

Rock Products Committee
SCOPING DOCUMENT
Reclaimed Asphalt Pavement / Recycled Asphalt Shingles
July 9, 2012

Task Group

Asphalt Task Group

Title

Reclaimed Asphalt Pavement / Recycled Asphalt Shingles

Issue/Problem Statement

Caltrans currently limits the amount of Reclaimed Asphalt Pavement (RAP) that may be used in Hot Mix Asphalt (HMA) to 15% of the virgin aggregate replacement while other States have higher allowances for RAP. Caltrans current specifications do not allow the use of Recycled Asphalt Shingles (RAS) in HMA.

Background

The use of RAP, as part of hot mix asphalt provides a great cost benefit by reducing both the percentage of virgin aggregate and asphalt binder required. Higher amounts of RAP usage can be obtained by increasing the limitation on the amount of RAP that is allowed in HMA while maintaining HMA quality.

Caltrans has developed a non-standard special provision (nSSP) that is currently being piloted on six projects that requires contractors to utilize 25% RAP. This specification has been inserted into the Superpave pilot projects and in three long life pavement projects that utilize Hveem mix design for HMA. These projects will be monitored and evaluated to measure the success and viability of this increased percentage of RAP. Caltrans based on the pilot projects will move to a greater allowance of RAP. On a parallel track is development of a new specification that defines the inclusion of RAP by the percentage of binder replacement of the total mix in lieu of being based on a replacement percentage by weight of virgin aggregate. This approach will be more beneficial in controlling the amount and quality of RAP used in a mix. A specification will be developed to account for percentage replacement binder in lieu of percentage RAP.

The use of Recycled Asphalt Shingles (RAS) in HMA has gained attention and momentum across the country as a way to reduce solid waste. Caltrans has begun an effort to develop a specification that allows for inclusion of RAS in hot mix asphalt. The major benefit of using RAS in hot mix is cost savings because the high amount of asphalt in RAS reduces the amount of virgin asphalt binder used in a mix by relying on the binder available in the shingles. Shingles can be either used, tear off type, or waste from newly manufactured shingles. Caltrans is proposing to allow 3-5% RAS in hot mix asphalt with some restrictions based on the amount of virgin binder replacement.

For RAS Caltrans has developed a non-standard special provision (nSSP) that requires the use of 5% RAS in HMA. The RAS nSSP is currently being piloted on two projects and the projects will be evaluated to determine if any specification changes are necessary.

The initial goal is to increase the percentage of RAP to allowed in HMA to 25% and ultimately allow up to 40% RAP and a specification for RAS that allows 3-5% RAS. The ultimate goal is to develop a specification that allows the contractor an opportunity to use one or both of these recycled products and base the use on the binder replacement criteria.

Objectives/Deliverables

The objective is the development of separate standard special provisions (SSPs) for allowing higher RAP usage and allowing RAS in HMA. The long term objective is a new specification with the goal of allowing higher usage of RAP and RAS based on binder replacement percentage rather than the historical allowance of RAP or RAS percentage based on aggregate weight.

The expected Deliverables fro RAP:

- nSSP for 25% RAP currently being used on pilot projects
- SSP for contractor option to use 25% RAP in HMA
- SSP for greater percentage (will utilizing a binder replacement requirement) and allow for use of one or both of the materials, RAP and RAS

The expected Deliverables for RAS:

- nSSP for 5% RAS currently being used on pilot projects
- revised nSSP based on eevaluation of current pilot projects
- SSP for RAS

Timeline

The Superpave nSSP with 25% for percentage aggregate replacement with RAP is currently being piloted.

The contractor option SSP for allowing up to 25% RAP in HMA should be completed by October 2012.

The nSSP for higher RAP based on binder replacement will be developed and ready for piloting in projects in the 2013 construction season.

The RAS nSSP is currently being used on two pilot projects and several more pilot projects are planned.

The RAS SSP should be completed by October 2013 if pilot projects are successful.

The intent is to combine the RAP and RAS usage into one specification, giving contractors the flexibility to use one or both materials. A combined specification based on binder replacement would be the alternative to separate specifications and would be available to pilot in the 2014 construction season.

Benefits

The following benefits are considered to be obtained with the use of RAP/RAS:

- Reduced cost for hot mixed asphalt because of the reduced quantity of virgin aggregates required (RAP only)
- Reduced cost for hot mixed asphalt because of reduced quantity of virgin asphalt binder required based on allowable binder replacement.
- Reduced future use of California's aggregate and crude oil natural resources.
- Reduce landfill requirements for disposing of removed HMA.
- Reduce landfill requirements for disposing of shingles removed from roofs
- Reuse of waste from asphalt shingle manufacturers..

Impacts

- Industry's ability to provide adequate and consistent RAP and RAS sources
- Stakeholders that will be affected by the new specifications are:
 - Aggregate Suppliers
 - Ground Shingle Suppliers
 - HMA Producers
 - Shingle Producers
 - Landfills

Resource Requirements

For each specification (total of 1).

Task	Caltrans Staff	Hours/Staff
Writing RAP/RAS specs first internal draft	Pavement Program	0.2 PY
Draft Specification Review and Comments	Pavement METS Construction Office Engineer	0.1 PY
Pilot Specifications	Pavement METS Construction	0.5 PY
Second round of draft revision	Pavement METS Construction	0.1 PY
Comment and resolution	Pavement Program	0.1 PY
Finalization of SSP	Pavement Program	0.1 PY
RAP/RAS Specification Posting	Office Engineer.	0.1 PY

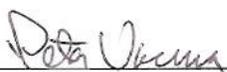
Impediments to Completion of Deliverables

- Staff availability to perform necessary tasks in connection with completion of project.

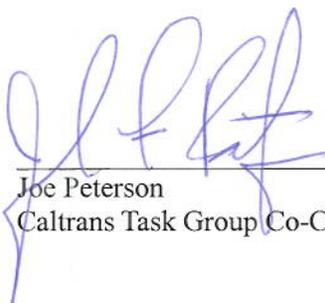
Recommendation and Approval

This scoping document for Reclaimed Asphalt Pavement / Recycled Asphalt Shingles was prepared by Asphalt 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.

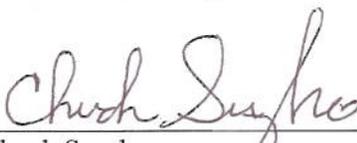
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Approval Date: 7-23-12