Association of Modified Asphalt Producers

Fort Lauderdale, FL

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Zero Balance Warranty

A New Look at Alternate Contracts





Note: For narration of this presentation, click here to visit AMAP's technical library to download the PowerPoint show file.

IN THE BEGINNING

Laying Asphalt in the1910's (?)





State of the Art Mix Design

"Recipe" Mix Design



200 lb fine sand 300 lb coarse sand 400 lb crushed gravel 50 lb penetration asphalt

Mix @ 300 F and lay on road



Early Days Warranties Were Used







AASHTO (AASHO)

- 1914 Formation of AASHTO
- Highways are State Responsibility
- Federal Aid instituted 1916
- 23 CFR 635.411
 - Prohibits patented or proprietary products





DESIGN : BID : BUILD

 Becomes standard method of procuring highways

Agency Design Agency Specifications Contractor Bid Low Bid Wins

Definition of Success

"The Contract Specifications Were Met"



PERFORMANCE

Build to Specifications

Should perform



During construction



2 months old

000



10 months old













6 months old





11 years old

NOFT TOUCH MOVING

Happened over one winter

2 (?) years old

5115

DIS



14 years old

Pavements Can Perform



Rubblize Concrete Pavement Built 1998

tristing for the second second

VELTS

11 to remove overlat



Project Condition (2012)

	Southbound	Northbound
IRI Mean (inches/mile)	29	30
90 th Percentile	36	38
Rut Mean (inches)	0.08	0.08
90 th Percentile	0.13	0.17



Northbound 2012

Ma Traventein

53395

000

Southbound 2012

000

The game is played the way the rules

are written

How Do We Buy Highways? Agency designs using their standards Design **Contractor bids price for quantity** Bid Low bid wins Contractor builds using Agency Build material specifications

How Do We Buy Highways? Rules

Design Bid Build

Low cost is king

Meet specifications As enforced



How Do We Buy Highways?





How Do We Buy Highways?





Meet B specifications As enforced



Speed is Important



How Do We Buy Highways?



Low Bid Sum of A + B

> Warranty is added requirement



How Do We Buy Highways? Rules

Speed is Important

A

+

B

+

Low cost



Meet specifications As enforced



Performance



How Do We Buy Highways? Consortium does design using Agency information Selects standards used Public Private **Consortium with lowest price selected** Partnership Contractor builds and maintains to contract standards



How Could We Buy Highways? Similar to P₃ Long-term pavement performance Zero Balance Warranty









Agency Preliminary Thickness Design



1.5 inches 9.5-mm SMA

2.5 inches 12.5-mm Intermediate

3.0 inches 19.0-mm Base

4.0 inches 25-mm Base

4.0 inches 25-mm Base









Agency develops payment schedule





Agency Cash Flow (PW\$ 4% discount)







Contractor Thickness Design



1.5 inches 9.5-mm SMA

2.5 inches 12.5-mm Intermediate

3.0 inches 19.0-mm Base

4.0 inches 25-mm Base

3.5 inches High Modulus Base







\$34,000,000 \$33,500,000 Contractor \$33,000,000 \$32,500,000 **Cash Flow** \$32,000,000 (PW\$ \$31,500,000 4% discount) \$30,500,000 \$31,000,000 \$30,000,000 360 60 120 180 240 300 0 Includes risk, margin, etc. Month

Contractor Offered Payments (PW, 4%)





Contractor Balance (PW, 4%)



Push versus Pull

- Current Specifications written to push the contractor towards "good performance"
- Warranty Specifications define what good performance is



Low Density at Joints



Premature Cracking





Smoothness and Density at Joints





SB-2500

3.3

ROADTEC

TES.



Friction



1000



Correlation of Friction to Macro-texture Depth



Warranty Promotes Innovation Materials High polymer asphalt High delta Tc asphalt Premium aggregates

Construction Practices Instrumented rollers. Achieving high density Preventive Maintenance Thermal segregation Joint treatments Joint treatments Reduced permeability emulsion Cost Benefit SMA Surface High modulus asphalt base Rich bottom asphalt base Stiff subgrade treatment

Short Term Warranty

Instrumented rollers Instrumented rollers high density Achieving high density Achieving segregation Thermal segregation Cost Benefit Promote Construction Quality

Construction

Practices







The game is played the way the rules

are written

A New Set of Rules

PART CU

