

Bill Temple, Chief Engineer - LADOTD Welcome SEAUPG 2004 Conference - Baton Rouge



SOUTHEASTERN ASPHALT USER/PRODUCER GROUP

Baton Rouge, La.
November 16, 2004



USE OF CONTRACTOR TEST RESULTS IN ACCEPTANCE

- FHWA Technical Advisory T 6120.3
- Recommended Quality Measures
- Identification of Contractor/Department Risks
- As Departments downsized QC shifted to contractors
- LADOTD staff reduced from 7500 to 5200 over last 20 years

Testing Requirements vs Staffing

- LADOTD is working to reduce testing overall
- Field Operations further reduced by 75 positions this year
- LADOTD considering consolidation of 9 District Labs into 5 (may result additional 21 positions)
- Departments looking for ways to use contractor QC data for acceptance as a reaction to staff reductions
- Fraud investigations ongoing in three states

Back to the Technical Advisory

- An Independent Assurance Program (IA) is required for NHS projects
- District Lab independently sample, test, validate results from our own inspectors
- Contractor results may be used in some cases but must also be validated by us
- PWL or PD (percent defective) limits are recommended
- Avoid averages or moving averages

Risk Assessment

- Calculate the Buyers/Sellers Risk
- Determine Acceptable and Rejectable Quality Levels
- Implement Statistical Hypothesis Testing
- Incorporation of Pay Adjustments +/-
- FHWA taking the lead on development and training



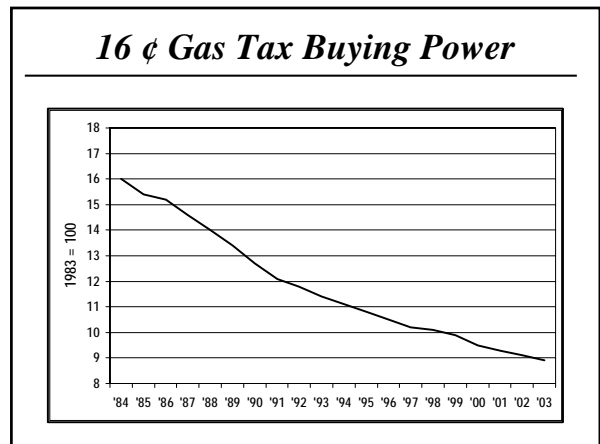
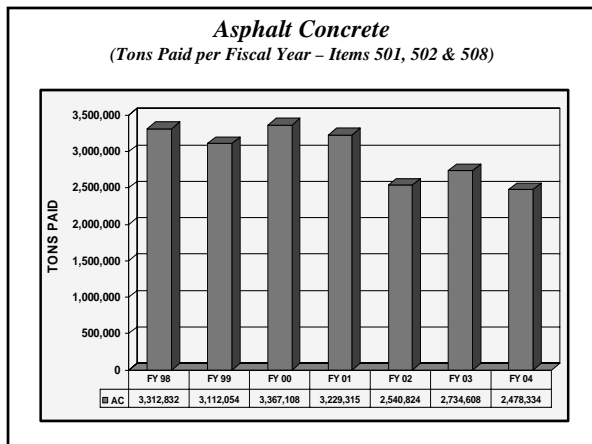
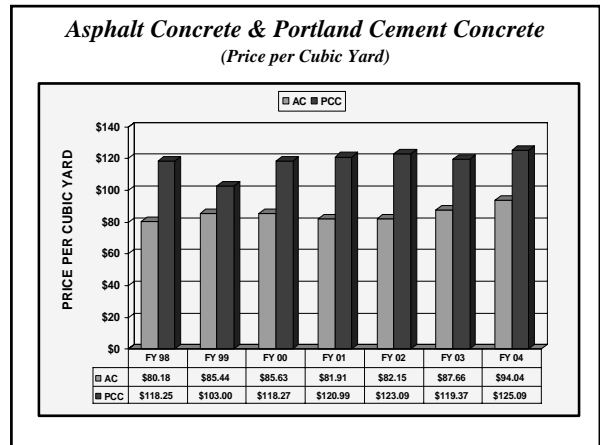
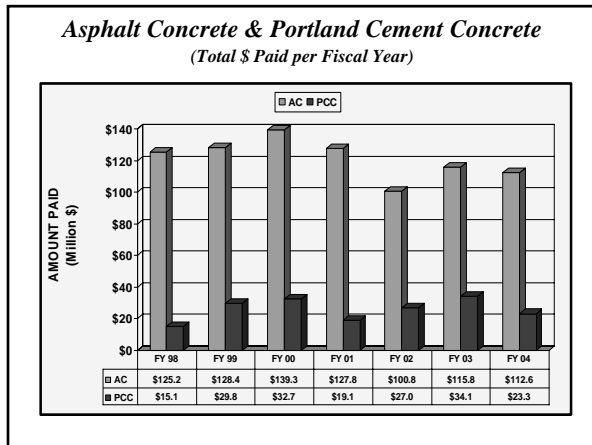
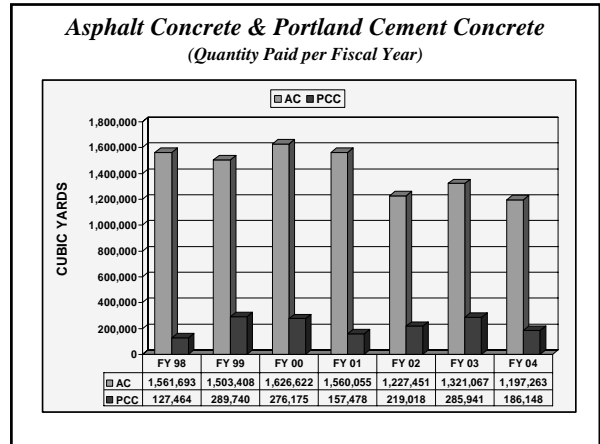
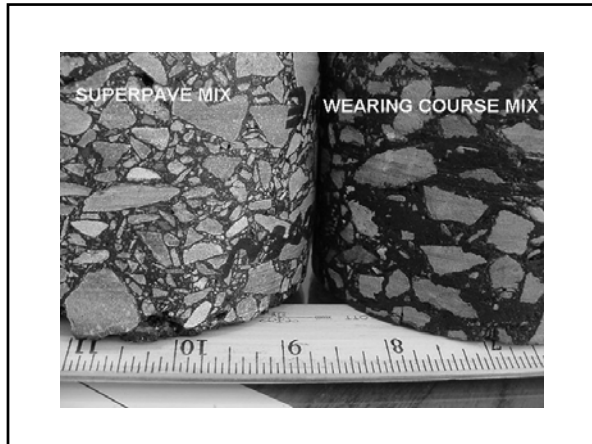
ASPHALT CONCRETE IMPROVEMENTS TO EXTEND LIFE

- Polymers
- Superpave and SMA designs
- Experimenting with OGFC
- Materials transfer devices
- Stone bases over Soil Cement

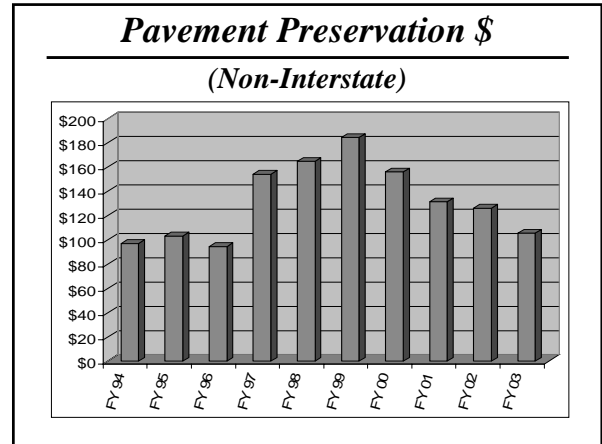
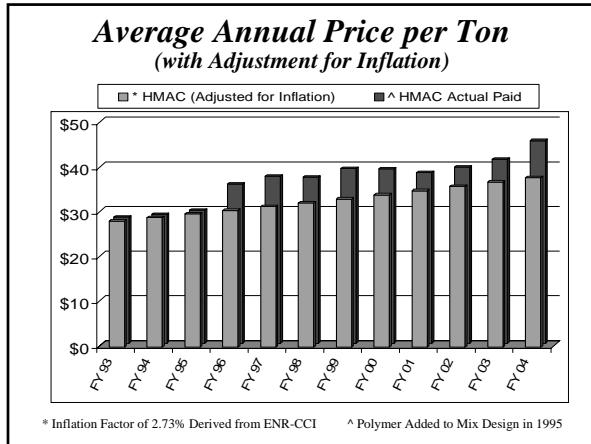


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Pavement Type Selection

- Asphalt Overlay Program
- Municipal Preference
- Alternate Design – Alternate Bid Using LCCA

Steps in ADAB/LCCA

- Select alternative pavement design and future rehabilitation strategies
- Estimate agency costs
- Estimate user costs
- Compute LCC using net present value
- Analyze results (20%)
- Calculate life cycle cost adjustment factor
- Add to contractors bid

Development of Process

- LADOTD Committee developed process
- Industry review, comments, and presentations

Solicited comments from FHWA and national trade associations

Assumptions & Activity Timing

<ul style="list-style-type: none"> Rigid – Year 0 <ul style="list-style-type: none"> • 20-year design – Year 20 <ul style="list-style-type: none"> • Clean & re-seal joints • Patch 1% of joints – Year 30 <ul style="list-style-type: none"> • Patch 2% joints • retexture 	<ul style="list-style-type: none"> Flexible – Year 0 • 20-year design – Year 15 <ul style="list-style-type: none"> • Cold plane & overlay • 15-year design – Year 30 <ul style="list-style-type: none"> • Cold plane & overlay • 10 year design
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Valuation of Residual Pavement Strength for Resurfacing

- How much to mill and replace in the future?
- Replace more than you mill off in response to increased traffic?
- How to assess the strength of the pavement that remains?

Alternate Design Alternate Bid Model (ADAB)

- **A** = contractor's bid for construction
- **B** = contractor's required # of calendar days translated into dollars
- **C** = LCC Adjustment Factor (rehab)

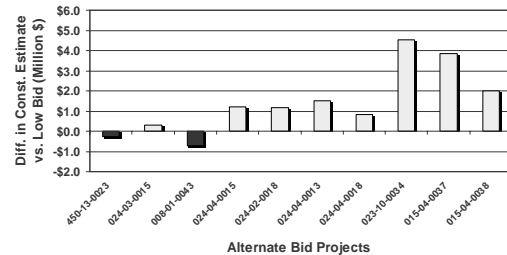
$$C = \text{Total LCC}_{NPV} - \text{Costs}_{\text{Year } 0}$$

Project Data

State Project No.	Let Date	Diff. In AC & PCC Bid (\$ millions)	Pavement Type
450-13-0023	6/27/01	3.9	AC
024-03-0015	10/31/01	2.4	AC
008-01-0043	6/26/02	3.2	AC
024-04-0015	1/15/03	0.9	PCC
024-02-0018	4/16/03	0.7	AC
024-04-0013	4/30/03	0.1	PCC
024-04-0018	5/28/03	0.5	PCC
023-10-0034	4/28/04	0.7	PCC
015-04-0037	6/26/04	2.1	AC
015-04-0038	9/29/04	N/A	AC

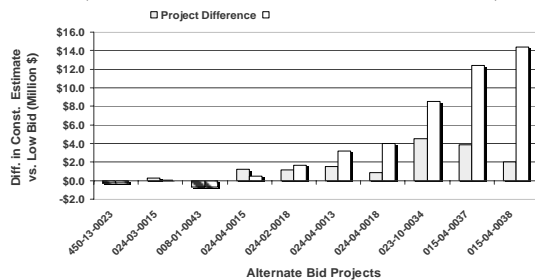
Alternate Design/Alternate Bid Project Data

(Negative Values Indicate Award Value > DOTD Estimate)
(Positive Values Indicate DOTD Estimate > Award Value)



Individual & Cumulative Project Data

(Negative Values Indicate Award Value > DOTD Estimate)
(Positive Values Indicate DOTD Estimate > Award Value)



Where Do We Use The Alternate Design / Alternate Bid Model?

	Million Dollars	Alternate Design / Alternate Bid
PRESERVATION		
- Non-Interstate Pavement	\$125	No
- Interstate Pavement (IM)	\$65	No
- Bridge (On / Off System)	\$101	No
OPERATIONS		
- ITS, Weigh Stations, Rest Areas, Contract Maintenance	\$36	No
SAFETY		
- Highway	\$38	No
- Railroad Crossing		

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Where Do We Use The Alternate Design / Alternate Bid Model?

	Million Dollars	Alternate Design / Alternate Bid
CAPACITY	\$132	Yes
MISCELLANEOUS		
- Enhancement Program	\$9	No
- Urban Systems	\$48	Yes
- Federal Earmark (DEMO)	\$70	Yes
- TIMED (4 Laning)	\$324	Yes
- Bonds (State Funds)	\$168	Yes
Totals:	\$1,116	\$742
Alternate Design / Alternate Bid		66%

Reasons to Use ADAB

- ✓ Provides a tool to allow alternate materials through an assessment of long term value
- ✓ Encourages the agency to consider user cost effects and possibly alternate construction scenarios
- ✓ Increases the bid pool which may result in lower bid prices to the contracting agency

LTRC & CEE Asphalt Research Laboratory

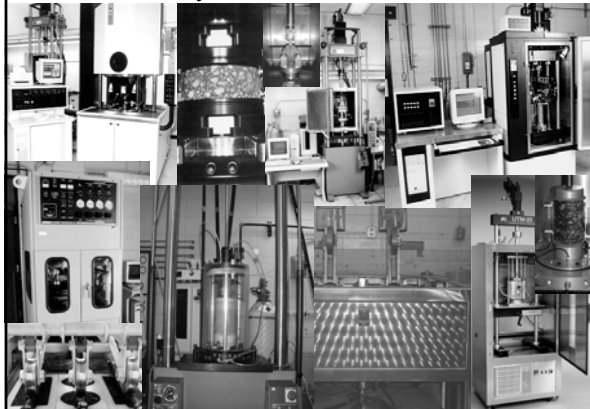
- Equipped and staffed with state-of-the-art facilities to undertake full range of standard ASTM/AASHTO and research type of tests
 - Aggregate
 - Asphalt binder
 - Asphalt concrete mixtures

Dr. Louay Mohammad, LTRC and LSU

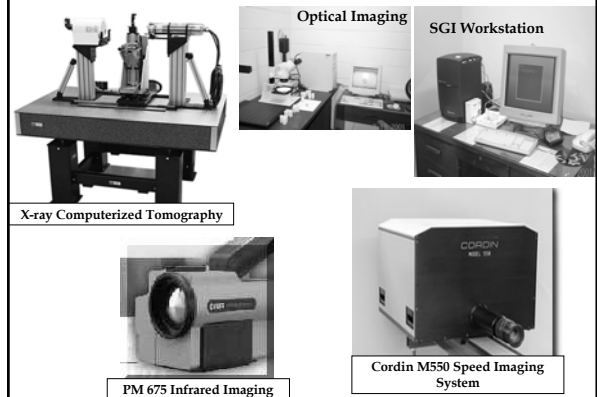
Asphalt Research Laboratory Compactors



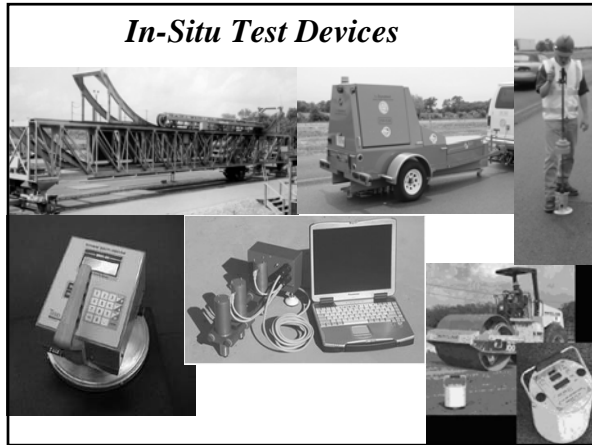
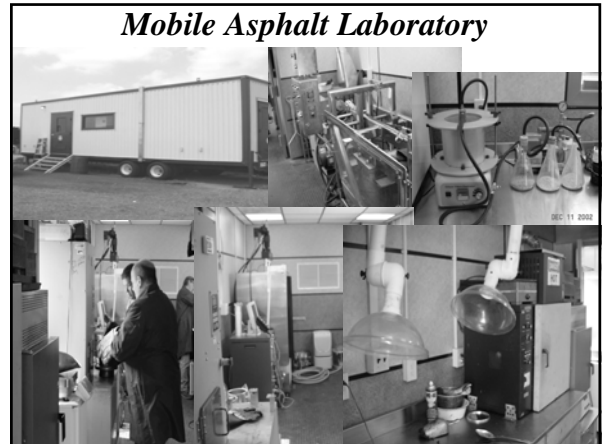
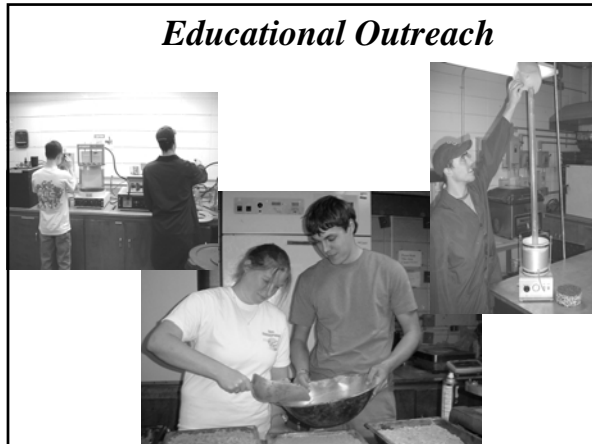
Laboratory Materials Characterization



Advanced Imaging



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Educational Outreach

- LADOTD Co-op Program
- Participants' Projects in the Asphalt Area
 - ✓ *Permeability Of Superpave Mixtures*
– Student: Kevin Sprull
 - ✓ *Specific Gravity Measurement: Comparative Evaluation of Conventional and Vacuum Sealing Method*
– Student: Sarah Paul
 - ✓ *The Influence of Air Voids and Aggregate Gradation on Superpave Mixtures*
– Student: Laura Robison

Educational Outreach

- Industry funded Undergraduate scholarships
 - 6-8 awarded yearly
 - CEE and Construction Engineering Student