

# ASPHALT TECHNOLOGY CONFERENCE

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Shreveport, LA

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# LOUISIANA ASPHALT



- Materials
- Mix
- Surface Tolerance

# Specification Update

Superpave  
– not so  
scary!



# ASPHALT CEMENT



- **WHY POLYMER? – top two lifts of asphalt.**
- **Polymer is \$3-\$4/ton of mix**

# Asphalt Cement

PG76-22m

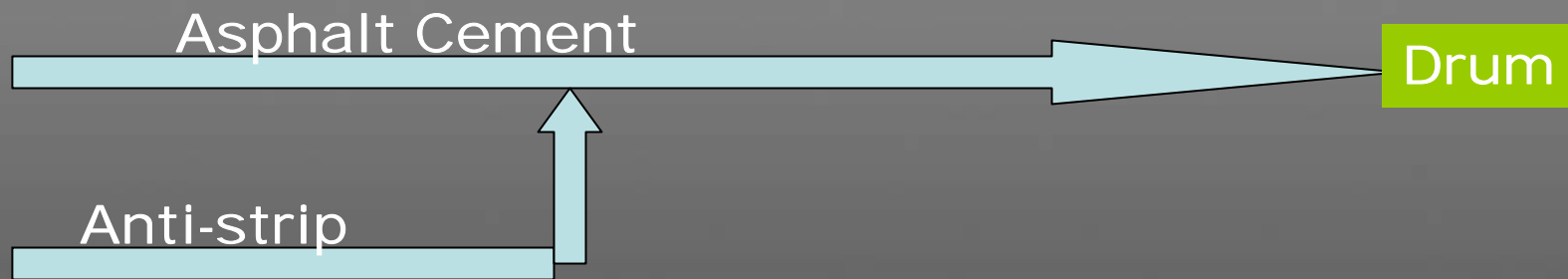
- \$276/ton of Liquid AC
- \$11/ton of Mix is for AC
- Cost of Superpave Mix \$44/TON

# Anti-strip

- **New spec removes pay for anti-strip.**
- **Require no-flow indicator.**



# Anti-strip



**CAUTION**

**THIS SIGN HAS  
SHARP EDGES**

**DO NOT TOUCH THE EDGES OF THIS SIGN**

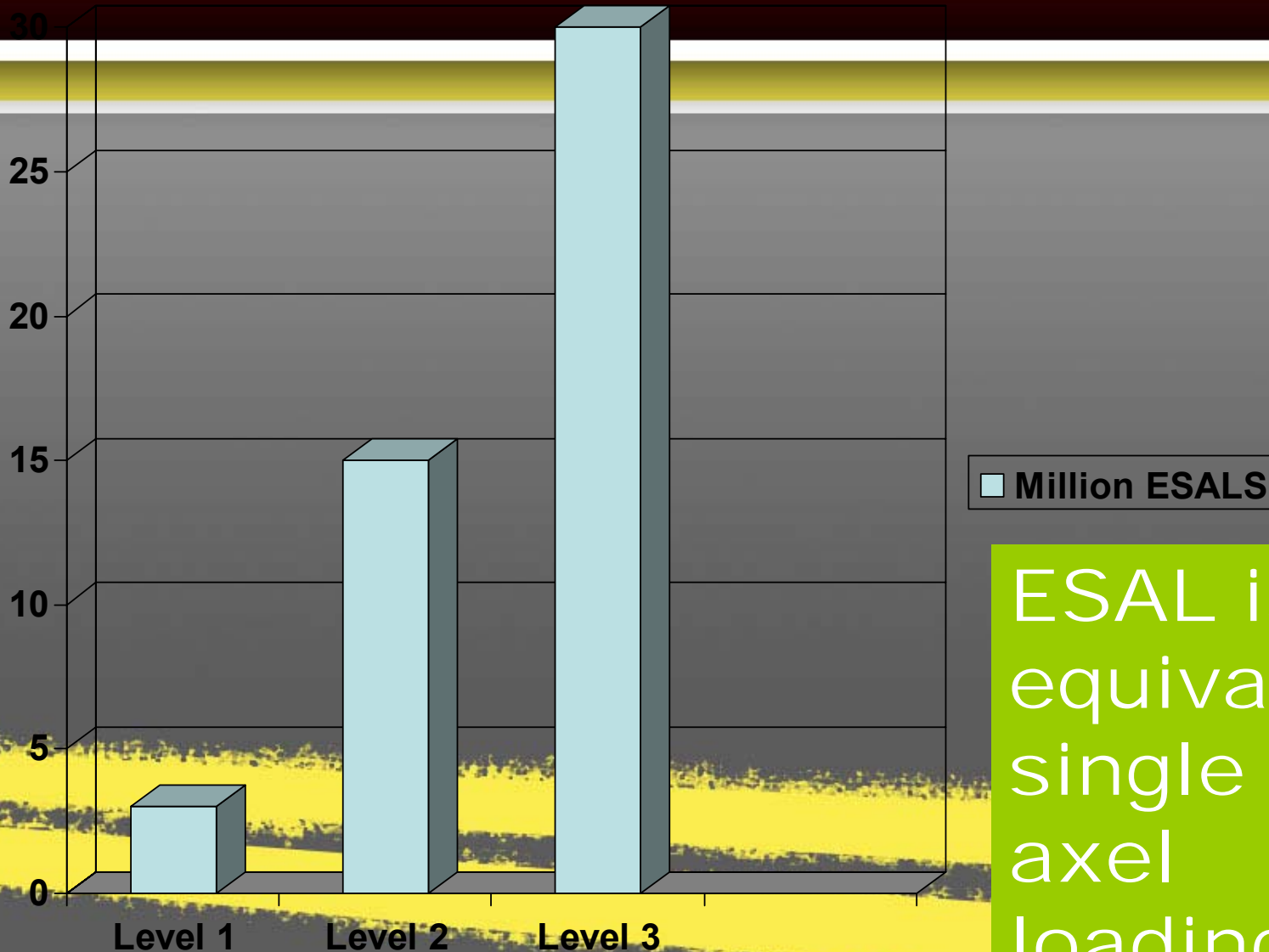


**ALSO, THE BRIDGE IS OUT AHEAD**





# Levels of Superpave



ESAL is equivalent single axle loadings

# Level 1 Superpave

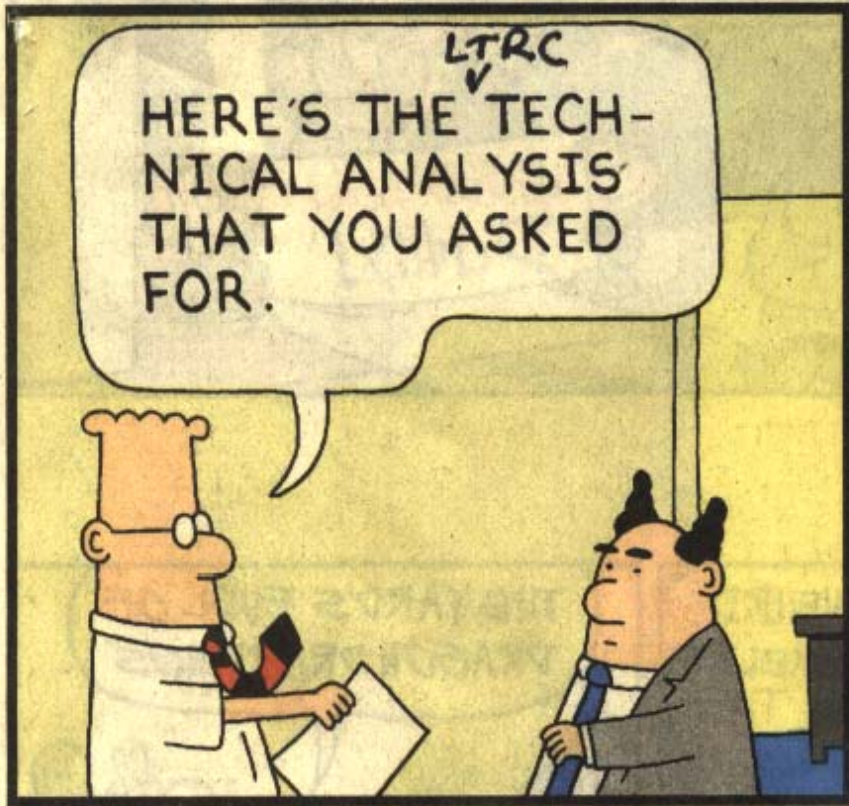
- Level 1 must be  $\frac{1}{2}$ " NMS (not  $\frac{3}{4}$ " NMS) 90-100 passing  $\frac{1}{2}$ " sieve
- 34–58 passing No. 8, not 28-58



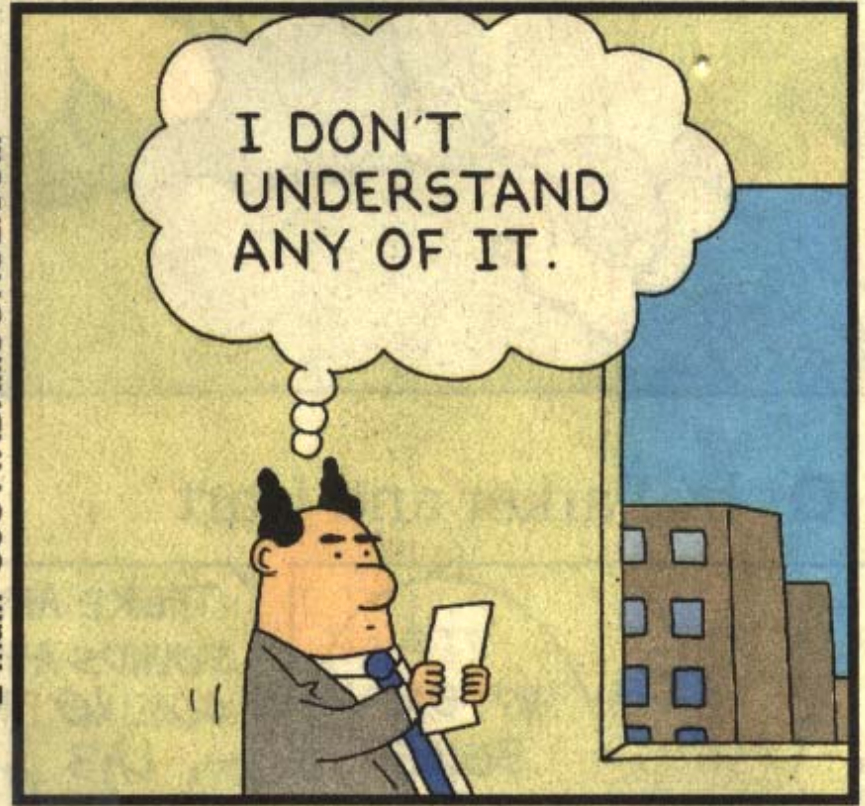





**DILBERT®** / by Scott Adams



E-mail: SCOTTADAMS@AOL.COM

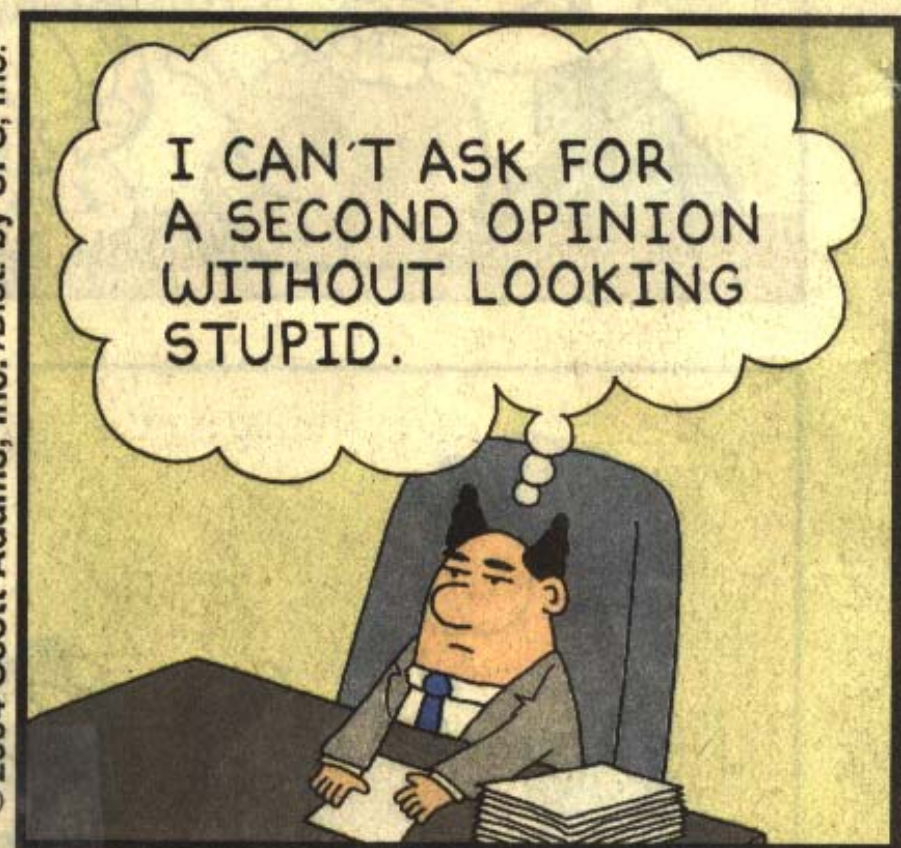






I CAN'T TELL  
IF IT'S RIGHT  
OR IF IT WOULD  
EMBARRASS ME.

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I CAN'T ASK FOR  
A SECOND OPINION  
WITHOUT LOOKING  
STUPID.

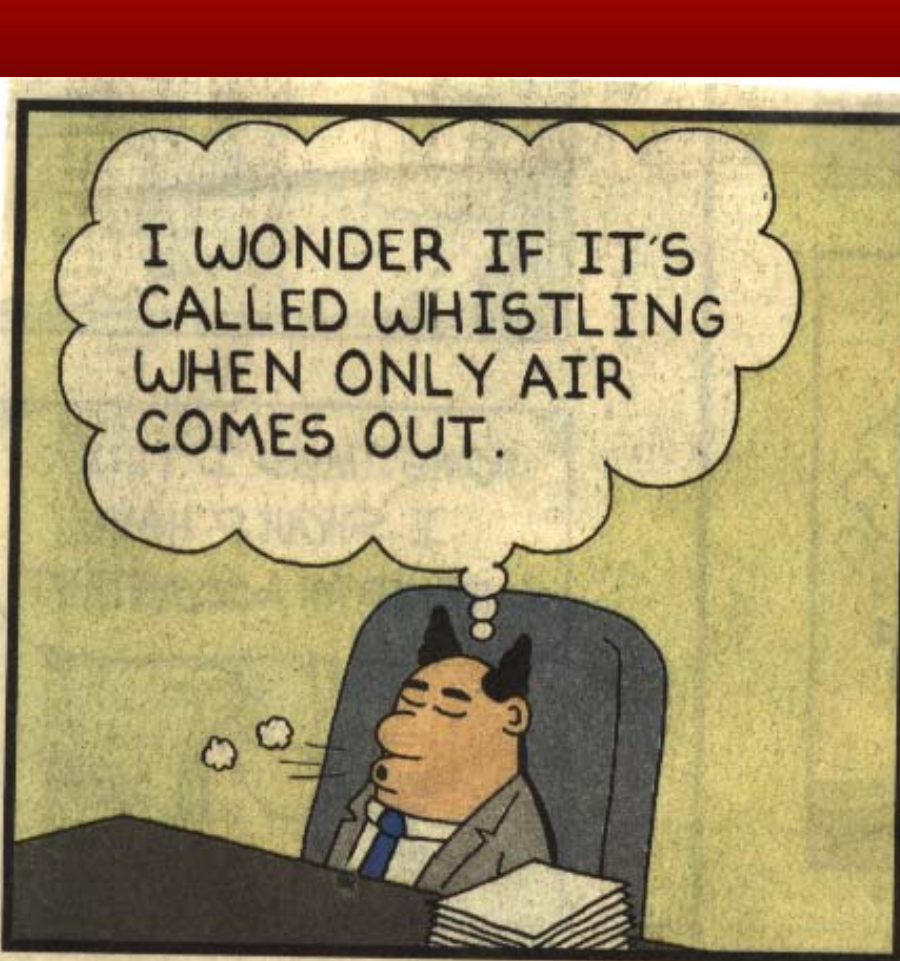


AND I CAN'T  
DISTRIBUTE IT  
BECAUSE IT MIGHT  
BE WRONG.

I'LL PUT IT ON  
THIS PILE AND  
HOPE SOMETHING  
CHANGES.

11-21-04






I WONDER IF IT'S CALLED WHISTLING WHEN ONLY AIR COMES OUT.

A cartoon panel showing Dilbert sitting at his desk, leaning back in his chair with his eyes closed. He is blowing a small amount of air out of his mouth. A large thought bubble above him contains the text.

www.dilbert.com



SHOULD I SHRED YOUR PILE OF IN-DECISION?

A cartoon panel showing Dilbert standing and talking to a woman sitting at a desk. She has a computer monitor in front of her. Dilbert is speaking to her.

MAKE IT LOOK LIKE AN ACCIDENT.

# NEW SPECIFICATIONS

## July, 2004

- VMA
- VOIDS
- VFA
- GRADATIONS

# VMA

## VOIDS IN THE MINERAL AGGREGATE

Lowered by 1%,

Not for pay

Measure to whole  
number

Validate - in spec  
limits

NMS	VMA
1/2"	13
3/4"	12
1"	11
1 1/2"	10



# VOIDS, VFA

- **NEW TARGET FOR JMF IS 3.5%, NOT 4%.      LIMIT IS 2.5% - 4.5%.**
- **VFA IS 68 TO 78 FOR ALL MIXES.**  
**During production, average of 5 must be within spec limits, or cease.**



# FINER GRADATION

<b>3/4" NMS</b>	<b>WAS</b>	<b>IS</b>
<b>1"</b>	<b>100%</b>	<b>100%</b>
<b>3/4"</b>	<b>90 – 100%</b>	<b>90 – 100%</b>
<b>1/2"</b>	<b>89% MAX</b>	<b>89% MAX</b>
<b>No. 8</b>	<b>23 – 49%</b>	<b>29 – 49%</b>
<b>No. 200</b>	<b>2.0 – 8.0%</b>	<b>3.0 – 8.0%</b>

# Benefits of New Specs

- Reduce permeability
- Less moisture sensitive
- Better film thickness
- Easier to compact
- More durable

Could lead to potholes, striping.



# PAY

- MORE EQUITABLE PAY STRUCTURE
- INCENTIVES – REWARD FOR UNIFORMLY GOOD MIX

# SAMPLING

## 5000 Ton Lot

1000

1000

1000

1000

1000

QA

1 GYRATORY

1 RICE

3 CORES

QC

2 GYRATORIES

2 RICE

1 GRADATION



# VOIDS PAY

- PWL ON VOIDS

% PAY	103	100	98	90	80	50
PWL	100	88-99	71-87	51-70	21-50	<21

3.5

3.8

4.0

3.8

3.6

For N=5, PWL = 100, 103% Pay

# DENSITY PAY

## PWL ON DENSITY

% PAY	105	100	98	90	80	50
PWL	98-100	89-97	79-88	61-78	31-60	<31

95.0

94.8

94.3

92.9

95.1

For N=15, PWL = 100, 105% Pay

15 CORES USED TO COMPUTE PAY!

# **PAY FOR MIX**

## **--- INCENTIVES ---**

- **NEW PAY TABLES WITH INCENTIVES**
- **TOTAL PAY IS AVERAGE OF:**
  - **VOIDS (max of 103%)**
  - **DENSITY (max of 105%)**
  - **SURFACE TOLERANCE (max of 103%)**
- **EXTRA BONUS INCENTIVE ON.....**

# ROADWAY SMOOTHNESS

IRI SPECS  
IMPLEMENTED  
JULY 2004



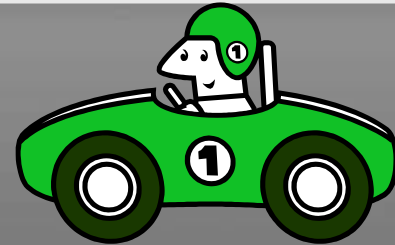
# WHAT IS IRI?

- **International Roughness Index uses a quarter car model to predict the suspension deflection of a simulated mechanical system with a response similar to a passenger car, whereas a Profile Index is the measure of deviations from a horizontal plane.**



# Benefits

- “acts like a car”  
More relevant measure
- SAFER
- Quicker
- National Standard
- Measures both wheelpaths



# EQUIPMENT

- **Inertial Profiler per ASTM E950**
- **Laser or infrared height sensors**
- **Accelerometer**
- **Measure distance**

# EQUIPMENT

- **Must produce electronic & paper copy**
- **Must have an “event” or “omit” key for excluded areas**
- **IBM compatible, Windows Operating**
- **USB Port and USB Storage Device**

# TEST PROCEDURE

- TR 644 - 04, “Determining the Longitudinal Profile Roughness of Traveled Surfaces Using Automated Profilers”
- Calibrated in May at Materials Lab
- 8 Ames Lisa units

NO. \_\_\_\_\_

LOUISIANA  
DEPARTMENT OF  
TRANSPORTATION AND DEVELOPMENT

LOW PASS FILTER: \_\_\_\_\_

HIGH PASS FILTER: \_\_\_\_\_

COLLECTION FILTER: \_\_\_\_\_

IRI CERTIFICATION: \_\_\_\_\_

PI CERTIFICATION: \_\_\_\_\_

CALIBRATION DATE: \_\_\_\_\_

TECHNICIAN: \_\_\_\_\_



# What to do...

- Do set-up and pre-op.
- Measure both wheelpaths for all jobs with lightweight profiler.
- Determine Category of Road - A, B, C





# Catagory

<b>A</b>	<b>Multi-Lift New Construction, Overlays of More than two Lifts All Interstates</b>
<b>B</b>	<b>One or Two Lift Overlays Over Cold Planed Surfaces, Two-Lift Overlays Over Existing Surfaces</b>
<b>C</b>	<b>Single-Lift Overlays Over Existing Surfaces</b>

# Wheelpath IRI

- Report IRI for each wheelpath in each segment.  
(for example, 110 left and 120 right)

A segment is 0.05 miles = 264 feet

# Check Wheelpath IRI numbers per Table 502-7B.

Table 502-7B

Individual Wheelpath Deficient Area Limits

Maximum International Roughness Index, inches per mile

Any 0.05 Mile Segment	Wearing Course	Binder Course
Category A	89	105
Category B	99	110
Category C	110	N/A

# Segment IRI

- Report the average of both wheelpaths for each segment.

(for example 110 left, 120 right -----  
Segment average is 115.)



# Sublot IRI

- Report the average of all segments in a sublot.

(For a 1.5" wearing, 12' wide, a sublot goes 1.72 miles with 34.4 segments.)

- Determine **SUBLOT PAY** per **Table 502-7A.**

# SURFACE TOLERANCE PAY

TABLE 502-7A

	103%	100%	90%	80%	50% or remove
A	<55	<65	65-75	NA	>75
B	<65	<75	75-89	NA	>89
C	<75	<85	85-95	>95-110	>110

# LOT PAY

Average Sublot Pay  
to get Lot Pay

	103	100	90	80	50
	<75	<85	85-95	>95-110	>110

115-50%

90-90%

83-100%

82-100%

81-100%

Average is 88% Pay

NOTE: Maximum payment for sublots with exception areas, exclusions or grinding is 100 percent, not 103.

# PAY SUMMARY

- TAKE AVERAGE OF:
  - VOIDS (say, 103%)
  - DENSITY (say, 105%)
  - SURFACE TOLERANCE, if wearing, (say 88%)
- TOTAL PAY = 98.7 = 99% PAY



# EXTRA BONUS INCENTIVE ON....

- **SURFACE TOLERANCE (ride at end of project, 5% extra on wearing travel mix)**
  - **CATEGORY A**
  - **NO SURFACE TOLERANCE PAY CUTS**
  - **NO GRINDING**
  - **IRI  $\leq$  45**

# HOT OFF PRESS...1/05

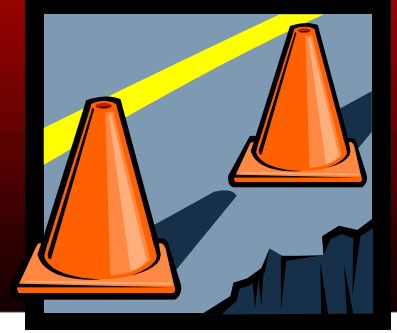
- 110 LB/SY/in is new estimated weight
- Any level mix may be used for shoulders at contractor's option, including level 1, 2, 3, or A.

- **ALL SHOULDERS**, curbs, driveways, turnouts, crossovers, joint repair, leveling, guardrail widening, islands, bike paths, patching, widening, and misc. **will be paid by the Small Quantity Table**





# CONCLUSIONS



- Specification rewards excellent quality.
- Durable and Rut-Resistant.
- Easier to compact.
- Smoothness is measured safely.
- Smoothness measure is relevant to passengers.
- **LOUISIANA SUPERPAVE ASPHALT GOOD!**

# ASPHALT IS THE BEST!



- In 1904, there were only 8,000 cars in the U.S., and only 144 miles of paved roads.
- Today over 94% of all roads are asphalt.
- Today, there are over 60,000 miles of roads in Louisiana alone.