Santa Fe and C-470 Flyover, Littleton, Colorado

Colorado Department of Transportation's (CDOT) flyover ramp was installed at Santa Fe Drive and C-470 to reduce congestion on Santa Fe Drive and ease southbound traffic merging onto eastbound C-470. The completion of this $23.3 million project was supported by EnCon Colorado through the supply of the bridge's main structural elements.

EnCon Colorado produced the 1,713 ft. structure using 36 curved tub sections and straight trapezoidal U-girders supported by precast pier caps, and precast/prestressed deck panels. Over 200 deck panels were cast directly on top of the U girders in the plant after casting in order to create a torsionally rigid section. The precast pieces have a radius size of 822' feet.

The bridge was opened four months ahead of schedule and under budget, primarily due to the use of the precast prestressed concrete structural system. Erection on the project was done at night in order to minimize disruption to the public. This project was funded with money from Stimulus, CDOT, and Douglas County. EnCon Colorado received the Award of Excellence for Bridge Construction in the 44th Annual Rocky Mountain Chapter American Concrete Institute (ACI) Awards competition.

Project Facts:

Project Value:	$23.3 million
Market Segment:	Bridges
Products Used:	Tub sections, U-girders, pier caps, deck panels

Project Design Team:

Owner:	Colorado Department of Transportation, Denver, CO
General Contractor:	Edward Kraemer and Sons, Castle Rock, CO
Engineer of Record:	Wilson & Company, Denver, CO

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Precast prestressed pier caps are threaded over bars projecting from the pier caps. Note the use of turnbuckles to ensure the pier cap hangs in the correct super elevated position. Despite the piers being cast on site and the pier caps being plant cast, the fit is perfect.

The curved tub sections are installed and supported at each of these complete pier cap and temporary shoring towers as shown in the image. Temporary shore towers are used to support the simple span while infill pours of post tension are installed.

The curved precast girder is being set on falsework at one end, and on a precast pier cap at the other. Erection is completed at night to minimize disruption to the travelling public.

A cast in place deck placement shows two pump trucks and a finishing machine working on the bridge section.

Precast prestressed girders pass above the existing railroad bridges during installation. The tub sections are installed on temporary shoring towers and post-tensioned together. Once the bridge deck is complete the shoring towers are removed.