Objective:
All of the elements that directly affect performance of the bridge including the footing, substructure, deck, and superstructure must be periodically inspected or monitored. For bridges comprising of steel girders, in order to facilitate the inspection of the superstructure and the installation of the sensors (i.e. fiber optics, strain gages, thermocouples, etc.), a modular cart supported between two adjacent girders was designed and constructed. The cart is composed by three demountable modules 4 ft (1.2 m) x 5 ft (1.5 m) allowing a total surface of 5 ft (1.5 m) x 12 ft (3.6 m) and a maximum number of six people on it. The total weight of the cart was contained to 470 lb (213 kg) thanks to the use of aluminum profiles for the frame and a lightweight structural fiberglass panels as flooring system.

Schema of the Cart

Installation of Fiber Optics Using the Cart on Bridge A6358