

Marc Cañas: Crude Drives Refined Rail Planning and Construction

PROJECT BRIEF



Marc A. Cañas (Vice President and Chief Operating Officer for J.L. Patterson & Associates) at historic Los Angeles Union Station, Photo © John Livzey, 2014

Energy is booming in North America. Transforming the energy market on a global scale, the North American shale oil and gas boom is also altering another market—rail. Transporting crude by rail is big business. But intense demand presents its own challenges.

“Rail companies are under enormous stress right now because of demand from oil companies to ship crude oil. So rail companies need to increase capacity dramatically and rapidly. They’re being forced to do very quickly what used to be done through a long-term planning process. That’s a very interesting paradigm for railroads,” explains Marc A. Cañas, vice president and chief operating officer for J.L. Patterson & Associates, a Southern California-based transportation engineering firm.

“Historically, railroads plan out for decades ahead of time. But the market now is moving so quickly with crude shipments that those kinds of timeframes don’t really work. Also, crude shipments don’t all go to the same destinations. For example, the railroads are not just sending crude to the Gulf Coast to be refined. It’s being sent anywhere the oil companies have capacity. Just when a railroad thinks it has capacity for a given route, the oil companies want to ship somewhere else. You can imagine what that does to a railroad. So the railroads are placed in a situation where they have to figure out what the oil companies will want *each month*.”



Photo © Can Stock Photo Inc. / sprokop

What is a railroad to do?

In his *CE News* article, “Crude Oil by Rail: Fracking boom has engineers on the fast track to increase railway capacity,” Cañas offers solutions.

“This demand has catalyzed a paradigm shift from long-term planning to short-term action...Construction projects and permitting that would typically take a minimum of one and a half years are being done in less than half the time. This puts a significant amount of pressure on railway engineers to complete projects in a such a short amount of time, while still delivering the same high-quality projects...It’s a double-edged sword in a sense: Railway engineers need to be responsive to their clients’ needs but still provide the same level of service and safety....”

“As with any design project, there are clear-cut processes, standards, and criteria that must be met...Therefore, the most effective way to save time without eliminating critical steps is first to establish a baseline schedule and then look for ways to shorten the design timeframe. This can be accomplished by leveraging technology and the enormous amounts of accessible information on the Internet...this is easier said than done and requires the proper cross-platform expertise because of the nature of the source data. Here is the disclaimer: Don’t try this without being sure you can handle the ‘what ifs.’”

Cañas cautions about the integrity and reliability of publicly gleaned data. He also cites issues with permitting as a common bottleneck, “permitting seems to present the greatest problems.” But his belief in creative and technological solutions is absolute and demonstrated. J.L. Patterson & Associates won the prestigious 2013 Bentley *Be Inspired* award for their innovative use of technology on the longest railroad tunnel in the U.S., a BNSF project that involved surveying and modeling the nearly eight-mile long Cascade Tunnel in the Pacific Northwest. Cañas and the J.L. Patterson team calculated track realignment using Point Cloud Processing and Management software and *reduced construction time and costs by 90%*. Cañas practices what he preaches, and with good reason.

“The important thing is this: this oil must be transported. Rail wants it done by rail. Pipeline folks want it done by pipeline. Truckers want it done by truck. Whoever gets there first and best will win the business. I believe crude by rail is an absolute essential piece of any oil company’s delivery plan. It has to be. The railroads are doing the right thing now. They are progressive and open minded about technology and methodology advancements. And that is why they will capture significant business from the energy boom in North America.”