

GUIDANCE FOR BROADBAND INSTALLATION ON BRIDGES

STRUCTURE MAINTENANCE AND INVESTIGATIONS (SM&I)

V 9.0 March 15, 2022

GENERAL:

The following guidelines are issued to streamline the process for bridge mounted broadband in response to the Broadband for All initiative and is provided as an addendum/inclusion to the Broadband Accommodation in Access-Controlled Facilities document. ¹

This guidance applies to projects that exclusively feature broadband installations that follow the guidelines and comply with the requirements listed below. Any utilities or other installation types shall go through the existing encroachment permit or QMAP processes and meet the criteria established for installations on bridges in Caltrans PDPM, and Encroachment Permits Manual.

ACCEPTABLE BRIDGE MOUNTED BROADBAND LOCATIONS (District can review/approve without consulting SM&I):

The following are acceptable locations for mounting broadband on bridges or bridge length culverts, in order from most to least preferable, with comments provided to assist the permittee in assessing risk of installation. If any of the following acceptable locations are used, no review from SM&I is necessary:

Location/Installation Method:	Comments:
Underground/off bridge (at least 5' from bridge foundations)	No/low risk, fully protected from damage/vandalism, may be susceptible to damage during construction activities if positive location is undocumented.
Utilizing existing bridge utility openings inside box girder bridges between girders, or existing utility openings in sidewalk(s) or in bridge rail(s) (District personnel are responsible for reviewing all as-built plans from BIRIS to determine the availability of any utility openings in bridges)	Minimal risk as conduit is usually surrounded by concrete and not accessible to vandalism, however bridge rail location is susceptible to vehicular impact and conduit may be damaged or may need to be relocated at the broadband owner's expense for bridge rail upgrade or bridge widening projects
Attached to exterior surface of concrete bridge rail, or soffit of bridge deck overhang ^{1,2,3}	Moderate/high risk as conduit will be accessible to vandalism, may be damaged by vehicular impact, or may need to be relocated at the broadband owner's expense for future bridge rail upgrade or bridge widening projects

¹ No attachments will be allowed to bridge rails classified as **Poor**. Lists of bridges with rails classified as Poor can be requested from the Asset Management groups in each district.

² Attachments to slab bridges or bridge length culverts will be permitted on the downstream side of the structure only and may be attached to the edge of slab deck or concrete culvert headwall

³ For concrete railings with openings and for steel railings, broadband shall be attached to the concrete curb or moved to the soffit of the overhang.

¹ This guidance is effective until the Structures Utility Manual is published.

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The following circumstances shall not be permitted without review and approval from SM&I:

- Install any new utility openings inside existing box girder bridges, or through any existing bridge abutments, diaphragms or bent caps.
- Attach/mount/install broadband conduits to any steel bridge member.
- Attach/mount/install broadband conduits to any surface of bridge girders or bent caps or columns.

ACCOMODATION FOR BRIDGE THERMAL AND/OR SEISMIC MOVEMENT:

All broadband installations on bridges shall be designed to accommodate thermal and/or seismic movements at bridge joints located at abutments, bents and hinges.

INSTALLATION SPECIFICATION REQUIREMENTS:

All broadband mounting installations on bridges shall conform to the Caltrans Standard Specifications. Concrete anchors shall conform to the requirements of Section 75-3. Additionally, for concrete anchors, reinforcement must be located by nondestructive means before installing holes for anchors. Rotary drills are to be used, no impact drills or coring. If reinforcement is encountered, the anchor hole shall be abandoned, patched, and a new hole installed. Anchors must be installed per recommendations by manufacturer.

DAMAGE TO BRIDGE STRUCTURE BY INSTALLATION OF BROADBAND UTILITY:

Any damages including those caused to the bridge structure due to broadband installations must be repaired at the full expense of the broadband owner.

PERMITTEE ASSUMPTION OF RISK OF DAMAGE:

Permittee assumes all risks of theft, vandalism or damage to their broadband infrastructure components in all bridge mounted applications, including conduit, transmission lines, hardware etc. and any associated loss of service. Caltrans will in no way be held responsible for costs associated with repairs to broadband infrastructure components or associated loss of service due to theft, vandalism, or damage.

FUTURE RELOCATION/REMOVAL OF BROADBAND INFRASTRUCTURE:

In the event that Caltrans has a future project that requires relocation of the broadband infrastructure at the bridge site, all temporary or permanent relocation plans, provisions and associated costs of relocating the broadband infrastructure (including engineering costs) will be the sole responsibility of the broadband owner.

ADDITIONAL RECOMMENDATIONS:

It is recommended that broadband utility transmission line uses splice vaults near the ends of any bridge installation to facilitate ease of future repairs/replacement/relocations of broadband utilities mounted on the bridge. If these vaults are within Caltrans' access-controlled right-of-way, a utility encroachment exception may be required.