REDAC Subcommittee on Airports | MINUTES

Meeting date & time: July 30-31, 2024

Meeting location: Hybrid meeting (FAA William J. Hughes Technical Center for Advanced Aerospace & Zoom)

Purpose: To provide advice and recommendations to the FAA on its airport technology research and development program.

Facilitator / Chair: Chris Oswald

Note taker: Alex Tsalyuk

Timekeeper: Chris Oswald

DAY 1 – July 30, 2024

Presentations 1 & 2 Introduction & Opening Remarks **| Presenters** Chris Oswald, Eric Neiderman

Christopher Oswald, ACI-NA Subcommittee Chairperson, opened the meeting at 8:30 am, welcoming attendees both in-person and online. He acknowledged an unfortunate scheduling conflict with the AAM and UAS Summit in Baltimore occurring the same week, which impacted the availability of some FAA staff. Oswald reminded members about the meeting calendar established a year in advance and committed to sending Outlook invites earlier in the future to avoid date confusion.

Oswald highlighted key topics for the meeting, including surveillance and smart airport technologies, integration of Airport Cooperative Research Program (ACRP) research with FAA efforts, sustainability programs, and pavement programs. He noted the strong representation of pavement experts in attendance.

Eric Neiderman, Deputy Director of the William J. Hughes Technical Center for Advanced Aerospace, delivered opening remarks on behalf of Director Shelley Yak. He expressed gratitude to REDAC members for their time and expertise, emphasizing the value of their input to FAA research efforts.

Neiderman announced that the FAA received its Fiscal Year (FY) 24 budget appropriation on March 8 and that the new 5-year FAA reauthorization was signed into law on May 16. He explained that the reauthorization provided a comprehensive framework for the agency's activities over the next five years, outlining new directions, oversight requirements, and regulatory adjustments.

Key aspects of the reauthorization relevant to airport research were highlighted, including diverse operations within the National Airspace System, the Airfield Pavement Technology Program, applications of Artificial Intelligence (AI) and Machine Learning (ML) in airport infrastructure and operations, and expanded cybersecurity regulations across the aviation ecosystem.

Neiderman contextualized the FAA's research priorities within the broader Department of Transportation (DOT) research and development (R&D) strategic plan for FY 22-26, emphasizing five major themes: zero fatalities, resilient supply chains, equitable mobility for all, net-zero emissions, and a system of systems approach.

He informed REDAC members about DOT's newly published Scientific Integrity Policy, emphasizing its importance in protecting the integrity of research and ensuring ethical conduct. Neiderman also provided an update on ongoing efforts to revitalize REDAC, noting that while the evaluation of applicants and conflict of interest reviews were complete, final approvals were still pending from various government bodies.

Presentation 3 Airport Technology Program Update **| Presenter** Jim Layton

Jim Layton, Branch Manager of FAA Airport Technology Research, presented an update on the Airport Technology Program. He reviewed the current staffing structure within the Airport Technology Research and Development (ATR) branch, highlighting the Airport Safety Section managed by Jim Patterson and the Airport Pavement Section managed by Murphy Flynn.

Layton discussed recent staffing changes, including the reintegration of staff previously dedicated to Unmanned Aircraft System (UAS) research under Section 383 of the 2018 reauthorization. He noted current vacancies for a Pavements Engineer and an Airport Research Specialist, acknowledging Mike DiPilato's move to Office of Airports Safety and Standards (AAS) and expressing appreciation for his contributions.

The branch's recruiting focus was emphasized, targeting expertise in Advanced Air Mobility (AAM) Infrastructure, UAS Applications, and Autonomous Ground Vehicles (AGV). Layton presented a proposed future structure for the ATR branch, reflecting anticipated growth and the need for dedicated focus on emerging areas.

Layton showcased existing research facilities at the William J. Hughes Technical Center for Advanced Aerospace and outlined plans for new and upgraded facilities, including an upgraded research helipad and a new Acute and New Pavements Materials Lab. He mentioned ongoing efforts to assess facility utilization and repurpose underutilized spaces to reduce costs.

The Strategic Outlook for Aviation Research (SOAR) chart was presented, outlining research priorities and their alignment with FAA's strategic goals. Layton highlighted the responsiveness to REDAC recommendations, explaining how certain research areas were moved from mid-term to near-term focus based on their urgency and relevance.

Layton showcased the ATR branch's accomplishments in 2023, including the publication of 24 research reports, authorship of 7 conference papers, delivery of 28 conference presentations, hosting of 56 visits from industry stakeholders, participation in 20 industry conferences, and engagement with professionals in 11 countries.

Presentation 4 FAA Office of Airports (ARP) Update **| Presenter** John Dermody

John Dermody, Director of FAA Airport Safety & Standards, provided an update on Headquarters Airport Research Program (ARP) activities. He highlighted sections within the FAA Reauthorization Bill pertaining to airport safety and technology, emphasizing their relevance to the REDAC Airports Subcommittee.

Dermody provided an update on the Office of Airports (ARP) staffing changes and emphasized how both he and Mr. Layton have been laser-focused on hiring vacancies and requesting additional staffing to support growing program and research needs. Dermody also introduced three (3) new draft research request which were provided to Mr. Oswald for the REDAC Airport Subcommittee's review.

In regard to the FAA Reauthorization requirements on ramp safety, Dermody acknowledged the resurgence of interest in Foreign Object Debris (FOD) detection systems and potential research needs in this area. He emphasized the focus on evaluating and implementing new and evolving technologies for runway incursion prevention, aligning with the objectives of the Runway Incursion Mitigation (RIM) program.

Regarding apron safety, Dermody acknowledged ongoing discussions about its integration within the Safety Management System (SMS) framework. He suggested exploring research needs related to apron safety best practices and the potential role of technology in mitigating risks.

Environmental and planning issues were highlighted as important areas of focus. Dermody discussed the need to address environmental concerns, including noise, emissions, and resilience, within airport planning and development. Dermody also mentioned ongoing research on airport electrification and alternative energy sources.

Finally, Dermody acknowledged the increasing focus on hydrogen as a potential alternative fuel for aviation. He noted that this emerging interest is leading to research efforts on both the infrastructure requirements and safety aspects of hydrogen use in aviation.

Throughout his update, Dermody emphasized the interconnected nature of these research areas and their collective importance in shaping the future of airport safety, efficiency, and sustainability. He encouraged the subcommittee to consider how these various research streams might complement and inform each other as they move forward with their recommendations and priorities.

Presentations 5 Review of Outstanding REDAC Recommendations **|**
Presenters Subcommittee Members and FAA

Specific recommendations reviewed and discussed included those related to apron safety, runway incursion mitigation, wildlife management, and sustainability and resilience. For apron safety, the discussion centered on the development of guidance, best practices, and potential technological solutions to address safety concerns in this area. The group also reviewed progress made in incorporating apron safety into the SMS framework.

Regarding runway incursion mitigation, the subcommittee revisited recommendations pertaining to the RIM program, including improving data collection and analysis methods, refining criteria for identifying and prioritizing non-standard airfield geometries, and exploring new technologies and mitigation strategies.

Wildlife management recommendations were reviewed, focusing on improving wildlife hazard management at airports. The discussion touched on the utilization of the Wildlife Strike Database to inform mitigation strategies and the development of new technologies for wildlife detection and deterrence.

Lastly, the group revisited recommendations pertaining to incorporating sustainability and resilience considerations into airport planning, design, and operations. They discussed progress made in implementing the Airport Reorientation and Resiliency Program (ARRP) and ongoing research efforts on electrification and alternative energy sources.

Presentation 6 REDAC Membership/Subcommittee Representation **| Presenter** Chris Oswald

Christopher Oswald led this session, focusing on REDAC revitalization, subcommittee representation, and emerging research needs. He outlined the process for reconstituting REDAC, explaining that new members would be initially appointed without a designated subcommittee chairmanship and later assigned to subcommittees based on their expertise and areas of interest.

Oswald initiated a discussion on potential gaps in expertise that might emerge within the subcommittees after the revitalization. Specific areas of expertise identified for potential recruitment included vertiport development, firefighting, and emergency response for emerging aircraft technologies.

The potential benefits of airline representation within REDAC were discussed, particularly as the focus on apron safety increases. Oswald suggested reaching out to Airlines for America (A4A) to explore potential participation. Jeff Sedin highlighted the potential for overlap and confusion regarding apron safety responsibilities, given the shared jurisdiction between the FAA and Transportation Security Administration (TSA). Andrew Susa agreed with Mr. Sedin's concern and suggested the need for clear coordination and communication between agencies if apron safety regulations are developed.

The discussion also touched on the potential value of including ground handler representation, particularly in the context of ramp safety. The complexities of ground handler representation in the United States due to variations in organizational structures and responsibilities were acknowledged.

Oswald encouraged members to proactively communicate any plans for retirement or transitions out of their current roles, facilitating a smooth succession process within REDAC. Gary Mitchell announced his intention to step down from REDAC at the end of 2025 and expressed his commitment to finding a suitable replacement from within the American Concrete Pavement Association (ACPA).

The conversation then shifted to emerging research needs, with Oswald inviting input from REDAC members on areas where the FAA should prioritize research efforts. Ramp/apron safety was reemphasized as an important area for research, particularly as the SMS framework encompasses apron safety. Scott Marsh shared that the Port Authority of New York and New Jersey had started tracking ramp incidents to gather data and identify trends, highlighting the need for standardized tracking methods and data analysis across the industry.

Emissions were also discussed as a key research area. Scott raised the issue of community concerns about airport emissions, particularly at Teterboro Airport, and the need for readily available research data to address these concerns. He suggested research to quantify airport emissions and their impact on surrounding communities, develop mitigation strategies to reduce emissions, and provide clear and accessible data to communicate with the public.

Presentation 7 Airport Cooperative Research Program (ACRP) Update **| Presenter** Matthew Griffin

Matthew Griffin, representing Marci Greenberger, presented a comprehensive update on ACRP activities. He began by explaining ACRP's annual research cycle, emphasizing the rigorous process of soliciting problem statements, evaluating proposals, and selecting projects based on industry needs and relevance. Griffin highlighted that the Amphibious Operations Council (AOC) had recently convened in Eugene, Oregon, to select the next round of projects, marking a significant step in the research cycle.

Griffin presented a detailed list of recently selected ACRP projects, providing a brief overview of each. These included the Airfield Pavement Technology Program, a broad initiative covering various aspects of airfield pavement research; a technology review of AI and ML applications in airport operations; a cybersecurity project addressing vulnerabilities and best practices; and an emissions inventory update to provide more accurate and current data for addressing community concerns.

Other notable projects included research on safety criteria for autonomous service vehicles, an insight event and quick response project on AI in the airport industry, exploration of IoT ecosystems applied to airports, and a primer on the electrification of rent-a-car fleets. Griffin

also mentioned a new "First Look" initiative focusing on 6PPD, a tire rubber contaminant, and its potential environmental impacts.

Griffin announced that solicitations for problem statements and panel nominations for the newly selected projects would be published soon, encouraging REDAC members to participate and contribute their expertise. He shared several general updates about the ACRP program, including plans to celebrate its 20th anniversary, the introduction of new senior program officers Krishna Murthy and Tara Picciano, and recent improvements to the ACRP website.

The presentation highlighted ACRP's Impacts on Practice Initiative, which documents how research findings are being translated into practical applications at airports. Griffin also mentioned the development of a new ACRP strategic plan, and a new docent designed to introduce new airport professionals to the program and its resources.

Griffin concluded by presenting a list of recently completed ACRP projects relevant to the REDAC Airports Subcommittee. These covered topics such as PFAS contamination at airports, Advanced Air Mobility integration, airport energy resilience, and the integration of electric vehicles into airport operations.

The update sparked a discussion among the subcommittee members. Chris Oswald acknowledged the value of several selected projects, highlighting their potential for alignment with ongoing FAA research efforts. Scott sought clarification on the Emissions Inventory Update project, particularly its scope and potential applicability to addressing community concerns about airport emissions. Griffin confirmed that the project would focus on updating existing emissions inventories and acknowledged the importance of providing accessible and reliable data to address community concerns. The discussion concluded with Gary Mitchell encouraging REDAC members to participate in ACRP panels and the Graduate Research Award Program, emphasizing the value of sharing expertise and mentoring students.

Presentation 8 Overview of Safety Projects Underway**| Presenter** Jim Patterson

Jim Patterson, Manager of the Airport Safety Research Section, presented a detailed overview of ongoing research projects within the Airport Safety Section. He highlighted the significant growth of the safety research program, expanding to encompass a wide range of safety issues, emerging technologies, and collaborative initiatives.

Patterson dived into specific project highlights, including:

- Obstruction Lighting: He announced the recent completion of a revised Advisory Circular (AC 70/7461) on obstruction lighting and marking standards. Patterson discussed site-specific challenges, including ice buildup on wind turbine lighting and heat-resistant fixtures for flare stack lighting. He also mentioned efforts to adapt guidance for unconventional architectural designs.
- Unmanned Aircraft Systems (UAS) Applications: Patterson described successful projects using drones for airborne photometric testing of airfield lighting and wildlife dispersal

and monitoring. He also reviewed work completed under Section 383 of the 2018 FAA Reauthorization bill on UAS detection and mitigation technologies.

- Aircraft Rescue and Firefighting (ARFF): The presentation covered ongoing collaboration with industry partners to evaluate new formulations of fluorine-free foam (F3) firefighting foam, efforts to support the transition to F3 foams at airports, and enhancements to the ARFF facility, including a new control room and upcoming arrival of a new ARFF truck equipped with compressed air foam technology.
- Wildlife Strike Database: Patterson discussed the milestone of reaching 300,000 validated and published wildlife strikes, ongoing efforts to develop a user-friendly data dashboard, and the application of this data to inform research on potential wildlife hazards for UAS and electric vertical take-off and landing (eVTOL) aircraft.

Presentation 9 Runway Incursion Mitigation (RIM) Project Update **|**
Presenter Lauren Vitagliano

Lauren Vitagliano provided a comprehensive update on the Runway Incursion Mitigation (RIM) program, highlighting the program's progress, challenges encountered, and ongoing efforts to enhance its effectiveness. She began by reviewing the RIM program's core objective: to identify and mitigate non-standard airfield geometries that contribute to runway incursions.

Vitagliano presented current statistics for the RIM program, noting that 103 RIM locations had been mitigated since the program's inception. However, she revealed a concerning trend: 10 of the previously mitigated locations had reappeared on the RIM inventory, indicating that the implemented mitigation measures had not been fully effective in preventing incursions.

She acknowledged several challenges facing the program, including defining clear metrics for measuring success, addressing recurrent incursions at previously mitigated locations, and effectively managing RIM locations within large "hotspots" where multiple intersecting taxiways and runways create complex operational environments.

Vitagliano detailed several changes implemented to address identified challenges and improve program effectiveness. These included excluding non-obligated airports from tracking, implementing a runway incursion heat map visualization tool, revising non-standard geometry code definitions, incorporating data on Category A and B severity runway incursions into the analysis, redesigning the hotspot analysis approach, and introducing a 3-year "safety enhancement period" to monitor the effectiveness of mitigation measures.

The presentation concluded with a discussion of the anticipated benefits of these enhancements, including improved granularity in problem identification, enhanced accountability, more accurate reporting, and the generation of data-driven insights to inform future mitigation strategies.

Presentation 10 Airport Surveillance Technologies & Smart Airport Technologies **|** **Presenter** Russ Gorman

Russ Gorman presented an overview of research being performed to create a report detailing the current state of autonomous vehicles in the airport environment. Multiple airports, OEMs, and universities have been contacted to explore their usage and research involving autonomous vehicles at airports. Documentation has also been identified that addresses autonomy or may need to be updated in the future due to this new technology. The final report for this current research is due in 4QFY24. The current state of technology, gaps, and risks will be identified. This may serve as the foundation for follow on research in this area.

During the discussion following his presentation, Oswald asked about the involvement of external standard-setting organizations, such as SAE International, in developing standards for smart airport technologies. Gorman acknowledged the important role that organizations like SAE could play in establishing guidelines for data exchange, system interoperability, and cybersecurity within the smart airport ecosystem.

Gorman emphasized that while many of these technologies show great promise, their implementation would require careful consideration of factors such as cybersecurity, data privacy, and integration with existing airport systems. He also noted the importance of developing flexible standards that can accommodate rapid technological advancements while ensuring safety and security.

The presentation concluded with Gorman suggesting that the FAA continue to work closely with airports, airlines, and technology providers to pilot and evaluate smart airport technologies. He emphasized the need for a collaborative approach to develop best practices and standards that can guide the industry-wide adoption of these innovative solutions.

Presentation 11 Emerging Entrant Update **| Presenter** John Dermody

John Dermody, Director of FAA Airport Safety & Standards, presented an update on the FAA's activities related to "emerging entrants" within the aviation landscape. He highlighted the establishment of a dedicated Emerging Entrants Division within the FAA's Office of Airports.

Key focus areas discussed included:

Advanced Air Mobility (AAM): Dermody explained efforts to develop a regulatory framework for AAM operations, including collaboration with NREL and DOE on vertiport design, firefighting procedures, and fueling infrastructure. He announced the formation of a DOT Inter-Agency Working Group and highlighted the Innovate28 initiative.

Hydrogen: Dermody acknowledged growing interest in hydrogen as an aviation fuel source and announced the formation of a dedicated hydrogen tiger team within the FAA to coordinate efforts and develop guidance.

Unmanned Aircraft Systems (UAS): He reviewed FAA efforts to provide guidance for airport operators on managing UAS operations, including policies for wildlife dispersal using drones.

Autonomous Ground Vehicles (AGV): Dermody discussed potential applications of AGVs at airports and ongoing research efforts to understand their operational characteristics and safety implications.

Rocket Engine Testing: He addressed increasing requests from commercial space companies to conduct rocket engine testing at airports and the FAA's efforts to develop guidance on this activity.

The presentation concluded with a discussion on the long-term vision for AAM and the need for agile regulatory approaches to keep pace with rapid technological advancements in the emerging entrant's sector.

Presentation 12 Vertiport Design Standards Research **| Presenter** Russ Gorman

Russ Gorman presented a comprehensive update on ongoing research related to vertiport design standards. The focus of this research is the development of a performance-based approach to guide the safe and efficient integration of Advanced Air Mobility (AAM) aircraft operations into the National Airspace System (NAS).

Gorman began by explaining the context and objectives of the project. The rapid development of eVTOL aircraft and the emergence of the AAM industry have necessitated the creation of clear and comprehensive design standards for vertiports and the infrastructure required for these aircraft to take off and land. He emphasized the need for a performance-based approach to vertiport design, moving away from prescriptive standards that might limit the flexibility needed to accommodate diverse eVTOL aircraft designs.

The key objectives of the research effort were outlined as follows: gathering comprehensive data on eVTOL performance characteristics to inform the development of performance-based design criteria; prioritizing safety as a paramount concern; developing standards that support efficient operations; and ensuring consistency between vertiport design standards and existing standards for heliports.

Gorman delved into the concept of performance-based design, emphasizing its focus on using vehicle performance to create appropriate standards. He showcased the upcoming EB-105 update in CY24 that will incorporate findings based on data collections efforts during operational testing.

The importance of conducting rigorous operational testing to gather data on eVTOL performance characteristics was emphasized. Gorman described the types of data being collected, including turning radius measurements, evaluation of wind effects on eVTOL performance during takeoff and landing, and assessment of landing precision to determine acceptable tolerances for vertiport landing pads and guidance systems.

Gorman discussed the importance of ensuring consistency between vertiport design standards and existing standards for heliports, particularly regarding visual cues, markings, and operational procedures. He also acknowledged ongoing discussions with international organizations,

including the International Civil Aviation Organization (ICAO) and the European Union Aviation Safety Agency (EASA), to harmonize vertiport design standards globally.

During the discussion, Chris Oswald asked for clarification on the timeline for releasing the updated vertiport design AC and the status of industry engagement in the research and development process. Gorman confirmed that the target date for publishing the final version of the AC is the end of 2025. He emphasized that the FAA is actively engaging with industry stakeholders throughout the research and development process to gather input and ensure that the standards are practical, achievable, and support innovation.

Gary Mitchell raised a concern about potential liability issues if conventional helicopters attempt to land at vertiports designed for eVTOL aircraft, questioning whether weight limitations or other criteria would be established to differentiate between the two types of operations. Gorman acknowledged the validity of Mitchell's concern and explained that the updated AC will address these considerations by establishing clear criteria for vertiport use, potentially including weight limitations, performance requirements, or operational restrictions to ensure that aircraft are compatible with the intended vertiport design.

Oswald suggested that the subcommittee consider recommending language for the final report that encourages the FAA to continue its collaborative approach to vertiport design research, emphasizing the importance of engaging with industry stakeholders and international organizations to develop comprehensive, safe, and adaptable standards.

Presentation 13 Solar Powered Airport Lighting Update **| Presenter** Darian Byrd

Darian Byrd, calling in from Olympia, Washington, provided a detailed update on the solar powered airport lighting research project. He explained that the project originated in 2019, driven by the FAA's interest in exploring alternative energy sources for airfield lighting systems. Byrd highlighted the potential benefits of solar-powered airfield lighting, including sustainability, enhanced resilience during power outages, and potential cost savings for airports.

Byrd reported on the ongoing final installation at Olympia Municipal Airport, the fourth test site for the project. He shared an unexpected challenge encountered during installation, where wildfire firefighting operations obstructed the wireless communication link between solar lighting fixtures and monitoring equipment. The team successfully adapted by modifying the positioning and mounting apparatus of the antennas and security cameras, demonstrating the project's flexibility and problem-solving approach.

The presentation reviewed findings from three previous test sites: Cape May Airport in New Jersey, Penn Yan Airport in New York, and Casa Grande Municipal Airport in Arizona. Each site provided valuable data on system performance under different environmental conditions. Key findings included data on energy generation efficiency, battery performance, lighting output, reliability, and maintenance requirements.

Byrd explained the strategic choice of Olympia Municipal Airport as the final test site, citing its unique environmental conditions with significant rainfall and overcast skies. This location offers

an opportunity to evaluate system performance under a wider range of climate scenarios, complementing data from previous sites.

The types of data being collected at Olympia were discussed, focusing on energy generation, battery performance, lighting output, and system reliability under specific environmental conditions. Byrd mentioned plans to compile a comprehensive report summarizing findings and lessons learned from all four test sites, providing valuable insights for airport operators considering solar powered airfield lighting systems.

Byrd concluded by emphasizing the potential of solar powered airfield lighting to enhance sustainability and resilience at airports, while acknowledging the need for thorough testing to ensure these systems meet rigorous safety and reliability standards required for aviation applications.

DAY 2 – July 31, 2024

Presentation 1 Airport Pavement Research & Development (R&D) Update **|**
Presenter Murphy Flynn

Murphy Flynn, Manager of the Airport Pavement Research Section, opened day two with an update on the Airport Pavement R&D Program. He outlined the program's mission to conduct research supporting innovative, durable, and sustainable pavement solutions for airports. Flynn emphasized the program's alignment with the FAA Reauthorization bill, particularly highlighting language emphasizing research on sustainable and resilient airport pavement materials.

Flynn explained that the pavement research program encompasses two primary sub-programs: the Airport Concrete Pavement Technology Program (ACPTP) managed through a cooperative agreement with the National Concrete Pavement Technology Center at Iowa State University, and the Airport Asphalt Pavement Technology Program (AAPTP) managed through a cooperative agreement with the National Asphalt Pavement Association. Each sub-program has its own Program Coordination Group responsible for identifying research needs, prioritizing projects, and overseeing project implementation.

A significant change announced was the creation of a new Research Program Area (RPA) specifically dedicated to funding research on sustainable and resilient pavement materials. This restructuring allows for more focused allocation of resources toward these critical aspects of pavement performance. Flynn also highlighted the recent overhaul of the program's long-term strategic plan, transitioning from a lengthy document to a more concise and user-friendly slide deck format aligned with the SOAR chart approach used by the ATR branch.

Flynn showcased the accomplishments of the Pavement Research Section staff, emphasizing their contributions beyond direct research activities, including mentoring students, presenting at conferences, and engaging in international collaborations. He highlighted participation in international conferences, expert groups, and workshops, noting specific examples such as Dr. Navneet Garg's attendance at the International Conference on Advanced Pavement Mixtures in France and Dr. David Brill's participation in the Aerodrome Pavement Expert Group meeting.

The presentation concluded with updates on recent publications, funding extensions for the concrete and asphalt programs through 2027, and the ongoing overhaul of the Heavy Vehicle Simulator. During the discussion, Gary Mitchell expressed appreciation for the extension of multi-year agreements, while Mr. Oswald inquired about incorporating seismic resilience research into the pavement program.

Presentation 2 Airport Concrete Pavement Technology Program (ACPTP) Updates **|**
Presenter John Adams,

John Adams, Associate Director of the National Concrete Pavement Technology Center at Iowa State University, presented updates on the ACPTP on behalf of Peter Taylor. Adams provided an

overview of the CP Tech Center's mission and funding structure, emphasizing the program's core objectives of problem identification, solution development, and technology transfer.

Adams reviewed the ACPTP's collaborative structure, highlighting the roles of the Program Coordination Group, liaisons, and program managers. He then presented a slide outlining ongoing ACPTP projects, including research on Alkali-Silica Reactivity (ASR), Performance Engineered Mixtures (PEM), rapid repair techniques, rubber removal methods, diamond grinding effects, thin airfield pavements, pavement continuity, and resilience.

Of particular interest was the resilience project focused on water and flood-related resilience of concrete airfield pavements. Adams mentioned plans for a full-scale test section, potentially located at Charlotte Douglas International Airport, to evaluate resilience under controlled flooding conditions. He also noted that several ongoing projects are expected to be completed in 2025, leading to the publication of final reports and practical guidance documents.

During the discussion, one person inquired about whether the resiliency project would encompass seismic resilience considerations. Gary Mitchell responded that seismic resilience is being addressed through a separate ACRP panel and research project. Chris Oswald suggested inviting a representative from the seismic resilience ACRP panel to present at a future REDAC meeting.

Presentation 3 Airport Asphalt Pavement Technology Program (AAPTP) Update **|**
Presenter Brett Williams

Brett Williams, Director of Engineering & Technical Support at the National Asphalt Pavement Association, presented updates on the AAPTP. Williams explained that the AAPTP program is structured similarly to the ACPTP, with a Program Coordination Group, technical panels for each research project, and collaborative partnerships with industry stakeholders.

Williams provided updates on several key projects, including the near completion of the updated Asphalt Paving Handbook for airfield pavements, the development of a tool and guidance document for selecting appropriate asphalt binder grades, and ongoing research on longitudinal joint best practices. He also addressed the delays encountered in Phase 2 of the Cold Central Plant Recycling (CCPR) feasibility study, explaining that funding had been secured and construction of test sections is expected to commence in late fall.

Williams highlighted the completion of over 30 videos to complement the updated Asphalt Paving Handbook and announced the recent closure of RFPs for projects on advanced technologies for asphalt pavement applications and the impact of PFAS contamination on asphalt pavement recycling practices. He also outlined potential future research areas, including Stone Mastic Asphalt (SMA), highly modified thin lifts for general aviation airports, recycling agents, and improved binder specifications.

During the discussion, Mr. Oswald asked for clarification on the scope of the Advanced Technologies project, to which Williams explained that the RFP was intentionally broad to encourage innovation across a wide range of technologies. One person inquired about the

specific focus of the PFAS impact project, and John Dermody responded that it would explore various options including PFAS destruction methods, containment strategies, and guidance for airport operators on managing potential risks.

Presentation 4 Sustainable Pavement Update **| Presenter** Dr. Navneet Garg

Dr. Navneet Garg presented updates on sustainable pavement research, emphasizing the program's focus on evaluating pavement materials and technologies that reduce environmental impact without compromising performance.

Garg discussed completed full-scale testing on Warm Mix Asphalt (WMA) and upcoming CCPR testing scheduled for Test Cycle 3 at the NAPTF. Garg introduced PANDA (Pavement Analysis using Non-linear Damage Assessment), a new pavement analysis and design software tool being developed by the Airport Pavement Research Section. He explained that PANDA is specifically designed to incorporate the performance characteristics of sustainable pavement materials, enabling engineers to evaluate and design pavements that meet both performance and environmental goals. Garg reported that a working version of PANDA is currently available and being tested, with recent feedback gathered from ATR and support contractor staff during a workshop on July 2nd.

The presentation also covered the development of FAALCAn, a web-based tool for conducting Life Cycle Assessment (LCA) of airfield pavements. Garg highlighted the collaboration with researchers at UC Davis and the Federal Highway Administration in developing FAALCAn, noting that a functional version is currently available for exploration and feedback. He explained that FAALCAn is designed to be user-friendly and accessible to engineers and airport operators, simplifying the process of conducting LCA. The tool includes a comprehensive material database Garg stated that the current version of FAALCAn is undergoing review by subject matter experts (SMEs) to ensure its accuracy, completeness, and alignment with industry best practices. He identified the three SMEs involved in the review: Dr. Horvath, Dr. Bhat, and Dr. Meijer and anticipated that the final reviewed version of FAALCAn will be available by the end of December.

Garg also discussed efforts to address data gaps in existing LCA databases, particularly for materials and processes specific to airfield pavements. He outlined collaboration with the Environmental Protection Agency (EPA) to fill these gaps. Garg concluded by discussing international collaborations, including an ongoing project focusing on the use of high percentages of recycled asphalt pavement (RAP) in asphalt mixes, involving universities in Europe and industry partners from the US and Europe. He also mentioned upcoming initiatives, including workshops on LCA and continued collaboration with the EPA to address data gaps in LCA databases.

During the discussion, James Mack from CEMEX emphasized the importance of incorporating pavement performance considerations into LCA analyses, to which Garg agreed, explaining that both PANDA and FAALCAn are designed to integrate pavement performance data into their analyses. Chris Oswald suggested that the subcommittee consider recommending language for

the final report emphasizing the crucial role of pavement performance in achieving sustainability goals.

Presentation 5 Field Instrumentation and Testing **| Presenter** Dan Offenbacker

Dr. Dan Offenbacker presented an update on the field instrumentation and testing program, highlighting its role in complementing lab research by collecting real-world pavement performance data from active airfields. He explained that this program helps researchers understand how pavements behave under actual traffic and environmental conditions. Offenbacker acknowledged the challenges of installing and maintaining sensors in active airfield environments, noting that close coordination with airport operators is crucial to minimize disruptions to airport operations.

Offenbacker provided updates on two test sites: Philadelphia International Airport and Boston Logan International Airport. He reported that the Philadelphia test site, previously mentioned by Murphy Flynn, was now fully operational, with sensors actively collecting data. He described the test location as a taxiway section subjected to regular aircraft traffic using a cellular communication system to remotely monitor the sensors and collect data, eliminating the need for frequent site visits and minimizing disruptions to airport operations. Offenbacker showcased a video demonstrating the successful implementation of an image recognition system at the Philadelphia test site. The intention of the image recognition system is to automatically control sensor activation based on aircraft presence ensuring the sensor are only active when aircraft are present or to discard pavement response data collected from unwanted aircraft.

Offenbacker then addressed the Boston Logan International Airport test site. Although initially planned for activation, the site had been decommissioned due to sensor degradation caused by environmental factors, particularly exposure to moisture and temperature fluctuations. Offenbacker explained that after a thorough assessment, it was determined that the sensors were no longer providing reliable data, leading to the decision to decommission the Boston site. The data acquisition system from the Boston site would be repurposed for a future field installation at a different location.

Offenbacker transitioned to discussing the development of a long-term airport pavement database. He explained that this initiative was initiated based on feedback from airport operators and engineers who expressed a need for a comprehensive database of pavement performance data from airports across the U.S. The database aims to capture long-term trends in pavement performance, including rehabilitation histories and other factors influencing pavement durability. Offenbacker reported that pavement condition data had been collected from over 1,300 airports so far. He noted that the majority of participating airports are smaller general aviation airports, and efforts are underway to collect data from larger hub airports, which presents a greater challenge in finding appropriate contact points and navigating internal processes.

Offenbacker described the primary method for collecting data: requesting airports to share their existing pavement management system (PMS) data. He specifically asked airports for their

"pavement database" files, which contain detailed information on pavement conditions, maintenance histories, and other relevant data. Offenbacker also mentioned the use of existing FAA data sources, such as the Airport Data and Information Portal (ADIP) and airport websites, to identify contact points and initiate data sharing agreements. He showcased a slide with initial statistics from the collected data, including the distribution of airport features (runways, taxiways, aprons) and the breakdown of pavement types (concrete, asphalt, composite). Offenbacker emphasized the significant potential of this database to analyze long-term pavement performance trends, including the effectiveness of various rehabilitation techniques.

Offenbacker then shared some anecdotal feedback he had received from airports during the data collection process. He highlighted two emerging trends: concerns about the decreasing availability of slag, a commonly used material for mitigating alkali-silica reactivity (ASR) in concrete pavements, and the increasing interest in fiber-reinforced hot mix asphalt (HMA) to address pavement distresses caused by environmental factors. Offenbacker also stressed the importance of differentiating between environmental and structural factors when analyzing pavement distress. He explained that separating these factors allows for more targeted and effective rehabilitation strategies, as distresses caused by environmental factors might require different solutions compared to those caused by structural issues. He suggested that the long-term pavement database could be a valuable tool for analyzing trends and separating environmental and structural contributions to pavement deterioration.

During the discussion, Gary Mitchell commended Offenbacker's efforts in developing the long-term pavement database, recognizing its potential to provide valuable insights into pavement performance and inform decision-making for airport operators and pavement engineers. Chris Oswald inquired about the feasibility of incorporating cost data into the pavement database and also offered to help provide contact information for airports. Oswald suggested that the subcommittee consider recommending continued development and expansion of the long-term pavement database in their final report, emphasizing its potential to support data-driven decisions, advance the understanding of pavement performance, and contribute to the development of more sustainable pavement practices.

Presentation 6 NAPTF CC9 Fatigue Tests **| Presenter** Dr. Navneet Garg

Dr. Navneet Garg provided a detailed presentation on fatigue tests conducted during Construction Cycle 9 (CC9) at the NAPTF, focusing on generating performance data on fatigue cracking of HMA pavements to refine/modify fatigue model in FAARFIELD. Garg emphasized that understanding fatigue behavior is crucial for predicting pavement lifespan and developing pavement designs that resist fatigue failure.

The CC9 fatigue tests were conducted with specific research objectives in mind: validating and refining existing fatigue models used to predict the performance of asphalt pavements under repeated loading; investigating the influence of different pavement structural layers, specifically the subbase and base, on fatigue performance; and evaluating the relative contribution of

asphalt thickness versus aggregate base thickness in extending pavement life and resisting fatigue cracking.

Garg showcased a slide depicting the layout of the four test sections constructed for the fatigue testing program. He explained that the test sections were designed to simulate typical airfield pavement structures, incorporating varying combinations of asphalt thickness (9 inches and 11 inches) and aggregate base thickness (26 inches and 30 inches). The materials used in the test sections included a standard Hot Mix Asphalt (HMA) surface layer, a P209 crushed stone base, and a P154 aggregate subbase, representing typical materials used in airfield pavements.

To simulate aircraft traffic, the test sections were subjected to repeated wheel loads using the NAPTF's NAPTV. The NAPTV is a specialized piece of equipment that applies controlled loads to pavement sections, simulating the effect of aircraft taxiing operations. The test sections were trafficked with a six-wheel gear configuration, representing the typical wheel gear configuration of many commercial aircraft. The testing program was continued until each test section exhibited significant fatigue cracking, allowing researchers to determine the "passes to failure," a key metric for assessing fatigue performance.

Garg presented the results of the fatigue tests, showing data on the "passes to failure" for each test section. The results clearly demonstrated a significant increase in pavement life for sections with thicker asphalt layers. Sections with an 11-inch asphalt layer exhibited significantly more passes to failure compared to those with a 9-inch asphalt layer, indicating a substantial improvement in fatigue resistance. Garg also highlighted that increasing the aggregate base thickness from 26 inches to 30 inches demonstrated an insignificant increase in pavement life which was not as dramatic as increasing the asphalt thickness. He explained that a thicker aggregate base provides better support for the asphalt layer, reducing deflections and mitigating the tensile stresses that contribute to fatigue cracking.

Garg further emphasized that the test sections constructed with the stronger P209 subbase material consistently exhibited better fatigue performance compared to those with the standard P154 subbase material. He explained that a stronger subbase helps to reduce overall pavement deflections, which in turn, reduces the tensile stresses in the asphalt layer, leading to improved fatigue resistance.

Garg presented graphical data demonstrating the progression of fatigue cracking in the different test sections. The graphs clearly showed that fatigue cracks initiated and propagated more rapidly in sections with thinner asphalt layers, highlighting the importance of adequate asphalt thickness for long-term pavement performance.

Garg concluded the fatigue test discussion by summarizing the key findings: thicker asphalt layers significantly enhance fatigue performance and extend the lifespan of asphalt pavements; increasing aggregate base thickness contributes to longer pavement life although the effect is not as pronounced as increasing asphalt thickness and not as much improvement in pavement life as FAARFIELD predicts; and the use of a stronger subbase material, such as P209, improves fatigue resistance, particularly when using thinner asphalt layers; thinner asphalt pavements resulted in higher rutting. He mentioned that ongoing analysis is underway to evaluate the

environmental impact of using thicker asphalt pavements, considering the trade-off between initial carbon footprint and extended lifespan.

Presentation 7 NAPTF CC9 Overload Section **| Presenter** Dr. David Brill

Dr. David Brill presented findings from the overload tests conducted on Construction Cycle 9 (CC9) at the NAPTF. He explained that occasional overloads, exceeding the pavement's design aircraft load, are not uncommon occurrences at airports, particularly during maintenance operations or unforeseen circumstances. Brill highlighted the importance of developing criteria for assessing the allowable limits for occasional overloads on airfield pavements to ensure that these overloads do not compromise pavement integrity or safety. He referenced the FAA's Aircraft Classification Rating (ACR) and Pavement Classification Rating (PCR) system, which helps identify compatible aircraft and pavements. The CC9 overload tests were designed to investigate the effects of high overload levels on the performance of flexible airfield pavements, evaluate the applicability of strain-based criteria for expanding permissible overload limits, and determine whether current analytical methods, specifically layered elastic analysis, accurately predict subgrade strains under overload conditions.

Brill described the two identical test sections constructed for the overload testing. Each section consisted of a thin asphalt layer (3 inches) over a conventional aggregate base, simulating a typical flexible pavement structure used at many airports. One of the sections was designated as the "overload section" and subjected to repeated applications of a heavy overload, while the other section served as a "control" and received only the standard design traffic load. Brill emphasized that the overload level (75% above the calculated PCR) was significantly higher than typical allowable limits, pushing the pavement structure well beyond its conventional design parameters to assess its tolerance to extreme loading conditions. To directly measure subgrade strains during the overload testing, the research team installed coil sensors at the top of the subgrade in both test sections. Brill explained that these sensors provide a more accurate representation of subgrade strains compared to relying solely on calculated strains from layered elastic analysis, which often oversimplifies the complex behavior of pavement materials.

Brill presented a slide summarizing the traffic applied to both test sections, detailing the number of passes for both the standard design load and the occasional overload applied to the overload section. He explained that over 56,000 passes of the standard design load were applied to both sections, simulating years of typical aircraft traffic. In addition to the standard traffic, the overload section received three overload applications, spaced throughout the testing program.

Brill then presented the key findings from the overload tests. He first addressed the subgrade strain measurements, highlighting that the strains measured by the coil sensors during overload applications were significantly higher than those predicted using a layered elastic analysis. This finding underscored the limitations of relying solely on calculated strains to assess pavement performance under overload conditions, as the actual behavior of the subgrade materials, particularly under high loads, can deviate significantly from the assumptions made in layered elastic models. Brill further observed that subgrade strains continued to increase with each

traffic application, even under the standard design load. This suggested a cumulative effect of repeated loading on the subgrade, potentially leading to gradual weakening or compaction over time.

However, despite the high overload levels and the increasing subgrade strains, Brill noted that neither test section exhibited traditional signs of subgrade failure, such as excessive upheaval, by the end of the testing program. This finding suggests that flexible pavements can tolerate occasional high overloads, even with thin asphalt layers, without immediately experiencing catastrophic subgrade failure. Brill presented visual observations and pavement distress assessments conducted on the overload test sections, showcasing photographs highlighting the extensive cracking that occurred on both sections. He explained that alligator cracking, a type of interconnected cracking indicative of fatigue failure, was the predominant distress mode observed. While both sections experienced significant alligator cracking, there was a noticeable difference in severity immediately after the second overload application, with the overloaded section exhibiting more severe and interconnected cracks. As the traffic testing continued, however, the difference in cracking severity between the two sections diminished. This observation suggests that the control section, even without the applied overloads, was also experiencing significant fatigue damage due to the repeated application of the standard design traffic load.

Brill transitioned to discussing the analysis of subgrade moisture content, recognizing its influence on the behavior of flexible pavements. He presented data showing that the south side (control section) generally exhibited higher moisture content in the subgrade compared to the north side (overloaded section). Brill explained that the higher moisture content on the south side might have contributed to increased accumulation of permanent deformation (rutting) in that section, as wetter subgrades tend to be more susceptible to compaction under load. He emphasized that the complex interplay between moisture content, subgrade compaction, and pavement distress highlights the limitations of using a simple layered elastic analysis to accurately predict pavement performance under real-world conditions.

Brill then presented the preliminary conclusions drawn from the CC9 overload test results. The research indicated that flexible pavements, even with thin asphalt layers, can tolerate occasional overloads up to 75% above the calculated PCR without experiencing immediate and catastrophic subgrade failure. He cautioned, however, that high overloads did contribute to accelerated fatigue cracking in the asphalt layer, suggesting that frequent or excessive overloads could compromise long-term pavement durability. Brill highlighted the significant finding that the subgrade compressive strains measured by the coil sensors were much higher than the strains calculated using layered elastic analysis, underscoring the need for more accurate methods for predicting strain behavior under overload conditions. He noted that the measured strains continued to increase with each traffic application, further highlighting the cumulative effect of repeated loading on the subgrade. Brill emphasized that the research team is continuing to analyze the data from the overload tests, particularly focusing on the strain gauge data. The ongoing analysis aims to develop more accurate and reliable strain-based criteria for assessing allowable overload limits, taking into account the nonlinear and time-dependent

behavior of pavement materials. The team is also exploring methods for incorporating subgrade moisture content and its variability into overload criteria. Brill mentioned that Dr. Dan Offenbacker had prepared a paper for submission to the Transportation Research Board (TRB) exploring the phenomenon of increasing subgrade strains under repeated loading and its implications for overload criteria.

Brill concluded his presentation by highlighting the potential implications of the overload test findings for the FAA's ACR-PCR methodology. He pointed out that the current methodology primarily focuses on subgrade upheaval as a failure criterion, which might not be sufficient for capturing the full range of pavement distress modes observed in the overload tests, particularly fatigue cracking and surface rutting. Brill also emphasized that the research findings challenge the conventional 10% overload limit often used in pavement design, suggesting that higher overloads might be tolerable under certain conditions. However, he stressed the importance of carefully evaluating the long-term impacts of overloads on pavement durability and developing criteria that strike a balance between short-term operational needs and long-term pavement performance.

During the discussion, Chris Oswald acknowledged the importance of Brill's research in highlighting the limitations of current pavement design and analysis methods. He suggested that the subcommittee consider recommending further research to develop more robust and accurate methods for predicting pavement performance under occasional overloads, taking into account factors like strain accumulation, subgrade moisture content, and the time-dependent behavior of pavement materials.

Presentation 8 NAPTF CC8 Post-Traffic Update **| Presenter** Dr. Daniel Offenbacker

Dr. Daniel Offenbacker provided a verbal update on the status of CC8 post-traffic testing. Offenbacker stated that a consultant for the Engineering work is currently under contract. The Contractor that will manage the demolition activities was being pursued under the Tech Center’s Qualified Vendors List and that a contract would be awarded within the month. Offenbacker then stated that the CC8 post-traffic testing is anticipated to begin within the next couple months.

Presentation 9 National Airport Pavement Test Vehicle (NAPTV) Update**| Presenter** Ryan Rutter

Ryan Rutter presented an update on the NAPTV, with a primary focus on addressing the tire blowout incident that occurred during the previous REDAC meeting. Rutter began by recapping the incident, showing the video footage captured during the meeting. The video vividly depicted the dramatic nature of the tire blowout, the force generated by the exploding tire, and the potential safety hazard it posed. He briefly mentioned that tire pressure air hose was launched into the ceiling of the NAPTF facility, emphasizing the need for immediate investigation and mitigation measures.

Rutter explained that a thorough investigation was conducted to help determine the root cause of the tire failure. The investigation involved a detailed examination of the failed tire, including visual inspection, measurements, and analysis of the tire materials. The team concluded that the most likely cause of the tire failure was significant wear and separation in the bead area, a critical region of the tire that connects it to the wheel rim. This wear and separation weakened the tire structure, making it more susceptible to failure under the high load and pressure conditions experienced during NAPTV operation.

Rutter explained that the NAPTV uses "non-fly" aircraft tires, which are tires that have failed the manufacturer's inspection process for use on actual aircraft. These tires, while significantly less expensive than certified aircraft tires, might have a higher susceptibility to failure due to minor manufacturing inconsistencies or defects that render them unsuitable for flight operations. Rutter emphasized, however, that the use of non-fly tires is a common practice for the pavement test vehicle. While the investigation identified bead area wear as the primary cause of the tire failure, Rutter mentioned several potential contributing factors that might have exacerbated the wear and ultimately led to the blowout. One possibility was that the tire might have been operating at a slight angle during testing, resulting in uneven stress distribution and increased heat buildup in the bead area, accelerating wear and weakening the tire structure. Rutter then detailed the mitigation measures implemented to address the risks associated with potential future tire blowouts. The first measure was the installation of a new electromechanical locking system on all doors leading into the NAPTF test area. This system is designed to prevent unauthorized access during NAPTV operation and is activated/deactivated by the control room testing staff whenever the vehicle is running. The locking system incorporates safety interlocks to ensure that the doors cannot be unlocked while the traffic testing is in progress preventing personnel from inadvertently entering the test area during potentially hazardous conditions.

The second mitigation measure being investigated is the installation of blast curtains in front of each of the wheels on each load module on the test vehicle. These curtains would act as barriers to contain any debris projected from a tire blowout, protecting personnel and equipment in the event of another failure. Rutter explained that the Airport Pavement Research Section is working with other experts within the William J. Hughes Technical Center to develop a model to predict the trajectory and impact forces of tire debris, ensuring that the correct blast curtains are chosen to provide adequate protection.

In addition to the physical mitigation measures, Rutter highlighted the implementation of enhanced tire inspection procedures. These procedures involve more frequent and thorough visual inspections of the NAPTV tires, with particular attention to the bead area. The goal of these enhanced inspection procedures is to proactively identify potential tire problems before they escalate into failures, thus improving safety and minimizing downtime during testing operations.

Rutter concluded his presentation by emphasizing the Airport Pavement Research Section's commitment to safety. He stressed that the implemented mitigation measures and enhanced

inspection procedures demonstrate the section's commitment to providing a safe working environment for all personnel involved in NAPTV testing operations.

Presentation 10 Trapezoidal Grooving & Smart Tire Update **| Presenter** Dr. Richard Ji

Session removed due to time constraints.

Presentation 11 Subcommittee Findings & Recommendations **|**
Presenters Subcommittee Members

The Subcommittee on Airports concluded their meeting by synthesizing their observations and formulating recommendations based on the two days of presentations and discussions. A central theme was the crucial role of pavement performance in achieving sustainability and resilience, recognizing that a well-maintained pavement with extended lifespan minimizes environmental impact by reducing the need for frequent rehabilitation. Members unanimously agreed that this connection should be prominently highlighted in the final REDAC report.

Key recommendations for the FAA included continued research to optimize pavement thicknesses, evaluate stronger subbase materials, and integrate LCA principles into pavement design. The subcommittee emphasized the need for a refined index to quantify environmental distress in pavements and encouraged continued development of tools like PANDA and FAALCAn, along with expansion of the long-term airport pavement database. Strong recommendations were also made for ongoing collaboration with industry stakeholders and international organizations, effective communication of research findings, prioritizing safety in research operations, and investing in workforce development. Oswald took the lead in drafting the subcommittee's final findings and recommendations document for review and feedback.

Next Meetings – Location & Agenda Items TBD

- **March 4-5, 2025**
- **July 22-23, 2025**

Adjourned at 12:00 pm on Wednesday, July 31, 2024

Attachments (include meeting agenda and list of participants)

Minutes Attachment 1 – Meeting Agenda
Minutes Attachment 2 – Meeting Participants
Minutes Attachment 3 – Definitions of Acronyms and Technical Terms

Agenda for REDAC Briefing to Sub-Committee on Airports

SUMMER 2024

Hybrid Meeting: *The REDAC Meeting will be held in person at the William J. Hughes Technical Center in New Jersey. Attendees can also join virtually via Zoom – see bottom of agenda for Zoom details.*

Day 1: Tuesday – July 30, 2024

Time	Session	Presenter
Introduction & Overview		
8:15 am - Arrive at Security Operations Center (SOC)	**+ Transport to Federal Air Marshal Building, Room 113**	
8:30 am	**1. Introduction** [no session slides]	Christopher Oswald ACI-NA, Subcommittee Chairperson
8:45 am	**2. Opening Remarks**	Eric Neiderman Director, William J. Hughes Technical Center
9:00 am	**3. HQ ARP Update** [no session slides]	John Dermody Deputy Director, FAA Airport Safety & Standards
9:15 am	**4. Airport Technology Program Update** ○ SOAR Chart ○ Personnel Recruiting	Jim Layton Branch Manager, FAA Airport Technology Research
9:30 am	**5. Review of Outstanding REDAC Recommendations**	Subcommittee Members and FAA
10:00 am	**Break - 15 mins**	
10:15 am	**6. REDAC Membership/Subcommittee Representation & Emerging Research Needs Discussion** [no session slides]	Chris Oswald
11:00 am	**7. Airport Cooperative Research Program (ACRP) Update**	Matt Griffin Senior Program Officer, ACRP
Program Focus: Safety and Equity		
11:15 am	**8. Overview of Safety Projects Underway**	Jim Patterson Manager, Airport Safety Research Section
11:30 am	**9. Runway Incursion Mitigation (RIM) Project Update**	Lauren Vitagliano
11:50 am	**10. Airport Surveillance Technologies & Smart Airport Technologies**	Russ Gorman
12:15 pm	**Lunch Break - 60 mins**	
1:15 pm	**11. Emerging Entrant Update**	John Dermody Director, FAA Airport Safety & Standards
1:35 pm	**12. Vertiport Design Standards Research**	Russ Gorman
Program Focus: Climate and Sustainability		
2:00 pm	**13. Solar Powered Airport Lighting Update**	Darian Byrd
2:15 pm	**Adjourn**	
5:45-7:00pm No Host Subcommittee Dinner (Location TBD)		

Day 2: Wednesday - July 31, 2024

Time	Session	Presenter
Program Focus: Infrastructure Transformation		
8:15 am - Arrive at Security Operations Center (SOC) + Transport to Federal Air Marshal Building, Room 115		
8:45 am	**1. Airport Pavement R&D Program Update** -Update on coordination with State Aviation Agencies	Murphy Flynn Manager, Airport Pavement Research Section
9:00 am	**2. Airport Concrete Pavement Technology Program (ACPTP) Updates since last REDAC**	John Adams Associate Director, National Concrete Pavement Technology Center
9:15 am	**3. Airport Asphalt Pavement Technology Program (AAPTP) Updates since last REDAC**	Brett Williams Director, Engineering & Technical Support, National Asphalt Pavement Association
9:30 am	**4. Sustainable Pavement Updates**	Dr. Navneet Garg
9:50 am	**Break – 10 mins**	
10:00	**5. Field Instrumentation and Testing**	Dr. Dan Offenbacker
10:10	**6. NAPTF CC9 Fatigue Tests**	Dr. Navneet Garg
10:30 am	**7. NAPTF CC9 Overload Section**	Dr. David Brill
10:50 am	**8. NAPTF CC8 Post-Traffic Update** [verbal update - no session slides]	Dr. Dan Offenbacker
11:00 am	**Break – 10 mins**	
11:10 am	**9. National Airport Pavement Test Vehicle (NAPTV) Update**	Ryan Rutter
11:15 am	**10. Trapezoidal Grooving & Smart Tire Update** [session removed due to time constraints]	Dr. Richard Ji
Program Focus: Conclusions		
11:30 pm	**11. Subcommittee Findings & Recommendations** [no session slides]	Subcommittee Members
12:00 pm	**Adjourn – Subcommittee Working Session**	

HOW TO JOIN THE MEETING:

https://faavideo.zoomgov.com/j/16133330505
Meeting ID: 161 3333 0505 | Passcode: 473594

Phone Audio Only:
- Call 1-888-924-3239; enter Meeting ID: 161 3333 0505
- Passcode: 473594
- Unmute or mute yourself by pressing *6.

REDAC Subcommittee on Airports | Attendees

Meeting date & time: July 30 – 31, 2024

Meeting location: Hybrid meeting (FAA William J. Hughes Technical Center & Zoom)

DAY 1 – July 30, 2024

Name	Organization	Location
1. Adam Bouchard		Zoom
2. Alex Tsalyuk	Avyance	Both
3. Andrea Stevenson	ARA	Zoom
4. Andrew Sousa	ALPA	Tech Center
5. Anita E Dwyer	FAA	Zoom
6. Brandon Graham	FAA	Tech Center
7. Brett Williams	NAPA	Tech Center
8. Chinita Roundtree-Coleman	FAA	Tech Center
9. Chris Oswald	ACI-NA	Both
10. Colleen Kubont	FAA	Zoom
11. Darian Byrd	FAA	Zoom
12. David Brill	FAA	Tech Center
13. Dominique Khan	Avyance	Both
14. Eric Neiderman	FAA	Tech Center
15. Evanicio Costa	Boeing	Tech Center
16. Frank Fee	Asphalt Institute	Tech Center
17. Gary Mitchell	ACPA	Tech Center
18. Hasan Ahmed Kazmee	ARA	Both
19. Holly Cyrus	FAA	Zoom
20. Jeff Sedin	ALPA	Tech Center
21. Jeremy Casey	FAA	Tech Center
22. Jessica Harbin	Avyance	Zoom
23. Jim Layton	FAA	Tech Center

Name	Organization	Location
24. Jim Mack	CEMEX	Tech Center
25. Jim Patterson	FAA	Tech Center
26. Joe Healey	FAA	Tech Center
27. John Adam	NCPTC	Tech Center
28. John Dermody	FAA / AAS	Both
29. John Weller	FAA / ARP	Zoom
30. Jon Schleifer	FAA	Zoom
31. Jonathan Torres	FAA	Tech Center
32. Justin Barkowski	AAAE	Tech Center
33. Keith Bagot	FAA	Tech Center
34. Kent Thompson	ARA	Tech Center
35. Lara Van Nostrand	Avyance	Zoom
36. Lauren Vitagliano	FAA	Tech Center
37. Mark Hale	DIAKON	Zoom
38. Marvin Woods	FAA	Zoom
39. Matt Griffin	ACRP	Zoom
40. Matthew Willson	General Dynamics	Zoom
41. Michael Meyers	FAA	Tech Center
42. Mike DiPilato	FAA	Tech Center
43. Murphy Flynn	FAA	Tech Center
44. Rachel Stephenson	FAA	Zoom
45. Richard Ji	FAA	Tech Center
46. Ron Corun	Asphalt Institute	Tech Center
47. Russ Gorman	FAA	Tech Center
48. Ryan King	FAA	Tech Center
49. Ryan Rutter	FAA	Tech Center
50. Sarah Hubbard	Purdue University	Zoom
51. Scott Marsh	PANYNJ	Tech Center

Name	Organization	Location
52. Shailesh Gongal	Massport	Zoom
53. Trish Young	RIVA Solutions	Both
54. Wes Mittlesteadt	AAS-200	Zoom
55. Wesley Major	FAA	Tech Center
56. Wilfredo Villafane	FAA	Tech Center

DAY 2 – July 31, 2024

Name	Organization	Location
1. Alex Tsalyuk	Avyance	Both
2. Andrea Stevenson	ARA	Zoom
3. Andrew Sousa	ALPA	Tech Center
4. Anita E Dwyer	FAA	Zoom
5. Brandon Graham	FAA	Tech Center
6. Brett Williams	NAPA	Tech Center
7. Chinita Roundtree-Coleman	FAA	Tech Center
8. Chris Oswald	ACI-NA	Both
9. Dan Offenbacker	FAA	Tech Center
10. Darian Byrd	FAA	Tech Center
11. David Brill	FAA	Tech Center
12. Dominique Khan	Avyance	Both
13. Evanicio Costa	Boeing	Tech Center
14. Frank Fee	Asphalt Institute	Tech Center
15. Gary Mitchell	ACPA	Tech Center
16. Harold Muniz-Ruiz	FAA	Zoom
17. Holly Cyrus	FAA	Tech Center
18. Igor Ravve	EIT	Tech Center
19. Jason Alcoba	GDIT	Zoom
20. Jessica Harbin	Avyance	Zoom

Name	Organization	Location
21. Jim Layton	FAA	Tech Center
22. Jim Mack	CEMEX	Tech Center
23. Jim Patterson	FAA	Tech Center
24. John Adam	NCPTC	Both
25. John Dermody	FAA / AAS	Zoom
26. John McGrath	GDIT	Zoom
27. Jon Schleifer	FAA / ANG	Zoom
28. Justin Barkowski	AAAE	Tech Center
29. Keith Bagot	FAA	Tech Center
30. Kent Thompson	ARA	Tech Center
31. Lara Van Nostrand	Avyance	Zoom
32. Lauren Vitagliano	FAA	Tech Center
33. Matthew Willson	General Dynamics	Zoom
34. Mike DiPilato	FAA	Tech Center
35. Murphy Flynn	FAA	Tech Center
36. Navneet Garg	FAA	Tech Center
37. Qingge Jia	FAA	Tech Center
38. Prayay Patel	EIT	Tech Center
39. Rich Speir	ARA	Tech Center
40. Richard Ji	FAA	Tech Center
41. Ron Corun	Asphalt Institute	Tech Center
42. Russ Gorman	FAA	Tech Center
43. Ryan King	FAA	Tech Center
44. Ryan Rutter	FAA	Tech Center
45. Sarah Hubbard	Purdue University	Zoom
46. Scott Marsh	PANYNJ	Tech Center
47. Scott Murrell	ARA	Tech Center
48. Shailesh Gongal	Massport	Zoom

Name	Organization	Location
49. Trish Young	RIVA Solutions	Both
50. Wesley Major	FAA	Tech Center
51. Wes Mittlesteadt	AAS-200	Zoom
52. Wilfredo Villafane	FAA	Tech Center

Acronym	Description
A4A	Airlines for America
AAM	Advanced Air Mobility
AAS	Office of Airports Safety and Standards
AAPTP	Airport Asphalt Pavement Technology Program
AASHTO	American Association of State Highway and Transportation Officials
AC	Advisory Circular
ACI	Airport Condition Index
ACI-NA	Airports Council International - North America
ACPA	American Concrete Pavement Association
ACPTP	Airport Concrete Pavement Technology Program
ACRP	Airport Cooperative Research Program
ADIP	Airports Data and Information Portal
ADS-B	Automatic Dependent Surveillance-Broadcast
AGV	Autonomous Ground Vehicle
AI	Artificial Intelligence
AIP	Airport Improvement Program
AOC	Amphibious Operations Council
ARFF	Aircraft Rescue and Firefighting
ARP	Airport Research Program
ARRP	Airport Reorientation and Resiliency Program
ASR	Alkali-silica reaction
ATR	Airport Technology Research and Development
CC	Construction Cycle
CC8	Construction Cycle 8
CC9	Construction Cycle 9
CCPR	Cold Central Plant Recycling

Acronym	Description
DOT	Department of Transportation
EASA	European Union Aviation Safety Agency
EPA	Environmental Protection Agency
eVTOL	Electric Vertical Takeoff and Landing
F3	Fluorine-Free Foam
FAA	Federal Aviation Administration
FAALCAn	FAA Life Cycle Analysis
FOD	Foreign Object Debris
FY	Fiscal Year
HMA	Hot Mix Asphalt
HVS	Heavy Vehicle Simulator
ICAO	International Civil Aviation Organization
IoT	Internet of Things
LCA	Life-Cycle Assessment
MI	Machine Learning
NAS	National Airspace System
NAPTF	National Airport Pavement Test Facility
NAPTV	National Airport Pavement Test Vehicle
OEM	Original Equipment Manufacturer
PANDA	Pavement Analysis and Design Application
PANDA-AP	Pavement Analysis tool for Non-linear Damage Assessment
PCI	Pavement Condition Index
PCR	Pavement Condition Rating
PEM	Performance Engineered Mixture
PFAS	Per- and Polyfluorinated Substances
PMS	Pavement Management System
PSI	Pounds Per Square Inch
R&D	Research and Development

Acronym	Description
RAP	Recycled Asphalt Pavement
REDAC	Research Engineering and Development Advisory Committee
RFP	Request for Proposal
RIM	Runway Incursion Mitigation
RPA	Research Program Area
SMA	Stone Mastic Asphalt
SME	Subject Matter Expert
SMS	Safety Management System
SOAR	Strategic Outlook for Aviation Research
TSA	Transportation Security Administration
TRB	Transportation Research Board
UAS	Unmanned Aircraft Systems
WMA	Warm Mix Asphalt