an avid Appalachian Trail hiker who died tragically in a car accident. Ms. Anne Lutkenhouse, the Project Director of the NY-NJ Trail Conference, provided critical behind-the-scenes administrative support.

A true cooperative public-private partnership, the bridge construction would not have been completed as quickly nor successfully as it was without each partner's contribution.

Site Access

The project received a major boost from Mother Nature in the summer of 1995, for it was North Jersey's driest summer in the past 100 years. Areas of the project site that are normally inundated were bone dry. At the start of the project, access to the site was achieved by cutting back the weeds, incorporating stone wheel blankets, and using stone and temporary culverts in major low points. In addition, two adjacent property owners graciously allowed temporary construction vehicle access across their property. From the east, John Hill Corporation allowed use of a 2,500-foot long dirt road that led directly from a paved road to the "east meadow." From the west, Mrs. Esposito allowed traffic across her property. This provided the only possible route across the west quagmire for the tracked construction equipment. These three factors made construction access significantly easier than ever imagined. After the first eight weeks, the weather turned for the worse. While the heavy rains slowed the project, the subsurface work was already complete.

Public Safety, Worker Safety, and Project Partner Risk Management

As stated earlier, the primary project goals were to eliminate the dangerous 2.1 mile roadwalk along the heavily traveled county road and to place the Appalachian Trail, for aesthetic reasons, within the designated and previously purchased trail corridor. This would require the construction of a safe, practical, cost-effective, and durable bridge over the Pochuck Creek. The responsibility for placement of the trail within the corridor and over the creek crossing lay with the NJ Division of Parks and Forestry. The NY-NJ Trail Conference and other project volunteers were more than willing to assist with the planning, design, and environmental permits for what was essentially a public works project. This involvement focused the project, gave it a specific direction, and stretched public funding. By taking an active role in the elimination of a dangerous roadwalk and creek crossing, the project partners were exposing themselves to risk (liability).

The conundrum of public safety and elevated suspension bridges is demonstrated by the 1973 Appalachian Trail tragedy at Clarendon Gorge in Vermont. Clarendon Gorge is an awe-inspiring rocky gorge of the Mill River. It has sheer rock walls of 100 feet or more in height. The Appalachian and Long Trails pass over the Gorge via the Robert Brugman Memorial Suspension Bridge. The combination of the rocky gorge, tumultuous waters below, clifftop conifers, the bridge height, and narrow walkway make for a beautiful but eerie crossing. The bridge is 32 feet above the river, but the sensation one gets is that it is significantly higher. The first suspension bridge over Clarendon Gorge was designed and built by Emile Boselli of the Green Mountain Club. It was opened to foot traffic in 1958. The 55-foot span suspension bridge, 32-feet above the river replaced log bridges down in the gorge. The rudimentary log bridges were routinely washed away, leaving hikers to negotiate a dangerous ford. In late June 1973, several heavy rainstorms in a short period of time hit Vermont resulting in severe flooding. The north tower of the Clarendon Gorge Suspension Bridge gave way to high water on June 30, 1973. The bridge cablework held together and slapped against the south wall of the

gorge. This may seem incredulous to anyone who has passed over the elevated bridge, but it should be recognized that while both the original and present bridge have significant clearance (32 feet) to the river, the gorge is a constriction in the river. On July 4, 1973, Robert J. Brugman, 17, a southbound Appalachian Trail thruhiker from Flemington, New Jersey, reached Clarendon Gorge. Because the bridge was destroyed, he attempted to cross the swollen river by means of a fallen pine tree. He slipped into the river, was swept downstream and drowned. His body was recovered on July 8, 1973. A new 65-foot span suspension bridge for Clarendon Gorge was designed by the Vermont Highway Department and installed by the Earle & Miller Construction Company. The new bridge, which opened on August 24, 1974, was dedicated to the memory of Robert Brugman. It has been in continuous use since.

Suspension bridges provide a structural solution to wide crossings, be it a rocky gorge or a quagmire. In many cases, floodwater clearance requirements dictate that the bridge be elevated. A properly designed bridge is vastly safer than fording a river, as demonstrated by the Brugman tragedy at Clarendon Gorge. The inherent characteristics of a wide span, elevated bridge require prudent common sense design, construction, and use.

The Pochuck Quagmire Bridge project volunteers were especially concerned about risk (liability) because of potential misuse of the bridge by the public. This is an especially valid concern for the Pochuck Quagmire Bridge as it is on the fringe of suburbia in a readily accessible but unsupervised location. In order for the bridge to be durable and to comply with NJDEP floodwater clearance regulations, it had to be elevated. Risk management by all project partners and on behalf of all project partners became a central element during project planning and construction.

The safety program and risk management for the Pochuck Quagmire Bridge had the following components:

- Proper bridge design from a structural and safety perspective.
- User education.
- Project construction safety plan – worker safety.
- Insurance for all project partners and participants.

Public Safety

The first step in risk management was to design a structurally sound bridge to applicable codes and public safety standards as well as normal and customary standards. This was difficult at first because there are no codes or customary standards for such a unique and peculiar structure. The literature search and bridge inventory by the project engineer was as much risk management as it was a practical and engineering exercise. Following is a listing of the bridge components other than structural elements that deal specifically with public safety. The listing is referenced to various codes.

- BOCA® 1014.6; staircases have a uniform 6 7/8-inch rise and an 11 1/2-inch thread. The stairs have a rounded bullnose (N.J.A.C. 5:23-7.18 (a) 2).
- BOCA® 1014.6.1; staircases have solid risers.
- BOCA® 1014.7 & 1022.0; staircases were designed to have a handrail that meets the grip and location standards.

A frustrating element was trying to obtain a definitive answer about which guard rail standard applies to the