

Airport Pavement Test Vehicle



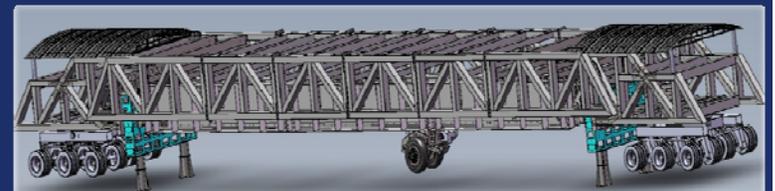
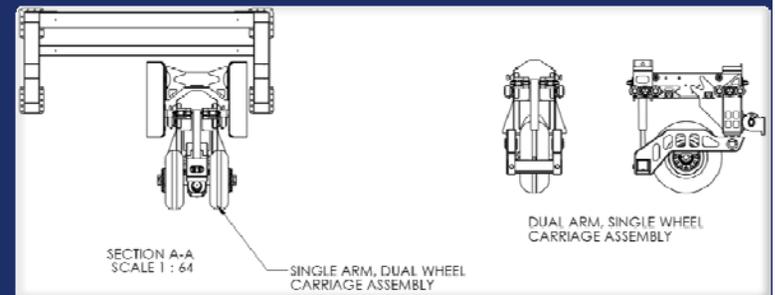
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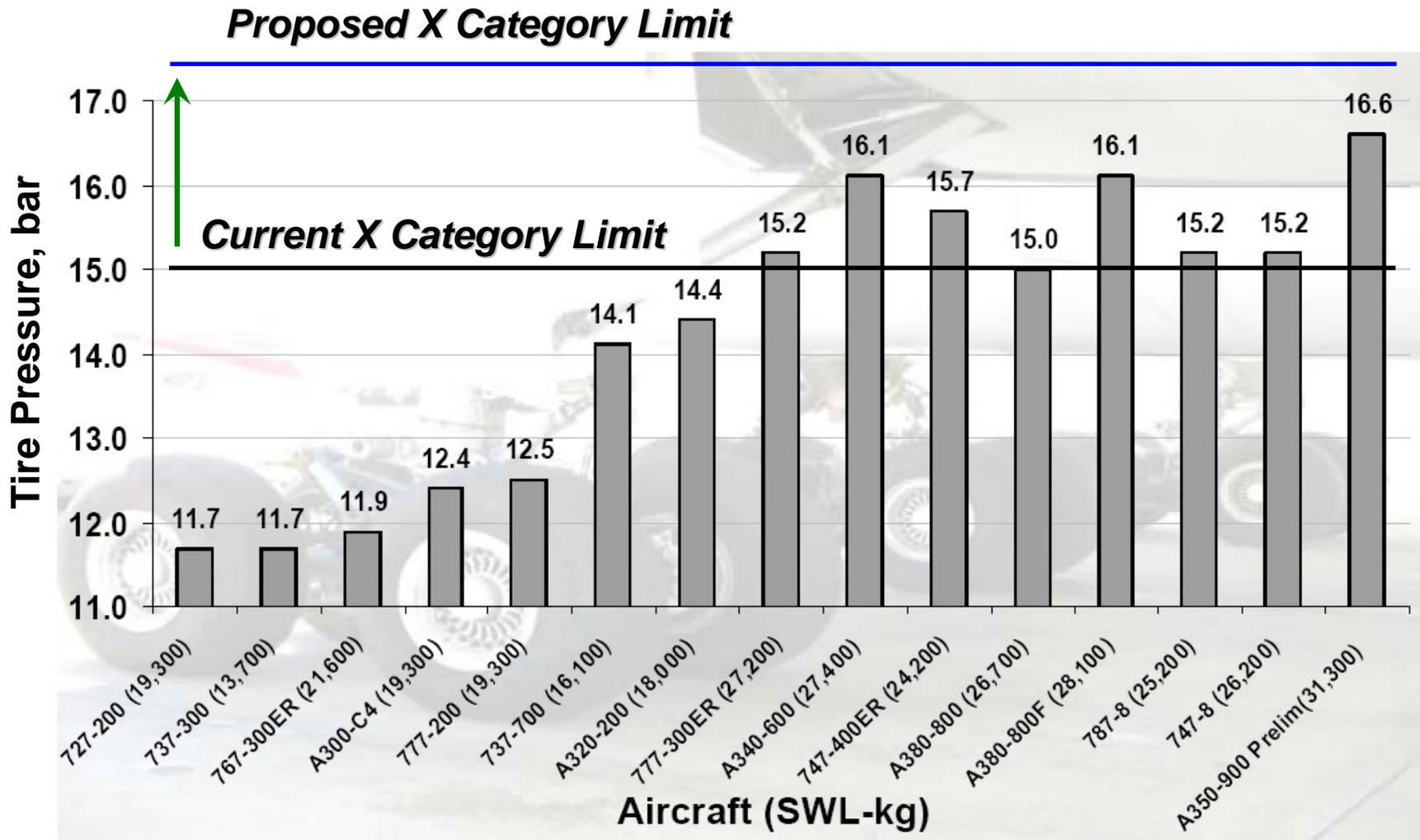
Presented to: Airport Pavement Working Group Meeting

By: Navneet Garg, Ph.D., FAA ANG-E262

Date: April 16, 2013



AIRCRAFT TIRE PRESSURE TRENDS



NEED FOR HTPTF

- To develop new specifications for P-401 (based on gyratory compactor) and other HMA related projects, R&D has relied mostly on laboratory testing. Full-scale tests are needed so that the performance prediction models for HMA from laboratory tests can be validated/calibrated to the in-situ pavements.
- NAPTF – ideal for testing pavement structure as a whole, not for surface layers.

HTPTF WILL PROVIDE THAT CAPABILITY.

APT_V Acquisition

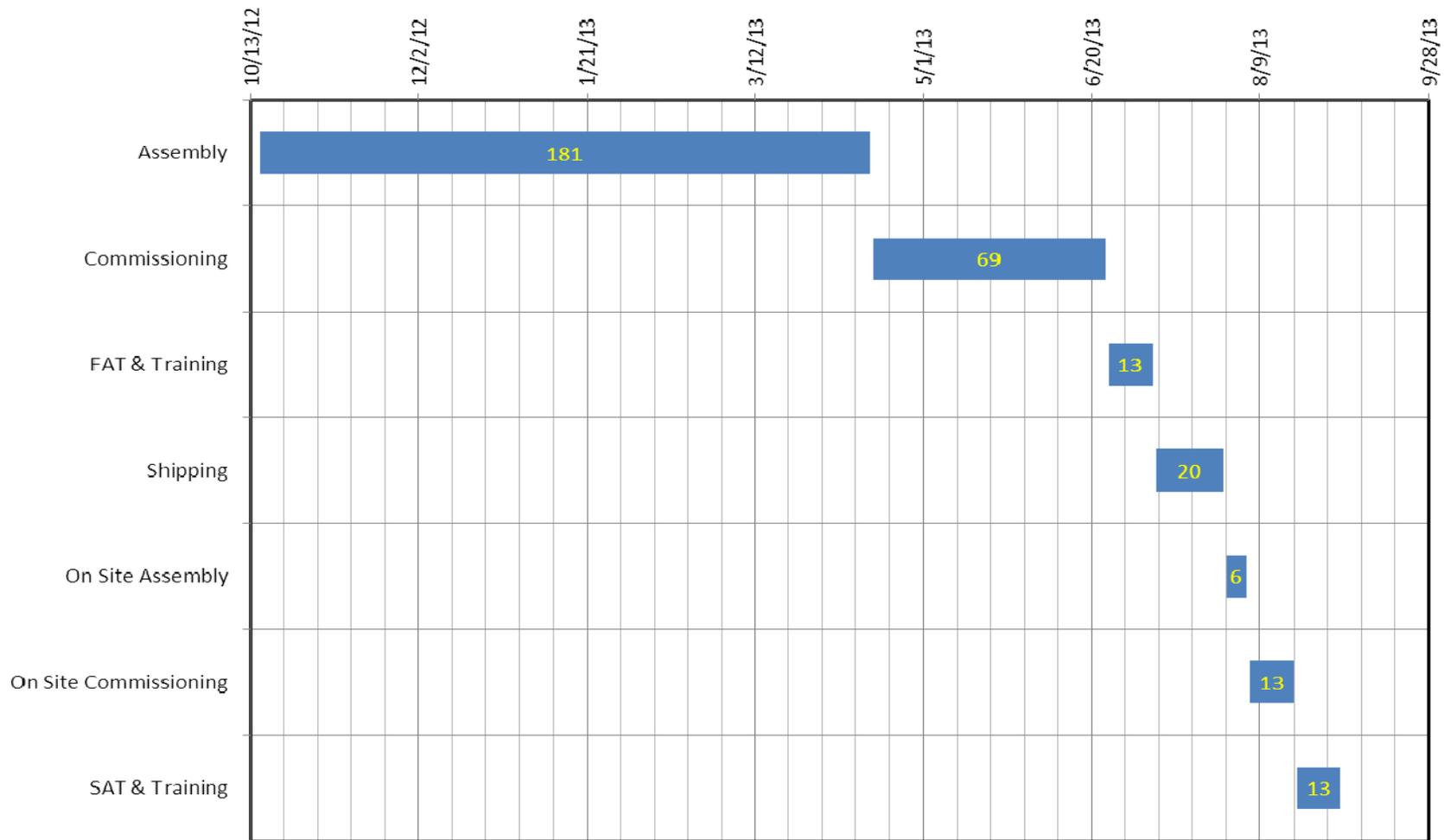
- **December 20, 2010** : **Specifications**
- **January 30, 2011** : **Market Research**
- **April 26, 2011** : **Release of solicitation**
- **May 26, 2011** : **Proposals due**
- **August 18, 2011** : **Technical Evaluation**
- **August 30, 2011** : **Award of Contract**

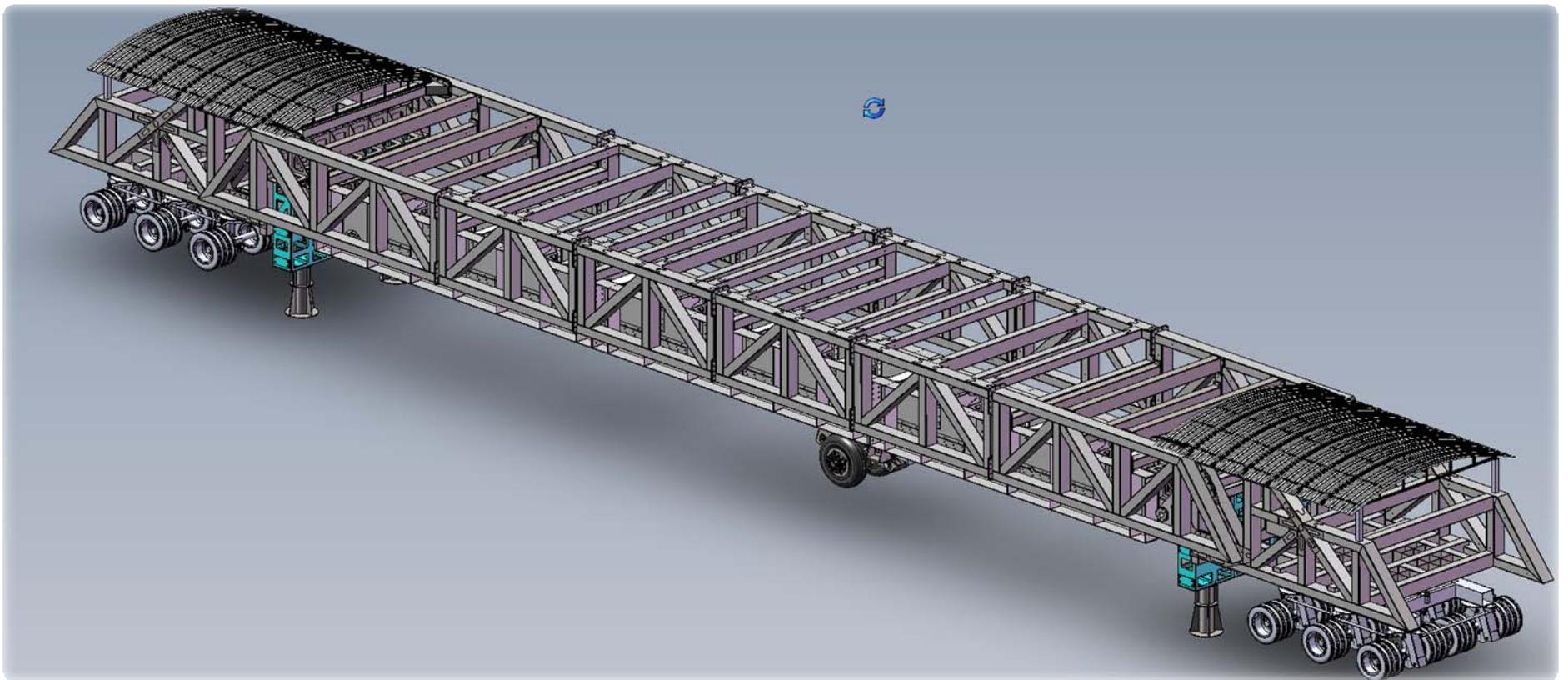
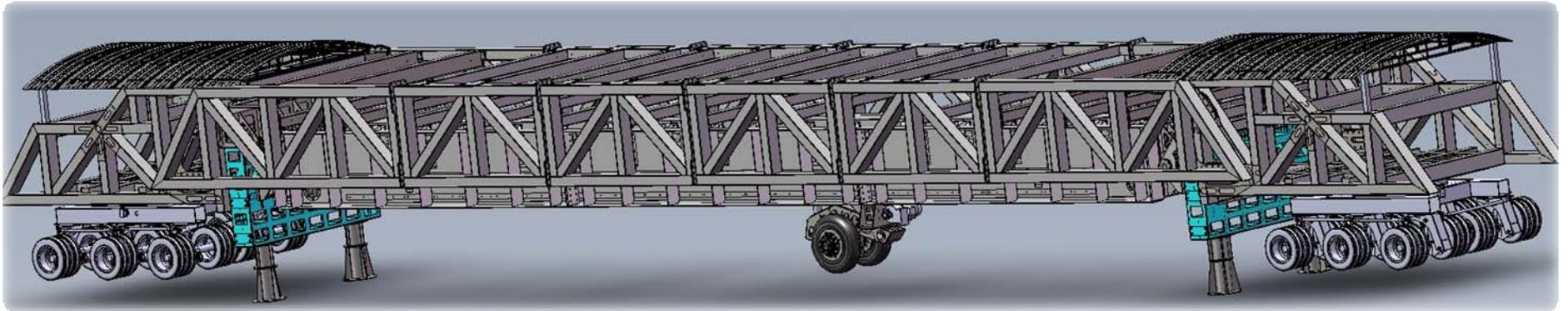


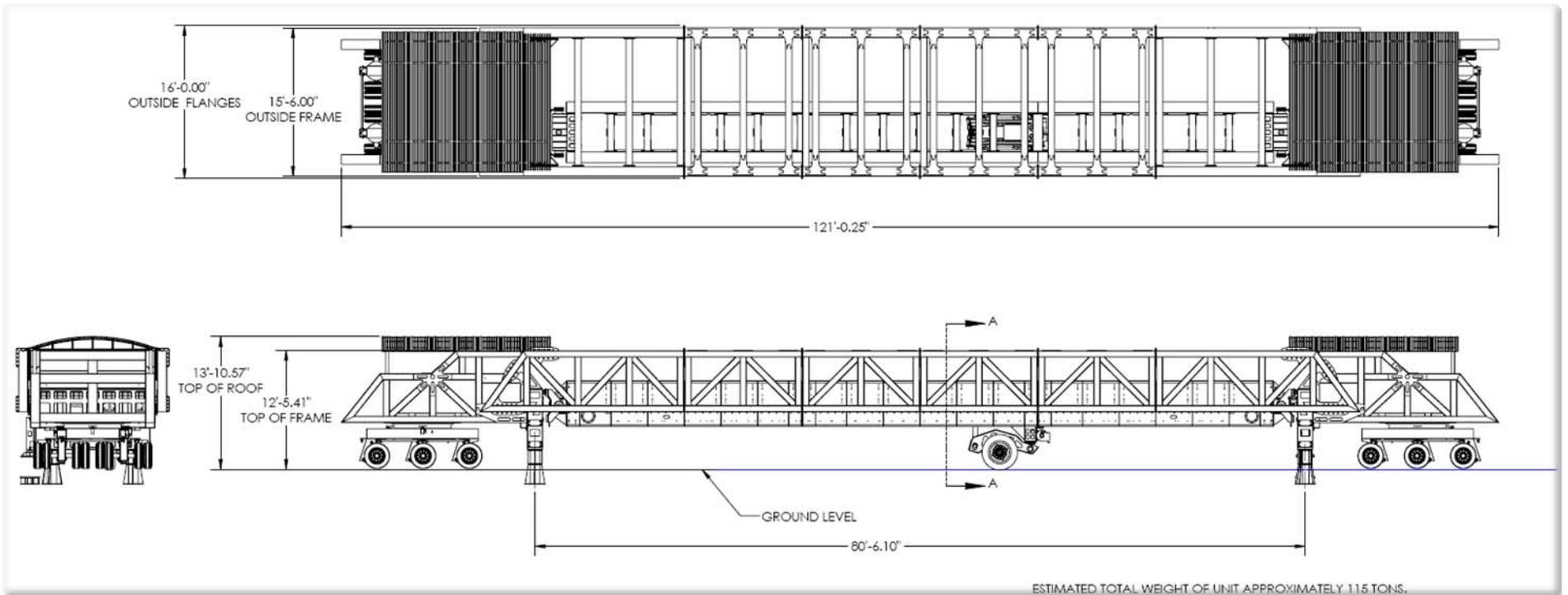
APTV Specifications

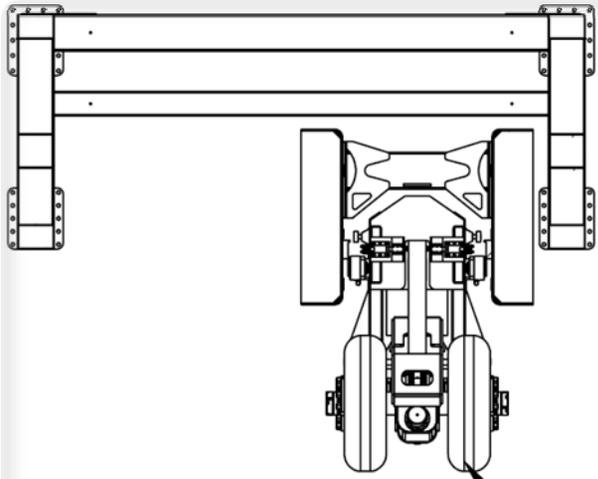
- Wheel loads - 10,000-lbs to 100,000-lbs
- Pavement temperatures up to 150 deg.F (65 deg.C).
- Test speeds - 0.17 mph to 5 mph.
- Single Wheel Configuration - max. load – 100,000-lbs
- Dual-Wheel Configuration - max. load – 50,000-lbs/wheel
- 6-feet wander





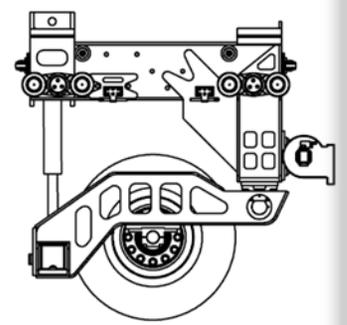
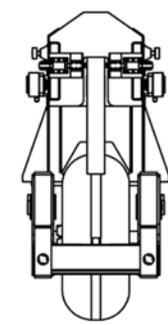




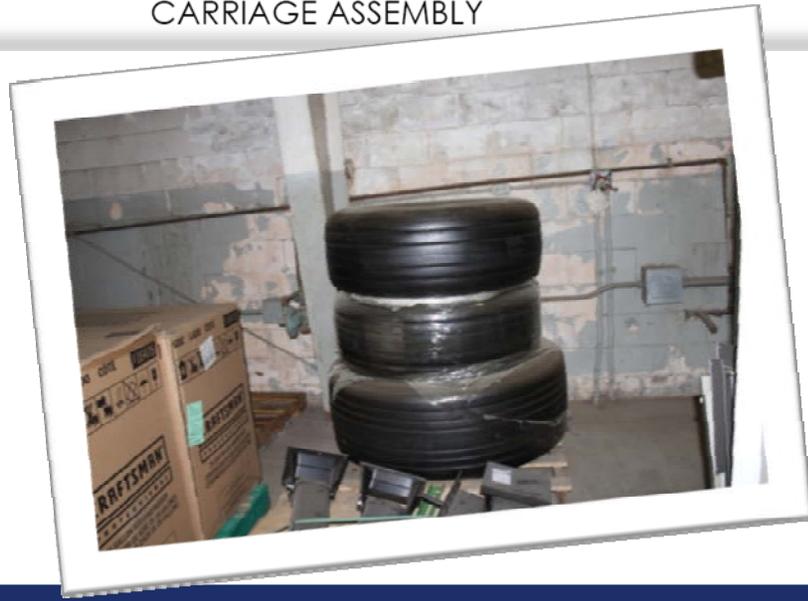


SECTION A-A
SCALE 1 : 64

SINGLE ARM, DUAL WHEEL
CARRIAGE ASSEMBLY



DUAL ARM, SINGLE WHEEL
CARRIAGE ASSEMBLY





Airport Pavement Test Vehicle – Airport Model
April 16, 2013



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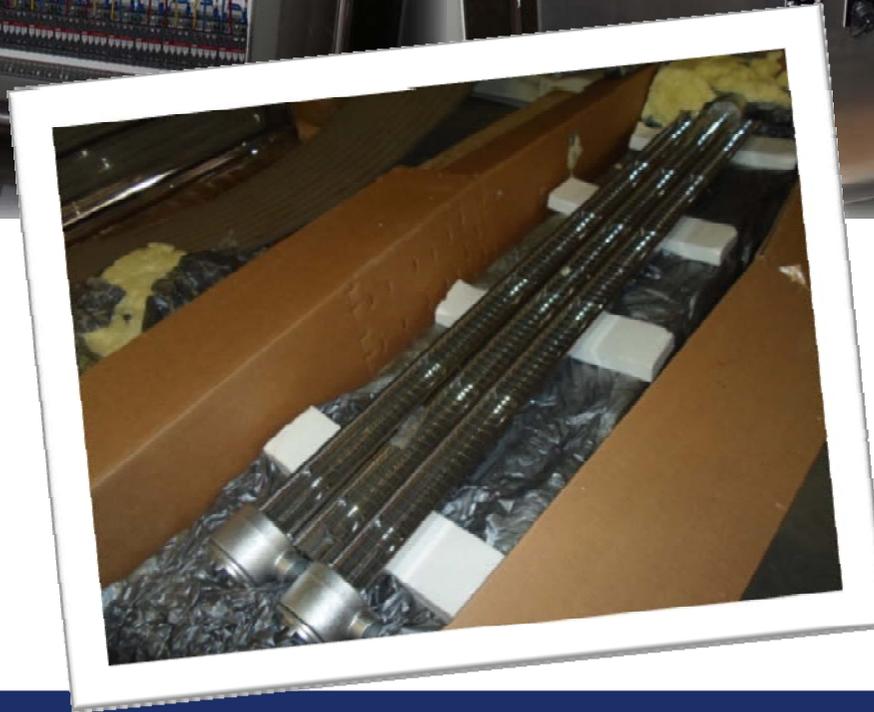
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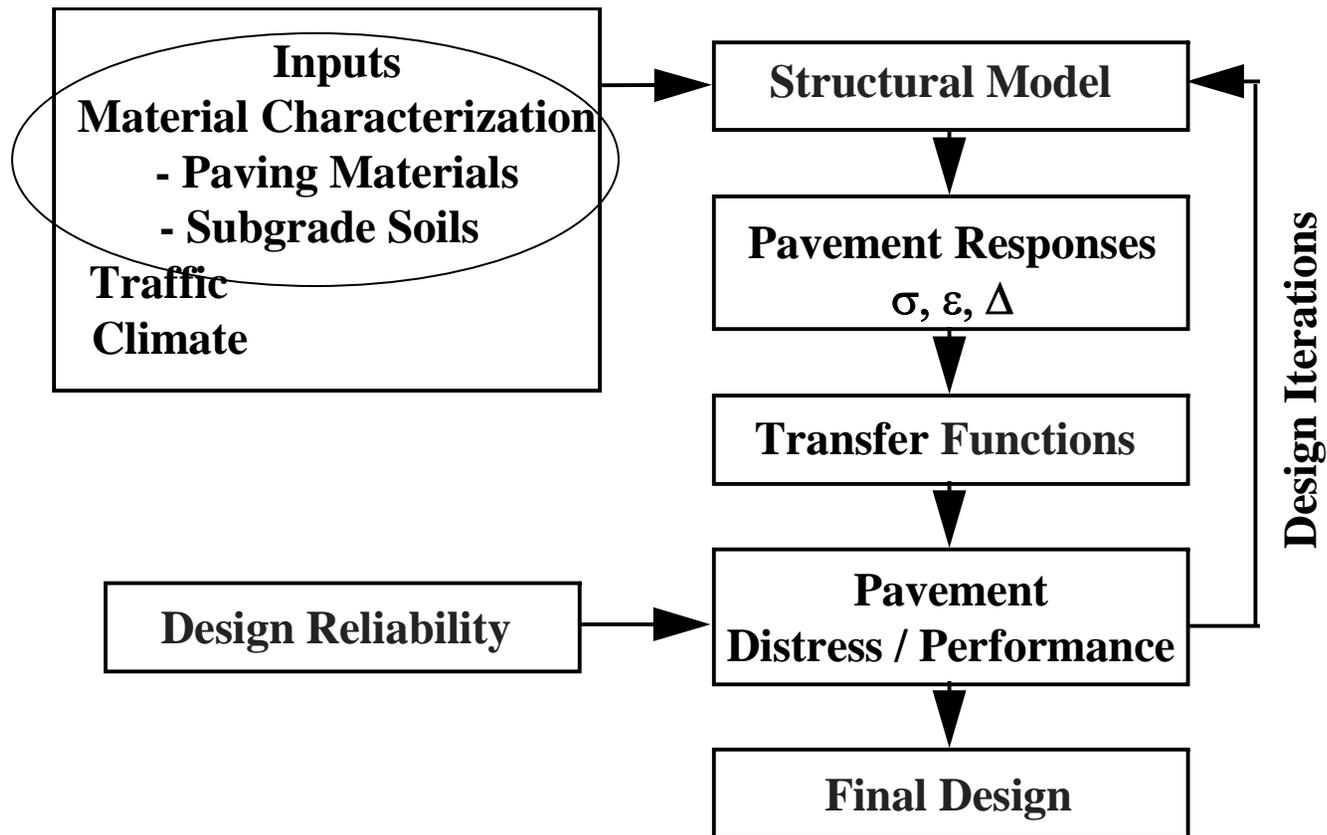
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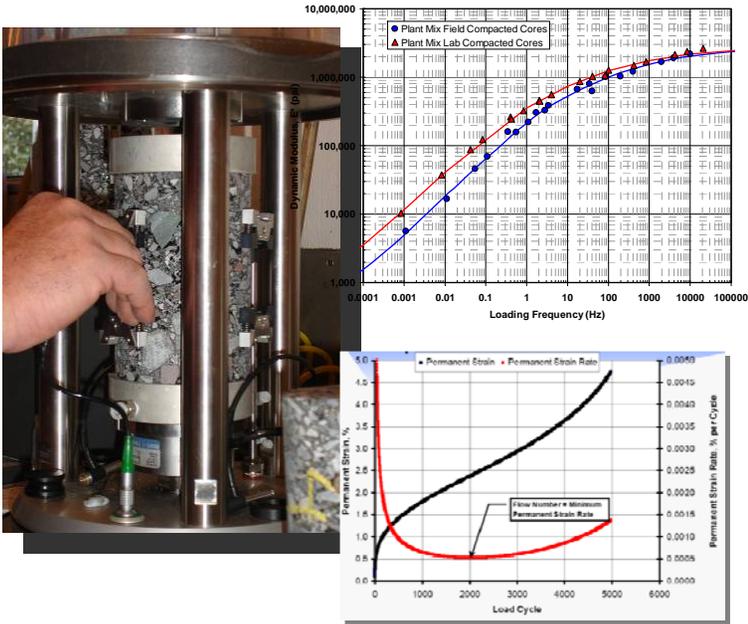
Proposed HMA Research Using APTV

- “Green” technologies such as Warm Mix Asphalt
- Stone Matrix Asphalt
- Asphalt overlays of PCC
- Recycled Asphalt Pavement
- Polymer Modified Binders
- Failure of HMA

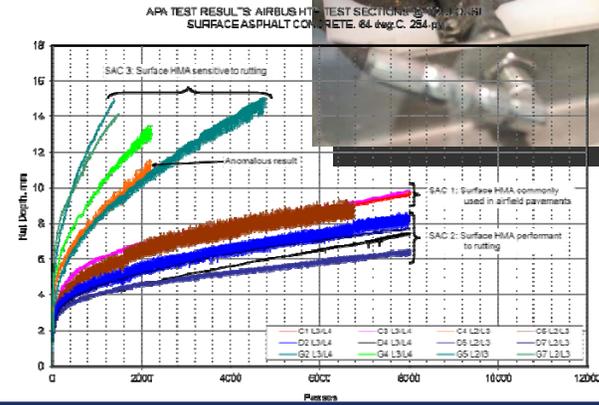
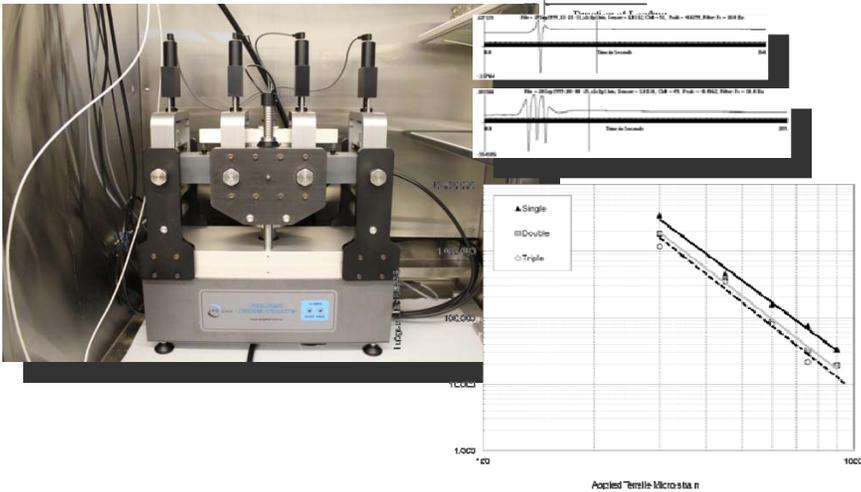




Components of a Mechanistic Design Procedure

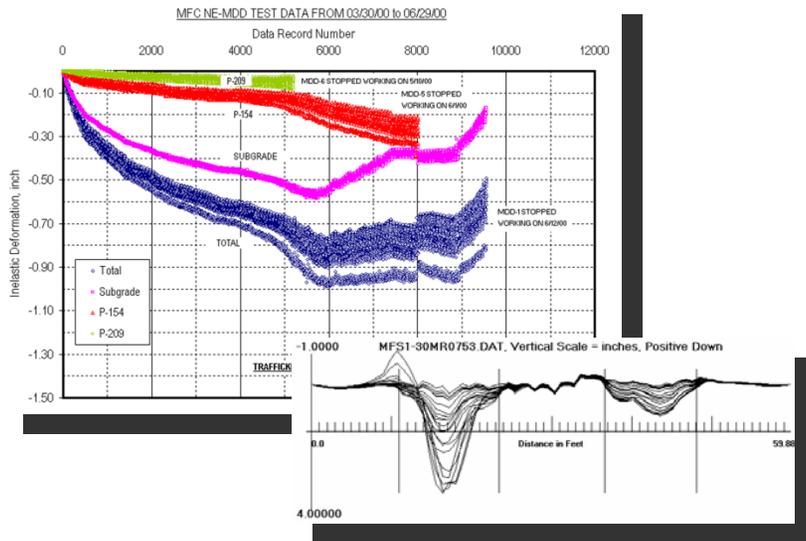
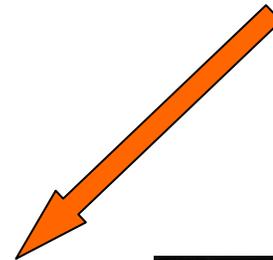


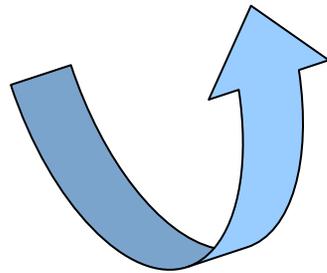
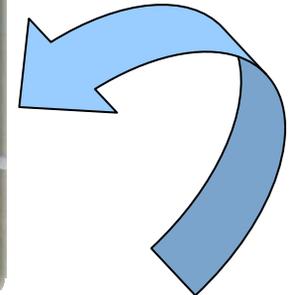
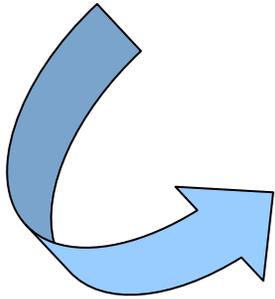
LABORATORY CHARACTERIZATION





FULL SCALE APT





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