

Conclusion

The following summary statements regarding structural characteristics for metal suspension bridges, key periods of significance for metal suspension bridges in Maryland, and the earliest known documented example of metal suspension bridges in the state are based solely on documentary research.

Metal suspension bridges (see Figure 16) consist of a suspended superstructure, with many components, which is anchored into a masonry or concrete substructure. The basic structural system consists of flexible cables with stiffening trusses or girders suspended from them which carry the deck system. Suspension bridges may comprise various combinations of cables, towers, suspenders, and girders or trusses added to stiffen the bridge against wind and load stresses. In a typical suspension bridge, towers are built upon the piers, and the cables are carried high above the deck in cradles located at the top of the towers. The cables run downward to anchor spans from the towers of the main span; cables are usually anchored in heavy concrete or masonry abutments or anchorages. The deck is carried by suspended stiffening structures, girders or trusses, which serve to stiffen the truss against swaying or deflection.

Prior to the development of wire-rope cable technology, earlier suspension bridges featured cables consisting of chains formed from linked eyebars. Eyebars chain suspension bridges continued to be built in the twentieth century in some regions of the United States.

Key periods of significance for metal suspension bridges in Maryland, as indicated by documentary research, include *1800-1840*, the formative era of suspension bridge development within the United States, during which the basic technology of wrought iron "chain" bridges was pioneered by James Finley and associates (one known example is a bridge built to Finley's design is known to have been erected over Will's Creek at Cumberland in 1820 by Valentine Shockey); and *1900-1960*, a period in which the wire rope suspension bridge technology, perfected by Charles Ellet and John Roebling during the nineteenth century, was refined and saw dramatic application in Maryland's first Chesapeake Bay Bridge, completed between 1942 and 1952 but planned by the State Roads Commission prior to World War II. Documentary research has also located evidence of "swinging" pedestrian footbridges built in Maryland during the *1850-1900* period; no such bridges, however, are known to have been constructed for highway use.

Maryland's only known major suspension bridge is the Chesapeake Bay Bridge, a monumental wire rope span built 1947-1952 by state authorities and designed by J.E. Greiner Company. No highway-related suspension bridges from the nineteenth century are known to have survived: field survey, which may locate such bridges or their remnants (e.g., abutments or piers), will be necessary to verify this conclusion.