

Pavement Recycling

**Workshop & Lectures on Pavement
Engineering, Maintenance and Management**

Sources of Lecture Materials

- HMA for seniors and graduate students manual, National Center for Asphalt Technology
- NHI Course No. 131050, *Asphalt Pavement Recycling Technologies*

Advantages

- Reduced Cost of Construction
- Conservation of Aggregate and Asphalt Binders
- Preservation of Existing Pavement Geometrics
- Preservation of Environment
- Conservation of Energy
- Less User Delay

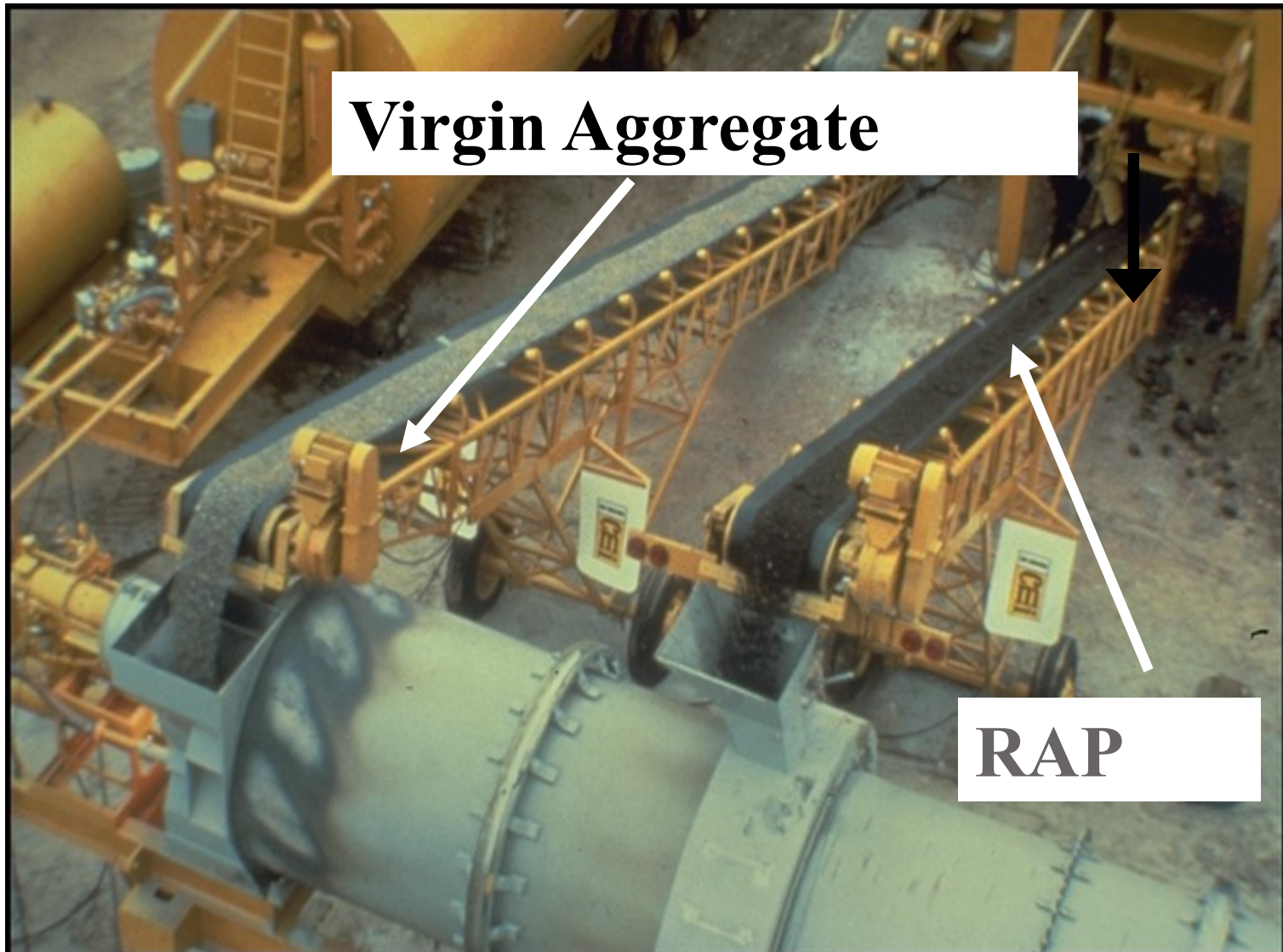
Recycling is One of the Various Rehabilitation Alternatives

Recycling Methods

- Hot Mix Recycling
- Hot In-Place Recycling
- Cold In-Place Recycling
- Full Depth Reclamation

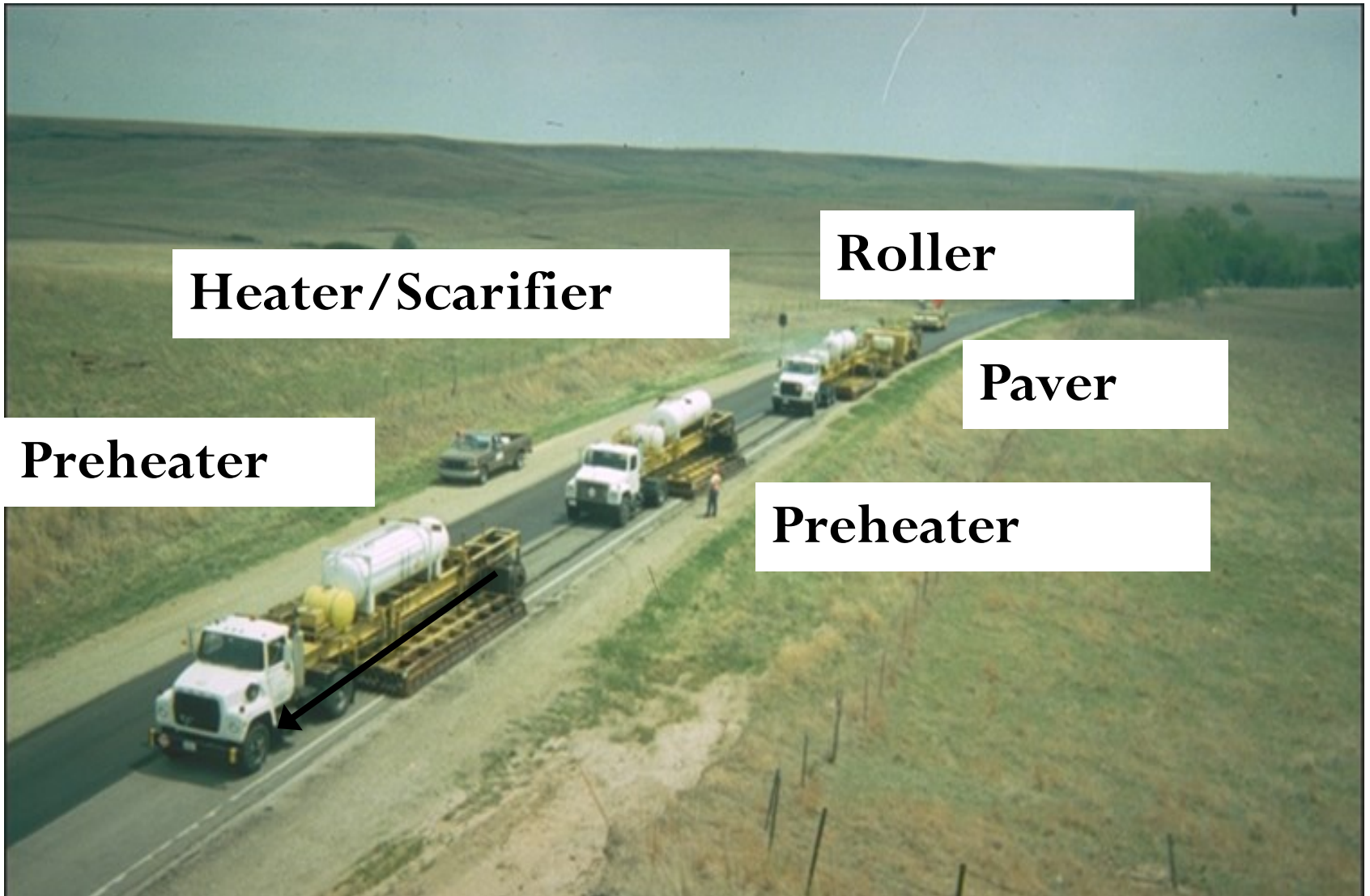
Hot Mix Recycling: Process

- RAP is combined with new aggregate and asphalt binder or recycling agent in a hot mix plant. Mix is transported to paving site, placed, and compacted.



Hot In-Place Recycling: Process

- Existing HMA surface is heated, scarified to a depth from 20 to 40 mm, scarified material combined with Aggregate and/or Asphalt Binder and/or recycling agent and compacted. New overlay may or may not be provided.

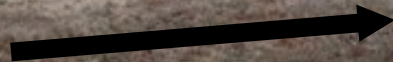


Hot In-Place Recycling: Repaving

**Repaving
Machine**

Heater

New Mix



Cold In-Place Recycling: Process

- Existing asphalt pavement milled (75 to 100 mm Depth), RAP reduced if needed, mixed with recycling agent, placed, and compacted.

Cold In-Place Recycling

**Milling
Machine**

Crusher

Mixer-Paver



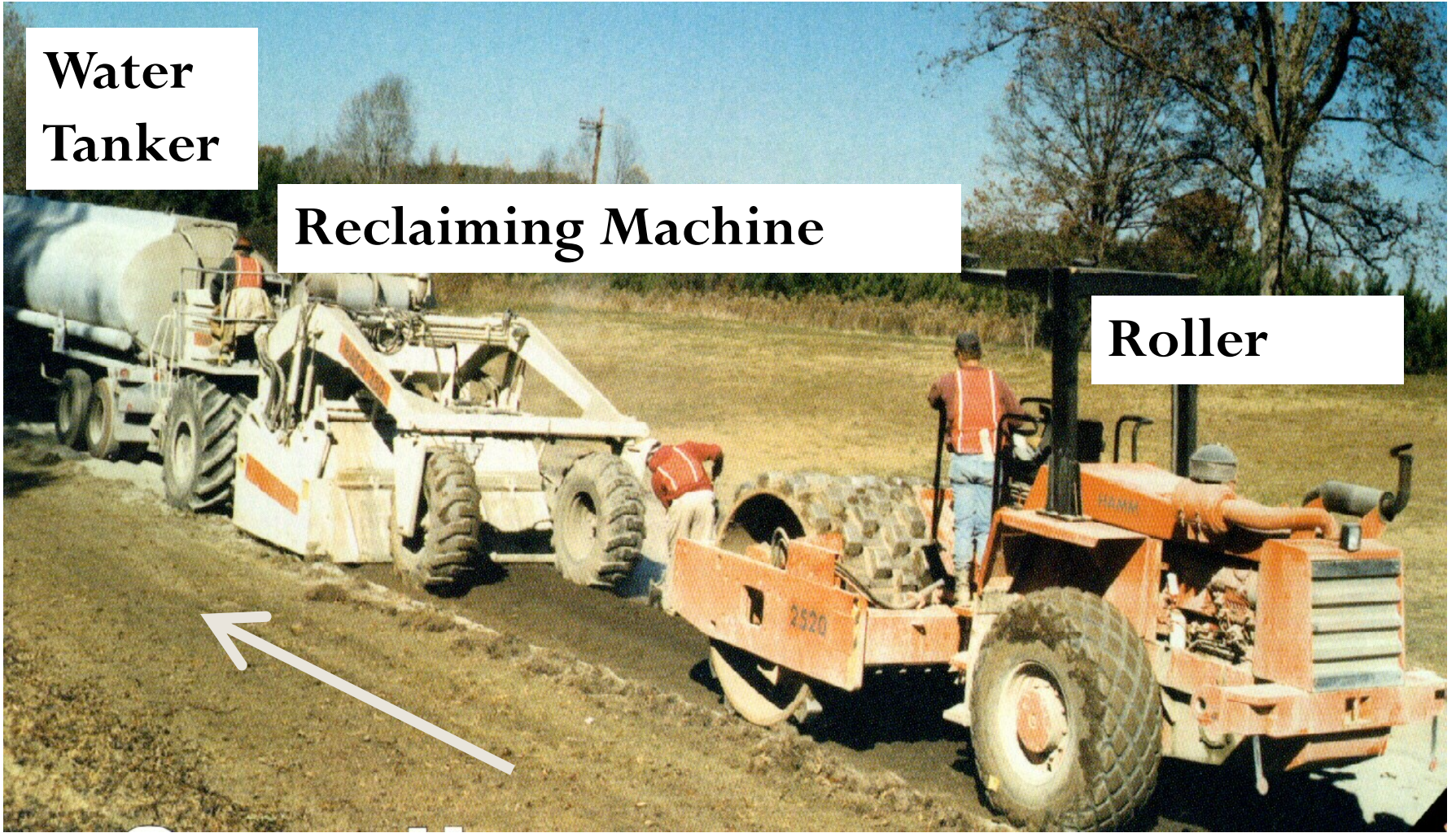
Full Depth Reclamation: Process

- All HMA layers and predetermined thickness of underlying material pulverized, stabilized with additives, shaped, and compacted. A surface course is applied.

**Water
Tanker**

Reclaiming Machine

Roller



HOT MIX RECYCLING

Removal of Existing Pavement

- Ripping and Crushing
- Cold Milling

Pavement Ripping with Dozer



Dozer with Rear Mounted Ripper Tooth



Full Lane Cold Milling Machine

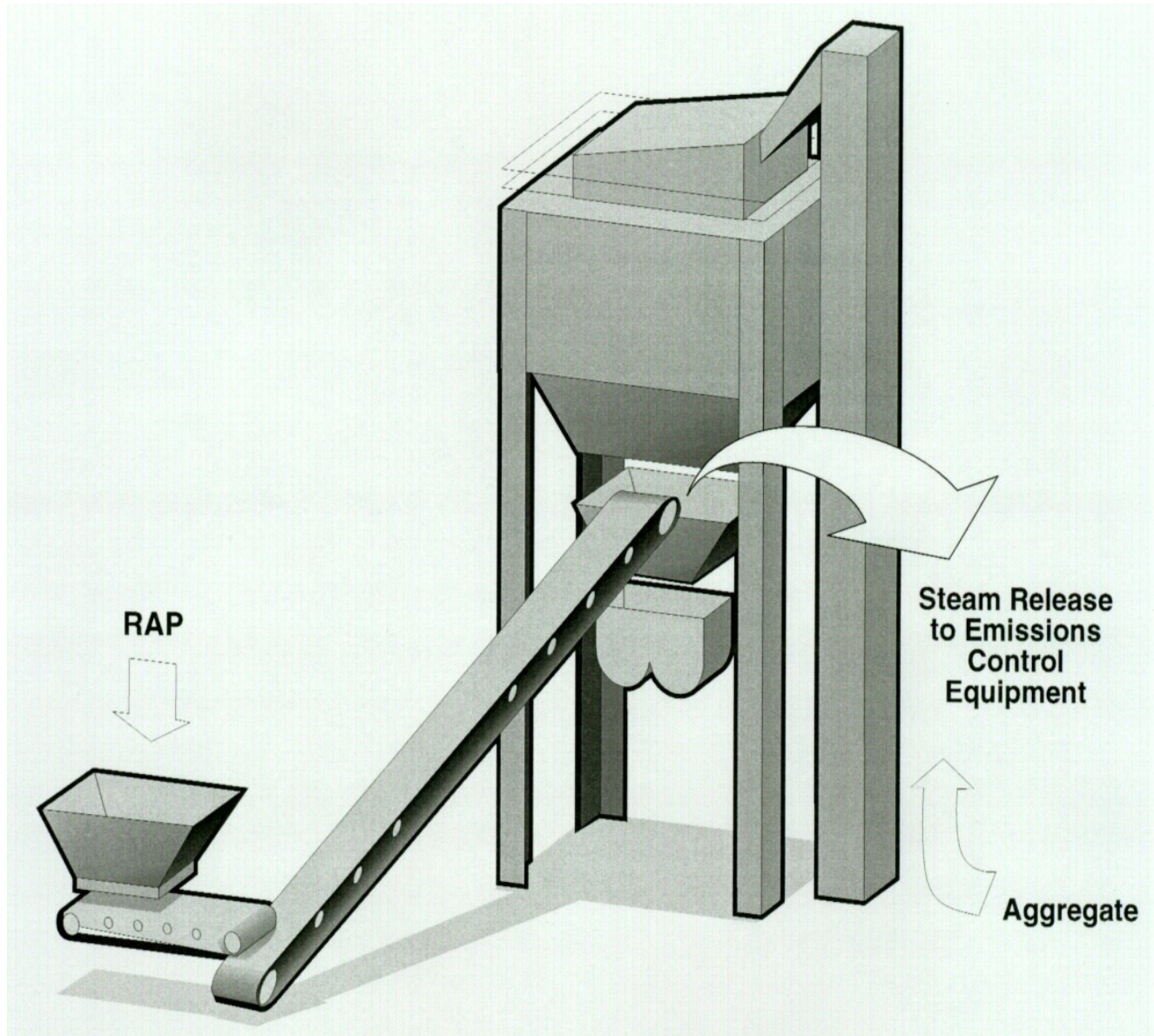


Hot-Mix Recycling

- Batch
- Drum

HOT MIX RECYCLING WITH A BATCH PLANT

Weigh Bucket Recycling



RAP Dryer System

