



FIRST STREET OVER BROAD CANAL Cambridge, MA

CLIENT

Massachusetts Department of
Transportation
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COST

Estimated \$3.6 Million

PROJECT COMPLETION

Design is ongoing

DESCRIPTION

CLD has been chosen to perform engineering services needed to repair or replace this existing three-span lift bridge. The existing approach spans consist of concrete-encase steel beams, and the main span is a steel bascule structure with two main girders with floor beams and stringers supporting an open steel grid deck. The abutments are concrete caps poured on dry-laid stone masonry walls. The piers are cast-in-place concrete on timber piles. The existing bridge was constructed in 1924, and several rehabs have been performed since then.

CLD performed an inspection of the bridge and determined what would be required to complete a rehabilitation of the bridge, as well as several replacement options. Several rehabilitation options were evaluated and included repairs to both the superstructure and substructure. The replacement options consisted of two separate two-span modern bridge types; precast concrete NEXT beams and steel girders with a cast-in-place concrete deck utilizing full depth concrete deck panels. CLD also evaluated two additional three-span replacement options that replicated the existing bridge type; a full replicate was designed to maintain the bascule span girders and counterweight as structural members and a false replicate designed to look similar to the existing by using original elements for aesthetics only. If the bridge is considered historic, one of these three-span replicate options may be preferential to the two-span modern replacement options.

Ultimately, due to the high cost of the rehabilitation option for only minimal gains, CLD recommended a bridge replacement using the NEXT beams.



- **Engineering Study and Functional Design Report**
- **Public Participation**
- **Bridge Rehabilitation**
- **Accelerated Bridge Construction Techniques**
- **Final Plans and Documents**
- **Traffic Control**