

Pattullo Bridge Replacement Project

How we build it: stay cable bridge deck

What are stay cables?

The Pattullo Bridge replacement will be a cable-stayed bridge with a single main bridge tower. Stay cables are made of multiple steel wire strands, protected within weather resistant tubing made of high-density polyethylene (HDPE), that are anchored between the bridge tower and bridge deck to support the bridge deck, roadway and multi-use pathways for pedestrians and cyclists.

How is the stay cable bridge deck built?

The replacement bridge will be approximately 1235 metres long, with cable-supported spans totalling approximately 530 metres. The bridge deck will be supported by 80 stay cables, built out from the bridge tower using a **balanced cantilever method**.

What is the balanced cantilever method?

The balanced cantilever method distributes weight equally on both sides of the bridge main tower during installation. The bridge deck is constructed one segment at a time, alternating between either side of the tower. First structural steel girders and floor beams are assembled. Next cranes install precast reinforced concrete deck panels. Stay cables are then installed to connect the bridge deck to the tower. This process is repeated as the bridge deck is built out from the tower until all 80 stay cables have been installed.

How are the stay cables installed?

1. The HDPE tubing is hoisted with one end at the bridge tower anchor box and the other end at the bridge deck edge girder anchor.
2. Metal strands are winched through the HDPE tube one by one, from the deck level to the tower, and then secured. Each stay cable has between 23 and 80 strands.
3. Each strand is then stressed to design specifications using hydraulic jacks.
4. After all strands within a cable are stressed, the same process is repeated for other cables.



Contact the Project



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