

Traffic Construction Safety

By Ted Sofis

To work safely in and around heavy traffic there are many things to be concerned about. First and foremost is setting up an appropriate traffic pattern. The signing and the requirements are detailed in your state or municipality DOT traffic standards. The requirements vary for two- and four-lane roads, lane closures, and the many different traffic configurations. Working situations may involve flaggers, the need for arrow boards or message boards, crash trucks to protect the crew in their work area, and energy-absorbing traffic attenuators to protect the motorists. All these requirements must be followed.

In addition to the standard construction traffic control procedures, shotcrete operations add additional concerns. Because of the nature of shotcrete work, tarps and barriers are often necessary to protect the passing motorists. In shotcrete repair and rehabilitation of bridges and tunnels, the removal of deteriorated concrete can make it necessary for the erection of platforms to collect

the concrete debris and keep it off the roadways. The same can be said for the shotcrete placement phase of the work, where there is a need to protect the motorists from the material overspray and rebound. On slope protection projects, when adjacent to the roadway, it is often necessary to establish lane closures or install barriers for the same reasons (refer to Fig. 1 and 2).

On heavily traveled highways, the state and its cities try to maintain the flow of traffic. Oftentimes, because of political pressure, great efforts are made to avoid inconveniencing the driving public. This often necessitates working in off-peak traffic hours at night or on weekends. Working at night necessitates extra precautions with additional lighting, light plants, and high-visibility safety apparel.

As with other construction, it is necessary to wear the proper personal protective equipment at all times. This typically includes high-visibility and reflective safety clothing, vests, hardhats,



Fig. 1: Wooden barriers are installed in place along I-376 by the Fort Pitt Tunnel in Pittsburgh to protect traffic during the shotcrete placement of this soil nail wall

Safety Shooter

safety glasses, and hearing protection. The signs, traffic cones, arrow and message boards, crash trucks, and safety attenuators must be properly positioned and in accordance with the appropriate DOT traffic pattern requirements. Fatal accidents can happen in an instant. Therefore, construction personnel need to be aware and vigilant at all times when working near moving traffic.

Old railroad tunnels and bridges over rural roads are often narrow two-lane roads and there isn't much room to work on abutment or tunnel walls. In such cases, it is often necessary to set up a traffic pattern with flaggers and alternate the traffic. One lane is closed off where the repair operations are taking place while traffic in each direction alternates in the remaining open lane. In very tight circumstances like this, it is usually necessary to hang tarps, erect barriers, or tie plastic to erected scaffolding to protect the passing cars from shotcrete overspray and rebound. Whenever a lane is closed or restricted it is imperative to have the proper warning signs in place for approaching motorists (refer to Fig. 3 and 4).

Each project has different safety issues. Whether you are working on a rural two-lane road or on a heavily traveled highway, it is important to address the specific safety issues of that location. Set up the appropriate traffic configuration, make sure the workers are protected at all times, and make sure any necessary barriers or tarps are securely in place before the start of shotcrete operations.



Ted Sofis and his brother, William J. Sofis Jr., are the Principal Owners of Sofis Company, Inc. After graduating from Muskingum College, New Concord, OH, with his BA in 1975, Ted began working full time as a shotcrete nozzleman and operator servicing the steel industry. He began managing Sofis Company, Inc., in 1984 and has over 40 years of experience in the shotcrete industry. He is Chair of the ASA Publications Committee, a member of multiple other ASA committees, and an ACI Examiner. Over the years, Sofis Company, Inc., has been involved in bridge, dam, and slope projects using shotcrete and refractory installations in power plants and steel mills. Sofis Company, Inc., is a member of the Pittsburgh Section of the American Society of Highway Engineers (ASHE) and ASA.



Fig. 2: On two-lane bridges like the one pictured above, lane closures are often necessary to provide access to the work



Fig. 3: Crash truck with impact attenuator and mounted arrow board, for a lane closure on a four-lane highway bridge in West Virginia



Fig. 4: On two-lane roads, when it is necessary to set up shotcrete operations on the roadway, a lane closure with advanced signing and flagmen becomes necessary