

Field Support for Bridge Load Test

1) Access to the superstructure. If the terrain below the structure is suitable, usually two extension ladders can be used for access. Exceptions would be if the structure is too high in the air for ladders, or if it is a concrete slab (no girders for supporting the ladders). In this case, scaffolding, a bucket truck, scissors-lift, or snooper vehicle (UBIT) will be needed. For slabs and other bridges where the beams are less than about 3 to 4 feet deep and a snooper is being used, if possible, the long platform type unit seems to work the best. If the beams are deeper, then the bucket-type snooper will usually work better. However, given the difficulty of arranging for snoopers, BDI can work with whichever type happens to be available. Also, depending on the site, an extra step ladder between 6 feet and 10 feet is often quite helpful. BDI will have hardhats, safety vests, boots, and safety goggles, but will rely on the Field Support Supervisor to supply any required harnesses and fall protection.

2) Traffic control. This consists of one lane closure at a time for a two-lane bridge, and two lanes at a time (if possible) if the bridge carries three or more lanes of traffic. The lane closures need only be in affect during the actual testing procedures, not during instrumentation setup and removal (unless, of course, if a snooper is being used). Usually, once the instrumentation has been installed, the lane closures are implemented, and the test completed in one lane at a time. Traffic can be allowed to pass **except** during time that the test truck is crossing the structure, which usually only requires less than one minute. On busy highways, many times this can be accomplished by waiting for a natural traffic break and/or possibly slowing traffic with flag people. Another possibility for busy roads is the use of a moving road block that simply slows traffic temporarily until each pass is completed. Usually, two passes of the load vehicle are made in each lane. The test truck can either back up after each test or go around and make another pass, depending on traffic conditions. If the structure happens to cross another highway, then suitable traffic control will be needed below the bridge during the instrumentation procedures (but not the test procedures), usually closing one lane at a time and using a flag crew to control traffic.

3) Loaded vehicle with known axle weights. In general, a three-axle tandem dump truck or a snooper has been used to complete the load tests. The truck is first loaded up to its legal load (usually somewhere near 25 tons) and then weighed at the local scales or by a weight enforcement crew. For smaller bridges, it might be advisable to use a lighter load. Please contact BDI for some ideas if the bridge being tested is relatively "lightweight". If testing is to be performed for longer than one day at a particular bridge, then it is important that the driver not dump the load, but keep the same load. Furthermore, if rain is a possibility overnight and the truck's load consists of soil or sand, then it is a good idea to cover the load with a tarp so that extra weight from water is not added. It is important to know the **axle** weights, not just the gross weight. If a weigh team with portable scales is not available, then the tandems can be weighed as one unit at the local scales.

4) Generator and Miscellaneous: At least a 2 kilowatt, 110 AC generator is required for running the equipment and other power tools. If possible, approximately 200 feet of extension cord is needed operate the equipment and possibly power tools for gage installation. An extra can of gas will also be needed for the generator since it will often be required to run most of the day. Also, a can of spray paint (any color) will be needed to make a few marks on the roadway, and if a couple of 5-gallon buckets are available, this will make things go faster in the field.

BDI will supply the necessary hand tools and all other equipment for completing the bridge test. In general, the instrumentation procedures require access for approximately 4 to 8 hours for installation. The actual load testing procedures usually only require anywhere from 20 minutes to an hour, depending on traffic conditions and the number of lanes on the bridge. Once the testing is finished, the instrumentation can usually be removed within an hour or two, depending on access. If it is dry under the bridge, BDI can usually complete instrumentation procedures if it is raining. However, the testing procedures themselves must take place when the rain has stopped.