FULL-DEPTH RECLAMATION WITH CEMENT

Reuse Your Pavement

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Recycling Roads:
Saves Money & Natural Resources
The Problem:
Deteriorating roads are a constant problem for cities and counties. When trying to maintain roads and parking lots with traditional methods, the cost involved can be staggering. This process usually involves covering worn areas or removing and disposing of very costly surface material. Such practices can often put a strain on pavement maintenance budgets. Furthermore, getting road maintenance departments and commissioners to consider using new innovative and cost saving technologies can be a challenge.

Our pavement problems can lie within a soft surface layer but more often can be found in the layers beneath the surface. Base and subgrade layers under a roadbed can be held accountable for a majority of the problems we see in pavements, such as the construction materials not being able to hold their shape or “stay in place” after they have been placed.

Excess moisture (such as rainwater or high water table areas) combined with the lack of good drainage causes roadbeds to become water soaked. That allows the underlying material to move and become deformed under the pressures of everyday traffic, causing rutting, shoving, alligator cracking, and potholes.

The Process:
FDR with cement makes the reconstruction of roads a largely self-sustaining process. The complete recycling process can be finished in one day, and traffic can be maintained throughout construction.

The old asphalt and base materials are pulverized, mixed with cement and water, and then compacted to produce a strong, durable base for either an asphalt or concrete surface. FDR uses the old asphalt and base material for the new roadway base.

The process starts by evaluating the condition of the existing pavement including the sub-layers and mix design. Next, pulverization sizes the materials back down to a 2-3” minus material. An exact amount of Portland cement and water is blended into the pulverized material. Reshaping, proper compaction, grading and curing follow. This gives the new base the strength and durability we can count on to achieve long lasting, cost effective pavements.

By addressing the entire pavement section, FDR is able to correct delinquent cross sections, widen roads, increase the load-bearing strength of the base, and utilize 100% of the existing materials. Substantial savings can be realized while meeting environmental goals.

Equipment for the process includes reclaimer/stabilizer, pad foot roller, steel drum roller, pneumatic tire roller, grader, water truck or a combination of these machines.
The Solution:

Engineers and public works officials are turning to a process called Full-Depth Reclamation (FDR) with cement. FDR recycles in-place the materials from deteriorated asphalt pavement, base and subgrade, and with the addition of cement, creates a new stabilized base. There’s no need to haul in aggregate or haul out old material for disposal. Construction truck traffic is greatly reduced, and there is little or no waste. This process conserves virgin construction materials and makes smart economic and strategic sense.

A good foundation is important for any structure, especially pavements. The pavement base provides the thickness and stiffness necessary to carry the design traffic. Cement stabilized bases have provided economical, long-lasting pavement foundations for more than 70 years.

The advantages of stabilization are many:

- Cement stabilization increases the stiffness and strength of the base material. A stiffer base reduces deflections due to traffic loads, which results in lower strains in the asphalt surface.
- The strong uniform support provided by cement stabilization results in reduced stresses applied to the subgrade. A 6-8” cement stabilized section can reduce subgrade stresses more than a 8-12” layer of untreated aggregate base. Subgrade failures, potholes, and road roughness are thus reduced.
- Moisture intrusion can destroy unstabilized pavement bases. Cement stabilized bases form a moisture-resistant layer that keeps water out and maintains higher levels of strength, even when saturated.
- A cement stabilized base also reduces the potential for pumping of subgrade fines.
Overall Benefits of FDR Include:

- Money Saving Pavement Strategy
- Higher Load Carrying Capacity
- Creates Safer Roads
- Crown & Slope Corrections
- Stabilized Road Widening
- Corrects Drainage Problems
- Erases Reflective Cracking and Rutting
- Eliminates the Movement of Base Materials
- Simple, Fast to Design, Bid & Construct
- Environmentally Friendly Solution