

# HMA PRODUCTION WITH GTR

Sustainable Materials for Pavement Infrastructure:  
Use of Waste Tires in Asphalt Pavement  
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# PREFACE:

1. I have the advantage of experimental truth:

“The proof is on the road”.

2. Let's Keep it Simple!

# ADVANTAGES OF MAKING HOT-MIX WITH GROUND TIRE RUBBER

1. Uses 1 tire per ton of hot-mix produced!
2. Good for Environment.
3. Open Graded Mixes – NO FIBERS.
4. Can be done at plant or pre-mixed.
5. Keeps Tires out of Landfills/Bayous!
6. Makes for quiet and blacker pavements.
7. Cheaper than polymer.

# OUR EXPERIENCE WITH GTR

1. Polymer shortage in 2008.
2. DOTD allowed a PG 88.22rm for 76.22m.
3. Test Project w/Calcasieu Parish 2008.
4. SMA – I.210 – Calcasieu Parish – 2009.
5. OGFC – I.10 – Calcasieu Parish – 2011.

## HOW WE MAKE PG 88.22rm:

1. Source of GTR – Colt/John Osborn.
2. Delivery in 2000 pound totes.
3. Prairie made feeding hopper.
4. Auger into AC tank with “wetting”.
5. Modified Mixing/Digestion Tank - Heatec.
6. Digestion Period.
7. Sample and test w/DSR at Plant.
8. Ready for HMA manufacture.

## WHAT WE NEED HELP WITH:

1. Allow PG 76.22rm for PG 76.22m.
2. Allow PG 70.22rm for PG 70.22m.
3. Dilation Phenomenon for Dense Mixes.
4. Characterization of GTR – not all same!
5. Evaluation of what we have done.
6. Speed up allowance and implementation.

# COST ANALYSIS

- GTR
  - Cost Basis \$100 per ton to take a 64.22 to a 76.22 (or an 82.22)
  - 13 percent GTR (as replacement of AC)
  - HMA is a great place to “use” recycled tires.
- So, by using GTR yielded \$4.50 per ton savings.
- That’s an 8 percent saving

# GRADE BUMPING?

- At current AC pricing (and assuming an asphalt cement content of 4.5 percent) every grade decrease is a cost difference of approximately \$5.00 per ton.
- This is an 8 percent savings (when compared to a 76.22 specified liquid).
- Do we (or should we) grade bump when using harder AC's when using recycled products?



# MIX COST SUMMARY

- SAVINGS (compared to an all virgin 76.22 HMA Mixture with a cost of \$60.00 per ton):

— RAP	=	\$12.80	=	21.3 percent
— RAS	=	6.75	=	11.3 percent
— GTR	=	4.50	=	7.5 percent
— Bump	=	<u>5.00</u>	=	<u>8.3 percent</u>
		\$29.05		48.4 percent



NOTE: Chicago's Magnificent Mile.

# OGFC Production

I.210 – 2010 (SMA) and I.10 – 2011 (OGFC)



# OGFC PLACEMENT

I.10 - Calcasieu Parish – October 2011



# HELP!

- MOST ALL STATES, COUNTIES, PARISHES, CITIES AND TOWNS ARE BROKE. WE NEED TO HELP THEM REDUCE THE COST OF THEIR CONSTRUCTION. WE KNOW BEST.
- WHAT ARE OTHER STATES DOING? WHAT ARE THEIR EXPERIENCES?
- WHAT IS WORKING? WHAT IS NOT WORKING?
- HELP US TO “ENGINEER” OUR PRODUCT.

EVEN IF YOU ARE ON THE  
RIGHT TRACK, YOU'LL  
GET RUN OVER IF YOU  
DON'T KEEP MOVING!

Will Rogers

