

Contractor's View of FAA Projects

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Asphalt Mix Design

■ Marshall Mix Designs – Tried & True

- ❖ Old Technology, Developed by Bruce Marshall in 1939.
- ❖ Used by the Corp of Engineers to be a simple, quick and reasonably accurate simulation of wheel loading
- ❖ Equipment is comparatively inexpensive
- ❖ Most testing companies have equipment available
- ❖ Use gradations contractors are familiar with
- ❖ Use three samples to determine air voids
- ❖ Test results for voids have a quick turn around
- ❖ PG binders have added toughness & durability

Asphalt Mix Designs

■ Superpave Mix Designs

- ❖ Technology first tried in 1930's by Texas DOT using 4" diameter pipe and manual operation
- ❖ A mechanized compactor was developed by Texas in the 1950's
- ❖ Equipment is very expensive, not many independent labs own a gyratory
- ❖ Specifications are still a work in progress
- ❖ Unlike Marshall, there is no simple performance test
- ❖ No practical "advantage" over Marshall designs

P-401 Specifications

- Mix design currently easy to design with reliable results
- Aggregate = High quality but not overly difficult to produce from a quality rock source
- Gradation similar to WSDOT specifications
- Many independent test labs are familiar with procedure
- Voids not always easy to keep consistent due to:
 - ❖ Sample location protocol not always followed
 - ❖ Sample splitting and temperature affect voids
 - ❖ Location of Marshall hammer can affect voids
 - ❖ Statistical evaluation on a very tough test has not helped

P-401 Specifications

■ Compaction

- ❖ Density requirements are tough to meet
- ❖ Density penalties rough on Contractors (but have been eased somewhat by applying bonus points to failing lots)
- ❖ Joint Density has been improved by cutting joint back - Alternate approaches may be as effective
- ❖ Density specs. dictate more compaction equipment
- ❖ Results of densities determined by cores with one day time lag for information-results in lost time & effort
- ❖ Re-Profiling of runway (varying mix depths) make rolling patterns difficult to keep consistent in many applications

P-401 Specifications

■ Contractors Wish List for Compaction

- ❖ All core samples must be greater than 2” in depth for density tests to be performed on them or eliminate results from statistical pay lot calculations
- ❖ Density gauges correlated to cores during test section or early on in the project and used as acceptance. The technology is mature, accurate, well-proven and can result in more statistically relevant results/ fewer challenges/ elimination of information lag time
- ❖ Thin spots for pre level or re-shaping runway should not be tested but a rolling pattern can be established and followed by contractor

Factors Affecting Bids

- Time constraints on construction activity
- Scope of work – How much rock needs to be crushed in what time period? What “other work” is involved
- Proximity to stationary asphalt plants and/or aggregate sources
- Time of year of Bid Advertisement and construction schedule for activity
- Penalty structure based on compaction and voids
- Current condition of runway

Design of Project

- Generally, plans are fairly simple. Design information on variable paving depths is critical but not always supplied
- Profile should be done of the runway on a grid layout
- Constructability fairly easy unless time constraints are unreasonable. Consider production time/ construction window

Project Concerns

- Designers, Laboratories, Airport Management and FAA all involved but separate entities. Decision tree is often not conducive to changes/ problems/ tight time frames
- Lab not always one we are familiar with
- FAA specifications have to be met but project conditions are not always realistically considered vs. strict standards
- Prime coat should never be specified
- Pre-con meeting should have all players involved make a mandatory appearance