on that.

CHAIRMAN SUMWALT: No, let's talk about that because when Stacie mentioned the Medallion simulators, I was going to follow up with that. So let's talk about it. So what -- how will that void -- and by the way, Ray, you apologized for interrupting. You're not interrupting. We want this to be a conversation. But as we said, and I quoted Richard, we don't want it just to be a conversation for the sake of here on Friday the 6th of September. We want solutions that we can implement downstream, so we do want a conversation.

So along the note that Richard just mentioned, okay, so Medallion goes out of business on the 15th of September. That means, ostensibly, the simulators will not be there. How is that void going to be filled?

MR. TILSON: Mr. Chairman, we --

CHAIRMAN SUMWALT: Tom.

MR. TILSON: Robert, we had a meeting yesterday with a group, the FAA guys got together, and that was one of the topics that was brought up. And Mike, you can help me with this.

The agency -- correct me if I speak out of turn here. The agency's plan is to have those simulators continue to be available for use. There may be a pause while we figure out where we're going to put them, but I know the outlying simulators, like the ones in Ketchikan and things like that, those are, at this point,

remaining where they are and they're going to remain in service. The simulators here in Anchorage are going to need to find a new home facility-wise and the agency has made that a priority to make that happen. So there may be a short pause where they're not available, but the simulators are going to continue to be available to the use -- for use of the carriers.

CHAIRMAN SUMWALT: Okay. That's interesting.

And Mike, would you like to jump in there, and Joe? But Mike first?

MR. YORKE: Yeah, Tom hit the nail on the head. Our senior management does not want this program to linger or stay on the shelf for a while. We'd like to see them available the 16th, but probably in reality that doesn't happen. So the ideal of a short pause, I think that's a great choice of words -- and I know Howard met yesterday with the E.D. down there and he may have some things he can share on the timeliness of that. That meeting, I believe, was at 4 o'clock yesterday.

CHAIRMAN SUMWALT: All right, let's hear from Howard and then, Joe, we'll go to you. Thank you.

MR. MARTIN: So right now we've reached agreement in principle. It's an unusual situation the way the equipment was purchased, but we maintain a residual interest in it. Medallion's working with us to inventory, determine suitability, what equipment is still usable, where it should be. And we're going to work with other partners who we've reached out to, Alaska Air

Carriers, the university, various parties. So it's going to take a little bit of time because we can't just give property away, it doesn't work like that, but we are working strenuously right now to get it back in service as soon as possible.

CHAIRMAN SUMWALT: Great, thank you.

And Joe.

MR. SPRAGUE: Yeah, I'm just sort of stating the obvious, but on behalf of the smaller operators in the state that really rely on that equipment, we hope that that short pause is as short as possible. The simulators really do provide a benefit to us. We incorporate it voluntarily as part of our training program, particularly for new pilots coming into the operation. Even if the fidelity isn't that great, the ability to actually see terrain that they are unfamiliar with and see it in different weather conditions is just critical.

So I would say the CFIT simulator -- and I'm glad Richard asked for a marker on this Medallion question because we shouldn't let it be the elephant in the room today, we should absolutely address what does follow that. And it isn't just the CFIT sims, which are a critical asset for operators, especially small operators that could never afford to do something like that themselves, but reporting systems like the ASAP program. Your own encouragement for operators to adopt SMS is great, but there's a technical element to incorporating SMS at a smaller operator that a lot of smaller operators don't have that expertise. So having

some sort of follow-on entity to Medallion is critical.

CHAIRMAN SUMWALT: Great. Thank you.

And Mike, did you want to make a final word on that?

MR. YORKE: Yeah. There's been a little bit of early chat on this. We have a popularity for flight seeing. Talkeetna, Alaska is similar to Southeast Alaska, there's a dozen Turbine Otters that operate up there and probably another eight other aircraft flight seeing the McKinley area, and a great place to see on a beautiful day, but sometimes there can be some contiguous weather issues that do evolve. And so we'd like to see if we could -- possibly that was one of the solutions, move one of those simulators up there early in the year.

Just a quick note. Jennie Sandland's group over at ATC, we have a preseason meeting up there every year, and folks from ATC come up to talk with the operators up there and they all say it's beneficial. They often steal the show from us, so --

CHAIRMAN SUMWALT: Great. Thanks.

And Joe talked about ASAP and SMS and those other aspects that are associated with Medallion, and as we get on later on today we will talk about those programs there. Why don't we switch -- still on the idea of simulator devices.

Joel, so you've got some new training devices for your pilots. Can you talk about what you're doing there and the safety payback that you are getting?

MR. KAIN: Yes, sir, absolutely.

Earlier this year we installed a Level 5 full-motion simulator in our Ketchikan facility and it's been an absolute game changer. I wanted to address the visuals. We talked about the graphics in some of our aviation training devices, flight training devices. Our simulator is actually a miniature IMAX theater. It is a wraparound screen that pulls 220 degrees around the pilot, the cockpit area, and it goes from the floor to 12 feet. So it's 12 feet tall and a small IMAX theater with multiple projectors and it's full-motion capability. It's been kind of the culmination of a 2- or 3-year project to get to this point for the installation, but now it's just the beginning of that training opportunity for our pilots.

All of our pilots this year, we're still in our first year of implementing this into our -- integrating this into our training program. All of our pilots, our initial first-year pilots received at least 2½ to 4 hours of hands-on training in the simulator before they actually entered a cockpit. All of our year-round full-time pilots trained, did their recurrent training in there, as well.

I think probably the most important thing -- Dr. Weber talked about turning around and using cue-based training. That's been a major part of our CFIT training program was using cue-based training to deteriorating weather conditions and figuring out when is this guy actually going to make the decision that it's just getting so bad you can't go on?

Another major aspect that we've seen in this integration was we integrated synthetic vision and our ADS-B into the simulator, and that took a bit of a delay with the simulator developer, which is Frasca simulators out of Urbana, Illinois. They've been exceptional to work with, and we now have a cockpit that's customizable and we can fly it from the left seat or the right seat, and we can fly it in multiple variations of our models of our aircraft, and that synthetic vision is an absolute game changer.

We don't have it across the fleet yet, we have about 25 percent of the fleet completed with synthetic vision, but the pilots are seeing actual flight controls, actual cockpit, and the graphics are actually amazing. We sent in thousands of pictures and Frasca synthesized those pictures with GIS information and some Google Earth information and it's very, very realistic training.

CHAIRMAN SUMWALT: Wow, that sounds fascinating. And the simulators, you're down in the southeast, is that --

MR. KAIN: Yes, sir.

CHAIRMAN SUMWALT: -- in Juneau?

MR. KAIN: The simulator is actually in Ketchikan at this time. We have a plan to eventually set up two of the screen systems and the projector systems so that we would have an opportunity to move the brains of the system, if you will, the cockpit device, from one place to another throughout the year as

we -- as our center of gravity moves from training to operations.

CHAIRMAN SUMWALT: Fantastic. Thank you.

MR. KAIN: Thank you.

CHAIRMAN SUMWALT: Joel, you mentioned the notion of decision making and, Ray, we talked about it with your research.

Harry, it was nice to be with you last night. The Alaskan Aviation Safety Foundation has done a lot, a lot of great work advocating aviation safety through education. So what are some examples of the foundation's efforts to improve pilot decision making in the areas of weather recognition and avoidance?

MR. KIELING: Thanks, Robert.

I was amazed by your discussion about your simulator. Congratulations, that's fantastic.

I'd like to begin by just talking a little bit about the Safety Foundation and then I'll talk directly to your question.

The Safety Foundation has been actively advocating for aviation safety in Alaska for over 25 years. This statewide nonprofit has conducted seminars, distributes a quarterly newsletter to educate our members on specific topics like CFIT, VMC into IMC, risk management and decision making.

Three years ago we collaborated on a seminar with NTSB led by then Member Dr. Earl Weiner. We focused on preventing loss-of-control accidents, which was one of the top 10 Most Wanted List at the time. On the screen there you should see the agenda for that particular meeting back in November. And as you look down it,

it's pretty typical of the type of program that we present. We normally have about 80 or 100 people attend, but you can see that NTSB presenters are woven into the fabric of that agenda and almost every one of our presentations we have an NTSB investigator talk about Alaska accidents.

One of the most effective tools that we've been using lately certainly isn't a full-motion simulator, but it's able to involve more people, and what we do is we hand out small controllers that you can select multiple choice answers, and on the big screen we develop a flight and it's a local flight. You might take off out of Lake Hood, the weather might get bad and we stop the flight, and then ask the audience to vote. What would you do now? Would you turn around? Would you continue? And they will vote and then we'll throw the results up on the screen, and then the final step is to discuss some of those decisions that might not be as good as others. Anyway, we have pioneered the use of these visual simulations in creating situations that allow a lot of pilots to exercise decision making in many of the situations that end up in an accident.

We look forward to continuing work with the NTSB, the FAA, AOPA, the Airmen Association, and others, to educate pilots and develop their decision-making skills, airmanship, and aeronautical knowledge to improve safety in Alaska.

Thank you, Robert.

CHAIRMAN SUMWALT: Thank you, Harry. Thanks for that

discussion and thanks for all that you and the foundation are doing to improve safety in Alaska. Thank you very much.

Richard, again, last night was interesting. I certainly enjoyed being with you as you talked about some of the challenges, some of the data that the Air Safety Institute is seeing with respect to the accident record in Alaska. Can you talk a little bit about that?

MR. McSPADDEN: Yeah. So a little bit about how we integrate with NTSB. We have a pretty strong partnership. We take -- the NTSB spends their resources, as they should, on the investigation, and then we pick it up and try to make it something that's useful for the pilot population, and so, whether we do studies or analysis or a lot of times our videos and products and that sort of thing. So we've been watching, as has the rest of the industry, and across the industry we've had a tough year in general aviation in 2019. And so the question that all of us ask ourselves is why; why are we having such a difficult year in 2019? It's not just Alaska, it's across. And there are several factors which we can speculate on, but the hard part is if we just could have more data, and I know there's going to be conversation about that later on today, how to get there.

The difference really that we see between Alaska and here in the statistics are really the midair collision avoidance is much more prominent here and an issue here than it is in general across the rest of GA. On average, the fatal accident rate here in

Alaska is about roughly 25 to 30 percent higher than it is across the rest of general aviation, and that has to do with some of the stuff we've already talked about here, the risk elements associated with flying in Alaska. And we know what those are and it's a unique combination of things that come together. So it's the weather, it's the spectacular terrain that's also dramatic and causes issues, and it's the lack of supporting infrastructure that we have elsewhere in the Lower 48.

And then the most recent introduction is -- and you can definitely see it here, but it's across. There's never been a better time to be in aviation, certainly in my lifetime, in any aspect of it. Pilot, a controller, maintenance, everybody is -- the airlines are hiring as they're seeing this retiring age group and they're sucking up a lot of talent, which means there's a lot of youth and relative inexperience across the whole spectrum in aviation. So it puts a lot of pressure on the rest of us to make sure that we have the cultural aspect to help them out, not just the training that they need, but also that whole sort of cultural piece of how we deal with that, how we can help these young people in the Part 135 and the smaller operations make very, very difficult decisions. Is there a culture around? Do they have a mentor in place where they can have these honest and candid conversations? And so those are the things that we think we can help work on.

CHAIRMAN SUMWALT: I want to make sure I heard you correctly.

Did you say that the accident rate in Alaska is about 25 to 30 percent greater than it is in the Lower 48?

MR. McSPADDEN: Roughly. So the fatal accident rate across general aviation is about 0.89 per 100,000 flight hours, and in Alaska it's roughly 1.2 to 1.3, somewhere in that region.

CHAIRMAN SUMWALT: So is that acceptable? You know, again, it's easy to say, well, Alaska's different, but that doesn't excuse it. We have to do better. And we at the NTSB, we can't make that difference, but we can be a part of the solution and all of us can be part of that solution. Somebody once said the data will set you free, and the figures, if we don't like what we see, it's up to us to change it. Thank you.

Now, Richard wouldn't just come right out and say this, but he was the head of the Thunderbirds and the head of the Thunderbirds flying the number one airplane. And I like what you say, the five things that you've talked about that can help no matter what you're doing, can give you a safer operation.

MR. McSPADDEN: Yeah, it's the principle that we really try to work in the Air Safety Institute at AOPA, and that is, if you take knowledgeable people and you train them well, you keep them proficient and put them in reliable equipment, and then surround them with a culture that enables good decision making, you'll run safe operations. Those are the real keys.

And if you really want to improve safety -- across general aviation, we've dropped the fatal accident rate by more than 50

percent since the mid '90s. And that tracks for up here, as well. There's been substantial improvement everywhere, including in Alaska, since the mid '90s. And it's not a single silver bullet, and I think the panelists here would share that view. It's movement across every one of those elements, and I think every one of those are at play here in Alaska, and each one of them -- there's still some low-hanging fruit here, I think, that we could go after in Alaska across those five elements that could help.

CHAIRMAN SUMWALT: And I'm going to get you to repeat those five elements, but the point is, is that you basically used those principles when you're flying F-16s 18 inches apart, doing barrel rolls and loops and everything else. So you have knowledgeable people -- let's go through it again because I think people would like to make a list.

MR. McSPADDEN: Sure. Knowledgeable people. So, you know, all the ground school that people go through and the instruction that we provide them, and then the training. You know, it starts with a base level of training that's just exceptional and, of course, the better the training, the law of primacy, right, the better foundation you start out with.

And then proficiency is so key in any environment, particularly, I would think, in this environment because -- I came up here a little bit early just to do some Alaska flying because it's so spectacular, and I flew a Pacer in the bush a little bit and I realized it really comes to your mind here about how

important it is to be able to fly the airplane extremely well up here. So you have to fly it well in the Lower 48. You have to be able to fly it extremely well in some of the conditions here and that comes with proficiency. People ask me all the time, how do I become a safer pilot? Invest your money in avgas, whatever platform you're flying; go fly it as much as you can and be as proficient as you can in that platform.

And then, of course, the equipment piece is -- it doesn't have to be the most modern equipment or, you know, the cutting edge. It does need to be modern, you know, more modern, but mostly it needs to be reliable.

And then the whole cultural piece, which is the softer side but so critical. That, I think, is a real bonus to us in aviation that we tend to have that cultural piece and to be able to expand it and grow it.

CHAIRMAN SUMWALT: Thank you for that insight. Thank you, very valuable.

George Snyder, you and I go back a long way. I remember you offered me a job in the training department at US Air in 1995, and I had a daughter that was about a year old and my reply was, George, I really want to spend more time with my family. Well, that daughter is now 25 years old and I haven't exactly spent a lot of time with them, so I failed that, but she still remembers me because when she needs money, she calls me.

(Laughter.)

CHAIRMAN SUMWALT: So you were the vice president of safety at US Airways, you were the vice president of safety at Korean Airlines, you were the vice president of safety at a large carrier here in Alaska, I believe. You do international work, you've helped raise the bar literally across the globe. So talk to us about something that you've learned, some things that you've learned in terms of training, professionalism, cultural flying, across all of that broad spectrum that you've dealt with.

MR. SNYDER: Thank you, Robert. And the industry and all of us today are at a better place because your family was not necessarily elevated at the same level as your work. So sorry for them but very happy for us. Thank you.

Cultural change, as was brought up, is sort of a soft topic, but without it a lot of other things sort of fall apart. There is a template. There is basically a five-step template to implementing a cultural change, and it begins with the realization that a cultural change is necessary.

As we work with carriers around the world as well as in Alaska, sometimes safety or the lack of safety is viewed as a cost of doing business, that it's a product of bad luck or bad fortune, and in some parts of the world, it's almost viewed as God's will, that we can't do anything to change it. So until you can move the stakeholders either in an organization or in an aviation industry past the acceptance, the cultural acceptance of accidents and incidents being a cost of doing business, you're not going to get

that cultural change.

At US Airways and at Korean Air, the cultural change, as you well know, the seminal events in US Airways was five fatal accidents in 5 years, the last two of which were within 63 days of each other. When I went to Seoul, we had seven fatal hull losses in 5 years, where the president of South Korea called the flag carrier a national embarrassment.

When a carrier starts to be uninsurable, when the air carrier starts to be restricted from airspace of foreign civil aviation authorities and the entire enterprise starts caving, that is a seminal event for a cultural change. But it doesn't have to be that way.

You know, we look at our watch and it says 2019. We don't have to wait for fatal accidents. We don't have to wait for FAA certificate actions. We can start now, through the SMS programs, through the flight data monitoring programs, through the IEPs that we have. We can use predictive -- proactive and predictive indicators that come out of the SMS to say, even absent an accident, we need to do something.

You know, at the top of these tables are which airlines that have never had an accident are, and the floor is the airlines that have had -- or air carriers that have had accidents. Yes, you haven't had an accident, but the question remains, are you here surrounded by SMS and QMS and internal evaluation programs and good safety training standards or are you at the edge? Both

places there are no accidents, but certainly nobody wants to be at the edge. So you have to generate that recognition that a cultural change is necessary.

Secondly, you have to identify a project champion. You have to have one person within the organization, normally the ownership or the accountable manager, that really believes and internalizes the fact that things -- status quo is not an option, that things have to change, and is able to drive that enthusiasm for change down through the organization.

And that enthusiasm has to be embraced -- third part -- by the senior management. Cultural change is difficult enough without having to fight your own people. No one likes to change. You know, everyone builds their own little cocoon in which they've existed for a number of years and any change that upsets that is not necessarily embraced. You need the right people in the right place.

Thirdly, you need SOPs. A lot of people say, well, flying in Alaska requires a level of flexibility that does not integrate with SOPs, and I'm not sure that's the case, and these ladies and gentlemen have proved that point. You have to have SOPs, you have to have clearly defined standards under which your airplanes are operated.

And then the excellent -- the training solution. If our employees do not understand how to implement those SOPs, what should we expect? They can't read our minds. And the argument

always becomes a financial argument. Well, what happens if we spend all this money on training our pilots and they leave? And the counter to that is what happens if we don't spend that money and they stay? And I think that's really a balance of protection and production that we have to deal with.

Then we have to have the quality assurance systems in place to make sure that all of this is delivering the desired results that our leadership, our supervisors, our chief pilots, our other supervisory people are leading by example, that they're reinforcing SOP compliance, that they are saying that even in the front line -- you know, we look at our watch, on-time performance is always an issue. If we have a safety issue and it's approaching departure time, how do you balance that? We can talk at the senior level saying, well, safety is number one and, you know, you do the right thing. Well, when it comes -- push comes to shove on the front line, we've got to make sure that that actually takes place.

And lastly, if the employees can't adapt to these requirements, the cultural change, we can try and mentor them, we can try and train them, we can convince them, we can beg and plead, but if you can't separate the behavior from the performance that's when some tough love has to come and that's what nobody wants to do.

CHAIRMAN SUMWALT: You know, I appreciate your perspective because there is a lot in there. One thing that I gleaned from

that is that Sunday will be September the 8th, and you and I both know that that is the 25th anniversary of US Air 427, where 132 people died in Pittsburgh. And, as George pointed out, 62 days before that, on July the 2nd, we lost 37 people in Charlotte, and that was the day after my daughter was born and that was the day I learned that my brother-in-law was a passenger on board that airplane. Those were dark days at US Air. We probably almost went out of business. Those were horribly dark days.

But there is hope, and you can come back by doing the things that you just talked about, and I think that's a very powerful message. That is such a powerful message and I think you just provided a roadmap, whether you're on this end of the spectrum or whether you're on this end of the spectrum, there is hope and it can be improved. Please go ahead.

MR. SNYDER: I think to summarize that, safety is personal. Whether you're involved, you have relatives, neighbors, friends, crew members that drove and dropped their car off at the employee parking lot and the survivor committee has to remove the car, it's extremely personal.

And as we enjoy the benefits of the safety infrastructure in the Lower 48 and we look at Alaska and what is not here, you've got constellations of satellites that provide precision information to instrumentation in Cessna 172s that some of our more advanced airplanes don't have. And we have ILS Cat 1 runway capabilities to an airport with no weather reporting system, where

we can't use the benefits of the IFR infrastructure.

So what are we doing? By regulation, we're driving our pilots back into marginal VMC conditions and then we wonder why we get inundated with continued VFR into IMC, flat light, whiteout, where maybe from a regulatory perspective we're part of the problem rather than the solution. At the end of the day, the people in Alaska deserve more.

CHAIRMAN SUMWALT: Well, thank you. And I don't think anybody in this room would disagree with that, the people of Alaska deserve more. And we'll talk more about the infrastructure and the risk management and the technology that can help us with that more.

Tom, you spent decades, as you pointed out, flying in Alaska and as an FAA operations inspector. You mentioned that pilots in Alaska sometimes perceive their flight paths as high value, thereby reducing -- high value, thereby requiring higher levels of risk. How would you recommend that Part 135 operators structure their training programs and operations to address that very issue?

MR. TILSON: Well, as we know, a basic or a standard 135 operator has the advantage of having a formal training program, manuals, instructors, check pilots, things like that. For these operators, it all comes down to creating a structured approach by the addition of syllabuses that deal with how to evaluate risk in their particular operation. We're talking customized for the operator, syllabuses dealing with the variety of risk that these

guys experience, and this risk is going to be different in different parts of the state. The more customized a syllabus is to the operation, the better for the pilot.

In the single pilot world, which we have a vast majority up here in Alaska, our biggest challenge is getting the reliable and repeatable risk analysis process into the minds of the pilots. With these guys, without the advantage of having a training program, our pilot has to be creative and develop their own system, some kind of self-imposed system to evaluate how the risk has changed for each flight throughout the day. There has to be a moment for these guys where they stop and they ask themselves what has changed today now? I just got in on a flight, what's changed before I head back out again?

So I was a POI, a primary operations inspector, for a gentleman in Petersburg, Alaska. This guy was real OCD and he had created himself a customized -- on an index card, a customized risk matrix that applied to his particular operation. He has a 185 amphib that he keeps in a hangar in Petersburg. Anyway, he does a lot of government hauling, Forest Service projects, things like that. A busy guy.

So he told me that when he got crazy busy and he was running behind schedule, he noticed that's when he tended to make the most mistakes. With his new index card, however, what that did was it would force himself to stop a moment, pull his card out of his wallet. And this guy wore a ball cap, right, and he made a mental

connection between his index card and his ball cap. And he would pull his ball cap off, he'd take his -- lean up against something, and then he would read his index card and run the matrix for what's going on for the day.

This basically created a moment where he could stop and take a mental deep breath, and he was able to exercise better judgment, he says, about the risk related to the upcoming flight. It basically slowed him down. It was a very simple concept and it's also very SMS-ie. And he did this without realizing that's what he was actually doing.

So with a multi-aircraft standard 135 operator, they have a -- oftentimes will have a robust flight following department, and then that's critical to creating the added layer of risk analysis capability that we're striving for now. In Alaska, many operators call these departments the dispatch office, when in reality they're really nothing more than a flight following and a load office. The worse ones of these often even contribute to the pressure to fly at all costs. Conversely, however, some of the best of these operators are the ones that train their flight following departments using a customized training syllabus. This creates a collaborative environment where the staff and flight followers act more like traditional dispatchers for like a 121 operation.

And what do they do? Well, they look ahead to gather weather information, they view the weather cameras, they call the lodges

ahead of time for the pilots, they make phone calls to down-line stations, they even talk to other pilots of different companies. And these are the dispatchers or the flight followers. They talk to other pilots and they generally run a constant risk matrix process throughout the day parts. This gives the pilot and a busy operator the time and information to make a better informed decision about how to handle the upcoming flight.

The big point I want to make here about this training stuff is, is that it's got to now be customized for their operation. An operator out at Fort Yukon, Alaska flying up to the Brooks Range is going to have a different set of challenges for their pilots than a guy flying from Ketchikan to Mount Lacatal (ph.) in a floatplane.

And I would have to say I agree with Richard's analogy of his various -- the five parts. The training part of this has got to get punched up for all of the operators. I mean, we're in an era now where we just can't afford to just let it go and don't pick it up but figure it out, you know, in a couple of flights they'll have it all down. This is not acceptable anymore.

CHAIRMAN SUMWALT: Great, thanks.

We've got about 3 minutes, you know, to wrap up the training piece. Who would like to give a -- give us some thoughts on how we can improve the training aspect?

Ray, back to you, sir.

DR. WEBER: Yeah, one thing that we may run into is maybe not

as many people know how to train people as they think they do. Training the trainers may actually be a primary way to improve the training down the line, which means you have to actually start thinking about the curriculum you're training and how to improve that.

So it goes back to, just like all the other ones, a feedback loop, what worked, what didn't. And a simple questionnaire isn't always enough. Hey, did this work? How many of you have gone to a conference or the like and they send you the form that says how did we do, and you look at it and you go, yeah, it was all right. You've got to actually dive in deep and try and tear apart your own curriculum to see where it is working and where it's not, and that requires a lot of feedback and training of the people who are doing that.

CHAIRMAN SUMWALT: Thank you very much.

Stacie.

MS. JOYCE: I've gone through several different training programs with different companies and been introduced to a variety of trainers, and we're talking about training a trainer. Some you glean a lot of information from and some you go, that was kind of a waste of time. And what I have learned over the years are some of the most experienced pilots aren't necessarily good teachers, you know, but then again, you get those gems of pilots who are really good at sharing their knowledge, you know.

And as you know, as Part 135, you have to write a training

program but that doesn't include a curriculum. That's just an overline of what you're supposed to train but now how you train it, and I think that's where there's a piece missing, especially for small operators who have never done anything like that before, how do they do that? And I think that's, you know, involving SMS and those topics in a training program is the foundation of the company.

CHAIRMAN SUMWALT: Thank you.

A couple of things that I've heard in this hour. For one thing, the cue-based training can be very effective in helping with pilot decision making. I think it's encouraging also to know that the simulators that Medallion was using, that there's hope for continuing that after some delay, but the FAA is working on a solution for that. So that pretty much -- there's plenty to talk about, we are capturing these thoughts.

Mike, will there be an archive of this webcast? I'll find out the answer for that. Somebody sent me an email yesterday asking about that and I'm hoping that this will be archived.

Dave, I want to get your thoughts but I want to keep us on schedule. We'll come back -- let's come back from a break in 15 minutes, so 10:15. Thank you very much. Thanks for a great first session.

(Applause.)

(Off the record at 10:00 a.m.)

(On the record at 10:17 a.m.)

CHAIRMAN SUMWALT: Welcome back. So we will do another panel and then at the conclusion of that panel before lunch, we'll have about 15 minutes for questions from the audience. So if you've got questions, please prepare to submit them.

So today, in this panel, we are here to talk about risk management. I like a definition that the FAA uses -- I think it's called the FAA's Risk Management Handbook, it's a definition that I've used several times and I think it's in Chapter 3 of that book.

So what is risk management? The FAA says that we manage risk whenever we modify the way we do something to increase the chances of success or decrease the chances of injury, failure or loss. And think about that. We really practice risk management in everyday life. So we manage risk whenever we modify the way that we do something to increase the chances of success or decrease the chances of injury, failure or loss.

So let's talk about risk management. TSB of Canada, not here, because that was my first question, and that question was TSB of Canada has drafted a report on reducing risk associated with air taxi operations in Canada, what can you tell us? But I guess they're not here, so that's what happens when I write my own questions.

Okay, Max. Let's go to Max Tidwell, Alaska Airlines. So, you know, you've overseen a wide spectrum of aviation activities from running a Part 135 operations to FAA leadership positions to

your current position as vice president of safety and security for Alaska Airlines. Let's talk about flight data monitoring and how that has helped to better understand operational trends and problems and how that's helped improve the safety culture.

MR. TIDWELL: Okay, thank you for that question, Robert.

I want to build just a little bit on the comments that Richard and George both made about essentially the system, those components of the system and the pilots. We hire them, we train them, we equip them, we have SOPs and we have check airmen, so everything should be great. But if we don't check that system, that's where the flight data monitoring, to me, is a huge value. That's the ultimate quality control for a system to let me know where I'm missing the mark. Not about an individual, not about a data point, not about a single pilot, but me, as a safety manager, in my system, where am I missing the mark? That's really been my focus with flight data monitoring for quite some time.

One of the advantages we have at Alaska is we also have our -- with a full FOQA program, we've got to make contacts with the crews. So when we have a head-scratcher event we can contact the crews and get the why, get the rest of the detail that might come out to help us better define an event, and with the complete focus of going back into our system, whether it's training, did we have the right people, were they proficient, or SOPs, to make those changes.

Initially, when we started doing our flight data monitoring,

our FOQA program, there was a lot of fear involved, there was a lot of Big Brother involved, but it has matured to the point right now where the culture is that we actually have crews call us and say, hey, I had an event and I want to know what happened with this. And so we're able to pull data, we're able to look at it, we're able to get their feedback. We sit down and we will even put it in the simulator and really look back at our system and see what we can do to make it better, safer, more efficient. So those are some great things.

One of the things I really like about my FOQA team is they know that our next serious event is in our data and if we're not looking at our data from our flight monitoring systems, we're missing the mark. So it's a very good attitude that they have and they're very aggressive at what they look at.

So some of the improvements that we've experienced, pilot deviations, whether it's altitude, nav errors. We recently were looking at some RNP procedures and we noticed a weird ground track on one of our very specific RNP procedures, and were able to go in and correct that. We just had a couple of VFR operations and we wanted to get them back on track. So just, there again, another example about SOPs and doing the same thing and making it repeatable.

Mountain waves. We have some great pilots out there, everybody has some great techniques, but we noticed we had some different recovery techniques. So we went back and looked at all

of them and came up with a standard that really helped us alleviate that risk.

Unstable approaches, runway overruns, terrain avoidance, midair collision, ATC, overspeeds, procedures, getting dumped into traffic situations, all those things are able to be looked at, at the flight data monitoring and working with our partners to help remove those risks. So it really is an awesome QA tool.

CHAIRMAN SUMWALT: Thank you. Alaska Airlines has a fleet size of how many airplanes nowadays?

MR. TIDWELL: Oh, 280 plus -- about 330.

CHAIRMAN SUMWALT: Yeah, 300 airplanes. So we all know about the FOQA programs at major airlines. George stood up the program at US Air and I was one of the FOQA analysts that would go through the data, so I know how a FOQA program works in a large airline.

Dan, how many airplanes do you have?

MR. KNESEK: We have 29 aircraft.

CHAIRMAN SUMWALT: So we have 330, 29, basically 10 times the difference in size.

Who's the smallest operator here? Joe.

MR. SPRAGUE: Yeah, Wings has five airplanes.

CHAIRMAN SUMWALT: Yeah. So the question is we all know how it can work for a major air carrier. How can flight data monitoring work at a carrier with five airplanes? Any thoughts on that?

MR. SPRAGUE: Well, one observation is that folks on a panel

like this oftentimes are considered the experts, and we do have some great people on this panel. We've also got some fantastic people in the audience and experts like yourself. So I'm looking forward to learning more about how flight data monitoring can work for something as small as a five-airplane operation. Importantly, what does the equipage look like?

CHAIRMAN SUMWALT: Yeah.

MR. SPRAGUE: When you talk about it as a priority for NTSB, what is it specifically you're hoping to achieve with 135? And then also, just as importantly as the small size of our fleet is the small number of employees that we have, including management employees. So when that flight data monitoring equipment generates data, how are we supposed to analyze that data? What are we looking for and what's the process for that?

CHAIRMAN SUMWALT: Yeah, I didn't mean to put you on the spot there, and the point I want to make --

MR. SPRAGUE: I think I actually put you on the spot.

(Laughter.)

CHAIRMAN SUMWALT: Well, thanks. Yeah. And the point I want to make here is it's, you know, these big carriers, they -- you know, all of them have flight data monitoring programs these days, but it can be scalable? And so I'd love to hear from some of you how they can be scalable to a smaller operator.

Between my airline flying and coming to the NTSB, I ran a flight department that had two King Airs and that's all they had

was just two King Airs, and I left in 2004 to come -- 2006 to come to the Board, but at that time I was -- we were just coming into being with the idea of these small lightweight cameras that could record not only visually but the GPS parameters, and it wouldn't be a full upright FOQA program, but it would still tell us what the airplanes were doing and we were looking into that. Then I couldn't hold a job and came to the NTSB, but -- that's supposed to be a joke, but anyway. But I do believe it can be scalable and do people have thoughts on that about -- I mean, you know, you don't have to be your own data analyst, you can contract that out, and I'd like to hear from Mike and then Dave after that.

Mike.

MR. YORKE: Yeah, I'll just give a little quick story on that, how it can apply to somebody small. You heard me bragging up the Talkeetna area. Well, I'm going to do that a little bit more, a great mountain up there. We had an operator up there, and I'm going to go back 5 years ago, and he has Spidertracks in the aircraft, one of the first ones to kind of have that flight following device. Three Navajos flying around. The best practice was to stay 5 miles from the terrain. Two pilots always stayed 5 miles from the terrain, the other one stayed 2 miles from the terrain, right?

At the end of the day he would look at the data, so to speak, and say, you know, why are you doing this? And he says, well, it's for the tips; I'm sure I'll get better tips. Well, at the

end of the week everybody got together and everybody got the same amount of trips. So the guy who was unintentionally not complying with the best practices was -- found out that he would be equal if he complied with the process. Very simple, very easy way to look at things. So that's just a part and I'm sure you've employed some of that in your business now. If others haven't, it's just a thought.

CHAIRMAN SUMWALT: You know, a FOQA -- thank you for that.

And Dave, I'm going to go to you. But a FOQA program, a full-up FOQA program, of course, you measure hundreds if not thousands of parameters of what that aircraft is doing. But I think in our view, what would a flight data monitoring program look like, it would be something to be able to allow you, as the operator, to keep your finger on the pulse of what's going on. Something like Spidertracks, you know, I think that would -- that's better than nothing at all. It may not tell you that the aileron was deflected 3½ degrees, but you can tell what the flight track was and then, like you say, go back afterwards and see what your airplanes are doing. And I think the focus has to be not on what the individuals are doing, but you're looking for systemic issues to see what's going on on the system out there.

But, Dave.

MR. PFLIEGER: Sure, Robert. Just to add to the comments made by the panel up here, you know, I would say, in terms of scalability for a smaller operator like ourselves, so we've got 57

airplanes in our Part 135, but what we did -- and for Joe's, you know, benefit, we outsourced it. So in terms of we hired an outfit called Latitude Technologies, had about 40 percent of our airplanes, our 57 airplanes, outfitted, everything from 207s, 208s, 1900s, and Navajos, costs us about $10,000 per plane to put the equipment in, but you know, obviously if you get scale you can drop the price.

And then, too, in terms of just the monitoring piece of it, I had the opportunity when I was at Delta Airlines to oversee the entire FOQA program when those programs were in their infancy, and that was in the days when they were exorbitantly expensive, you know, optical QARs, trying to get the disks off the airplanes, 500-plus, you know, jet airplanes in that fleet. But what we found invaluable then, in the early days of the data-sharing conferences, was trend data first and foremost. Not necessarily -- I mean, you'd flag the occasional one-off with the gatekeeper and the gatekeeper would make a phone call to the individual pilot to say, hey, what happened here? And as Max pointed out, you know, getting the feedback when the crews now want to hear and see their own flight animated or put into a sim.

But in terms of scalability for the smaller carriers like ourselves, I mean, we don't have the resources as the $7 billion or $8 billion-a-year Alaska Airlines, but nonetheless it's not exorbitant. And what we're finding, even with Merrill Field avionics here helping us out, is putting -- you know, doing the

installs and getting the STCs, and we've used another outfit called STS to do the engineering work. So happy to share that with anybody who wants it.

CHAIRMAN SUMWALT: Yeah, that is interesting. So what type of equipment is in the airplane? Like I say, it's not measuring what the aileron would be doing, you know, this aileron is up 3 degrees or something like that, but what is actually measuring what's going on in the airplane?

MR. PFLIEGER: We've actually got a picture. I think we were going to wait for another section later, but if Mike wants to put it up. But we took -- I took a picture or however, I guess, take a picture of -- that's what the boxes look like inside of a 207. And so there what we do is we actually mount it up in the front, you know, right behind the engine, right near the baggage compartment there. So scale-wise, I mean, you're talking smaller than a bread box, to give you the classic analogy, and in terms of just what it plugs into, I mean, we're able even in a 207 to monitor 24 different parameters. I mean, we've got in our room here Evan Veal, who's our director of operations and vice president, and Tom Crandall, our chief pilot, and they've already, even in the infancy of our program, have already started looking at the data.

And if you want to do it now or later, but we've got an animation for you just to show you a 207 that was in turbulence but it was tripping a lot of triggers in terms of exceedances, and

so the FOQA steering committee, the FOQA management group, you know, the gatekeeper, all sat down and said okay, let's animate this flight; this is a 207, it's not a 737. And that exists by going to outside parties and hiring them to be the experts and paying them, you know, their monthly fees to look at the data.

But this one you can see -- no need to play the whole track, but what you'll see is just a 207 getting pretty severely bounced around and, again, it was tripping, you know, G meters and, you know, up and down exceedances. So we took a look at the flight and, again, that's the real value that we've seen as a smaller Part 135 operator, as well as the Part 121, our entire Part 121 Ravn Alaska fleet has FOQA and has had it for a long time.

CHAIRMAN SUMWALT: And I guess I did get ahead of myself, you know, in talking about a flight data monitoring program, and I guess we'll talk more about that right after lunch, but I think I got on that is because we're talking about risk management and a part of risk management, I think, is being able to know what's going on in your operation. So we will talk more about that after lunch. So thank you.

Sorry if I got a little bit ahead of things, but I do believe that having data is the data would be the -- I think Nick Sabatini used to say that data, data is the life blood of a safety management system, and so --

MR. PFLIEGER: Robert, can I add just one more thing to that?

CHAIRMAN SUMWALT: Please.

MR. PFLIEGER: The other thing that I found invaluable at different airlines is when you overlap the FOQA hard data with the soft data you're getting from ASAP programs, then you get the human factors piece to also explain to you in addition to, you know, a gatekeeper call, what's really going on. So the trend data, the hard data, as Max pointed out, the data is key to flagging what's going to happen to us next and then getting the human factors piece from an ASAP program is invaluable.

CHAIRMAN SUMWALT: All right. Let's go ahead, since we've opened up that line of thought, so if we're talking about data, data being the life blood of a safety management system, so what are the sources? Well, we know that we've got flight data monitoring, we've talked about that; ASAP programs. On the maintenance side, what do we have? It's internal evaluation programs, things like that. So why don't we just go ahead and talk about safety management systems, and so -- I'll get to that in just a moment. So let's kind of segue and talk about SMS.

You know, when I came to the NTSB, I'd go out and talk about SMS and I said, what in the heck is it? And I went back to the King Air operation that I'd been running and went to the guy who replaced me and I said, Rick, I've got to give a talk on SMS. What in the hell is it? And he said, boss, it's the stuff we were doing anyway, we just didn't call it SMS. Most people are probably doing these things anyway and they just haven't packaged it as SMS.

Somebody told me, and I think it makes sense, SMS is a business approach to managing safety. Think about that. When you're running a corporation, finances might be very important to you. George and I both worked for a nonprofit organization, US Air, but --

(Laughter.)

CHAIRMAN SUMWALT: But finances are important to an organization. So because finances are important, they manage their finances, they have a chief financial officer, they have audits, internal audits, external audits, they have controls, management controls in place, to make sure that the books are okay. We do that because finances are important to our organization.

So my question to you is, if safety is important, shouldn't you be managing safety as a business -- as a line of business? And that's what SMS is, it gives us a structure to manage safety.

So Stacia. Stacie. We'll practice this at the break. Tell me how to say it again one more time.

MS. JOYCE: Stacia.

CHAIRMAN SUMWALT: Stacia. I did actually say it.

MS. JOYCE: You did.

CHAIRMAN SUMWALT: All right, Stacia. As you know, SMS is on our Most Wanted List. That's one of the things we want Part 135 operators to do. Give us your thoughts on the value of SMS and what you're seeing as a senior pilot for Air Methods.

MS. JOYCE: So Air Methods has a pretty robust SMS program. As a Part 135 operator, I think they saw the value in it early on as far as mitigating, helping to mitigate risk, because air ambulance has proven to be a high-risk helicopter operation nationwide. And so, you know, that was kind of the first time I was ever introduced to SMS, but I think in prior companies it existed, just not named as SMS, you know, reporting, self-reporting situations that we might get into as pilots that are risky and how did we get there and how can we not get there again.

And we do risk analysis for every flight that we do. And sometimes you're like oh, I have to do this and you punch, punch, punch, and then you see your number get higher and higher, you know, on each flight and it kind of gets in your head even though you don't think that it does because you're just clicking boxes. But then when you get up into the 40s and you go oh, yeah, this is -- you know, I'm at night, you know, it's -- I'm going a long ways, the weather is getting marginal. And so those things, and asking yourself those questions on every single flight is effective. And so I think that SMS programs can be effective and hopefully they are not a pitfall for companies to use that against the pilots. I think that's the one thing that I caution, you know, people on.

And the other thing is developing an SMS program as a small operator also, aside from my Air Methods job, is like how do you do that as an operation, how do you develop that? And I think

that, you know, hopefully the FAA and the NTSB could help operators manage an effective program because I don't think that a lot of people know how to do it.

CHAIRMAN SUMWALT: Right.

MS. JOYCE: And I think that if there was some tools that they could help operators develop a program that's actually effective, because I think they can be, but I don't think a lot of people really know how to do that and how to, you know, on a small scale, five airplanes, five pilots, like how do you develop something that's going to be purposeful and useful and not just a waste of everybody's time, and the pilots are going this is stupid, like, why do I have to do this, but actually involve the pilots and then you get buy-in on that level, which is really -- the buy-in for the culture of a company has to be in the senior leadership, which they want to be safe, but so should the pilots, and that we all -- every single accident that happens in Alaska affects me as an operator, and it affects me, you know, on a lot of levels, insurance-wise, people wanting to fly with you or not. And so we all have a vested interest, you know, in being safer, but we don't really all have the tools to get there. And Air Methods is huge; they have a lot of resources to put into an SMS program, but not everybody has those.

CHAIRMAN SUMWALT: Yeah. Thank you for that. And I want to demystify SMS. Remember, I just said that I look at SMS as a business approach to managing safety.

A few years ago I met -- I was talking to Don Arendt, who was at the FAA and sort of an FAA guru on SMS, and Don said, you know, I think we shouldn't even call it safety management systems, we ought to just call it safety management. And the idea, he said, is that safety -- people say oh, I want to have SMS, safety management systems, and he said it shouldn't be something that you have, it should be something that you do. So that's really what we want to do is we want to manage safety, so think of it that way.

Now, we know that FAA -- or that SMS is typically defined as having four pillars, four components. And let's break this down into language that I can understand because this is finally what he had to do when I went back to the guy where I used to work, you just break it down to where I can understand it.

So one pillar is safety policy. So in one or two sentences, what does safety policy mean? What does that look like? If you were sitting here like I was 10 or 12 years ago trying to figure out what SMS was, let's break this down into components to see what it really means. What does a safety policy look like?

Ray.

DR. WEBER: Safety policy, as a whole, is just explaining how you plan on doing things. Now, that being said, there's several things that go into it including the roles and responsibilities of people, how often you're going to audit, how you're going to work through things, and that is incredibly scalable based on what you

actually operate for. So policy, simplicity, what you're going to do, how you're going to do it, written down.

CHAIRMAN SUMWALT: I love it. So if you don't have an SMS -- or excuse me -- if you're not managing safety, that would be a good place to start, is have a safety policy which explains what you want to do and how you're going to do it.

(Microphone malfunction.)

CHAIRMAN SUMWALT: -- executive. Are we cutting out on the audio? You talked about an accountable executive. What does that mean as part of the safety policy?

MR. SNYDER: The accountable executive is the position holder within the company that really drives the way in which safety is managed by clearly stating on a policy and dating it -- assigning it and dating it, that any reporting from an employee, even of an incident, of a hazard, of something that maybe they may have done themselves which was accidental, which was an oversight, as long as it was not willful or deliberate or criminal in nature, will not result in any type of reprisal. And he puts his signature on that, which opens up the floodgates for the hazard reporting, for the safety reports, for the submission of ASAPs and all of the other life blood of communication that a safety department and an airline needs.

CHAIRMAN SUMWALT: Great. Let's come back to that non-reprisal policy, because you developed the first one for US Air. I took that same policy and changed the name to the corporate

flight department that I ran.

MR. SNYDER: And I appreciate the commission checks.

CHAIRMAN SUMWALT: Yeah, exactly.

(Laughter.)

CHAIRMAN SUMWALT: And so let's come back to that because that is essential to a reporting culture. But let's continue the discussion of dissecting the four pieces of SMS. Safety policy is one. Next would be safety risk management. Okay, we just talked about risk management, that's what we started with.

Who wants to talk about, in a sentence or two or three, how do we manage risk? Anybody? Tom.

MR. TILSON: Well, you identify it. For formal SMS projects or applicants with the FAA, we have a very long Gap Analysis Tool we start out with. It can be a little daunting, frankly. But for a small operator, it might be something as simple as walking around his facility and seeing where the trip hazards are. You start that small then move forward.

CHAIRMAN SUMWALT: Yeah, it starts with identifying -- and I'm going to use a fancy word, hazards --

MR. TILSON: Correct.

CHAIRMAN SUMWALT: -- identifying hazards. What does that mean? The things that can hurt you.

MR. TILSON: Correct.

CHAIRMAN SUMWALT: Look for the things that can hurt you. And then once you've done that, ask yourself am I willing to

accept this level of risk associated with this hazard? And if the answer is no, do something about it.

MR. TILSON: You have to mitigate it.

CHAIRMAN SUMWALT: Yeah, do something about it, mitigate it. And another fancy word, controls, put controls in place. What does that mean? Figure out how you're going to reduce the risk associated with that.

So I have an apartment by Washington National -- Ronald Reagan Washington National Airport, I go out and walk. One day I had walked down, walked by the airport, and I would -- I was about to cross the street, and it was sort of a blind curve. And of course, as I got out in the street, around this blind curve comes a car and I quickly scampered back to the curb and realized, wow, I shouldn't be crossing the street right there by a blind curve. But if I would go about 75 yards this way where there was actually a pedestrian crosswalk --

(Laughter.)

CHAIRMAN SUMWALT: -- I'm further away from that blind curve. So there was a way right there where I identified something that could hurt me and I said wait a minute, I'm not willing -- my wife would be very upset if she didn't get that government paycheck every month.

(Laughter.)

CHAIRMAN SUMWALT: So we're not willing to accept that level of risk, so I'm going to change and cross at the pedestrian

crosswalk. I identified a hazard, figured out a mitigation strategy.

Ray.

DR. WEBER: I did want to point out, because Tom mentioned gap analysis, so actually looking for holes in the hazards and the technique there. Not to throw the FAA under the bus here, but the UK actually has free -- they call them Phase 1 and Phase 2 small operator, non-complex operation systems gap analysis tools. They're a great place to start.

CHAIRMAN SUMWALT: Great. And I appreciate you throwing it out there.

Now I want to simplify this so I can understand it and big words like controls and hazards, gap analysis, that confuses me. So we want to keep it, you know, very, very simple: look for things that can hurt you, figure out if you're willing to accept that level of risk and, if not, do something about it, and then come back and measure the effectiveness of it.

All right. What's the third component? Safety assurance. What does that mean? Or safety promotion. I don't care which comes first. Safety assurance, what does that even mean? I'm trying to figure out how to develop this idea of safety management. So what does safety assurance look like?

MR. KAIN: So I think that's a confirmation of what you're doing, it's a self-check. It can be internal, it can be external. We participate in external audits with a voluntary organization

that promotes safety. Medallion Foundation, which we talked about closing their doors here in the next 10 days or so, has been an aspect of that for many operators in Alaska. But internal audits, checks on your own programs, feedback, flight data monitoring program, all those things are safety assurance, that the policies, procedures, and programs that you have in place are actually having the intended effect.

CHAIRMAN SUMWALT: Thank you.

And finally, the last component is safety promotion. Again, I don't understand what that means. How do we promote safety? What are we looking for? What does that look like?

Tom.

MR. TILSON: For the small operator, which is kind of my focus in life right now, the small guy, it's something as simple as the boss getting out of the office and walking down to the dock and shooting the breeze with the guys on the dock as you're loading the airplanes, and how are things going, how's the weather today, how are you guys doing? You're tired. We're busy, I know, we're in the heat of the season. How's everybody handling it? Just something as simple as that.

CHAIRMAN SUMWALT: Do these signs that are everywhere that say things like "safety is no accident" and "think safety," is that effective? Then maybe safety promotion would be what are you going to do when the chips are down? If you're the CEO or the president or the director of flight ops and the weather's bad and

somebody says I don't feel comfortable flying, if you go and put your arm around that guy and he doesn't hit you back, great, thank you for making that right decision. Is that an example of safety promotion?

Joel.

MR. KAIN: Sir, we look at promotion from an aspect of how do you get people involved in your safety reporting program, how do you get them involved in any aspect of it. I had the pleasure this week of traveling the state with my accountable executive, who's here in the room, and we've done exactly what you just said, go out and meet your people. You cannot lead where you do not go. You have to be there, you have to talk with people, you have to get them involved, you have to give them feedback regardless of what the safety report looks like. Anonymous reports are great. Probably 90 percent of our reports actually have a name attached to it. We promote that because of -- I'm sure "just culture" might be a topic that we discuss, but we want people to know that their voice is heard and that you have to take some action on it.

Even if you don't take action on it, you have to give them feedback and an explanation of why you don't take action, and that is, in essence, I think, promotion. That's how you get people involved in the program. And it's an evolutionary process because you're changing mindsets and you're changing that culture as you steer people towards that involvement, and it's really fascinating to watch.

CHAIRMAN SUMWALT: Yeah. So thank you so much for that.

And I think I have a better understanding of what SMS looks like now. I think we've helped to demystify what it is. So it sounds to me like we need information to be able to make decisions.

And George, you mentioned a non-reprisal policy. So how do we get -- how do we get employees to report to us without feeling like we're going to discipline them?

MR. SNYDER: First of all, as you brought up, is the safety policy signed by the accountable executive, and building upon that is the company's track record. You know, there's sort of an old statement that you discipline one and educate a thousand. Yes, that works both positively as well as negatively. The safety policy, according to many of the audit standards, has to involve any behavior that decreases the margin of safety that is not willful, deliberate, criminal, gross negligence, et cetera. Well, if you have an individual who's going to report an event, he looks at the three or five-member committee that's going to decide this, and if you don't have friends and relatives on that committee, your fate, you know, may be up in -- up for discussion.

The "just culture" gives you a methodology to take from total culpability of willful and deliberate to the other end of the spectrum, which is called a normal error. And there is a very defined process that's available under ICAO Doc 9859 as well as in the ICAO Annex 19 advisory material that shows you that should the

person -- was this his or her first offense? Should a similar -- well, a similarly trained individual in similar circumstances, would they have reacted the same way? Did they understand the unintended consequences of their act, what could happen? Was drugs or alcohol involved?

And it is a very structured process that the employees can rely upon based on the safety policy signed by the accountable executive, that it's not going to be a matter of "friends, Romans, countrymen" on this disciplinary panel. They are going to look at it through a structured process with a lot of stakeholders, including flight operations and maintenance and your human resources people, your legal people, everybody has to buy into this so that if the behavior was truly an accident, an oversight, a mistake, that it will pass through that process and will result in either proliferation of that information through safety promotion through the organization, a training change or a training event for the reporter, but that person can rely upon it. So the one person you deal with, one way or the other, will educate the rest of your workforce.

CHAIRMAN SUMWALT: Yeah. So just kind of walking the talk. If you say, oh, come to us and tell us what you did wrong, and then that person gets unfairly, unjustly criticized or disciplined, then that kills your whole program.

MR. SNYDER: You've educated a thousand.

CHAIRMAN SUMWALT: Please, Darren.

MR. YOUNG: Just basically, what he's saying is the ASAP program. I mean, just being a member of the ASAP program and your company says that you have that safety culture, you're welcome to come up and talk to us, and that's what that -- that's a very important program that we participate in with the FAA. That's what he's exactly talking about right there, and that can be just one simple step to let your people know that they can open up and let you know what's going wrong in the company, as well as the internal -- we have internal reporting so that they can report stuff on us, and that's part of that culture.

CHAIRMAN SUMWALT: Okay. So the ASAP program, as I understand it, Medallion Foundation was an ASAP provider, if you will. They managed the ASAP program for many of the 135 operators here in Alaska. Effective the 15th of this month, Medallion will not be here. So I understand the FAA has some things in works there, so Tom, would you like to talk about that?

MR. TILSON: Yeah, the WBAT program, which some of you may be familiar with, was an ASAP program that was funded by the FAA for quite a few years, the development of it. It was meant to be used by smaller operators originally, and then I think we got -- Alaska Airlines jumped on board WBAT. Kenmore Air, when I was director of flight operations, I took Kenmore into the WBAT program. And I believe that's going to be the solution the FAA is going to be offering up to replace the Medallion system, is getting as many folks involved as we can, as seamlessly as possible and as quickly

as possible, into the WBAT program.

CHAIRMAN SUMWALT: So that's another one of those big words, WBAT. So that's a program that you have an online, I believe, or FAA has an online template that --

MR. TILSON: Yes.

CHAIRMAN SUMWALT: -- someone can use. So what is WBAT?

MR. TILSON: Well, it's essentially a reporting program, it's where -- well, I'll give you an example. A pilot is flying a trip to Arctic Circle, let's say up in the Brooks Range, and he notices that -- the runways have to be plowed in the winter there. It used to be a space shuttle abort landing field, so the thing is enormously long and the village just takes a little chunk of it and they plow it in the winter and sometimes not so well.

And so if a consistent problem comes up where the planes are finding -- pilots are finding issues with the snow depth, things like that, they can come back and put that actually in the WBAT, and then that's tracked and reported and the data can be analyzed and yeah, it can be sliced and diced as many different ways as you want it to be.

And the thing about it is, it's a relatively simple program for a smaller operator so they don't have to -- Alaska Airlines has a full-on department that runs their WBAT reporting, whereas Kenmore had me. They would log in every week or so and then pull the data for the prior week and I might get four or five reports.

CHAIRMAN SUMWALT: So everything comes down to money.

MR. TILSON: Right.

CHAIRMAN SUMWALT: So how much does it cost to use WBAT?

MR. TILSON: Well, for me, for us then, it was free. So I'm not sure. I think what the answer is going to be is it's going to be cost, I believe, is what we've decided that we're going to basically -- they're just going to charge the cost of the service with no upgrade of cost.

CHAIRMAN SUMWALT: So this is an FAA-funded program through a vendor, I assume?

MR. TILSON: Well, it's a company that the FAA helped fund to develop WBAT.

CHAIRMAN SUMWALT: Yeah.

MR. TILSON: And so there's a relationship between the two.

CHAIRMAN SUMWALT: So the bottom line is you don't have to have a full-up safety department like Max has -- where did he go? There's Max. You don't have to have a full-up safety department to be able to do this.

MR. TILSON: No. I mean, Kenmore is 20, 30 airplanes, 250 employees, and we had me. I was the safety department and I was running the program.

CHAIRMAN SUMWALT: All right, thank you.

Any thoughts on that? Dave.

MR. PFLIEGER: I just wanted to give a twist on what Darren said. I don't see ASAP as necessarily -- when George speaks to the non-retribution policy in ASAP, you know, there's other ways

of doing it. And I think what we found successful, we've got an interim here today, you know, Brian Whilden is our head of safety for the whole air group. He came to us from PenAir. They had some great ideas over there that we've brought into Ravn, where they rewarded folks -- and we were rewarding them in the Ravn side, publicly and loudly, but we were doing it with, you know, gift cards and things like that and in photos. What PenAir did, which actually was more effective, was giving out gifts and whether it's logoed shirts, things that only people who won or were being recognized for safety accomplishments were wearing loudly and proudly amongst the entire employee group. So we're now rolling that out across the entire company.

But to me, there's the non-retribution side of things, but there's also the rewarding, demonstrating to everybody on the front line that when they do call a safety stop they either get a call from the CEO or the head of flight ops or the head of safety thanking them, and then we go a step further to publicly recognize that behavior to really instill in everybody a belief that there is truly a safety culture on the property.

CHAIRMAN SUMWALT: Great point, and that's part of the safety promotion. And I think, Joel, you -- I believe it was you that was talking about -- maybe it was Dan that was saying that when somebody reports something to you, even if you don't -- even if you're not able to fix that problem it's important to at least close the feedback loop to say, look, we appreciate your report,

we can't fix this problem because of this, but we at least heard you. Did you say something along those lines?

MR. KAIN: Yes, sir, I did. And sometimes that is that, you know, many of our policies have evolved because we did it wrong before and we've learned by the -- I'll quit that methodology, and sometimes you just come back to tell them why we do it a certain way, and that's an explanation also.

CHAIRMAN SUMWALT: Thank you.

Kind of along the safety promotion idea, I know of a corporate flight department that they had a fair number of airplanes, it was a NASCAR race team, and they would -- they had a pretty aggressive ASAP program and -- or incident reporting system. I don't know if was technically an ASAP program, but a confidential incident reporting system, and they would draw -- you know, the report itself is anonymous, but like with the NASA ASRS there would be a receipt that you filed a report, and monthly they would have a drawing, pull a name out of a fishbowl and say, well, Robert Sumwalt, you get a gift card for, you know, $500 at Best Buy or something like that. So that was an example of -- Dave, your thoughts kind of spurred the thoughts for me on that. Thank you.

Joe.

MR. SPRAGUE: Yeah, before we leave the ASAP and the angle of the Medallion Foundation providing that service for the smaller carriers, today I think there's something like 19 carriers that

get that benefit through Medallion today, and some of the carriers -- and I think it's important to always keep in mind, when we're talking about Alaska and aviation safety, that the types of operators, there's just huge variability. I mean, there's huge variability amongst -- from Max to me, 300 airplanes to 5 airplanes. And so a one-size-fits-all approach obviously does not work.

We're part of the ASAP program, but we generate very little ASAP reports. But by being a part of the Medallion's ASAP program, we benefit from that aggregate data. So the more reports, the better, and all this discussion about how we can incent people to provide reports, to submit reports, is certainly excellent. But then for smaller carriers like ourselves, there is some value in being part of a third-party program so that we can get the benefit of other people's data reports. And then just the thought on that is -- and with due respect, the FAA is trying to step up to the plate, I strongly believe that. This WBAT program for an operator our size would be a significant expense, much more than we were paying for through Medallion, so there might still be some other solutions that are worth exploring.

CHAIRMAN SUMWALT: Interesting. Thank you very much. And yeah, and I'm glad you just said that because I was thinking that maybe you don't need a full-up ASAP program, maybe just like what we had at my little flight department or what the racing team had that was their own in-house incident reporting system, but you

just pointed out there the value of being in part of a larger system, so that's a good discussion.

Tom, I've been told that you kind of have an idea on a scalable SMS, kind of like -- I'm going to just kind of refer to it as maybe SMS lite, if you will.

MR. TILSON: Yeah, SMS lite. So the situation that currently exists in Alaska is this, with 135, there's -- this is data that we just pulled 2 days ago from the SMS program office in Washington, D.C. I got asked a question by Mike, how many SMS programs are operational in the state of Alaska. It took quite an effort to discover that data, so I made some phone calls with some folks that I work with on a daily basis in D.C. on the SMS field and it involved about eight people to get the data out. So we got it and it turns out, out of 303, I think, certificates in the state of Alaska, 135 certificates, we have 8 operators that are currently what we call in the program of SMSVP, the SMS voluntary program.

Now, for the folks that are listening, SMS -- official SMS exists in two parts. There is a section called Part 5, that's all of the 121 carriers in the United States. They are SMS compliant now under Part 5. For everyone else, which there's about 3400 135 certificates in the United States, for everyone else, they have the opportunity to join the SMS voluntary program, which is -- the framework is based on Part 5 and it is voluntary. In the state of Alaska we have eight operators that are involved in that program

right now. Most of them are sitting on the dais here, actually, but that leaves -- that's 3 percent right now of all of the operators in the state that are in some form or another working on an official SMS program, so that we have to fix.

So there's a movement in the FAA right now to come up with something, and I call it SMS lite. I don't know if we have an official word for it or not, but I heard yesterday in a meeting that in about a year the FAA is planning to look at a program that's designed to simplify the whole process of rolling SMS out for smaller operators, and we'll see what that looks like. I don't have any more information other than we do have an effort underway.

From my part, when I was in the field in Southeast Alaska, I had 23 operators assigned to me, and because of my experience and my history with the SMS pilot project, which goes back to 2005, I spent a lot of hours on the docks with some of these skeptical single pilot guys, smaller operators, trying to convince them why SMS was going to be a good thing for them. And I had a speech I kind of developed over the years and it started out with something along the lines of "What do you in the morning when you get up and you get ready to go fly?" And the guy would look at me and go, what are you talking about? No, seriously, just you get up out of bed, you get all ready to go and you're about to walk out there, what do you do?

Well, the answer would be something along the lines of well,

I look out the window at the weather, seriously, and then I might make a phone call to catch the weather, to get the official weather, and I might look at the cameras and I might call a friend and so on and so forth. So I walked him through this entire operational day and by the end of the conversation, guess what, he's outlined an SMS program that works for him as an individual. He might not even realize it.

So I bring that up to them and there's always a lot of surprise. In most cases, if there was a way to get that officially put down on paper in some way that was effective for them, I think that's the route we'd have to go. The big challenge for us, as inspectors in the field, is to convince these operators that a robust system doesn't have to be a gigantic undertaking. Even today I use my Petersburg single pilot guy with the index card and the hat as an example, as a way of how to get the mindset into these guys for creating a small SMS that's sized and scoped for their particular operational environment.

Regardless of all the other issues, our primary point to make with these smaller operators is just to start doing the simple stuff like risk flight -- flight risk analysis, this low-hanging fruit, and things such as customized risk matrix cards on a little flashcard in a pocket is a good way to start. So the FAA is looking hard at this, to figure out how to get SMS to a scale that these smaller guys are going to be interested in utilizing.

CHAIRMAN SUMWALT: Thank you. Thank you very much for that.

George, I'm going to come to you just momentarily. Before we do that, I want to remind the audience that in just about 7 or 8 minutes, we will take questions from you and so if you've got note cards, fill them out. We've got NTSB folks in the --

(Microphone malfunction.)

CHAIRMAN SUMWALT: -- shirts that will collect your cards and then, of course, if you're watching online, you may submit your questions to -- and I just wrote it down again, Part135roundtable@ntsb.gov. Part135roundtable@ntsb.gov. So that's just a reminder.

George, just quickly, you had a comment here.

MR. SNYDER: It's interesting that, you know, the FAA is so supportive of the SMS principles. To the rest of the world, SMS is not optional because safety in the air transportation industry is not opt in or opt out. The U.S. was a little bit late in coming to the table as far as SMS implementation. We audit carriers in Africa, in Southeast Asia, that have had a fully functioning SMS for years and, really, it's working very, very well, producing the desired results. So Part 5 came very, very late.

Now it's wonderful that we have the voluntary program, but then again, 135 operators are -- especially in Alaska, are challenged with some of these safety issues. We have proven that SMS is a valid methodology for safety management, yet we make it voluntary, and I'm just wondering -- you know, the point has been

made it's scalable, it can be done, it doesn't have to be a formal ASAP program and sit down with three or four people. But the basic methodology of SMS, the four parts, managing safety, I'm wondering if we're really helping by truly making it voluntary.

CHAIRMAN SUMWALT: Well, we have -- the NTSB, we have recommended that we believe that Part 135 operators should have SMS as a mandatory component. Correct me if I'm wrong, George, but if you're a 121 carrier -- or Max, are 121 operators required to have a safety management system?

MR. TIDWELL: Absolutely, yes.

CHAIRMAN SUMWALT: Okay. So why would they want there to be a difference? Why would we want a different level of safety for Part 135? That's why the NTSB believes that we should -- that it should be required for Part 135 operators. You've got paying passengers. I made this statement last evening when we were at the Alaska Airmen Association. When somebody pays money to fly on an airplane, they should not have a lower -- a significantly lower level of safety. If it's required for Part 121, let's do it for Part 135.

And frankly, I agree with Don Arendt, let's quit calling the darn thing SMS. Everybody's just tired of hearing that term. Hopefully we demystified what it really is this morning, so thank you for explaining it to me in language that I can understand. Let's just consider that we're managing safety. Does anybody disagree that we should manage safety? So let's just manage

safety. If you want to call it SMS, great. If you don't like the term, if it confuses you, forget it. And I once wrote an article and the title of it was "Just Forget SMS." Forget it. What we want people to do is manage safety.

So I want to talk about the pressure to fly because I keep hearing about this. Howard, we're going to lose you right after lunch, so in your decades of working with the FAA in the general counsel's office or chief counsel's office, what issues have you seen with respect to pressure to fly that the operators should be on their guards for?

MR. MARTIN: So there's been a fundamental shift, what I've seen in decades. When I first started with the FAA in 1990, manic month was probably the biggest pressure to fly across the board. There was pilot ego involved but, you know, we had a culture that has changed; it was a business decision that you're going to fly come hell or high water. There's been a fundamental shift in that. Now the difference I see and, of course, we see it at the tail end, the worst-case scenarios, when it gets to enforcement usually as opposed to accident. Very rarely now do we see management -- I mean, I can't think of one in the last 5 years where we had any direct evidence that management was encouraging people to fly when they shouldn't.

I think the challenge has been for management how do you develop a system to police the people within your organization. Not the FAA doing it after an accident, but the day-in and day-out

where people are making poor decisions. Because virtually every accident case I've had, you know, the pilot had an opportunity -- and I shouldn't say every accident, CFIT accidents, because the midairs and some of the others are a horse of a different color. But the CFITs, there was always some point where the pilot made a decision not to turn around or not to land when they had an opportunity. Virtually every one of them, it was not their first rodeo doing this, so it existed within the company.

Their training programs have to change and the culture has to be where, much like -- my background was in law enforcement in the military. You had a set of organizational norms and the training reinforced it and also reinforced there was accountability for it. I think your term was tough love. I think it's a tough challenge for them because, you know, why do people decide, when they know there's such a high risk, to go ahead and try to complete the flight.

CHAIRMAN SUMWALT: Thank you for that perspective.

Ron, the U.S. Postal Service is a big customer of Part 135 carriers in Alaska. So are there scenarios where one carrier is very cautious and says we're not going to go and we're not going to carry the mail, literally, because the weather's too bad or something like that? So do you go to another carrier and say, well, this company wouldn't do it, but will you do it? How does that work?

MR. HABERMAN: Basically, the way it works is we rely on the

operators to make the decision. We're a customer and we don't talk to an operator and say you should fly, you shouldn't fly. They're the experts. We rely on them. Now, if one operator is not flying for whatever reason, do we -- does mail get transferred to other operators? Absolutely. That's the law.

Now the issue becomes, you know, when you talk about the pressures to fly, there is this institutional pressure because you've got roughly 130 million pounds of mail going out to 200 villages out in bush Alaska. You have operators out there that are far fewer than they used to be, there's far fewer airplanes, yet there is more and more volume, and it is a big part of their income, but it is absolutely their responsibility to decide when to fly.

What we do is when we get backed up because of the volume and because of weather issues and less aircraft, less flights, we work with the carriers to figure out when we fly, based on your decision, can you put on extra flights to get us caught up, those types of things. But there's this institutional pressure, and we've talked about it for several years now, that people have to understand the volume is going up, there's not fewer pounds of mail going out there, yet there are fewer flights, fewer operators, fewer pilots, as they say.

CHAIRMAN SUMWALT: What I believe I heard you say, and correct me if I'm wrong, but I think you said, well, if there's an operator that's not going to fly, we find someone else. Is that

-- did you say that or did I misunderstand you?

MR. HABERMAN: No, I think you -- I mean, the system that's set up under the Rural Service Improvement Act is there's operators that are allowed to carry mail, okay? So if there's three operators that are in a marketplace, if one is not flying, then the postal official will look for other people to fly. But we have no idea whether it's weather related, whether it's lack of equipment; that's the operator's issue. We are not the airline professional.

CHAIRMAN SUMWALT: So if one carrier won't do it, you look for somebody else?

MR. HABERMAN: Well, I think you're going down a rabbit hole and so I disagree with that statement.

CHAIRMAN SUMWALT: Okay. Well, explain it to me because I think that's what you just said. If a carrier will not fly the mail --

MR. HABERMAN: If a carrier can't fly the mail. We don't know if they're not flying because their equipment's broken, we don't know if they're not flying because of the weather, we don't know if they're not flying because there's other equipment. Mail is transferred because there's 200 villages out there, there's a million pounds of mail plus that's going to get moved around.

CHAIRMAN SUMWALT: Yeah.

MR. HABERMAN: So yes, we will look for someone to fly it. But the bottom line is we don't go and tell someone you should fly

when it's unsafe. We look for an opportunity to move mail. Sometimes it's an opportunity to move it out of the air. So we have a responsibility, but we are their customer, we do not make decisions on when someone should fly an airplane.

CHAIRMAN SUMWALT: If somebody comes to me and I go to my customer and say I can't fly, and that customer then goes to the next person and says, well, can you fly and that person says yes, does that -- doesn't that create a pressure to fly within the system? If that happens too many times, that customer, you are going to learn that you can't come to Robert anymore, you're going to go to the next person.

MR. HABERMAN: You know, I would say that there is an institutional problem there, that there could be an issue there, but again, the operators want -- that's a big part of their revenue. They understand. They want to move that mail, and for a reason. I mean, you know, we had villages that went 3, 4 weeks last year, they didn't get a flight. So when flights did become available -- so we're backed up with mail. When people start flying, if someone's not flying again, we go out to other carriers to see are they going to put on extra flights, how do we catch that up? So there are issues out there that need to be addressed, but the bottom line is operators have to decide whether or not it's safe to fly. We are not pilots.

CHAIRMAN SUMWALT: Yeah. So that is putting pressure on the system to be able to fly. How do you incentivize them making the

right decisions to not fly?

MR. HABERMAN: I think the best way we incentivize them is we're trying to sit down with all of them and talk about how do we avoid those issues. So as an example, when we were backed up last fall, last winter, because there was fewer flights, a lot of mail, bad weather last year, we sat down with all of them and we've sat -- you know, we've had many meetings this year trying to talk about how do we avoid that.

What we want to do is we want to get the product out there, because a lot of it is food stuff so it has to get out to the villages. We want to figure out how do we get it out there without getting backed up and what other things can we do. So I think that's the best way to do it, is to preplan to avoid that stuff, as we've done this year. Now, we've asked all the carriers based on, you know, 5 years' worth of average volumes and your average weather and you know what equipment types you have, give us an idea of what you're capable of so that we can meet with shippers to figure out what are we actually able to move.

CHAIRMAN SUMWALT: Yeah. And you did point out that a sizable portion of the revenue for these operators comes from the U.S. Postal Service and these companies, let's face it, they're in business to make money. So if they know that if they're canceling a flight because of bad weather but the Postal Service is going to somebody else, that becomes, all of a sudden, a pressure to fly.

MR. HABERMAN: Yes, but I think the other thing that's

important to understand is, is if you're in a marketplace and everybody's got weather, please don't misunderstand, we don't run to every carrier and say hey, you think you can fly? That's an important piece. But when things do free up, we do meet with the carriers and say you got extra equipment you can move in the market, can you put on extra flights, is it safe?

So, you know, don't misunderstand that when the weather's down, trust me, I've been -- I've flown a lot in 25 years in rural Alaska. If a pilot tells me they don't want to fly, I don't want to be in the airplane, I don't want our mail in the airplane.

CHAIRMAN SUMWALT: Thank you very much. Because I do know that in the helicopter EMS business, that there is helicopter shopping and --

MS. JOYCE: Absolutely. And that's been addressed, is that the companies are not allowed to shop. And so we have two helicopters up here, the same company, but they'll call me and say, hey, can you do a flight to Seward, the other helicopter just turned it down? They have to tell me that it was turned down by another helicopter. And so then I say, well, let me call you back. And I call the other helicopter and I was like, why did you turn the flight down? What do I not know? And so it's, you know, the --

CHAIRMAN SUMWALT: Yeah.

MS. JOYCE: Yeah, the air ambulance industry is, yeah, very much -- because there is a lot of pressure, that was happening a

lot.

CHAIRMAN SUMWALT: Right. Oh, yeah.

MS. JOYCE: They'd call one company and they'd say no and then another company would be like, yeah, we'll take it because then we'll get your business in the future.

CHAIRMAN SUMWALT: And Ron, thank you for your clarification there on that, at the end, and I know that the carriers appreciate the business of the U.S. Postal Service, but I am concerned about pressures to fly.

Does anybody -- Dave, a lot of discussion on this, so I'd like to hear your thoughts.

MR. PFLIEGER: Yeah, this might be a provocative idea, but I think Ron's in a bind because he's got a lot of pressure to move the mail. His postmaster's in the bush or they've got KPIs they've got to meet. So whether it's, you know -- and I'd say inadvertent, not deliberate, that there's going to be decision making and we all know that it's not really a level playing field. I'd say that everybody in this room operates in a lot of respects to a higher standard than maybe some of the other carriers that, you know, are out there in the bush.

So one idea would be is to almost match what DoD does. You know, before DoD allows us to carry a passenger on our planes in the 121 side, we have to pass a safety audit. The first stop, what I understand from DoD auditors, is with the FAA when they come to town, to ask about the compliance disposition of that

carrier. Why not link money and safety? All of the 135 carriers rely on Medicare/Medicaid travel, mail, and then a number of them have EAS. So that's federal money, that's taxpayer money.

To your point earlier about SMS and George's about making SMS mandatory for 135 operators, why not make it a prerequisite for us to -- you know, the carrot, that we can't carry mail, EAS or Medicaid unless we have become an SMS carrier voluntarily. That would probably solve a lot of problems because it levels the playing field and can prevent the forum shopping that's going on.

CHAIRMAN SUMWALT: Well, I like that idea and I -- I'll give a foot stomper to whoever's taking notes down here, Shaun, on that, because we did recommend something for the -- they don't call it HEMS industry anymore, but the air ambulance business. We did come up with a recommendation a few years ago that in order to receive Medicare and Medicaid reimbursement you had to meet certain standards if -- and that didn't fly. The CMS, the Centers for Medicare and Medicaid, didn't buy that. But I do like what you're saying there.

We're about out of time here before we get to the audience questions here, but I think I do want to hear -- absolutely, Will. Absolutely.

MR. MAYO: No, your mike is not working.

CHAIRMAN SUMWALT: Is it not working so good? Thanks. Did you have a comment, Will, before --

MR. MAYO: You know, I agree with the comment that Tom made.

You know, being a consumer and over the years of 135 operations in my village and in other villages and as a provider of services to these villages and flying our folks all over, you know, we're a big consumer of these services and -- but I remember in the '70s there was a lot of pressure to fly, there was a lot of busting minimums, there was a lot of scud running. I was in those planes and I don't see that, I just don't see it anymore.

I fly a lot, both as a consumer of these services and as a private pilot and, you know, I see a lot -- a big change in the culture over those decades, and I really appreciate it and I know our folks are not -- my experience has been that our -- the consumers in our villages, they don't apply that pressure, but I like it when pilots, when they do feel it, they are not impacted by it, and I so appreciate that.

CHAIRMAN SUMWALT: Thank you for your thoughts.

Let me see the audience questions here. Dave, how many folks are in the -- or to Ray, how many pilots so far do you have in the Ravn/UAA program? It just started -- we just announced it, what, in the last 6 weeks or so, 2 months?

MR. PFLIEGER: If we did that, I don't know.

Ray, do you know?

DR. WEBER: Not really. It's been coming together. Right now it's starting out as internships towards the end of their career. I believe we have some people starting to apply now. But in order to get the word out, over the summer we didn't have

classes, so --

CHAIRMAN SUMWALT: Right, right.

DR. WEBER: So right now I think one or two are interested and it looks to be growing.

CHAIRMAN SUMWALT: Yeah, thanks.

When did you announce it? It's been in the last 6 or 8 weeks; is that right, Dave?

MR. PFLIEGER: Yeah, it was just a couple months ago.

CHAIRMAN SUMWALT: Yeah.

MR. PFLIEGER: But I think that, you know, the great thing is going to be people, you know, young men and women will be able to make -- our starting pay for our right seaters in our 135 operation, when you add the retention bonuses, it's $51,000 a year. So if you can make money to pay mom and dad back for the college degree, it's not going to be a bad thing.

CHAIRMAN SUMWALT: Thank you very much.

MR. TILSON: Robert, the University of Oklahoma, Oklahoma State University, they have ad interim programs now that -- like Great Lakes and some of the larger carriers are doing. So this university tie-in thing could be huge for Alaska because it's working really well in the Lower 48 to solve some of these pilot shortage issues.

CHAIRMAN SUMWALT: Thanks.

DR. WEBER: We also have an agreement that we have worked through with Horizon, also. So it's starting to show up here.

CHAIRMAN SUMWALT: So here's a comment here. WBAT should be --

(Microphone malfunction.)

CHAIRMAN SUMWALT: -- to smaller carriers and it should be scalable, smaller. Smaller carriers pay less, larger carriers pay more. Can we base it on the numbers of pilots and fleet size? Something to consider.

MR. TILSON: I think I've been out of it now for 3 years, so -- it had a pricing program something similar to that, it had to do with the number of pilots, actually. So I don't know where it's going to go now, though.

MR. SPRAGUE: Robert?

CHAIRMAN SUMWALT: Yeah, Joe.

MR. SPRAGUE: Just on that, we've had conversations with the company providing the WBAT just in the last few days and there is a tiered approach to the pricing for companies of different size. But even for the smallest size carriers, ourselves being in that category, it would be over $5,000 per year. So people can debate whether that's expensive or not expensive, but I do think you need to be careful that any sort of charge for that type of service does not become a barrier to carriers using it.

MR. KNESEK: And Robert, this has been tried recently in the past where they tried the scalable where you would have a large cargo operator with a small amount of planes paying about -- you know, very little because of the number of aircraft to a carrier

flying ten 207s would be paying 10 times the amount. So you've got to watch when you do the scalable.

CHAIRMAN SUMWALT: Okay. That's a very, very interesting perspective.

My question is how much information are pilots getting from their base, and we're talking about flight coordinators, dispatchers, in regards to the changing weather? Part 121, we have to keep our pilots constantly informed. How can this information from dispatchers help decision making?

Do you want me to repeat it? You know, I'm reading somebody else's question, so it's -- my question is how much information are pilots getting from their base, and we're talking flight dispatchers, flight coordinators, in regards to the changing weather? Part 121 carriers, we have to keep our pilots constantly informed. How can this information from dispatchers help decision making?

MR. KNESEK: I can help answer that because it's something we've looked into a lot, where it's really challenging in operating -- the 121 on the jets flying up at high altitude using ACARS, ARINC and everything, it's very easy to be in constant communication. But here ARINC doesn't work below 21,000 feet, where we all fly. So there's challenges when we're flying, say, from King Salmon to Perryville going through the Alaskan Range, of how we can update on a long flight, that pilot.

We've used Spidertexting, you know, we've tried to test that

and it still needs some work to be better and stuff, but mainly we're still using the tools of our village agents along the route to try to get a hold of them via radio contact. And eventually, a goal of ours, as a company, is to set up IP radio systems in a lot of villages to try to have radio contact through the Internet with our central dispatch center.

CHAIRMAN SUMWALT: Thank you, Dan.

Here's a question here. A measure of progress on CFIT would be an increase in the number of cancelations and air turn-backs. Are operators here measuring those and what is management's response to an increase? Any thoughts on that?

Stacia.

MS. JOYCE: Part of our SMS program is we do report weather aborts and why we aborted. The weather was not forecasted usually is what it is and then we get feedback from our company about, you know, good job on your weather decision. You know, there's always some sort of feedback, which is nice, from management to know that they recognize and support your decisions.

CHAIRMAN SUMWALT: Yeah, thanks.

I do know that at my airline there was always the debate should we -- and one of our mandatory reporting criteria, things that we had to report, was a go-around or a missed approach, and some people felt that was a disincentive to actually do what the right thing was. We want pilots to go around if it's an unstable approach. But the company wanted that information not for that

Robert went around and he screwed up, we wanted that -- the company wanted that information so that we could get an idea, wow, at Charlotte they are turning pilots in too close and the pilots are having unstabilized approaches. And also data, you know, as long -- so yeah, I understand that the -- tracking the number of aborts would be good. There is a downside to it, but data can help you.

So we really -- we have lots of questions and that's the good thing. The bad thing is we don't have time for every question and I apologize for that. I'm not screening the questions, I'm just basically looking down and if I see a question that looks short, I will read it. And so there's a thought there. But we will take a lunch break. We'll start back at 1 o'clock, and thank you very much, we'll see you in an hour and a half.

(Applause.)

CHAIRMAN SUMWALT: For our panelists over here, that we'll be leaving them, we'll be leaving and moving to the audience, thank you all very much for being here. Thank you.

(Whereupon, at 11:30 p.m., a lunch recess was taken.)

A F T E R N O O N S E S S I O N

(1:00 p.m.)

CHAIRMAN SUMWALT: Well, good afternoon and welcome back. So at the end of the day from 3:30 to 4:00, we will recap. Really, what we want to do is go around from our panelists, so I want you all to be thinking about this. At the end of the day we will go around and ask each of you what would you like to see moving forward because, as we keep saying and again, I got this idea from Richard last night, we don't want this just to be a conversation. We want to come out of here with some solutions. So think about that one.

We do have new panelists, we swapped out at lunch. So John, welcome, and why don't we just go around and introduce yourself, up to Kyle, the new panelists.

MR. HELLEBERG: Great. Hello, everybody. My name is John Helleberg, I'm with The MITRE Corporation. Human factors is my background and I'm a private pilot.

MR. McGHEE: Hello, everyone. I'm Wayne McGhee with Garmin, I represent Garmin today, and I'm a private pilot, too. And thanks for putting this on, Robert.

CHAIRMAN SUMWALT: Thanks for being here, Wayne.

MR. JOHNSON: Hi, Robert. Brian Johnson, Air Quality Group, Western Service Area. We do audits and evaluations on the air traffic control facilities and facilitate the SMS processes for the Western Service Area.

CHAIRMAN SUMWALT: Great.

MR. VAN ALLMAN: Hi, Robert. I'm Rich Van Allman, I'm the Planning and Requirements Group manager down in -- for the Western Service Area under the Air Traffic Organization and had the distinct pleasure of also serving up here for 2½ years as the deputy regional administrator working for Kerry.

CHAIRMAN SUMWALT: Thanks, Richard.

MS. FORD: Thank you, Robert. JoAnn Ford. I'm based in Washington D.C., the FAA headquarters there, working in Navigation Programs, and we're responsible not just for ground-based nav aids, but also lighting system. Anything with respect to infrastructure, assisting navigation, ground-based nav aids. And I've had the pleasure of being a subject matter expert and Alaska liaison for more than 15 years.

CHAIRMAN SUMWALT: Thank you for being here.

MR. OSIENSKY: Great. Good afternoon, Robert. My name is Jeff Osiensky. I'm the meteorologist in charge of the Alaska aviation weather unit in the Anchorage Volcanic Ash Advisory Center. I've been up here in Alaska for well over 20 years on a couple of different stints, but I've been working exclusively in aviation forecasting.

CHAIRMAN SUMWALT: Jim.

MR. WRIGHT: Yeah, thank you. Jim Wright. I'm a contractor with the ADS-B program, which I've been doing since the Capstone days, for the last 15 years, and prior to that I flew Beavers in

Southeast Alaska for 20 years.

MR. ROTHER: Good afternoon. Gordy Rother. I am with Flight Standards, Washington D.C. Air Carrier Operations, and I deal a lot with aviation weather policy and regulation.

CHAIRMAN SUMWALT: Gordy, thank you.

Kyle.

MR. CHRISTIANSEN: Hi, I am Kyle Christiansen. I'm Flight Procedures Team for the Western Service Center, FAA. I've been the focal point for -- procedures in Alaska for 17 years and I am fundamentally the touchpoint for Part 135 operators to make changes to the IFR infrastructure in Alaska.

CHAIRMAN SUMWALT: Thank you.

The rest of our panelists have been introduced. A question came up earlier, will we -- will this video tape, will it be available? And it's my understanding that it will -- that yes, it will be -- the whole thing will be on YouTube, on the NTSB's YouTube page, and then at some point I think we plan to come out with some sort of probably video snippets of the seminar, so -- or the roundtable.

So this afternoon, for the next 55 minutes we will talk about technology solutions and for those of you in the audience, if you would like to submit -- of course, this audience here, the live audience, you can submit your questions on index cards. I am disappointed that we didn't have more time to be able to ask all of your questions and that's -- sorry, that's the way it goes. If

you are online, you can submit them through -- let's see that slide one more time, I think it's Part135roundtable@ntsb.gov. But anyway, we will try and get to your questions. Yeah, there it is, right there.

Okay. So again, we're talking about technology solutions and let's see here, where's Jim?

JIM WRIGHT: Jim Wright.

CHAIRMAN SUMWALT: Jim Wright, yeah. We're going to start out with a bang here. You're brand new, so we're going to start out with you. You've got a few years of experience, maybe even decades dealing with ADS-B, and a lot of experience with ADS-B, so give us some examples of how ADS-B coverage in Alaska reduces the possibility of midair, CFIT, loss of control, and those types of things.

MR. WRIGHT: All right. For those types of accidents, the primary benefit of ADS-B is traffic and weather in the cockpit. So for airplanes that are appropriately equipped with ADS-B out and in, meaning they're transmitting and receiving ADS-B, these airplanes broadcast their position back and forth to each other. So we call that air-to-air, so you'll see all the other ADS-B airplanes that are flying in your environment, whether we have a ground station nearby or not. If you are flying inside one of our ground stations, we send up all of our transponder radar surveillance up to any ADS-B equipped airplane, as well. So between these two products, we'll call them, we develop a pretty

good picture of the traffic flying around in our environment.

And we also send weather products. We send 13 weather products up to our ground stations. We needed a ground station for this. We've got a display that looks like the coverage in Alaska at 3,000 feet. There's the products. So METAR and TAFs for airports within 300 miles of the ground station, NEXRAD and several other products. This is for the purpose of pilots making -- avoiding weather decisions, to help with their CFIT and loss of control. So traffic and weather in the cockpit.

CHAIRMAN SUMWALT: So I can understand how ADS-B could help with CFIT avoidance, because I guess it knows where the airplane is and it knows it's got a terrain database.

MR. WRIGHT: Yes.

CHAIRMAN SUMWALT: But how does it help prevent loss of control?

MR. WRIGHT: Because of the weather products. I mean, the weather products that you've got will help you make decisions, hopefully --

CHAIRMAN SUMWALT: Okay.

MR. WRIGHT: -- that will prevent you from getting yourself into a position where you're going to lose control of the airplane because of the weather. So that's how we help with that.

CHAIRMAN SUMWALT: I got it. And I don't know anything about ADS-B. I stepped out of an airline cockpit 15 years ago and my greatest contribution to aviation safety is for me not to fly

these days, so I don't know. It's really not even funny, but it's true. But actually, so -- but there's 978 UAT, that does have the ability for FIS-B, I think, but the 1070 -- 1090 ES does not; is that correct?

MR. WRIGHT: That's correct.

CHAIRMAN SUMWALT: Okay. So if you're flying for -- above 18,000 feet, you don't have -- you'd have to have 1090 ES; is that correct? Or something like that.

MR. WRIGHT: Yes. In order to comply with the rule, above 18,000 feet requires 1090 ES out. It says nothing -- we don't have any rules requiring --

CHAIRMAN SUMWALT: Right.

MR. WRIGHT: So you could equip -- most of the avionics today that has In does so on both frequencies.

CHAIRMAN SUMWALT: I see.

MR. WRIGHT: So in that sense, you're complying with the rule by broadcasting on 1090. You're listening on both frequencies so you can pick up the weather.

CHAIRMAN SUMWALT: Okay.

MR. WRIGHT: Assuming you have equipped that way.

CHAIRMAN SUMWALT: Thank you very much.

MR. WRIGHT: Yeah.

CHAIRMAN SUMWALT: So we talked earlier today about sort of flight data monitoring. Can ADS-B help include -- can it help with flight data monitoring?

MR. WRIGHT: Well, sure. In a small sense. I mean, all the data that's being sent out, which is your position, who you are, the course you're flying, your ground speed, is sent to -- if there's a ground station in the vicinity, that gets sent off to our air traffic control network, and then there is software available and many people in the state of Alaska are using it, that allows the company to monitor their fleet at all times. So now you have the position of your airplanes at all times, the altitude they're flying, the course they're flying, their ground speed and their identity. So you have that data.

CHAIRMAN SUMWALT: Okay.

MR. WRIGHT: So if that helps with that --

CHAIRMAN SUMWALT: Yeah. Thank you. Thank you very much.

Jens, I did want to turn to you and I know you wanted to say something, but you have been the co-chair of the FAA's ADS-B Equip 2020 Implementation Working Group since 2014. Tell us about where the ADS-B program is, the challenges that remain, as well as considerations to ensure the 2020 mandate --

MR. HENNIG: Yeah, I appreciate that and I know we have some graphics in the back. There's actually a couple of -- if you flip over to the maps that show different parts of Alaska, specifically the colored ones here, Jimmy's response here on the second one, how can we use ADS-B for data monitoring. We have many different, you know, many different capabilities that we can discuss and how we share data between industry, and FAA organizations do it on

their own. We have a program called ASIAS. It's a program to concentrate many, many different sources, everything from radar surveillance to FOQA to ASAP and so forth, pulling together. One of the resources that we have is ADS-B. ADS-B, for all practical purposes, it's a 21st century transponder. If we hadn't had a bunch of engineers name it ADS-B, which is confusing everybody, it's a 21st century digital transponder that just sends out your position. But because you didn't get that position as a GPS location with high accuracy, we've been able to do some initial flight data monitoring.

What you see up here on the screen, first on the left, is just a coverage map, the same thing that was shown earlier. On the right is some attempts that we're doing at the national level together with the FAA and industry, de-identify data -- we don't know who's out there flying, but through some algorithm we can, in this case, do a CFIT risk analysis. We're seeing surveillance data and noticing where aircraft are probably flying a little bit closer to terrain than we would desire. If they had a TAWS system on the aircraft, they would probably get some kind of alert at this point in time.

I think the second slide here, one forward, this shows southeast, a lot of tour operations there, flight seeing and so forth. These are again different areas where we're really seeing quite a bit of high concentration along flight paths where operators are doing these kind of operations. We can do the same

thing, also, for midair collision. So it's a resource to look at national level risks and we get into specifically the midair collision risk, we're looking for areas where operators fly together.

CHAIRMAN SUMWALT: Sorry to interrupt. So what is R-CFIT?

MR. HENNIG: Risk of CFIT.

CHAIRMAN SUMWALT: Risk of CFIT.

MR. HENNIG: Yeah. And then we have similar analysis -- I forget if we brought the slides or not, but it's risk of midair collisions. We can do that kind of concentration sides and I think the benefit from this, you know, you can do local data monitoring and then when we work with the government, we can look at national-level risk. Most operators, we discussed earlier, don't necessarily have the resources to do this work, so how can we take this information now that's generated, it's paid for by the taxpayer. We don't know who's actually out there.

But in this case here, just off of Anchorage, we ran this by the Alaska Air Carrier Association the other day and they said, hey, you know, this -- we're actually aware of some of these hot spots. Question was have you guys talked about it. Here's a graphic that can help with that kind of communication. So ADS-B is part of that toolset and what you see up here is a combination of radar and ADS-B data.

CHAIRMAN SUMWALT: So this is the FAA's ADS-B Equipped 2020 Implementation Working Group that is looking at these data?

MR. HENNIG: Actually, the Equipped 2020 Working Group -- I'm kind of taking your questions in reverse -- it's very much program focused. So ADS-B was -- well, we discussed this here, was the ancillary safety benefit, something that's to the interest of the community. ADS-B is a national program that's looking at infrastructure, improved surveillance, both air to ground and air to air.

So our big focus, your first question, what's our priority, like the name says, getting everybody equipped because the benefit increases the more aircraft are equipped with ADS-B. If you look up the nationwide, we're at about 93,000 aircraft equipped. That's a good bit on the way if you look at the fleet that's actually out there flying in ADS-B airspace.

The Alaska data, we're tracking about 1600 and change, so the rate of equipage of the fleet, the penetration of ADS-B equipage in Alaska is probably a little bit lower than you see in the Lower 48. That's understandable because there's very little ADS-B airspace in Alaska below 10,000 feet.

So the main challenge that we have ahead of us is getting people to equip, and even though we call it Equipped 2020, that doesn't mean the program ends in 2020. I expect to be working ADS-B questions in 2020, 2021, 2022, and I've been trying to brand it this year, especially 2020, is the start of the program. That's when we can start realizing the improved surveillance for our air traffic controllers, we can get the air-to-air benefits,

and we can also look at some of the airspace efficiencies across the country.

CHAIRMAN SUMWALT: So I was looking at a picture of this. So let's see. So you're saying the majority of the airspace in Alaska below 10,000 feet does not require ADS-B; is that correct?

MR. HENNIG: Correct. This graph here is the -- straight out of the FAA manuals.

CHAIRMAN SUMWALT: Yeah, exactly.

MR. HENNIG: For those of you that are much more familiar with the Alaska airspace than I am, the amount of -- I don't think we have any Class B up this way, I might be mistaken, but there are not a lot -- if you're below 10,000 feet, you're simply not required. As an airspace base rule, we did that intentionally to provide the cost-benefit balance that I know you discuss at times. That's after we started looking at safety benefits, in the end, we got to look at cost-benefit.

So this is airspace that has higher density traffic. We don't force anybody else to equip, we're certainly encouraging it. Our partners in the operator community -- AOPA, MBA, NATA, HAI, they've all been out and very actively educating the community about the fact that, yes, even though you may only fly into the airspace once or twice, having everybody on the same frequency, this is the future; this is not just a milestone, this is a surveillance technology we're going to use for the 21st century.

CHAIRMAN SUMWALT: Yes, sir. Jim.

MR. WRIGHT: I just wanted to clarify, that 10,000-foot rule is a Lower 48 rule, so it does not apply in Alaska. So in Alaska the only place where ADS-B is mandated is in or over the Class C at Anchorage International or up above 18,000. It's the only mandated airspace in Alaska.

CHAIRMAN SUMWALT: Okay. Very interesting, thank you.

JoAnn, you've got your finger on the microphone there. Please, chime in.

MS. FORD: Yes, thank you.

I wanted to add, as well, that with respect to incentivizing the equipage for ADS-B that we've seen in so many instances where the state of Alaska has really led the way, and in this particular -- with the equipage of ADS-B, as well, Alaska did it again, that the state of Alaska did offer a loan. It's the only state I know of that offered a low-interest loan to anyone who was registered, and please correct me if I'm wrong with this, but if their aircraft was registered here in the state of Alaska -- and it was not just ADS-B at that time, it was also WAAS, wide area augmentation. If you equip your aircraft with ADS-B and/or WAAS, you could apply for a low-interest loan, and that's the only state that's done that.

CHAIRMAN SUMWALT: Thank you.

So let me ask you this. Should every air carrier, every commercial carrier, be required to meet the ADS-B requirement regardless of the operational area? Any thoughts on that? I bet

we'll stir up some thoughts on that one.

MR. HENNIG: I'll take the first hit on that since it's kind of my baby. We're trying to certainly encourage it.

CHAIRMAN SUMWALT: Uh-huh.

MR. HENNIG: The rule is what it is. I don't see the FAA making any fundamental changes to the regulation. We fought that out about 12 years ago and a lot of blood, sweat and tears went into that and we don't see a change. But again, this is good for everybody. People that are flying with ADS-B today are realizing the benefits. I've had many, many testimonials in different forums where somebody said, hey, I flew with ADS-B, I'm never going to go flying without it because you have no idea what I saw on my screen, right?

So getting people equipped, there's probably a conversation to be had, and this is my part of the controversy, if you're holding yourself out, you have that higher level of care, it's probably going to be very difficult to answer the question why you haven't taken this step to be ADS-B equipped. It's a transponder. The operating path for most aircraft, it's pretty straightforward these days. Again, we've done 93,000 and changed the last update that the FAA provided, so we know how to do it. The prices have gone down significantly from the rulemaking. Experts around the country can help out. We have someone here at the table who is one of the manufacturers, but there are, you know, half a dozen to a dozen different companies that can help out with that. If you

have an older transponder, it might be the right time to look at that older transponder and simply make the upgrade from that 10, 20-year old piece of equipment that's not working the way you expected, to a digital transponder that has you complying not only in the United States but Canada, and I think I'm tracking about 30 to 40 countries around the world that are now going down the ADS-B path. This is not something new or different, this is 21st century surveillance technology.

CHAIRMAN SUMWALT: Yeah, and thank you very much for those thoughts.

Darren, what are your thoughts on that idea?

MR. YOUNG: With the ADS-B -- I think one of the issues with ADS-B with the general flying public is that because there is a lack of coverage up here, so I don't -- I think a lot of people don't think it's worth the actual cost to put it in the aircraft.

Now, we equipped all of our aircraft with ADS-B In and Out and the reason we did that, primarily, is we have a lot of flights that fly -- we'll have five airplanes going the same direction, same place. We use it primarily for traffic avoidance and that works great for us, but if we don't get the other folks on that equipment, then we don't see them regardless. So 91 guys out there flying around in the Cubs, we're never going to see them unless, again, we're within a radar area where we can get that information because like when I'm around Fairbanks where I fly, I can see all the traffic. But when I'm out away from that WAAS --

or not the WAAS coverage, ADS-B coverage, those ground stations, we can't get that traffic. But I'm kind of like what you're saying, I could not live without it anymore, with -- we use it going in and out of Fairbanks with the weather and all that information. What we do need to do is continue to look towards -- continue to put more ground stations in to give us a little bit broader coverage for the folks that operate well below 10,000 feet, which is most of us.

CHAIRMAN SUMWALT: So let me see if I've got this right, and I probably don't. So if an aircraft has a transponder but not ADS-B because they're not required to, if there's a ground station nearby, then that would allow you to see that aircraft on your ADS-B in display?

MR. YOUNG: If it's in a radar coverage area, I believe.

CHAIRMAN SUMWALT: Right.

MR. YOUNG: So if the Anchorage center is picking them up on radar and we're within a ground station, we should see them. When I'm in the Fairbanks area where we have the radar, I get basically repeated what those guys are seeing up in the cab.

CHAIRMAN SUMWALT: Yeah.

MR. YOUNG: Their traffic on my screen.

CHAIRMAN SUMWALT: Is that what they call ADS-B-R, rebroadcast?

MR. HENNIG: No, the --

CHAIRMAN SUMWALT: Yeah.

MR. HENNIG: I'll take that one. ADS-B-R is the dual length, so UAT to 1090 and 1090 vice versa.

CHAIRMAN SUMWALT: Okay, thanks.

MR. HENNIG: This is a different feature of the program that provides that capability.

CHAIRMAN SUMWALT: Thank you for helping me to understand that. So you can see, if you're in an area of radar coverage, you can see with your equipment ADS-B In, you can see that. You will be able to see it on yours.

Now, how many -- you're operating what, Navajos?

MR. YOUNG: Yeah, we have a fleet of 15 to 17 Navajos, basically.

CHAIRMAN SUMWALT: Yeah. And your decision to put this equipment in, and it costs money, what was that decision?

MR. YOUNG: Well, we knew that ADS-B Out was going to be a requirement even though technically we could get away without it but, I mean, I would see no reason why you put ADS-B Out without the benefits of the ADS-B In while you're equipping that aircraft.

CHAIRMAN SUMWALT: When the rule came out, I think it was 2008, I believe we commented on it that the requirement should be for both In and Out, but it is what it is.

So we've got a lot of comments here.

Dan.

MR. KNESEK: I think one of the better ways to maybe look at it, instead of requiring all carriers, is to maybe look at the

different airspaces and the amount of activity. We have a perfect example in the state of Alaska, a very, very busy airspace is Bethel and it will not be ADS-B required.

Now, a lot of us carriers are equipping all our aircraft and we'll be in and out with displays, but it's not required. I mean, we have a lot of NMACs filed every year in Bethel and then some pretty close calls and even an ill-equipped tower to be able to see everything on the ADS-B equipment without radar and stuff. So if we made that maybe an ADS-B veil or some sort for Bethel, you know, because of that type of airspace, then it wouldn't require sending an operator out of Emmonak or Galena or somebody to have to have ADS-B.

CHAIRMAN SUMWALT: Great comment, thanks.

Any comments down here and then we'll -- Jens, I think you --

MR. JOHNSON: Yeah, Robert, I want to echo about Bethel. Part of our responsibility is investigating air traffic incidents and NMACs, in particular, and we have had roughly 9 to 10 at Bethel over the last couple of years. And initially the thought was it was substandard air traffic services by the contract tower up there because of staffing.

Now, we did find some areas that they could improve upon but the one -- one fact that jumped out on every one of those NMACs is at least one of the aircraft involved was not ADS-B equipped. And so if we're looking at how can we fix the NAS and raise the level of safety and efficiency, because when you get SRAs or you almost

have a near miss, a lot of times you get out of position for that approach and you have to come back around and try to make another safe landing.

So I would echo that it's not just the carriers, but Bethel could be one of those places where the requirement, you know -- and I'll talk about it maybe a little bit later, but during metroplexes they -- as they made safety and efficiency changes, they expanded Class B, they did a number of things to do that which were, you know, sometimes unfavorable. Bethel should be one of those places where they look at that in earnest and say this is what we could do to improve safety.

CHAIRMAN SUMWALT: Great, thanks.

Jens.

MR. HENNIG: Yeah, just to come back on the ADS-B In discussion. Absolutely correct. I think we even filed a comment saying hey, let's mandate ADS-B and let's look at it, but we've -- we've learned a lot over the last decade. One of the things is we've learned that the FAA can be very progressive in its policies. The FAA has come out with policies under EFBs and what it allows to be done on tablets where -- I mean, I'm a manufacturer, I want to sell equipment for the cockpit but, you know, we see the benefits of the system and several of our members are the developers of low-cost -- I mean, we're talking a few hundred dollar listening devices that you can put on the aircraft and then display on a tablet a lot of the information. So for

some operators going down the fully install path, which is a higher pathway to ADS-B Out and In, is the right choice. For others, especially on the lighter end of the community, older aircraft singles, you know, where is that -- hey, is there a pathway for me to upgrade my transponder, indicate that I have In when I do the configuration and then have my flight crews fly around with a tablet, that may be a really cost-efficient path there and to address some of those concerns.

So the FAA has taken the right steps there to really enable safety to the community. And as I understand, the number of people that have some information on a tablet, you have it readily accessible, it's certainly quite prolific and, you know, in the context of ADS-B In, it is a real opportunity for operators willing to take advantage it.

CHAIRMAN SUMWALT: Appreciate your comments.

Dave, I'd love to hear your thoughts.

MR. PFLIEGER: Sure, I would just echo what Dan said and what we heard down the way from the FAA. I mean, when you've got a busy airport like Bethel, my understanding is it's the fourth busiest airport in the state of Alaska and it's essentially a magnet out there in western Alaska for everybody coming in and out, whether they're hunting or doing commercial service like us. But to echo your point, I mean, we are common carriers, you know, we should be held to a higher standard, so in a perfect world I would think ADS-B should be mandatory for anybody running around

with a 135 certificate carrying passengers for hire or mail. But at least at a minimum, let's make Bethel, you know, a hub of activity, a mandate, put a mandate in place there so we have ADS-B. Because we, like Grant, you know, we can't avoid what we can't see.

CHAIRMAN SUMWALT: That's two foot stompers that you've given me already for today, so very good. Thank you very much.

Anything else before we move past ADS-B and continue to talk about technology? Please, Joel.

MR. KAIN: Sir, just briefly, I had a conversation with Mr. Wright earlier this morning about Alaska ground-based transmitters and, Jimmy, please jump in and correct me if I'm wrong, 42 base transmitters across the state of Alaska?

MR. WRIGHT: That's what I think the number is, yes.

MR. KAIN: Yeah. And we're 20 percent of the U.S. total land space, land mass, and how many are there in the CONUS?

MR. WRIGHT: About 600.

MR. KAIN: Yeah, so there's --

MR. WRIGHT: Total.

MR. KAIN: There's gaps in the areas is what I'm saying and we're about 80 percent equipped right now across our fleet with ADS-B In and Out and again, we looked at the same requirements that everybody else did but, you know, we really are not required to do this but it is absolutely the right thing to do. But those one-offs that we see that we encounter in the Class E airspace

where we're trying to get from one hub of activity to another, really, those are the one-offs that pop up that you don't see on your screen, so maybe it increased in some of the coverage. We do have over 200 FAA camera sites around the state that really aid, a tremendous technology, use of technology, but perhaps some of those sites could be incorporated with a ground-based transmitter there, as well. There's power requirements and things --

CHAIRMAN SUMWALT: Yeah.

MR. KAIN: -- so there's already infrastructure there so it's just something we would like to maybe address.

CHAIRMAN SUMWALT: Thank you.

Anything else on ADS-B?

UNIDENTIFIED SPEAKER: Right here.

CHAIRMAN SUMWALT: Hang on just a second. Let me -- we haven't heard from Jennie today.

MS. SANDLAND: I'll try to keep it down a little bit. Now, just from an ATC perspective, as well, the ADS-B, especially at Bethel, is it makes a world of difference to us. There is no comparison between the separation, radar separation, when you throw one of those guys in there that is non-radar and we can't see them. So you've got a stack of five or six airplanes and you get one calling you that you can't see, it's like oh, you're kidding me. So yeah, it's a tough thing to deal with.

I would like to also mention, though, on another aspect, when you talk about the coverage of the state with ADS-B, yes, we are

lacking but where we do have it, again, a world of difference to the controller.

CHAIRMAN SUMWALT: Pilots like it, controllers like it, the operators like it. So great perspectives.

I think I heard somebody calling. Wayne.

MR. McGHEE: Well, you know, when you have an ADS-B solution and now you want weather and traffic and you don't -- with the government part you don't have necessarily have to go out and buy these big screens and install them and spend a lot of money. We had incorporated Bluetooth in all of our In and Out solutions, so you're using an iPad, a tablet, you can get the weather and traffic right there instead of installing it. We'd like to have you do that, don't get me wrong, but you don't have to go out and spend a lot of money.

CHAIRMAN SUMWALT: Great. Thank you so much.

Let's move on. John, I understand that The MITRE Corporation -- in fact, I saw a demo of this about -- well, September of 2 years ago when I went out to MITRE Corp to look at the Digital Copilot. Talk about this, what is a Digital Copilot and what are the safety advantages, potential safety advantages?

MR. HELLEBERG: Sure. Thanks, Robert.

The Digital Copilot is a concept that MITRE's been doing some research on over the last couple of years. The basic idea is, "Can we make avionics a little bit smarter?" Today's avionics are very good at telling you the current state of the world, you know,

what's my altitude, what's my airspeed, where am I. What we wanted to do is see if we could come up with a digital co-pilot concept of something that could look at not only where you are right now and what's happening in the cockpit, but where did you come from, what was your trajectory, what are your trends, and try and predict where you're likely to be going in the future.

If the digital co-pilot can then understand what the pilot is trying to accomplish, it can give the pilot essentially what we're calling the right information at the right time and in the right format. Essentially, just-in-time information that is relevant and helps the pilot reduce their workload.

CHAIRMAN SUMWALT: So not to dumb it down, but this is basically a Siri for pilots, that it's going to verbalize to you what you should be thinking about or doing, is that --

MR. HELLEBERG: That's a fair characterization, yes. So the prototype that we put together runs on a tablet, as they were discussing earlier, you know, making it accessible to some of the folks that may not be spending lots of money on new avionics and it's got a speech-based interface so it allows the pilot to get information both automatically, based on the context of the flight where Digital Copilot can see, it looks -- you're coming in to land at an airport, maybe you'd like the pattern altitude, maybe you'd like the frequencies for that airport, and it will just offer those to the pilot through a speech synthesis. The pilot can also just touch the screen and request information and the

Digital Copilot can give him the weather frequency for an airport, you know, adjacent to the one they're landing at, if they'd like to find out what the weather is like, you know, a few miles over. That sort of thing.

CHAIRMAN SUMWALT: Wonderful, thank you.

MR. HELLEBERG: Yeah.

CHAIRMAN SUMWALT: Have you -- I'm sure you have -- done research in terms of the efficacy of how this could improve pilot performance?

MR. HELLEBERG: Yeah, certainly. We've done a couple of studies in our simulator looking at pilot workload to see if this sort of technology could improve the pilot's ability to remain sort of heads up and hands free. I've actually got a video, if we've got a couple minutes or a minute or so to show, that gives a sample of what it looks like with the Digital Copilot in a simulator.

CHAIRMAN SUMWALT: I certainly think --

MR. HELLEBERG: Josh, if you'd like to --

CHAIRMAN SUMWALT: Yeah, great.

MR. HELLEBERG: -- queue that video up.

CHAIRMAN SUMWALT: Looks like it's all ready.

MR. HELLEBERG: Simulator configured is the key here.

(Video played.)

MR. HELLEBERG: Okay, thank you.

So that showed kind of the back-and-forth interactions with

the pilot speaking to Digital Copilot and Digital Copilot providing information back to the pilot. That's an example of, you know, taxi routing, turn-by-turn guidance, and hold short reminders. We have a host of other features that we're putting together trying to improve safety, including sort of a CFIT algorithm that's looking at the pilot's trend. If they're trending toward terrain, it gives them an indication that terrain is ahead, lets them know what the -- based on the current ground speed, what the feet per minute requirement would be in order to clear that terrain.

And then there's another algorithm that's looking at unperceived rolls, so the pilot -- maybe VFR ends up in IMC and, you know, bumps the yoke, drops their pen or something and a very gentle roll begins. If it's below sort of the vestibular perception, the ability of the pilot to feel it in the seat of their pants, this can give them an alert that they're rolling left or right.

CHAIRMAN SUMWALT: Yeah. Now, to be clear, many viewers may not know what MITRE Corporation is, you're not a manufacturer, you are a -- I believe, a not-for-profit organization that does research and -- research for the FAA or really -- talk about that.

MR. HELLEBERG: Absolutely. So we're, as you said, a not-for-profit organization. Our goal is to improve safety of, you know, working in the public interest to try and improve safety. So we don't develop products to sell to the public, we don't make

a profit. Our goal is to essentially start the research, overcome some of those hurdles, and kind of move the bar up and then hand those technologies off to industry and let them incorporate them into their products that already exist.

CHAIRMAN SUMWALT: Great, thank you. Thank you very much.

We're going to go to the other side of the room and switch -- and switch topics. Shaun, you were the investigator in charge of a CFIT accident here in -- here in Alaska a few years ago, so what recommendations does the NTSB have related to TAWS here in Alaska?

MR. WILLIAMS: So not just as of that last accident, but as a result of several accidents over the past few years regarding CFIT and 135s, the Board's made several recommendations. For the most part, the large concentration of that has to do with the nuisance alerts and the nuisance alerts are causing the inhibit to be over-utilized.

So basic recommendations for -- to the FAA to implement ways to reduce the nuisance alerts, to work with the certificate holders to make them aware of them and try to overcome those hurdles, whether that's adjusting operational limitations for altitudes and things like that. But then we made another recommendation to effective -- or essentially modify the inhibit switch so that once it's inhibited it will not remain inhibited indefinitely.

CHAIRMAN SUMWALT: And certainly, we have seen several accidents that I can think of where they're CFIT accidents and

then the physical evidence shows that the switch was in the inhibit position.

MR. WILLIAMS: That's correct.

CHAIRMAN SUMWALT: Now, again, it's been a long time since I've flown and haven't flown VFR in many, many years because I was an air carrier pilot, but -- and we did operate under part -- IFR all the time, but let's see, see if I'm right here. So some of the air taxis here in Alaska have in their op specs the ability to fly as low as 500 feet and the TAWS floor, if you're below 700 feet, it will start to bark at you. Explain that. And I probably didn't get all that correct.

MR. WILLIAMS: You're on the right track. It's got different classes of TAWS --

CHAIRMAN SUMWALT: All right.

MR. WILLIAMS: -- so from Class A, B, C, helicopter TAWS, and each of them have different thresholds. The way the regulation is written for 135 turbine operations, they have to use Class B TAWS, which up until August -- the TSO that was in effect basically put the floor at 700, 750 feet. The FAA amended the TSO with all new certificated TAWS units or designs. After August 31st of 2017, they dropped that down to 500 feet, but that's for the new ones. So everybody that has it out there previously, it's still at 700.

CHAIRMAN SUMWALT: I see. And so that's why ostensibly these operators with the older units, sort of prior to August of 2017, they -- if they're going to fly at 500 feet, they're going to have

to inhibit it or listen to nuisance alerts.

MR. WILLIAMS: Pretty much.

CHAIRMAN SUMWALT: Yeah. So thank you for that and so it's my understanding, just in the briefing book, so I really did try and study for this and it's -- Mike Folkerts, thank you for putting this together and that kept me busy for the last several days.

But as I understand it, the Alaska Air Carriers Association is pushing for an exemption on the TAWS requirement for turbine-powered airplanes with six to nine seats. Who can talk about that particular exemption? Anybody know?

MR. McGHEE: What was the question?

CHAIRMAN SUMWALT: Apparently, pushing for an exemption for the TAWS requirement for turbine-powered airplanes with six to nine seats.

MR. McGHEE: In the mid-2000s, when TAWS-B became available and we started shipping systems up here, we started almost immediately getting questions from end customers and users saying how do you inhibit this, because it was for turboprop profile and you have aircraft like turbine Beavers on floats which is going off all the time, so one has to think. If they're inhibiting it all the time, are they going to get into --

CHAIRMAN SUMWALT: Yeah.

MR. McGHEE: -- the little boy that cried wolf situation where you're just -- you're so used to doing that, if you really

need it, you're just -- is it going to be just a habit? It's a training issue.

CHAIRMAN SUMWALT: So Dave, are you familiar with this? I saw an email that Ravn did not support this exemption. Are you familiar with this?

MR. PFLIEGER: Not intimately, but we actually have AACA in the audience, the -- I would imagine it's just that's the turboprop versus the piston engine distinction, so defer to folks, but --

CHAIRMAN SUMWALT: Well, that's -- we got panelists here and so thank you very much.

MR. PFLIEGER: But to, you know, add the obvious, I mean, we're going to be supportive of anything that's going to enhance safety, so in our -- and one point that you made earlier in terms of ADS-B, it strikes me that there's an opportunity for the federal government here to jump in and help fund carriers that don't have the money to afford those programs and maybe it's another carrot. Maybe it's, you know, those 135 operators that want to become SMS carriers, maybe the carrot is, hey, the federal government will kick in the money for ADS-B, almost similar, if you would, to what Senator Stevens did years ago with Capstone. My understanding is that was free as opposed to a low-interest loan like, you know, JoAnn had mentioned.

CHAIRMAN SUMWALT: Thank you very much.

Wayne, I'm going to come back to you. What are some issues

that you'd like to make Part 135 operators more aware of as it relates to TAWS systems?

MR. McGHEE: Well, if you read any of our operation manuals, it will tell you in there that this is an aid to spatial awareness, it's not -- it's not supposed to be navigating just strictly on this because this information, even though we have tens of thousands of systems out there and Garmin has TAWS in every colored unit that we build, it is from the government, it is not a hundred percent tested everywhere on the planet, that's why we say it's just an aid to situational awareness. So something to keep in mind.

CHAIRMAN SUMWALT: Thanks.

Jens, you're -- are you co-chair of the GAJSC? You're on it, nevertheless. The General Aviation Joint Steering Committee has focused on CFIT. What's the current status of that, that focus, the recommendations, and their applicability to the Alaska community?

MR. HENNIG: Yeah, thank you, Robert.

The GAJSC is one of the safety groups with the FAA, it's been around for about 20 years. It's worked on loss of control, it's worked on powerplant failures, and about 2 years ago CFIT was the next item on the parade of high risk, we're seeing it out there and I think everybody was scratching their head, especially me, from the manufacturer side, saying hey, we've enabled a lot of the technology, why is it still up there?

So we set up a new group. The industry co-chair of that, I wanted to give recognition, Peter Cormis (ph.) is sitting right there in the center of the room, from NBAA, together with the FAA, led a group of about 20 people over a year and a half to develop eight specific targeted recommendations to address CFIT. They range from some frustrated -- pilots' fitness to fly, medication issues, pressures to go flying, we've discussed that here earlier today. We can probably spend an entire forum on it, NTSB has had, specifically on use of medication, over-the-counter prescription drugs and so forth on aviation; that's out there.

But in context of this technology session and building on the earlier comments by Shaun here, right around the time that the group was meeting, the two NTSB recommendations came out, 17035 and 1815, and they're focused on the technology.

So there's a group, works international standards, called RTCA, they have a special committee dealing with TAWS and it was chartered this summer, first meeting in May, another one in September, and I know we've certainly leaned on the NTSB to bring you guys' expertise to this group of about 30 industry experts. They're looking at the standards. Can we deal with the inhibit switch, can we look at the algorithm? NTSB always provides a spotlight on the safety issue. Sometimes it's hard implementing what you guys have recommended, but we put the smart group of experts together under RTCA Special Committee 231 to look at the human factors, how can we deal with that angle of just turning off

the switch? Can we look at -- I mean, I'll describe it as how do you build a TAWS system suitable for mountainous terrain?

It's kind of well, okay. How do I build one that makes logical sense for a pilot to use and doesn't provide that human factors annoyance but something else? So the group is working. The challenge I have to the group, and we do this quite a bit as manufacturers, they'll probably come out with a rev to the standard. The question is will operators buy it? We have many pieces of safety technology that we develop.

Garmin, Honeywell, Rockwell Collins, L3, all these companies that are excited, they look at the technology, they try to figure out the safety equation. Sometimes we develop the next widget and it's getting it into the cockpit to provide the real safety enhancement. Sometimes the FAA moves forward and mandates it. That doesn't tend to get a good positive feeling across this community, so what can we do on a voluntary basis? If we're here in 2 years and we have a rev to the TAWS standard, will we allow TAWS-C, H-TAWS, you know, there's various things being debated. Also, a pathway to get the operators that would really benefit from that in the Alaskan environment to upgrade their aircraft in an efficient way. That, to me, is the final challenge.

CHAIRMAN SUMWALT: Thank you. I'm a big believer of TAWS, I know that it does save lives and -- but I also understand that there are issues here that the manufacturers and a lot of people are trying to help resolve those issues so that people don't have

to inhibit it, but it will save lives.

Switch topics here. 406 megahertz ELTs. They're not mandated at this point; is that correct? Anybody know?

Not mandated? Okay.

Should they be required for charter aircraft, for Part 135 aircraft?

So we know that -- I was looking at an accident report just yesterday that happened a year ago here in Alaska and the ELT, the 1215 ELT did not activate. We've seen that a lot of times. Over time, we've seen that. 406 megahertz can narrow it right down to -- I don't know how -- what degree of fidelity, but is that something that should be required for Part 135? Does anybody have any feelings on that?

MR. YOUNG: I was going to say I don't know anybody at this table that doesn't have 406 ELTs in their airplanes. We put them in several years ago.

CHAIRMAN SUMWALT: Okay.

MR. YOUNG: Yeah.

CHAIRMAN SUMWALT: Good, thanks.

We did talk a little bit about flight data monitoring in the prior -- in the prior session. Dave, I think you've got, in your fleet, about a third of the fleet is -- about a third of your Part 135 fleet is equipped with some sort of an FDM. So can you talk to us about that?

MR. PFLIEGER: Sure. Yeah, so again, firm believer in data

collection, you know, from both the human side of the equation, whether it's through ASAP or voluntary disclosures, you know, for us to our regulator but also on the data side of the house, so it's just invaluable. I mean, I remember when this -- you know, when FOQA or FDM, you know, was first in its infancy 20 years ago and I think we were all -- you know, I know our pilot force was a little skeptical of it, we were all wondering if it was going to happen.

I remember getting some pushback, you know, I was working a major airline, you know, they had a maintenance organization and others saying, you know, oh, is this another, you know, fancy gadget in -- you know, that -- not even in the cockpit that no one's really going to use, it's not going to really enhance safety.

But we were able to show in the safety department, by animating a flight -- and this was a 737 -- that, you know, but for a dry runway, should've gone off the -- you know, the end of the runway. You know, these guys came in 30 knots over VREF and the flare, and then when we dug into it through the, you know, gatekeeper and the FOQA team, it turned out it was an unstable approach flown by the first officer and he wanted to go around. The captain said, you know, hey you, you know what, I got it, and then bring it in here and land. It took, you know, every inch of that 10,000-foot long runway to stop the airplane and -- but we were able to use that anonymously to show safety to someone

inside, you know, this big airline that, you know, it wasn't just the other guys that were having problems, and you could've heard a pin drop after we, you know, showed that video, that animation of FDM data to show and ask everybody, "Hey, you know, who do you think this was?"

Everybody's pointing fingers at other airlines and I said no, it's actually here. Happened here and here and, you know, here's what's actually took place. So in terms of the value add from a 135 perspective, yeah, there is a cost associated with it but we're firm believers in it. If you look at the history of the organization I'm with, you know, 5 years ago or 3 years ago was not a good operation.

I think the team here in the room, you know, we've got Greg Hess, we have a 119 -- we have a director of safety in our 135 and it's not required, we have an OCC in our 135 operation and it's not required. You know, FOQA, ASAP, voluntary SMS, those are the things that enhance safety. So in terms of, to answer your question specifically about FDM, yeah, we've got 23 of our 57 airplanes are outfitted, 11 of our eighteen 207s, seven of our 23208s, one of our eight Navajos and four of our 1900s.

In terms of challenges along the way, there's the cost up front. I think, as Joe mentioned appropriately, there's always going to -- I think, going to be the need for some federal money in some form or fashion to help the smaller carriers that don't have the size and scale. I mean, we're not Alaska Airlines, but

by the same token we're not, you know, five airplanes, so that's going to help.

But the cost, you know, whether it's 8,000 or 10,000 per plane and another 30K to monitor a fleet, and then we put these Wi-Fi hotspots in each of our airports or on the hangars externally so you can drive in, taxi in with the airplane and it, boom, immediately starts to download and then we've got some third party looking at it. But the challenges will be for anyone who tries to do this, there's going to be the maintenance out of service time to outfit the airplanes, that caused us some issues over the summer, it slowed down our implementation, but we're still on track to get all of our fleet and all 57 of our 135 aircraft outfitted with this flight data monitoring equipment.

And I can tell you already, I mean, there's the trend data which is, I think, the most valuable but there's always the one-offs, too, that you can use as learning experiences for our pilots to tell them, you know, I'm trying to be big brother and crash down on them, but we want everybody to, you know, learn the lessons of those that made mistakes and not in a punitive fashion. So that's been sort of the -- in a nutshell, but we -- I would like to thank our FAA certificate management team, they've been outstanding in terms of getting us certified for moving into FOQA on the 135 side. We were fortunate that we have a bigger 121 outfit and we were able to just, you know, copy a lot of what was going on, so lessons learned in terms of FOQA steering committee,

gatekeepers, their roles and responsibilities and frankly, the pilot crosstalk, I just talked to -- we're going to do a LOSA here, so lineups, you know, safety audit of our 121 carrier.

And there's even reluctance amongst 121 carriers for big brother or hey, who's going to be in the cockpit with me. So they're invaluable, a lot of it's education/communication, but from a perspective of enhancing safety and raising the bar on our organization here in the state, 135 operators, I think it's invaluable.

CHAIRMAN SUMWALT: Thank you very much.

Dan and Darren, just in 30 or 40 seconds each, I understand each of you all are using Spidertracks, so we'll start with Dan.

What is your experience?

And then we'll move to Darren.

MR. KNESEK: Recently there's been a great improvement on the Spidertracks. About maybe 8 months ago we were provided with a firmware update that changed the reporting from -- or every 2 minutes to every 15 seconds and also in real time there's a 30-degree heading change. We've used that since to see a more precise tracking of the aircraft, we've actually been able to make changes to our training programs and everything due to what we've seen. For example, just looking at the special VFR hold procedures in Bethel during one of those events, we got to see that maybe some of our pilots were not doing the best holding patterns out there when a brand new hire was doing a perfect one

and so we've actually changed the way we do some of our training on that and recurrent and everything just because of it.

So we're using it not as full flight data monitoring, but we are using it to make sure that all our operations and our training are better. We use it to track the -- make sure that our pilots are using our defined VFR route system correctly and everything. So it's very helpful.

CHAIRMAN SUMWALT: Great.

Darren, anything to jump on --

MR. YOUNG: We use it for the same, basically the same thing, there's just some -- there's a couple graphics you can pull up there, this is the historical data. You can go back and take a look months out on specific aircraft and pick up the data and it will show the route they're doing. Like I said, we -- with our training program, it's implemented in that, as well. We have routes that we specifically fly and this allows us -- and this is actually part of our audit program, to go back and weekly audit the routes, make sure they're flying the actual routes they're supposed to do.

It's also invaluable to our flight coordination office where he can monitor somebody in weather and know that okay, we got this weather coming up. Now, they do have a new program coming up that actually overlays weather in this, but it only works down in the Lower 48 currently, it doesn't work up here. And with the new technology, too, we're allowed to send messages to the pilots

through Bluetooth, through the operations, to notify them hey, you've got some weather or the weather's changed at your destination airfield, we need you to start going to your alternate at this time or turn around and come back.

So this has been invaluable for not only our safety audit programs -- and because they know that I can monitor this program, it does keep the pilots safe because they know I'm going to be watching them to make sure of the appropriate altitudes and as well as our audit points in that. But flight coordination-wise, this is -- this tool is invaluable. And then not to say Spidertracks is the end-all here, but there's a couple other programs out there that do just as much.

CHAIRMAN SUMWALT: Thanks a lot.

Let's talk about weather, and Andy --

MR. STEPHENS: Robert, before we go away from the FDM, can we add something in real quick?

CHAIRMAN SUMWALT: Well, we got 3 minutes and 21 seconds and I want to talk about -- I want to talk about weather.

MR. STEPHENS: Okay.

CHAIRMAN SUMWALT: So let's move on to weather and thank you, but, Andy, weather. National Weather Service has several weather equipment sites in Alaska that forecasters might use, but I'm told due to infrequent servicing these things are not available to pilots. What hurdles are there for pilots to be able to access this valuable weather information?

MR. McCLURE: Well, the MAWS system, which I believe you're referring to, is something that the Weather Service -- Jeff Osiensky can talk more about the MAWS system, but as far as pilots accessing it, because it's not certified METARs, Flight Service can provide it as supplementary weather to pilots on request as part of a briefing.

CHAIRMAN SUMWALT: Thanks.

Jeff, anything to add to that?

MR. OSIENSKY: Yeah. So as Andy said, it is supplementary weather and there's been -- there's been a lot of work moving forward to try to get that system available so that we can get it into the FAA WMSCR and other systems to be able get it and make it available to pilots. There's been some roadblocks in trying to get it because of differentiation and distinctions between primary and supplemental weather and rules at the FAA, but there's -- I know that there's been continued work on that, trying to move that forward.

CHAIRMAN SUMWALT: Thanks. While I've got you on the hook here --

MR. OSIENSKY: Yeah.

CHAIRMAN SUMWALT: -- talk to us about the polar satellites and how we're getting more advanced weather information from those.

MR. OSIENSKY: Okay, that sounds good and I had a couple of slides on this, as well. So there's a couple of exciting

initiatives going on right now. We have a project in place now with the JPSS program, which is the Joint Polar Satellite System. You may or may not be aware, over the past 3 or so years we've had an upgradable geostationary and polar satellite system which has given us the ability to have a greater number of channels that can detect different parameters across Alaska.

We'll focus on the JPSS, the polar ones, because at the high latitudes we get lots of these polar passes, the satellite rides a lot closer to the earth and can see a lot more detail, which is good. We've got an aviation initiative in place right now working -- working with partners in NESDIS to actually look at satellite imagery from theirs and NOAA 20 satellite and there's examples there, they're hard to see. We're actually looking at predefined routes basically from Anchorage to Fairbanks up to Barrow, a route out to the west to Bethel, and then one down to Juneau right now.

And what this is allowing us to do is these sensors are able to detect cloud phase water droplets so we can see super-cooled water and we can see other phases of a cloud and of course, super-cooled water is really critical to aircraft icing and as you can see there on the cross-section, you have terrain listed, you have it color coded by what we're actually seeing off the satellite of where the super-cooled water is and what we're going to do is we're also working to add other information like the bounds of the freezing levels where icing typically takes place.

So ideally, in the future, a pilot will be able to look at

this information and kind of be able to see areas to avoid for aircraft icing. Right now these routes are predefined because we're kind of in an evaluation phase but eventually, down the road, this will all be predefined, a pilot can go in and put Point A to B with way points and plot their own routes and then see what the conditions will look like, so it's pretty exciting.

CHAIRMAN SUMWALT: Thanks for your good work on that, sorry we didn't have time to get into more on the flight data monitoring, but I do want to keep us on schedule, but -- so we will take a 15-minute break, we'll come back with the last panel on dealing with infrastructure. We'll be back at 2:15. Thank you. Thank you very much.

(Off the record at 2:00 p.m.)

(On the record at 2:15 p.m.)

CHAIRMAN SUMWALT: Okay, welcome back. So what we're going to do is this next panel is on infrastructure. At 3:15 we'll take questions from the audience and then, as mentioned, from 3:30 to 4 o'clock we want to hear from each of the panelists on what we can do better with. So if we could quiet all that down out in the hall for us. Thank you.

So I've heard it said, perhaps in jest, that if the weather's too bad to go IFR, go VFR. So yeah, we have -- I was reading last night an NTSB report from an accident that happened in Togiak and what the report said, "The NTSB has a decades-long interest in improving the infrastructure in Alaska to better support low-

altitude IFR operations to reduce the risk of CFIT accidents." And the report pointed out safety studies that we did in 1980 and 1995 where we issued recommendations to expand the state's communications and weather reporting capabilities.

And in this accident report, the Togiak accident report, we said to fulfill the state's transportation needs, Alaska continues to depend -- to depend on Part 135 operators to provide highly reliable service in an environment subject to frequent IMC. To accomplish this as safely as possible, operators need reliable IFR infrastructure that can meet the demands of small markets in airports the operators serve.

Flights in the IFR system -- flight in the IFR system provides both assured terrain clearance to reduce CFIT risk and increased air commerce reliability. And we issued safety recommendations that the FAA install communications capability throughout Alaska, giving priority to those areas served by 135 operators. And we also said that airports served by 135 operators should have instrument approach capability including weather reporting capability. So that's really the NTSB's position on what needs to be done from sort of a big picture point of view. So what --

(Microphone malfunction.)

CHAIRMAN SUMWALT: -- the Part 135 operators with respect to flying IFR versus VFR and is there a preference for scheduled point-to-point flying? Who wants to take a stab at that?

Darren.

MR. YOUNG: And this is probably the biggest topic here, I think, more than anything for the state of Alaska, this panel here. We've been told by the FAA that we need to do more IFR. We do want to do more, we prefer to do it. IFR is easier than VFR flying. Now, there are times when you have to do VFR because there's no other way to get into some of the villages we go to where they aren't serviced by an approach or weather, but if there's IFR capabilities out there, we want to utilize them but without that infrastructure there, we can't.

And then one of the things that we deal with even up here, in regards to mountainous terrain and stuff like that, is the few approaches we do have are unusable. Perfect example would be Anaktuvuk Pass, if Josh has that up. If you look at the MDA on that approach going into Anaktuvuk Pass.

CHAIRMAN SUMWALT: Um-hum.

MR. YOUNG: So we're forced back down at 500 feet above the John River coming up from Bettles to get into that airfield because that approach that we should be able to fly, there's no reason for us to do it because we're never going to break out at that MDA, and that'll get a little bit more into technology when we talk about technology, but -- and how we design the approaches.

CHAIRMAN SUMWALT: So really, what are the barriers? What are the barriers to flying IFR in the state of Alaska?

MR. YOUNG: Weather more than anything else. We've been told

we can't fly the approaches without -- an issue we have up here, we're getting some of these great approaches in here and it's important that they continue to go, and thanks to JoAnn Ford for that, but the problem is we've got the approaches, now we can't fly it, and we're trying to change that guidance so that we can fly those approaches.

Because, to me, it makes more sense to fly an approach without weather down to an MDA where we're going to initiate a go-around like any other airport, if we don't break out, as opposed to flying 500 feet above a river to get into that airfield when I've got an approach I can fly. To me, it just doesn't make sense, so that's why this meeting is so important so we can change some of those policies so that we can utilize those.

CHAIRMAN SUMWALT: Yeah, so in the FAA Reauthorization Act they allowed some exemptions or exceptions to whether reporting weather availability -- Dave, I think you, at Ravn you have an exemption for certain -- you can conduct an instrument approach into an airport without a human observer, I think, when certain criteria are met. Can you talk about that?

MR. PFLIEGER: Sure. So let me clarify that a little bit. So the way it worked was Congress passed a law that authorized Part 135 operators in the state of Alaska and Hawaii to fly IFR to airports without traditional weather reporting. And more specifically, this is Section 322, which is titled "Improved Safety in Rural Areas," it allows FAA-approved Part 135 air

carriers to fly IFR to a destination with a published approach, conduct an instrument approach without a METAR.

And so my understanding, we've got the weather experts in the room, that there's airports in the state that have instrument approaches that don't have METARs but we want to still be able to go there because again, to Darren's point, spot on, you know, in some instances, you know, we don't want to be VFR, we'd rather be IFR.

We're doing probably 50 percent more IFR flying now than we were 3 years ago and generally speaking, you know, you're going to be -- it's easier, it can be safer, certainly from terrain, and then depending on the icing conditions, if you're flying around in a 208, you may have some issues there.

But the way it works is we have to follow, first and foremost, the letter of the law and then we've added to that in our ops specs, and I can give you a quick recitation of it just to give you an overview, but essentially it allows our crews to fly IFR at higher IFR en route altitudes to IFR capable airports with an alternate weather source. And the way it specifically works is that we have to follow, you know, obviously what's in the law, but it has -- the airport itself has to be in our ops specs, first and foremost, so we have to know it. And all of this, obviously, has been blessed by our certificate management team and our POI, and then there has to be concurrence between the pilot and command and the qualified ops control agent, ROCC. And again, that's very

much a dispatcher/pilot, similar almost to a 121 in many respects, shared responsibility for the flight and safety of everybody on that airplane.

And then, to actually do it, even if a pilot wants to do this where they get a TAF but there's no METAR, he has to have -- he or she has to have specific approval from either chief pilot, head of ROCC or the DO and then the current area weather forecast must, of course, have weather at or above the approach mins so you can actually go shoot the approach. And then most importantly, too, there has to be Plan B and that is there has to be a suitable alternate selected.

And then the altimeter setting, particularly given the importance of altimeters in, you know, extreme cold temperatures like we have up here in Alaska, that has to be listed on the approach plate itself. So we've been able to implement this, which we think makes a heck of a lot of sense. It's exactly what Darren mentioned, you know, why go, you know, bombing around at 500 feet, 2 miles visibility VFR when you've got, you know, terrain and maybe others out there that don't even have transponders when we can jump into the IFR infrastructure, there is an instrument approach, you know, we've got an instrument-capable airplane, we got an instrument-capable pilot, and we have an instrument approach but for the fact that there's no METAR we can't go, so instead we're pushed into the VFR environment which has its pros and cons, as we all know. I mean, there's some

instances we want to fly VFR and others we want to be IFR. So we've got tons of safeguards in place, but also the key factor here is there has to be a local weather observation and we love the weather cameras, I think as somebody else pointed out already, there's like 200 of them in the state.

That, you know, predates me coming back to the state but it has been, from what I gather from our pilots, we have chief pilots and others in the room, a godsend. And I think one criticism we have of the weather cameras, our understanding is there's some data that's not displayed in the weather cameras because it's not certified, maybe there's some liability risk and, you know, with all due respect to lawyers, you know, it would be nice to get that information and have something rather than nothing and there's ways of doing it, I think, when 9313 came out.

So anyway, the bottom line, Chairman, is we think it's a great thing, it's opened up about 10 airports we couldn't get into previously. Our DO and chief pilot have talked to Dan and others at Grant and I think even reached to the folks at Wright's to share our experience with our CMT, how we do this, why we think it enhances safety and doesn't detract from and all of the appropriate safeguards we've got in place to make sure it's done exactly by the letter of the law.

CHAIRMAN SUMWALT: Thank you. And Ravn, you're the only one -- you're the only carrier in Alaska that was able to utilize that exemption right now; is that correct?

MR. PFLIEGER: That is correct and unfortunately, we hear -- and this is probably inside baseball kind of stuff, there's some pushback on us and our CMT from D.C. which, you know, we think is shortsighted, to put it nicely. So you know, we'd like to let, you know, Washington, in this case, respect the fact that they have very competent safety professionals out here working for the FAA and they wouldn't have blessed this if it wasn't safe. So you know, we've got a law in place, we owe our congressional delegation a big round of applause and thanks because they put this in place for us and it was only because they had to.

CHAIRMAN SUMWALT: Dan, I'd love to hear your thoughts.

MR. KNESEK Yeah, it is my understanding that they were able to get it through, that we're all waiting for the guidance to be published and apparently we just heard, I think on the 26th it was, from the person that is writing that guidance, that it's about ready to go in the comment period. The problem that I think a lot of us will have with the guidance that's being proposed is teaching village agents how to launch helium balloons and time them to get a ceiling height is not reasonable and we're worried that the guidance that's going to come through for us to write these procedures isn't going to work for Alaska and for all of us up here. One of the routes that we fly is to Perryville, Alaska. We have to cross the Alaska Range and we have to fly through passes in low weather because -- and it's got a beautiful IFR approach there, has a minimum setup for an AWOS used in a village

nearby but instead, we're bombing through the pass every time on a dangerous VFR route. Going to be real easy to fly IFR there.

CHAIRMAN SUMWALT: Yeah, that's a shame to be forced down into the low altitude structure when you could be up with an MEA protecting you and in full IFR capability. Thank you very much.

Richard, please.

MR. McSPADDEN: I think, Mr. Chairman, there's some discussion here that maybe the operators can help with some issues with the MEAs, as well, and the ability to lower some of those MEAs. My understanding is some of them are the way they are because of communications gaps and the ability to recognize some communications gaps and deal with those as opposed to driving higher MEAs where you're up into the icing. And so I wonder, some of the operators here, what their thoughts are on some of that process and how that's going.

CHAIRMAN SUMWALT: Okay, good. Great to -- going back to my instrument training there on MEA and a MOCA and all those kinds of things, so whatever all that is, but 22 miles or something, I don't know. But yeah, I mean, what -- who wants to talk about that? Richard's given you the eye there, so, Dan, you're on the spot.

MR. KNESEK: One of the examples is the exact opposite of communications, though. When we had our flights to Atka out of Dutch Harbor, our pilots would work out an agreement with ATC for the missed approach because the published missed approach, you

could never get in contact with them and so they'd have alternate missed approach procedures agreed to with ATC every time, so therefore they can at least, when they go missed, talk to ATC instead of sitting there at 4,000 feet below the altitude where you can get it. So there should be procedures, that shouldn't have to be a handshake agreement over the radio with ATC, but I think it's been fixed now, but that's -- we can do that with the other approaches and work out some kind --

CHAIRMAN SUMWALT: Yeah.

MR. KNESEK: -- of alternate procedures.

CHAIRMAN SUMWALT: Kyle, you had -- you wanted to comment.

MR. CHRISTIANSEN: Well, I wanted to just say that every instrument procedure during flight inspections, you're required to have a common missed approach holding waypoint, so if there was a failure at Atka, for that reason that procedure should've been redesigned or failed flight inspection.

MR. KNESEK: It did and I think that's why they fixed it recently. But it went on for quite a while in between certifications.

MR. CHRISTIANSEN: I'll jump in, Robert, real quick. As far as MEAs and the effort to lower MEAs throughout the state, we've been working on that a fair amount of time. The biggest problem with lowering MEAs outside of COM, if we remove COM as an issue, is that the airways are developed with a standard rate of climb of 200 feet per nautical mile and since all of our airways, I think,

in this state are bidirectional, that means you're going to need 10 miles of airway to get 1,000 feet down with no time at that altitude, right?

So let's say 15 miles of reduced MEA at 1,000 feet gives you 5 miles of flight at that altitude. There's very little wind here to reduce an airway MEA by a thousand feet for 15 miles unless it's a request from an operator saying hey, we really need that thousand feet for this specific reason, so we -- just to have a blanket request of lowering MEAs is a very broad brush.

It's much easier for MEAs to be reduced specifically per airway per reason where we can focus on that effort instead of changing criteria to reduce airway widths from RNP2 to RNP1 or something along that line, which is possible, I'm not saying that's not possible, but addressing MEAs throughout the state is much easier for me to address on a singular basis.

CHAIRMAN SUMWALT: Thank you. Thank you very much.

Jennie, let's talk about midway collisions. The last 5 years there have been several midairs in south central Alaska. Let's talk about the radar capabilities in and around Anchorage and how that compares to other parts of the state and the challenges of expanding that capability.

MS. SANDLAND: So you've got a little video clip there. Am I on here? The radar surveillance capabilities in the Anchorage area especially are very, very good. The Anchorage approach uses a fused -- uses fusion radar, so it's -- at any given time they

are seeing that target with the best source. Whether it's Kenai radar or Anchorage or ADS-B, that's how they're painting those targets. So from Willow down to Kenai, you've got very, very good radar coverage, pretty much down -- almost down to the surface.

The exceptions, Palmer area is going to be a little higher up down there, Turnagan Arm, a little bit higher in the arm itself because of the mountains but yeah, Anchorage itself, Fairbanks, also, very good radar around the Fairbanks area. Beyond that, yeah, we're limited out there. We've got good radar at Bethel and decent at Nome and along the slope it's real good, but beyond that you've got a lot of areas that you can only see from 10,000 and higher. ADS-B, though, has made huge changes in our surveillance capabilities.

CHAIRMAN SUMWALT: All right. And other parts of the state?

MS. SANDLAND: Southeast is another big change with the LAM (ph.) coming on board and ADS-B down in the Juneau area, again, big changes in the surveillance down there. Our biggest challenge is not the surveillance, we can see a lot of targets out there. Our biggest challenge is going to be the frequencies.

CHAIRMAN SUMWALT: The communications frequency. You're not able to communicate with the airplanes?

MS. SANDLAND: There's a lot of places that we can see them, we just can't talk to them.

CHAIRMAN SUMWALT: Okay, thank you.

Dan, you're on the Air Traffic Control Management Working

Group for Bethel and I know you'd like to see -- everybody here would probably like to see ADS-B hit Bethel, but in addition to that, what improvements would you like to see to mitigate the risk in Bethel?

MR. KNESEK: Well, the main one is the ADS-B and also maybe possibly bringing back cooperation with the special VFR procedures in the LOA. Right now, us carriers have agreed to continue using the original procedures, that way there's an LOA with the tower and we are, as carriers, doing it but there's no involvement with the FAA or anything.

I understand there's some hurdles with special VFR rules and stuff, but the biggest thing is ADS-B. You know, we can see -- we see more with ADS-B than the tower sees, so we are doing a frequent flyer beacon LOA that's starting very soon, that those of us that have ADS-B equipped will have assigned frequent flyer codes which will be helpful, but the final step would give you the right equipage and have everybody be required to have ADS-B in that service area.

CHAIRMAN SUMWALT: Okay, thanks.

Yeah, yeah, Dave. Please.

MR. PFLIEGER: Just to piggyback on Dan's comments and I think Jennie would probably agree with us. While you think the radar coverage is okay out there, I think you can't see below 4,000 feet in the Bethel area, right? Can't see below 4,000?

MS. SANDLAND: I would even go a little higher, it's probably

closer to 6.

MR. PFLIEGER: Right, so --

MS. SANDLAND: A lot of areas west of Bethel, a little better, but yeah, on the east side of Bethel, northeast of Bethel is pretty tough.

MR. PFLIEGER: And so that becomes the challenge. So you know, we -- Ryan Air is in the room, Grant and others, I mean, we're below where they can see, you know, with the skin paint, so if we don't have ADS-B, you have no idea. One of my first flights out there with one of our pilots and looking out the window in a 207, I said do you see that traffic at 1230 and they weren't on Capstone, they weren't on frequency and he said, you know, welcome to Bethel.

So, I mean, not only is, you know, Alaska different, but Bethel is different, too, and the tower, the Serco control tower folks, I mean, I understand earlier they were saying it was appropriately staffed but there's high turnover on those folks. So if you have junior people there with no visibility, we, the carrier, can see more people than the folks in the tower and then that's a problem. So I think again ADS-B is key and then what Dan's talking about, these designated squawks we're all going to get, we're going to have for all of our 20 airplanes that are out there, Ryan Air's doing the same thing and Grant, you know, now they're going to be able to identify by tail number who's where and make sure when someone calls in at a various reporting point

that they truly are northeast of the field, not west.

CHAIRMAN SUMWALT: Yeah.

MR. PFLIEGER: So it'll help with SA, but at the end of the day ADS-B, you're mandating it for that airspace or doing something similar to like Merrill Field, putting Bethel into, you know, the Alaska setup and making it a Part 93 setup so that people can't just come in and out of there just because they have an airplane with no radio, no transponder.

CHAIRMAN SUMWALT: Yeah. Kyle, you've designed probably hundreds of instrument approaches in Alaska. What are your thoughts on altering the approach criteria to reflect the augmented GPS accuracy? And by the way, I did not write that question, so what do we mean by augmented GPS accuracy? Is that like RNP?

MR. CHRISTIANSEN: I'm assuming the question is -- pertains to WAAS augmentation.

CHAIRMAN SUMWALT: Okay.

MR. CHRISTIANSEN: So you have a three-dimensional aspect and a refined two-dimensional location. We do have LPV and LP procedures, lines of minimum published on our RNAV procedures and a lot of places where we have good surveys. Thank you, JoAnn. In AIP money. So the question isn't so much how do we improve our approaches with augmentation, it's more probably how do we improve our missed approaches, how do we keep our missed approach protected area narrower since our minimums through most of the

mountainous parts of the states, the state, are driven by the missed approach obstacles? And there's no -- right now there is no difference from basically an NDB approach to an LPV landing minimum as far as the missed approach splay. Approximately, it's 15 degrees out for quite a long ways and that really grabs up terrain quick.

So I think if there was any intent to incorporate more WAAS capability into a procedure, we would focus on the missed approach side. I don't know if our criteria-writing brethren in Flight Standards are addressing that right now or not, but I would pursue that as probably the initial step and that's just for approaches. If you want to talk en route, that's a different -- a different game and I don't know how we would incorporate WAAS into an airway as far as having a more refined elevation capability or track capability to stay at an elevation without reducing the required nav performance from RNP2 to RNP1. I don't know how we would chart that on a chart. Just another line of MEA with a different color? I don't know.

CHAIRMAN SUMWALT: Yeah.

MR. CHRISTIANSEN: Those are good questions, though.

CHAIRMAN SUMWALT: Any thoughts on designing approaches with -- or allowing descent and holding patterns to initiate an approach?

MR. CHRISTIANSEN: Well, we've considered that. We've considered a lot of ways to get aircraft into non-served non-IFR

airports or areas. Once again, we have a really big problem with the space it takes, like I said, about how many miles it takes for an MEA change on an airway. A holding pattern is a lot of airspace and the biggest problem is if you -- if we were to take a -- build a holding pattern onto a chunk of an airway somewhere and there was an air traffic clearance to descend and hold, for instance, you would have to have COM at that point. We'll assume that that's there.

If you were to descend 3- or 4,000 feet into that holding and not become VMC, you would have to climb out of the hold back up to the en-route system and proceed. A climb and hold pattern is an incredibly large area. I think I wrote down -- a Category B airspace evaluation would be 34 by 22 miles. That's for a Category B aircraft and I don't know how you design a holding pattern on an airway when an airway is designed for Categories A through E and you just shred out A and B, only hold or something like that. These are tricks that are -- really need to be well thought out and taken to charting in Flight Standards.

CHAIRMAN SUMWALT: Thank you.

Richard, AOPA or Air Safety Institute, what priorities do you have for the state of Alaska to improve safer Part 135 operations?

MR. McSPADDEN: Yeah, I think what we see is a lot of the things that will help improve 135 operations will have a collateral roll-down effect to all the operations in Alaska, Part 91, as well. So really, we have three priorities and that is,

one, to enhance the ability to fly IFR, like a lot has been talked about here and there's a lot to unpack underneath that, the improved communications capability, more ground stations for both COM and ADS-B to help improve that operation.

I think in some cases we think there could be lower MEAs based on, as the gentleman said, very specific routes that are worth taking a look at so we're not forcing people up into icing conditions or a difficult decision to go VFR.

And then to improve the VFR ops, the camera, you know, the Onco (ph.) camera's been a real success, AOPA has worked hard in that and expanding that program. And then the CTAF organization, you know, we've been on the working group to organize how CTAF frequencies are divided among the state to help with midair collision avoidance.

And then I think there's some policies that, you know, are worth taking a look at from a standpoint of maybe it's time to revise certain requirements and policies that made sense at the time they came in but with more advanced technology maybe we can look at them and see if they can be revised. So that's really -- that's really, I think, what we're going after and I must say in concert with a lot of the people here working together in unison and that's really the key.

CHAIRMAN SUMWALT: Great. Thanks so much.

JoAnn, thanks for all your work with -- over the years and I understand that you've -- you've been working on an RTCA technical

operations committee on performance-based navigation. So talk to us about some of the recommendations that are coming out of that, out of that group with respect to improving safety in Alaska.

MS. FORD: Yes, thank you. And we have -- Josh, thank you for putting up the slide. RTCA, I think just a level set so that the folks can get a general understanding of what RTCA's mission is and within the context of the recommendations and what the FAA does. Back in 1935 RTCA was formed, and that's Radio Technical Commission for Aeronautics so you can understand why we just say RTCA, it's a whole lot easier to say.

It was formed to be probably the premier public-private partnership venue for reaching consensus on numerous aviation issues and quite often, with the challenging members that often were -- had definitely conflicting interests in aviation, but they have been very successful and our esteemed colleague gave us the example of TAWS, as well.

Then in 2013, both industry and the FAA recognized that we needed yet another federal advisory committee and they called it the TOC, the Tactical Operations Committee, because we already had CDM, collaborative decision making, which addressed immediate tactical -- now, remember the difference between tactical and strategic. So with CDM we already had the immediate tactical solutions that we needed to address aviation issues and then we have a NextGen advisory council which addressed the future, but we didn't really have anything in between and that's what the TOC was

supposed to serve, perhaps a 2 to 3, 2 to 3 to 4-year time frame to address an issue and actually resolve it with the resources that we currently have. So the TOC did a tremendous job on many issues, NOTAMs and quite a few others.

And this was a venue then that the FAA decided to use to ask industry to conduct a study on the PBN ConOps for en route and that was Performance-based Navigation ConOps for en route. And I keep stressing en route because you're going to see some of the recommendations here that they really don't pertain just to en route, they might -- especially some of the weather areas, when you think of weather you generally think of terminal yes, we definitely need weather en route as well, but as you're looking over some of these recommendations you'll see that they're not en route, per se.

So it took a year and then in March of 2018 the TOC had completed the report and formally submitted it to the FAA. There were 92 recommendations; of those, 23 dealt primarily with Alaska. You can imagine the entire NAS en route system, it was an elephant that we had to eat in smaller bites. So what we did do was have three subgroups, we had high altitude, low altitude, and Alaska. All of this information is public, so you can access it on the RTCA website and you'll see the 92 recommendations, the 23 of which were with Alaska. For about 3 or 4 months the FAA, after having accepted the report, they started actually adjudicating all of the recommendations. However, in March -- in May of 2018 the

FAA decided they were going to disband the TOC, so the work that had been done on the recommendations, unfortunately, there was no longer a venue, CDM didn't fit, a NextGen advisory council didn't fit and the FAA, unfortunately, is still searching for a venue to be able to continually update industry on where we are with the recommendations.

Unfortunately, because it was a year ago, many people have retired, we've had reorganizations, we've had cuts on -- I know it sounds like I'm offering excuses, but it's the truth. A lot of these recommendations and the adjudications are essentially moot. So many we are going to have to seriously take a second look at, we did have that first cut, as I said, but we are going to have to seriously take a second look now.

Many of the recommendations, there are approximately seven, we actually have continued working on. Many of you were a part of the en-route meeting that we had here in May, we had our esteemed colleagues from the Western Service Area, Kyle Christiansen, our subject matter expert, and this was really hands-on work, industry, as well, looking at the en-route system for Alaska to see what we could possibly do to help improve it. As far as a strategic plan for the state of Alaska, we also have MITRE, where the navigation programs area is going to be tasking MITRE to draft a plan for a strategy for the state of Alaska.

CHAIRMAN SUMWALT: So basically, on the -- on both the strategic and the tactical aspects, there's no work being done on

it at this point?

MS. FORD: No, there is work being done on some of the recommendations.

CHAIRMAN SUMWALT: Okay.

MS. FORD: What they did with the first cut was they actually divided the recommendations into five categories, I'm not going to name them, but it goes from the fact that this particular recommendation might have already been in the ConOps so there was no further work since the ConOps, you remember, it's an en-route concept of operations and once we start implementing that, the PBN ConOps, then a lot of the recommendations that were provided to us will be addressed on the basis of the ConOps to those that do not apply to the route structure.

CHAIRMAN SUMWALT: Yeah. Now, Rich, you're familiar with this -- with these recommendations and so the recommendations, as they relate to the state of Alaska, and there's 23 of them, what can the FAA do? What is the FAA doing to facilitate and prioritize implementation of those?

MR. VAN ALLMAN: Sure, Robert.

First of all, I think JoAnn has already said, and a lot of times the right hand unfortunately doesn't know what the left hand is doing within the FAA and that causes us a little consternation at times and so working internally to understand what each party is doing and working together on, that is critical. I'm going to add in here that there was a little unknown other effort that took

place out of the Western Service Area, out of the Western Service Center, and it was -- it also looked at -- it started in about the 2016 time frame, '17, and that was called -- it was coined AKENT, Alaska En Route Team, and it was a team that was put together and part of the question is, "Have we been partnering?"

We've been partnering and working, and working very hard, and there are no shortage of recommendations, there's no shortage of ideas and thoughts. I think, you know, when I came up here in 2016, I remember going to the Alaska Air Carriers Association conference in February of 2016 and I said -- I showed two slides, I showed a slide of an iceberg and I showed a slide of a hair dryer and I said getting anything done in the FAA is melting one of these with one of these.

So we are -- it takes time, we need to have -- and I'm going to go back to what George Snyder said earlier, that champion, who's going to champion and who's going to pull all of the FAA together, industry together, and bring everybody to do that strategy? Now, whether it's going to be under MITRE or whether it's going to be somewhere, there's no unwillingness here to communicate, to talk and to work together towards solutions. But there are some things that are just not going to happen because they're just not economically feasible. You can't put enough RCAGs around Alaska to have a hundred percent communication in all of the state of Alaska, we just can't afford that, that's just too expensive. You know, ADS-B sites, you know, we're hearing now

that there may be some more possibility for some ground-based ADS-B to increase that surveillance. So the communications issue is still going to be a big issue and that's going to have to be addressed.

And then the surveillance, there's going to have to be an increase there. And I think as far as navigation, I think we're going to be okay in that arena and I also believe that they're already looking at that and working on those segments and looking at where we can get some lower MEAs and where we can do some other things in that area. But an overall strategy and a champion, absolutely mandatory.

CHAIRMAN SUMWALT: Who's going to be that -- who is going to be that champion? Who is it?

MS. FORD: According to the Administrator, on the 26th of this month, he had suggested a focal. He didn't say who the focal would be, but he said perhaps we need a focal for the state of Alaska and I looked at everybody in the room and I said write that down, write that down, the Administrator said it and so --

CHAIRMAN SUMWALT: Okay, so we need -- we need a champion. Okay. Brian, what are your thoughts on all this? What can we do to increase the efficiency and not just efficiency, but the safety of the infrastructure here, the air traffic infrastructure in Alaska?

MR. JOHNSON: So I'm going to take a little different tactic. I know, as we talk infrastructure, a lot of times we're talking

equipment --

CHAIRMAN SUMWALT: Right.

MR. JOHNSON: -- but I want everybody to understand that the air traffic control system really is a large part of the infrastructure and keeping it alive and well and healthy, it's currently the best air traffic control system in the world. We have thousands of people across this country every day maintaining that efficiency and safety in NAS.

So from the FAA's perspective for Alaska is keeping that system as healthy as possible, making the commitment to -- regardless of how far away you are from Seattle, that we're up here doing those evaluations that we're evaluating, whether it's an FAA facility or a contract facility, to make sure that they're providing superior air traffic control services, that they're meeting the requirements, that they're sharing those best practices that we've all talked about in all of our industry, making sure we're doing things right and helping them see things differently sometimes when they get stuck in a rut and they need to see things from a different perspective to understand how they could improve that safety.

I talked earlier about Metroplex, about the changes that were brought about. Most people know Metroplex in many ways is about safety and efficiency, bringing in the performance-based navigation, and so a lot of difficult conversations, a lot of spirited conversations about needs and wants between air traffic,

between industry, and it was just everybody coming to the table and understanding that not everybody got everything they wanted and really, that's the way a system works. There are no easy solutions for everything but having the willingness to listen and learn and change the way we do business is really what makes this system not only safer, but it makes it more efficient for everybody.

And then finally, one last part is we look at resources, you mentioned resources earlier, and we all have limited resources. Well, one thing we saw with Metroplex is the FAA has just a gigantic database of procedures across the NAS. As we build more and more procedures we do have to look back and say which ones are no longer necessary, what things that we can give up because maintaining those systems, it takes away from the resources for other important issues.

CHAIRMAN SUMWALT: Thank you very much.

So to follow on to JoAnn's comments, on August the 26th the FAA Administrator, at the Alaska Air Carrier's Association, said we need a focal point to work through the challenges of reorganization. Richard, Corey, Jens, I know that you guys are sort of Washington insiders, sorry about that, but you are frequently -- you're part of like the GA -- General Aviation Joint Steering Committee, and do we need some sort of a structure like that here in Alaska to be that focal point?

Richard.

MR. McSPADDEN: We do. I do think there needs to be some, I hate to use the word, but I don't know a better one, governance structure that's co-chaired by industry and government is typically pretty powerful, that is the focal point for all these good recommendations that have come up here today because if we don't, it will just end up being a very interesting discussion and none of us really want that to happen, we'd like some real -- and there's probably a dozen, maybe more, really good ideas and priorities that are on the table that we all probably read coming into this session, but what are the priorities that can be the easiest to implement, make the most difference, how are we going to track them, who's going to, you know, push people in the back when they need it, and that's where that government -- that governance agency can come about and it has to be here, locally, is my view and it has to be industry and government co-chaired in some fashion.

CHAIRMAN SUMWALT: Well, I appreciate AOPA volunteering to be that focal point, so --

(Laughter.)

MR. McSPADDEN: We'd certainly help.

CHAIRMAN SUMWALT: Yeah.

MR. McSPADDEN: We certainly would, yeah.

CHAIRMAN SUMWALT: Well, but it does and you said it yesterday, I've said it many times today, I just copied what you said, but it's true. If this is just great conversation today and

we all walk out of here and nothing happens, then yeah, it might be an interesting thing but that's not what we're here to do. We are here --

(Microphone malfunction.)

CHAIRMAN SUMWALT: -- safety needle. And so it does need that follow-up action. And so, Corey, I want to hear from you and, Jens, I want to hear from you because -- go ahead.

MR. HENNIG: I'll attempt to save Corey from telling his bosses what to do for a living, that would be dangerous.

MR. STEPHENS: Thank you.

MR. HENNIG: But I mean, it's a core point, I mean, the earlier discussion about infrastructure and flying under IFR gets to the core problem of the bureaucracy, it's a multi-legged stool. You need the weather and surveillance and TELCO, that's different parts of the FAA; you need industry to equip, so that's Flight Standards and AVS organization.

Operators need to equip their aircraft, they need to train their crews, we need to look at some policies, weather reporting, it sounds like money and federal money would be key here, so Congress gets a role here. I mean, that's not an easy nut to crack in D.C. Absolutely agree with Richard, it has to be done locally, but unless the different parts of the stovepipe are pulled together, and the important work is done elsewhere, if I go to a meeting about airspace today we talk about one thing, New York. New York is choking the airspace for the United States. So

look at getting into the priority station queue of New York being the focus and much more needs to be done there, much good work is being done up there.

I know Bill Ayers is out there. He helps kick off some of that work in another role, but unless you have that bringing together of FAA, all the sides of the agency, because we know they work with the industry stakeholders and they all move together jointly, we'll be here talking for a while longer.

CHAIRMAN SUMWALT: So Corey, when is the first meeting of this working group going to be?

MR. STEPHENS: I'll defer to Rich Van Allman.

CHAIRMAN SUMWALT: Okay, Rich.

MR. VAN ALLMAN: You know, we -- as I said, we had brought a group together in the past and we were able to brief it up pretty high in the FAA and talk about this. It's going to have to come -- if the new Administrator has already committed to that, I welcome that. And I do agree with my colleagues down at the end of the table, you can hold this up here, but the policy is made in headquarters. We are the implementers out in the field in the Western Service Center and out in Alaska, we're the implementers. All the policy is made in headquarters and that's where the money is allocated. And work.

We have a lot of support from Senator Sullivan now and obviously a couple bills have gotten through in the reauthorization, but there's going to have to be some money that's

going to come with this when we start talking about additional infrastructure and infrastructure changes, and it cannot be fit into the current budget. I've already got $3 billion worth of needs that are going unmet and within the west -- well, within the whole United States, but a large chunk of that's in the Western Service Area.

We are always prioritizing what we fix, what we work on, what we do, what we can put in, what we can't put in, how many we can put in, all those things, it's all about -- I tell my kids everything gets fixed with time and money, but -- and we have time, but the money is going to have to be there and that champion.

And if we get those two factors worked out, I think then the recommendations that are made and the ideas -- and I really appreciate what I learned up here in 2½ years, was I really appreciated the willingness now and the cultural change of the aviation community in Alaska to give up things like not hold on to every NDB that's up, not to hold on to every VOR, but give us something in place of that. If you're going to take this away, give us something that gives us an equivalent or even a better level of safety and efficiency up here and that's where we need to go.

So I appreciate the opportunity to have that and work on that committee and work on that out here, but we're going to have to get some very key personnel in the FAA headquarters to buy into

that and make that happen. And I think the Administrator can make that happen very easily.

CHAIRMAN SUMWALT: I'll tell you what I'll do, I'll call the Administrator --

(Microphone malfunction.)

CHAIRMAN SUMWALT: -- wants to do. He was nice enough, he'd been on the job for a week and he scheduled a phone call with me, and about 15 minutes before the phone call somebody called me from his office and said the Administrator wants to come and see you, and so he did and I appreciate that, so I will talk to him and find out what needs to be done. I can't promise anything, but that I can. He's made the commitment on the 26th of April -- August and, you know, I'll just -- I'll call him and see what's going to happen, but I think we all agree that something needs to happen.

And, JoAnn, you said -- you said it, how do you eat an elephant? One bite at a time. There's a lot that has been done here in Alaska, but there's still a lot of that elephant that needs to be consumed.

MR. McSPADDEN: Mr. Chairman, one of the things we found very effective in the General Aviation Joint Steering Committee, and it really is an effective body, is we have the decision makers from each of the significant organizations, FAA and NTSB and all the lettered agencies -- associations that are around and so we work all the different channels. If we're really after an initiative,

we'll work all the different channels to get everybody on the same page, right, and everybody in sync, and when we do that, it's really difficult to ignore us in the GAJSC.

And so my pitch is that that's what would be needed here and then you'd have to reach up to D.C. through the various channels, right? But if you come in unison here with all the different agencies that are Alaska focused, it will be very difficult to ignore that when you're all in sync behind each other.

CHAIRMAN SUMWALT: Does anybody here know what the GAJSC is? Anybody know?

(No response.)

CHAIRMAN SUMWALT: Give a 30-second snippet of how it works, Corey.

MR. STEPHENS: Sure, happy to, Chairman.

So GAJSC, much like the commercial aviation safety team started at the same time, it's a data-driven organization working on -- originally starting work on fatal accidents, looking at the contributing factors, developing mitigations, non-regulatory mitigations, but like Richard said, it's everyone working together. It's not one single entity or the FAA pushing the agenda, it's all of us working together.

CHAIRMAN SUMWALT: So you mentioned --

(Microphone malfunction.)

CHAIRMAN SUMWALT: -- started in 1997 and the goal was to reduce -- I think the metric changed a little bit, but was to

reduce airline fatalities by 80 percent over the next decade and I think they reduced them by 84 percent over the next decade or something like that.

The bottom line is, is that they came up, they got a lot of bright minds in the same room and started with well, maybe CFIT, maybe it was runway incursions, I can't remember, they put the spotlight on something and then just said let's look at this one, let's look at loss of control, and then basically safety enhancements and put in place what needed to happen. And as I understand, I could be wrong here, but --

(Microphone malfunction.)

CHAIRMAN SUMWALT: I think none of the intervention strategies have involved regulatory change, at least on the CAST side. I don't know if that's true or not.

MR. STEPHENS: CAST and GAJSC, neither.

CHAIRMAN SUMWALT: Okay. So what are the goals for the GAJSC? Like CAST, I just mentioned what that goal was, what would be the stated goal of the GAJSC? Is it to reduce fatalities by X percentage over an X time period?

MR. STEPHENS: It is. So the original goal of GAJSC was to reduce fatal accidents and to get it less than one fatal accident per hundred thousand hours by the end of 2018. GAJSC was successful, they rebooted themselves to be more along the CAST process around 2011 and were -- I think we got down to -- with Jens, we're the keepers of the data, about 0.89. With the current

operations data we think we'll probably be down to about 0.87 by the time the numbers are affirmed.

CHAIRMAN SUMWALT: So these efforts work and so, you know, I've got a bunch more cards, but I think this is a good point, actually, for me to quit asking questions to the panel. I'd like to go to the questions from the audience and give them time because I think this is kind of a -- we've reached a crescendo here where we know that we need to get this focal point for the state of Alaska.

That sounds like what we need to do, it sounds like the FAA has made that commitment, now we need to make it happen. So I'll start out by making a phone call to him next week and see what we can stir up there and find out what the plan is. But is the idea that this would be structured somewhat like the General Aviation Joint Steering Committee? Is that sort of what the idea would be?

MR. McSPADDEN: It would be a good model, at least a framework to take a look at, because it does bring industry and government together successfully, all the different parts of government, so it's a starting point, I think, and there's a framework in place that could kind of jumpstart it.

CHAIRMAN SUMWALT: Right, thank you.

All right, so Joe, were you raising your hand down there?

MR. SPRAGUE: Yeah. I think a lot of us are just learning about this general aviation joint safety committee and it may well be a good model or something worth exploring. I think before we

get too far down the path of adopting any particular model, we need to incorporate the input from the operator community because one thing Richard said, which is really important, is it needs to be a co-effort between the regulators and industry and frankly, hearing a little bit this afternoon that, by their own admission, the FAA doesn't know what -- the left hand doesn't know what the right hand is doing, we need to make sure we've got somebody at the FAA that can coordinate across different parts of the FAA to get something done.

CHAIRMAN SUMWALT: Yes.

And Jens, I see you've got your hands raised there, but to put Joe's concern at ease, of the participation of the GAJSC, what percentage of that participation is FAA? Very small, right? The majority of it is industry.

MR. HENNIG: Yeah, I mean, any model can work here. I mean, there's this -- you need the right people at the table, I need somebody who has authority over budget and commitments. GAJSC does, NextGen Advisory Committee does, and we've built kind of a model of how to work together. There was an earlier comment about all the recommendations that have been made. These groups tend to move out of the recommendation state. We all know where the problems and the issues are. These are people that can sit down, look at past recommendations, prioritize them, fund them, commit to them, and lay out who does what by when and then we all move forward. GAJSC, NextGen Advisory Committee, other entities like

that, they will lend themselves to a model. I would hate to force something on anybody, but certainly if something were to be up in Alaska, I would want it to be organically locally.

The hardest part for when we stood up some of these groups is getting everybody to be okay to sit around the table. Everybody has their issue that needs to be moved forward. Let's come up with a common plan for what benefits the community. Your issue may be 5 or 10 years out, but if we start working toward it, these efforts -- my tongue-in-cheek statement is always if you're working on the right things, it's going to take time and it's going to be really boring.

CHAIRMAN SUMWALT: Great, thank you.

Any other comments related to this? Rich.

MR. VAN ALLMAN: Just one last thing. I wanted to make sure that we did know that due to the Reauthorization Act some AIP dollars are now going towards new AWOSs. As a matter of fact, there's nobody here from airports so I'll kind of speak for them but the fact is, is that they are getting ready to issue a grant, I believe, in around the March time frame for the first eight new AWOSs. Where I talk about the right hand not knowing what the left hand is doing, I want to quantify that and say in this particular case we're going to go ahead and put these AWOSs in, but we haven't -- the part that needs to do the operations and maintenance on those facilities, in other words take them in to the FAA and then provide the operations and maintenance and life-

cycle management of those systems, you know, they didn't expect this to happen. So suddenly now you're forcing on to our tech ops community to handle 8 to potentially 22 more AWOSs up here without proper resources and funding to actually take those systems in and do that in the long term.

So that's the kind of dialog when I talk about us having -- when we make decisions or we get things implemented, there's consequences that roll down the hill on those that all have to be thought out and that's when we put these groups together. I think we can really -- and we get the subject matter experts in.

And then finally, I'm just going to leave the other thing, once we get this champion or whoever we get to run this, I think that the other part is, is there's got to be some kind of tiebreaking capability there because we have policy and we have implementation and we have, you know, requirements and needs and ideas and recommendations. Somebody somewhere along the line has got to be able to budge people one way or the other and there has to be some give and take, and I just know that the FAA is, as we've said and Brian has said, you know, we're not going to let safety -- safety is just in our culture in the FAA and safety is never going to be number two, it's always going to be number one and so whatever the safest thing is, is what we're going to do in the FAA, I just know that for a fact.

CHAIRMAN SUMWALT: Well, thank you.

Why don't we move to the audience questions and I'll direct

this one, I think, probably to Jerry [sic]. It relates to so how do the capabilities of the new polar satellites influence the importance of PIREPs?

MR. OSIENSKY: So as far as polar satellite is concerned and PIREPs, I mean there's definitely a connection there. So as we get these new -- as I showed before, these new products that are being made available, there's going to be an increasing need to get pilot reports to help validate whether or not these observations and forecasts, you know, are doing well or not.

So a lot of this work is being done by developing algorithms which need to be tweaked and changed, and so as -- you know, as we get this out in front of pilots, we're going to be asking for more PIREPs to help validate whether or not what we're seeing matches up with what pilots are seeing to help make a better product in the end.

CHAIRMAN SUMWALT: Great. Thank you very much.

The NTSB, a few years ago, we held a roundtable on PIREPs, it was about 3 years ago, and came out with an SIR, special -- safety investigation report and -- on PIREPs and there's a lot of improvements that can be done in that respect and we hope that we can continue to see improvements there.

I want to go back to a topic we talked about earlier and that is basically the scalability of the safety programs. Scalability of the solutions discussed is a major problem for the single pilot 135 operator. Most often the single pilot is the single employee.

How do we ensure that these solutions do not impose a burden that would ultimately kill the single pilot 135 model? So who wants to take a stab at that? I mean, the bottom line, can an SMS work for a single pilot operation? An owner/pilot operation. Can that work?

Jens.

MR. HENNIG: I'll take a stab at it. For a single pilot, the system is, you know, hypothetical, right? But a single pilot should have risk management tools. If that is a flight risk assessment tool or whatever else, that fits within that model. Even FOQA and those kind of systems, we do have tools for them, you can share your data up through a national system. The FAA has enabled it, it's run by the University of North Dakota, other universities are participating.

We have individuals sharing data up in their baseline in their own operation and -- can be done. The app is available for download courtesy of -- and I think some of the folks here around the table helped develop it, but you can do even your own data tracking like that to just see how you're flying, base-lining yourself around other people who shared ideas -- so it's out there, it doesn't look the same, it doesn't have to be the same, it's specifically not going to be the same so yes, it's possible, in my view.

CHAIRMAN SUMWALT: Great. While we've got you, Jens, you and Corey, what recommendations might you have for easy solutions to

flight data monitoring on small aircraft?

MR. STEPHENS: Thanks, Robert.

Much like Jens said, we tried to bring, many years ago, what we've learned in the air carrier world to the GA community. We've had a lot of success. We have fleets that are single aircraft fleets all the way up to fleets that are several hundred that participate and we have a little bit over a million hours in the program now, and there was some talk earlier about benchmarking against the broader population and that's one of the works we're working on now.

But a lot of that came out of recommendations out of the GAJSC and the need for, exactly like you were mentioning earlier and Jens had mentioned, how do you make it as easy and as painless for, you know, a single operator but also give the same tools that are as robust as what we are using on the air carrier side? And if there's any questions about that, hit me after the conference, I'll be happy to answer any questions.

CHAIRMAN SUMWALT: Thanks.

And I'll let you all figure out which one of you would be best at this, answer this one, maybe Jim Wright, maybe JoAnn, maybe -- maybe I don't know. But the question is, from the audience, Capstone was a coordinated effort within the FAA to equip aircraft with ADS-B equipment, construct ADS-B ground-based navigation systems, conduct airport surveys, and create LP and LPD approach procedures. Is it time for Capstone II?

MS. FORD: Yes.

CHAIRMAN SUMWALT: Okay, that answers that one. Okay, great.

(Laughter.)

MR. PFLIEGER: I would second that.

CHAIRMAN SUMWALT: But only at Bethel?

MR. PFLIEGER: No, actually across the board. I mean, I know I wasn't here and I think a number of people on the panel were when Capstone was first implemented, but from what I gather, it was instrumental in terms of reducing CFITs and midairs and if you look at it, I mean, I may be wrong, but the single pilot/single employee Part 135 operator is going to need some money.

So whether, you know, Max and Alaska Airlines are coming into airports in the state in 737s and others are flying in whether its turboprop 121s or, you know, piston engine Part 135 carriers, we need to know where the other folks are and if they don't have the money to put this equipment on their airplanes, somebody needs to come up with that money. That's going to help us reduce the accident rate in the state and to me, from what I gather, Capstone II is what we need to make that happen.

MR. VAN ALLMAN: And I'm just going to add on to that. If we start talking about a Capstone II-type scenario, we definitely need to look at the future technologies that are out there because I think Capstone was kind of -- or Alaska was kind of a proving ground and actually was at the forefront of even the Lower 48 for one period of time. As we move into Capstone II, if something

like that was to ever come to be, really need to look at how we can leverage all the technology that's out there into the future to reduce the cost of implementation of that and how we divert the money so that maybe some of that money that's going to operations and maintenance and new -- or putting in new ground-based systems might go towards funding some of those other items, so really need to have kind of a blank slate and build what we need for the future, I think. So I agree with you a hundred percent.

CHAIRMAN SUMWALT: Well, thank you.

So I want to go to this sort of last question for everybody as we sort of wind up the day and that is, "What do we need moving forward?" I want to go around the room and we'll begin right here, we'll come to the NTSB folks later, but let's start right here with Andrew, with Andy. What do we need moving forward?

MR. McCLURE: That's a pretty broad subject.

CHAIRMAN SUMWALT: And you've got the microphone.

MR. McCLURE: Okay. From my perspective in the flight service world, we need more PIREPs not only to validate the new products that Jeff and his folks are coming up with, but in order to fill in the gaps. If you see the graphic I've got there, that's a comparison of METAR density between most of Alaska on the left-hand side and a similar sized area in the Midwest and if you hit the button there, Josh, I think the one on the right-hand side as I'm looking at it should expand some. Possibly not. In any case, it's a little hard to see the dots, but in the Midwest you

can't go more than about 20 or 30 miles in any direction nowadays without having another METAR available.

That's roughly four to five times the density of METARs in Alaska and since it would take just an amazing amount of money to fill in the gaps in Alaska, not to mention putting them in places where there is no infrastructure, pilots are the one source of weather that is out there.

We've got the RCOs to help pass weather on to the pilots, roughly 150 RCOs is, you know, part of the question that Dan was answering earlier, how do pilots get the weather? We've got roughly four times more RCOs in the state than there are RCAGs for the -- for ATC to pass on weather. And we're ready to do it at a moment's notice. So I would say PIREPs.

CHAIRMAN SUMWALT: Yes. And we issued a number of recommendations regarding PIREPs coming out of our SIRs, special investigation report. Safety investigation report, I can't remember. SIR is what I call it, but yeah, we -- I think we would agree with that.

Jennie?

MS. SANDLAND: So if I could have two. I'm going to piggyback on his --

CHAIRMAN SUMWALT: Hold the mike closer.

MS. SANDLAND: I'm going to piggyback on Andy's PIREP theme there. It helps us, as well, when we get those PIREPs because we have limited NEXRAD radar and if that radar is depicting

precipitation, that's all we pick up. So we really need those PIREPs to validate. Sometimes those -- the radar return is there and there's no weather and other times there's weather and there's no return, so that's really why we need those PIREPs is to validate the information we have.

But my own topic was actually more the ATC services. I would really like to see more use of the ATC services that we can provide. We've got excellent radar, like I said, from Willow down to Kenai and from Palmer out to Balooga, there's a lot of VFR targets out there that are not talking to anybody and I would sure like to see more use of the service, whether that's IFR or VFR flight calling, there's no reason that, you know, you don't pick up that -- pick up and get a code and go.

CHAIRMAN SUMWALT: Thanks so much.

Richard.

MR. McSPADDEN: Robert, just first a thank you to you and the NTSB for driving the focus here. NTSB has gone above and beyond, you do world-class investigations and recommendations, and to come here and put the focus here, I think, has been helpful. I have a takeaway from the AOPA and the Air Safety Institute and that is for us to continue the advocacy that we do in working with the groups here and the priorities.

But for ASI II, I met with the Alaska Aviation Safety Foundation and we're going to come up -- ASI's going to come up with some Alaska-specific scenarios for some of the training

materials that we put out and our material is accessed over 6 million times a year, so we have a broad reach and we can make some Alaska-focused training that we're going to try to do.

But for the broad thing that I think needs to be done is we've got to have that oversight -- not oversight, I don't know if that's the right word, but that governance element that's going to come together and take all these ideas and keep them, keep them moving, keeping the momentum going, keeping the unison, and some agencies, some organizations got to step up and fill that gap until it comes about or we'll lose all this momentum.

CHAIRMAN SUMWALT: Yeah, we definitely want the momentum to continue and I think everybody at this table will be a part of moving that momentum or continuing that momentum, so thank you. Thank you very much for being here.

Corey.

MR. STEPHENS: Robert, thank you.

I think the recommendation from us would be the ideas of coming together to work on problems that are discovered and make it better is great. One thing we would recommend, based on what we've learned both from CAST and GAJSC, is make those as data driven as you can, so we formed ASIAS after CAST to help us identify those next issues we should focus on safety wise. We've been able to utilize that in the GAJSC. Jens had mentioned, you know, the fear of pet -- people's pet projects gaining momentum and getting work before kind of real safety problems. Use of

programs like ASIAS and participation of Alaska air carriers and the broader community within ASIAS will kind of help identify what those issues are and help us, both the FAA and the rest of industry, groups like the GAJSC, learn where we need to focus resources and what are the risks that are out there that we need to act upon. So that that would be my representation.

CHAIRMAN SUMWALT: Corey, thanks so much.

Jens.

MR. HENNIG: We're all coming from, kind of, our own area. Mine is obviously the aircraft manufacturers, the equipment manufacturers. We've invested in technology, the past 20 years we've seen WAAS, we've seen the TAWS capability, we've seen ADS-B. These are now -- they're not new technologies anymore, they came online in the past 2 decades, but they're here to stay.

So how do we bring them into the fleet? It's fair to say it all takes money, but for most of these technologies there are cost-effective solutions for all aircraft, so how do we bring them into the fleet? I think it's important, the point was made several times, just equipment in aircraft is also not the complete solution, it's the training, it's the infrastructure, it's the controllers, and all of those parts. So bringing that together is positive.

On ADS-B, again, a project I'm very passionate about, 2020 is the beginning of the program, we've been talking about it for decades. I'm personally looking forward to not talking about it

as much next year as I used to, but we're bringing some new things in the next decade and there's air-to-air surveillance that works outside the radar infrastructure so midair collisions, more people equipped will achieve it.

ADS-B for air carriers may be on the higher end. Increased surveillance, looking at the additional stations, conversations are happening, North Carolina, Alaska, some early conversations, space-space potentially for part of the community, so it's all out there. So technology, I think, can help out this section of the aviation industry. Thanks.

CHAIRMAN SUMWALT: Max.

MR. TIDWELL: Well, thanks. I have a lot of thoughts, but I really want to piggyback on what Richard said, is we need to come up with some sort of organization that's going to make all these comments. We've had four very good topics today and something actionable has to be brought out of this and ownership of that and we, as individual carriers, whether I'm a 135 single operator or an air carrier running up and down the coast, we need to own what we control but we also need to understand that safety is a team sport. And all of us around this table that have been here the entire day have a vested interest in safety in aviation and we need to be able to invest in that, whether it's time, whether it's dollars, whether it's conferences, hosting -- hosting phone calls, whatever it may be, and I really think that when we leave today we need to have something actionable for a follow-up, a sit-down, a

committee that's willing to raise their hand and say yeah, let me run this.

CHAIRMAN SUMWALT: Thanks. Let me ask you a question. Does Alaska Airlines co-chair with any of the 135 carriers here?

MR. TIDWELL: Yes.

CHAIRMAN SUMWALT: And that would be?

MR. TIDWELL: Well, we don't code with the 135, but with Ravn.

CHAIRMAN SUMWALT: With Ravn.

MR. TIDWELL: Ravn, yeah. Yes.

CHAIRMAN SUMWALT: And there was a point, though, where you weren't co-chairing with Ravn.

MR. TIDWELL: That's true.

CHAIRMAN SUMWALT: And that was because there had been some unfortunate events but you are once again doing that.

MR. TIDWELL: Yeah. And the reason we're doing this, not to interrupt you, is we got back through a safety management system where we could measure performance and the Ravn group, the PenAir group, has done a great job of being able to manage those data points and bring them in and make corrective actions and really show improvement and that's what drives me with my current position is the data. What's the data telling me?

CHAIRMAN SUMWALT: So there really is a business case for safety.

MR. TIDWELL: Absolutely.

CHAIRMAN SUMWALT: Absolutely.

MR. TIDWELL: I don't have unlimited resources, but the amount of data I have will help the company commit those resources.

CHAIRMAN SUMWALT: And Dan, I'm not going to skip over, but Dave, I know that you were responsible for driving that change within your organization, so thank you for that. But the point I did want to make is that there really is a business case for safety and that when you don't run a safe operation with the perception thereof, you lose business.

MR. PFLIEGER: No, I totally agree, but in fairness, we have an amazing team at Ravn, I mean, the ranks have been filled, you know, from great -- you know, bright shiny stars that we promoted up to various positions. Our company, as a whole, all 1300 people are responsible for, you know, restoration of the code chair, getting together with PenAir, you know, the PenAir and the Ravn get-together has been awesome, so -- but there absolutely is a business case.

Not only do you save money, and this is a point we've made to our private equity investors and they get it, I mean it's an outfit, you know, founded by a former secretary of the Navy, drives down cost when you injure fewer people, when you don't ding your airplanes, you're going to save money and it leads to more business and that's the other point, I think, for the 135 carriers. What I would say or not hear is to realize that -- and

I don't think I necessarily agree completely with Will Mayo and others saying that, you know, they're still not scud running and overloading airplanes and doing -- you know, things going on in the bush that shouldn't be.

And there is forum shopping, you know, people shopping for a real meal and other things, so -- but to get their attention is really to drive home that very point. There is a business case, just like you pointed out with SMS, you know, it's been a business process to run safety, so you'll save money and you'll make money because you'll get more business from other people and you'll build a reputation with the flying public that you are a safe and reliable operator.

CHAIRMAN SUMWALT: Yeah, after U.S. Air had the five fatal accidents in 5 years there was a *New York Times* article. The *New York Times* article alone, the company attributed just the *New York Times* article alone that talked about the poor safety performance of the airline, that that *New York Times* article alone led to the loss of $150 million of potential revenue, and so anyway --

MR. PFLIEGER: And if I can add one other thing, too, I mean it's not only the partnership with Alaska Airlines, but our partnership with the FAA that led to the fundamental changes inside our company. Our team wanted it, they needed the support and the tools to make it happen, and our team together has risen to make this company a much better one than it was a few years ago.

CHAIRMAN SUMWALT: I recognize the team. Thank you for your leadership.

Dan, back to you, sir. What's the one takeaway that you can offer?

MR. KNESEK: I think it comes down to two words, action and money. Every time we talk about it here, everybody's talking about we need to see action. When you first sent a deputy up here about, I think it was a year and a half ago to get some of us together to ask what should we focus on, what is our opinions, and a lot of us were skeptical because we didn't want to just have a bunch of hot air out there and then see no -- don't see any action.

Well, it comes to the budgeting, as well, as my friend Voyek (ph.) likes to talk about. As long as the appropriations for Alaska and the FAA are made based on a cost-benefit analysis, putting an AWOS or an instrument approach in a tiny little village in western Alaska is never going to pass that. So we can have all these meetings and do all we want, but we need to be able to come up with the money and the investment on the federal side. I've sat several -- many times with the FAA putting requirements and standards down on us and we say, boy, that's going to cost us a lot of money and the answer from the FAA is well, that's your problem. I'd like to return that to the federal government and say well, guess what, we're spending a lot of money on safety and investment in safety and just for the betterment of our company,

for the betterment of our customers, like to see some of that returned for the infrastructure. Tell us to fly IFR, provide us the infrastructure to do it.

CHAIRMAN SUMWALT: Great, thank you.

Dave.

MR. PFLIEGER: It's really going to be just more of the same, you know, I mean, what I would just say is safe and reliable air service are absolutely critical to our state, as you pointed out when you kicked this off today, and they're not mutually exclusive.

When we look at our flight -- our flight record over the last year, we've cancelled thousands of flights more, you know, this year and last year than we had in prior years, but we want to serve the communities and almost 50 percent of Alaska lives in rural Alaska and those communities, it's vital that we provide medicine, you know, airlift to get to hospitals, people to get to schools, I mean, you know, all those things, you know, whether it's the teachers or the students moving around.

So you know, I think again it goes back to Dan's point, and others have said it earlier today, we need help from the federal government. This is something that's squarely in their wheelhouse and if it's Steve Dickson is the new Administrator, then knocking on his door or banging on his door to say look, you know, we want and we all are doing more IFR flying than we ever did in the past and it's great, but we need the weather cameras to report the

weather, you know, we need ADS-B on -- you know, mandated at least for 135 operators or at least funded for the smaller onesie-twosie type outfits. So what it all comes down to is, you know, service and safety are both possible but we need some help from the federal government.

And I think what Max pointed out is spot on and Richard said as well earlier, you know, there needs to be an organization that has some oomph in D.C. to get this stuff done. I think we've got an amazing congressional delegation. Frankly, they were responsible for this letter of agreement getting us together in Bethel to address midair risk and I think it's going to be a joint effort between all of us in the room and our delegation.

CHAIRMAN SUMWALT: Thank you.

Joel.

MR. KAIN: Mr. Chairman, thank you for pulling this group together for this forum. I'll deviate a little bit. We've talked a lot about technology and technological infrastructure and solutions. Safety is personal and I think that everybody in this room, whether you're on the panel or in the room or attending via the Web, you're a safety professional whether you know it or not because you're here and you're interested in the topics. Safety is personal; if it's not, you should make it such. I would say a takeaway for us that we've talked about, many of us at this panel, is that sometimes regulations that apply elsewhere in the continental United States don't necessarily work here because we

are different. We are still part of the United States, we still pay our taxes, we still use the U.S. Postal Service, but not all the solutions that come out of Washington actually fit when you walk them through on the ground.

So I would ask the delegations, they go back -- and that's what we take up with our own congressional delegation and they are very, very supporting, but walk those solutions back that just because it works elsewhere doesn't necessarily mean that the tyranny of distance and separation and mountains and weather here in Alaska can often make that difficult to implement or un-implementable.

Also, we -- throughout the day we never really mentioned our maintainers and I think there's probably a lot of maintenance people here or watching online that we can't thank them enough for the professionalism, that they give us these fantastic machines every day to operate, so they need to be a very robust part of your safety program and they should be engaged all the time, as well as our ground staff and anybody else that services the aircraft.

CHAIRMAN SUMWALT: Joel, you said safety is personal and of course, George Snyder said that, as well. George and I were talking at the break after that first session. George almost had tears in his eyes as he talked about those days at U.S. Air and so did I. When you work on an accident for -- when it involves your airline, when it involves your company, when it involves your

people, your family members, when you work on it, it gets very personal. I remember walking in my kitchen door on the Friday of my first week at the airline on cloud nine, now I've got the dream job. My wife was standing at the door and she told me my best friend had been killed in a plane crash. We've all had that. I think that's why we're here today, we've all experienced that.

Being at the hospital with my daughter and wife when my daughter was a day old, getting a phone call saying that my brother-in-law had just been on a U.S. Air plane crash, it involved my airline, it involved my brother-in-law. Thirty-seven people died that night. It is very personal and so we have to harness that energy to be able to make a difference. I'm not alone. Everybody in here has been through that, but I think that's why we're here, so it is personal. Thank you, Joel.

Darren.

MR. YOUNG: So I think one of the key points here is infrastructure is what we really need here in Alaska, but in reality we know we're not going to get it in the next 6 months to a year, so what do we do now? We have to mitigate these risks now. We can't wait 2 years, 3 years, 4 years for the federal government to figure out how they're going to do these -- make these changes and implement and get us more money for the infrastructure. Things that we can do right on the onset, some of the policy changes with this rule change, with this resolution for the Reauthorization Act, getting that put in place, but let's put

that in place and not design the criteria to make it impossible to put in place. I've got the draft here that I'm looking at and it's almost looking like if you get the right POI he's going to say no, you can't do this. There's no way we're going to be able to go into every village we operate in and train people that sometimes may not even show up when you land. We need to be able to do stuff now and that's one of them.

Another one is policy changes and procedures. We've got procedures out there that we can actually utilize, like we talked about earlier with Anaktuvuk, and Kyle knows exactly what needs to be done, but he can't do that. We need to take that technology -- there's no reason I need to worry about terrain 5 miles from my center line.

I can stay within a half a meter with the equipment, I've spent thousands and thousands of dollars equipping my airplanes with WAAS, ADS-B In and Out, radar altimeters, all so we can do this, but our hands are tied and nobody's letting us do this. So what we need out of this meeting is the folks going back to D.C. and the new Administrator to say we need to do this now, not tomorrow, not 6 months from now, but now. Let's at least start being safe immediately.

CHAIRMAN SUMWALT: Thank you, Darren.

Joe.

MR. SPRAGUE: Mr. Chairman, thank you for convening this discussion and for the great work of all your staff here today, as

well. And I do want to thank the FAA folks for the terrific input. These are clearly hardworking and well-intentioned people and they're great partners for those of us in the industry, as well. That said, I have to acknowledge that I feel discouraged by this afternoon's discussion, the lack of prioritization, the lack of coordination.

Given the importance of safety in this aviation dependent state, it's something that I think we should all find unacceptable. So I guess my suggestion would be or my encouragement would be to really focus on infrastructure enhancements, I think that is the priority of the -- the top priority of the Alaska Air Carriers Association right now.

It should be data-driven prioritization and it should be with effective FAA and industry coordination and whether that's through an individual champion or focal point or whether that's through some sort of structured committee or both, we need to make it happen as soon as possible.

And the other thing I would just say is we talked a little bit this morning about safety programs and the Medallion Foundation going away and it was, again, encouraging to hear the FAA that were part of the panel at that point talk about their interest in supporting things like the CFIT simulators and a lot of folks came up to me during the breaks and said this notion of aggregated information for ASAP reporting is actually really important. So if there is some sort of follow-on organization to

the Medallion Foundation, which I believe there needs to be, those are things they need to focus on, the CFIT sims, ASAP, and then also supporting smaller operators with implementation for SMS. And if the FAA can help fund that or support that, great, but again we need to come together as a community to make that happen.

CHAIRMAN SUMWALT: Thank you, Joe.

Kyle.

MR. CHRISTIANSEN: I'll keep it pretty close to flight procedures. I guess I would like to see, for one, a more robust COM system, infrastructure, as well. Let's stick with letting everybody fly everywhere IFR all the time. That would be my goal. There's a real trick now with the national prioritization of instrument procedures, so we have to prove a safety -- pretty much prove a safety case every time we want a new procedure somewhere.

We don't just ask for it and get it. We're fighting against the nation for slots and production. I would say I need as much input from the Part 135 operators as I can possibly get. Everywhere there is an instrument procedure, a departure or an airway, I need to hear from you, if you don't like what you've got, if you have thoughts on how to change it, but I definitely want to put in the work. I'm not going to shy away from any efforts if you've got great ideas. If you've got systemic solutions, I'll definitely fight for those, as well. We did do a lot of T route work statewide a few months ago and I think we're actually going to see a lot of benefit when those T routes come to

publication. Thanks.

CHAIRMAN SUMWALT: Thank you.

Gordy, sorry I haven't called on you, I don't think, today and my apologies. We had so many questions.

MR. ROTHER: No, you didn't, but I will go off on a limb here just a little bit and say we need a validated weather network, non-AWOS 3 validated weather network. And we're currently working on that, we're working with the Flight Technologies and Procedures Division in Atlantic City, Walter Coombs, he's our champion for the weather camera program, and we're evaluating a low-cost AWOS, basically, is what we're looking at. For the $8 million it would cost for eight AWOS, we could put in 80 of these sites in Alaska.

We're looking at whether we can use Alaska as a proving ground for this, we've targeted a hundred locations in Alaska to do just that. We're also doing -- we have been working with our friends in the NextGen weather branch and NCEP and the National Weather Service, NOAA, to evaluate other products, RTMA, for example, real-time meso-scale analysis. We've got an initial report on how good RTMA is, we're refocusing that effort. Danny Simms is in the audience, he's our focal on that, and we are working to evaluate that regionally.

We know that if we could come up with a validated weather network in Alaska, what Andy was showing there as far as the density of AWOS goes against RTMA's accuracy, but if we bolster that with either MAWS data and this VFR weather -- or validated

weather network I'll call it, we're going to be head and shoulders above where we're at today. It's thinking outside the box, obviously, and we have to know how good the information is. So Flight Standards is working the program and we're trying to evaluate it versus an AWOS and determine how good it is and do we -- and can we mitigate that. Can we mitigate it by raising minimums, putting limitations on winds and things like that? So all that is in the works, these are things that we've identified.

When we started into this whole discussion over 4 years ago with Denali, CMO, and Corvus, Tatonduk, and Lynden, because they have procedures they can operate without weather in the locations VFR because of the -- well, the public law that ended up coming out, we were already in the works on that while that whole legal piece was going through there.

So there's a lot going on, but one of the things that we've identified is we've identified there's a significant lack of infrastructure up here in Alaska, it's been well known, it's been well documented for years, and on the forecasting side, the weather service put together a piece based on our requirements to have an automated forecast product, it's the Alaska Aviation Guidance product, it's currently available at 58 locations. Our guidance is a little bit slow coming out. Everything in Flight Standards that we do, whether it's policies, procedures or everything, runs through our legal department and it has delayed things by months, literally months.

So what the concern is over here, we're working on the policies for operating, I've got the 121 side for policies and how to operate without weather, that may come out sometime next year at the rate we're going. The 135 side is Andy Pierce, so actually you guys talk to him, so it's going to take a while, but VFR or validated weather network is really the direction I'd like to see some -- I'd like to see some support for that because it's duly needed here in Alaska.

CHAIRMAN SUMWALT: Totally agree. Thank you very much.

Jim.

MR. WRIGHT: All right, well, living in the ADS-B world like I do, I'm going to have to go with more ADS-B equipage, particularly in the Bethel environment. I've been out there many times. I never worked out there as a pilot, but I did see the traffic out there, so a hundred percent coverage out there or equipage out there would be awesome. And I would like to see a few more ground stations. I heard someone mention that there's a disincentive for equipping because of our coverage up here. I would like to see our office install a few more ground stations to complete some of the areas that aren't covered today.

CHAIRMAN SUMWALT: Thanks so much.

Jeff.

MR. OSIENSKY: Yeah, so just to kind of echo off of what some of the other folks have been talking about, I think, you know, what it comes really down to is improved observational network in

the state. Again, we don't have -- we have a lot of sparse network of observations, simple things like Andy and Jennie had mentioned about the PIREPs, weather service, we kind of live and breathe from PIREPs, there's -- we know there are a lot of aircraft out there, they could help validate our forecast not only by telling us where there's icing and turbulence when these different phenomena are occurring, but even negative PIREPs are important to us because that can help us determine where these conditions are not occurring and we can make our air net smaller and our signet smaller and open up airspace, so that's really important.

Weather camera program's great, Walter's out here, we've been working with him for quite some time, a great tool for forecasting, and then also kind of what's just been discussed about, you know, these low-cost AWOSs and other types of net sensors out there on the ground. I think there's a need for a combination of these different types of weather stations that can serve different needs and they'll help to fill gaps around the state, which I think is good.

CHAIRMAN SUMWALT: Thanks so much.

JoAnn.

MS. FORD: Yes, just ditto, ditto, diddle-ditto down the line. The one thing I do want to mention is the one thing, the one beauty of the initial Capstone and we do have some fathers and I'll say even grandfathers of Capstone in the audience. Voyek is

here, Wilfred Ryan, and of course, Tom George. Adam White, Harry Kieling, Skip Nelson was here, Jimmy Wright, and Kyle. I feel like I'm at the Academy Awards and I want to thank everyone for --

(Laughter.)

MS. FORD: No, but seriously, the beauty of that program was -- we've all heard yes, we need COM and we need this and we need that and within the FAA we have our own budget so we have -- for instance, I would love to spend my funding on weather systems, but I can't. I have to spend it on procedures.

Anyway, my point is with the original program, everything -- it was all-encompassing out of the umbrella, not just the technologies but everything that you all have been saying, the training, the weather, everything that was needed was under that umbrella and that is when we talk about a collaborative effort, when we talk about a champion or a focusing, that is what it's going to take as far as the coordination and yet still try to achieve what we can, as you said, what can we do now, technically?

Also, just one other thing, I would be remiss, I want to thank you, Darren and also Kyle, for recognizing the work that Navigation Programs does in trying to bring in the LPVs and LPs, but I'm just the gal with the passion for Alaska and the funding. We wouldn't be able to do what we're doing without Kyle, without our folks in the Western Service Area and Oklahoma City. So a thanks to all of them, we truly work together as a very good team

in trying to do what we can for the state of Alaska, so -- but thank you for recognizing our work. Thank you.

CHAIRMAN SUMWALT: JoAnn, thank you.

Rich.

MR. VAN ALLMAN: I think just echoing everything that everyone has said already. You know, I'm going to have to be a little bit light and say an army moves on its stomach, so what I mean by that is the support. We're going to need -- we're going to need some serious support in this effort and it's going to have to come pretty high level and it's going to have to come with the funding and everything that we talked about.

But I'm just so impressed, you know, I've been gone for a year and a half now and to come back and see the aviation community come together like this, and I thank you very much, Mr. Chairman, for bringing everybody together for this because I'll tell you, it's got a lot of people thinking high up in the FAA right now about Alaska and about the Part 135 operations and I've been in a lot of dialogue with a lot of people, so it's got the attention. Now we just need to take that attention and turn it into an action, so you give me a direction and you give me the support and we'll -- you know, we'll make it happen, that's for sure.

CHAIRMAN SUMWALT: Thank you so much.

Brian.

MR. JOHNSON: Mr. Chairman, since 2012 the FAA's mantra from

the QC side of the house has been collect, find, and fix. And very much has been -- what I've heard from a lot of the fliers, as well, and the users of the NAS, and so collecting the data isn't necessarily difficult, we're awash in data, it's the finding what it's telling us and then the fixing part because the ramifications sometimes, you know, you don't want to move too fast and a lot of times with the FAA, we're slow to move because we want to make sure we have everything nailed down.

And so the one thing, the takeaway, and we've all talked about Bethel today, I see an issue where we've come to the table and without even knowing it and we're almost all in agreement that we have an issue there and we're at agreement that we have a possible solution there. So as I bite into different problems, we have a lot of big problems, that's a manageable one and I would say that's one that could be attacked and provide a level of safety for the folks that are flying that could easily be achieved just with the right people moving it through.

MR. McGHEE: I'll make this real quick. Obviously, from an avionics manufacturer, we would like to see the ADS-B infrastructure and ground-based stations, not just because we want to sell more ADS-B, but the -- we have hundreds of systems here and they would get more usability.

CHAIRMAN SUMWALT: John.

MR. HELLEBERG: Great, yeah. I'd like to say, you know, thank you for having us here and this has been a wonderful set of

discussions. I think the data-driven analyses that Corey and Jens talked about are a great way to look for opportunities for solutions. I think I'd like to see, you know, manufacturers and avionics developers work more toward making the avionics smarter, you know, can we -- can we look for those Swiss cheese holes lining up before they've all lined up and start warning pilots a little earlier?

CHAIRMAN SUMWALT: Great, thanks.

Noreen Price, one of our air safety investigators here in Anchorage, I haven't given you the chance to speak at all. Any thoughts from today?

MS. PRICE: Well, from a perspective of an Alaska accident investigator, I'm passionate about risk management and a lot of great ideas today, but tomorrow morning the weather's going to be the weather, the infrastructure's going to be the infrastructure, we're still going to have a shortage of pilots, and the people in Alaska deserve safe transport to where they're going.

So I'd like to see parts of the FAA to develop an SMS, if I can use the SMS word, safety management, the lite product that will work for small operators because small operators need help in this arena and I highly encourage the FAA to move forward in the development of that.

CHAIRMAN SUMWALT: Shaun Williams was an air safety investigator here in the Anchorage office, regional office. Now he's in our Midwest or our Central -- whatever it's called. It's

too late in the day.

(Laughter.)

CHAIRMAN SUMWALT: So it's 8 o'clock at night according to my watch, but our Midwest office, Central office, whatever it is. You're in Chicago these days.

MR. WILLIAMS: Yes, sir.

CHAIRMAN SUMWALT: I'd love to hear your thoughts.

MR. WILLIAMS: You know, it's not so much about my takeaways from it, it's what's going to make Alaska aviation safer. I think it's the collaborative effort like we're seeing here today, use this as a starting point, you know, continue this and I think we're going to get to that end goal. You know, I just wanted to say thank you to everybody who's up here now and who was up here earlier today. It's been great, thanks.

CHAIRMAN SUMWALT: Yeah, wow. What a day. But this is the beginning, it's not the end. It does not end at 4 o'clock. It has to be the beginning of something that will continue to evolve here in Alaska.

I will spare you my list. I asked Sean Dalton to come up with a list of one or two bullet points per session and I have 37 bullet points, so -- but Sean's a lawyer and they get paid by the word but, Sean, thank you. Actually, the truth is I thought about going and just selecting one or two out of each panel and I thought it would be pretty presumptuous of me to come up with what I thought when we had the real experts just give all of their

thoughts.

So I think we've got a lot to take home with us, all of us. Kerry, I want to thank you for your support as the Regional Administrator of the FAA, you've got a huge responsibility, so thank you for being here. Certainly want to thank the audience for being here and bearing with us all day long and we had many of you, several of you were on the panel earlier this morning.

The real success of this entire day was due to two groups, one is our panelists, you made today happen and I want to thank you. The other part of who made today successful is the NTSB staff, and Mike Folkerts said that he and Kristi had decided they didn't want to be recognized but, being stubborn, I'm not going to let that happen because I do believe in recognizing good performance, exceptional performance, the people that pulled this together.

And people were thanking me, "thank you, Mr. Chairman, for this, for that," I didn't do anything. I just showed up with a microphone in my hand. The people that really made this happen, again, were you all, but the ones who helped me to prep for it and did all the legwork doing up to this was our staff. Mike Folkerts, nobody's even seen him today, but there he is right there. He's been back behind the scenes. Mike, you did an exceptional job.

(Applause.)

CHAIRMAN SUMWALT: But, as Dave Pflieger said, it's all a

team effort. Amy Terrone, Noreen Price, Shaun Williams, Clint Johnson. Josh Lindberg is -- Josh, come on out. You've been back there flipping the slides, come on out, let's see what you look like.

(Applause.)

CHAIRMAN SUMWALT: Sean Dalton, who's my trusty assistant who's worked with me for 10 years. Anybody that can put up with me for 10 years deserves an award. My poor wife's been with me for 40 years, so God bless her. Colette Hurley, Aaron Sauer, Chris Wallace, Chris O'Neal, James Anderson. James was supposed to be here to help coordinate the video stuff but unfortunately, he's down in California, been down there since Tuesday morning on that horrific dock boat accident.

Kristi Dunks, Tim LeBaron, Dana Schulze. And the danger of recognizing people is you always forget someone, but if I did forget you, my apologies. But I just really thank you all so much. Thank you for your dedication, for taking this great state and allowing the -- or allowing the aviation system to even be better than it is.

We recognize that there's issues that need to be fixed, we've heard those issues. The NTSB cannot fix it but what we can do is be the impetus to make change and my commitment to you is we are going to push. Thank you very much and be safe. Thank you.

(Applause.)

(Whereupon, at 4:00 p.m., the meeting was adjourned.)

CERTIFICATE

This is to certify that the attached proceeding before the

NATIONAL TRANSPORTATION SAFETY BOARD

IN THE MATTER OF:	NTSB Most Wanted List Alaska Part 135 Flight Operations - Charting a Safer Course
DOCKET NO.:	DCA19RT001
PLACE:	Anchorage, Alaska
DATE:	September 6, 2019

was held according to the record, and that this is the original, complete, true and accurate transcript which has been compared to the recording accomplished at the hearing.

[redacted]

Karen D. Martini
Transcriber