



## PROJECT PROFILE

# Sir Ambrose Shea Lift Bridge

Mechanical and Electrical Engineering Services for Bridge Replacement | Placentia, NL



### OWNER

Government of Newfoundland and Labrador, Department of Transportation and Public Works

### CLIENT

Parsons

### BACKGROUND

Located on the Avalon Peninsula in Placentia, a town in the Canadian province of Newfoundland and Labrador, the Sir Ambrose Shea Lift Bridge provides a vital connection for local communities while supporting the region's commercial fishing industry. The bridge is raised approximately 2,400 times annually and is one of the few vertical lift bridges in Canada.

This project was recognized with the 2017 Transportation Award of Merit from the Consulting Engineers of Ontario.

WJE provided mechanical and electrical engineering services for this new tower drive vertical lift bridge from inception through completion. Services included development of a Bridge Design Report; preparation of plans, specifications, and cost estimates for the design of all machinery; and construction services.

### SOLUTION

WJE's design features two mechanically independent tower drive systems. Rolling element main counterweight sheave bearings were selected to minimize friction and maintain a compact machinery package that would fit in the available space.

The mechanical design includes all span support machinery (counterweight sheaves and bearings, counterweight ropes and terminations, and live load supports), span drive machinery (motors, brakes, couplings shafts, and speed reducers), and span locks (motors, speed reducers, lock bars, guides, and receivers). The objective of the mechanical design was to integrate the mechanical systems into the structure with minimal impact from a visual perspective, while minimizing maintenance requirements and improving overall system efficiency.

The electrical scope of the project included complete replacement of the bridge electric utility service; new standby generator service; and control system, including all field feedback devices and traffic gates. Control system technology will utilize a Programmable Logic Controller for system control and monitoring, including capability for remote monitoring and diagnostics. The span drive system utilizes digitally controlled variable speed motor drives.

