March 4, 1998

TO: The Policy, Research, and Technical Assistance Committee
California Integrated Waste Management Board(CIWMB)

FROM: Lynn D. Nicholson
Program Director
Rubberized Asphalt Concrete Technology Center(RACTC)

WORKPLAN FOR 1996-97 AND 1997-98 FUNDS

The RACTC is a cooperative effort by the County of Los Angeles and the CIWMB to promote the use of crumb rubber from scrap tires in roadway rehabilitation projects.

Rubberized Asphalt Concrete (RAC) is a proven product that has been in use for over 20 years. It is cost effective when used appropriately, provides a long lasting, durable pavement surface that resists reflective cracking, has excellent skid resistance, reduces tire noise, and retains its "new" look longer than conventional asphalt concrete. It is environmentally friendly. Rubberized asphalt is also an excellent choice for use in chip seals and slurry seals.

RACTC PROGRAM GOALS:

The RACTC will increase the use of crumb rubber from scrap tires by providing information and services to public agencies within California at no charge. This will include outreach services such as regional workshops and one-on-one conferences to acquaint City and County officials with the advantages of rubberized asphalt; technical consultations on plans, specifications, and construction methods; on-site assistance to help ensure quality materials and workmanship; and problem solving. Currently, a toll free hotline (1-888-777-4775) that is monitored Monday through Friday from 6:00 a.m. to 6:00 p.m is provided to encourage contact with the RACTC. A web site will be used to disseminate information (WWW.CO.LA.CA.US/DPW/RACTC).

The effectiveness of the Center will be judged by the number of agencies that have received information on rubberized asphalt, the number of agencies that have initiated a rubberized asphalt project, the number of agencies that have continued the use of rubberized asphalt, and the overall increased use of crumb rubber within the State.

SUMMARY OF INFORMATION RECEIVED FROM PUBLIC AGENCIES:

- Almost everyone is interested in using rubberized asphalt.
- Limited sources of crumb rubber is a concern.
- Limited number of manufacturers of rubberized asphalt is a concern.
- Small jobs are not generally a cost effective use of crumb rubber.
- Rubberized asphalt is perceived by some to be hazardous or non-recyclable.
- Most cities use rubberized asphalt because it looks better, rides better and is quieter, or because there is a proponent of rubberized asphalt on the staff or on the council. The RACTC is stressing the economic and environmental benefits of rubberized asphalt.
- Most cities do not provide adequate quality assurance/quality control during construction.
- Small cities and non-populated counties do not have sufficient funds for resurfacing streets and highways and tend to let them go until full reconstruction is necessary.
- The majority of City engineers do not perform the necessary pavement testing and analysis to determine the best rehab solution (i.e., resurface or reconstruct) or whether rubberized asphalt is cost effective.

  NOTE: In my opinion, this is a serious problem. A structural section engineering study generally costs less than $5,000, yet engineers are reluctant to spend this money up front. Without an engineering study the most cost-effective rehabilitation method cannot be accurately determined.

- Some agencies perform only minimal quality control/quality assurance.

  NOTE: Agencies need to be encouraged to provide adequate inspection of RAC to ensure good results. One poorly performing RAC project will often inhibit its future use.

PROGRAM TASKS:

- Continue to provide outreach services to cities and counties and to disseminate information at conferences and workshops.

- Encourage companies to provide additional sources of crumb rubber. **Note: Crumb Rubber Industries of Corcoran, California recently began operation.**

- Encourage companies to provide additional rubber blending units at asphalt plants throughout the State.

  Encourage cities and counties to combine their projects so that contractors can bid on larger tonnages to reduce the fixed costs per ton of blending the rubber with the asphalt.

- Encourage agencies to provide adequate quality assurance/quality control (plant inspection and job inspection).

- Encourage agencies to perform pavement testing and analysis studies as part of the development of plans and specifications.

- Follow up with all cities that have expressed an interest in rubberized asphalt to help them identify a project where rubberized asphalt will be the appropriate solution.

- Make contact with the Director of Public Works/City Engineers of the cities that have not responded to the brochures.

- Conduct at least three regional workshops on rubberized asphalt in California. The regional workshops will be presented by experts in the field of rubberized asphalt who will talk on the various aspects of design, manufacture, and construction of rubberized asphalt.

- Conduct at least 15 mini workshops on rubberized asphalt involving three to four cities each. Mini workshops will be approximately two hours in length and will stress the benefits of using rubberized asphalt and things to be aware of during construction.

- Develop and maintain a web site to provide up-to-date information on rubberized asphalt.

- Develop a reasonably accurate method of measuring the use of crumb rubber from scrap tires within California. Use this information to establish reasonable objectives for the increased use of rubberized asphalt in subsequent years.

- Develop and mail evaluation forms to each person contacted by RACTC staff.

PROJECTION OF EXPENSES:

Since the Center was formed in July, 1997 approximately $100,000 has been expended as follows:

Staff Time	$ 74,000
Brochures, workbooks, and booth display	20,000
Conferences/Workshops/Travel	6,000
Total	$100,000

Projected Expenses through May 15, 1999 (96-97 Funds)

Task 1	$300,000	$300,000*
Task 2	100,000	100,000*
Task 3	30,000	37,500*
Task 4	25,000	25,000*
Task 5	15,000	17,500*
Task 6	5,000	15,000*
Task 7	5,000	5,000*
Total	$480,000	$500,000*

*Budgeted amounts per Agreement.

WORK PLAN FOR 1997-98 ALLOCATION ($500,000):

Task No. 1:

Allocate $150,000 to allow the RACTC to reimburse agencies up to $5,000 per project for a roadway deflection study and report to determine the best rehab method (RAC resurface, AC resurface, reconstruction, etc.).

Task No. 2:

Allocate $200,000 to allow the RACTC to reimburse agencies at the rate of $1.00 per ton of RAC up to $10,000 per project.

Task No. 3:

Allocate $150,000 to cover costs incurred by the RACTC to administer the above incentive programs and to continue to provide consultation and outreach services to California public agencies.

DETAILS OF THE 1997-98 WORK PLAN

Task No. 1:

Inform all City and County public works agencies by letter that $150,000 has been approved to reimburse them at the rate of $5,000 per project for roadway deflection study and structural section recommendations on projects pre-approved by RACTC in which RAC would most likely be a viable option (arterial highways and major rural routes). Potential users of RAC (cities in urban areas and counties with large urban populations) will also be contacted by telephone.

Schedule for Task No. 1:

Letters to be mailed out within 20 days after completion of the agreement between the County of Los Angeles and the CIWMB. Agencies will be made aware that requests will be acted on in order of submittal (first come-first served).

Anticipated Response:

Of the 530 or so agencies that are invited to submit a project, about 100 will submit a completed application. Of these 30 will be selected. Selections will be based on:

1. The size of the project.
2. The potential for RAC to be a viable alternative to conventional AC.
3. The potential for RAC to receive reasonable unit price bids.
4. The scheduled date for construction.

Agencies that have used RAC three (3) or fewer times in the last five years will be given priority consideration.

Task No. 2:

Inform all City and County agencies that $200,000 has been allocated to reimburse them at the rate of $1.00 per ton of RAC constructed up to $10,000 per project to cover the cost of plant inspection and job inspection. Reimbursement will be made by the RACTC on projects pre-approved by the RACTC upon submittal of the project inspectors report.

Schedule for Task No. 2:

Letters mailed out for Task No. 1 will include details for Task No. 2 and an application form.

Anticipated Response:

Of the 530 agencies, about 150 will submit an application. Projects will be approved on a first come-first served basis with priority given to those agencies that have had three (3) or fewer RAC projects in the last five years. In order to qualify, RAC construction must be completed and notice for payment received by the RACTC by February 15, 2000.

ANTICIPATED RESULTS OF 1997-98 WORKPLAN

The Task 1 and 2 incentive program will generate between 75-100 RAC projects using over 200,000 tons of RAC (over 600,000 scrap tires). These initial projects will generate second-phase projects using 400,000 tons of RAC. The second phase projects will generate additional projects which will tend to lower RAC prices and ensure the continued use of RAC by agencies within California for years to come.

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COMMENTS:

The RACTC believes that the above incentive program is necessary to encourage agencies to try RAC and to provide the quality control/quality assurance necessary to ensure a good job. It has been our experience that one good job will lead to another, and another, and another, etc. The current outreach program being conducted by the RACTC is effective but is not enough. The agencies want some monetary help also.

If this program is not continued the RACTC believes that the excitement that has been generated will die down and RAC will only be used by those agencies that are currently using it.

It also should be noted that the current administration in the Caltrans Laboratory is apparently reconsidering thier once very firm opinion regarding the two-to-one equivalency of RAC compared to AC. The County of Los Angeles' experience on over 280 projects indicates that the 2:1 equivalency is conservative and is still valid. In any case the other benefits of RAC which include increased stability, durability, and resistance to deformation; reduced tire noise; and better color contrast with striping and marking need to be stressed. The RACTC is the only large public works agency in the State that has the necessary substantial experience in the use of RAC to do this effectively.

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