Caltrans	**AGENDA**	**Concrete Products Task Group Meeting (CT-Industry)** **April 10, 2014** **Time 10:00 AM to 12:00 PM** **Room 514 – Translab – OSM Annex Building** **5900 Folsom Blvd.** **Sacramento, CA 95814**	
Time	**Topic**	**Presented By**	**Purpose/Endstate**
1000 – 1005	Welcome, Attendance and Agenda Review	All Co-Chairs	Meeting Begins
1005 – 1015	Review of Last Meeting's Action Items	All Co-Chairs	Establish/Close-Out Due-Outs
1015 – 1020	Housekeeping Items – The following are to be discussed: • Current Print-Out Package • OSM Task Group Website • 2014 Calendar	Bobby Petska	Ensure all members are postured for success
1020 – 1040	"State of the Industry" Update Brief, including the following items: • New TG Membership • ACI Convention Recap	Industry Co-Chairs	Ensure key concerns from Industry are heard
Sub-Task Group co-chairs provide update on • Progress Reports • Review of Issues, including level of effort and updates to scoping documents • Discuss any recommendations for changes in priorities • Discuss and/or approve new scoping documents			
1040 – 1100	CIP Pavement Sub-Task Group	Cornelis Hakim/Craig Hennings	STG Co-Chairs provide update on decisions made/concerns for each activity
1100 – 1120	Precast Sub-Task Group	Keith Hoffman/Cliff Ohlwiler	STG Co-Chairs provide update on decisions made/concerns for each activity
1120 – 1140	Materials/QA Sub-Task Group	Keith Hoffman/Mark Hill	STG Co-Chairs provide update on decisions made/concerns for each activity
1140 – 1150	Discussion of 2014 Concrete Task Group Bin List	All Co-Chairs	Ensure key topics from all parties are heard for next FY
1150 – 1200	Round Table Discussion, Discussion Issues, Questions and Action items	All	Document due-outs and decisions made

Concrete Products Meeting Action Item Review

Below is the brief summary and status of action items from the previous TG meetings:

Action Items from 1/9/14 meeting	**Due Date**	**Responsible Person**	**Status**
Review and provide comments to the current version of the Task Group Operating Principles, and adopt at next Concrete Task Group Meeting	24 Feb 2014	All TG Members	Adopted
Refine "Prestressing Jack Calibration" Scoping Document with additional background information in preparation for next RPC Meeting	24 Feb 2014	Cliff Ohlwiler	Complete, Final Approval Pending
Define plan for the completion of the "Precast Pavement" activity within the Precast STG	10 Apr 2014	Cliff Ohlwiler/Keith Hoffman	Complete
Recommit to sending of the Concrete Task Group Meeting Minutes within time allotted by the Operating Principles, and post onto OSM Website	10 Apr 2014	Bobby Petska	Complete
Send results of the Annual Aggregate Source Test survey to the TG	10 Apr 2014	Charley Rea	Complete
Post the Early Age Cracking Report to the Task Group website	10 Apr 2014	Bobby Petska	Complete
Send Materials/QA STG Information to Chuck Suszko for population into the RPC Database	16 Jan 2014	Bobby Petska	Sent on 16 Jan 2014
Develop and refine the Scoping Document for the "Shotcrete" activity with additional background and problem definition	24 Feb 2014	Mark Hill/Keith Hoffman	Complete, Final Approval Pending
Remove the TG 3+2 Meetings from March, June, September, and December on the calendar.	24 Feb 2014	Bobby Petska	Complete
Develop and refine the Scoping Document for the "Flexural Strength Beam" activity with additional background and problem definition	24 Feb 2014	Mark Hill/Keith Hoffman/Cornelis Hakim/Craig Hennings	Complete, Final Approval Pending
Send Draft Final COTE Document to the TG for final review	24 Feb 2014	Cornelis Hakim	Pending
Send Keith Hoffman's participant to Memo to Ron Stickel for signature	24 Feb 2014	Bobby Petska	Complete
Discuss RPC TG Co-Chair replacement options with RPC Co-Chairs	22 Jan 2014	Amy Fong	Complete

Action Items from 10/10/13 meeting	**Due Date**	**Responsible Person**	**Status**
Post significant accomplishments for the Task Group Meeting onto the TG Website	9 Jan 2014	Bobby Petska	Complete
Participant Memo for the Keith Hoffman for the Precast STG	9 Jan 2014	Bobby Petska	Complete; Included in Package
Change TG Website and the TG Package to reflect Cornelis Hakim as the CIP Pavement STG Co-Chair	9 Jan 2014	Bobby Petska	Complete
Create an updated 2014 Calendar and distribute to TG for comment	9 Jan 2014	Bobby Petska	Complete; Included in Package
Provide examples of Mix Designs or Project EA information with aggregate test result discrepancies or concerns	16 Oct 2013	Craig Hennings	Pending
Conduct follow-on discussion regarding Mix Designs or Project EA information with aggregate test result discrepancies or concerns	30 Nov 2013	Bobby Petska/Dan Speer/Keith Hoffman	Pending Mix Designs from Industry
Recommend inviting the Chief of Project Management/Project Delivery (Jim Davis) to speak to Industry at the 30 October RPC Meeting.	16 Oct 2013	Concrete TG Co-Chairs	Invitation Sent
Conduct follow-on discussion regarding the closure of the Precast Pavement activity	9 Jan 2014	Concrete TG Co-Chairs	Final Specification and Plans Distributed
Invite Keith Hoffman/Mark Hill/Mike Lee to 12 November Early Age Cracking discussion meeting	1 Nov 2013	Craig Hennings/Cornelis Hakim	Pending
Obtain Early Age Cracking report and discuss at future meetings	9 Jan 2014	Keith Hoffman	Distributed on 7 November

Concrete Products TG Quarterly Meeting Attendance Log as of 10 April 2014															
Member	Role	TG Meeting (CT and Industry)													
		4/14/2011	7/14/2011	10/13/2011	1/26/2012	4/12/2012	7/12/2012	10/11/2012	1/10/2013	4/11/2013	7/11/2013	10/10/2013	1/9/2014	4/10/2014
Dan Speer	Caltrans Co-Chair	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Chuck Suszko	Caltrans Construction	✗	✓	✓			✗	✗	✓	✓	✓	✗	✓	
Bill Farnbach/Amy Fong	Caltrans Pavement Program	✗	✗	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	
Roberto Lacalle	Caltrans Struct. Specs & Estmt.	✓	p	✓										
Marcelo Peinado	Caltrans District -11 Engineering	✓	✗	✗										
Dennis Agar	Caltrans District -10 Engineering	✓	✓	✓										
Jeremy Peterson-Self	Co-Chair, Precast Concrete STG						✓	✓	✓	✓				
Keith Hoffman	Co-Chair, Materials/QA & Precast STG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Cornelis Hakim	Co-Chair, Cast In Place Concrete Pavement STG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Mehdi Parvini	Co-Chair, Cast In Place Concrete Pavement STG	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Jinesh Mehta/Bobby Petska	Caltrans, Structural Materials Rep. (note taker)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Charley Rea	Industry Co-Chair-CALCIMA	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Bruce Carter	Industry Co-Chair	✓	✓	✓	✓									
Ron Stickel	Industry Co-Chair					✓	✓	✓	✓	✓	✓	✓	✓	
Cliff Ohlwiler	Industry, Co-Chair, Precast Concrete STG	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Tom Tietz	Industry, CNCA	✗	✗	✓	✓									
Mark Hill	Industry, Syar					✓	✓	✓	✓	✓	✓	✓	✓	
Craig Hennings	Industry, ACPA-SW	✗	✗	✗	✗	✓	✗	✗	✗	✗	✓	✓	✗	

Legend:

✓ **Present**

✗ **Absent**

p **Pre-designated proxy**

STATE OF CALIFORNIA
PAVEMENT PROGRAM STATUS CALENDAR

DEPARTMENT OF TRANSPORTATION

ROCK PRODUCTS
COMMITTEE MEETINGS
CALENDAR

2014

JAN

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

FEB

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	

MAR

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

APR

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

MAY

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

JUN

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

JUL

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

AUG

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

SEPT

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

OCT

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

NOV

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

DEC

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Calendar Legend

- Quarterly Rock Products Committee (RPC) Meeting
- Concrete Task Group 3+2 Meetings (1:30pm - 2:30pm)
- State Holidays
- Concrete Materials & QA STG Meeting (1:00 – 4:30 pm) - CT only
- Concrete Materials & QA STG Meeting (1:00 – 4:30 pm) - All
- Precast Subtask Group Meeting (9:00 – 11:30 am) - All
- Precast Concrete Subtask Group Meeting (9:00 – 11:30 am) - CT only
- Concrete Products Task Group Meeting Meeting (10:00-12:00)- All
- Concrete Task Group CT Only Meeting Meeting (1:00-3:00 pm)-CT only
- Cast In Place Pavement Subtask Group Meeting (9:00am – 11:00am)-All
- Cast In Place Pavement Subtask Group Meeting (9:00am – 11:00am)-CT Only

Updated 11/27/13

Concrete Materials & QA Sub-Task Group: Issue Status Summary, April 2014					
Project Priority	**Project**	**Purpose**	**Overall Progress**	**Target Completion Date**	**% Complete**
1	Structural Concrete QC/QA Specification Development	Implement performance-based specifications for materials management of structural concrete.	Additional outreach with other pilot projects and Industry to take place. Coordination to continue for scheduling of ACI trainings and Pre-Bid Outreach meetings for Pilot Projects both in Northern CA and Southern CA. Continue conducting pre-bid meetings. Use gathered feedback from beta testing of DIME to update and roll out for larger use. Finalize QA guidance report to generate corresponding bulletins for state staff. Amendment to IA manual upcoming, develop long term IA processes. Discuss project lists. Discuss communications with Districts and Contractors (Outreach).	6/30/2014	75%
2	Update Construction Manual	Update Construction Manual to conform to changes made to Sections 6, 9, 11, 40, 49, 51, 53, 72, 73, 83, and 90 of the 2010 Standard Specifications.	Review of draft subsections taking place. Progress to continue in coming days. Section 2, Section 3 subsections 0-3, Section 4 subsections 16, 19, 22, 24-29, 41, 42, 49-57, 59, 61-70, 72-75, 80-86, 91, 94, 95, Section 5 subsections 0, 5, Section 8 subsection 2, and Section 9 are closed for review. Subject matter experts creating workplans and drafts for remaining Section 3, 4, 5, and 8 subsections and Section 6 and 7.	12/31/2012	100%
3	Recycled Concrete	Evaluate possibilities for use of recycled (hardened and plastic) concrete	Monthly project team meetings to continue. Next scheduled meeting is on February 27, 2014. Industry to meet with Weights and Measures on January 31, 2014 and send information on MPQP manual. The carbon footprint savings report was received by project team on June 21, 2013. Draft Specs to be complete in coming weeks.	7/31/2014	75%
Bin List Items	Shotcrete Specification Updates	Update the provisions in Section 53 to clarify such factors as SCM content, testing requirements, etc.	Draft scoping document in process; discussion underway with Industry; timeline and necessary deliverables to be clarified in coming months	TBD	N/A
	Flexural Beam Testing in accordance with ASTM (Joint Activity with CIP Pavement STG)	Industry requesting update of ASTM/CTM requirements related to Flexural Test specimen curing, testing, etc.	Draft scoping document in process; discussion underway at various levels and at CIP Pavement STG; timeline and necessary deliverables to be clarified in coming months	TBD	N/A
	Green Concrete/ASR/Limestone Spec Updates in Section 90	Update the provisions in Section 90 to ensure that CO2 reduction goals are captured but independent of ASR Reduction goals	Activity to be developed in conjunction with "ASR Research Problem Statement". Research from ASTM Limestone Cement updates may be incorporated into this activity	TBD	N/A
	Smog-Eating Concrete	Develop specifications and design guidelines for the use	This item is currently under evaluation. A pilot project is to be selected in the near future, with the goal of capturing lessons learned. A meeting with Caltrans and Lehigh personnel took place on 30 August 2012.	TBD	N/A
	Evaluate shrinkage specification for concrete	Review SE/CV charateristics and then effect on shrinkage performance and evaluate shrinkage control needs for CT concrete	Draft scoping document in process; discussion underway at project team level; timeline and necessary deliverables to be clarified in coming months	TBD	N/A
	Performance-Based Specifications for concrete	With the latest advances in concrete technology and availability of new tests. move towards performance specifications	Using surface resistivity and other performance criteria refine the specifications from prescriptive to performance	TBD	N/A
	PT Grout Specification	Pre-approved list for grout products and updated specfication is needed	STG is working on developing a pre-approved list for grouts with succesful history on projects. Minimal Resources anticipated; working in conjunction with DES Prestress Committee and Precast Design Committee	TBD	N/A
	Separate out ASR requirements from green concrete related spec in section 90	Update the provisions in Section 90 to ensure that CO2 reduction goals are captured but independent of ASR Reduction goals	To be developed in conjunction with "ASR Pavement TAP research". Research from ASTM Limestone Cement updates may be incorporated into this activity	TBD	N/A
	Cubic Yardage Concrete and Aggregate Deduction	Update the provisions in Section 90 to better ensure compliance with Specifications	Discussion underway at STG level; timeline and necessary deliverables to be clarified	TBD	N/A

Structural Concrete QC/QA Specification Development

Sub Task Group (STG): Materials & QA

Priority: 1

STG Co-Chair: Keith Hoffman

Project Team Lead: John Lammers

Project Team Members: Cathrina Barros, Ruth Fernandes, Austin Perez, Craig Knapp, Mike Cook, Rosme Aguilar, The' Pham, Deepak Maskey, Al Ochoa, Rick Navarro, (CCTIA)

Project Team Advisors: Rita Leahy, Jinesh Mehta, Ken Beede

DEADLINE: 6/30/2013

PERCENT COMPLETE: 75%

OBJECTIVES:
Implement quality control sampling and testing for structural concrete as directed in the decision document signed by the Chief Engineer and Deputy Director of Maintenance and Operations in December 2010. Determine appropriate QC sampling and testing standards as well as acceptance (QA) sampling and testing guidance consistent with federal regulations. These requirements and guidance should be implementable for any project regardless of procurement methods.

ANTICIPATED SPEC-WRITER INVOLVEMENT:
Continuous efforts to include Prebid Outreach meeting and Section 11-4 language in all Pilot Project Specifications.

RECENT ACTIVITIES:
- Sample ID/Test ID Spec change language – Complete
- ACI Training Roster– 1/7 classes of FY 13/14 contract remaining, occurring in Huntington Beach. FY 14/15 proposed training list submitted to DPAC for approval. Training contract includes three 20-person classes in Northern CA and four 20-person classes in Southern CA.
- Full listings of all Pilot Projects are currently tracked and are continuously updated as needed.
- Coordination of Pre-Bid Outreach Meetings for upcoming Pilot Projects continues:
    - D03 Pilot Project Outreach Meeting held in January 24th.
    - D04 Pilot Project – NAP-29 Troutdale Creek Bridge – Pre-Bid Outreach language for inclusion in specifications and date for presentation currently under coordination.
    - D04 Pilot Project – San Francisquito- Contract has not been awarded yet. Pre-Bid Outreach occurred on December 11th in Oakland Main Auditorium.
    - D6 Pilot Project – In beginning stages. Pre Concrete meeting and DIME Training have taken place over the past months.
    - D07 Pilot Project removed from Pilot Project list as Prebid outreach meeting and Section 11-4 language was not included in specifications.
    - D8 Pilot Project – Project ongoing. Approximately 40 QC Tests have been input into DIME.
    - D11 Pilot Project – Project ongoing. Approximately 10 QC Tests have been input.
- QA Guidance Doc Development –continues to be refined. METS currently working with OSC on this assignment. Updates being made to document include FAQ section, DIME instructions, sample QC meeting agenda, QC checklist and sample QC Plan.

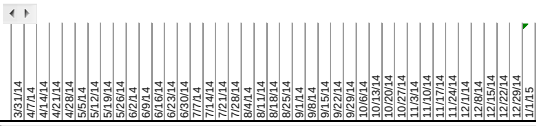
UPCOMING ACTIVITIES:
- Additional outreach with other pilot projects and Industry to take place.
- Coordination to continue for scheduling of ACI trainings and Pre-Bid Outreach meetings for Pilot Projects both in Northern CA and Southern CA.
- Continue conducting pre-bid meetings.
- Use gathered feedback from beta testing of DIME to update and roll out for larger use.
- Finalize QA guidance report to generate corresponding bulletins for state staff.
- Amendment to IA manual upcoming, develop long term IA processes.

- Discuss project lists. Discuss communications with Districts and Contractors (Outreach).

Project: RPC QC/QA Specification Update

Schedule as of: 4/10/2014

Tasks	.	Start	End	Duration (Days)	Days Complete
Update QC/QA Specification	Lead	4/01/14	1/02/15	276	3%
Propose updated language for the Independent Assurance Manual	OSM/IA	4/01/14	6/30/14	90	10%
Develop and finalize QC/QA Guidance Document	OSC	4/01/14	11/01/14	214	4%
Reduction of Verification Testing Frequency specification resolution	Project Team	4/01/14	11/01/14	214	4%
IA Program lead conductor of certification training/testing for CTMs	IA	5/01/14	8/31/14	122	0%
IA Program Certification per new CTMs	IA	5/01/14	8/31/14	122	0%
Update CTMs to reference the ASTMs in the QC/QA Spec	METS-OSM	7/01/14	11/28/14	150	0%
Develop more specific DIME Familiarization Training	OSM	7/01/14	9/01/14	62	0%
Full QC/QA Specification statewide	All	1/01/15	1/02/15	1	



Use of Recycled Concrete Materials

Sub Task Group (STG): Materials & QA **Priority: 4**

STG Co-Chair: Keith Hoffman **Project Team Lead: Mike Donovan, Don Vivant**

Project Team Members: Charley Rea, Craig Hennings, Deepak Maskey, Keith Hoffman, Jinesh Mehta, Pat Imhoff, Tarek Khan, Mike Serra, Robert Graine, Paul Fayer, Ruth Fernandes, Jim Cotey Basil Miranda, Steven Cook **Project Team Advisors:** TBD

DEADLINE: 7/31/2014 **PERCENT COMPLETE: 75 %**

OBJECTIVES:
By using various appropriate measures and devising clear limitations and practices, activity will examine returned concrete for use as minor (non-structural) concrete without compromising life cycle.

Currently, Caltrans specifications allow *aggregate* from plastic or hardened concrete to be used in road base and in various appropriate applications in new concrete. However, the use is not widely seen and therefore requirements should be evaluated and modified to promote more use for specified applications without compromising life cycle.

ANTICIPATED SPEC-WRITER INVOLVEMENT:
Once the objective is clearly defined and necessary background research is performed, project team will work on coming up with recommended changes. It is likely that Specification involvement will include reviewing the draft Recycled Concrete Section 90 subsection.

RECENT ACTIVITIES:

- Project team met with Climate Earth and Industry to discuss carbon footprint savings for returned plastic concrete on June 4, 2013.
- A field trip was scheduled on September 11, 2013 to observe manufacturing of recycle concrete operations.
- Industry met with Division of Weights and Measures on January 31, 2014 to discuss the MPQP process and understand their concerns.
- Project team meeting took place on April 3, 2014. A subgroup was formed for Caltrans and Industry to work on the enhanced MPQP development.

UPCOMING ACTIVITIES:

- Monthly project team meetings to continue.
- Next scheduled meeting is on May 22, 2014.
- Internal meeting on MPQP discussion is scheduled for April 18, 2014.
- Discuss the Section 90 changes related to cement backfill material specification language with the Spec Owners.
- The carbon footprint savings report was received by project team on June 21, 2013.
- Draft Specs to be complete in coming weeks.

SCHEDULE AND PROGRESS:
Current target completion date is July 2014.

CIP Concrete Pavement Sub-Task Group: Issue Status Summary, April 2014

Priority	Project	Purpose	Overall Progress	Target Completion Date	% Complete
1	Coefficient of Thermal Expansion (CoTE)	To CoTE as a criteria for design and construction of concrete pavements.	Received 278 total test results to date from 20 projects using six labs.	12/30/2013	90%
2	Roller Compacted Concrete	Develop standard provisions for the use of Roller Compacted Concrete	Draft special provisions are ready for implementing on trial project. Incorporated into one project in District 7	12/30/2013	35%
Bin List Item	Flexural Beam Testing in accordance with ASTM (Joint Activity with Materials/QA STG)	Industry requesting update of ASTM/CTM requirements related to Flexural Test specimen curing, testing, etc.	Draft scoping document in process; discussion underway at various levels and at CIP Pavement STG; timeline and necessary deliverables to be clarified in coming months	TBD	N/A

Precast Concrete Sub-Task Group: Issue Status Summary, April 2014					
Project Priority	**Project**	**Purpose**	**Overall Progress**	**Target Completion Date**	**% Complete**
1	Precast Pavement Specification Development	Develop comprehensive departmental guidance or standard approach on the use of precast concrete pavement.	The project team met on Wednesday February 26, 2014. The group reviewed and addressed comments on the new precast pavement specifications and plans. No future meetings are scheduled for this activity at this time as the all of the plans and specifications have been reviewed and discussed. Some further development on the nonstandard plans may be needed based on comments and suggestions from Industry.	12/31/2013	99%
Bin List Items	Prestressing Jack Equipment calibration	Updating this specification will provide clear guidelines in the specifications consistent with current practice. Removing the requirement to ship large sensitive equipment to Sacramento for calibration will assure accurate calibrations and will eliminate unnecessary costs to both Caltrans and Industry. Reviewing and updating equipment requirements will assure that the specifications are consistent with modern technology while maintaining the desired accuracy.	Scoping Document still under review.	TBD	N/A

Precast Pavement Specification Development

Sub Task Group (STG): Precast

Priority: 1

STG Co-Chair: Keith Hoffman

Project Team Lead: Mehdi Parvini

Project Team Members: Doug Mooradian, Ruth Fernandes, Jim Ma, Jim Cotey, Tinu Mishra, Kirsten Stahl, Debbie Wong, Jonathan den Hartog, Shiraz Tayabaji, Tracy Vacura, Dave Merritt, John Grafton, Ziad Sakkal, Bobby Petska, Steve Healow, Sharon Hansen

Project Team Advisors: N/A

DEADLINE: 12/31/2013

PERCENT COMPLETE: 99%

OBJECTIVES:
Precast concrete pavement systems were developed as an alternative for fast-setting cements or asphalt pavement systems in cases where a highway closure for longer than six hours is not a viable option. These systems are also beneficial in cases where high concrete durability and long pavement life are desired.

Although a few precast concrete pavement projects have already been built throughout the state, there is no comprehensive departmental guidance or standard approach on the use of precast concrete pavement.

ANTICIPATED SPEC-WRITER INVOLVEMENT:
Some involvement needed in final review of SSPs and in compiling input from various stakeholders.

RECENT ACTIVITIES:
No future Subtask Group meetings are scheduled for this activity at this time as the all of the plans and specifications have been reviewed and discussed. The final plans and specifications have been sent to the Task Group for review and final approval. It has been noted that a one-time exemption for the current specification moratorium will likely be requested so that the plans and specifications can be finalized and implemented.

UPCOMING ACTIVITIES:
For the next month:

- Finalize plans and specifications.

For the next two months:

- Lessons Learned documents will be captured throughout Fall of 2014 for all ongoing Precast Pavement projects.

Rock Products Committee
SCOPING DOCUMENT
Flexural Beam Testing Requirements
July 1, 2014

Task Group

Concrete Task Group

Problem Process

☐ Annual
☒ Expedited
☐ Emerging Initiative

Title

Flexural Beam Testing Requirements in Section 40 and CT 523

Issue/Problem Statement (*What is the issue?*)

Industry is concerned that the acceptance criteria for their product is based on factors out of their control such as ambient temperature, weather conditions, specimen fabrication, transportation and storage.

Industry believes that certification and accreditation for third party labs and non-Caltrans personnel has been, and continues to be, inconsistently managed and enforced throughout the State.

Background (*Background information to better understand the issue or provide information on other efforts on going related to the issue.*)

The earliest research on California's testing method for flexural strength (later to be named CT 523) appeared in a report published in January 1967. Caltrans sought to improve upon the ASTM C78 that was already in place. The main focus of Caltrans' experimentation was to see if smaller test samples could be used and still provide accurate, reliable results. ASTM later followed Caltrans' lead and also allowed for smaller test sample sizes. At the time CT 523 was developed it was determined that this was the best method to determine the strength of in-place concrete pavement before opening the roadway to traffic.

Most other states use either AASHTO or ASTM test methods. These test methods are commonly accredited and certified by AASHTO and ACI. These test methods are supported by national organizations that keep the test methods current and up to date. New Department policy is to start moving towards national standards.

Industry feels that the ASTM C31 and ASTM C78 test methods would be better methods for determining acceptance of concrete used for pavement due to the fact that it minimizes variables in curing, fabrication and storage of test specimens that are inherent to CT 523.

CT 523 only allows rodding of test specimens because at the time it was written, rodding was the only option as field electric generators and vibratory equipment was not readily available. Industry believes that rodding is not adequate for consolidation of low-slump concrete paving mixes. The current AASHTO and ASTM test methods allows for vibration of low-slump concrete pavement specimens.

Purpose (*Why we need to work on this.*)

To come to an agreement as to which of the test methods previously identified will satisfy both Caltrans and industry with regard to acceptance testing.

Identify current practices throughout the state in regards to CT 523 management and certification for all technicians performing these tests and the accreditation of Caltrans and third party testing laboratories.

Objectives/Deliverables (*What is important to be done and what is the expected outcome?*)

This objective of this activity is to provide additional clarity to the flexural strength testing requirements found in the Standard Specification.

1) Summarize current practices within Caltrans and other State DOTs (including testing, staff certification, lab certification, certification frequency, what accreditations are the labs obtaining, etc.) Summary of current guidelines within Caltrans (and other State DOTs) including the IA Manual and Construction Manual.

2) Investigate and summarize what disputes, claims, relevant RFIs, CCOs, or project delays have arisen that pertain to CT 523.

3) Perform search for literature:
   a) Investigate factors influencing performance of CT 523/ASTMs/Other State DOT Test methods.
   b) Find any available data supporting the development or subsequent research related to CT 523 and similar ASTM test methods. (Documents pertaining to CT 523 should be located in Caltrans files and/or archived records.)
   c) Find details relating to the basis for the standard specification change, specifically Section 40. Section 40 of the standard specifications went from allowing 16% variance between two specimens to 16% variance from the average of two specimens.

4) Prepare decision document that analyzes possible impacts to the Department and Industry (economic, logistical, etc.) Examples: Equipment, training, manual updates, design impacts, contract administration and specification updates. Analyze impacts:
   a) If the recommendation is made to switch to ASTM.
   b) If the recommendation is made to stay with CT 523.

5) Based on the decision document, gain consensus amongst the team to provide a recommendation to the Concrete Task Group as to which method is best. If a test method cannot be recommended, recommend a path forward. If a test method can be recommended, modify the specifications accordingly.

Timeline/Resources *(Estimated completion date for each deliverable)*

Deliverable	**Anticipated Completion**
Summarize current practices within Caltrans and other State DOTs (including testing, staff certification, lab certification, certification frequency, what accreditations are the labs obtaining, etc.) Summary of current guidelines within Caltrans (and other State DOTs) including the IA Manual and Construction Manual.	October 1, 2014
Summary of disputes, claims, relevant RFIs, CCOs or project delays have arisen that pertain to CT 523.	November 3, 2014
Summary of investigation of factors influencing performance of CT 523/ASTMs/Other State DOT Test methods.	November 3, 2014
Summary of any available data supporting the development or subsequent research related to CT 523 and similar ASTM test methods.	December 5, 2014
Explanation of details relating to the basis for the standard specification change, specifically Section 40.	December 23, 2014
Prepare decision document weighing pros and cons of making switch.	March 31, 2015
Provide written recommendation if possible. If recommendation on test method cannot be made, recommend a path forward.	June 30, 2015

Team Members

Team listed below represents that there will be 12 voting members and no more.

	CIP Pavement Subtask Group	Materials/QA Subtask Group
Caltrans Team Members:	Cornelis Hakim (Team Leader)	Keith Hoffman
	Mehdi Parvini / OE**	Jim Sagar
	Doran Glauz	Ken Darby
Industry Team Members:	Craig Hennings	Mark Hill
	George Butorvich	Marc Robert
	Tom Carter	Robert Hightower

** Represents one individual at any given time. If specifications need revising, replace Mehdi Parvini with someone from OE.

Team will be guided by Standard Project Workplan (attached) and Rock Products Charter

Benefits (*For example, increased life cycle or reduced costs.*)

Relieves Industry's concern that the acceptance criteria for their product is based on factors out of their control such as ambient temperature, weather conditions, specimen fabrication, transportation and storage.

If switch is made, certification and accreditation for third party labs and non-Caltrans personnel will be consistently managed and enforced throughout the State by using accepted ACI certification.

If switch is made, moves the Department towards national standards.

Has potential to reduce disputes on projects with regard to flexural strength testing method, therefore reducing litigation costs.

If switch is made, will eliminate the resources needed to update and maintain CT 523.

Will know if improvements could be made to current practices within Caltrans.

Will gain knowledge on how or if the CT 523 can be improved.

Possible Impacts (*What are the impacts to policy, specifications, construction practices, and stakeholders?*)

If switch is made to ASTMs:

- Specifications, with the concurrence of all mandatory stakeholders, would have to be changed.
- Acceptance for opening to traffic will be determined by testing field cured samples. Acceptance for 28 day strength (or more) will be determined by testing standard cured samples.
- Raising the specified flexural strength value to 625 psi for 28 days (standard-cured samples), 600 psi for 10 days (field-cured samples) and revise the specification that requires "pavement temperature (be kept) at not less than 40 degrees F for the initial 72 hours" to 50 degrees F in accordance with ACI 306.
- IA would need to begin certifying to ASTM instead of CT 523.
- May eliminate field laboratories.

If we stay with CT 523:

- Status quo is maintained.
- Better understanding from Industry on why CT 523 is used.

Resource Requirements (*Staff hours and expenses.*)

Caltrans:

Pavement:	0.25 PYE
DES METS:	0.10 PYE
Construction:	0.10 PYE
District:	0.02 PYE
OE	0.02 PYE
Legal	0.02 PYE

Other:

Industry:	0.50 PYE
FHWA:	0.05 PYE

Impediments to Completion of Deliverables

1- Lack of coordination and contribution of task group members
2- Lack of human and material resources
3- Lack of support by managers, functional units, and staff
4- Lack of staff to provide adequate training for implementation
5- New procedures may require more resources and time to complete. If this is the case, need to document conclusions in a report and propose a new Scoping Document with an updated resource estimate.

Recommendation and Approval

This scoping document for *Flexural Beam Testing Requirements* was prepared by the *Concrete Task Group* to address a priority issue that has Statewide significance and is within the Rock Products Committee mission. The Task Group Co-Chairs have determined the scope, resources required and timeline for delivery of this project to ensure that the deliverables are achievable in a timely manner.

All Mandatory Stakeholders agree that proposed changes to this Scoping Document and proposed changes to any specifications/test methods will be routed through the proper Project Team/Sub-Task Group channels in accordance with the Concrete Task Group Operating Principles, to include during the final mandatory stakeholder concurrence process.

Scoping Document Recommended for Approval by:

_____
Dan Speer
Concrete Task Group Co-Chair

_____
Chuck Suszko
Concrete Task Group Co-Chair

_____
Nesar Formoli
Concrete Task Group Co-Chair

Scoping Document Approved by:

_____
Agustin Rosales
Caltrans RPC Co-Chair

_____
Phil Stolarski
Caltrans RPC Co-Chair

_____
Shirley Choate
Caltrans RPC Co-Chair

Approval Date: _____

CALTRANS / INDUSTRY
Rock Products Committee

Flexural Beam Test Method Investigation

Project Work Plan

July 1, 2014

Concrete Task Group

Cast-in-Place Pavement Subtask Group & Materials / QA Subtask Group

Flexural Beam Test Method Investigation
Work Plan
Table of Contents

Flexural Beam Test Method Investigation
Work Plan

This project work plan is for the development of *a consensus as to which test method is best after comparing California Test 523 and similar ASTM Tests.* The intent of this work plan is to document the project scope, schedule, roles and responsibilities, and expected outcomes so that the Department of Transportation (Caltrans) and Industry have the same understanding and expectations regarding this project. The work plan for this project is based upon the priorities developed between Caltrans and Industry through the Rock Products Committee – *Concrete* Task Group, and is intended to be a guide for the Sub Task Group for the development of deliverables. This work plan communicates to Task Group and RPC Co-Chairs the necessary project activities, resources required and timeline to complete the project.

Project Background

Industry has requested an analysis and comparison of ASTM vs CT requirements related to Flexural Test specimen curing and testing to see if CT 523 can be replaced with ASTM test methods.

Project Scope

The scope of the *Flexural Beam Test Method Investigation* project encompasses the following:

- *Summarize current practices within Caltrans and other State DOTs (including testing, staff certification, lab certification, certification frequency, what accreditations are the labs obtaining, etc.) Summary of current guidelines within Caltrans (and other State DOTs) including the IA Manual and Construction Manual.*
- *Investigate and summarize what disputes, claims, relevant RFIs, CCOs, or project delays have arisen that pertain to CT 523.*
- *Perform search for literature:*
    - *Investigate factors influencing performance of CT 523/ASTMs/Other State DOT Test methods.*
    - *Find any available data supporting the development or subsequent research related to CT 523 and similar ASTM test methods. (Documents pertaining to CT 523 should be located in Caltrans files and/or archived records.)*
    - *Find details relating to the basis for the standard specification change, specifically Section 40. Section 40 of the standard specifications went from allowing 16% variance between two specimens to 16% variance from the average of two specimens.*

- *Prepare decision document that analyzes possible impacts to the Department and Industry (economic, logistical, etc.) Examples: Equipment, training, manual*

updates, design impacts, contract administration and specification updates. Analyze impacts:
  - *If the recommendation is made to switch to ASTM.*
  - *If the recommendation is made to stay with CT 523.*
- *Based on the decision document, gain consensus amongst the team to provide a recommendation to the Concrete Task Group as to which method is best. If a test method cannot be recommended, recommend a path forward.*

Changes to the project scope will be discussed with the RPC Co-Chairs and agreement will be obtained prior to carrying out any such change.

Guiding Principles

The Department policy is to start moving towards national standards and as such the following principles should guide the Sub Task Group in the development of *a recommendation as to which Flexural Beam Test Method Investigation method is best*:

- *The group recommendation will be based on a majority consensus.*
- *The members of the group may not all be in agreement. Once a general consensus, is reached members who disagree with the consensus will explain their position and that will be documented as part of the final report.*
- Development of *a recommendation as to which flexural beam test method is best* is a cooperative effort between Caltrans including Pavements, Construction, and METS, and the Construction Industry including materials suppliers.

Project Organization, Roles, and Responsibilities

A clear definition of the roles and responsibilities of each project team member and/or group helps to provide a better understanding of involvement, direction and accountability among participants in the project. The project's organizational structure is listed below and describes the roles and responsibilities of both groups and individuals who will participate in the project.

Project Sponsors, Mark Hill and Craig Hennings —Communicates the project vision, and the organization's role in supporting that vision. The Project Sponsor:

- Is the ultimate owner of the project deliverables and is responsible for fulfilling responsibilities as defined by the RPC *Concrete* Task Group;
- Has the authority to make decisions and responsibility for implementation of the (Insert title) within Caltrans;
- Promotes the project throughout Caltrans and is empowered to negotiate and provide solutions to Caltrans-level project issues.

RPC *Concrete* Task Group—Caltrans management and Industry representatives who can make decisions regarding acceptability of deliverables. The role of the Task Group includes the following activities:

- Provide high-level direction and oversight over the project;
- Build consensus and provide leadership for the project;

- Communicate project objectives and status to peers, colleagues, and staff;
- Monitor Sub Task Group performance and assure quality of deliverable;
- Assist the Sub Task Group Co-Chairs in resolving issues and removing obstacles;
- Identify and provide subject matter experts and any additional resources necessary for the project.

Caltrans Sub Task Group Co-Chairs, Cornelis Hakim (Team Leader) and Keith Hoffman —The Caltrans Sub Task Group Co-Chair will provide overall leadership and direction to the project. The responsibilities of the Caltrans Sub Task Group Co-Chair include:

- Make or evaluate key project-related decisions;
- Share/provide operational knowledge;
- Identify project risks/issues and determine which should be elevated to the Task Group;
- Attend Task Group meetings to provide project status and solicit feedback and guidance;
- Assisting the Sub Task Group in identifying and gaining access to key subject matters experts or other stakeholders;
- Serving as primary contact to the Sub Task Group;
- Schedule meetings with Caltrans subject matter experts and stakeholders;
- Participating in project status/issue meetings as required;
- Reviewing all project deliverables;
- Coordinating and consolidating review comments on interim and final deliverables;
- Recommending for approval project deliverables in a timely and complete manner;

Industry Sub Task Group Co-chairs, Mark Hill and Craig Hennings—The responsibilities of the Industry Sub Task Group Co-Chair include:

- Review all project deliverables prior to submission to the Task Group;
- Plan and coordinate project activities as it pertains to Industry participation;
- Maintain open communication with the Project Sponsor and Caltrans Sub Task Group Co-Chair;
- Identify and/or validate project risks or issues that require escalation to the Task Group;
- Conduct meetings with Industry subject matter experts and stakeholders and document findings;

Caltrans Sub Task Group Members—Responsibilities of the Caltrans Sub Task Group members include:

- Provide program area expertise, input, guidance, thought leadership, and feedback to the Sub Task Group;
- Provide validation or additional information for Sub Task Group's findings;
- Actively participate in work sessions throughout the life of the project;
- Remain accessible to the Sub Task Group as a resource for information validation;
- Review project deliverables and provide comments to the Caltrans Sub Task Group Co-Chair in a timely manner, as necessary.

Caltrans' representatives on this Sub Task Group are:

CIP Pavement Subtask Group

Doran Glauz *Cornelis Hakim* *Mehdi Parvini / OE*

Materials/QA Subtask Group

Jim Sagar *Keith Hoffman* *Ken Darby*

Industry Sub Task Group Members—Responsibilities of the Industry Sub Task Group members include:

- Provide program area expertise, input, guidance, thought leadership, and feedback to the Sub Task Group;
- Provide validation or additional information for Sub Task Group's findings;
- Actively participate in work sessions throughout the life of the project;
- Remain accessible to the Sub Task Group as a resource for information validation;
- Review project deliverables and provide comments to the Industry Sub Task Co-Chair in a timely manner, as necessary.

Industry's representatives on this Sub Task Group are:

CIP Pavement Subtask Group

Craig Hennings *George Butrovich* *Tom Carter*

Materials/QA Subtask Group

Mark Hill *Marc Robert* *Robert Hightower*

Project Resource Requirements

To deliver the project efficiently and timely the following estimated resources are necessary:

Caltrans:

Pavement:	0.25 PYE
DES METS:	0.10 PYE
Construction:	0.10 PYE
District:	0.02 PYE
OE	0.02 PYE
Legal	0.02 PYE

Other:

Industry:	0.50 PYE
FHWA:	0.05 PYE

Project Work Plan

This section describes each phase of the *Flexural Beam Test Method Investigation* project, the expected outcome of each phase, the methods of completing each phase, and the work products produced. The table below also identifies the necessary participants in order to complete the project phases.

Phase	Expected Outcome	Deliverables	Method	Participants
Develop project scope	The objective of this phase is to define the project scope, and develop a detailed project plan to accomplish the agreed on objectives.	• Scope • Guiding Principles • Roles & Responsibilities • Project Work Plan • Project Schedule • List of Project Deliverables	• Identify key stakeholders • Develop plan that outlines resources, project timelines and key milestones • Present scope and plan to Foundations Task Group for approval	• Project Sponsor • Caltrans Sub Task Group Co-Chair • Task Group
Develop Draft Deliverables	The purpose of this phase is the development of draft deliverables by the Sub Task Group. The deliverable must be complete and have Sub Task Group consensus.	• Scoping Document • Summary of Current Practices • Summary of Background Literature • Summary of Recommendations	• Interview Subject Matter Experts • Determine best practices • Determine requirements • Develop draft documents	• Sub Task Group • Caltrans Subject Matter Experts • Industry Subject Matter Experts
Stakeholder Input	The purpose of this phase is to submit draft deliverables for review and comment to stakeholders.	• Documentation of comments received and resolution • Final Document	• Circulation of documents to targeted stakeholders and subject-matter experts for review and comments. • Resolution of comments received by the Sub Task Group. • Documentation of comments and resolutions.	• Sub Task Group • Caltrans Subject Matter Experts • Industry Subject Matter Experts • Stakeholders • Task Group • Project Sponsor

Phase	Expected Outcome	Deliverables	Method	Participants
Pilot Implementation	The purpose of this phase is to reduce risk for both Caltrans and Industry while fine tuning new requirements in documents.	• Revised documents based on pilot results	• Try specification or test method on a limited number of pilot projects • Analyze pilot project results. If major revisions to the draft specification are needed prepare new draft document and then repeat process until no major revisions are needed.	• Sub Task Group • Project Sponsor
Final Deliverables	Ready for publication specifications, standard plans, test methods and guidance documents.		• Present deliverables to Task Group for recommendation to Sponsor	• Sub Task Group • Caltrans Subject Matter Experts • Industry Subject Matter Experts • Task Group • Project Sponsor

Deliverables and Delivery Dates

The project deliverables for *Flexural Beam Test Method Investigation* are described in the table below, with the anticipate date the documents will be delivered.

Deliverable	Anticipated Completion
Summarize current practices within Caltrans and other State DOTs (including testing, staff certification, lab certification, certification frequency, what accreditations are the labs obtaining, etc.) Summary of current guidelines within Caltrans (and other State DOTs) including the IA Manual and Construction Manual.	October 1, 2014
Summary of disputes, claims, relevant RFIs, CCOs or project delays have arisen that pertain to CT 523.	November 3, 2014
Summary of investigation of factors influencing performance of CT 523/ASTMs/Other State DOT Test methods.	November 3, 2014
Summary of any available data supporting the development or subsequent research related to CT 523 and similar ASTM test methods.	December 5, 2014
Explanation of details relating to the basis for the standard specification change, specifically Section 40.	December 23, 2014
Prepare decision document weighing pros and cons of making switch.	March 31, 2015
Provide written recommendation if possible. If recommendation on test method cannot be made, recommend a path forward.	June 30, 2015

Quality Control

Caltrans will use internal quality reviews to verify the quality of project deliverables.

Communications and Reporting

The Sub Task Group will make use of the following communications mechanisms:

- **Status Meetings**—The Sub Task Group will meet as necessary to status progress and resolve issues;

- **Status Reports**—Caltrans will provide a written monthly status report to the Caltrans Project Sponsor that identifies activities completed during the period and issues tracked in the Issues Log;
- **Task Group Meetings**—Throughout the project, the Sub Task Group will communicate with the Task Group to provide information, obtain perspective, and gain approval for project direction.

Assumptions

The following assumptions were made in the development of this Project Work Plan:

1. Caltrans will be responsible for the development of the deliverables described in this document.
2. The Sub Task Group will have support from Caltrans and Industry leadership, management and employees.

Recommendation and Approval

This work plan for *Flexural Beam Test Method Investigation* was prepared based on Rock Products Committee scoping document approved on (still being developed). The resources necessary and timeline for completing the deliverables are based on reasonable assumptions and the scope of the work presented.

All Mandatory Stakeholders agree that proposed changes to this Scoping Document and proposed changes to any specifications/test methods will be routed through the proper Project Team/Sub-Task Group channels in accordance with the Concrete Task Group Operating Principles, to include during the final mandatory stakeholder concurrence process.

Work plan recommended for approval by:

_____
Cornelis Hakim
Caltrans Sub Task Group Co-Chair

_____
Keith Hoffman
Caltrans Sub Task Group Co-Chair

Work plan approved by:

_____
Dan Speer
Concrete Task Group Co-Chair

_____
Chuck Suszko
Concrete Task Group Co-Chair

_____
Nesar Formoli
Concrete Task Group Co-Chair

Approval Date: _____

Rock Products Committee
SCOPING DOCUMENT
Precast Stress Jack Requirements
July 1, 2014

Task Group

Concrete Task Group (Precast STG)

Problem Process

☐ Annual
☒ Expedited
☐ Emerging Initiative

Title

Update Precast Stress Jack requirements in Specifications

Issue/Problem Statement

1. Specifications are inconsistent with current Caltrans and Industry practice for calibrating stressing equipment used in Precast concrete manufacturing plants.
2. Equipment requirements are inconsistent with current equipment produced for use in Precast concrete manufacturing plants.

Background

Current specifications require that each jack used to tension prestressing steel permanently anchored at 25 percent or more of its specified minimum ultimate tensile strength must be calibrated by METS within 1 year of use and after each repair. However, this specified procedure causes unnecessary resource impact to the Department due to the following reasons:

- Shipping of pretensioning jacks to the Department's Translab takes system out of commission for an extended period of time.
- Shipping of pretensioning jack system back to the precast facility could result in increased risk of calibration errors while in transit.
- Quality control inspection and Department verification of elongation at precast facilities has been effective in preventing issues related to calibration.
- There would be much ambiguity for Transportation Agencies performing quality assurance while using this current Department specification for projects on the State Highway System.

Per Department Memorandums from November 1999 and May 2000 (attached), current practice allows third party calibration of stressing equipment with Caltrans observation. Current equipment requirements in the specification also need to be reviewed and updated to be consistent with current technology.

Purpose

Updating this specification will provide clear guidelines in the specifications consistent with current practice. Removing the requirement for METS calibration of jack equipment will help ensure accurate calibrations and will eliminate unnecessary costs to both Caltrans and Industry. Reviewing and updating equipment requirements, including digital and jack-integrated gauges, will assure that the specifications are consistent with modern technology while maintaining the desired accuracy.

Objectives/Deliverables

The objective is to update the specifications to be consistent with current best practice, while assuring that the stressing equipment used in Precast concrete manufacturing plants will provide the necessary accuracy to produce quality products that meet finished product design requirements.

The deliverables for this activity are as follows:

- Review existing specifications and best practices to assure that the proposed change will provide the necessary accuracy to assure quality products are produced that meet product design requirements.
- Revise specification Section 50-1.01D(3) Equipment and Calibration. Gather and compile feedback from all necessary parties.
- Advise on the applicability of these specifications to post tensioning jack calibration.
- Finalize the specifications and publish

Timeline

Gather information regarding equipment currently in use	1 September 2014
Draft specification updates	1 December 2014
Gather and compile feedback and responses	1 February 2015
Finalize specification and route for Stakeholder approval	1 April 2015
Publish specification updates	30 June 2015

Benefits

The change to the specification will remove unnecessary specification requirements while providing the required Precast product quality for PC PS concrete products produced in a Precast concrete manufacturing plant.

Impacts

This proposal will reduce impacts to policy, specifications, and practices. This will benefit all stakeholders including Industry by avoiding costly and possibly unnecessary requirements for fabricating PC PS concrete products.

Stakeholders:

- Division of Construction
- Division of Design
- DES – METS
- DES – Structure Design
- DES – Structure Policy and Innovation
- Office Engineer
- Maintenance/ Pavement Program
- Industry
- FHWA (High-profile project change orders with altered language or that require time extensions will need FHWA approval)

Resource Requirements (*Staff hours and expenses.*)

Caltrans:

DES METS:	0.10 PY
Construction:	0.10 PY
District:	0.10 PY
OE	0.10 PY
Industry:	0.15 PY
FHWA:	0.05 PY
Legal	0.05 PY

Impediments to Completion of Deliverables

None expected

Recommendation and Approval

This scoping document to *Update Precast Stress Jack requirements in Specifications* was prepared by *Concrete Task Group (Precast STG)* to address a priority issue that has Statewide significance and is within the Rock Products Committee mission. The Task Group Co-Chairs have determined the scope, resources required and timeline for delivery of this project to ensure that the deliverables are achievable in a timely manner.

All Mandatory Stakeholders agree that proposed changes to this Scoping Document and proposed changes to any specifications/test methods will be routed through the proper Project Team/Sub-Task Group channels in accordance with the Concrete Task Group Operating Principles, to include during the final mandatory stakeholder concurrence process

Scoping Document Recommended for Approval by:

_____ _____

Dan Speer
Caltrans Task Group Co-Chair

Chuck Suszko
Caltrans Task Group Co-Chair

_____

Nesar Formoli
Caltrans Task Group Co-Chair

Scoping Document Approved by:

_____ _____

Agustin Rosales
Caltrans RPC Co-Chair

Phil Stolarski
Caltrans RPC Co-Chair

_____

John Stayton
Caltrans RPC Co-Chair

Approval Date: _____

Rock Products Committee
SCOPING DOCUMENT
Shotcrete Specification Requirements
July 1, 2014

Task Group

Concrete Task Group

Problem Process

☐ Annual
☒ Expedited
☐ Emerging Initiative

Title

Shotcrete Specification Requirements in Section 53

Issue/Problem Statement (*What is the issue?*)

The 2006 and 2010 Standard Specifications (updates to section 90) have had an unforeseen impact on the quality of shotcrete that Contractors are able to provide, while still meeting the specification requirements.

Background (*Background information to better understand the issue or provide information on other efforts on going related to the issue.*)

The current Section 53 specification and Section 90 have two different grading requirements for the 3/8" pea gravel. This has caused issues related to the interpretation of aggregate grading requirements in certain projects.

In addition, when shotcrete is designed per *Section 90-1.02* and Equations 1 and 2, there have been several issues related to the placement of the shotcrete including cracking and loss of adhesion. Higher volumes of SCMs tend to result in the lack of early adhesion which leads to tension cracks, which may or may not be discovered at time of placement. (Example of issue came up on project 04-264144). These issues are magnified when compressive strengths of 4,000 psi or higher are required.

Water demand for shotcrete mixes can be higher than what is currently allowed in Section 90 due to the fact that shotcrete has a higher specific surface area because of the smaller aggregate. This has caused delays in obtaining an approved mix design that can be placed without creating other quality problems.

In addition, Industry has moved towards the use of automatic color dispensing systems which may deviate from the current specification. Industry would like to consider the use of these alternative systems.

Purpose (*Why we need to work on this.*)

To revise Section 53 to reflect the 3/8" grading requirements found in Section 90 in order to eliminate conflicting grading requirements. There is confusion as to whether the combined

grading requirements in Section 90 apply to Section 53 for shotcrete, which include provisions that state: "The 3/8" combined grading requirements in Section 90 do not apply."

The activity would determine the need for Equation 2 for shotcrete as written, while keeping the intent of the original specification with regard to ASR and other Department goals. This could include using alternatives currently allowed for precast and pavement mixes (or a combination of the two).

This activity would determine the need for the maximum water allowed per section 90-1.02G(6) based on proposed above changes and standard industry practices.

The activity would also consider the use of alternative coloring systems for Shotcrete.

Objectives/Deliverables (*What is important to be done and what is the expected outcome?*)

This objective of this activity is to provide clarity to the shotcrete specifications in Section 53 of the Standard Specifications.

The following deliverables will be accomplished as part of this activity:

1. Identify team of stakeholders with equal representation from Caltrans and Industry.
2. Review shotcrete specification, best practices and field construction issues. (Some examples included)
3. Identify the Department's parameters and performance criteria for a quality shotcrete specification and proposed an alternative specification that meets the same expectations.
4. New proposed Specifications/SSPs where necessary.
5. Identify resource impacts, if any, from proposed changes.
6. Outreach with various stakeholders to communicate proposed updates prior to routing to mandatory stakeholders.

Timeline *(Starting date and estimated completion date for each deliverable)*

Deliverable	Estimated Start Date
Identify team of stakeholders with equal representation from Caltrans and Industry.	1 July 2014
Review shotcrete specification and field construction issues.	1 August 2014
Identify the Department's parameters and performance criteria for a quality shotcrete specification and propose an alternative	1 October 2014

specification that meets the same expectations.	
New proposed Specifications/SSPs where necessary.	1 January 2015
Identify resource impacts, if any, from proposed changes.	1 February 2015
Outreach with various stakeholders to communicate proposed updates prior to routing to mandatory stakeholders.	1 March 2015
Route to mandatory stakeholders for final review and approval	1 April 2015

Benefits (*For example, increased life cycle or reduced costs.*)

Provide more confidence that the final in-place product is free of coarse separations and defects.

This activity would help facilitate contract administration and minimize potential claims. Better clarity for mix design requirements would also result in more cost effective shotcrete.

This activity would result in Industry being able to provide mixes that are consistent with the shotcrete industry's common practices, thus giving Caltrans a better product.

Resource Requirements (*Staff hours and expenses.*)

Unit/Organization:

DES METS:	0.10 PY
Construction:	0.10 PY
DES OSC	0.10 PY
District:	0.05 PY
OE/SP&I	0.05 PY
FHWA:	0.05 PY
Legal	0.05 PY

Impediments to Completion of Deliverables

1- Lack of coordination and contribution of task group members
2- Lack of human and material resources
3- Lack of support by managers, functional units, and staff

Recommendation and Approval

This scoping document for the *Shotcrete Specifiation Updates* was prepared by *Concrete Task Group* to address a priority issue that has Statewide significance and is within the Rock Products Committee mission. The Task Group Co-Chairs have determined the scope, resources required and timeline for delivery of this project to ensure that the deliverables are achievable in a timely manner.

All Mandatory Stakeholders agree that proposed changes to this Scoping Document and proposed changes to any specifications/test methods will be routed through the proper Project Team/Sub-Task Group channels in accordance with the Concrete Task Group Operating Principles, to include during the final mandatory stakeholder concurrence process.

Scoping Document Recommended for Approval by:

_____
Dan Speer
Concrete Task Group Co-Chair

_____
Chuck Suszko
Concrete Task Group Co-Chair

_____
Nesar Formoli
Concrete Task Group Co-Chair

Scoping Document Approved by:

_____
Augie Rosales
Caltrans RPC Co-Chair

_____
Phil Stolarski
Caltrans RPC Co-Chair

_____
John Stayton
Caltrans RPC Co-Chair

Approval Date: _____