Stabil-Mix
Improved Soil Stabilization with Construction Cost Savings
Stabil-Mix
Contractors have long utilized roadbed stabilization techniques using chemicals such as lime or portland cement to strengthen pavement subgrades. Lime has traditionally been used in cohesive clay soils, while portland cement has been used more for granular soils. Increasingly, public and private sector engineers are interested in stabilizing silty, clayey soils that do not match the classic definitions for either lime or cement. Historically, lime and fly ash have been used together to stabilize those soils. However, the application of each of the products separately has been time consuming and difficult.

Now, thanks to a unique alliance between Boral Resources, the nation's largest marketer of coal combustion products, and Chemical Lime, a major international lime producer, a product is available to bridge the gap between lime and cement soil stabilization techniques. That product is Stabil-Mix.

Stabil-Mix is a homogeneous mixture of fly ash, a product of the coal combustion process, and lime. Stabil-Mix is ideal for low-clay, high-silt soils with plasticity indices (PI) between 10 and 20. Stabil-Mix reduces PI while adding strength, due to the pozzolanic reaction between lime and fly ash. The lack of reactive silica and alumina in low-clay soils is augmented by compounds contained in the fly ash that react with lime to form calcium silicate hydrates and calcium aluminate hydrates—the cementitious compounds that stabilize and strengthen soil subgrades. (See What Is Fly Ash).

Custom Blends for a Single Application
Stabil-Mix can be custom blended for optimum results in varying soil conditions and is delivered to the job site in high-volume trailers. Thoroughly blended, Stabil-Mix reduces the time normally required for separate lime and fly ash applications and often does not require a waiting period for remix or processing. Generally, a single application of Stabil-Mix will properly stabilize subgrades. Waiting time is effectively reduced or eliminated.

Cost Savings
In addition to the savings from a single-product application, Stabil-Mix material savings can be as much as 50% when compared to cement stabilization. And, depending on local conditions, Stabil-Mix may enable designers to reduce the thickness of subsequent pavement layers—further reducing material costs. The addition of Stabil-Mix also dramatically reduces the moisture content of wet soils, enabling contractors access to otherwise impassable sites. An increase in the optimum moisture content of soils because of the addition of Stabil-Mix also improves compaction conditions on wet sites.

Proven in Use
Stabil-Mix has been in use in the private sector since 1999 with excellent results. More than 300,000 tons of Stabil-Mix have been used on private roads, driveways and other soil stabilization projects throughout the US.
**What Is Fly Ash?**

**Why Is Its Use Environmentally Friendly?**

Fly ash is a pozzolan, created when coal is burned to generate electricity. When mixed with lime (calcium hydroxide), pozzolans combine to form cementitious compounds, creating the same binder or “glue” (calcium silicate and aluminate hydrates) as contained in cement.

Environmentally, fly ash use creates significant benefits by conserving natural resources and avoiding landfill disposal of ash. By making road bases more durable, life cycle costs are reduced. And, according to a joint EPA / Federal Highway Administration / USWAG document, *Using Coal Ash in Highway Construction: A Guide to Benefits and Impacts*, fly ash use is good for the environment:

> “The U.S. Environmental Protection Agency (EPA) encourages the use of coal combustion products (CCPs) [such as fly ash] in highway construction projects such as in concrete, road base, embankments, flowable fill, and other beneficial applications. The increased use of these materials, which would otherwise be discarded as waste, can reduce greenhouse gases in the atmosphere, reduce energy consumption, and conserve natural resources.”

For more information about fly ash use, including case studies and technical bulletins, visit [flyash.com](http://flyash.com) and click on “Resources.”

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**Strength Gain Using Stabil-Mix**

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