

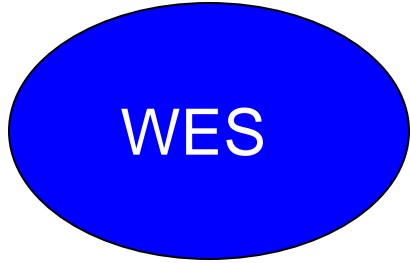
# Session B

## International Collaboration

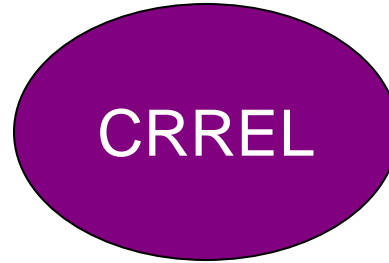
Joe Mahoney and Albert Bush

Pretoria, South Africa

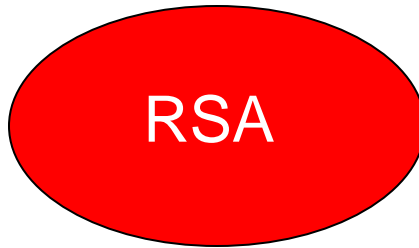
October 16, 2003



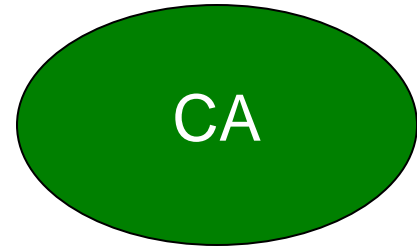
WES



CRREL



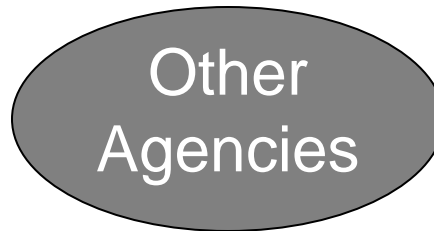
RSA



CA



VTT/VTI



Other  
Agencies

# Agenda Collaboration Topics

- Collaboration with TRB Committee A2B09 and COST 347?
- How can HVS programs complement activities such as LTPP?
- What is required to ensure sharing of data?
- Lines of communication including information dissemination? Website?

# Collaboration items to sort out

- Goal of collaboration
- What will be the focus (foci) of the collaboration
- Funding
- Leadership

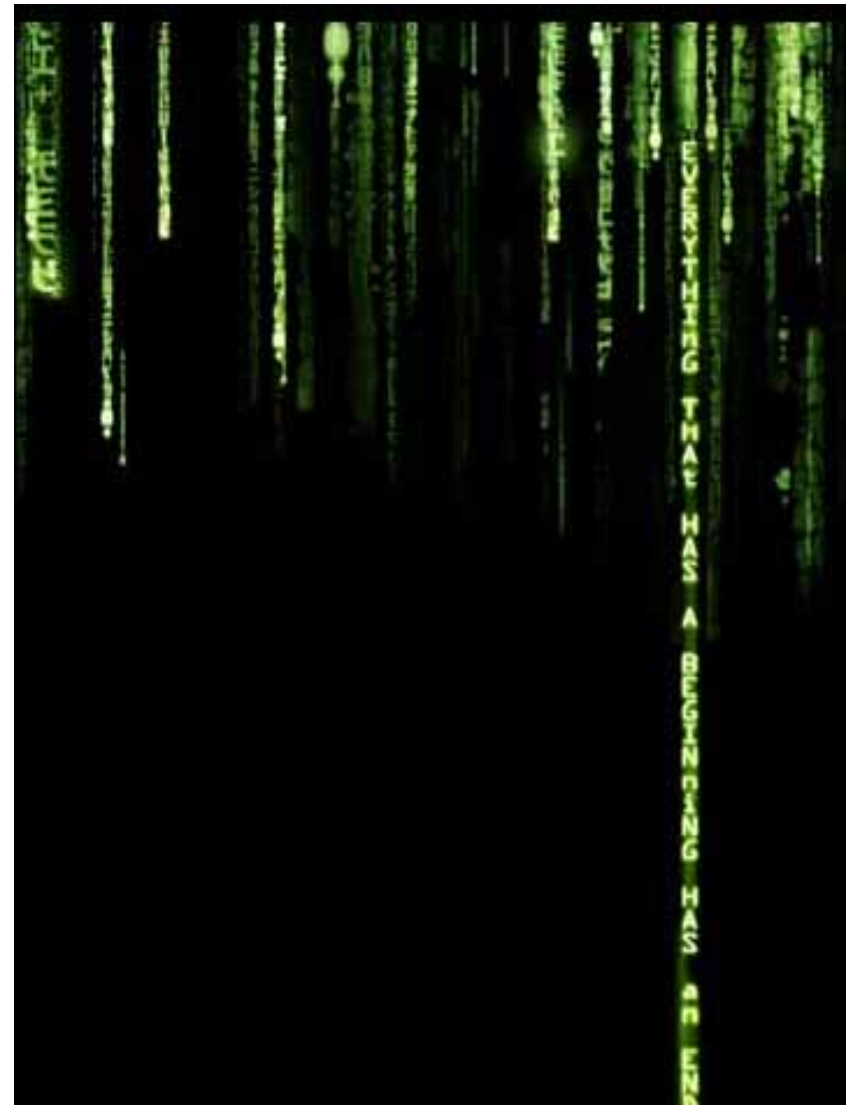
# How to proceed

- Operator/Owner input
- User input
- Collaboration with new funding
- Collaboration with no new funding

# One Example of Collaboration

- Develop a matrix of pavement research needs...or pavement issues?
- Each HVS owner/operator decides how their work can complement the matrix?
- Results reported—not sharing of data?
- Common reporting template?
- Companion LTPP sections?

No, not that matrix.....



# Potential Program and Subprogram Areas—An Example from WSDOT

<b>Structural Design and Analyses (A)</b>	<b>Pavement Materials (B)</b>	<b>Pavement Performance (C)</b>	<b>Pavement Rehabilitation (D)</b>	<b>Pavement Construction (E)</b>	<b>Information Systems and Training (F)</b>
<p>A.1 Support Continued Use and Development of Mech-Empirical Design (can include steps necessary to adopt AASHTO 2002)</p> <p>A.2 Complete Development and Maintain Everseries Software</p> <p>A.3 Support the Trial Use of South African Pavement Designs and Analysis Tools</p> <p>A.4 Investigate Embankment Design for Support of Pavement Structures</p>	<p>B.1 Monitor Performance of Superpave System</p> <p>B.2 Evaluate AC Layer Interface Bonding with Emphasis on Tack Coats</p> <p>B.3 Support Development and Use of High Performance AC Wearing Courses (such as SMAs and Resin Modified Pavement (RMP))</p> <p>B.4 Evaluate Durability of PCC Mixes</p> <p>B.5 Evaluate Granular Material for Use As G1Base</p>	<p>C.1 Assess Top-Down Cracking of AC Wearing Courses</p> <p>C.2 Collaborate with Caltrans on Dowel Bar Retrofit HVS Tests</p> <p>C.3 Provide WSDOT Access to Accelerated Pavement Testing</p> <p>C.4 Assess WSDOT BST Performance</p>	<p>D.1 Collaborate on Construction and Logistics Associated with Urban Freeway Rehabilitation and Reconstruction Projects</p> <p>D.2 Investigate Use of Thin Overlays and Micro-Surfacing Techniques</p> <p>D.3 Integrate the Use of DCP Tests into NDT for Pavement Rehabilitation Projects</p>	<p>E.1 Improve Hot Mix Laydown Placement</p> <p>E.2 Improve Construction of AC Longitudinal Joints</p> <p>E.3 Support Evolution of Quality Control and Quality Assurance Material Specifications</p> <p>E.4 Support Improvement and Knowledge of Pavement Smoothness</p> <p>E.5 Support Examination of Warranties and Alternative/Innovative Contracting Procedures</p>	<p>F.1 Develop Tools to Aid Training for Agency and Contractor Personnel (major emphasis on construction)</p> <p>F.2 Collaborate on Development of Training Delivery Systems</p> <p>F.3 Support the Development of Multi-State Databases</p> <p>F.4 Support Improvement of the WSPMS including Development of a Maintenance Management System</p> <p>F.5 Support Development of WSDOT Technical Personnel</p> <p>F.6 Assist Local Agencies with South African Pavement Technology</p>



# Examples of Pavement Topics of Special Interest for Five US Agencies

## US Based Agencies of Special Interest

Organization	Annual Research Pavement-Oriented Expenditures	Number of In-House Research Staff	Pavement Focus Areas	Web Addresses
California DOT	\$7,200,000 (\$18,000,000 Total Caltrans research budget) Pavements = 40% of total	60 total	Cal/APT is primary focus -Rehab of Interstate PCC -Improved AC Mixes -Longer Life Pavements -QA/QC	<a href="http://www.dot.ca.gov/hq/newtech/">http://www.dot.ca.gov/hq/newtech/</a> <a href="http://www.dot.ca.gov/functionalorgchart/">http://www.dot.ca.gov/functionalorgchart/</a>
Minnesota DOT	\$3,000,000 (\$12,700,000 Total Minnesota research budget) Pavements = 24 % of total	35 total	Mn/Road Test primary focus -Mech/Empirical Design -Whitetopping -NDT -Spring Load Restrictions -Micro-Surfacing	<a href="http://mnroad.dot.state.mn.us/">http://mnroad.dot.state.mn.us/</a>
Texas DOT	\$2,000,000 (\$18,000,000 total TxDOT research budget) Pavements = 11% of total	16 total	-Pavement Smoothness -Cyclic Segregation -Longitudinal AC Joints -Reduction of Construction Time -Longer Life Pavements -NDT	<a href="http://manuals.dot.state.tx.us/dynaweb/">http://manuals.dot.state.tx.us/dynaweb/</a>
Washington State DOT	\$300,000 (\$2,200,000 total WSDOT research budget) Pavements = 14% of total	6 total	-Hot Mix Laydown (Temperature Differentials included) -QC/QA -NDT -Superpave -Pavement Tools (training)	<a href="http://wsdot.wa.gov/ppsc/research/rpage.htm">http://wsdot.wa.gov/ppsc/research/rpage.htm</a>
US Army Corps of Engineers Waterways Experiment Station Airfields and Pavements Division		38 FTE + 3 Contractor = 41	Refer to summary on SPTC Web Site and WES Web Site	<a href="http://pavements.ce.washington.edu/sptc/wes.html">http://pavements.ce.washington.edu/sptc/wes.html</a> <a href="http://pavement.wes.army.mil/">http://pavement.wes.army.mil/</a>

# An Example Matrix—Version 1

Operator	Structural Design	Materials	Perf	Rehab	Construction	Info Systems and Training
RSA		√		√		
CA	√	√				
FL		√	√			
WES	√	√			√	√
VTI/VTT	√			√		
CRREL		√			√	

Significant Enhancements for Pavement  
Knowledge and Practice

# An Example Matrix—Version 2

Operator	Structural Design— Long Lasting	WAM Paving	Specs/ Contracts	New Rehab Strategies	Construct Variables	Deep Recycled Systems
RSA		√		√		
CA	√	√				
FL		√	√			
WES	√	√			√	√
VTI/VTT	√			√		
CRREL		√			√	

Significant Enhancements for Pavement  
Knowledge and Practice

# Another Approach

- Design an experiment
- Assign portions for each HVS owner/operator
- Conduct work
- Report results
- Requires mucho money

# So....

1. Is formal collaboration via the Consortium desirable?
2. How will the Consortium go forward on this issue?
3. Who will lead the “design” of the experiment? Timeline?
4. What about funding?