

# Milwaukee District West Line Fox River Bridge Improvement Project

## PROJECT OVERVIEW

The Milwaukee District West Line Fox River bridge, located about 35 miles northwest of downtown Chicago, is a railroad bridge that carries 54 Metra commuter trains and up to eight Canadian Pacific (CP) freight trains each weekday. The bridge (also known by its bridge number, Z-100) was originally constructed in 1881.

Although the structure has been regularly maintained, many components are significantly deteriorated and can no longer be economically repaired. The signal system controlling the bridge is also at the end of its useful life, and key components date from the 1950s. This signal equipment is not compliant with standards for Positive Train Control (PTC). The 500-foot bridge is the only single-track segment on the line between Elgin and downtown Chicago, creating a bottleneck at either end of the bridge. Trains must reduce speed to move through switches and over the aging bridge, train schedules must be carefully coordinated to avoid train meets on the bridge, and any blockages on the single-track segment delay passenger and freight trains throughout the corridor. Impacts on freight traffic may extend outside the Chicago region. To address these issues, Metra will replace the bridge with a completely new structure, expanded to accommodate two tracks and controlled by a modern, PTC-compliant signal system. This project will cost \$34 million.

## PLANNED IMPROVEMENTS

### **Structure**

The Milwaukee District West Fox River Bridge Improvement project is replacing the existing single-track bridge with a double-track bridge built to modern design standards. One track will be rebuilt on the alignment of the existing bridge, and a second track will be built immediately west, with 18 feet between the centers of the two tracks.



A westbound Metra train to Elgin crosses the Fox River Bridge.

The new bridge will have a ballasted deck, providing a superior ride, less expensive maintenance, and better protection from moisture and salt damage than the existing open-deck design. The existing stone masonry piers will be rebuilt using concrete, an economical alternative that provides similar strength and greater resistance to longitudinal forces. With two fewer piers than the existing bridge, the new three-pier bridge will reduce obstruction to water flow in the river below.

### **Signals**

This project will replace all signal components near the bridge, including the wayside signal devices, highway crossing system, switch machines, snow melters and backup generator. A new interlocking will be installed, sheltered in two new relay houses on either side of the bridge. All-new underground cable will be laid. The modern equipment will be more automated and will be compliant with PTC standards. With solid-state systems rather than moving parts, the new electronics will require less frequent maintenance and experience fewer breakdowns. The new backup generator and snow melters will help ensure reliability in inclement weather.

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## Bridge Expansion

Taking the opportunity to double-track the bridge in conjunction with the replacement project will remove the delay-causing bottleneck at the Fox River Bridge. Train operations will be less vulnerable to blockages on the bridge, and the second track will make it easier to schedule train meets near the bridge, adding flexibility that will make it possible to increase service in the future. Adding capacity on the Milwaukee District West will help the line meet the expected future growth in demand for passenger and freight service. The availability of a second track will allow one track to be removed from service when maintenance is required, allowing work to be completed faster and more efficiently.

## PROJECT BENEFITS

The new bridge will eliminate the local speed restriction, improve the line's reliability and operational flexibility, reduce maintenance costs, and help ensure the continued efficient operation of the Chicago region's rail network.

Operations at the bridge affect all riders on the line – 6.8 million passengers per year. Each year, speed restrictions, train conflicts, and signal problems at the bridge add 36,000 passenger-hours to the travel times of Metra riders.

The project is forecast to save Metra riders about 1.2 million person-hours, valued at \$4.8 million, over the expected lifespan (30-40 years) of the new signal equipment and track that will be installed at the bridge. CP will also benefit from the increased speeds, reliability, and capacity that this project will provide.

## TIGER AWARD

On October 26, 2015, U.S. Senator Dick Durbin and then-U.S. Representative, now U.S. Senator Tammy Duckworth announced that the Department of

Transportation awarded Metra \$14 million in federal funding through the TIGER competitive grant program to replace the Fox River Bridge. Reflecting the bridge's importance to both passenger and freight movement, Metra and CP will share the cost of the local match for the \$34 million project, with \$6 million committed by CP and \$14 million to be provided by Metra. Construction began in the fourth quarter of 2017 and is on schedule for completion in 2020.



Location of the Milwaukee District West Line Fox River Bridge in the Metra and Canadian Pacific rail networks