

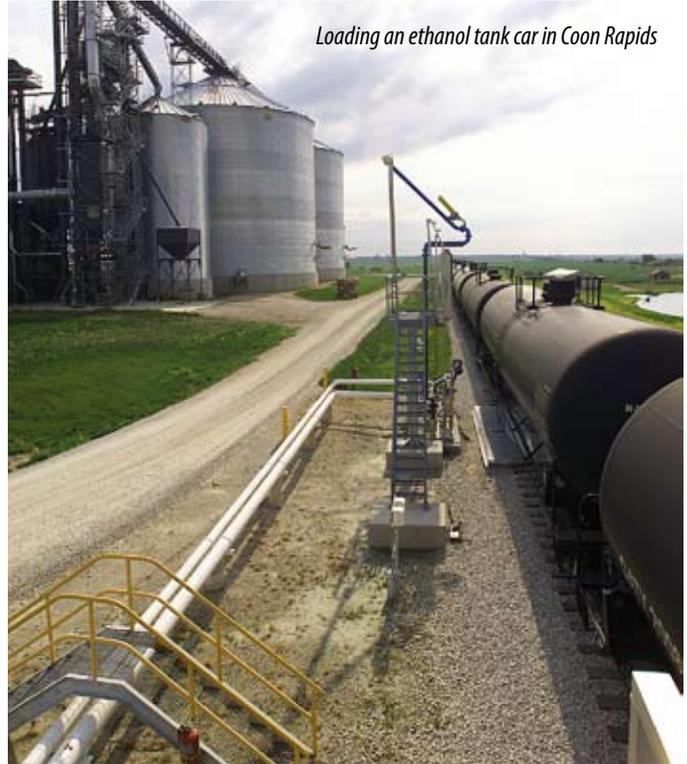
# Ethanol boom brings transportation changes

**T**he ethanol boom in Iowa is not only creating new markets for corn, it is changing the way the commodity is being shipped, both within state borders and outside Iowa to regional, national and foreign markets.

Iowa is the leading ethanol producing state in the nation. Craig O'Riley from the Office of Systems Planning says the proficiency of Iowa farmers has led to the boom in alternative fuel production. O'Riley has been monitoring the changes in rail shipments of corn and the way these changes have affected railroad companies. "In the past, Iowa farmers have been so efficient in the production of grain, Iowans couldn't use all that was produced. The majority of our grain was shipped by rail to markets in Texas and Mexico," he said. "In the next few years, with the projected increase in the rate of production of ethanol, it is expected that Iowa may become an importer of corn, rather than an exporter."

Nationally, this shift in shipping needs provides a challenge for rail companies and ethanol producers. Diane McCauley from the Office of Rail Transportation said the majority of grain hopper cars are owned or leased by the railroads. On the other hand, ethanol manufacturers are purchasing or leasing more than two-thirds of the ethanol tanker cars and hopper cars needed to haul the ethanol by-product used for livestock feed. McCauley says, "The logistics of moving the ethanol plant-owned cars to market is completely different than the logistics of moving grain cars because these plant-owned cars need to find their way back to the point of origin."

Another wrinkle in the shipment of ethanol may come in obtaining rail infrastructure and tanker cars. McCauley explains that two initial priorities in planning a new ethanol facility are contact with the railroads and acquisition of



*Loading an ethanol tank car in Coon Rapids*

tanker cars. "There have been ethanol facility planners who have waited until pretty far along in the planning process to contact the railroads, only to find out the proposed site may require a large investment in track, which can cost up to \$2 million per mile to install, near the planned ethanol facility. Other ethanol facility planners have worked well in securing the infrastructure, but have faced difficulties getting tanker cars in time to have them available when the facility goes online. Recent information shows the lead time for tanker cars can be two years or more."

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## Ethanol plants operating, expanding, under construction or planned (January 2007)

	Number of plants	Ethanol capacity (million gallons)	Corn required (million bushels)
<b>Operating</b>	26	1,663	616
<b>Expanding</b>	10	395	146
<b>Under construction</b>	12	1,030	381
<b>Planned</b>	28	2,725	1,009
<b>Total</b>		<b>5,813</b>	<b>2,152</b>

## **Ethanol, continued from page 4**

The increased requirements for switches and sidings at or near the ethanol facility may result in the need for infrastructure improvements in some areas of the state. With traffic levels on many of the main lines in Iowa already high, several of the ethanol facilities will rely on shortline railroads and branch lines for their shipping needs. This increase will result in the need for infrastructure upgrades on those sections of track and to highway/rail crossings.

O'Riley estimates that 160 daily truckloads of corn will be required to come into an ethanol plant producing 100 million gallons annually. From that same size facility, one-third of the ethanol and ethanol by-product would be shipped from the production facility by truck. The remaining two-thirds would be shipped by rail.

O'Riley used an Iowa State University study prepared in November 2006 to calculate that 6,500 rail cars of ethanol and ethanol by-product would be shipped annually, along with 8,800 semi trucks outbound from the ethanol facility each year. "That could mean a large increase in truck traffic near ethanol facilities," said O'Riley.

While ethanol production is expected to increase local truck traffic, these plants may actually cause a short-term decrease in the number of rail cars traveling in our state. McCauley says most of the grain, at least until Iowa needs to begin importing corn, may be trucked locally. The number of export grain trains will decrease, and the increased shipment of ethanol tankers and by-product hopper cars will not make up the difference until production increases. "Because of the pricing structure difference for these commodities and expected growth, the railroads in Iowa do not seem to have an issue with the expected decrease in volume of grain trains. Further, the railroads are looking at additional infrastructure changes other than increased tracks and upgraded rail crossings near the ethanol facility itself," she said. "In the future, there may be a need for a staging area for smaller ethanol producers to ship their product to a holding facility, where longer ethanol trains can be put together to go to more distant markets."

Whatever the future brings, Iowa's ethanol production is sure to spark lively conversation in the months and years to come. Increased truck traffic to ethanol plants may result in the need to add capacity and improve infrastructure on the state's roads system. For a map of current and planned ethanol facilities in Iowa and their relation to Iowa's rail infrastructure, visit [www.iowarail.com](http://www.iowarail.com).

## **ETHANOL FACTS**



- *One bushel of corn can yield 2.7 gallons of ethanol and 17 pounds of the ethanol by-product used for livestock feed.*
- *Annually, 37 million bushels of corn are needed for a plant to produce 100 million gallons of ethanol. That's approximately 41,200 trucks or 160 trucks each weekday.*
- *One truck can haul 900 bushels of corn, 8,000 gallons of ethanol or 25 tons of feed.*
- *One rail car can haul 4,000 bushels of corn, 30,000 gallons of ethanol or 100 tons of the by-product used for livestock feed.*