

Florida DOT/FHWA Workshop
Gainesville, Florida

SHRP2 R05 PRECAST CONCRETE PAVEMENT TECHNOLOGY



Presented by

**FHWA Precast Concrete Pavement Technology
Implementation Team**

September 29, 2014



WORKSHOP AGENDA

**Presenters: Shiraz Tayabji, Applied Research Associates, Inc.
 Shree Rao, Applied Research Associates, Inc.
 Sam Tyson, Federal Highway Administration, Washington, DC**

9:30 am	Welcome and Introductions – Florida DOT and FHWA Division Office
9:35 am	1. FHWA's Precast Concrete Pavement Initiatives - Sam
9:45 am	2. Overview of Precast Concrete Pavement Technology – Shiraz <ul style="list-style-type: none"> a. Warrants for use of precast concrete pavement (PCP) systems b. Advantages of PCP c. SHRP2 Project R05 products/report overview d. Precast pavement applications <ul style="list-style-type: none"> i. Intermittent repairs ii. Continuous applications e. Systems <ul style="list-style-type: none"> i. Jointed precast concrete pavement system ii. Prestressed precast concrete pavements (PPCP) f. US implementation g. Non-US systems & applications (brief)
10:30 am	3. Florida DOT Presentations – Nour Nazef , Jeremy Wolcott US 92/ SR 600 PPCP project near Daytona Beach <ul style="list-style-type: none"> a. Construction (2011/2012) b. Performance (2014)
a\	11:00 – 11:15 am (Break)
11:15 am	4. PCP Technical Considerations – Shree <ul style="list-style-type: none"> a. General details b. Concrete requirements c. Jointing and load transfer d. Support condition
12:15 am	5. Performance of PCP – Shiraz <ul style="list-style-type: none"> a. Accelerated load testing of a jointed system by Caltrans b. Field evaluation under SHRP2 Project R05 c. Early age distress in PCP
	~12:15 am – 1:00 pm (Lunch Break)
1:00 pm	6. Design Considerations for Jointed Systems – Shree <ul style="list-style-type: none"> a. Key design features <ul style="list-style-type: none"> i. Joint load transfer systems ii. Support condition b. Design considerations - Approach, concrete requirements, traffic, panel thickness <ul style="list-style-type: none"> i. Intermittent & continuous jointed systems c. Panel reinforcement (for transportation/handling)

1:30 pm	<p>7. Design Considerations for PPCP Systems – Shiraz</p> <ul style="list-style-type: none"> a. Key design features b. Prestressing system c. Design considerations - Approach, concrete requirements, traffic, panel thickness d. Expansion joint
2:00 am	<p>8. Panel Fabrication – Shiraz</p> <ul style="list-style-type: none"> a. Shop drawings b. The process for jointed panels c. The process for PPCP panels d. Concrete & panel QA/QC e. Non-planar panels
2:20 pm	<p>9. Construction Considerations – Jointed Precast Concrete Pavement Systems – Shree</p> <ul style="list-style-type: none"> a. Intermittent applications b. Continuous applications c. Field QA/QC
~2:20 am – 2:35 pm (Break)	
2:35 pm	<p>10. Construction Considerations - PPCP Systems – Shiraz</p> <ul style="list-style-type: none"> a. Continuous applications b. Field QA/QC
3:00 pm	<p>11. PCP System Approval – Shiraz</p> <ul style="list-style-type: none"> a. PCP system approval b. Typical specification requirements (SHRP2 Project R05 Model Specifications)
3:15 pm	<p>12. Agency Initiatives and Project Experience</p> <ul style="list-style-type: none"> a. Agency perspectives b. Lessons learnt
3:45 pm	<p>13. Case Studies – Shiraz</p> <ul style="list-style-type: none"> a. Repair applications (Full-depth repairs) b. Continuous applications – Jointed c. Continuous application – posttensioned system (PPCP)
4:15 pm	<p>14. Discussion and Action Items – Sam</p>

End of Workshop (~4:30 pm)

WORKSHOP INSTRUCTORS

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Shiraz is a Senior Principal Engineer with Applied Research Associates, Inc. at the Elkridge, Maryland office. He has been actively involved in developing, improving, and implementing technologies for highway and airfield concrete pavements and has also been actively involved in design, construction, testing and rehabilitation of concrete pavements for over 30 years. He has served as a principal Investigator for several FHWA sponsored projects to improve performance of concrete pavements. Currently, he serves as the Project Manager for the FHWA CPTP Task 65 project to support implementation of advanced concrete pavement technologies. He has provided technical services to the World Bank and the National Highway Authority of India related to concrete pavement design and construction for the National Highway System in India. He served as the Principal Investigator for SHRP2 Project R05 – Modular Pavement Technologies. Shiraz obtained his B. Sc. In Civil Engineering degree from the University of East Africa, Nairobi, Kenya and M. Sc. and Ph.D. degrees in Civil Engineering from the University of Illinois at Urbana, Illinois. He is a registered Professional Engineer in several States. He is an Emeritus Member of two TRB Committees (Rigid Pavements and Pavement Rehabilitation), Co-Founder and Past President of the International Society for Concrete Pavements, Fellow of ACI, Life Member of ASCE, and is actively involved in technical committees of TRB, ACI, ASTM, and ASCE.

SHREENATH RAO, PH.D., P.E., APPLIED RESEARCH ASSOCIATES, INC.

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Dr. Shreenath Rao is a Principal Engineer with Applied Research Associates, Inc. at the Littleton, Colorado office. He obtained his M. S. degree at the University of Arkansas, Fayetteville, his Ph. D. at the University of Illinois, Urbana-Champaign, and is a licensed Professional Engineer in the States of Arkansas, Colorado, and North Carolina. He is a member of the Transportation Research Board's PCC Construction Committee. Over the past 17 years, Dr. Rao has led, managed, and participated as a researcher, design engineer, and instructor in a wide variety of projects that include pavement design, pavement performance modeling, field distress surveys, experimental design, data collection and analysis, specifications development, contracting methods, construction monitoring, mechanistic-empirical design, analytical modeling, forensic analyses, and cost analyses. He has been involved in the development of several courses and is or has been the lead instructor for several NHI and non-NHI courses. As part of the FHWA Highways for Life program, he has monitored project progress and documented project details and economic benefits for several precast pavement and bridge system demonstration projects. Dr. Rao has lead-authored or co-authored numerous research reports and peer-reviewed technical publications. He has presented his research finding at national conferences (TRB, ICCP, etc.), to State Highway Agencies (Ohio, Wisconsin, etc.), clients and project panels (FHWA, SHRP, etc.) and at industry conferences and symposiums.

SAM TYSON, P.E., FEDERAL HIGHWAY ADMINISTRATION, WASHINGTON, DC
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Sam Tyson is a concrete pavement engineer in FHWA's Office of Asset Management, Pavement, and Construction located in Washington, DC. He is a registered professional engineer in the District of Columbia, and a graduate of the University of Virginia where he earned both Bachelor of Engineering and Master of Science degrees in civil engineering. Sam served on active duty as a commissioned officer in the U.S. Army Corps of Engineers and was a research engineer with the Virginia Department of Transportation. In the private sector, Sam was director of technical services for ready mixed concrete companies operating in the District of Columbia and Northern Virginia; and, he was the executive director of a national trade association based in the Washington, DC area.