Rock Products Committee (RPC) Meeting

AGENDA

Date: January 21, 2015
Time: 1:00 PM to 4:00 PM
Location: Translab Auditorium
5900 Folsom Blvd.,
Sacramento, CA 95819

Meeting called by:	RPC Co-Chairs: Mike Cook Phil Stolarski, John Stayton and Joe Caputo
Facilitator:	Phil Stolarski
Attendees:	RPC Members (Caltrans, Industry & FHWA)
Purpose:	Share information related to the activities of the RPC

Time	Topic	Who	Desired Outcome
1:00 – 1:05	**Welcome, Introductions and Review Agenda** **Action Items from October 15, 2014**	Phil Stolarski	Member introductions, agreement on agenda, and status of action items
1:05– 1:15	**RPC Co-Chairs Update** • **Industry** • **Caltrans**	RPC Co-Chairs	Caltrans management update, Industry update and any heads up notice
1:15 – 2:35	**RPC Task Group Work Plan Status Updates (20 minutes for each Task Group)** • **Asphalt** • **Concrete** • **Pavement Foundations** • **Pavement Preservation**	Task Group Co-Chairs Sri Balasubramanian Joe Peterson Chuck Suszko Jack Van Kirk Pat Imhoff Dan Speer Bill Farnbach Chuck Suszko Charley Rea Bruce Carter Kirk McDonald Bill Farnbach Dan Speer Chuck Suszko Don Vivant Bob Durham Sri Balasubramanian Chuck Suszko Bill Farnbach Jim Ryan Bruce Carter	• Accomplishments in the last quarter • Planned outcomes for next quarter • Any major cross cutting issues as a heads up or lessons learned.

Rock Products Committee (RPC) Meeting January 21, 2015 AGENDA			
Time	**Topic**	**Who**	**Desired Outcome**
2:35 – 2:45	**Break**	All	Refreshment
2:45 – 3:30	**New Business Items** • **FY 15/16 Proposed Projects** • **Pavement Research Update** • **Structures Specifications Process**	Task Group Co-Chairs Joe Holland Roberto Lacalle	Share strategic initiatives • Educational • Informational
3:30 – 3:50	**Round Table**	RPC Members	Interaction and discussion of appropriate, cross-cutting issues and reports
3:50 - 4:00	**Capture Action Items and Dates** **Next Meeting on April 15, 2015 from 1 PM to 4 PM at TransLab, 5900 Folsom Blvd., Sacramento, CA 95819**	Phil Stolarski	Capture action items Share information

Handouts:
1. Action Items October 15, 2014
2. January 2015 RPC Management Status Report

Rock Products Committee (RPC)
Meeting Minutes and Action Items
From Wednesday October 15, 2014
1:00 PM to 4:00 PM
Geotech Conference Room, 5900 Folsom Blvd., Sacramento, CA

Meeting Minutes Outline of Discussion

Meeting started at 1:10 PM:

Meeting opened by Stolarski who requested Industry members who need new Caltrans IDs to complete the forms for ID badges that were passed out.

Stolarski announced that the agenda would be adjusted so that Joe Holland could leave for another meeting.

Self introductions were made by the RPC members.

- Rita Leahy was attending as a representative of CalAPA.
- Charles Stuart attending meeting for SWCPA
- Al Vasquez was attending for Joe Peterson.
- Rob Hogan was attending for Bill Farnbach
- First meeting for Mike Donovan from Central Concrete who was attending and will be the new RPC Industry Vice-Chair

Stolarski reported on October 15, 2014 Action Items:

1. Have research presentation at next RPC meeting
    - Action item completed.
2. Email Mike Cook when RPC Meeting Minutes are posted.
    - Done

<u>Industry Update</u>

Cook:

- Mike Donovan from Central Concrete has been selected by Industry to be the new Industry RPC Vice-chair.

<u>Caltrans Update</u>

Stolarski:

- Joint Training update: In November we briefed Bob Pieplow and in December we briefed Karla Sutliff, Chief Engineer, on the options for implementing Joint Training and Certification.

Caputo:

- New State Pavement Engineer should be selected in the next six weeks.
- Bill Farnbach is now the interim Office Chief for Concrete and Bill will be taking another temporary assignment in District 3. This temporary assignment will last until June 1, 2015.

Stayton:

- Marl Leja retired at the end of December 2014.
- Rachel Falsetti is the acting chief of the Division of Construction.
- Mike Beauchamp is new construction Deputy in District 8.

RPC Meeting Minutes 1/21/15 Outline of Discussion Continued

RPC Task Work Plan Status Updates

January 2015 RPC management status report is available at:
http://www.dot.ca.gov/hq/maint/Pavement/RPC/RPC_Workplan.html

Balasubramanian presented the Asphalt Task Group Projects:

Project #9 Quieter Flexible Pavement
Need to decide if we should change Caltrans OGFC specifications to match the material requirements that the research used.

Project#11 Longer Life Flexible Pavement
Working towards finalizing the report which should be done in January 2015. Information will be posted on the pilot project website.

Scott D: Are you incorporating lessons learned into future projects specifications.

Sri: Yes lesson learned have been incorporated into our design.

Project#15 RAP/RAS
RAP/RAS NSSP finalized at December 16, 2014 Sub Task Group meeting and is now ready for use on projects. The RAP/RAS specification will be include in the first Revised Standard Specification for 2015 Standard Specifications. A Construction Procedure Directive (CPD) is being process to allow RAP/RAS by change order on projects under 2010 Standard Specifications.

Suszko:
Project# 18 Intelligent Compaction
HMA intelligent compaction (IC) pilot projects in District 10 and District 1 have been completed. Four CIR projects with IC have also been completed in Districts3, 6, 9 and 11. Four more IC pilot projects with both HMA and CIR had bid openings in October 2014. Eight addition pilot projects that will be advertised in 2015 have been selected and these pilots include both IC for the CIR and HMA overlay. Three issues identified by pilot projects that need more work are survey control points, project layout files and Veda software issues.

Balasubramanian:
Project#20 Asphalt Rubber Binder Quality Control
Working on a study on how reheating affects viscosity that may require a change to the specification.

Van Kirk: We have done the study and should come back next week with recommendations.

Project#21 Performance Graded Asphalt Rubber Binder
Round robin one was completed. Second round robin was postponed because of Industry lack of resources.

Van Kirk: The second round robin samples should go out this week or next week.

Project#23 Section 39 Hot Mix Asphalt Specification
Posted RSS on October 17, 2014. Sub Task Group is continuing work on remaining issues.

RPC Meeting Minutes 01/21/15 Outline of Discussion Continued

Asphalt Task Group —Comments to "Overall Progress"

Project#24 Hot Mix Asphalt Low Volume (HMA-LV)
Now will be called Hot Mix Asphalt Local Agencies. Industry is the lead on this effort and three alternatives have been identified by Sub Task Group.

Project#25 Asphalt Binder Crumb Rubber Verification
Next Sub Task Group meeting is scheduled for January 27, 2015. Small group A to propose criteria for Approved CRM Suppliers program. Small group B to proposed weights and measures which will be a new MPQP section for weight and measures requirements for CRM verification.

Project #26
This Sub Task Group has not met yet. There was some discussion about who the Co-Chairs are for this Sub Task Group with the following results:
Caltrans Co-Chair Kee Foo
Industry Co-Chairs will be Tony Limas and Frank Rancador

Comments:
None

Concrete Task Group —Comments to "Overall Progress"

Dan Speer presented the Concrete Task Group projects update:

Project#5 QC/QA Specification for Cast-in-place Concrete
A lesson learned report is drafted by the Sub Task Group on the pilot projects. There are seven on-going pilot projects. These specifications should be ready for implementation in February 2015. DIME is ready and being used on projects.

Project#11 Precast Concrete Pavement
Standard plans and specifications are complete and ready for mandatory stakeholder concurrence.

Project#22 Recycled Concrete Materials Specification Development
Environmental document complete, specification is complete, and MPQP issues are being addressed by MPQP addendum. This group has worked well and I thank all of those who have participated. Ready for implementation February 2015.

Carter:
Project#26 Flexural Beam Testing Requirements in Section 40
There has been quite a bit of activity on this. A survey when out to Caltrans Resident Engineers on 22 projects. A similar survey when out to contractors and private labs. Survey whet out to other states on what they are doing. Going to use ASTM or AASHTO test method for three point testing. Flexural strength requirement will probably go to 625 psi. Opening to traffic flexible strength beams will be field cured.

RPC Meeting Minutes 1/21/15 Outline of Discussion Continued

Concrete Task Group —Comments to "Overall Progress" Continues

Dan Speer:
Project #27 Update Precast Stress Jack Requirements in Specifications
Draft specification will continue to be refined by the Sub Task Group.

Project #28 Shotcrete Specification Requirements in Section 53
Looking at equation 2 for cementatious materials requirements for shotcrete and aggregate size.

Project #29 Quality Assurance of Dowel Bar Placement
Literature review including reviewing other states specifications. Looking at nondestructive testing as well as contractor quality control requirements.

Comments:
None

Pavement Foundation Task Group —Comments to "Overall Progress"

Suszko presented the Pavement Foundations Task Group projects.

Project#12 Intelligent Compaction
There are four CIR pilot projects that have been completed using intelligent compaction. There are four addition CIR projects with intelligent compaction that have been approved and will start work in the spring. Eight addition pilot projects that will be advertised in 2015 have been selected and these pilots include both IC for the CIR and HMA overlay. Three issues identified by pilot projects that need more work are survey control points, project layout files and Veda software issues.

Project#13 Subbase and Base QA Requirements
Sub Task Group met on Nov 24 to go over comments and clarification on sections 25 & 26. Caltrans to send out drafts of sections 27 & 28 in January 2015.

Pavement Preservation Task Group — Comments to "Overall Progress"

Balasubramanian presented the Pavement Preservation Task Group Projects:

Project#3 Cold In-Place Recycling
Joe Peterson has been working on LP-8 CIR mix design procedure. Mix design will be moving towards asphalt mix design with air voids requirements. Next meeting will be February 13, 2015. Making some changes to the NSSP. This project is tied to project #21.

Project#4 Fog Seals
Working on getting patent on new testing equipment for California Test 342 is continuing.

RPC Meeting Minutes 1/21/15 Outline of Discussion Continued

Pavement Preservation Task Group — Comments to "Overall Progress" Continued

Balasubramanian::
Project#5 Rubberized Slurry Seal
Industry has submitted NSSP developed by Sally Houston to Caltrans for review and comments by the next sub task group meeting.

Scott D: Industry and Caltrans is working on Section 37 item 20 and rubberized will be addressed . Caltrans is putting a lot of effort into the rewrite.

Project #6 Modified Binder Chip Seal
This will be included in the 2015 specifications.

Project#7 Scrub Seal
NSSP has been completed.

Project#8 Warm Mix Asphalt Rubber Chip Seal
Three pilot projects have been completed. We are looking for two more pilot projects.

Rob Hogan:
Project#14 Quieter Concrete Pavement
The fourth year report has been completed by UCPRC and is being reviewed.

Project#16 Concrete Sealer/Hardener
Data collection has been completed for second year for pilot projects. Task order with Chico to do abrasive testing on pilot projects.

Projecr#17 Concrete Pavement Joint Filler for Wide Joints
Wide joints Sub Task Group held first meeting will be gathering information on what other states are doing. On track to complete. Conference call is scheduled for October 28. Polymer modified material for spall repair.

Project#18 Concrete Spall Repair
METS is working on materials list.

Project#19 CRCP Punchout Repair
Draft standard plans and specifications are being internally circulated for comments. Guidance is being prepared.

Project #20 2015 Section 37 Technical Update
Industry comments have been incorporated into specification.
At the next sub task group meeting in December the revised Section 37 in 2015 format will be presented.

Project #21 Cold In-Place Recycling Using Foamed Asphalt
Will be discussed at the next CIR sub task group meeting on February 13, 2015.

RPC Meeting Minutes 1/21/15 Outline of Discussion Continued

New Business Items

RPC FY 15/16 Proposed Projects

Stolarski: This is the time of year when we will be adding additional projects for 2015/2016.
Cook: What is the process?
Stolarski: We normally would have started earlier in December meeting with Task Groups, when Amarjeet was here we limited the number of new projects Task Groups could bring forward

The following annual process for new RPC projects is included in RPC Attachment #19 "Process to Propose New Projects for RPC Work Plan:

Annual New Projects Process

The Rock Products Committee charter includes as a goal that to operate effectively and produces timely delivery of projects the RPC members will establish necessary tools and resources including a priority based work plan for projects identified to be worked on during the fiscal year. For new projects to be added to the annual RPC Workplan the following process is to be used for project submittal and approval:

1. Task Group Co-Chairs will be responsible for collecting new topics for projects, developing scoping documents and maintaining a list of potential projects.
2. Task Group Co-Chairs will provide the RPC Co-Chairs a list of potential RPC projects by January 15 each year.
3. Task Group Co-Chairs will prioritize potential RPC projects by February 15 each year.
4. Task Group Co-Chairs will present and discuss the prioritized projects list with RPC Co-Chairs by March 15 each year.
5. Task Group Co-Chairs will present the prioritized list of potential projects at the April RPC quarterly meeting.
6. Task Group Co-Chairs will prepare final scoping documents and project work plans with resource estimates for prioritized projects. Based on available resources to complete the proposed new projects, the Task Group Co-Chairs will determine which three to five projects prioritized projects are to be submitted to RPC Co-Chairs for approval for next fiscal year RPC Workplan by May 15, each year. Projects that are not chosen based on priority should be considered for placement on the bin list for future consideration.
7. Task Group Co-Chairs will present the three to five scoped projects for the next fiscal year RPC workplan to the RPC Co-Chairs by June 15 each year.
8. Projects with scoping documents approved by the RPC Co-Chairs will be included in RPC Workplan.
9. Projects that are not approved by the RPC Co-Chairs may be placed on the project bin list for future consideration.
10. The annual RPC Workplan will be presented at the July RPC quarterly meeting.

RPC Meeting Minutes 1/21/15 Outline of Discussion Continued

RPC FY 15/16 Proposed Projects

Suszko presented the proposed FY 15/16 projects for each of the task groups:

Asphalt Task Group

1. Reclaimed Asphalt Pavement in Rubberized Hot Mix Asphalt
2. Use of Automatic Vacuum Sealing Method to Determine Density of HMA Pavement Core Specimens
3. Crumb Rubber Low Percentage in Hot Mix Asphalt (One alternative is PG+5)

Concrete Task Group

CIP Pavement STG

1. (Scoping Document for 2015) – Volumetric Mixing Equipment specification and operator training
2. (Scoping Document for 2015) – Resolution & evaluation process for low-strength, non-conforming pavement (joint effort with M-QA STG)

Precast STG

1. (Scoping Document for 2015) – QC and QA Testing Results and Mix Designs for Precast Facilities
2. (Scoping Document for 2015) – Precast Pavement Construction quality control guidance and training plan
3. MPQP for Precast Facilities
4. Shifting ASTM C1567 requirements from 3 to 5 years for Precast Concrete

Materials/QA STG

1. (Scoping Document for 2015) – Concrete Mix Design Number Tracking System
2. Separate out ASR Requirements from Green Specification requirements
3. Recycled Concrete specifications for crushed concrete as aggregate
4. Performance Based specifications for structural concrete
5. Smog Eating Concrete

Pavement Foundation Task Group

1. Intelligent Compaction for Soils and Aggregate Bases
2. Soil Stabilization Using Lime and Cement

Pavement Preservation Task Group

None

Pavement Research Update (Handouts#1 & #2)

Joe Holland presented research update and started with 3 year process and then talked about the one year annual process.

There are two subjects that will be covered today concerning research:

1) How does a research project come into being?
2) Status of Current Pavement Related Research Projects.

RPC Meeting Minutes 1/21/15 Outline of Discussion Continued

Pavement Research Update Continued

How does a research project come into being?
First handout"3 yr Contract Process" covers the process that Caltrans must go through to get a contract with a university to do research.

To put a research contract together the Division of Research, Innovation and System Information (DRISI) staff talk to State Pavement Engineer, Technical Advisory Panel (TAP) members and DRISI staff about what are the research needs.

UCPRC then gives Caltrans an estimate based on the tasks and potential projects.
When the contract is approved the projects are not approved. Ongoing projects continue but new projects require scope and tasks being approved.

The backside of the first handout "Annual Research Project Approval Process" shows the process on how a research project is approved. The Pavement Management Committee acting as the pavement Technical Advisory Panel prioritizes research projects. The Research and Deployment Steering Committee (RDAC) approves projects. There is an annual review or research projects by the Pavement Management Committee (PMC) that can kill non-performing/not going the way we want projects.

Annual process is used to determine the projects for the year that will be funded. All pavement projects compete against all other research projects for funding. Detailed work plan is established by the Technical Advisory Panel (TAP)

Rita Leahy: Is there direct input from the Rock Products Committee?
Joe Holland: A number of the projects came from the RPC. Research has to have Caltrans customer.
Rita Leahy: Is research funded from SP&R Funds?
Joe Holland: Yes.
Van Kirk: I was told that there was a Industry representative on committee?
Joe Holland: There is no direct input from industry but you have input from Caltrans Task Group chairs.
Cook: Is the funding only Federal money?
Joe Holland: No funding is split 80 Federal -20 State.
Cook: What is the timeline for submitting research? August?
Joe Holland: There is an annual process but there are opportunities for mid cycle projects to be added. A lot of research is multi year. A report is required at the end of the research contract even if the research is not fully completed.
Rita Leahy: The report is not necessarily a product.
Joe Holland: True, it is not research that is ready to be implemented.
Cook: We can continue to talk about research.
Caputo: I set on the RDAC as a representative of the District. The research budget is 8-10 million for all Department research. Past several years Caltrans has focused on implementable research.

RPC Meeting Minutes 1/21/15 Outline of Discussion Continued

Pavement Research Update Continued

Joe Holland: Second handout is Pavement Research Roadmap (1014-1017)
Page 1 of the handout shows the strategic problems, strategic objectives and research approach for each priority topic.

The following are the seven priority topics for pavement research:

- Mechanistic-Empirical Design
- Performance Based Specifications
- Construction Quality
- Recycling
- Sustainability
- Preservation
- Pavement Management

Page two of the handout shows the current projects related to the seven topics. (See Handout #2)

Comments
Rae: There was a specification that was recently completed for RAP/RAS so why is there research?
Joe Holland: The research was in support of creating the specification and also includes some testing using the APT.
Humer: Caltrans does its own research in addition to universities?
Stolarski: In 1994 Caltrans stopped doing in house research and now all research is done outside of Caltrans.

Structures Specifications Process (Handout #3)

Roberto Lacalle presented a structures specifications development process.
Handout Page 2: Structures owns 20 specifications. Structures co-owns Section 90 Concrete with Pavement Program

Handout Page 3: Request for specifications come from many sources.
There has not been a lot of specification development recently because of the specifications moratorium that started on July 1, 2013 for the 2015 Standards. There is a committee that prioritizes the specifications to reflect the importance. The Deputies in DES approved the list of specifications that will be developed by the specifications unit.

Lacalle described the specification development process shown on handout pages 3 and 4.

Comments:
Rae: How does Industry give input for the specifications?
Lacalle: All specifications are routed to METS for input.
Tietz: I provided input to Section 52 in the past.
Lacalle: The technical committees normally do outreach to Industry groups when they are working on specifications.

RPC Meeting Minutes 1/21/15 Outline of Discussion Continued

Structures Specifications Process Continued

Comments:

Ohlwiler: In the past when a Sub Task Group had finalized a spec there were then changes made. Now we have a process that changes will be routed back to RPC task groups.

Lacalle: Yes it should come back to technical group if there are changes. The Concrete Technical Committee reviews all Section 90 changes. We have to route the specifications changes to advisory stakeholders and mandatory stakeholders.

Speer: I thought we have an NSSP process.

Lacalle: We do have an NSSP process that is normally used on a project by project basis but can be used on multiple projects.

Roundtable Discussion:

Cook: There was discussion this morning about doing the right thing. We want to thank Chuck for holding the intelligent compaction implementation until completion of all tasks related to the specification. Don't put out specifications if they are not ready.

Rae: It sounds like we are making great progress on joint training. Good news is that RAP/RAS and Recycled concrete specifications are completed.

Carter: What about performance specifications?

There was general discussion on how Caltrans is approaching performance based specification in order to move forward including the need for:

- Mechanistic-Empirical Design
- Life Cycle Cost Analysis
- Pavement management System
- Materials Management System

Cook: What about using warranties?

There was a general discussion about using warranties especially for existing pavements. With Automated Pavement Condition Survey now in place in may be time to reassess if pavement maintenance treatment warranty projects should be tried again.

Action Items

See attached action items:

Meeting adjourned at 3:45 PM.

Rock Products Committee (RPC)
Action Items
From January 21, 2014
1:00 PM to 4:00 PM
Geotech Conference Room, 5900 Folsom Blvd., Sacramento, CA

Action Items Summary

#	MEETING	ITEM	ACTION REQUIRED	WHO	DUE	STATUS
1.	1/21/15	Scoping Documents	Completed Scoping Documents to RPC Co-Chairs	Task Groups	April 15, 2015	
2.	1/21/15	Reschedule Next Meeting	Proposed April 20, 2015	RPC Co-chairs	February 2, 2015	
3.	1/21/15	October RPC Meeting	Hold meeting in Southern California	RPC Co-chairs	February 2, 2015	

RPC January 21, 2015 Meeting Minutes and Action Items

Rock Products Committee Meeting Attendance

Name	Organization	2014				2015			
		1/22	4/16	7/16	10/15	1/21			
Philip Stolarski	Caltrans State Materials Engineer **(Co-Chair)**	■	X	X	X	X			
Joe Caputo	Caltrans State Pavement Engineer **(Co-Chair)**	X[2]	X[2]	X[15]	■	X			
John Stayton	Caltrans Asst. Chief of Construction **(Co-Chair)**	■	X	X	X	X			
Mike Cook	Industry-Granite Construction Company, Inc. **(Industry Co-Chair)**	X[15]	X[15]	X[15]	X[15]	X			
Bill Farnbach	Caltrans Pavement Program (Caltrans Member)	X[3]	X[8]	X[11]	X[11]	X[17]			
Chuck Suszko	Caltrans Construction (Caltrans Member)	X	X	X	X	X			
Dan Speer	Caltrans Materials Engineering & Testing Services (Caltrans Member)	X	X[8]	X	X	X			
Joe Peterson	Caltrans Materials Engineering & Testing Services (Caltrans Member)	■	X	X[5]	X	X[18]			
Roberto Lacalle	Caltrans Structures Specifications and Estimating (Caltrans Member)	X	■	X	X	X			
Peter Vacura	Caltrans Pavement Program (Caltrans Member)	X[9]	X	X	X	X			
Steve Healow	FHWA Pavement Engineer (FHWA)	X	■	X	X	X			
Kirk McDonald	CalPortland (Industry Member)	0	0	0	0	X			
Charley Rea	CALCIMA (Industry Member)	X	X	X	X	X			
Cliff Ohlwiler	Oldcastle Precast, Inc. (Industry Member)	X	■	X	■	X			
Craig Hennings	Southwest Concrete Pavement Association (Industry Member)	■	X	X[12]	X[14]	X[14]			
Bob Durham	Durham Stabilization, Inc. (Industry Member)	■	■	■	■	■			
Don Vivant	Sully-Miller Contracting Company (Industry Member)	X	X	X	X	X			
Jim Ryan	Paramount Petroleum (Industry Member)	X	X	X	X	X			
Jack Van Kirk	Basics Resources, Inc. (Industry Member)	X	X	X	X	X			
Pat Imhoff	CalPortland (Industry Member)	X[13]	X[13]	■	■	X			
Robert P. Humer	Asphalt Institute (Industry Member)	X	X	X	■	X			
Russell Snyder	California Asphalt Pavement Assoc (Industry Member)	X	X	X	X	X			
Tom Tietz	California & Nevada Cement Assoc (Industry Member)	■	X[10]	X	■	X			
Scott Dmytrow	Telfer Oil (Industry Member)	■	■	X	■	X			

[1]Scott Jarvis	[9]Peter Vacura	[17]Rob Hogan for Bill Farnbach
[2]Agustin Rosales	[10]Paullette Salisbury for Tom Tietz	[18]Al Vasquez for Joe Peterson
[3]Amy Fong for Bill Farnbach	[11]Nick Burmas for Bill Farnbach	
[4]Sara Alzate	[12]Charles Stuart for Craig Hennings	
[5]Cathrina Barros for Joe Peterson	[13]Jim St. Martin	
[6]Jeff Wykoff for Tom Tietz	[14]Bruce Carter for Craig Hennings	
[7]Ron Stickel	[15]Tony Limas	
[8]Nesar Formoli for Bill Farnbach	[16]Amarjeet Benipal	

Handouts:

1. Action Items July 16, 2014
2. October 2014 RPC Management Status Report
   http://www.dot.ca.gov/hq/maint/Pavement/RPC/RPC_Workplan.html
3. Research Process
4. Pavement Research Roadmap (2014-2017)
5. Structures Specification Development Process

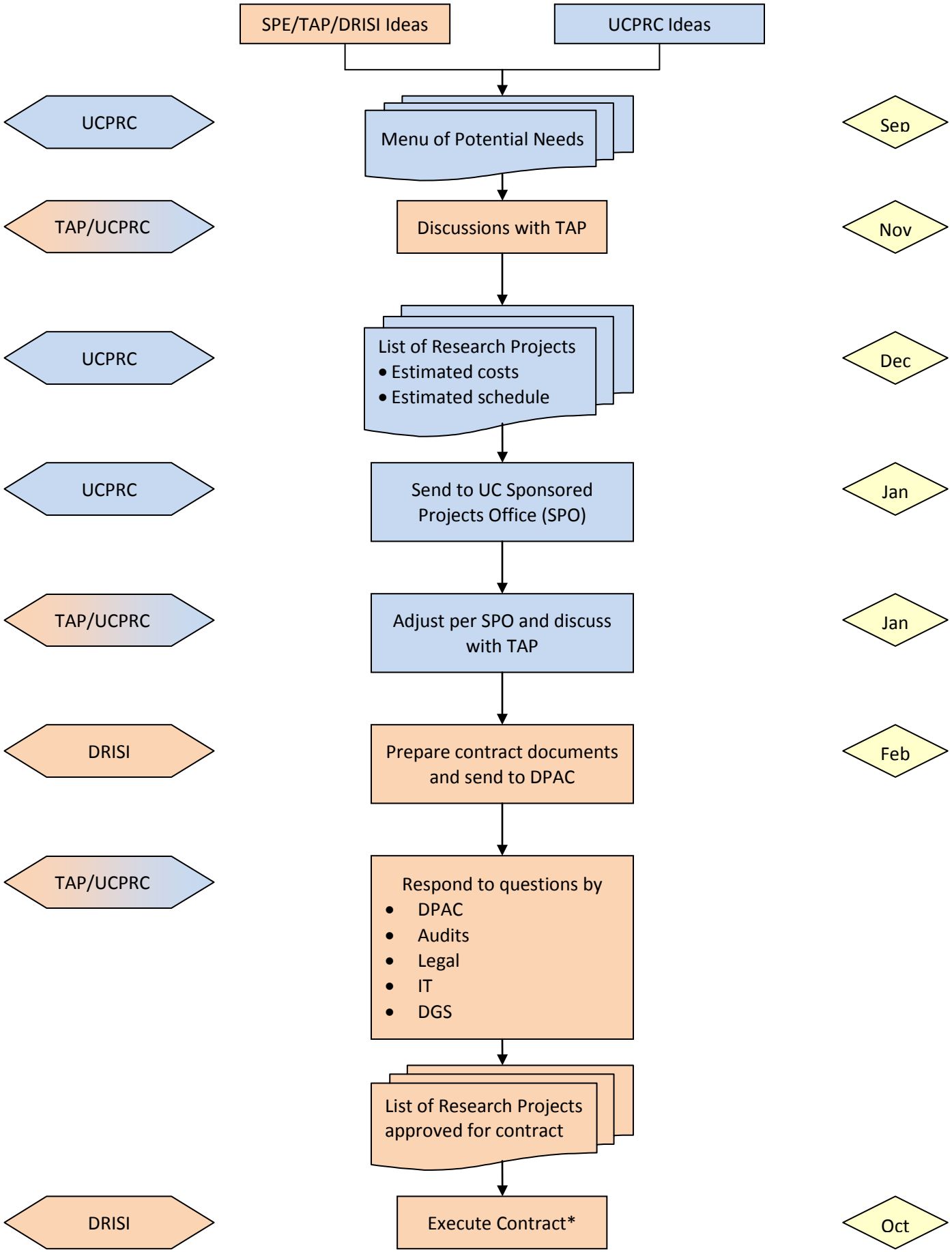
Rock Products Committee (RPC)

Action Items
From October 15, 2014
1:00 PM to 4:00 PM
TransLab Auditorium, 5900 Folsom Blvd., Sacramento, CA

Action Items Summary

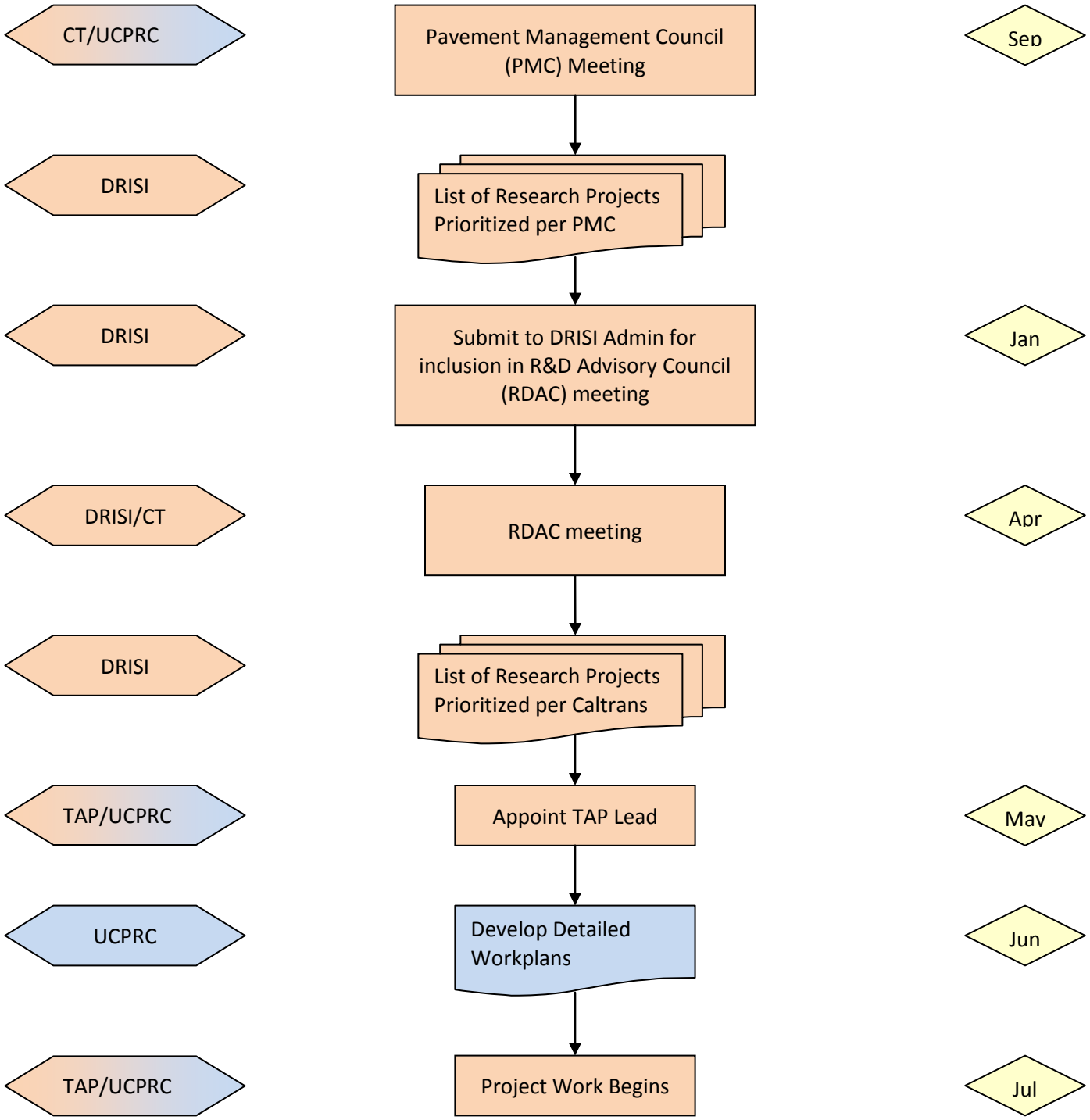
#	MEETING	ITEM	ACTION REQUIRED	WHO	DUE	STATUS
1.	10/15/14	Research	Have research presentation at next RPC meeting	Nick Burmas	1/21/15	Complete
2.	10/15/14	RPC Meeting Minutes	Email Mike Cook when RPC Meeting Minutes are Posted	Chuck Suszko	10/29/14	11/05/14

3 yr Contract Process



* No projects are approved at this point

Annual Research Project Approval Process



Pavement Research Roadmap (2014 - 2017)
Caltrans Division of Research, Innovation and Systems Information
UC Pavement Research Center

Roadmap for Pavement Research

Vision *Pavement research improves mobility across California by finding ways to deliver pavement projects more efficiently, preserving pavement assets through longer service life, reducing environmental impact through smoother pavements and reduced maintenance, and providing the safest transportation system in the nation.*

Mission Provide implementable research results enabling new and innovative business practices that span the Department's functional program areas through enhanced designs, materials, specifications, methods, tests, equipment, manuals, policies, and procedures.

	CALTRANS PROGRAM AREAS						
	DESIGN, MATERIALS & CONSTRUCTION			ENVIRONMENTAL		MAINTENANCE	
PRIORITY TOPICS	**Mechanistic-Empirical Design**	**Performance Based Specifications**	**Construction Quality**	**Recycling**	**Sustainability**	**Preservation**	**Pavement Management**
STRATEGIC PROBLEMS	Reducing life cycle costs of pavements requires the ability to predict pavement performance more accurately than is possible with Caltrans' traditional design and analysis methods.	Current recipe-based specifications place most of the risk on Caltrans and don't allow for innovations.	Construction activities on near-capacity highways led to a need for shorter duration lane closures and high quality construction, which would reduce negative impacts on the public, goods movement, and the environment.	Decreasing availability of high quality material sources for pavement construction requires innovative methods of reusing or recycling sound, in-place materials.	Constructing and maintaining pavements have environmental impacts that must be assessed and reduced.	Pavement preservation techniques are not well understood within the transportation industry and state-of-the-art standards are nonexistent.	Data, on pavement infrastructure and performance, are not available to enable faster pavement improvements and innovations.
STRATEGIC OBJECTIVES	Develop and implement Mechanistic-Empirical (ME) methods, based on theories of mechanics, that can enable more accurate predictions leading to optimized pavement performance and lower life cycle costs.	Design and construct pavements with specifications that assure longer service lives and reduce congestion from recurring maintenance and rehabilitation work.	Provide methods and tools for faster construction (prefabrication, new techniques, new materials, composite pavements) in order to improve delivery of projects and services by Caltrans. Design and construct pavements with higher quality control and pavement characteristics that provide longer service lives.	Develop and promote high quality pavement recycling techniques for all kinds of pavement in order to preserve and enhance California's resources and investments.	Identify and quantify the environmental impacts of various construction and maintenance activities.	Use pavement preservation techniques and guidance to preserve and enhance California's resources and investments.	Develop a true Pavement Management System (PMS) to track pavement innovation, pavement structure and performance over time in order to preserve and enhance California's resources and investment.
RESEARCH APPROACH	After committing in 2005 to transitioning to ME, Caltrans has implemented a first version of ME design for concrete pavements. Further research is needed to enhance this tool. An ME design tool for asphalt pavements has been developed and is being implemented. Research includes developing new models and improving current ones, improvement of climate, materials and traffic databases, seasonal adjustments, sensitivity analyses, calibrating models with field data, improving simple design tools, and assisting with implementation.	Development of long life pavements requires innovative designs, materials, and construction followed by monitoring of pavement condition to evaluate short- and long-term performance. Identify the parameters that lead to long-term pavement performance. Develop new performance based tests and specifications, including consideration of new materials and methods of quality assurance, using HVS validation where warranted before evaluation in pilot projects. Support transfer of capability to industry and the Department.	Research various construction planning (e.g. imaging) and techniques (e.g. precast, improved materials) that will further enable reducing construction duration, impacts, cost, and traffic delay by streamlining pavement construction schedules, improving planning, and exploring new materials and specifications.	High quality pavement recycling will be improved over several years. Research will identify the most promising recycled materials through literature review and laboratory testing, evaluating techniques developed by other organizations and Caltrans' experience, using HVS validation where warranted before evaluation in pilot projects. Implementation will require validation of proposed changes and training Caltrans and contractor personnel.	Work with industry and other state agencies to identify and quantify environmental impacts (e.g. green-house gases, noxious gases, storm-water runoff, energy consumption, etc.) of construction and maintenance activities. Develop tools that will allow designers to assess the environmental impacts of various pavement work alternatives.	Pavement preservation research will quantify and correlate pavement circumstances (age, condition, climate zone and traffic load) to a suitable recommended course of preservation treatment. Research will include laboratory testing, analysis, and HVS tests where warranted. Best practice for treatment selection and timing for different conditions will be determined from current and future research.	A true PMS is being implemented by the Department. Continue to support improvements in collection and use of data. The database will continue to be modified to improve management of the network. Expansion of the database and adjustments to the PMS will be used to further improve performance models and treatment selection approaches, and calibrate ME design and analysis. Adjustments to Life Cycle Cost Analysis will be validated in case studies and integrated into decision processes for pavement management.

Pavement Research Roadmap (2014 - 2017)
Caltrans Division of Research, Innovation and Systems Information and UC Pavement Research Center

Caltrans Roadmap for Pavement Research

UC PRC — University of California | Pavement Research Center — Davis • Berkeley

	CALTRANS PROGRAM AREAS						
	DESIGN, MATERIALS & CONSTRUCTION			ENVIRONMENTAL		MAINTENANCE	
PRIORITY TOPICS	**Mechanistic-Empirical Design**	**Performance Based Specifications**	**Construction Quality**	**Recycling**	**Sustainability**	**Preservation**	**Pavement Management**
PROJECT TITLES and description	• **Standard Materials Library and Guidance (SPE3.30, TID 2667)** - Test and include additional regional materials in the Caltrans ME Standard Materials Library, including base, subbase and new recycled materials. Implement procedures to simplify the selection of material types for ME design by district designers, and develop guidance for asphalt mix designers to meet performance related mix design requirements. Support implementation of CalME and use of MEPDG. • **Improved ME Design and Reliability Approach (SPE 3.31, TID 2668)** - Improve the ability/reliability of Caltrans and national ME procedures to predict pavement distresses. Address upcoming changes in AASHTO test methods for asphalt fatigue cracking and translation of data from repeated shear to the new Asphalt Material Performance Tester (AMPT) equipment. Update calibration of Mechanistic-Empirical Pavement Design Guide (MEPDG) methods for jointed plain concrete (JPC) transverse cracking and faulting using new condition survey data. Complete study investigating range of coefficient of thermal expansion (CTE) values in state testing procedures.	• **Performance-Related Specifications for Rubberized Asphalt Binder (SPE 4.50, TID 2671)** - Develop supporting data/information for the writing of performance related QC/QA specifications for mix design and mix placement of terminal blend and wet process asphalt rubber mixes. This project will use recently developed dynamic shear rheometer (DSR) test methods for assessing rubber binders and will include laboratory mix tests and field evaluations on new and recent projects. • **Support for Superpave Implementation (SPE 3.32, TID 2672)** - Establish annual state-wide round robin (to be taken over by METS IA program) for Hamburg Wheel Track Test (HWTT) study to determine precision and bias, and incorporate results in revised specifications. Assess differences between laboratory and plant produced mix, and continued development and implementation of performance related tests. Review appropriateness and applicability of QC/QA testing on Superpave projects and make recommendations for revised specifications if justified. Monitor performance of Superpave projects constructed to date. • **Simplified Performance Based Specifications for AC Long Life Projects (SPE 3.33, TID 2673)** - Complete the development of simplified asphalt mix design procedures and specification preparation for AC long life projects that are easier for contractors and districts to understand and communicate on, but do not increase the risk of poor performance to Caltrans. Evaluate revised specifications and procedures on new AC long life projects. Support Caltrans on implementation and training. • **Improved Screening Tests for Alkali-Silica Reaction (SPE 3.34, TID 2702)** - Evaluate Caltrans historical risk for ASR for pavements and structures. Determine appropriate testing methods and criteria for assuring Caltrans low risk.	• **Quieter Pavement Long-term Monitoring (SPE 3.35, TID 2710)** - Continue noise, smoothness (IRI), and friction monitoring of a few selected grind and groove (GnG) and continuously reinforced concrete pavement (CRCP) pilot sections for which monitoring began in 2012/13.	• **Binder Replacement in High RAP/RAS Asphalt Mixes (SPE 4.51A&4.51B, TID 2676&2677)** - Continuation of a study investigating determination of binder replacement rates in high RAP/RAS mixes without the need for binder extraction. This is a phased study starting with binder testing and analyzing, followed by laboratory mix and field testing, and then APT if justified. The effects of asphalt modifiers (polymer and rubber), warm mix technologies, and rejuvenators will also be investigated. • **Improved Guidance and Specifications for Full-Depth Reclamation (SPE4.59, TID 2707)** - Continuation of a study to develop project selection and design guidelines and specifications for different full-depth reclamation (FDR) strategies. This phase of the project will assess performance of different FDR stabilization treatments under wet conditions using accelerated pavement testing on existing test sections. This phase will also monitor performance of completed field projects that used the different strategies, including comparing as-built properties with laboratory design properties. • **Microcracking for Cement Stabilized Layers (SPE 4.52A&4.52B, TID 2708&2709)** - Develop laboratory design and construction procedures/specifications for microcracking/ precracking of new or in-place recycled cement stabilized layers to limit the effects of shrinkage related cracking, taking into consideration material properties, climatic factors, and cement contents. Consider interactions of different cement contents with microcracking and layer thickness design.	• **Validation of Greenhouse Gas Emissions from Pavement Deflection (SPE 4.53, TID 2691)** - Follow up to 13/14 project to review mechanistic equations from MIT and other research centers to calculate viscoelastic energy dissipation from vehicle operation for different pavement types, climate regions and vehicle types. Perform field validation of fuel economy differences, compare results with researchers, and then perform comprehensive assessment for state network implementation. • **Environmental Life Cycle Assessment Updates and Applications (SPE 4.54, TID 2718)** - Address additional issues required for Caltrans to meet AB32 greenhouse gas emission targets and category pollutant regulations using environmental life cycle analysis (LCA) following the Pavement LCA Roadmap. Develop additional/improved methods for LCA for the range of design, construction, maintenance, and rehabilitation strategies used in California. • **Updated Greenhouse Gas Emission Evaluations (SPE 4.55, TID 2719)** - Update Greenhouse Gas Emission methodologies for pavement management based on validation and calibration of LCA methods for pavement effects on vehicle emissions, including results of proposed projects Sus-A and Sus-B. Provide recommendations for improved simplified LCA GHG evaluations.	• **Effects of Pavement Roughness on Freight Movement (SPE4.56, TID 2723)** - Continue study to assess effects of roughness on cost of freight transport, choice of routes by haulers, and on emissions. Additional types of freight, districts, and routes will be assessed. • **Guidelines for Preservation Treatments for Bicycle Routes (SPE 4.57, TID 2693)** - Use results of recent cyclist comfort study for chip seal textures to test more Caltrans treatments for texture, and prepare guidelines for selection of preservation treatments that can be used on bicycle routes on state highways. • **Evaluate Early Age and Premature Cracking for LCCA (SPE 4.58, TID 2713)** - Complete work evaluating early age and premature cracking of slab replacements and concrete lane replacements to determine risks and likely causes of failures, to develop recommendations for reducing risks. Prepare design life estimates for use in LCCA.	• **Evaluate Traffic Speed Deflection Measurement (SPE 4.60, TID 2686)** - In conjunction with an FHWA pooled fund study on traffic speed deflection measurements, determine whether this method of pavement structural condition assessment is appropriate/will add value to network level assessments in California. • **Improved Smoothness and Distress Models and Benefits Equations for PaveM (SPE 5.01, TID 2703)** - Develop performance models for pavement smoothness and distresses based on the percentage of segment worse than the threshold values instead of the current approach, which uses average condition values. Review impact of these models on calculation of benefits. • **Performance Models for Seal Coats in PaveM (SPE 5.02, TID 2674)** - Develop pavement distress performance models for specific preservation treatments currently grouped under "Seal Coat" to provide more detailed treatment selection in PaveM, including slurry seals, aggregate seal coats with different binders and gradations, fog seals, and others identified by Caltrans. • **Evaluate Composite Pavement Performance and Decision Trees (SPE 5.03, TID 2704)** - Evaluate performance of composite pavements built in California (typically performed as crack, seat and overlay) to determine whether they should have a separate decision tree in PaveM. • **Algorithms for Grouping Segments into Projects in PaveM (SPE 5.04, TID 2705)** - Complete development of an algorithm to combine multiple management segments selected for treatment into potential construction projects and design graphic user interface for coding in PaveM. • **New Life Cycle Cost Optimization Models for PaveM (SPE 5.05, TID 2687)** - Apply new life cycle cost optimization models to PaveM decision trees. Use results to advise the implementation and evaluation of incremental benefits (Inc-Ben) option in PaveM software by Caltrans. • **Evaluate APCS Data Collection and PaveM Engineering Configuration (SPE 5.06, TID 2688)** - Evaluate how distresses collected by the Automated Pavement Condition Survey (APCS) are being used in PaveM decision trees and develop recommendations for changes in APCS and/or decision trees, performance equations and benefits equations. • **Evaluate Linear Reference System (SPE 5.07, TID 2722)** - Compare Caltrans's current Linear Reference System (LRS) with approaches used by other states and system needs for MAP-21, and identification of pros and cons of retaining current system or changing to a county and state odometer system. • **Document PaveM Traffic Updating Processes (SPE 5.08, TID 2706)** - Document processes for updating traffic used in PaveM and in bridge and pavement design. The study will also characterize truck traffic with unregulated loads for ME design for state highways near heavy load facilities. • **Update PaveM Engineering Configuration (SPE 5.09, TID 2689)** - Update engineering configuration (data aggregation, decision trees, benefit equations) as experience is gained during initial use by districts and HQ. Address additional data collection, materials design and policy questions developed by Caltrans. • **Update Guidance and Calculations for Life Cycle Cost Analysis(SPE 5.10, TID 2690)** - Develop LCCA information and guidance for new pavement structures, rehabilitation and preservation treatments. • **Update project level asphalt surface design (SPE 3.36 TID 2675)** - Update California mechanistic-empirical project level pavement management design method and process.

STRUCTURE POLICY & INNOVATION

STRUCTURE QUALITY MANAGEMENT

Structure Specifications Research & Development Branch

SP& I Ownership Responsibilities

Division VI - Structures

- Section 11 - Welding
- Section 45 – General
- Section 46 – Ground Anchors and Soil Nails
- Section 47 – Earth Retaining Systems
- Section 48 – Temporary Structures
- Section 49 – Piling
- Section 50 – Prestressing Concrete
- Section 51 – Concrete Structures
- Section 52 – Reinforcement
- Section 53 – Shotcrete
- Section 54 – Waterproofing
- Section 55 – Steel Structures
- Section 56 – Overhead Sign Structures, Standards, and Poles
- Section 57 – Wood and Plastic Lumber
- Section 58 – Sound Walls
- Section 59 – Structural Steel Coatings
- Section 60 – Existing Structures
- Section 74 – Pumping Equipment and Controls
- Section 76 – Wells
- Section 99 – Buildings

in other Divisions

- Portions of Section 5, 7, 12, 19, 20, 39, 70, 72, 78, & 83
- Section 75 – Miscellaneous Metal
- Section 90 – Concrete

Abbreviations:

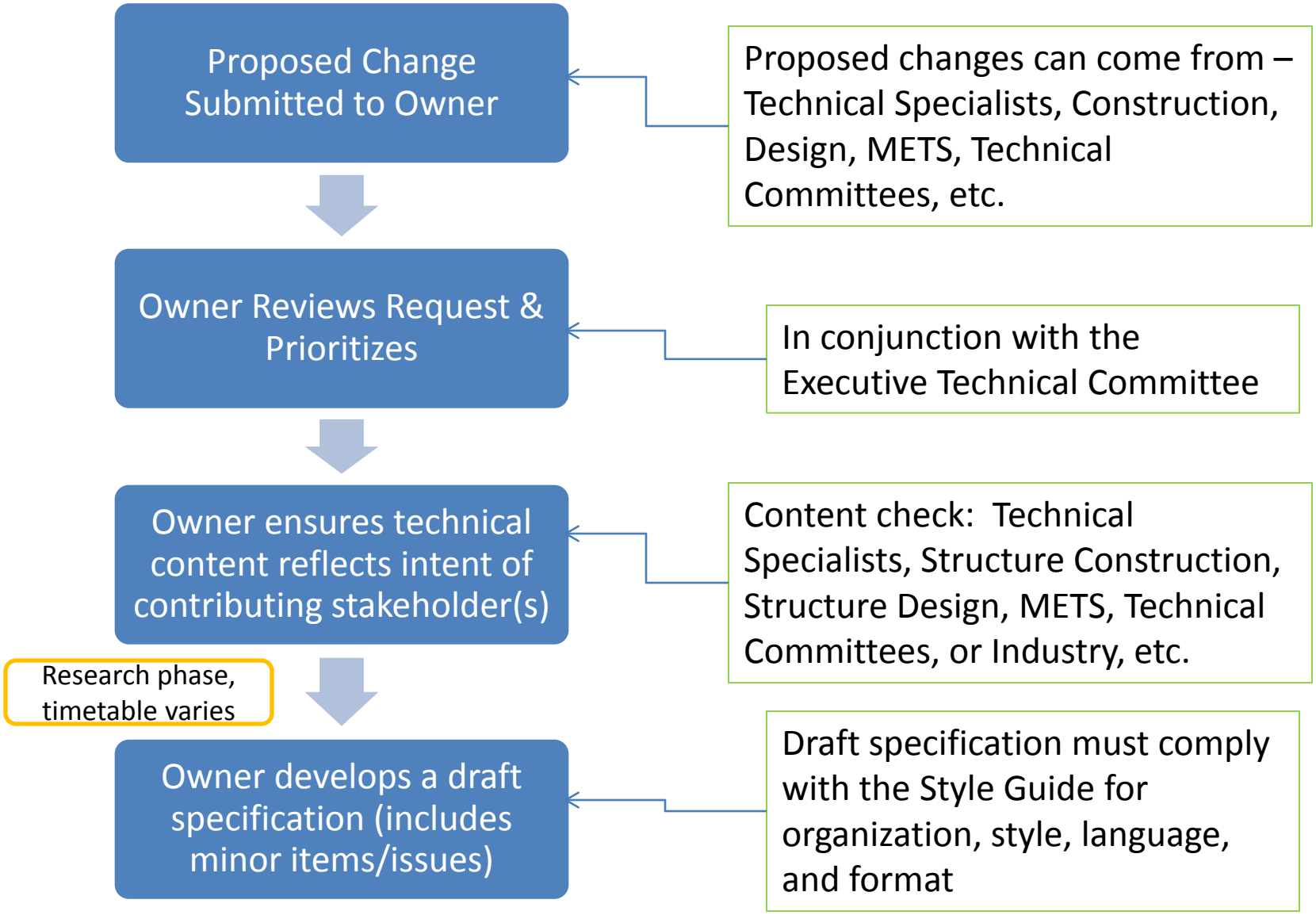
SS – Standard Specifications

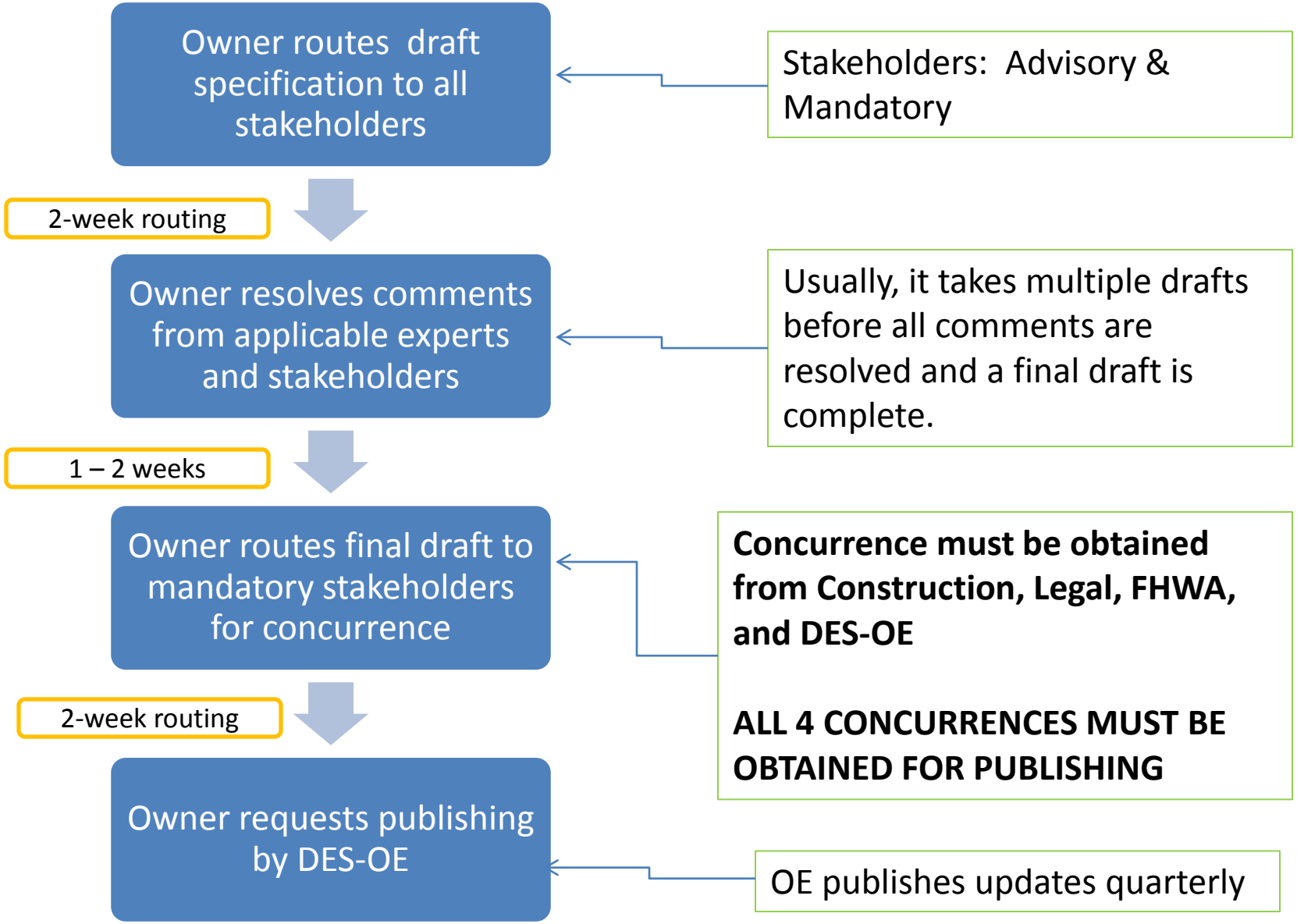
SSP – Standard Special Provisions (project specific)

RSS – Revised Standard Specifications (amendments)

NSSP – nonStandard Special Provision

SPECIFICATION DEVELOPMENT PROCESS (Major Items/Issues)




Owner routes draft specification to all stakeholders
Stakeholders: Advisory & Mandatory
2-week routing
Owner resolves comments from applicable experts and stakeholders
Usually, it takes multiple drafts before all comments are resolved and a final draft is complete.
1 – 2 weeks
Owner routes final draft to mandatory stakeholders for concurrence
Concurrence must be obtained from Construction, Legal, FHWA, and DES-OE
ALL 4 CONCURRENCES MUST BE OBTAINED FOR PUBLISHING
2-week routing
Owner requests publishing by DES-OE
OE publishes updates quarterly