Construction crews working on the CapX2020 Mississippi River crossing have discovered a new method of carpooling. During the past few months they have abandoned their trucks for a tug boat and barge, and they are commuting on the river in all kinds of weather. Crews are constructing a triple circuit transmission line, which includes the CapX2020 Hampton-Rochester-La Crosse 345 kV circuit. Work on the river crossing is occurring between the Minnesota and Wisconsin border near Wabasha, Minnesota and Alma, Wisconsin. The construction process includes building two locations, on an island and a peninsula, that are only accessible by barge and boat. This involves using a barge to transport hundreds of concrete trucks, cranes and structure pieces weighing over 100,000 pounds.

Five structure sets stretching just over a mile and 15 pile cap style foundations are part of the river crossing. The massive foundations, designed by a bridge engineering firm to withstand erosion from spring floods, required 4,500 cubic yards of concrete. That’s enough concrete to build a six foot wide sidewalk that is 11 miles long.

The new line is being built adjacent to an existing Dairyland Power Cooperative 161/69 kV line constructed in 1955. The existing structures and line are being removed and replaced with the new line. The final project plan comes after years of collaboration with the U.S. Fish and Wildlife Service (FWS) which manages the property on the Minnesota side of the crossing. Rebuilding the existing line allows the transmission conductors to be on a horizontal plane, which is an accepted practice reducing the likelihood of bird strikes.

The project required significant coordination among government agencies, engineering firms and contractors. Contingency plans were set in place to assure the work is completed prior to eagle nesting season, another requirement of the FWS. “For all our planning, one thing we could not control is the weather,” said Grant Stevenson, Xcel Energy project manager for the CapX2020 Hampton-Rochester-La Crosse project. “We planned...
SOIL BORING WORK

Big Stone South-Brookings County

The final phase of soil boring work is taking place in South Dakota’s Grant, Deuel and Brookings counties. Work is expected to continue through April 2015. A soil boring between four and eight inches in diameter and approximately 50 feet deep is drilled at proposed structure locations to determine the mechanical properties of soil and finalize design. Land agents will contact affected landowners in advance of crews entering their property. The Big Stone South-Brookings County project is a 70-mile, 345 kV transmission line between a new Big Stone South substation near Big Stone City, South Dakota, and the Brookings County substation near Brookings, South Dakota. Construction is expected to start in late 2015 and be complete in 2017.

Local Impact

Several local contractors are working on this challenging project:
- Trinity Meyer Company: Hager City, Wisconsin for structures
- J.F. Brennan Company: La Crosse, Wisconsin for foundation construction and crane and barge operations
- Wabasha Ready-Mix: Wabasha, Minnesota for concrete
- Sowles Company: Shakopee, Minnesota for reinforcing steel
- Dahn Construction: Rosemount, Minnesota for matting and restoration services as needed
- Xcel Energy crews are installing poles and conductor.

Has J.F. Brennan worked on a project like this before?

J.F. Brennan Company is a 95 year old marine construction company that has been involved with several utility river crossings throughout our history. These projects have ranged from pipelines to fiber optic lines to transmission towers. As an example, we worked on several of the existing power line structures at the same site as the CapX2020 line crossing.

What was the biggest challenge in designing and constructing the river crossing?

The most challenging portion of this project is maintaining a high level of coordination amongst multiple crews and locations. This holds true when working on and around the Upper Mississippi River. Adverse weather, high water, material delivery cycles, and manpower shifting must be meticulously managed when barges and towboats are the primary source of transportation. For instance, one challenge involved the placement of 970 cubic yards of concrete for four of the foundations located along the river. This required careful coordination among project personnel and 22 different concrete trucks that were cycling loads to the site. Over the course of one day and using four towboats, a total of 97 loads were transported to the islands by barge, two trucks at a time.

How many people is the project employing for your company?

J.F. Brennan has a dedicated crew of approximately 40 individuals working on the project.
It’s down to the wire for two CapX2020 projects. All structures are set and foundations are complete on the 345 kV Fargo-Monticello transmission line project stretching for 240-miles from west of Mapleton, North Dakota, to Monticello, Minnesota. Final line stringing in Minnesota is scheduled for mid-January. In North Dakota, stringing and attachment of final components is expected to be complete in April 2015. The final phase of the project between Alexandria and the new Bison Substation west of Mapleton is scheduled to be energized in May 2015. Construction on the Fargo-Monticello project began in 2010. The first phase between Monticello and St. Cloud was energized in 2011. The second phase between St. Cloud and Alexandria was energized in August 2014.

Meanwhile, work on the Brookings County-Hampton 345 kV project is nearing the final stages as well. All foundations and structures are set on the 250-mile project between Brookings, South Dakota, and Hampton, Minnesota. Work in South Dakota is expected to be finished in late 2014. Construction on the final segment between the Lyon County substation near Marshall, Minnesota, to the Hazel Creek and Minnesota Valley substations, near Granite Falls, Minnesota, are expected to be complete in early 2015.

Standing at 190 feet tall, crews installed the base of the largest structure on the Brookings County-Hampton project near White, South Dakota.

By the Numbers

Brookings County-Hampton
- 1,435 structures
- 120,000 cubic yards of concrete

Fargo-Monticello
- 1,476 structures
- 180,000 cubic yards of concrete

Hampton-Rochester-La Crosse
- 1,113 structures
- 150,000 cubic yards of concrete

The final of 16 interstate crossings in Minnesota between Alexandria and Barnesville is complete with all conductor strung, sagged, and clipped.

Hampton-Rochester-La Crosse

Work on the 345 kV segment between the new North Rochester substation near Pine Island, Minnesota and the Mississippi River in Wabasha is complete. Foundation construction continues on the 48-mile 345 kV segment in Wisconsin between the Mississippi River and the new Briggs Road substation near La Crosse, Wisconsin. Foundation construction will begin on the 12-mile 161 kV line stretching from Farmington Township into northeast Rochester in early January 2015. Construction is expected to begin on the final 345 kV segment between the Hampton and North Rochester substations in February 2015.

Crews continue to use helicopters for stringing and attaching components on the CapX2020 projects.
About the CapX Quarterly

The CapX Quarterly is a quarterly newsletter to inform and update interested stakeholders about CapX2020 project status and milestones. For more information about CapX2020, please visit the project website at www.capx2020.com.

The CapX Quarterly is primarily distributed via e-mail. Sign up for future issues at www.capx2020.com. If you do not have internet access, please call 612-330-5701 to receive a printed version (if you have previously called, you will continue to receive the printed version).

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