

**REDAC Subcommittee on Airports  
Summer/Fall Meeting 2015 - August 25 – August 26  
Meeting Minutes**

*Day One*

*Tuesday, August 25<sup>th</sup>*

*Introductions*

Meeting formally started at 12:50 p.m. with opening remarks by Mr. Christopher Oswald, Subcommittee Chairperson. Mr. Oswald thanked everyone for attending and introductions of Subcommittee members and attendees were made. Mr. Oswald explained the key charges for this meeting are to review the FY16 budget and look forward to FY17 and FY18, provide recommendations, and review current project status. He proceeded to inform the Subcommittee of the vacancies in membership spots and the necessity to fill them. Mr. Oswald asked if anyone had suggestions for nominees, along with their qualifications to please forward them. He explained the final decision on Subcommittee spots is decided upon by headquarters.

**Dr. Michel Hovan, Airports Technology R & D Branch Manager**, introduced himself and welcomed Subcommittee members and attendees. Dr. Hovan proceeded by explaining to the Subcommittee he sees the objectives of this meeting to receive feedback and recommendations. Dr. Hovan explained the FY17 budget is stable and he would like to see the FY18 budget looked into and develop a portfolio. He gave an update on the R & D contract, stating it had expired on June 30, 2015 and the new contract has been awarded to SRA International, Inc. Dr. Hovan informed the Subcommittee the program has been extremely busy coming up with new work and spending FY15 dollars. He touched on the subject of personnel changes and stated that Jeff Gagnon will give a more detailed explanation during the Pavements presentation. Dr. Hovan stressed that he is aware of personnel vacancies and the length of time it has taken to fill them. He explained they are waiting for the right person with the right expertise. Dr. Hovan continued by reiterating his belief of the need to move away from RPD's and regroup into RPA's, as he explained in the April meeting. Dr. Hovan presented a chart as an example to the Subcommittee to show the difference in project groupings and how it would be more logical. Dr. Hovan informed the Subcommittee he has submitted the request for regrouping and is awaiting a decision.

**Mr. Dennis Filler, Technical Center Director**, spoke briefly informing the Subcommittee of the looming chance of sequestration. He strongly suggested filling any personnel vacancies. Mr. Filler explained he does not know the effects of the sequestration but is almost assured it will not be like the previous time. Mr. Oswald inquired if R & D will be affected due to funding coming from AIP. Mr. Filler explained everything is uncertain. He suggested everyone be aware, prepare and understand the possible impacts that could affect the program. Mr. Filler addressed the Subcommittee and the R & D program stating to "keep the course" and "seize opportunities." He thanked the Subcommittee for their support and explained he doesn't feel there are a lot of issues or concerns. Mr. Filler responded to Dr. Hovan's request to regroup from RPD's to RPA's and stated his belief that as long as it's logical and transparent it should not cause an issue.

**Mr. John Dermody, Manager, FAA Office of Airports, Safety and Standards Division, AAS-100**, began by stating he is interested in the Extended Life Pavements projects. He explained

most AIP funds go to Pavements projects. Mr. Dermody expressed the need for “getting the word out there” on what is done at the R & D branch and highlighting the research that has already been done. He proceeded to inform the Subcommittee of a new vendor for the EMAS-Arrestor System and it has been installed at Chicago-Midway Airport. Mr. Dermody explained the vendor is looking to manufacture its product in the United States. He explained the funding for installation at Chicago-Midway was paid for by the airport. Mr. Dermody stated he thinks EMAS beds need to be looked into further. He explained at most airports the systems are 10 -12 years old and will need to be replaced in the near future. Mr. Dermody proceeded with commenting on the lighting/signage projects stating the R & D branch at the Technical Center has completed a lot of research and installation. He explained the project is moving forward and the goal is to revise the Advisory Circular for construction on airports. Mr. Dermody talked specifically on the Approach Hold Sign project and explained current standards being used. He informed the Subcommittee this was a project request from HQ. Mr. Dermody informed the Subcommittee the R & D branch has installed signs at three airports across the country and the feedback has been very successful and could possibly lead to a change in standards. Mr. Dermody proceeded by speaking on the LED Research, specifically the cost benefits and less power consumption. He also spoke to the negative aspects which are the lights are too bright and there are reports of pilots being blinded by them. Mr. Dermody explained this is all part of the research and all issues will be looked into. Mr. Oswald asked if Mr. Dermody sees anything coming out of Airport Planning, specifically looking at construction at airports and why projects fail, what’s the process and where are the problems. Mr. Dermody responded by stating yes all those factors will be looked into, to find out whether the problem is coordination or communication. He stated they are also looking at airport safety, efficiency, continuity of operations. Mr. Dermody explained the goal would be to see changes in the current processes.

### ***Review of REDAC Recommendations – Update***

It was explained to Subcommittee members this was just a review and these recommendations would stay open until the next meeting.

**Airport Planning** – it was discussed with the regrouping proposed by Dr. Michel Hovan; this project will be more clearly defined. It was stated work has been done, funding has been limited. The Subcommittee agreed with the regrouping of funding will be better shown and understood. The Subcommittee discussed amending the recommendation to state that R & D will brief the Subcommittee on a regular basis.

**ATR-Safety and Capacity vs. Noise Mitigation** – the Subcommittee did not have any issues or concerns at this time and will readdress next meeting.

**Low Cost Ground Surveillance Systems** – the Subcommittee agreed this was a positive project and needed further discussion.

**Aircraft Braking Friction** – this project was appeared to be back on track and the Subcommittee agreed it was pleased at this point with the direction it is going.

***P. M. Break - 2:30p.m. - 2:45p.m.***

***Presentations Commence 2:45p.m.***

***Mr. Jeffrey Gagnon, 2015 Pavement Projects + Plans for FY-16-17***, began his presentation by giving an overview of the pavements projects and plans as well as the budget for FY15, 16, and 17. Mr. Gagnon informed the Subcommittee of personnel changes, explaining the support contract award should increase the workforce by approximately forty individuals. He also informed the Subcommittee of the resignation of Mr. Charles Ishee on May 1, 2015 and explained the FAA is looking to hire two Civil Engineers, one at GS-12/13 Level and one at GS-13/14 Level. Mr. Gagnon proceeded to inform the Subcommittee the FAA looking to partner with ASCE for the Airfield and Highway Pavement Conference plus Safety scheduled for summer 2017. Due to Mr. Ishee's absence, Mr. Gagnon gave an update on the Heated Pavements project. He reviewed the ongoing projects with PEGASAS and Iowa State, Purdue University and Binghamton Airport. He explained the project is waiting on a report from Binghamton Airport to look at actual costs of running the Heated Pavement system. The Subcommittee inquired where the systems would be most beneficial. The PEGASAS representative assisted Mr. Gagnon by stating they are just looking to install this system at the ramps and he informed the Subcommittee the information that has been collected so far has proven the system to be cost effective at the ramp locations. Mr. Gagnon agreed to send correspondence of work related to this project by PEGASAS to all Subcommittee members for review.

***Dr. David Brill, 40 Year Design Life Initiatives (Updates)***, Dr. Brill began his presentation giving a recap of the rationale and outcomes the project wants to achieve. He also reviewed the FY15-FY17 spending plan. Dr. Brill updated the Subcommittee with review of data collection explained the project is a four year project and year three is now completed. Dr. Brill reviewed the FAA PAVEAIR Implementation and explained how the data will be stored and accessible for review when completed. He presented the PA40 Organization Concept and Current Work charts explaining the current functionality and the functionality being added. Dr. Brill ended his presentation informing the Subcommittee of 2015-16 R & D Plans including choosing up to four runways for additional field data collection, to fill gaps in current database, and develop access to traffic data in PA40.

***Dr. Navneet Garg, National Airport Pavement Materials and Research Center***, Dr. Garg began his presentation by reviewing the budget and stated the budget plan has not changed from the last meeting. Dr. Garg gave a review and update on the HVS and reviewed the tests that have been performed and reviewed the test results that were delivered at the spring meeting. He proceeded with a review of the upcoming testing that will be performed in the NAPMRC facility, informing the Subcommittee testing will begin in September 2015. Dr. Garg outlined the experiment plan to be used with the UCPRC Grant stating that the Binder Testing has been completed, the FAM Testing is due November 2015, Mix Testing is due December 2015 and the report is due February 2016. Dr. Garg stated the goal of this testing would be to develop guidelines and standards to be used at airports. The Subcommittee raised a concern that this project is taking and using old information, therefore going to get the same results. The Subcommittee stated the need for Dr. Garg get new materials to achieve getting new information. Dr. Garg responded informing the Subcommittee he is working with airports to get new materials when new construction occurs but also stated how limited that is. The Subcommittee inquired how long it takes to complete a full testing cycle. Dr. Garg explained it may take up to a full year to complete a testing cycle. Dr. Garg proceeded by explaining the

future research plans to the Subcommittee including Laboratory Testing, Full Scale Testing at the NAPMRC facility, and Field Projects. Dr. Garg proceeded by informing the Subcommittee of the HVS-IA (Heavy Vehicle Simulator International Alliance) meeting which was held at the FAA's facility. The HVS-IA is a voluntary association of HVS users that was established to promote communication and sharing of tests and results. He explained the Technical Center's HVS is one out of only two which have the ability to perform Simulate aircraft loading.

**Mr. Murphy Flynn, New R & D Facilities Update, Geosynthetics R & D Update, Construction Cycle 8 Update,** Mr. Flynn began his presentation with a review of the new facilities planned for 2017 and beyond and the process to obtain permissions and proceed with construction of the new facilities. He informed the Subcommittee that the R & D branch will no longer have to go through the Environmental Assessment for new construction and as a result it will speed up the approval process. Mr. Flynn continued with a Construction Cycle 8 update explaining it was stuck in transition due to the current support contract ending and waiting for new support contract to be awarded. He provided slides showing different phases of construction, instrumentation installation, and material sampling. Mr. Flynn informed the Subcommittee of a small scale Geosynthetics testing including the Objective of the project, approach, construction and instrumentation. He presented slides reflecting the Layer Deformation Plots and Forensics of tests performed. Mr. Flynn presented a graph of the results and explained the goal is to develop performance based specifications. The Subcommittee asked what has been reflected so far in reference to the data collected. Mr. Flynn responded to this date results have been promising.

**Dr. Navneet Garg, Full Scale Testing – Perpetual Pavement - Update,** Dr. Garg began his presentation with CC7 Objectives stating it is comprised of two parts, including overload which Dr. Brill will speak of during his next presentation. Dr. Garg supplied a definition of Perpetual Pavement to the Subcommittee and explained the primary objectives of CC7 are to verify/refine/modify fatigue model based on the rational of dissipated energy change for flexible pavement. He presented slides showing cross sections of different pavement sections. Mr. Garg proceeded to explain the instrumentation used including H-Bar Strain Gages (ASG), Multiple Depth Deflectometers (MDD), and Fiber Optic Strain Plates and provided slides showing the installation. Mr. Garg reviewed the project results providing graph slides for the Subcommittee to review. He informed the Subcommittee that perpetual pavement testing will begin again in the fall and go through the winter.

**Dr. David Brill, Full Scale Testing, Overload - Update,** Dr. Brill began his presentation reviewing the CC7 Overload Test Objectives and explaining the current ICAO Overload Criteria. He presented the CC7 Test Item Layout, CC7 Overload Test Items, and Instrumentation Layout. Dr. Brill explained the general test procedures for both ACN-Based and CDF-Based overload test items. He gave the Subcommittee the definition of "Stable" as referenced for testing as an approximately constant rate of total rut depth accumulation with applied passes, following any initial shakedown phase. Dr. Brill presented slides with the overload schedules and test summary as of August 10, 2015. He continued his presentation by explaining rut depth monitoring and provided pictures showing how it's performed. Dr. Brill presented results of rut depth monitoring for two, four, and six wheel overload tests using both the rail-to-rail profiler and straight edge. He informed the Subcommittee of the preliminary observations and explained that testing is still in progress and testing will continue until all test

items have failed. The Subcommittee inquired when this information will be available. Dr. Brill responded it could take up to a year to analyze all the data.

**Mr. Al Larkin, Pavement Roughness & Inspection,** Mr. Larkin began his presentation reviewing the project outline and stating the budget plan has not changed since the meeting. He gave an overview of the runway intersection research performed at Purdue and Ohio State Universities. Mr. Larkin presented the findings and provided graphs explaining the process for the findings. He provided the Advisory Circular standards for intersecting runways and standards for testing. Mr. Larkin suggested a review of applicable FAA Advisory Circulars which provide varying guidelines. Mr. Larkin continued his presentation explaining to the Subcommittee the various abilities of the NDT van Right-of-Way camera and possible uses. He suggested the possibility of using the camera for airport inspections and presented examples of what the camera could capture. Mr. Larkin continued by the process for self-inspection and pavement inspection criteria standards from the Advisory Circular. He asked the Subcommittee their opinion on whether this could be useful. The Subcommittee asked if Mr. Larkin is thinking about putting forward a concept of use. Mr. Larkin responded not at this point. The Subcommittee suggested talking to Airport Operations personnel to see if it would be useful. The Subcommittee also commented that having a permanent record from one inspection to another is a positive assets and having a permanent record would help maintain inspection consistency. The Subcommittee questioned the cost of the camera and Mr. Larkin stated the camera is inexpensive at \$100. The Subcommittee agreed that there are issues with the inspection process but they are not sure if the issues warrant the suggested research.

**Meeting adjourned 5:10 p.m.**

**Day Two**

**Wednesday, August 26, 2015**

**Meeting commenced at 9:00a.m.**

**Mr. Jim Patterson, 2015 Safety Projects + Plans for FY-16-17,** Mr. Patterson began his presentation by giving an overview of the current and upcoming Safety projects. He spoke on the budget reiterating what was discussed in the spring meeting noting that nothing has changed. Mr. Patterson informed the Subcommittee SRA International, Inc. has been awarded the new Support Contract and continued by stating the FY15 major projects currently in progress such as: Airport Noise, Aircraft Braking, EMAS and RSA Signage. He informed the Subcommittee there have been a total of nine new reports published in the past 12 months, and four of those have been since the last REDAC Meeting, along with seven in the draft phase. Mr. Patterson ended his presentation asking if anyone had any questions. The Subcommittee agreed they were satisfied with his update presentation.

**Mr. Robert Bassey, Research Taxiway, Low Cost Ground Surveillance Radar, Airport Construction Signs,** Mr. Bassey began his presentation with the Cape May County Airport Project, informing the Subcommittee the agreement between the FAA and the Delaware Bay and River Authority, in which they “granted FAA the right to construct, operate, and maintain research infrastructure at the Cape May County Airport (WWD).” He explained the objectives of the project are to rehabilitate former Taxiway C to develop a state of the art research bed, allow for other safety and pavement research needs to be conducted and have the taxiway be utilized by the airport when the FAA is not conducting research. Mr. Bassey informed the Subcommittee the construction contract was awarded in June 2015, and protested. He explained the protest was denied and construction will likely begin in fall 2015.

Mr. Bassey continued by giving an update on the Construction Sign project. He reviewed the airports where signs were installed and the versions of Construction Ahead and Construction on Ramp signs used. Mr. Bassey informed the Subcommittee the findings for the Construction Ahead sign project was satisfactory with 90% of the 109 respondents agreeing the sign adequately notified them of the existing construction. He also informed the Subcommittee the findings for the Construction on Ramp project were equally as satisfactory with 94% of the 51 respondents agreeing the sign adequately notified them of the existing construction. Mr. Bassey continued by reviewing the findings of the Take Off Run Available project as well, stating the 89% of the twenty-seven respondents strongly agreed the signs adequately notified them of existing construction. He stated based on the findings, it is advised the Advisory Circular 150/5370-2 be updated to include temporary safety orange construction signage as a visual aid. He included and update with conclusions of the other signs projects stating Construction on Ramp signs and Construction Ahead signs are recommended to be placed at locations leading to ramps and other areas with construction activity. Mr. Bassey concluded stating TORA signs be placed at runway entrances to display current takeoff run available and reiterated the findings that were explained in the spring meeting, which is the acronym TORA should not be used in the sign design. The Subcommittee commented construction signs at airports should be made mandatory and they would like the findings to be carried up through the process.

Mr. Bassey continued with his presentation with the Low Cost Ground Surveillance project he informed the Subcommittee based on their recommendation, a cost evaluation is being developed and should be ready by June 2016. He reviewed the update from the last meeting stating the Phase 1 installation of the Optical Sensor System at Seattle (SEA) is operational and they are very pleased with it so far. Mr. Bassey informed the Subcommittee the airport is hoping to use it to complement its current systems. The Subcommittee asked if R & D was sharing the Proof of Concept. Mr. Bassey stated not at this point but they are in constant communication with Seattle, and hoping the system will be able to be integrated with other project currently in progress. He updated the Subcommittee on Orlando (MCO) stating a similar system to what is installed in Seattle will be installed at MCO in October 2015. Mr. Bassey explained some shortfalls have been identified in the Optical System installed at SEA. The solution has been complimenting it with short wave radar, and that is what will be installed along with the Optical System at MCO. The Subcommittee asked the location of the installations and Mr. Bassey informed them the installation is at the ramps.

The Subcommittee was pleased with the update and Mr. Bassey proceeded with his presentation introducing AeroMACS (Aeronautical Mobile Airport Communication System) field trial. He explained AeroMACS will provide licensed and protected wireless services to aviation users for specific uses in FAA ATC, Airlines, and Airport Operators. Mr. Bassey stated some benefits from this system would be quality of service, security, authorization, and verification. He informed the Subcommittee Boston Airport is interested in the AeroMACS System and they are looking at the downsides, such as weather effects, fraud, etc. He stated non-operational evaluation of this system could take up to two years to complete. Mr. Bassey stated the testing will be performed on non FAA assets; they are concentrating specifically on non-federal use. The Subcommittee asked if there was a failure mode to this system should something become unreliable. Mr. Bassey responded yes and how to operate and that mode in Airport Operations sector will be looked into. The Subcommittee agreed there could be a huge opportunity for this system to be used with airlines and Airport Operations. The Subcommittee suggested Mr. Bassey look into airline application as well. The Subcommittee agreed with Mr. Bassey that

this is a huge undertaking but is also a huge opportunity. Mr. Bassey explained the overall goal is for this system to be utilized for airport operations.

**Ms. Lauren Vitagliano, Airport Noise, Safety Database, RIM,** Ms. Vitagliano began her presentation with an update on the Aircraft Noise and Annoyance Project. She reiterated the objectives and goal of the project. Ms. Vitagliano reviewed the phases of the project, informing the Subcommittee Phases 1 & 2 are complete and Phase 3, data collection, is expected to take one year with over 12,000 surveys being distributed to over 20 airport area locations. Ms. Vitagliano highlighted since March 2015, OMB approved the survey package on April 27, 2015. She continued the presentation with a press release from FAA on May 7, 2015 stating the FAA will re-evaluate method for measuring effects of aircraft noise. Ms. Vitagliano cited examples of the issues with airport noise via media headlines. She informed the Subcommittee of a direct contract awarded to HMMH on July 2, 2015, a July 27, 2015 kick off meeting which included AEE policy personnel in which they discussed analysis and annoyance responses and associated variables. Ms. Vitagliano explained ARP and AEE are working on a communication plan. She informed the Subcommittee of next steps, which include finalizing variable to be tested during analysis and to decide on whether to merge data with sound insulation data. Ms. Vitagliano stated sampling to begin by end of August 2015.

Ms. Vitagliano continued with presenting Airport Safety Database project updates. She reviewed the overview of the project stating there are a total of 752 airports within the database also stating it continues to be an asset to the Office of Airports. Ms. Vitagliano reviewed the Final Draft Report findings from 2008-2014 noting there were 555 total events at 217 airports which included; 99 wrong runway departures, 227 wrong runway landings, 61 taxiway departures, and 118 taxiway landings. The Subcommittee asked who is reporting these events. Ms. Vitagliano responded reporting came from pilots, ATC, and runway incursion reports. She explained Next Steps of the project are to expand data sources, explore using metrics for analysis and predictive risk assessments, to conduct annual Risk Reports as requested and overhaul the database interface to make it easier for inquiry and reporting.

Ms. Vitagliano proceeded with the RIM (Runway Incursion Mitigation) project. She gave an overview and reviewed the Problematic Taxiway Geometry Study and the results. Ms. Vitagliano informed the Subcommittee Phase 1 is complete and cost estimates were due August 24, 2015. She also stated she is planning on having a total cost for the project by September 30, 2015. Ms. Vitagliano reviewed the details of the FAA HQ Dashboard and the data expected to be “pulled in”, including “hot spots”. The Subcommittee asked if there was an actual definition of a “hot spot”. She responded there is not but R & D is working closely with AT Runway Safety to determine a definition and believes criteria is needed. The Subcommittee expressed the goal is to alert pilots and it should be left subjective. The Subcommittee stated is it needs be too vague and it should be left up to the individual airports to determine the “hot spots” at their respective locations. Ms. Vitagliano reviewed the Next Steps which included Phase 1 deployment will be November 2015, training seminars late 2015 and Phase 2 deployment early 2016. The Subcommittee stated there is a need for a briefing packet to explain what RIM means and how it fits into overall airport safety. The Subcommittee suggested expanding to include interviews with pilots and the operator communities after the mitigations have occurred.

**Mr. Don Gallagher, Rumble Strips,** Mr. Gallagher began his presentation stating the FAA has partnered with PEGASAS Center of Excellence for this project. He explained the types of strips used in the testing: temporary, saw cut, and thermoplastic. Mr. Gallagher explained the pros

and cons of all types that were tested at the Purdue Airport and the types of tests that were performed. He explained the Data collection process consisted of Quantitative Assessment using 3- axis accelerometer on aircraft. Qualitative Assessment rating by researcher on aircraft, video documentation, and the range of speeds these tests were performed. Mr. Gallagher informed the Subcommittee of durability tests that were performed in April 2015 by Purdue university students and the results that were presented. Mr. Gallagher mentioned the outreach and engagement they are working on for this project including the TRB Conference and PEGASSAS Annual Conference. He informed the Subcommittee of a briefing and site visit to Columbus Airport in May 2015 where they met with Textron Advanced Design Director, Travis Cotrell and Rod Borden, Chief Operating Officer at Columbus Airport. Mr. Gallagher explained through that outreach they obtained instrumentation on loan from Textron that can be placed under passenger seats to test any vibration the strips may cause. He proceeded informing the Subcommittee of the findings of test performed with each of the Rumble Strips. The Subcommittee agreed it is a good project and it is needed. The Subcommittee inquired if there is any talk about testing nose landing gear on transport aircraft. Mr. Gallagher stated it needs to be looked into. The Subcommittee suggested the possibility of using the Rumble Strips in the RIM project as a possible solution. The Subcommittee also asked where the strips will be placed. Mr. Gallagher informed the Subcommittee the strips are looking to be placed 150 ft. from the hold position. He stated that is where the enhanced markings start, adding that could change depending on the airport, but for most airports they feel it will work. The Subcommittee asked if the project was looking at different configurations based on the size of the aircraft. Mr. Gallagher responded yes because a lot depends on wheel size. The Subcommittee was pleased with the presentation and progress of the project.

**Mr. Nick Subbotin, Arrestor Systems,** Mr. Subbotin began his presentation with an update on the EMAS bed installed at Chicago-Midway Airport. He stated it is being monitored and was found that there are some cracks on the top surface and there are some MMA adhesion issues. Mr. Subbotin explained these are minor and could be a result of weather conditions during the installation process. He addressed the concerns raised with the foam glass being abrasive and the findings are there are no concerns of abrasion with the foam glass. Mr. Subbotin informed the Subcommittee they have been working with UTC Aerospace about materials that are used for beds and stated UTC has sent samples of the beds for comparison. Mr. Subbotin presented pictures of an evacuation slide durability test that was performed. He explained two large slides were used and a target of ninety deployments was met to test material for changes. Mr. Subbotin informed the Subcommittee the materials held up extremely well and there were no alarming changes. Mr. Subbotin continued informing the Subcommittee Midway Airport has plans to install two additional beds in the fall of 2015. He assured with this installation there will be improvements from the previous bed installed. Mr. Subbotin proceeded with the EMAS Markings presentation. He explained this presentation is a review from last meeting. He gave a review of the project and explained the project was a request from HQ to look at distance remaining signs. Mr. Subbotin reviewed for the Subcommittee the types, colors, and sizes of signs that were tested. He showed examples of the signs as well as informing the Subcommittee the concept signs we constructed “in-house”. He reviewed the different scenarios and presented slide presentations for the Subcommittee along with the installation of Runway distance remaining signs installed as ACY. He informed the Subcommittee the Final Report is in the Draft review phase.

**A.M. Break – 11:05 a.m. – 11:20 a.m.**

***Presentations Commenced 11:20 a.m.***

***Mr. Keith Bagot, ARFF Program Update,*** Mr. Bagot began his presentation by reviewing the current Firefighting research areas. He gave a review of the new ARFF Vehicles and the procurement of the new vehicle along with the specifications. Mr. Bagot reiterated from the last REDAC meeting the vehicle procurement award was granted in September 2014, assembly is scheduled for fall 2015 and he is hopeful by next meeting in 2016, the vehicle will have been delivered. Mr. Bagot review the specifications of the Fire Test Building Retro fit including the testing agents that will be used. He presented pictures of the location of the facility and stated FAA received approval for location on May 19, 2015, as well as informing the Subcommittee the FAA obstruction evaluation was approved on July 22, 2015. Mr. Bagot explained the current efforts are working on finalizing A & E design statement of work and determine if any pollution prevention equipment would be required to meet the standard under the Clean Air Act. Mr. Bagot continued by reviewing the status of the L1101 Aircraft. He stated the transition and testing cycle of the lower chamber have been completed and they have started the transition on the upper chambers. Mr. Bagot continued by presenting a review/update on Thermal Imaging and FLIR. He presented slides showing the types of cameras used for this testing and presented comparative pictures of what can be captured during a fire test. Mr. Bagot stated the technologies for this are inexpensive and it is time to start looking at them and how they perform. He then informed the Subcommittee of the published reports since last meeting and stated they are on the website.

***Mr. Joe Breen, Trapezoidal Grooving, Aircraft Braking, In-Pavement Light Bolt Frangibility,***

Mr. Breen began his presentation reviewing the REDAC Subcommittee Finding that “the branch be in a good position to collect high quality data in FY16.” The response to the recommendation is “anticipate R & D will be ready for all aspects of braking friction testing by mid-September 2015.” He reviewed the project objectives, aircraft parameters related to braking friction. Mr. Breen informed the Main Landing Gear upgrade has been completed and the data acquisition system upgrade is it final stages. He informed the validation testing for the upgraded braking system took place on May 20, 2015. He presented slides showing the control system for the upgraded braking system and the data display screens. Mr. Breen explained the new system can collect real time performance including wheel slip, wheel pressure, and wheel temperature. Mr. Breen informed the Subcommittee R & D has an agreement with ACY to perform snow and ice testing winter of 2015. He did acknowledge with that testing there will be speed limitations due to it being at the airport. Mr. Breen also stated R & D is planning on performing tests on manufactured snow again for the winter of 2015. He reviewed the MU Slip proof of concept with Nose Gear Braking. Mr. Breen reviewed the long term objectives of the project and presented the project schedule. He continued to inform the Subcommittee of recent accomplishments, including the installation and validation of the upgraded braking system, the installation and testing of the Programmable Servo and Diverter Valves, installation and testing of new motion controllers for control of programmable valves on both Nose and Main Landing Gear. Mr. Breen also informed the Subcommittee then aircraft Fire Detection and Fire Suppression systems are fully operational. He explained to the Subcommittee with all the upgrades complete all winter testing will be complete and all data will be collected. Mr. Breen stated after data is analyzed a new algorithm will be developed. He continued with informing the Subcommittee of the CRDAs and Development agreements with Team Eagle of Ontario, Canada. Mr. Breen explained Team Eagle will be participating in the winter testing with their

Braking Availability Test Vehicle (BAT) and ESCO Zodiac Aerospace of Logan Township, New Jersey will be participating in the Braking Action Safety System (BASS) using the FAA Global 5000. The Subcommittee asked if there were an unanticipated cost over runs or problems from last meeting. Mr. Breen explained there were not due to the fact the funds for the upgrades were already allocated. Mr. Breen stated the plan is to start testing in September-October 2015 for wet surface. He also explained ACY has an addendum in their snow/ice removal plan to allow for testing and they have been very supportive.

Mr. Breen proceeded with his presentation on Trapezoidal Grooving Project pointing out there was not much new to report since the last meeting. He reviewed the background of the research request for testing. Mr. Breen reviewed the research scope of work and the status of testing on ACY Runway 4-22 explaining to the Subcommittee R & D is working with ACY to get permission to do testing at the airport. Mr. Breen reviewed the FAA standard groove vs Trapezoidal Groove and presented a graph of the test section on Runway 4-22. Mr. Breen informed the Subcommittee since the last REDAC meeting a plan has been submitted to ACY and they are waiting for a decision. He stated if a decision is not made soon R & D will contact ACY Management to inquire about moving forward. Mr. Breen presented the plan for full scale evaluation and testing as well as a preliminary test plan along with the data that will be collected. Mr. Breen explained Quantico Runway 02-20 had been looked into as an alternative testing facility in the event ACY denies access. Dr. Hovan interjected stating this is a high priority project and the issue is the testing is not standard. He went on to explain the airport is concerned they will be left with something that is not standard. Dr. Hovan informed Joe was asked to look into alternatives but using those alternatives could be more expensive and he is hoping by next REDAC meeting a decision will be made.

***Lunch Break-12:30 p.m.-1:30p.m.***

***Presentations Commenced 1:30 p.m.***

Mr. Breen continued with his presentation on In-Pavement Light Frangibility. He explained the background of the project stating the FAA Advisory Circulars 150/5345-46, 150/5340-30, and 150/5345-42, as well as Engineering Brief No. 83 address the selection, installation, testing, and maintenance of In-Pavement Light Fixture Bolted Connections. Mr. Breen stated incidents have occurred at certain airports where In-Pavement Light Fixture bolted connections have failed resulting in light fixtures completely separating from the bases. Mr. Breen stated the possible root cause of this might be due to improper installation/maintenance or increased impact forces generated by modern commercial aircraft tires. He informed the Subcommittee a research request was put forward by AAS-100 on July 13, 2015 to evaluate In-Pavement Light design and performance. Mr. Breen explained the funding requirements are estimated to be \$150,000 and the research is estimated to be one year. Mr. Breen explained it is important to look at the entire assembly not just the bolt itself as well as looking at clamping forces. He explained to look at the clamping forces a Skidmore-Wilhelm Bolt Tension Calibrator will be used to develop accurate torque-tension relationship. Mr. Breen gave an overview of the In-Pavement Light Fixture assembly and materials and explained how the testing on these will be performed. The Subcommittee asked if the Advisory Circular provide a standard on what the torque should be. Mr. Breen responded that it does but it needs to be revised and updated. He continued by stating it gives a torque value but states to check with the manufacturer. Mr. Breen also stated the Engineering Brief gives a torque value but it is not accurate.

Mr. Breen proceeded explaining to the Subcommittee the process for Testing In-Pavement Light Assemblies which will include measuring shear forces generated in assemblies based on known aircraft wheel lead and tire pressures, develop speed/load curves for wheel loads directly over In-Pavement Light fixtures and if possible apply braking to aircraft wheels during testing. The Subcommittee inquired as to how widespread this problem is. Mr. Breen responded incidents have occurred at JFK, Newark and O'Hare Airports and added that it is not just related to aircraft size. Mr. Breen explained what needs to be looked into is if the weight of modern aircraft exceeds what the lights can handle. He continued stating the testing will be performed on different combinations of light fixtures, connector bolts and cans. Mr. Breen explained the end product will be to report on calculated maximum sheer loads generated by various aircraft utilizing the load/shear curves developed, report on identification of the In-Pavement bolted connections that are able to resist the impact forces generations by modern commercial aircraft and identify modifications to light fixtures, bases and bolted connections necessary to achieve required clamping forces. The Subcommittee asked "How do you plan to get shear load?" Mr. Breen stated using Strain Gages. Mr. Breen stated there is an IES Lighting Conference in Denver, Colorado in October 2015 that he is interested in attending if he can get approval.

**Mr. Ralph Nicosia-Rusin, Mr. Kent Duffy, Airport Planning, 10 year plan,** Mr. Nicosia-Rusin began the presentation with explaining a multi -year approach to environment and planning research stating the plan is to find new airports for environmental research to compliment planning research starting in FY16, in addition to developing a ten year framework for identifying research requirements in FY17, that would be applicable to both environment and planning needs. Mr. Kent Duffy explained some tasks fall under both environmental and planning and they will be better defined in the FY17 plan. He continued by stating the FY16 environmental research will consist of: evaluating environmental research requirements to aid multi-year approach, develop air quality screening criteria for airport actions, noise dispersion with PBN departures and review of airport guidelines for climate adaption and resiliency. Mr. Duffy stated they are working with the Environmental Office to assist with a 10 year plan on this research. The presentation continued with Air Quality Screening Tool and the need for research is finding methods on how to scope and implement air quality analyses to adequately comply with the Clean Air Act. Mr. Duffy explained the methodology used with the end result being providing the technical support documents that validate the procedures and coordination with the EPA as necessary. Mr. Duffy explained the need for this is nationwide, because airports need to comply with the Clean Air Act. Mr. Duffy state there is a need to determine rules on where to place projects based on emissions as well and developing specifications for work on low level airports. Mr. Duffy explained the FY16 budget for this project is \$250,000. The presentation proceeded with Noise Level Reduction Requirements. Mr. Nicosia-Rusin stated the issue is the ASTM 966 loudspeaker test used for residential sound insulation programs eligibility has recently been shown to yield lower noise level reduction and also stated the end result would be validation of possible fixed decibel adjustment value for determining RSIP eligibility. He explained AEE and APP offices are currently working together to update guidelines. Mr. Nicosia-Rusin stated better assessment of this issue could save the FAA money. He explained there is a need to update standards of housing insulation in response to houses built in airport areas. It was stated the FAA spends 25,000 man hours a year dealing specifically with noise complaints. Mr. Duffy stated that any complaint made prior to the standard changes would not be grandfathered in it would be a going forward plan. The presentation proceeded with the climate adaption project. It was explained to the Subcommittee there is a need to

access the impact of climate change on airports at a regional level and also assess existing documentation to determine if they account for resiliency to accommodation changing climatic conditions and identify needed updates. Mr. Duffy explained there was a federal policy put in place after Hurricane Sandy for the east coast but there needs to be closer look at airports overall.

Mr. Duffy continued by explaining FY16 Planning Research and stated there will be runway simulator enhancements and support. He explained the plan is to model the simulator so it will be accessible to not only airport but universities as well. He stated they are also trying to look into the ability to look at take-off data and as well a runway lengthy analysis. Mr. Duffy stated the Advisory Circular does have a design standard but something more dynamic would be better. He continued by stating having the ability to collect real time data allows to look at more variables. Mr. Nicosia-Rusin proceeded with FY17 Candidate Planning Research explaining the potential candidates are: development of three dimensional design models for digital review of ALP's and airspace cases, developing digital tool for acquiring and updating inventory data, performing alternative analysis to aid in master planning, analysis of changing passenger requirements for airport services and develop module in runway simulator for calculating aircraft delay. Due to the time constraints Mr. Oswald asked to continue the discussion via teleconference at a later date. Mr. Oswald asked Subcommittee members who are interested in participating in the teleconference to email him.

#### ***Sub-Committee Members, Recommendations***

The Sub-Committee began an open discussion. A member of the Sub-Committee inquired about the drone issue that was discussed in the past meeting as possible future issue. It was commented that there is a whole list of initiatives relative to this topic and it has to be discussed whether or not this is out of research realm. The discussion proceeded going over the presentations.

***Non-Destructive Pavement Project*** – The Subcommittee recommends possibly expanding the overload criteria to the Non-Destructive Pavement Projects. The Sub-committee commented they would like to see this project research expand.

***Construction Signs*** – The Subcommittee agreed construction signs should be mandatory and due to the low cost it is the reasonable thing to do.

***Low Cost Ground Surveillance*** – The Subcommittee agreed they are pleased with this project and can see it getting tied into other efforts on the horizon.

***AeroMACS*** – The Subcommittee agreed there is a high level of interest in this especially form and Airport operations side.

***Noise*** – The Subcommittee agreed this project is going well

***Aircraft Braking*** – The Subcommittee is positive on where this project is going and commented it is great work

***Trapezoidal Grooves*** – The Subcommittee agreed there needs to be a baseline and needs additional coordination with the Subcommittee on the experimental design plans.

***In-Pavement Light Fixtures*** – The Subcommittee agreed this project needs more assessment.

***PM Break – 2:55p.m.-3:10p.m.***

***Discussion Commenced 3:10p.m.***

The Subcommittee decided the next REDAC Subcommittee Meeting will be on Tuesday, March 15, 2016 and Wednesday, March 16, 2016 and it will be held in the FAA Technical Center Director's Conference Room. The Subcommittee continued with a budget discussion. It was stated for FY16-17 nothing has changed since the last meeting and at this time there is not enough information to make a determination on FY18. Mr. Oswald asked the Subcommittee members to review the budget more closely and email concerns. He stated he will set up a teleconference to discuss further. It was requested the Subcommittee members receive information for meetings from the R & D branch no later than two weeks prior to the meeting so there is sufficient time to review and become familiar with the material. The Subcommittee commented the RPA approach to projects is favorable and it will be clearer when looking at project and funding. Mr. Oswald asked the Subcommittee if anyone sees the need for research on the Operations Safety side such as ATC, Airport Operations, Human Factor issue, communication technologies used. It was discussed on the Pavement side there is a concern with quality of materials and it is strongly suggested that be looked into. Mr. Oswald asked for a draft to be delivered to him with the concerns and possible implications and deliver to him.

The Subcommittee agreed many of these projects will run into FY18. They discussed the AeroMACS project and acknowledged it was a "pop up" but funding needed was minimal and it is a big opportunity. The Subcommittee reiterated the FY16-17 budget is stable and that FY18 is uncertain at this point and agreed to give strategic guidance and discuss FY18 needs.

Mr. Oswald referenced the list of possible issues that was started two meetings ago. He informed the Subcommittee he would like to revisit those issues more closely and look to FY18. He stated he would send the list to the Subcommittee members on August 26<sup>th</sup>. Mr. Oswald requested Subcommittee members send him briefings on new project ideas, keeping in mind airspace, surveillance, communication. He added to include any current projects that might need to be revised or "ramped up" as well. He asked these be sent to him via email by September 4, 2015. The Subcommittee requested Pavement Area reports get sent with meeting packets so they can be reviewed. The Subcommittee scheduled the next fall meeting for Tuesday, August 16, 2016 and Wednesday, August 17, 2016.

***Meeting Adjourned 4:30p.m.***

**REDAC**  
**Airports Subcommittee**  
**Summer/Fall 2015 Meeting**  
**August 25-26, 2015**

**DAY 1 - AUGUST 25, 2015**

**In Attendance**

Holly Cyrus, FAA  
Ralph Nicosio, FAA  
Robert Basse, FAA  
Jim Parsons, ARA  
Qingge Jia, FAA  
Ryan Rutter, FAA  
Rich Speir, FAA  
Jenny Connelly, SRA International  
Ashely De Leon, FAA  
Chris Seher, ARA  
Erin DeBartin, SRA International  
Halil Ceylon, Rowan University  
David R. Brill, FAA  
Peter Sparacino, FAA  
Sarah Hubbard, Purdue  
Al Larkin, FAA  
Bill Allen, SRA  
Doug Johnson, FAA  
Navneet Garg, FAA  
Lauren Vitagliano, FAA  
Murphy Flynn, FAA  
Xiaogong Lee, FAA  
Jeff Gagnon, FAA  
Jim Patterson, FAA  
Ed Juranovic, BOEING  
Al Pollard, Maryland Aviation  
Barb Busiek, Northwest Arkansas Regional Airport

**REDAC**  
**Airports Subcommittee**  
**Summer/Fall 2015 Meeting**  
**August 25-26, 2015**

**DAY 1 - AUGUST 25, 2015**

**In Attendance**

F. Martinez, DFW Airport  
John Dermondy, FAA  
Scott Marsh, PANYNJ  
Gary L. Mitchell, ACPA  
Monte Symon, Montista Consultant  
Chris Oswald, ACI-NA  
Jaime Figueroa, FAA  
Paul Tan, FAA  
Dennis Filler, FAA  
Michel Hovan, FAA  
Chinita Roundtree-Coleman, FAA

**REDAC**  
**Airports Subcommittee**  
**Summer/Fall 2015 Meeting**  
**August 25-26, 2015**

**DAY 2 - AUGUST 26, 2015**

**In Attendance**

Halil Ceylon, Rowan University  
Erin DeBartin, SRA  
Jim Parsons, ARA  
Rich Speir, ARA  
Chris Seher, ARA  
Katrina Warren, ESCO/ZASA  
Robert Bassegy, FAA  
Mike DiPilato, SRA  
Nick Subbotin, FAA  
Garrison Canter, SRA  
Holly Cyrus, FAA  
Kent Duffy, FAA  
Christina Nutting, FAA  
Donald Gallagher, FAA  
Barb Busiek, XNA  
Paul Martinez, DFW  
Al Pollard, BWI Airport  
Ed Juranovic, BOEING  
Jeff Gagnon, FAA  
Jim Patterson, FAA  
Andrew Lamb, FAA  
Ralph Nicosio, FAA  
Xiaogong Lee, FAA  
Doug Johnson, FAA  
Lauren Vitagliano, FAA  
Jonathan Torres, SRA  
Bill Allen, SRA  
Sarah Hubbard, Purdue  
Larry Vanhoy, LUH Aviation for SRA  
Hector Daiotolo, SRA  
Paul Tan, FAA

**REDAC**  
**Airports Subcommittee**  
**Summer/Fall 2015 Meeting**  
**August 25-26, 2015**

**DAY 2 - AUGUST 26, 2015**

**In Attendance**

Jennifer Klass, SRA

Eric Neiderman, FAA

Jaime Figueroa, FAA

Scott Marsh, PANYNJ

Gary L. Mitchell, ACPA

Monte Symon, Montista

Joe Breen, FAA

John Zinna, FAA

Chinita Roundtree-Coleman, FAA

# Research, Engineering and Development Advisory Committee PPT Briefing to Sub-committee on Airports: Aug 25 – Aug 26 - 2015

FAA Technical Center Director's Conference Room

## DAY 1 – August 25, 2015

12:45 pm	Mr. Christopher Oswald <i>ACI-NA, Subcommittee Chairperson</i>	Introduction
1:00 pm	Dennis Filler, <i>Technical Center Director</i>	Technical Center and Aviation Research Division Updates
1:30 pm	Dr. Michel Hovan <i>Airports Technology R&amp;D Branch Manager</i>	Objectives of this meeting Contract update Budget FY-15-16-17
1:45 am	Mr. John Dermody <i>Manager, FAA Office of Airports Safety and Standards Division, AAS-100</i>	AAS-100AAS/HQ Update
2:00 pm	Subcommittee Members and Others	Review of REDAC Recommendation
<b>2:30 pm</b>	<b>Break</b>	
2:45 pm	Mr. Jeffrey Gagnon	2015 Pavement Projects + Plans for FY-16-17
2:55 pm	Dr. David Brill	40 Year Design Life Initiatives (Updates)
3:15 pm	Dr. Navneet Garg	National Airport Pavement Materials and Research Center
3:30 pm	Mr. Murphy Flynn	New R&D Facilities Update Geosynthetics R&D Update Construction Cycle 8 Update
3:50 pm	Dr. Navneet Garg	Full Scale Testing – Perpetual Pavement Update
4:05 pm	Dr. David Brill	Full Scale Testing – Overload Update
4:20 pm	Mr. Al Larkin	Pavement Roughness & Inspection
4:45 pm	<b>Adjourn</b>	

## **DAY 2 –Aug 26**

9:00 am	Mr. Jim Patterson <i>Airport Safety R&amp;D Section Manager</i>	2015 Safety Projects + Plans for FY-16-17
9:15 am	Mr. Robert Bassey	Research Taxiway Low Cost Ground Surveillance Radar Airport Construction Sign
9:35 am	Ms. Lauren Vitagliano	Airport Noise Safety Database RIM
10:00 am	Mr. Don Gallagher	Rumble Strips
10:15 am	Mr. Nick Subbotin	Arrestor Systems
10:45 am	<b>Break</b>	
11:00 am	Mr. Keith Bagot	ARFF Program Updates
11:20 am	Mr. Joe Breen	Trapezoidal Groove Aircraft Braking In-Pavement Light Bolt Frangibility
12:00 pm	<b>Lunch</b>	<b>Discussion with Members – Potential Nominees</b>
1:15 pm	Ralph Nicosia-Rusin Kent Duffy	Airport Planning, 10 Year Plan
2:00 pm	Sub-Committee members	Recommendations of the day
2:45 pm	“ “	Visit to NAPMRC
3:15 pm	<b>Adjourn</b>	