



RECYCLING & REHABILITATION:

Cold-In-Place Recycling
Base Stabilization
Full-Depth Reclamation

MCA
P R O C E S S E S

THE MCA ADVANTAGE

With the MCA Advantage, you get a partner and advisor who will consult with you about designs, specifications, technical services, processes, and material selection. By developing innovative, custom-designed products that offer additional benefits such as peak performance in unique conditions, improved field performance, and greater environmental and health benefits, the MCA Advantage provides significant long-term cost savings, resulting in a lower “total cost of ownership.”

RECYCLING & REHABILITATION

Recycling and rehabilitation can be used to address many road defects including rutting, cracking, profiling, and polishing. Recent advances allow for the addition of engineered materials to modify the structural strength of marginal materials that may have been used in the original construction.

COLD-IN-PLACE RECYCLING

Cold-in-place (CIP) recycling typically refers to the process of milling an existing asphalt mat up to a depth of 125 mm, crushing the recycled asphalt pavement (RAP) to a maximum size of 37.5 mm, mixing a rejuvenating emulsion into the RAP, then laying the material back down on the road via a regular paver or grader. A mix design will optimize the addition rate and composition of the rejuvenating emulsion. Virgin aggregate can also be added to the CIP recycling train, if required.

Recently developed equipment allows foamed asphalt to be used instead of rejuvenating emulsions. Hot asphalt cement and water are added in the mixing chamber of the special asphalt reclaiming/stabilizer. The water causes the asphalt to disperse inside the mixing chamber with the recycled asphalt pavement (RAP). The material is then re-laid by a paver or grader for a new stabilized base or partial depth rehabilitation.

BASE STABILIZATION

The purpose of base stabilization is to increase the bearing capacity (or strength) of the roadbed materials. Adding an emulsified asphalt—and possibly other fillers—increases the road’s firmness and resistance to weather while reducing movement and rutting in the base layer. Mix design work performed in the lab seeks to maximize the strength of the base materials and minimize the effects of moisture and freeze-thaw cycles.

FULL-DEPTH RECLAMATION

Full-depth reclamation (FDR) consists of pulverizing the asphalt-wearing layer (top) of the road into the base material and even into the sub-base material to depths of up to 300 mm. Emulsified asphalts, fillers, virgin aggregates, or recycled asphalt pavements (RAP) can be added to maximize the effectiveness of the system. This process is ideal for increasing the bearing capacity of roads that experience increased traffic loadings or roads that utilize maintenance techniques such as pothole patching, seal coats, slurry seals, and overlays.

FEATURES AND BENEFITS

- Savings of 25 to 33% over traditional reconstruction technologies
- Particulate and VOC emissions are reduced
- Zero waste materials are generated while additional waste materials may be used
- Marginal materials can be added to the road structure and enhanced with additives
- Strategic use of additives and fillers can optimize the performance of the road to maximize a project’s life cycle
- Job site safety can be increased by a smaller work zone and reduced project time
- Wearing courses that are more economical than overlays, such as slurry seals and seal coats, can be used to further reduce the project’s cost



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