<u>RPA – P3</u> Field Instrumentation & Testing

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RPA P3 Overview – Field Instrumentation & Testing

<u>Need</u>

Provides better understanding of long term pavement behavior in the field under varied climatic and operating conditions, and improved paving materials characterization will conserve airport development funds and reduce the downtime of runways from construction and maintenance activities.

Research Goals

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- More durable, long-lived airport pavements, reduced lifecycle costs, better prediction of pavement service life, and accurate assessment of aircraft-pavement compatibility
- Pavement performance data under different climatic conditions.
- Deliverables Technical Reports, technical papers.

FY 2018 Accomplishments

- Milestones
 - Lab tests on materials collected at BOS. \checkmark
 - Sensor installation at PHL. \checkmark
 - Lab tests on materials collected at PHL In Progress
 - Complete in-situ tests at PHL. 🗸
 - Install sensors at FDR project at Davis, CA (tentative).



<u>RPA P3 - Field Instrumentation & Testing</u> <u>Budget Chart</u>

R	PA P3 - Field Instrumentation & Testing [\$1,000]	FY17	FY18	FY19
D2 1	Sonsor Installation			
F 2.1				
	Cape May Airport (WWD)	_		
	Philadelphia International Airport (PHL)			
	UC Davis, CA Airport			
	Phoenix Sky Harbor International Airport (PHX)			
	Seattle-Tacoma Airport (SEA)			
P3.2	Material Testing			
	Boston Logan International Airport (BOS)			
	Cape May Airport (WWD)			
	Philadelphia International Airport (PHL)			
	UC Davis, CA Airport			
	Phoenix Sky Harbor International Airport (PHX)			
	Seattle-Tacoma Airport (SEA)			
P3.3	Data Analysis			
	Data Analysis			



Field Instrumentation & Testing Program

Airports Completed

- ✓ Denver (DEN)
- ✓ Atlanta (ATL)
- ✓ Newark (EWR)
- ✓ New York (JKF)
- ✓ Boston (BOS)
- ✓ Cape May (WWD)

Future Installation

- Philadelphia (PHL)
- UC Davis, CA

Current Discussions

- Seattle-Tacoma (SEA-TAC)
- Phoenix (PHX)
- San Francisco (SFO)









Current FAA Airport Instrumentation Projects





Philadelphia International Airport (PLH)





PHL Sensor Installation Layout





PHL Objectives

- Determine the response of concrete slabs and asphalt concrete under multi-gear aircraft such as A-350, B-777, etc.
- Compare the performance of concrete slabs and asphalt concrete under aircraft load.
- Evaluate the load transfer efficiency of the joint
- Measure the temperature profile in concrete pavement and asphalt pavement. Study the effect of temperature profile on pavement response.
- Evaluate curling in concrete slabs.
- Measure the stress on top of base layer under aircraft load for different pavement structure.
- Characterize the subgrade, base, cement concrete and asphalt concrete materials.

























































