# Project Objectives

- Quantify the viability of using a fly ash stabilized layer in pavement design for use in a residential subdivision and a secondary highway
- Compare this to a conventional cut-and-fill approach on a secondary highway

## Project Summary

As of the writing of this paper, there was no standard or accepted method for using fly ash stabilized soil in pavement design. Two test sections in southern Wisconsin were paved using fly ash stabilized soils – one being a 0.3 km section of STH 60 between Lodi and Prairie du Sac, WI, the other a 0.7 km city street in Cross Plains, WI.

Unconfined compression tests were conducted to see the effects of variables such as fly ash content, molding water content and compaction delay on the strength.

Using the results of the unconfined compression tests, California Bearing Ratio (CBR) tests and Resilient Modulus tests were utilized to find the fly ash content required for optimum layer coefficient for the stabilized layer. The designs followed the 1993 AASHTO method for flexible pavements.

Based on test results, a subgrade stabilized with 12% fly ash content was chosen for the Scenic Edge site, and 10% for the STH 60 site, assuming a two hour delay between mixing and compaction.

Nuclear density gages were used to measure the dry unit weight and the water content achieved.

Samples were collected pre and post compaction. The pre-compaction grab samples were compacted into CBR molds and CBR tests were conducted after they cured for seven days in a wet room. The post-compaction samples used thin wall sampling tubes, and were subject to unconfined compression tests after curing. Some samples were brittle so a pocket penetrometer was used to estimate unconfined compressive strength instead.

Falling weight deflectometer tests (FWD) and distress surveys were conducted at the STH 60 site semi-annually. The distress survey was used to calculate the pavement distress index (PDI).