6.0 Summary

Best Practices and Resources

Best Practices
- Wet process has proved to be most reliable approach in terms of field performance
- Gap-graded CRM mixes made with the wet process seem to perform better and more reliably than dense-graded CRM mixes

Best Practices
Use as a thin surface layer (≤60 mm) to
- Retard reflection/fatigue cracking
- Improve surface durability
- Improve surface friction characteristics
- Reduce tire noise (OG most effective)
- Reduce splash and spray under wet condition (OG most effective)
Summary
Rubberized Asphalt Concrete Pilot Training Course

Best Practices
- Arizona DOT’s Experience (Wet Process)
  - Gap-graded (AR AC) for structural use, often surfaced with open-graded (AR-ACFC)
  - Open-graded (AR-ACFC)
    - ½” thick wearing course on flexible pavements
    - 1” thick wearing course on rigid pavements

Advantages of AR
- Good durability – in terms of resistance to cracking and aging
- Environmental friendly – make value-added use of a waste material, reduce traffic noise
- Versatility – can be used in most maintenance and rehabilitation activities, or in reduced thickness for resistance to reflective cracking
- Longer lasting color – for better contrast with striping and marking
- Reduced maintenance – for both chip seals and hot mix

Limitations of AR
- For small projects, mobilization costs may result in higher unit price that may not be fully offset
- AR wet process (field blend, high-viscosity) is not suited for dense graded mixes because there is not sufficient room in the aggregate voids to accommodate the coarse rubber
- Construction may be more challenging, as temperature requirements are more critical
Limitations of AR

- Potential odor problem
- Often difficult to hand work because of stiff binder and coarse mixture gradations
- If work is delayed more than 48 hours after blending the asphalt rubber, some binder may not be usable because of loss in viscosity

Implementation Challenges

- Understanding the benefits and limitations of RAC
- Identifying the best places to use RAC
- Using sound design and construction practices specific to RAC

Primary References

- Asphalt Rubber Usage Guide
- Use of Scrap Tire Rubber – State of the Technology and Best Practices
- Synthesis of Caltrans Rubberized Asphalt Concrete Projects
- Feasibility of Recycling Rubber-Modified Paving Materials
- Study on Structural Design Considerations
- Flexible Pavement Rehabilitation Manual
- Asphalt Rubber Design and Construction Guidelines
- RAC-G SSP Version (12-12-05)
- RAC-O SSP Version (12-12-05)

http://www.dot.ca.gov/hq/esc/Translab/fpmlab/CALTRANS_CIWM_PROJECT_TI1_DELIVERABLES.htm
Web Resources

- American Chemical Society Rubber Division
- Asphalt Emulsion Manufacturers Association (AEMA)
- Asphalt Institute
- Asphalt Recycling & Reclaiming Association
- Asphalt Rubber Information Online
- Asphalt Rubber Technology Services
- California Integrated Waste Management Board
- Canadian Technical Asphalt Association (CTAA)
- European Asphalt Pavement Association (EAPA)
- FNF Construction Inc.
- International Surfacing Systems: Asphalt Rubber
- National Asphalt Pavement Association (NAPA)
- National Center for Asphalt Technology (NCAT)
- Reports Prepared to Caltrans/CIMWB under Contract 59A0258
- Rubberized Asphalt Concrete Technology Center
- Scrap Tire News
- The Asphalt Contractor Online
- The Rubber Pavement Association
- ThomasNet on Asphalt Rubber

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