



भारतीय राश्ट्रीय राजमार्ग प्राधिकरण
(सड़क परिवहन और राजमार्ग मंत्रालय)
National Highways Authority of India

(Ministry of Road Transport and Highways)

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No.11041/218/2007-Admn

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4th May, 2012

POLICY MATTERS-TECHNICAL (100/2012)
(Decision taken on File No. NHA/TIC/CIRCULAR/2012)

Subject: - Use of Reclaimed Asphalt Pavement (RAP) Materials.

In view of consumption of a substantial quantity of natural materials in road construction, depleting natural resources and disposal problem of deteriorated pavement material & simultaneously to ensure conservation of energy, preservation of environment and reduction in construction cost, National Highways Authority of India vide its Circular No. 11041/218/2007-Admn dated 24.02.2010 (Policy Matter: Technical 48/2010 dated 24.02.2010) has encouraged use of recycled existing bituminous material to upgrade an existing bituminous pavement in NHA Projects.

2. Presently, majority of projects being implemented by NHA are on BOT mode wherein flexibility is given to the Concessionaire for adoption of new technologies in design, construction and materials. In future, public funded projects are planned to be implemented on EPC mode, wherein same flexibility for adoption of new/innovative technologies shall be available to the contractors. It is recommended that new/innovative technologies using reclaimed asphalt pavement (RAP) materials may be encouraged due to the following important facts & advantages associated with the use of reclaimed asphalt pavement materials in road construction as well as maintenance:

- a) Untreated RAP material may be used as a substitute for conventional material to construct a new pavement layer provided it is derived from good quality aggregates.
- b) As RAP is a valuable material it should not be squandered by using it where such quality is not warranted. It may be used as a substitute (treated where necessary) where, conventional pavement materials are expensive and/or scarce.
- c) When treated with suitable additive bitumen, RAP can be used as a premium material to construct the upper layers of pavements that carry heavy loads. The use of RAP up to 30% in bituminous mixes is a practice in many countries abroad. The study done by the National Center for Asphalt Technology at Auburn University, USA has indicated that using 30 percent RAP in an asphalt pavement can provide the same overall performance as virgin asphalt pavement.
- d) RAP containing bitumen more than 5% and penetration of bitumen more than 30 may be used in bituminous works provided the bitumen in the RAP is rejuvenated by suitable additive/soft bitumen and designed scientifically. Since the grading of aggregate in RAP is also important to decide quantity of RAP in the final mix it is, therefore, necessary to

investigate performance characteristics like creep, fatigue and rutting of the designed mix before recommending its use on large scale in a project.

- e) Use of RAP has already been advocated in the revised IRC-37/2011. International guidelines on use of RAP are also available. The Federal Highway Administration (FHWA) also supports and promotes the use of recycled highway materials in pavement construction in an effort to preserve the natural environment, reduce waste, and provide a cost effective material for constructing highways.
- f) RAP is a valuable, high quality material that can replace more expensive, virgin aggregates and binders. The most economical use of RAP is in the intermediate and surface layers of flexible pavements where the less expensive binder from RAP can replace a portion of the more expensive virgin binder.
- g) The Clients, the Concessionaires as well as the Contractors may be significantly benefited by using RAP in road constructions. The use of RAP reduces the cost and bid prices of hot mix asphalt materials. It reduces the consumption of natural resource supply and its long term performance is equivalent to or better than virgin mix.
- h) Clause 517 of the "Specifications for Road and Bridge Works" covers specification for recycling of existing bituminous pavement materials.
- i) Vide Policy Matters: Technical (48/2010), the NHAI has already decided to encourage use of recycled existing bituminous materials to upgrade an existing bituminous pavement. Use of recycling of bituminous pavement has been made mandatory in all the projects where there is cost savings on account of using RAP.

3. In view of above, all concerned in NHAI are hereby requested to encourage the use of RAP in NHAI Projects subject to its meeting of required standards and specification and as per the flexibility given in the Concession/Contract Agreements.

4. This issues will the approval of Chairman.

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04/05

(V.K.Sharma)

Chief General Manager (Coord./LA)

To,

All officers and employees of HQ/ZO/ROs/PIUs/CMUs/Site Offices