Pavement & Materials Partnering Committee
Work Product Scoping Document
California Test 125
December 5, 2018

Task Group

Asphalt Task Group

Problem Process

☒ Annual
☐ Expedited
☐ Emerging Initiative

Title

California Test 125

Statement of Effort/Improvement

Industry has expressed concerns about hot mix asphalt (HMA) and rubberized hot mix asphalt gap graded (RHMA-G) variability induced when sampling and/or splitting field samples per CT 125 and splitting the sample to test size per AASHTO R47, and the impact it can have on the variability of subsequent acceptance testing. Current sample reduction procedures also do not fully comply with METS/GS Directive 5, "METS/GS Strategic Direction Towards Use of National Testing Standards," which states Caltrans policy to change its California Tests (CT) to reference appropriate national standards, whenever possible.

Sampling procedures for bituminous materials detailed in CT 125 are further described in Standard Specification Sections 37, 39, 92 and 94, which also does not comply with METS/GS Directive 5 or the Departments effort to invoke test procedures within CTs rather than the specifications.

Purpose

Reduce variability in HMA and RHMA-G field sampling and splitting per CT 125 and splitting the sample to test size per AASHTO R 47, thereby reducing subsequent acceptance test variability and associated disputes. Move test procedures out of the specifications and into CTs. Move towards compliance with METS/GS Directive 5 by appropriately invoking national standards within CTs whenever possible.

Background

California Test 125, "Method of Test for Sampling Highway Materials and Products Used in the Roadway Structural Sections," is an extensive test method that encompasses a variety of materials used in highway construction. California Test 125 includes the sampling procedures of many different materials and products for highways and pavement structures. The latest version dated April 2016 includes the following appendices:

- Appendix A- Aggregates, Soils, and Lime
- Appendix B- Hot Mix Asphalt (HMA)
- Appendix C- Cement and Cementitious Materials
- Appendix D- Bituminous Materials

- Appendix E- Concrete Admixtures

When performed in the field, preliminary sample reduction of HMA materials is detailed in CT 125 Appendix B, which has not been changed to reference appropriate national standards. These reduction procedures are also not defined within the scope or title of CT 125. Laboratory sample reduction is performed in accordance with AASHTO R47, "Reducing Samples of Hot Mix Asphalt (HMA) to Testing Size," but it is invoked in the specifications rather than referenced within a CT. Neither of the use of CT 125 or AASHTO R47 fully comply with the METS Directive 5 policy to change CTs to reference appropriate national standards, wherever possible.

The adherent nature of rubberized asphalt binder contributes to variability concerns with RHMA-G sample reduction that are not typical with Type A HMA. RHMA, due to the viscous nature of the binder and gap graded aggregate structure, also cools down rapidly making it more difficult to reduce to sample size. Industry has expressed their concerns with the impact of this variability on acceptance tests results along with the increase in costs and disputes that can result. Caltrans has conducted an initial sample reduction study to assess the variability of different sample reduction procedures. These procedures will be further evaluated through ongoing IA Reference Sample Program and round robin studies evaluating the Hamburg Wheel Track test, binder content, maximum theoretical density and burn off gradations.

The sampling procedures for bituminous materials are detailed in CT 125 Appendix D and do not refer to national standards (AASHTO T40 or ASTM D140) where possible. Additional sampling procedures for bituminous materials are detailed in Standard Specification Sections 37, 39, 92, and 94, which is not in line with the Departments standards for invoking test methods in the specifications rather than detailed procedures.

Approach

1. Street Ready Assurance

   It is intended that the revised test procedure(s) and specifications will be "street ready" upon approval and issuance through the PMPC, California Test, and specification review processes. Ensuring that these revisions reflect the most recent technical studies and national standards will help accomplish this.

2. Performance Tracking/Management

   The Asphalt STG will monitor feedback received from both Caltrans and Industry, and propose suggested changes to the ATG**.**

3. Consistently Implemented

   Test method revisions will be shared through METS outreach to District Materials Engineers and IA staff. The consistency of statewide implementation will be assured through both the Independent Assurance and Joint Training and Certification Programs.

4. Pilot Projects (if anticipated)

   N/A

5. Research Needs (if necessary)

   Evaluate RHMA sample reduction from round robin results.

Team Members (Indicate CT Chair and Industry Lead)

CT/Industry	Division/Firm Name	Member Name
CT	METS	Guadalupe Magana (Chair)
CT	HQ Construction	Raguparan Thangavelautham
CT	HQ Maintenance	Kee Foo
CT	District 4	Venu Gopal
Ind	Vulcan Materials	Pascal Mascarenhas
Ind	George Reed	Greg Reader (Lead)
Ind	DeSilva Gates	Tracy Zubek
Ind	Sully-Miller Contracting	Don Vivant

Team should not include more than 4 Caltrans staff and 4 members from Industry. See PMPC Standard Operating Procedures for more information.

Objectives/Deliverables/Due Dates

The objectives of this scoping document are to revise California Test 125 as it pertains to sampling and quartering of field samples of HMA and RHMA-G, development of a separate test method for HMA and RHMA-G sample reduction in the lab to test size, and consolidate sampling procedures for bituminous materials from the specifications into CT 125, invoking national standards as appropriate.

These revisions will include editorial revisions to the scope, general sections and Appendices B and D as determined necessary to accurately implement the changes proposed and maintain consistent verbiage. Portions of CT 125 that address the remaining materials (i.e., Aggregate, soils and lime, cement and cementitious material, concrete admixtures) are outside the scope of this effort.

Description:

The primary deliverables for this scoping document are to complete the following:

1. Development of a new California Test to address sample reduction for HMA and RHMA-G. The HMA and RHMA-G portion would provide a direct reference to AASHTO R47 and a separate section of the new test would address sample reduction procedures for RHMA-G.
    - Review comments received from Industry and Caltrans to ensure a complete accounting of issues raised by the ATG relating to CT 125 and the variability of splitting RHMA-G samples to test size. Collaborate with work product team members and appropriate stakeholders to evaluate and address each comment.
    - Review relevant test procedures and literature, including evaluation of findings from the IA Reference Sample Program (RSP) sample reduction round robin study.
    - Evaluate references to California Test 125 in contract specifications and invoke the new California Test where needed to maintain consistent application of the sample reduction procedures.
2. Revision of CT 125, Appendix D, “Bituminous Materials”, to refer to AASHTO T40/ASTM D140, and relocation of sampling language from Sections 37, 39, 92, and 94 of the Standard Specifications into Appendix D, as determined appropriate by the team.
    - Review relevant test procedures and literature.
    - Ensure that sample containers and sampling procedures are described within the test method, while sample quantities are maintained in the specification.
    - Include references to CT 125 to replace relocated language where determined necessary.
3. Editorial revision of CT 125 scope, general sections and Appendices B and D as determined necessary and to address the following at a minimum:
    - Implementing the changes restructuring of CT 125 proposed in Deliverables 1 and 2.
    - References to HMA also need to include references to RHMA-G where appropriate.
    - Beyond the proposed technical changes, CT 125 requires editorial update to reflect changes in the most current or relevant “References”
    - Some terminology in the test method is no longer applicable.

4. Finalize and Publish the new sample reduction CT and the revised CT 125
5. Work with the IA Program and JTCP to update the JTCP training materials and IA exams to reflect the changes associated with CT 125, AASHTO R47, and the new California Test.
6. Final report documenting key decisions made and explanations for the various test method changes and the specification changes required to implement the changes.

Details:

Milestones	Name - Responsible Party	Due Date (Start/Complete)
Develop a New Sample Reduction CT	Guadalupe Magana / All Working Group Members	Due 1/30/2019
Revise CT 125 Appendix D	Kee Foo / All Working Group Members	Due 2/30/2019
Editorial Revisions to CT 125	Guadalupe Magana / All Working Group Members	Due 3/30/2019
Finalize and Publish the New Sample Reduction CT and Revised CT 125	Guadalupe Magana / All Working Group Members	Due 4/30/2019
Update JTCP and IA Materials	Guadalupe Magana / All Working Group Members / IA and JTCP Program Managers	Due 5/30/2019
Final Report	Guadalupe Magana / All Working Group Members	Due 6/30/2019

Resources To Develop and Implement

	Caltrans Hours	Industry Hours

Development	400 hrs	400 hrs
Implementation	200 hrs	200 hrs

Benefits

The benefits expected from the completion of this effort are:

- A new California Test that specifically addresses HMA and RHMA-G sample reduction procedures and that will reduce the variability of HMA and RHMA-G test results and reduce subsequent disputes.
- A clear separation between sampling and sample reduction procedures for HMA materials in line with national standards.
- An unambiguous updated Appendix B specifically for HMA sampling with language that reflects current practices.
- Resolution of the standards and procedures surrounding the sampling of bituminous materials across CT 125, the Standard Specifications, AASHTO T40, and ASTM D140.
- Incorporation of national testing standards where possible as required per METS/GS Directive 5.
- Assurance of consistent statewide implementation through the update of JTCP and IA training and certification materials, respectively.

Estimated Impact to Caltrans and Contractor

- Consistent sampling practice by Industry and Caltrans
- Less variability in HMA and RHMA-G test results
- Fewer disputes associated with HMA and RHMA-G sample reduction

Impediments to Completion of Deliverables

The availability of Caltrans and Industry resources to perform necessary tasks may impede the completion of revision within the aforementioned time frame.

Recommendation and Approval

This scoping document for California Test 125 was prepared by Asphalt Task Group to address a priority issue with statewide significance and is within the Pavement & Materials Partnering Committee mission as described in the Pavement & Materials Partnering Committee Charter. The Subtask Group members have determined the scope, resources required and timeline for delivery of this project to attempt to ensure that the deliverables are achievable. A signature here indicates that each Task Group and PMPC Executive Committee is committed to providing the resources to support this effort within the prescribed timeframes. Furthermore, it is everyone's responsibility to ensure that the final effort/improvement will be:

1) Street-Ready,
2) Monitored and reported for performance,
3) Successfully implemented statewide as appropriate.

Scoping Document Recommendation and Industry Concurrence by (name and date):

Caltrans Name (Recommendation)	Date	Industry Name (Concurrence)	Date
	12-5-18	For Pat Imhoff	12/5/18
Tom Pyle, Caltrans Task Group Chair		Pat Imhoff, Industry Task Group Lead	
	12/5/18		12/5/18
Blair Anderson, Caltrans Task Group Member		Tracy Zubek, Industry Task Group Co-Member	
	12/5/18		
Tim Greuteri, Caltrans Task Group Member			

Scoping Document Approval and Industry Concurrence by (name and date):

Caltrans Name (Approval)	Date	Industry Name (Concurrence)	Date
	12/11/18		12/6/18
Sergio Aceves, Caltrans PMPC Executive Committee – Chair Pavement Program		Russ Snyder, Industry PMPC Executive Committee	
	12/6/18		12/6/18
Ray Hopkins, Caltrans PMPC Executive Committee Headquarters Construction		Charley Rea, Industry PMPC Executive Committee	
	12/6/18		
Tom Ostrom, Caltrans PMPC Executive Committee Structures Policy and Innovation			
	12/6/18		
Dan Speer, Caltrans PMPC Executive Committee Materials Engineering and Testing Services			

Approval Date: _____