Advanced Construction Techniques for Heated Pavement

Background / Motivation
- The effectiveness of ice and snow on airport pavement is a critical concern causing flight cancellation and delays
- Traditional de-icing methods have the potential to cause negative environmental and structural impacts

Objective
To develop advanced techniques to best automate and accelerate the construction of large-scale heated pavements at airports

Issues to be addressed
- Material selection
- Joint interfaces
- New equipment necessary for installation elements
- Time factors for installation
- And location of ancillary equipment at the airport

Research Approach
Step 1: Conduct comprehensive literature review
Step 2: Develop assessment framework
Step 3: Develop guidance on evaluating relative costs and benefits
Step 4: Develop a collection of advanced construction techniques
Step 5: Final report

Expected Outcomes

Advanced Concrete Pavement Techniques
- Two-lift Paving

Heated Pavement Systems
- Electrical Heated Pavement
- Hydronic Heated Pavement

Why Two-lift Concrete Paving?
- Two-lift paving is possible and practical
- Economic paving sections can be achieved
- Improved environmental by recycling
- Exposed aggregate surface is possible and practical

Why Precast Concrete Pavement?
- Better quality concrete
- Better curing conditions
- Minimal weather restrictions on placement
- Reduced delay prior to opening to traffic

Why Concrete Overlay?
- Can be designed to achieve a range of service life – 15 to over 40 years
- Can be constructed rapidly and with effective construction traffic management

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