

June 13, 2002

Mr. Pal Choudry  
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**Subject: Progress in the research project, “Investigation of Aggregate Shape Effects on Hot Mix Performance Using An Image Analysis Approach”**

Dear Mr. Choudry:

Since its initiation in March 2002, progress has been made in the FHWA research study, DTFH61-02-X-00029, on several tasks. This is a 2-year pool-funded research project having as the participants the following States: Alabama, Georgia, Indiana, Minnesota, Mississippi, Missouri, Montana, and South Carolina, and the Central Federal Lands and Highways Division. This letter is intended to provide information on the quarterly research progress to all the participating States and the project monitor, the FHWA Illinois Division.

Enclosed you will find a progress chart detailing various tasks to be accomplished and the corresponding timelines scheduled for the successful completion of the project. Progress will be described based on the individual tasks as indicated in the chart. The aggregates to be evaluated in the project include: (i) samples from the National Center for Asphalt Technology (NCAT) Pavement Test Track study and (ii) representative aggregate samples from the participating States and the Central Federal Lands and Highways Division.

Nearly all the coarse aggregate materials used in the NCAT test track sections were received earlier in the project. Next, the research team worked on a full upgrade of the UI-AIA LabView/IMAQ Vision image acquisition software and the personal computer that works with the system. The UIAIA system has been upgraded with new computer parts and increased CPU/memory speed and is currently fully operational. The research team has started testing those identified as eligible (light colored) NCAT coarse aggregate samples using the UIAIA system. The main focus is to determine those imaging based indices related to shape, size, angularity, and texture properties of the NCAT coarse aggregates.

A material request letter dated Mach 14<sup>th</sup> was sent out to each participating State and the Central Federal Lands and Highways Division requesting 3 types of coarse aggregate materials (greater than No. 4 sieve with a top size of 1 to 1.5 inches) for making hot mix asphalt (HMA): (1) 100% crushed, (2) uncrushed gravel (if ever used for HMA application in the State), and (3) partially crushed (possibly a blend of the 100% crushed and uncrushed) aggregates. In addition, for all three coarse aggregate materials, the following were also requested: (1) required amounts of *asphalt binder, fine aggregate, and mineral filler*

to be used for making laboratory HMA mixes that are representative of those typically constructed in that State and (2) information on the corresponding *asphalt mix designs*.

So far, we have received materials from 5 states, Alabama, Minnesota, Mississippi, Missouri, and South Carolina, and the Central Federal Lands and Highways Division. Except for South Carolina's mix design charts; we have also received corresponding mix designs from these participants who responded to our request. As of mid June 2002, we have not yet received materials from the following States: Indiana, Georgia, and Montana. Since we are already starting to work with all the State aggregates, we anticipate receiving materials from all States within a month or so for a timely progress in the project. Your help and cooperation in this matter is therefore greatly appreciated for the success of this research.

Again, I am very excited to have the opportunity to work with all the participants in this pooled fund study. I am also happy to tell you that we are on time with the scheduled tasks and making good progress in the project. Should you have any questions, you can always contact me at (217) 333-8637 or send e-mail to [tutumluue@uiuc.edu](mailto:tutumluue@uiuc.edu).


Sincerely,


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**Timetable for the Pooled Fund Study on  
“Investigation of Aggregate Shape Effects on Hot Mix Performance Using An Image Analysis Approach”**

Task to Perform	Year 1				 Year 2	Report		
	2002 March	2002 May	2002 August	2002 Nov.	2003 March	2003 May	2003 August	2003 Nov.
<b>Phase 1</b>		<b>Image Analysis</b>						
Acquisition of NCAT <sup>1</sup> Aggregates	■							
Acquisition of Aggregate Samples From Participating States	■							
Testing of NCAT Samples w/UI-AIA <sup>2</sup>	■	■	■	■				
Testing of Participating State Aggregate Samples with UI-AIA		■	■	■				
Image Processing for Shape Indices			■	■				
<b>Phase 2</b>					<b>Asphalt Mix Study</b>			
Preparation and Laboratory Testing of Asphalt Samples				■	■	■	■	
NCAT Performance Data Collection						■	■	
Laboratory and Field Data Analysis						■	■	
Report Preparation								■

 : Proposed meeting schedule to discuss research progress and results

<sup>1</sup>: National Center for Asphalt Technology pavement test track facility

<sup>2</sup>: University of Illinois Aggregate Image Analyzer