AAPTP UPDATE

Canadian Airport Pavement Technical Group

September 16, 2007

Airfield

Asphalt

Pavement

Technology

Program

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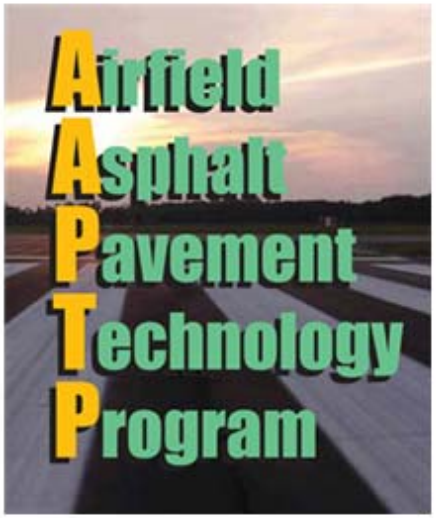


NEW! (7-27-07) New RF

PROGRAM NEWS/ PROJECT STATUS

REPORTS

PROGRAM OVERVIEW

RESEARCH PROPOSAL PROCESS

FORMS

LINKS

The mission of the Airfield Asphalt Pavement Technology Program (AAPTP) is to deliver applied research on asphalt airfield pavements that provides high quality, cost-effective asphalt pavements. The research projects will be focused on improving quality of hot mix asphalt (HMA), reducing costs, improving safety and providing training on HMA materials.

The AAPTP was established in 2004 through a cooperative agreement between the Federal Aviation Administration and Auburn University. Although closely related, the AAPTP is set up separately and operates independently from the National Center for Asphalt Technology (NCAT).

It is anticipated that five to seven projects will be awarded each year through a competitive bid process. Independent technical panels will be formed to establish, select and monitor each project.

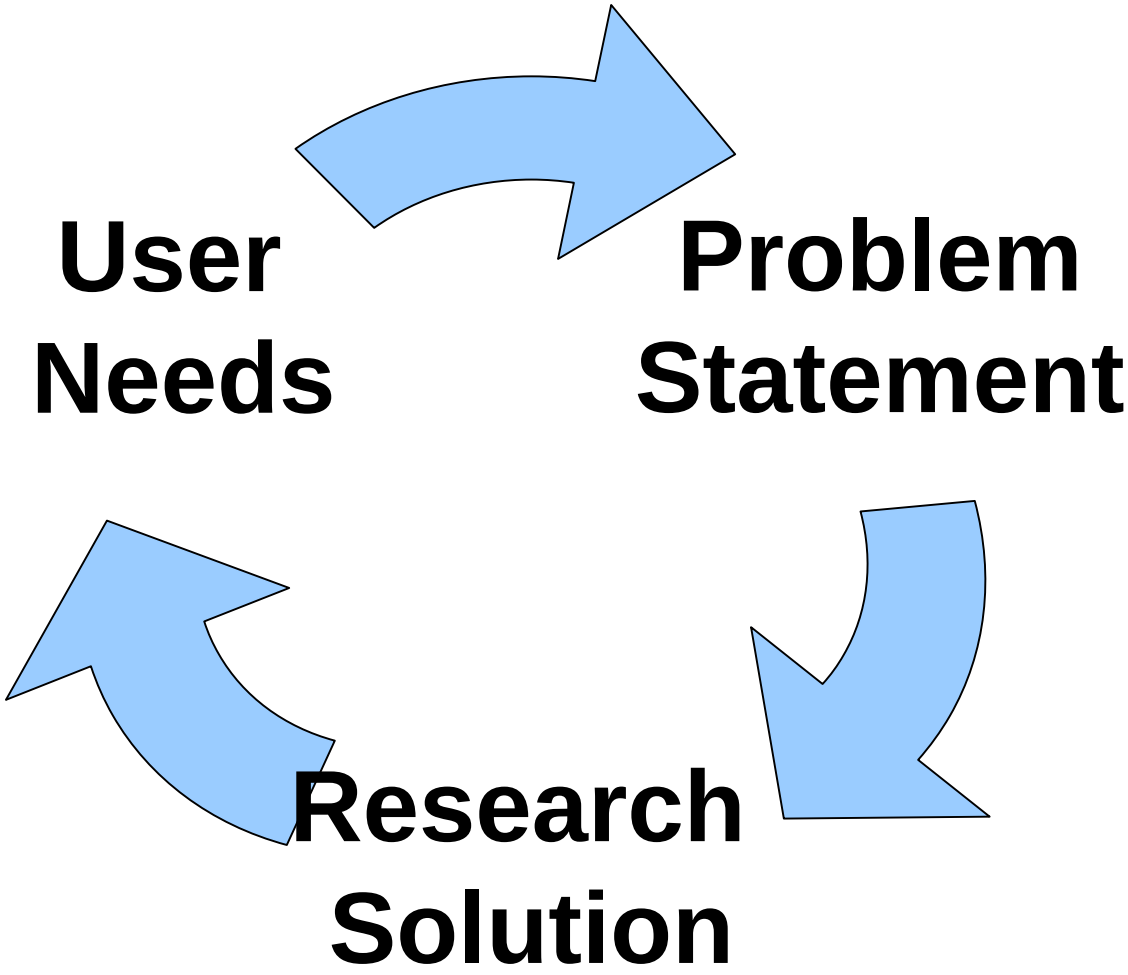
Be sure to watch this site as the AAPTP will be posting Requests for Proposals approximately every four to six weeks.

For any other questions, please contact

AAPTP Background

- Program began 2004
- Cooperative Agreement
- Projects are awarded as subcontract to Auburn University
- Organizational structure similar to NCHRP
- Funding obtained for FY-04 thru FY-06
- 19 Projects Authorized – Total $4.2 Million

Applied Research



Asphalt Pavement Challenges

- Performance/Economics
- Construction Issues
- Different from Highway Pavements
- Technology

AAPTP: Addressing Challenges

Performance /Economics

De-Icing Chemical (05-03)

Non Load Distress (05-07 & 06-01)

Recycled ASR Materials (06-02)

Performance Base Specs (06-03)

Life Cycle Cost Analysis (06-06)

AAPTP: Addressing Challenges

Construction Issues

Construction Best Practice (05-01)

Certification of Technicians (05-05)

Longitudinal Joints (04-05)

Rubblization (04-01)

Reflective Cracking Mitigation (05-04)

AAPTP: Addressing Challenges

Different from Highways Pavements

Fuel Resistance (05-02)

RAP Use (05-06)

Delamination (06-04)

Use of State DOT Specs (06-05)

AAPTP: Addressing Challenges

Technology

PG Binder selection (04-02)

Superpave (04-03)

SMA (04-04)

Porous Friction Course (04-06)

Overlay Design Procedures (06-07)

AAPTP Status

- 15 Projects awarded
- 1 Project proposals under review
  (06-06, LCCA for Airport Pavements)
- 1 Project RFP Issued
  (06-05, Use of State Specifications)
- 1 Project RFP under development
  (06-04, Identification of Delamination)
- 1 Projects technical panel being formed
  (06-07, Assessment of FAA Overlay Procedures)

Report Status

Completed Reports:

- 04-06 Porous Friction Course (BCDI)

Reports in Final Stages:

- 04-05 Longitudinal Joints (WPI)

Other Reports Due in 2007:

- 04-01 Rubblization (AI) (11-25-07)
- 04-02 PG Binder (AAT) (10-15-07)

Superpave (AAPTP 04-03)

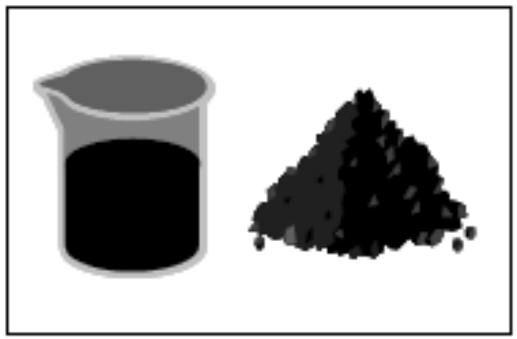
- Issue: Airport asphalt pavements are designed using Marshall procedures. Highway pavements are designed using Superpave concepts. Expertise in Marshall design procedures in waning and conversion to an airport mix design using Superpave concepts is needed.

Superpave (AAPTP 04-03)

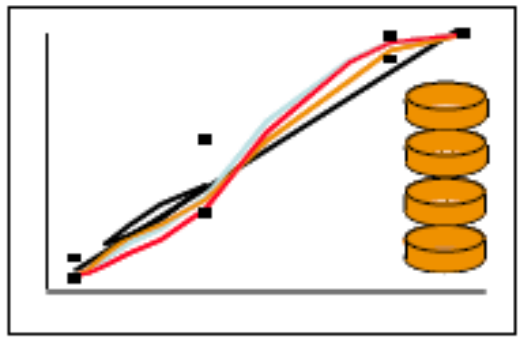
- Concept: Marshall mix designs have served the airport community well and changing to Superpave concepts must insure the same or better quality of service.
- Approach: Using a variety of pavements with service histories and recreate Superpave mixture with the same original ingredients that are similar to original Marshall mixture.

Superpave (AAPTP 04-03)

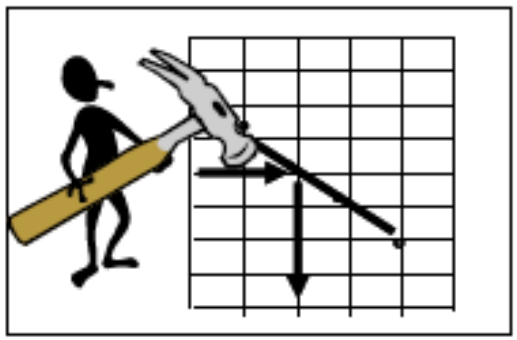
4 Steps of Superpave Mix Design



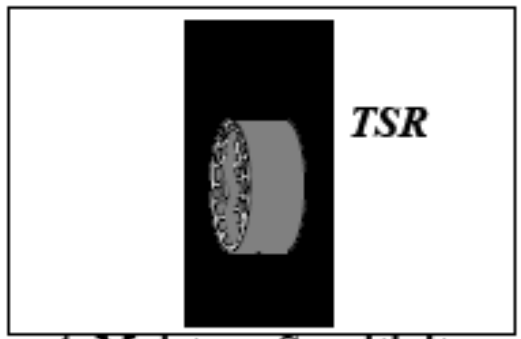
1. Materials Selection



2. Design Aggregate Structure



3. Design Binder Content



4. Moisture Sensitivity

Superpave (AAPTP 04-03) Experimental Plan

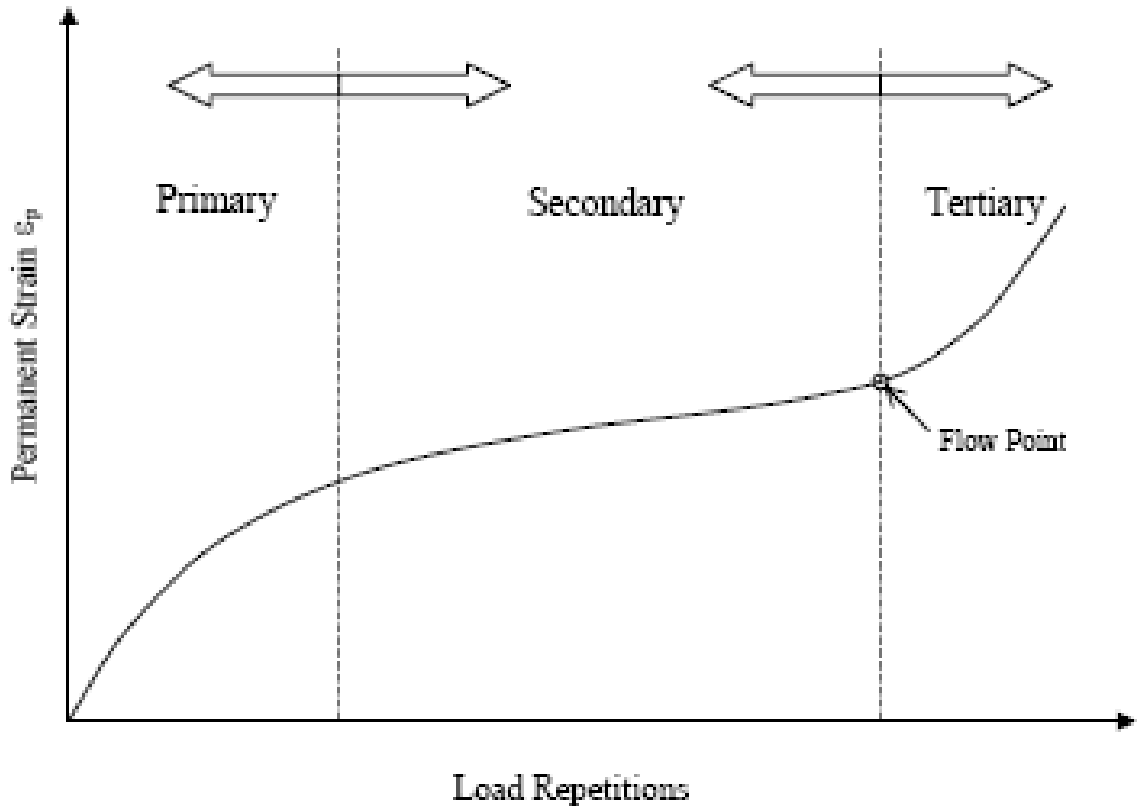
Loading Categories:

Loading	Number of Sites
Gross weight < 60000 lbs or tire pressure < 100 psi	3
Gross weight > 60000 lbs or tire pressure > 100 psi	4
Tire pressure > 200 psi	3

Repeated Load Permanent Deformation Test :

1. **Slope of secondary deformation curve**
2. **Total accumulated permanent strain,**
3. **Flow Number: number of cycles (up to 10,000) until tertiary flow occurs**

Superpave (AAPTP 04-03)
HMA Permanent Deformation Curve

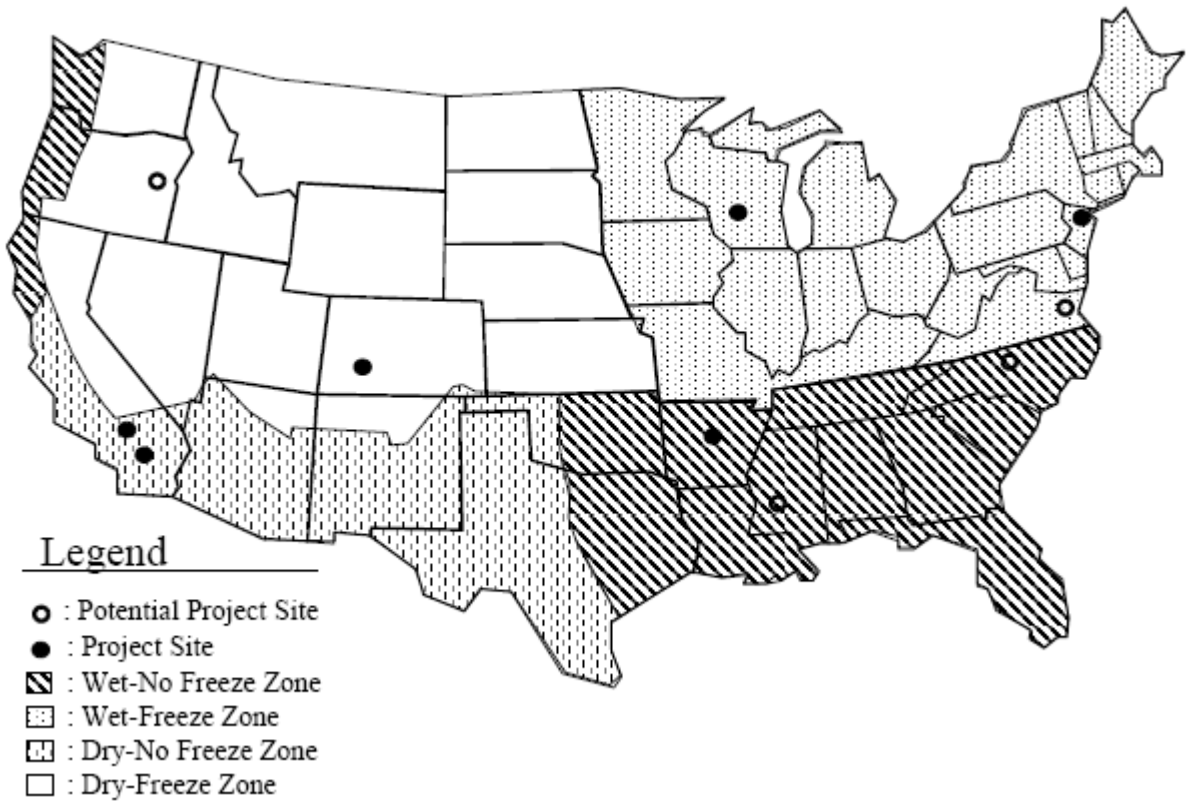


Superpave (04-03) Performance Testing Matrix

Repeated Load Permanent Deformation Test

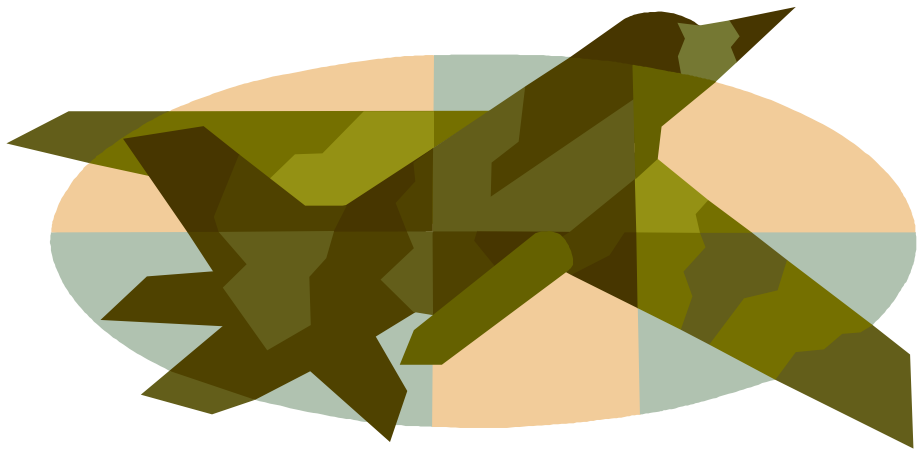
Loading	Optimum Asphalt Content at:				Number of Mixes
	50 gyrations	75 gyrations	100 gyration	Original	
Gross weight < 60000 lbs or tire pressure < 100 psi	100 psi 200 psi 350 psi	100 psi 200 psi 350 psi		100 psi	3
Gross weight > 60000 lbs or tire pressure > 100 psi	100 psi 200 psi 350 psi	100 psi 200 psi 350 psi	100 psi 200 psi 350 psi	200 psi	4
Tire pressure > 200 psi		100 psi 200 psi 350 psi	100 psi 200 psi 350 psi	350 psi	3

Superpave (AAPTP 04-03)
Potential Project Test Sites



Thank You!

Questions?



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