

**REDAC SUBCOMMITTEE ON AIRPORTS
SPRING MEETING 2018
MARCH 20**

**FAA - WILLIAM J. HUGHES TECHNICAL CENTER
BUILDING 300 – TECHNICAL DIRECTOR'S CONFERENCE ROOM**

MEETING MINUTES – ERIN DEBARTH

The meeting formally began at 9:05a.m with Mr. Christopher Oswald thanking everyone for attending. Introductions of Subcommittee members, presenters, and attendees were made. Mr. Oswald thanked the FAA for setting up the telecon for Subcommittee members that could not attend in person.

Dr. Michel Hovan, Airports Technology Research Branch, Dr. Hovan informed the Subcommittee Mr. Eric Neiderman was in D.C. briefing the appropriations committee. Mr. Oswald stated that there was a possibility of the funding budget being cut. He stated he did not believe it will be radical, citing that the Environmental Division was very concerned. Dr. Hovan explained the budget was formulated on requests from Congress. Mr. Oswald interjected stating the airports program has always been different due to it being funded through AIP, and questioned whether the changes will affect this group. Dr. Hovan stated within the FAA there has been a discussion at length about a memo from OMB regarding guidance and impacts on programs. He added there was not much of an impact on R&D, but he would like to share so the Subcommittee can understand the general guidance being put forth. Dr. Hovan stated the R&D budget was stable for FY17- FY19, and he would like to look to FY20. He explained he and Mr. John Dermody, FAA Office of Airport Safety and Standards, briefed the board and cited that FY19 budget was supplied by the FAA Budget Office. Dr. Hovan stated his FY20 budget reflects a one percent increase due to inflation. He informed the Subcommittee it was voted on and agreed upon, adding there could be potential changes, but for now it is stable. He informed the Subcommittee the Office of Airports guidance to the budget was to stay at these numbers. Dr. Hovan told the Subcommittee the construction of the new Fire Testing Facility was included in the plan to begin in 2018. Dr. Hovan informed the Subcommittee the Office of Secretary of Transportation tasked the FAA, DOT wide, with a questionnaire and program evaluations in January 2018, to make sure there was no duplicate research, or to see if there was research that can be combined, and to ensure the research being done was useful and efficient. He explained Phase One was completed about a week ago, and in six to eight weeks there will be deep dives on selected programs. Dr. Hovan informed the Subcommittee there was a deep dive into the Aircraft Working Group's proposal scheduled on the agenda.

Mr. John Dermody, FAA Office of Airports Safety and Standards, informed the Subcommittee the OST Assessment was in good shape and Airports R&D was a strong program. He commended Dr. Hovan, Mr. Gagnon, and Mr. Patterson and their teams.

Mr. Dermody stated the questionnaire process was comprehensive, explained that every question demanded solid justification and documentation. He stated he received an email that the OST will be reaching out next week for projects that require a deep dive. Mr. Dermody continued by highlighting the UAS project, stating there was a lot of research getting started this year, funds have been carved out for UAS applications on airports, citing that this was discussed at the last REDAC meeting, and that the program was started and it was a good step in the right direction. He also cited a possible solar lighting project and the LED project as making progress. Mr. Dermody informed the Subcommittee there was a brand new request on the Pavement side to explore alternative ways to accept pavement materials. He stated this was a research request that will be sent forward and he was looking forward to input. Mr. Dermody spoke of Commercial Space and interface with airports environment project that started this year and explained they are looking at launches on runways and potential consequences to the pavement, as well as signage, etc.

Jim Patterson, Airport Safety R&D, Overview of RPAs, Mr. Patterson began by informing the Subcommittee R&D Safety now has a staff of nine, and they are looking to backfill the vacant positions as soon as they are able. He reviewed the budget and touched on the Solar Lighting Project. Mr. Patterson informed the Subcommittee of a congressional item that involved TARMAC Vehicle Safety explained that there was no standard that required markings on vehicles on airports. Mr. Patterson stated they visited various airports, took inventory, and have report recommendations, adding there was a large difference between AIP airports and public. Mr. Patterson stated the report should be completed in a few months and will be sent to Mr. Dermody to meet the May deadline.

Mr. Kent Duffy, Ten-year Planning and Environmental Research Plan, Mr. Duffy stated the overall purpose of the Ten Year Plan was to leverage what was new and obtain guidance with research tools. He gave an overview of the process, explaining the outreach stating the purpose was to get feedback on research, the result of research, and areas of interest. Mr. Duffy stated the feedback was a useful data tool in that it gave input on what focus areas should be. The Subcommittee asked if the data collection was to look on improving means and methods. Mr. Duffy explained it was to look for ideas for projects that were not thought of and perform better research. Mr. Duffy reviewed the budget explaining what was on the slide for FY18 was just a progression of projects. The Subcommittee agreed stating the point of briefing was to get an overview of the project portfolio and that it helps with catching overlapping, funding, etc. Mr. Dermody interjected stating that R&D was trying to put money where the best needs are.

Ms. Lauren Collins, Airport Planning and Design, reviewed the research being performed within the project to include REDIM, Commercial Space, RIM Data, and Safety Database. Ms. Collins explained regarding the Commercial Space project she was working with AST on a final report to be completed by the end of the fiscal year. The Subcommittee asked if there was anything on the preliminary front for classification on airport types. Ms. Collins stated reports were being shared with AST. She explained Phase One was going over ARP and AST reports to see what was missed, and Phase Two is sharing information. Ms. Collins informed the Subcommittee R&D has a sponsor from 100 and the sponsor is aware of what was going on. The Subcommittee stated it would be helpful if R&D could share what was going on.

Ms. Shelley Yak, William J. Hughes Technical Center, introduced herself and informed the Subcommittee she was scheduled to brief the House Science Committee through telecon regarding the possibility of drastic reduction in appropriations. She stated there were a lot of activities going on and she felt lucky to speak before the president's budget becomes finalized, adding there was not much of an impact for this Subcommittee. Ms. Yak explained the focus has been collaborating across projects and the NARP, which was in redesign review now. She mentioned she was very pleased with the first version and feels it has a more strategic view of R&D. Ms. Yak informed the Subcommittee once the NARP is published she would like to have a discussion around it, and to use it for as a metric to what R&D was able to accomplish.

Mr. Keith Bagot, Airport Rescue and Fire Fighting, gave an overview of the project including review of the budget, the new Fire Testing Building and testing to be performed, review of the design construction concept for the Fire Testing Building, Compressed Air Foam Testing, Clean Agent Fire Testing, Thermal Balance, Input Based Proportion System, AFFF Crystallization, and ARFF Vehicle Performance Standards. He explained with the Compressed Air Foam Testing and there have been issues with Tyndall and disposal of the material after testing. Mr. Bagot explained for now they were performing small scaled testing and hoping to perform full scale testing later in the year. Mr. Bagot reviewed the new Fire Testing Building and presented the construction plans and testing to be performed. The Subcommittee asked if aviation has space comparable to the new Fire Testing Building. Mr. Bagot stated there were similar types of buildings for different purposes, but not in aviation. Mr. Bagot continued informing the Subcommittee the Clean Agent Fire Testing was completed and a draft report was sent to AAS, and was in review. He explained R&D may have to do a few more tests. Mr. Bagot continued explaining the Thermal Balance project come from a request from AAS at Headquarters, stating the NTSB was questioning piercing nozzles and technologies, and he was hoping for completion in July 2018. The Subcommittee asked Dr. Hovan if he had any concerns regarding the new Fire Testing Building. Dr. Hovan stated he was not concerned as long as the Airports Technology Research Branch receives the full proposed budget.

Mr. Paul Giesman, Aircraft Braking Friction Working Group Draft Plan Development and Proposal, began by giving an overview of the Working Group. He briefed the Subcommittee on NTSB recommendations and how they relate to the Aircraft Braking Friction Project. Mr. Giesman continued by presenting the Working Group Recommendations for the Aircraft Braking Friction Project. Dr. Hovan interjected stating the working group was formed a year ago, and there have been four meetings that have produced a white paper which was distributed to the Subcommittee. He explained the whitepaper contained a number of recommendations for future research and that was where it was at this time. Dr. Hovan stated R&D will want to reset and wait until August to discuss further to ensure this project was done correctly. Mr. Oswald asked Dr. Hovan if there was a thought to put together an overall program and budget or fill in the gaps. Dr. Hovan stated this was technical, and he had received it four weeks ago, and needed to revisit. Mr. Oswald asked if there was a cooperative exercise possibility. Mr. Giesman stated at this time, Airbus with their CORSAIR Project would be the best one to partner with. Dr. Hovan suggested presenting this to a bigger audience and receive feedback, and maybe the Subcommittee can make recommendations to present to REDAC by the end of the year. The Subcommittee agreed it was good to refocus with the issues that need to be examined. Dr. Hovan stated right now the project was on hold, and R&D needed to figure where this fits into the big picture.

Mr. Joe Breen, Trapezoidal Grooving, began by giving an overview of the project and review of the need for research. He explained the project was given to five potential contractors, and the FAA received one proposal. Mr. Breen continued stating Atlantic City International Airport was reluctant to have the runway open with test bed constructions, and offered R&D sixty days to do full scale testing. Mr. Breen explained R&D decided, due to the cost and time allotted; this project could not be justified, so it has been cancelled. The Subcommittee asked if testing can be done on a taxiway rather than a runway. Mr. Breen stated 130 knots would not be achievable on a taxiway, and that was what they were recommended to do. Mr. Oswald stated this seemed to be another project that would be good to put on hold with all the challenges put forth.

Mr. Jeff Gagnon, Overview of Pavements RPAs, began by reviewing the Technical Advisory Committee and stated he will review and update the Ten Year plan, and technical paper. He reviewed the 2017 recommendations form REDAC and gave an overview of projects underway. Mr. Gagnon stated the Ten Year plan was written five years ago, and a draft update was due in April. He continued by giving an update on the ASCE Conference stating there were 310 attendees and FAA R&D presented over 20 papers.

Dr. David Brill, Extended Pavement Life, began by giving a brief overview of the project, including current and future research to include PAVEAIR 3.0.

Mr. Oswald informed the Subcommittee if the Tech Center was closed due to inclement weather, the meeting would be cancelled and he would set up a telecon with the Subcommittee and the FAA leadership team.

Mr. Ben Mahaffey, Advanced Materials, began by giving an overview of the projects to include Heated Pavements and Geosynthetics. He presented the project budget and a list of published reports. The Subcommittee asked if the work being performed at the University of Nebraska was indoor or outdoor. Mr. Mahaffey stated they were trying to get inside the fence. Mr. Mahaffey continued with giving an overview of work being performed at Binghamton Airport, Des Moines and Des Moines, Iowa to include using the data collection to make more updated cost benefit ratios. The Subcommittee asked if Mr. Mahaffey was taking previous projects into his current assumptions. Mr. Mahaffey responded yes. The Subcommittee asked if Mr. Mahaffey was taking into consideration the life of pavement. Mr. Mahaffey responded yes. Mr. Mahaffey continued stating the radio frequency test concern at the last REDAC Meeting was performed, and to date it was showing zero effect on airport ops. He stated they were trying to get a definite approach, explaining to date R&D has been using a basic approach. Mr. Mahaffey reviewed the Phase Change Materials and presented future projects and the test bed project that is being performed at Purdue University. The Subcommittee asked if there had been any thought to full scale testing. Mr. Mahaffey stated it would have to be two slabs to cover a large enough area, possibly a gate area, explaining Binghamton was almost full scale. Mr. Mahaffey added that it would have to be large enough to compare manual snow removal methods as well. Mr. Jeff Gagnon stated there has been interest in airports if further research can be done. Mr. Oswald asked if there was a possibility of other airports participating. Mr. Gagnon responded by stating with funding it was hard to tell airports what they need to do. Mr. Mahaffey continued by giving an overview of the Geosynthetics project. He explained historically they have placed this between the subbase and base, and with

CC9 the plan was to place them between the subgrade and subbase. He explained the preliminary outcomes would be for AC Construction Specifications.

The Subcommittee asked if it was their place to approach airlines for participation, for airline-airport partnership. Mr. Mahaffey stated the biggest selling point would be the sustainability angle. The Subcommittee asked if the energy level was being measured. Mr. Mahaffey stated yes so he knows the cost for each slab, because energy consumption and costs are being measured. Mr. Oswald stated this is positive news.

Mr. Ryan Rutter, NAPTE, gave a brief overview of the program and informed the Subcommittee of activities currently being performed in the facility. He stated CC8 Overlay Testing was completed on February 1, 2018; currently they are performing Joint Comparison Testing and have completed 7,000 passes. Mr. Rutter explained after Joint Comparison Testing was completed they will start Strength/Fatigue Testing. Mr. Rutter continued by presenting the future Construction Plan and CC9 Objectives. He presented the plan and profile views of the Construction Plan, and pointed out where the Geosynthetics will be placed by highlighting the plots in red. Mr. Rutter reviewed the facility operations citing the roof of the facility will need to be coated due to leaks caused by age. He explained this will happen in two phases with Phase One being done this year, and Phase Two being completed next year. Mr. Rutter did emphasize that the building was twenty years old. The Subcommittee asked the cost of the roof repair. Mr. Rutter stated it costed \$450,000.00 for each phase.

Dr. Navneet Garg, NAPMRC/Field Instrumentation, began his presentation by giving an overview of the NAPMRC projects and Test Cycle One Objectives and Results. He explained for Test Cycle Two there will be a focus on cracking. Dr. Garg informed the Subcommittee the finding from Test Cycle One were published for a TRB paper. Dr. Garg continued by presenting the Test Cycle Two Objectives and explaining the testing methods. He stated R&D was hoping to have Test Cycle Two construction completed by summer and testing will resume immediately after construction completion. Dr. Garg highlighted the work being performed with Texas A&M, and stated it was ongoing. He informed the Subcommittee of an analytical tool developed by Texas A&M called PANDA AP. He explained the first phase should be commercially available software. The Subcommittee asked if the goal was to make the tool part of the design procedure. Dr. Garg stated yes that was the ultimate goal. Dr. Garg continued giving an overview of the Field Instrumentation project at Philadelphia International Airport, and the performance specifications project R&D was working on with Rutgers.

Cybersecurity Discussion, the presenters informed the Subcommittee the reason this project was started was due to huge issues with airports data, and concerns how airport backbones are feeding the NAS. The presentation continued, stating in 2016 there was a Congressional Act section 2111e, explaining they were given one year to begin, and this began in April 2017 with all the businesses of the FAA. The presenters gave an overview of the framework including looking into the funding for UAS requirements. They explained the flight data exchange will start in a few months and is fully funded, adding the critical part was finding partnerships that are required in the Congressional Act. The presenters stated they have developed a plan and are working closely with ICC to ensure synergy, and are looking to REDAC recommendations to identify gaps. The presenters explained they are looking at the whole approach in addition to looking to work here at the Tech Center to address gaps that were identified. The presenters explained the feedback

received is not clear if this is a FAA issue or airports issue. The presenters continued by giving an overview of the Next Gen Big Data Platforms New Requirement, and they are working with Lincoln Labs and Carnegie Mellon. They stated the focus is on emerging consumers, internal mission support, then moving into NAS.

The presenters informed the Subcommittee of the requirement brought by the Chief Scientific Advisor for Commercial Space, stating that UAS Standards have to be validated and approved. They explained they have sponsors, but don't have the funding. The presenter explained there was a UAS Round Table and this was identified as a need. They continued with Human Factors and gave a brief overview of the research planned, including the questions how does a pilot react to a cyber-attack, and how does a pilot know when there was a cyber-attack. They have been working with Michelle Yakes from Honeywell and Florida Technology on cyber information and the question of how do pilots react when information is wrong. The presenters continued by giving an overview of the funding for the next five years, adding that beyond FY19 was in flux and there were requirements brought to them that were both funded and not funded. Mr. Oswald stated there were so many touch points with this, such as: looking into NAS systems, making sure threats were reduced, and what the ramifications of the touch points were. He suggested to the presenters to reach out to airport CIOs to gain some insights. The Subcommittee stated they can take an action to reach out to their airport contacts.

Mr. Oswald said he wanted to comment on Ms. Lauren Collin's Noise Annoyance Survey. He explained that this will be reviewed by the FAA and be published, and he understood it will be between now and the next Subcommittee meeting. Mr. Oswald stated there were going to be big policy issues that come out of this and it will be highly publicized, adding at the next meeting the Subcommittee may have a lot more to talk about.

Mr. Jim Patterson, UAS Discussions, began his presentation stating R&D has started the initial research effort and the important airport topics include pavement, wildlife, security, and ARFF. He explained the foundation work consisted of taking inventory around the country and activity at different airports. Mr. Oswald stated reach out to Subject Matter Experts and ways to get airports involved. Mr. Dermody stated if the Subcommittee knew of other airports that were working with the FAA that would be helpful as the Best Practices are being pulled together. Mr. Oswald asked if Safe Skies were participating. Mr. Patterson informed him they were, and Mike DiPilato was on that committee. Mr. Oswald stated he saw a lot more foundation work to be done, and envisioned five separate working groups to address each component. He explained there were lots of announcements with detection emerging, and that seemed to be more of a fast track issue. Mr. Patterson stated the solution was multi-layered and UAS integration submitted 2206 to Congress and hopefully that gets pushed through. Mr. Patterson stated the next question was technology and who takes that over, explaining there were lots of implications as far as privacy rules with camera and audio technology. The Subcommittee asked how the current parameters were working. Mr. Patterson stated there was no way to know if rules were being followed. He explained R&D was involved in the initial development of the grids for Atlantic City International Airport, and Mr. Dermody's office was involved with bigger airports, and the users were having trouble with numbers for permissions. Mr. Patterson stated more was on the way to make that web based, but it remained a big issue on the policy front. Mr. Patterson stated the funding for the future was stable, and if there were some pop up requests more money may be needed.

The Subcommittee discussed and agreed that due to the impending weather there will be no meeting Wednesday, March 21, 2018. Mr. Oswald asked the Subcommittee to send him ideas for future research needs via email and he will set up a telecom for the Subcommittee to discuss. The Subcommittee scheduled the next meeting for August 20-21, 2018, in the same location. The Subcommittee scheduled the 2019 meeting for March 5-6, 2019.

Meeting adjourned 5:15p.m.

**Research, Engineering and Development Advisory Committee
PPT Briefing to Sub-committee on Airports: March 20-21, 2018**
Technical Center Director's Conference Room

DAY 1 – March 20, 2018

Time	Presenter(s)	Topic
9:00 am	Christopher Oswald <i>ACI-NA, Subcommittee Chairperson</i>	Introduction
9:15 am	Eric Neiderman <i>Manager, Aviation Research Division</i>	Aviation Research Division/Welcome
9:20 am	Michel Hovan <i>Manager, Airports Technology Research Branch</i>	ATR Update
9:30 am	John Dermody <i>Director FAA Office of Airports Safety and Standards</i>	HQ Update
10:00 am	Subcommittee Members and FAA	Review of REDAC Recommendations
10:30 am	Jim Patterson <i>Airport Safety R&D Section Manager</i>	Overview of Safety RPA's
10:45 am	Break	
11:00 am	Lauren Collins	RPA S1- Airport Planning and Design RPA S2 – Airport Safety Data Mining 10 Year Planning & Environmental Research Plan
11:30 am	Keith Bagot	RPA S3 - Airport Rescue and Fire Fighting
12:00 am	Working Lunch	
12:30 pm	Mike Dipilato/Jim Patterson	RPA S4 - Wildlife Hazard Mitigation
1:00 pm	Nick Subbotin/Holly Cyrus/Mike D.	RPA S5 - Visual Guidance (LED's, Markings)
1:30 pm	Paul Giesman	RPA S 6- Aircraft Braking Friction Working Group White Paper Presentation
2:30 pm	Joe Breen	Trapezoidal Groove Project Update
2:45 pm	Mike Dipilato	RPA S9 - Airport Research Taxiway
3:00 pm	Break	
3:15 pm	Lauren Collins	RPA N1-5 - Noise Programs RPA E1 - Airport Environmental Research
3:45 pm	Chuck Agava	Cybersecurity RD Plan and Airports Discussion

4:15 pm	Jim Patterson	UAS Discussions
4:45 pm	All	Overall Discussion
5:00 pm	Adjourn	

DAY 2 –March 21, 2018

Time	Presenter(s)	Topic
9:00 am	Jeffrey Gagnon	Overview of Pavement RPA's <i>Update to 10-Year Airport R&D Pavement Plan</i>
9:30 am	Ryan Rutter	RPA P1 - NAPTF
9:45 am	Navneet Garg	RPA P2 - NAPMRC
10:15 am	Navneet Garg	RPA P3 - Field Instrumentation and Testing
10:30 am	Break	
10:45 am	Murphy Flynn	RPA P4 - Advanced Materials
11:00 am	David Brill	RPA P5 - Pavement Design and Evaluation
11:30 am	Working Lunch	Long-Term Research Needs
1:00 pm	Michel/Jeff	RPA – FACILITIES - Updates <i>Fire Safety Testing Facility</i> <i>Pavement Laboratory Addition</i>
1:15 pm	Albert Larkin	RPA P6 - NDT Technologies
1:45 pm	Qingge Jia	RPA P7 - Software Program Development and Support
2:00 pm	Dave Brill	RPA P8 - Extended Pavement Life
2:30 pm	Sub-Committee members	REDAC Recommendation(s)
3:00 pm	Adjourn	

Research, Engineering and Development Advisory Committee (REDAC)
Subcommittee on Airports
W/S 2018

March 20, 2018

Name	Affiliation
Keith Bagot	FAA TC
Nick Subbotin	FAA TC
Mike Dipilato	FAA TC
Jonathan Torres	FAA TC
David R. Brill	FAA TC
Qingge Jia	FAA TC
Navneet Garg	FAA TC
Benjamin M.	FAA TC
Ryan Rutter	FAA TC
Richard Ji	FAA TC
Jeffrey Gagnon	FAA
Murphy Flynn	FAA
Gary Mitchell	ACPA
Jeffrey Sedin	ALPA
Richard Mendell	FAA
Matt Griffin	ACC
Scott Marsh	PANYNJ
Vicki Ahlstrom	FAA
Michel Hovan	FAA
Eric Plyer	CSRA
Emilio Lopez-Centellas	CSRA
Erin D.	CSRA
Holly Cyrus	FAA
Scott Murrell	ARA
Lauren Collino	FAA
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Chuck Agava	FAA
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