

Aggregate Production and Use in Iowa

Keith Norris spoke at the Treynor Optimist Club on Saturday, November 12. He has worked as a materials engineer in the Materials Department of the Iowa Department of Transportation for 23 years.

Keith said that Iowa is a national leader in roads development. Iowa started the No Passing Zone on highways and slip-form paving (where there are no forms on the sides of new concrete). Iowa also does more extensive testing on rocks for road concrete than any other state.

In this part of Iowa there is several hundred feet of silt over most rock. That is why you only find rock quarries near rivers, where the silt has eroded. There are still over 400 quarries in Iowa.

Bedrock in Iowa is made of limestone, dolomite, shale, and sandstone. Limestone is calcium carbonate and dolomite is magnesium carbonate. Both are good for making concrete. One of the purest sources of limestone in the state is in Mason City, Iowa.

Iowa uses physical and chemical tests to find good rock for road concrete. The physical tests include abrasion tests, freeze and thaw tests, and Iowa Pore Index tests. All rocks absorb water. The pore index test checks absorption of water in one minute and in 15 minutes. Chemical tests include x-ray diffraction, thermogravimetric (burning at 1000 degrees), and x-ray fluorescence. These tests all help determine how well a road will last when built using these rocks.