

Top 10 Needs

1. Identify/develop performance tests for evaluating RAP mixes
2. Best practices manual for mix design and construction that highlights the advantages of recycling
3. Develop methods to characterize RAP without solvents that will address how to quantify Gsb, Pb, and binder grade of blends
4. Determine whether or not binder grade changes are necessary
5. Determine the degree of co-mingling of binders in plants
6. Documenting field performance of high RAP mixes
7. Replicating RAP and virgin plant heating in labs
8. Getting states with no or low % RAP specs up to speed with current practices
9. Variability of RAP (agg, ac/content, modification, binder characterization)
10. Processing/fractionating RAP

What test methods are recommended for evaluating performance of asphalt mixtures containing RAP?

- NCHRP 9-33
- Bennert, HMAT
- NCAT (incomplete)

What materials are available for identifying the best practices for using RAP (and RAS)?

- RAP State of the Practice, Copeland et al
- NAPA QIS 124
- NCAT document (incomplete)

What methods should be used to characterize RAP materials (asphalt content, binder stiffness, gradation, Gsb, other aggregate properties)?

- Kvasnak, Hajj, et al, Gsb & VMA, submitted to TRB
- UNR-NCAT study on aggregate properties, (report incomplete)
- Bonaquist, HMAT

What information is available for determining the appropriate grade of virgin binder for recycled mixes?

- NCHRP report 452
- McDaniel, et al, TRB 2007
- West et al, TRB 2008

What information is available about the long-term field performance of high RAP mixes?

- Michael et al (NCAT) submitted to ASCE
- NCAT report on LTPP SPS-5 analysis (incomplete)

How should mix designers prepare materials in the lab to replicate plant production?

- NCHRP Report 452
- NCAT information (incomplete)

What information should be presented to agencies to encourage them to increase recycling?

What information is available about the variability of RAP and its effect on a recycled mix?

- NCAT information (incomplete)
- NCHRP 9-33
- ICAR-401-1/98

What information is available about the benefits of RAP fractionation?