

Trucking

We often say today that Koss Construction Company is a paver, that is what we do, pave highways and airfields. Going back one-hundred years ago, however, that was not the case; Koss Construction was a contractor building bridges and other structures. But, over the course of the first couple of decades of business, paving became more and more the forte of Koss Construction. By World War II, Koss was a paver.

All of us today, those that work for the company, those that work alongside the company, and even those who know us from a distance would likely point out that there is a lot more involved in being a paver than the actual paving process that produces our pavements. This, of course, is true. A significant part of our business is in fact trucking; we do not consider ourselves to be a trucker, but that should not diminish the importance of the trucking that we do as a paver. In fact, a review of our history of paving shows that the trucks in use through different eras greatly influenced almost everything that we do as a paver.

In the beginning, at least for this story, there were no paved roads, thus no trucks. In fact there wasn't much infrastructure at all. Can you imagine paving a highway with wheelbarrows? Koss Construction could.

The wheelbarrow was replaced not by trucks, but by trains. Koss began paving roads with raw materials delivered to the jobsite by trains in the middle nineteen's. The material was then batched into the correct proportions and again loaded onto small industrial trains that the company operated. These trains operated on 24" industrial-gauge rail lines placed by company crews just to get the concrete material batches to



Figure 1. "Hauling" Batch about 1914

the paver; they were in fact "batch trains." Each batch of material for the pavers was proportioned into eleven cubic foot (CF) boxes with ten boxes carried per train load. However, the demand to increase paving production grew with each new automobile manufactured in Detroit. Between 1908 and 1927, Ford produced more than 15-million Model-T Fords... demand for roads was growing!

By the early 1920's a brand new vehicle was hitting America's new paved roads – trucks. The earliest Koss fleets of trucks were manufactured by the Autocar Company started in 1899 in Ardmore, PA. The earliest Koss Autocar trucks carried two 11 CF batches per load. These were "open-air" cab-over trucks with the driver sitting almost on top of the dual cylinder engines. A Koehring 11-E paver mixed each 11 CF batch for about 60-seconds before depositing the concrete between the forms. A good day's production in those days was about 250 CY, or about 1/10th of today's. Ironically, that 250 CY took about 420 batches of mix, or about 210 truckloads... same as today.



Figure 2. First Fleet of Batch Trucks in 1921

By the 1930's single-axle dump trucks that were generally similar in appearance to today's trucks started filling our fleet. These earliest single axle dump trucks carried a payload of just over two cubic yards, or nearly three times as much as the Autocar trucks just a decade earlier. With larger trucks, the pavers got bigger, and the plants too. The Koehring 11-E Paver was replaced by the 16-E paver, representing an almost 50% increase in batch size and production, which in large part was a function of truck payloads getting bigger.

(cont. on page 2)

Trucking *(cont. from page 1)*



Figure 3. Single-Axle Dump Trucks in 1949

By the 1940's the single axle dump trucks had increased payloads to about 4 CY per load. And again, the pavers got bigger with the Koehring 27-E. Keep in mind that in those days the pavers actually mixed the concrete as well as deposited the batch between the forms; a 27-E mixed 27 CF, or one CY. Koss began replacing the single axle dump trucks with tandem axle trucks in the late 1950's. These tandem-axle trucks were hauling four dry-batches per load with each batch being 34 CF for the Koehring 34-E pavers. With four batches per truck load the pavers got even bigger with the 34-E "Twin-Batch" holding two batches. When the paver skip raised the aggregate and cement would enter the drum to begin mixing while another batch had been transferred to the back half of the mixer to finish mixing and be discharged to the forms. The biggest paver of this early interstate era was the Koehring "Tri-Batch" paver which could hold three 34 CF batches in the drum.



Figure 4. Tandem-Axle Dump Truck in 1961

Central mixed concrete and slip form paving technology was introduced by the company in the mid-1960's to the Iowa, Kansas, Missouri, and Oklahoma markets. With central mixed concrete plants achieving higher and higher production capacities the focus on production shifted away from how much payload the trucks could carry to how quickly the truck could cycle between the plant and the paver. The company devel-

oped fleets of side-dump tandem axle trucks which never had to back-up, they simply pulled alongside the paving train and dumped each batch via the side dump beds. Days of over 600 batches at seven cubic yards each were common as a result of these fast-cycling trucks.



Figure 5. Side Dump Trucks at Work in 1966

By the 1990's the pavements constructed in the 1960's and 1970's were nearing the end of their design service lives. The truck access and traffic control demands on pavement reconstruction projects through this current era of paving eliminates much of the value on quick cycle times for our batch trucks... there is simply so much traffic and limited access on the interstate system that the value of larger payloads surpasses the value of fast unloading of the batches. In the mid-90's the company began replacing the tandem axle side-dump trucks with end dump semi-trailer units that could haul 12 CY instead of 7 CY per load.



Figure 6. Tractor Trailer Trucks at Work in 2009

While the history of the company cannot be viewed solely as a history of trucking, this history cannot be properly viewed without recognizing the significant role trucks have played. We can be certain that the trucking of tomorrow will be as varied as what has occurred over the past one-hundred years... which is exciting!

Personnel News

Caleb M. Elias has joined the firm as a Quality Control Technician. Caleb is a 2013 graduate of Pittsburg State University with a degree in Construction Safety Management and a Minor in Business Administration. Caleb is working with the Sunflower Division.

Preston P. Abbott has joined the firm as a Field Engineer assigned to the Asphalt Division Atoka County SH-3 project. Preston is a familiar face to the Division from previous projects.

Jerry D. Froese has been promoted to Estimator. He will join the Engineering staff in the Corporate office to help with putting work on our books to keep our crews busy again next year and in the future.

Joe A. Kilburn has taken early retirement due to his health. We wish Joe and his family the best and appreciate his many years of dedicated service.

In Memory



Donahue "Don" Potter, 79, of Eagleville, Missouri passed away June 8, 2013.

Don began his career with Koss Construction Company on November 21, 1984, as a truck driver. He retired from Koss on November 5, 1999.

Don was a fixture on the paving crew for many years with his water truck taking care of the paving train needs, haul roads, and anything

else needing a splash. He always had a positive outlook and a unique moustache.

Glen E. Ortiz, Sr., 54, of Topeka, Kansas passed away Monday, May 27, 2013.

Glen was a flagger for Koss from March 26 to May 19, 2013 on the projects in Brown and Nemaha Counties, Kansas (Koss #78 and #79).

Road Construction Ahead

The Engineering staff is continually looking for projects to place a bid on. Here are a few of the opportunities that are upcoming.

The T-Works program created by the Kansas Legislature has put funding in-place for projects throughout the state though many of these are scheduled for bid in a couple years.

Upcoming projects in the Arkansas Interstate Rehabilitation Program include the reconstruction of I-40 near West Memphis and the overlay of I-40 near the Cache River. The voters of Arkansas continue to state their position that highway funding is a priority with their approval of a highway expansion program. The completion of the Belle Vista bypass is included in this program.

Oklahoma continues to manage a steady maintenance, reconstruction, and expansion program that includes a seven mile stretch of US-69 in Atoka County and a large project on I-244 in Tulsa.

Nebraska has a few projects on the horizon including an interstate reconstruction project on I-80 in the western part of the state, as well as an expansion project on I-80 in the eastern part of the state.



Koss Corporate employees and family members represented Koss in the **American Heart Association Heart Walk** that was held Saturday, September 28, 2013.

Koss team members were: *(front row)* Becky Harmon, Karen Payne, Rachel Payne, and Jennifer Fleming. *Back row:* Kaylin Haines, Kasi Haines, Mark Haines, Allen Payne, and Robert Kennedy.

Affordable Care Act

What Employees Need to Know

What is the difference between the Patient Protection and Affordable Care Act, Affordable Care Act, and Obama Care? Nothing, they are names for the federal health care law that was signed by President Obama on March 23, 2010.

This law has over 2,700 pages and in excess of 21,000 pages of regulations. This article is to help our employees understand what their responsibility is under this law.

The major objective for the Affordable Care Act (ACA) was to provide affordable insurance to all Americans. To this end, the law has an individual mandate that everyone must have insurance on January 1, 2014. If you do not have insurance through the company, your spouse's employer, Medicare, Medicaid, Veterans Administration or you have purchased insurance from a provider, you could face a penalty for not having insurance when you file taxes in 2015. People who don't have insurance will be able to shop online at an insurance marketplace, or exchange for coverage that will take effect on 1/1/2014.

As you have been hearing on the news, the "Marketplace" opened October 1, 2013 with varying degrees of success. Theoretically, you can go to the Marketplace, answer some basic questions, like where you live, your age, do you use tobacco products and you'll get a list of plans available for you to select from. You could be eligible for subsidies if you have an income between 100%-400% of the federal poverty level.

For an individual that would be between \$11,490 to \$45,960 annual income or for a family of 4 (four) it would be between \$23,550 and \$94,200.



People with income less than 2 ½% times the poverty level can also get help with deductibles and copayments. But those people would have to choose a so-called silver plan. That's the second lowest cost plan of the four levels (bronze, silver, gold, and platinum). If you do go to the marketplace, be aware that if you buy a plan that only costs \$40 or \$50 a month; they may have a \$5,000 deductible before the plan starts paying benefits.

An important date to keep in mind is December 15, 2013, which is the latest date that you can buy insurance on the exchange to be effective January 1, 2014.

If you do not enroll for medical insurance, then you will face a penalty. For 2014, the penalty will be \$95 per household member and if that household member is under the age of 18 it would be reduced by half or 1% of the household income (whichever is greater). In 2015 it would be \$325 per household member or 2% of household income and in 2016 it would be \$695 per household member or 2.5% of household income.

You can go to the following website to find out more information on the Affordable Care Act or to purchase insurance in the marketplace at www.healthcare.gov

Illinois Tollway Utilizes FRAP in Concrete Paving

The Illinois Tollway recently held an open house to showcase their Jane Addams Memorial Tollway project. This project includes 62 miles of roadway improvements and interchange expansions. One of the goals of this project is to be the cleanest and greenest pavement ever built. A key feature in accomplishing this goal was to specify a composite two lift concrete pavement requiring at least fifteen percent of the coarse aggregate to be Fractionated Recycled Asphalt Pavement (FRAP) in the bottom lift. The tollway currently owns large stockpiles of the coarse FRAP in various locations along the project so they had an interest in finding a responsible use for this product. The University of Illinois conducted a study using the coarse FRAP in concrete and concluded that adequate strengths could still be obtained and chloride penetration is unaffected vs. concrete



using virgin aggregates. The project's special provision required a minimum of fifteen percent but allows up to fifty percent FRAP from an approved source in the bottom lift.

We have seen numerous test sections across the United States over the last 15-20 years utilizing recycled materials in concrete pavements. Most of these test sections have been well planned and performed extremely well but owners are still reluctant to specify or even allow the use of recycled products in new pavements.

We hope owners will track the Illinois Tollway project and follow suit in allowing or when practical mandating the use of recycled materials in highway projects. In many cases these are products that they already possess so incorporating into the project will be both environmentally and economically beneficial.

Welcome to Arkansas

Big tough projects have been a mainstay through the history of Koss Construction Company. Hard to imagine a tougher project to get started in a new state than the recently completed eight mile section of I-40 in Prairie County, Arkansas. Traffic volume over 50,000 vehicles per day (most of them trucks). River valley soils and swamp like surroundings. A demanding schedule to produce and place 400,000 tons of asphalt with Working Day charges of \$50,000 per day. Reconstructing four bridges. Dangerous heat and humidity in the summer months. Koss type project.

Kelly Moore, Asphalt Division Manager said – “There were many accidents to deal with and a major challenge to be met every day just trying to keep traffic flowing - the worst traffic we have EVER encountered” (Thirty year man with the company). “Also, the fact this project was basically centered in a “swamp-



land” created major problems in that when a major accident occurred there was no feasible way to get medical help or wreckers to the vehicles”. You can imagine the difficulty getting to and from the workzone.

After overcoming the challenges of starting the project, setting up the plant and detouring traffic, the production work began. Moore commented that “There were several days during production of the base lifts that the plant easily exceeded 4,000

ton per day. There was even one week in particular that plant produced over 20,500 ton and shut down before 5 o’clock on Friday to give everyone a break from the heat and extreme humidity”.

Tom Breyfogle, Project Manager said – “There is no way Koss could have completed this project in the time frame we did without a combination of good planning, scheduling and work-



ing day management. Fortunately, most of the time, we had all three. I can’t recall how many times we needed a plan, a back up plan and a last minute plan to back that one up”.

Both Moore and Breyfogle echoed the same sentiment at completion - that hard work and positive attitude is what it took to ‘overcome adversity’ to build this project. They were also very complimentary and appreciative of the Arkansas State Highway and Transportation Department project staff and Resident Engineer’s office assigned to this project. Problems were identified, discussed and overcome without confrontation. It was a true ‘Partnering’ effort without the formality.

The Asphalt Division has moved on to some projects in Oklahoma this fall. Brad Pohlmeier and crew are continuing the Arkansas work on concrete paving projects in White and Mississippi Counties.

PCCP on US-75 Under Traffic

This season Koss paved a portion of US-75 from the Nebraska line, South to Sabetha, KS. The project was exciting in many ways. First, this contract was let as an alternate bid project taking concrete vs. asphalt. Koss was successful in securing the contracts with a 4” concrete overlay. Second, we were excited to showcase another application of concrete pavement in Kansas, by performing a 4” overlay on a 2-lane highway, under traffic.



Things became even more exciting as the project got underway. Once the existing asphalt roadway was milled in preparation for the concrete overlay, it quickly became clear that the underlying asphalt pavement would be unsuitable to handle a thin concrete section. Koss and KDOT came together and deemed the

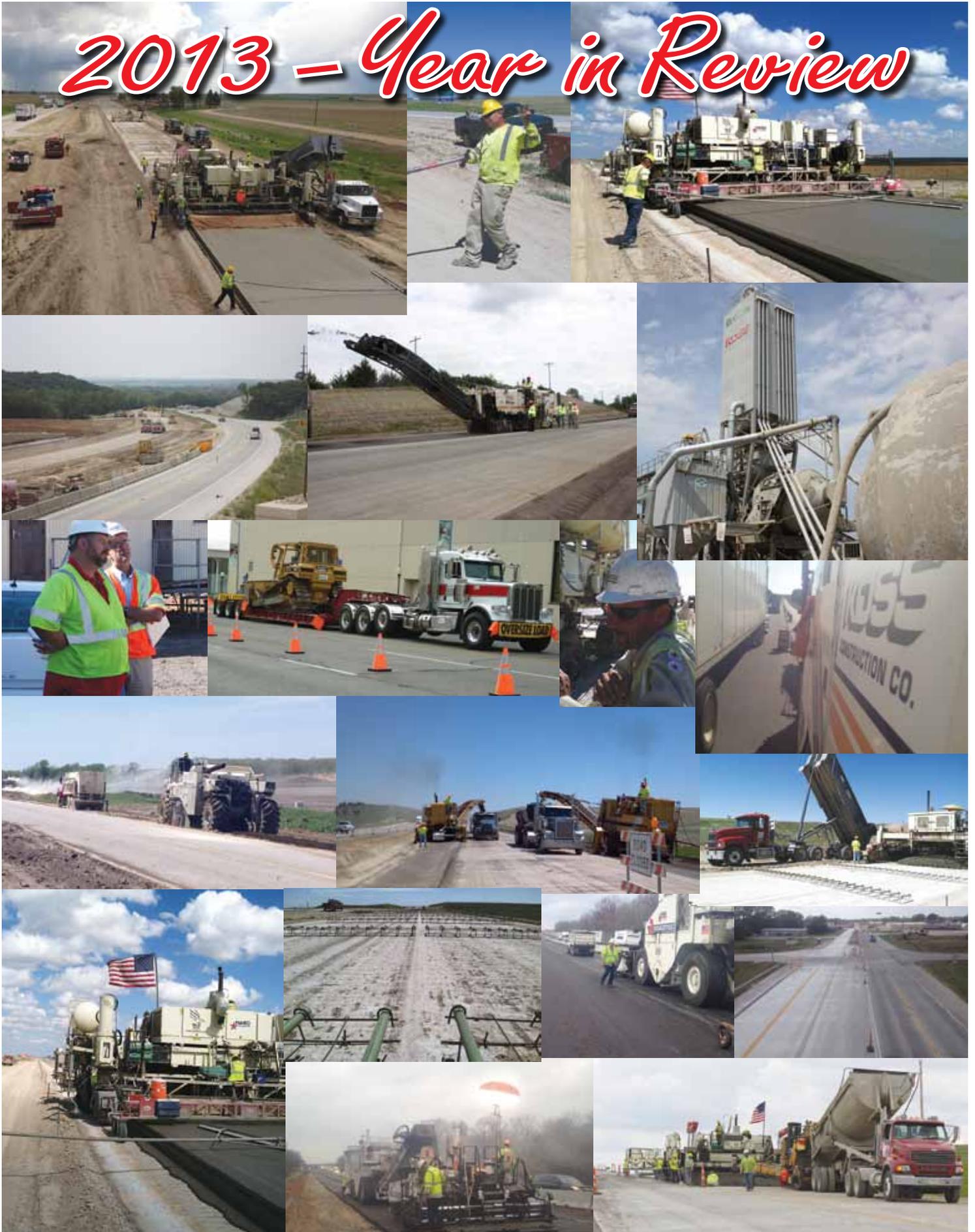
best solution would be to reconstruct the highway using 8” dowel jointed concrete pavement.

Using a pilot car and flaggers stationed 24 hours a day to keep traffic moving, Koss removed more of the existing asphalt pavement to accommodate for the increased pavement thickness. The remaining asphalt pavement was mixed in-place with Portland Cement to provide a strong base to place the concrete

on. Using multiple resources from each division in the company, Koss delivered this project on time, even after being delayed by unforeseen conditions.

After diamond grinding to provide an exceptionally smooth pavement, Koss proved that full depth concrete pavement reconstruction can be successful on a 2-lane facility under traffic.

2013 - Year in Review



Please visit our website at <http://www.kosseconstruction.com>