Safety Enhancement SE 222.1
RE – Research – Airplane-based Runway Friction Measurement and Reporting

Safety Enhancement Action:	Aviation community (government, industry and academia) performs research to enable development, implementation, and certification of onboard aircraft system technologies to assess airplane braking action and provide the data in real time to the pilot, other aircraft crews, air traffic controllers, and the airport operators.
Implementers: (Select all that apply)	☐ Air Carrier ☐ Industry Association ☐ Commercial Aviation Safety Team (CAST) ☐ Joint Implementation Measurement Data Analysis Team (JIMDAT) ☒ Research Organization ☐ Labor Organization ☐ Manufacturer ☒ Regulator ☐ Other (specify)
Statement of Work:	In a CAST study of runway excursions, the team determined that qualitative reports of runway friction based on pilot perception could be augmented, improved, and ultimately replaced by quantitative calculations of runway friction derived by onboard measurement and data processing systems. The aviation industry should conduct research to enable development, implementation, and certification onboard aircraft system of technologies to assess airplane braking action and provide the data in real time to the pilot, other aircraft crews, air traffic controllers, and the airport operators.
Total Financial Resources:	**Total: $1.1M** Output 1: $1.1M
Relation to Current Aviation Community Initiatives:	• Airplane manufacturers' related internal research activities on determining runway braking characteristics from onboard data.
Performance Goal Indicators:	N/A – this is a research detailed implementation plan (DIP).
Key Milestones:	Output 1: Flow time (mo) 42, Start Date 6/5/2014, End Date 12/31/2017 **Completion:** **42**, 6/5/2014, 12/31/2017
Potential Obstacles:	
Detailed Implementation Plan Notes:	• For labor, 1 Full Time Equivalent (FTE) was assumed to = $250K
CICTT Code:	Runway Excursion (RE)

Output 1:		
Description:	The Federal Aviation Administration (FAA) Office of Aviation Safety (AVS) will conduct continued research to enable development, implementation, and certification onboard aircraft system of technologies to assess airplane braking action and provide the data in real time to the pilot, other aircraft crews, air traffic controllers, and the airport operators.	
Lead Organization:	FAA Aircraft Certification Service (AIR)	
Supporting Organizations:		
Implementers: (Select all that apply)	☐ Air Carrier ☐ Industry Association ☐ Commercial Aviation Safety Team (CAST) ☐ Joint Implementation Measurement Data Analysis Team (JIMDAT)	☒ Research Organization ☐ Labor Organization ☐ Manufacturer ☒ Regulator ☐ Other (specify) _____
Actions:	1. FAA AIR will continue support for research currently underway on onboard aircraft system of technologies to assess airplane braking action and provide the data in real time to the pilot, other aircraft crews, air traffic controllers, and the airport operators. *2.* FAA AIR will track research results and report conclusions to JIMDAT and CAST.	
Financial Resources:	Total:	$1.1M (0.8 Full Time Equivalent (FTE), $0.9M contracted research funding)
Itemized Resources:	FAA AIR: FAA ACT: FAA AVS: NOTES • For labor, 1 FTE was assumed to = $250K • Research is currently funded and underway through the FAA Terminal Area Safety Technical Community Requirements Group (TAS TCRG) for FY13 and FY14 at the level of $1.3M	0.4 FTE for oversight of research and development (R&D) activity (0.2 FTE per year for 2 years) 0.4 FTE for management of R&D contract activity (0.2 FTE per year for 2 years) $0.9M for contracted RE&D funding in FY15–FY16
	This is a research detailed implementation plan (DIP).	
Time Line:	• 42 months from CAST approval to complete R&D	
Target Completion Date:	December 2017. Completed and closed 12/07/2017 based on completed research and associated final report (pending).	

Reference Material	
Supporting CAST Intervention Strategies	NOTE: *This section lists applicable CAST Intervention Strategies (IS) used to develop the actions in this safety enhancement (SE). These ISs are listed to provide traceability and supporting rationale for the recommended actions. IS recommendations may be wholly or only partly represented in the SE, based on a final determination of feasible actions during SE development.* 1319 - The aviation community and regulators should sponsor research to develop an onboard aircraft system to assess airplane braking action and provide the data in real time to the pilot, other aircraft, air traffic control, and the airport.