NPS Form 10-900-b
(June 1991)

OMB No. 1024-0018

RECEIVED 2280

JUL 31 2001

NAT. REGISTER OF HISTORIC PLACES
NATIONAL PARK SERVICE

United States Department of the Interior
National Park Service

National Register of Historic Places Multiple Property Documentation Form

This form is used for documenting multiple property groups relating to one or several historic contexts. See instructions in *How to Complete the Multiple Property Documention Form* (National Register Bulletin 16B). Complete each item by entering the requested information for additional space, use continuation sheets (Form 10-900-a). Use a typewriter, word processor, or computer to complete all items.

X New Submission __ Amended Submission

A. Name of Multiple Property Listing

Metal Truss Highway Bridges of Idaho

B. Associated Historic Contexts

Historic Highway Bridges of Idaho, 1890-1960

C. Form Prepared By

name/title Donald W. Watts, Preservation Planner
organization Idaho SHPO date August 10, 2000
street & number 210 Main Street telephone (208) 334-3861
city or town Boise state ID zip code 83702

D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation.

Kenneth C. Reid, Ph.D. Date 23 Jul 01
Deputy State Historic Preservation Officer

Idaho State Historic Preservation Office
State or Federal agency and bureau

I, hereby, certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

Signature of the Keeper of the National Register Date 9.14.01

E. Statement of Historic Contents

Discuss each historic context listed in Section B.

X See continuation sheet

F. Associated Property Types

X See continuation sheet

G. Geographical Data

The State of Idaho

_ See continuation sheet

H. Summary of Identification and Evaluation Methods

X See continuation sheet

I. Major Bibliographical References

Primary location of additional documentation:

X State historic preservation office
_ Other State agency
_ Federal agency
_ Local government
_ University
_ Other

Specify repository:______________________________

X See continuation sheet

E. STATEMENT OF HISTORIC CONTEXT

The unifying theme of this Multiple Property Listing (MPL) is metal truss design vehicular highway bridges. The geographic scope is the State of Idaho, and the time period for significance is from 1890 to 1960.

In order to keep this MPL manageable in scope, this context is intended to document only Criterion C for engineering significance of truss bridge types. It is recognized that most bridges which will be discussed and included within this contextual framework may also meet National Register eligibility criteria under one or more other contexts including the historical development of transportation networks in Idaho, association with significant persons, local historical significance in terms of commercial development, and others.

The time period of 1890 through 1960 was based on two factors: First, there are no known metal truss highway bridges in the state which pre-date 1900. All bridges on the state highway system have been identified, and it is unlikely that non-system structures (such as locally or privately owned) survive which date earlier than that. Nevertheless, because of the remote possibility that one or more may still be extant, the 1890 date (which corresponds to Idaho's statehood) was thought to be practical. Second, because of the extensive nature of this nomination and context development, it was considered prudent to include a transitional period of less-than-fifty years in order to continue listing other structures in the next decade as they become eligible by age. It is not anticipated that any existing structure less than fifty years old will be identified to meet National Register criteria of "exceptional significance."

The geographic coverage of this context encompasses the entire State of Idaho for several reasons. First, the nomination is based on a comprehensive statewide survey and inventory of historic bridges conducted in 1981-1982. Second, existing inventory records are sufficient to provide a means of evaluating, on a statewide basis, the relative occurrence and distribution of particular bridge subtypes.

A HISTORY OF METAL TRUSS HIGHWAY BRIDGES IN IDAHO SINCE STATEHOOD

[NOTE: The following historical narrative is excerpted from a comprehensive survey report prepared by Rebecca Herbst of the National Park Service under contract with the Idaho Transportation Department in 1982. It should be noted that the original report, Idaho Bridge Inventory, Volume I, (see Bibliography) contains a wealth of information not only about steel highway bridges, but also on concrete and other bridge types. It also provides an excellent overview of the development of surface transportation history in Idaho including railroad history and examples of railroad bridges. Researchers would be well served to consult the document for further information.]

Background

As a result of the developments of the early 1860s, the U.S. Congress created the Idaho Territory on March 4, 1863. The new territory took in parts of present-day Wyoming and Montana and included the counties of Nez Perce, Idaho, Boise, and Shoshone, originally established by the Washington Territorial Legislature. The First Territorial Legislature of Idaho established Alturas and Owyhee Counties; all subsequent counties were created by subdividing the original six counties.

During the 1860s, permanent toll roads were built to serve the mining regions of the territory. By 1890, however, agriculture had overtaken mining as the leading industry in the state, employing nearly three times as many workers as the mining industry. The agricultural industry depended on an adequate farm-to-market transportation network. By the 1880s, the territory's toll roads no longer met the needs of the growing populace and changing economy of the region.

The Idaho Territorial Legislature responded to the roads problem by enacting the County Roads Act of 1881, designating all roads as county roads, and thereby providing the basis for a system of free roads and bridges. This act signaled the end of granting toll road franchises and embodied the idea that free use of roads was essential to state development.[1]

Although the 1881 act also delegated the responsibility for road and bridge construction to the counties, the territory took an active role in highway development for the first time. The first legislation for actual highway construction was passed in 1881, authorizing the construction of three bridges across the Boise, Payette, and Bear Rivers, to be directed by a five-member bridge commission.[2] Subsequent legislation of this type authorizing county bridge construction during the 1880s frequently called for the preparation of plans, specifications, and cost estimates on major bridge projects. Apart from a few individual projects, however, the Legislature exercised little more authority over highway administration than they had prior to 1880.

After the passage of the County Roads Act of 1881, the counties took the lead in bridge-building activity. Counties selected bridge builders on the basis of individual bids submitted to them on an advertised contract. As with toll bridges, early county bridges were often primitive, but trends in bridge building began to change dramatically during the last two decades of the nineteenth century. During this period, steel, iron, and combination bridges appeared for the first time, and major bridge firms from outside of the state began to compete with local builders. The first known iron highway bridge in the state, operated as a toll bridge, was built across the Snake River at Blackfoot in February 1881.[3] Historical sources indicate a modest number of iron and steel bridges were built by various counties during the 1880s and 1890s but the enormous cost of such structures and the lack of available public funds prevented the common use of structural metals for bridge building. Another popular type--the "combination" bridge, using both timber and iron pieces--also appeared during this time.[4]

The actual arrival of modern steel bridge building in Idaho did not occur as a result of the development of the state's roads and highways, but rather as a part of the great railroad network built across the state during the last quarter of the nineteenth century and the early years of the twentieth century. As elsewhere in the West, the Railroad provided the catalyst by which Idaho's vast natural resources were eventually developed.

Boom Development in the Twentieth Century

Idaho became a state on July 3, 1890, with a population of 88,548, largely concentrated in the southern part of the state.[5] Since territorial times, a clear division had existed between northern and southern Idaho, the former relating much more closely to the Pacific Northwest region, and the latter to the Rocky Mountain region, more particularly to Utah. No highway or railroad line connected the state from north to south. The admission of the state into the union finally triggered legislative action authorizing the construction of a north and south highway in 1890. The act provided for a wagon road between Mt. Idaho, in Idaho County, and Little Salmon Meadows, in Washington County. In 1893, the Legislature authorized the first state roads system, including a more comprehensive north and south highway that would extend from the Little Salmon River on the Washington-Idaho County line to Wallace, in Shoshone County. Despite these early efforts, the construction of a north-south link was not completed until nearly thirty years later.

The development of southern Idaho was most pronounced during the early years of statehood. The region's mining industry was in decline by the 1880s and agriculture had taken its place as Idaho's leading industry. Prior to 1890, much of southern Idaho was a barren, dry land, and agricultural settlements were largely confined to the valleys in the extreme southwestern and southeastern corners of the state. Under the Federal reclamation projects of the 1890s and early 1900s, these arid plains were transformed into fertile farmland. The Carey Act of 1894 granted each public-land state up to one million acres of arid lands for irrigation. So successful was this act, that an amendment was passed in 1908 to increase the eligible land acreage to two million acres. At that time, Idaho was the only state to have exhausted its original million-acre appropriation and had a greater number of Carey Act projects than any other eligible state.[6] Major projects were established in Idaho under the U.S. Reclamation Act of 1902. Among the earliest projects completed by the Reclamation Service were the Boise Project, providing irrigation to the Boise Valley; the Minidoka Project, watering the lands along the Snake River in the Burley Rupert area; and the King Hill Project, irrigating bench lands along either side of the Snake River with a canal system from the Malad River. Concurrently, private interest groups sponsored a number of irrigation projects throughout the state. In southeastern Idaho, such projects were generally organized by Mormon pioneers as cooperative enterprises;[7] in the Lower Snake River Valley, however, large company-sponsored projects were the rule.[8] Between these various efforts, irrigation development brought to southern Idaho a booming agricultural economy.

The early years of statehood also witnessed increased development in northern Idaho with the establishment of such major industries as mining, agriculture, and lumber. The galena ore discoveries in the Coeur d'Alenes in 1885 transformed the small-scale mining industry of northern Idaho into a permanent, large-scale capital enterprise. By 1889, the Coeur d'Alenes were the chief lead-producing area in the United States. Agriculture developed as another leading industry; wheat production was particularly successful in the Palouse and Camas Prairie regions of north central Idaho. The agricultural expansion in Latah, Nez Perce, and Idaho Counties during the 1890s is reflected in the dramatic increase in population, which more than doubled from 14,975 in 1890 to 36,320 in 1900.[9] The development of northern Idaho's lumber industry commenced in 1890 with the establishment of the Saginaw Lumber Company, later the Coeur d'Alene Lumber Company, at Coeur d'Alene. Frederick Weyerhauser of St. Paul, Minnesota expanded his operation into Idaho in 1900, with holdings in the Sandpoint, Clearwater, and Upper Palouse regions. Weyerhauser merged with a rival operation to form the Potlatch Lumber Corporation in 1906. Together with a number of other important producers in Coeur d'Alene, Harrison, Sandpoint, and Bonners Ferry, the giant Potlatch operation made northern Idaho's lumber production a significant factor in the national economy.[10]

This industrial development at the turn of the century produced the greatest population boom in Idaho's history. Between 1900 and 1920, the State's population increased by approximately 270,000, or about 35,000 more than the combined decennial increases for the following forty years.[11]

The increased population of the state resulted in the formation of twenty-one new counties between 1910 and 1920, giving Idaho its present number of forty-four counties. The majority of the county-splitting occurred in southern Idaho, the most populous part of the state in 1920. Table C shows the population figures for the individual counties between 1890 and 1950, with the northern counties shaded to indicate the predominance of southern counties formed during the decade after 1910.

The population growth and subsequent formation of new counties resulted in a dramatic increase in county road and bridge-building activity, a fact clearly revealed in county records for almost every county in the state, regardless of the date of its original formation. Statistics gathered from the Idaho Bridge Inventory provide further evidence of this bridge-building boom.*

While the statistics show only ten bridges for the period for 1900 to 1910 (one of these is a railroad bridge), the number rises to seventy-six for the period from 1910 to 1920. Documentation indicates that nearly all of these bridges were built by the individual counties, prior to the formation of the Idaho Department of Public Works in 1919. Inventory statistics further show that the bridge-building boom of the 1910s was not restricted to any one region, but was a widespread phenomenon occurring simultaneously in most parts of the state. Among the counties possessing the greatest number of vehicular bridges built during this period are Washington County in southwestern Idaho, Bear Lake County in southeastern Idaho, and Nez Perce County in northern Idaho. Each of these counties implemented an active bridge-building program during the period 1900 to 1920, offering interesting regional contrasts.

In Washington County, sixteen vehicular bridges built between 1900 and 1920 remain in present use, more than in any other county in the state. Settlers first appeared in Washington County's Middle Valley during the 1860s and the county was well-settled by the 1880s. An established wagon road existed by 1888[12] and ferries operated on the Snake and Weiser Rivers beginning in the 1860s. The arrival of the Pacific and Idaho Railway in 1900 served as the catalyst for boom development in the county, raising land values and creating several new towns along the line.[13] According to county census figures, the county's population peaked about 1910, signaling the need for an improved local transportation network. During the period 1908 to 1910, six steel bridges were built under the authority of Washington County.[14] The first bridges to be completed, the South Cambridge Bridge and the Burton Road Bridge, serving the communities of Cambridge and Salubria, were erected by Charles G. Sheely of Denver, Colorado, a major bridge contractor who built truss bridges throughout the West.[15] It appears likely that the two Sheely bridges were among the first steel bridges in Washington County, and as such, undoubtedly set local standards for steel bridge building. The following decade witnessed the construction of several more steel bridges, largely in the Crane Creek area, indicative of the significant population increase resulting from the development of 22,000 acres under the Crane Creek Irrigation Project of the 1910s. Caldwell contractor J. H. Forbes, Idaho's first major bridge-builder, erected the majority of these bridges. Forbes' activity in Washington County reflects a regional pattern, since Forbes was the most prominent bridge builder in the southwestern region during the 1900 to 1920 period.

Five steel truss bridges built between 1910 and 1921 remain on the highway system in Bear Lake County. The first Mormon settlement in the Bear Lake Valley was established at Paris in the fall of 1863. Hundreds of settlers arrived within the next few years and the entire Bear Lake Valley was settled soon after the founding of Paris.[16] According to the county census representing the period from 1890 to 1950, the population of the county peaked between 1910 and 1920. During this ten-year period, the county embarked on an ambitious program of road and bridge construction. This construction concentrated on routes connecting the towns of Paris, Bloomington, Dingle, and Georgetown; and on major farm-to-market roads to assist in the marketing of the valley's abundant agricultural products. The earliest remaining bridge in the county, the East Dingle Bridge, was built by Charles G. Sheely and is the only remaining example of his work in southeastern Idaho.[17] Bear Lake County records indicate that Sheely's bridges were also the forerunners of steel bridge building in southeastern Idaho. Two of the bridges built during this period were erected by major midwestern contractors, the Minneapolis Steel and Machinery Company and the Midland Bridge Company of Kansas City, Missouri.[18] In 1921, the latter company erected the West Georgetown Bridge, the latest datable pin-connected Pratt truss bridge on the Idaho highway system and therefore considered significant. The predominance of Rocky Mountain and midwestern contractors reflects the close orientation that existed between southeastern Idaho and the intermountain-midwestern region at that time.

Nez Perce County possesses eight vehicular bridges built during the period from 1910 to 1921, including one no longer on the highway system. The Nez Perce region was first populated as a result of the Orofino gold rush of the 1860s. In 1861, the city of Lewiston was founded as a major shipping point and supply center for the Orofino mines. The greatest boom in the development of the county occurred between 1890 and 1920, a result of a great population influx which began in 1894 when the Nez Perce Reservation was opened to settlement. The railroad was extended to Lewiston in 1898, helping to promote the rapid development of the county's fertile farmlands and vast timber resources. Between 1900 and 1920, the county authorized extensive road and bridge construction. One of the first steel bridges in the county was built at Kendrick in 1908 by the Columbia Bridge Company of Walla Walla, Washington.[19] The Kendrick Bridge is the earliest remaining pin-connected vehicular steel truss bridge in northern Idaho and the only extant example of an Idaho bridge built by the Columbia Bridge Company, a major contractor in the Pacific Northwest. Almost all other bridges built during this period in the county were erected by the Security Bridge Company of Lewiston, Idaho, the most prominent bridge firm in northern Idaho during the 1910s and early 1920s. Again, a separate regional pattern is evident here which distinguishes northern Idaho from the rest of the state.

While county road-building programs immeasurably improved transportation conditions in Idaho during the first two decades of the twentieth century, the state's highway system was wholly inadequate to meet the needs of the growing populace. Without connecting routes, many regions of the state remained isolated. Former Idaho Governor James A. Hawley, commenting on the problem in 1920, stressed that improved roads were the only means to advance the economic development of the state:

> "It is a lamentable fact, one that scores of times has impressed itself on every patriotic citizen of Idaho as almost a crime, that there is nowhere in the state a center of population so situated that the people of Idaho can make it their headquarters and build up a great center, and the pitiable spectacle presents itself of our citizens in the northern part of the state building up Spokane in the state of Washington, the residents of our eastern and northern counties making Salt Lake City the mecca to which their pilgrimage(s) on business or pleasure are directed, while many of the western residents regard Portland, Oregon in the same way; Washington, Utah and Oregon growing rich and prosperous at the expense of the citizens of Idaho who, if proper transportation facilities were available, could build up in their own state, a city of which they could be proud and in which they could feel a common interest."[20]

Coincidentally, the first permanent State Highway Commission was formed during the boom period of county road development. This commission, active from 1913 to 1918, laid the foundation for the first state highway system. The original system consisted of six routes totaling 1,300 miles.[21] Construction of this new roads network moved forward slowly, hampered by the financial limitations of the state. While the Federal Post Roads Act of 1916 permitted the commission to fund several federal-aid projects during the 1917 to 1918 biennium, state financing remained at a severe disadvantage. In fact, in 1917, the counties and local highway districts had to advance monies to the commission to complete construction already underway.[22] Such setbacks stunted the effectiveness of the first state highway program.

During the years of its operation, the State Highway Commission built several short span steel bridges in conjunction with major highway projects. In addition, the state contributed funds for the construction of several major county bridge projects, including a $50,000 appropriation for the construction of five bridges over the Snake River in Owyhee County.[23] The commission was unable to handle this project, however, and it was passed on to the Department of Public Works in 1919.

The reorganization of the Idaho state government in 1919 resulted in the formation of the Bureau of Highways under the umbrella of the Department of Public Works. The establishment of a fully-staffed Bureau of Highways revolutionized Idaho's program of highway development. During the first biennium, the highway system was extended to include thirty-one designated highways. The 1919 to 1920 program was greatly aided by federal funds, with contracts amounting to $6,500,000 awarded for federal roads. In all, the total value of work contracted between 1919 and 1920 was $9.1 million or about eighty-eight percent of the total cost of all construction on state highways from 1913 to 1920.[24]

The Idaho Department of Public Works continued its active program of highway construction throughout the 1920s. The passage of the Federal Highway Act of 1921, assuring the continuation of federal aid to the state for federal post roads and forest highway construction, was a major factor in the success of the highway program. This act established a seven-percent federal-aid system, which consisted of 2,772 miles of the public roads system in Idaho or about seventy-four percent of the total designated state highway system of 3,800 miles.[25] Due to increased funding, the 1920s witnessed the successful completion of several major state routes, including the north and south highway, the main artery tying together the northern and southern regions of the state.

Beginning in the 1920s, nearly all of the vehicular bridges in Idaho were built under the direction of the Department of Public Works. While the counties continued to build bridges during the early years of that decade, local work tapered off as construction of the state highway system advanced. An interesting exception was the construction of a toll bridge by the Twin Falls-Jerome Intercounty Bridge Company in 1927 and 1928, under a franchise granted by Twin Falls and Jerome Counties. The bridge spanned the Snake River Canyon on the Twin Falls-Jerome County link of the Sawtooth Park State Highway. The Rim-to-Rim Bridge was a cantilever-type structure, 1,400 feet in length, and 476 feet above the canyon floor, the highest bridge for its length at the time of its construction.[26] At the grand opening it was reported that 250,000 feet of lumber, 29,000 tons of structural steel, 3,000 barrels of cement, 65,000 pounds of reinforcing steel bound with more than 75,000 rivets, and 1,200 gallons of paint were used to construct the bridge.[27] After years of controversy surrounding the toll collection, the bridge was purchased by the state on April 30, 1940, eliminating the only remaining toll bridge on the state highway system.

During the Depression era, Idaho underwent another growth boom, as people moved back to farms and rural areas. The 1930s constituted the most active period of highway and bridge construction in the state up to 1945. The Idaho Bridge Inventory includes 274 bridges built during this decade, over half of all the structures predating 1945 on the Idaho highway system. During this period, advances in federal aid construction funds and emergency funds were made available to increase employment during the Depression. In addition, federal work programs such as the Works Projects Administration (WPA) and the Civilian Conservation Corps (CCC) assisted in the development of the state's highways, particularly in rural and forest areas. Both groups also undertook special bridge projects. The strikingly designed Fall River Bridge, constructed by the Fremont County CCC Camp crew circa 1935, is an example of such a project. At this time, the department also initiated an active bridge replacement program, designed to replace the old county bridges which did not meet the increased traffic and loading standards. This program was particularly intended to replace timber structures built prior to 1910. Virtually all the bridges that replaced these early structures were constructed of steel or concrete.

Between 1930 and 1940, the state spent over $47 million for construction projects and another $17 million was expended by the U.S. Bureau of Public Roads. In comparison, the total expenditures from 1913 to 1931 were $40,795,000 by the state and $9,120,000 on U.S. Forest Service highways.[28]

The advent of World War II curtailed nearly all highway construction except for roads needed for military purposes. Because of limitations on the use of metals during this period, bridges were built of unreinforced concrete or timber. An active bridge-building program was not resumed until the later years of the 1940s.

Bridge Builders

The first roads network in Idaho appeared as a result of the widespread gold rushes of the 1860s. These early roads, along with the bridges and ferries at major crossings, were built and maintained by local individuals as toll franchises. Bridges were primitive timber structures, utilizing simple beam or truss principles. In the earliest years of bridge construction in Idaho, experienced bridge builders were rarely, if ever, engaged.

The County Roads Act of 1881 encouraged the first county bridge-building efforts. During the 1880s and 1890, bridge firms from outside the territory appeared on the Idaho scene. These firms, largely active in southwestern Idaho, were generally headquartered in the midwestern and Rocky Mountain states. The entrance of major bridge contractors brought about the first major change in bridge design. The first iron and "combination" bridges appeared during this period, facilitating the construction of long-span structures. The Bullen

Bridge Company of Pueblo, Colorado, appears to have been particularly instrumental in introducing iron and timber combination bridges in Idaho. In 1891, for example, the company built two bridges of this type in Boise County, the first combination type bridges in the county.[29]

The first steel bridges in the state appeared during the 1890s and the early years of the twentieth century. Charles G. Sheely, a major Denver contractor, was one of the most prominent builders to erect early steel bridges in Idaho. Major midwestern companies such as the Missouri Valley Bridge and Iron Company and the Minneapolis Steel and Machinery Company also erected some of the earliest steel bridges in the state. Montana contractor O. E. Peppard and the Hennepin Bridge Company are also known to have been active in Idaho, but none of their bridges remain.

Prior to 1900, the railroads employed their own labor to build bridges. The steel structures built after 1900 were erected by large midwestern and eastern bridge firms like the American Bridge Company of New York, the King Bridge Company of Cleveland, and the Milwaukee Bridge and Iron Works. The companies that built railroad bridges in Idaho generally did not build vehicular bridges, and vice versa.

The first Idaho-based bridge builder was James H. Forbes, headquartered in Caldwell, Idaho. By far the most successful bridge contractor in the state prior to 1920, Forbes was largely responsible for spreading the practice of steel truss bridge-building during the first decades of the twentieth century. Soon after Forbes established his contracting practice in the southern part of the state, the Security Bridge Company opened an office in Lewiston, Idaho. Like Forbes, the Security Bridge Company built predominantly in steel and thus rapidly achieved success as one of the top bridge contractors in northern Idaho prior to 1920. Other early Idaho-based firms included Perham and Harris of Rexburg, and Helmer and Mull of Twin Falls.

The formation of the Idaho Department of Public Works in 1919 brought about the greatest change in bridge design in the history of the state. Under this organization, a special bridge section was formed to design plans and specifications for each structure built by the state. Under the able supervision of Charles A. Kyle, who came to Idaho from the Montana State Highway Commission in 1919, bridge design was updated to the most modern standards of the time. Contractors were engaged strictly as builders to execute the plans prepared by the Department of Public Works. With the progress of highway development, many more contractors entered the competition for construction contracts. Northwestern-based bridge builders continued to dominate in northern Idaho, and western contractors, particularly Utah-based firms, were most active in the southern part of the state. In addition, a number of Idaho-based contractors sprung up during the 1920s and 1930s. Most notable among these was the Morrison-Knudsen Company, a Boise-based firm which eventually extended its construction business world-wide.

James H. Forbes

The first Idaho-based bridge builder of merit was James H. Forbes of Caldwell, Idaho. Forbes was born in Hamilton County, Ohio on July 27, 1862, the son of C. H. and Anna (King) Forbes. At the age of twelve, he moved with his family to Campbell County, Kentucky, where he worked at farm labor until 1884. For the next several years, Forbes was employed as a stone mason and bridge builder in Kansas and Colorado. During this period, he was employed by a well-known bridge building concern in construction on the Southern Pacific Railroad and the Atchison, Topeka and Santa Fe.[30] In 1900, Forbes moved to Montana where he was instrumental in building a bridge across the Yellowstone River at Glendive.[31] After a year and a half in Montana, he arrived in Boise and secured the contract for the construction of a bridge across the Boise River at Eagle Island.[32] Forbes first established his contracting practice at Emmett, permanently moving his base of operations to Caldwell in 1904. In addition to bridge construction, Forbes won several major engineering contracts including the Canyon Canal Dam, the electric light plant at Emmett, the Emmett Water Works, and the Parma Water Works.[33]

Forbes' bridge-contracting practice peaked during the 1910s as a result of the increased activity in county bridge construction. He experienced little local competition during this period, basing his practice on steel bridge-building while other local contractors were still building in timber. Most of Forbes' bridge-building activity was confined to southern Idaho and while several references can be found to bridges built by Forbes in the records of various northern counties, only one known example of his work presently remains on the highway system in northern Idaho.

The inventory includes approximately twenty-five bridges built by Forbes during his career, primarily of the pin-connected steel truss type. As the only known multiple span overhead truss bridges built by Forbes, the Midvale Bridge and the Unity Road Bridge, both located in Washington County, are the most notable. The inventory also includes a small number of short-span concrete T-beam bridges built by Forbes during the 1920s under contract to the Department of Public Works.

The Security Bridge Company: The Security Bridge Company was founded in 1906 by William S. Hewett, a bridge builder who came west as a surveyor for the Union Pacific Railroad before establishing his bridge practice in Minneapolis in 1897.[34] Hewett is most noted for developing the Security Culvert, a pre-cast culvert which could be assembled in sections [35], and for developing pre-stressed concrete tanks built according to the Hewett System.[36] In 1911, the Security Bridge Company moved its headquarters to Billings, Montana and the company was reorganized with Arthur Hewett as president and W. P. Roscow as vice president. Shortly thereafter, the company established a branch office in Lewiston, Idaho under the direction of F. W. Straw.

During the years of its Idaho operation (the company was dissolved in 1926), the Security Bridge Company was probably the most prominent bridge contractor in the northern part of the state. This bridge company won the majority of its contracts in Nez Perce and Latah Counties, both enjoying booming agricultural economies during the 1910s. The Lewiston office appears to have only rarely worked outside of the northern Idaho region.

Approximately ten bridges associated with this company remain in Idaho. The most significant Security bridge remaining on the highway system is the Cherry Lane Bridge, a 788-foot pin-connected truss bridge built on the Lewis and Clark Highway in Nez Perce County in 1921. This structure is particularly notable for its unusual combination of truss types and is one of only two pin-connected highway truss bridges encompassing more than two spans. Another notable Security Bridge is the Walter's Ferry Bridge, built across the Snake River in Owyhee County in 1921. This bridge, presently closed to traffic and employed only to carry a water pipe, is the only remaining bridge in southern Idaho associated with the Security Bridge Company. The structure is particularly significant as the earliest remaining long span riveted Warren truss bridge in Idaho.

The Idaho Department of Public Works, Bridge Department: The Bridge Department of the Idaho Department of Public Works, as previously mentioned, was established with the original reorganization of the department in 1919. State Bridge Engineer Charles A. Kyle, who supervised the department from 1919 until his death in 1936, was largely responsible for the designs prepared for structures on the state highway system.

The Department of Public Works effected great changes in bridge design from the earliest years of its operation. One of the most significant bridge designs introduced by Kyle was the riveted Warren truss. The department adopted this truss form as a standard design, foregoing the pin-connected truss employed exclusively by the counties up to that time. During the 1919-1920 biennium, the Department erected numerous riveted truss spans, including at least four long-span bridges of this type.[37]

In addition to standard designs for riveted truss bridges and short-span concrete and steel beam structures, the Bridge Department also showed an early ability to plot special designs. The department's first truly innovative bridge design was developed by Kyle for the Owsley Bridge in 1921. Owing to the depth of water, this structure was designed as a cantilevered steel continuous through truss.[38] The span was of Warren truss type, consisting of a 264-foot center span and two 82-foot, six-inch end spans. Still in use today, it is the only structure of this type ever to be built on the Idaho highway system.

A particularly unique form introduced by Kyle was the open spandrel concrete arch. This design was first used on a large scale on the Salmon Bridge in Salmon, Idaho in 1926. It was subsequently adopted for the Boise Memorial Bridge built in 1931, a 301-foot structure consisting of four 70-foot spandrel arches. This structure remains one of the finest examples of concrete bridge architecture in Idaho, and is especially notable for its beautiful and unusual artistic features; decorative pylons at each approach to the bridge carry brass plaques paying tribute to the pioneers who used to ford the Boise River at that point. A few years later, Kyle used the same design on a smaller scale for the Rainbow Bridge, a 411-foot single open spandrel concrete arch. The structure is still noted today as one of the most handsome bridge designs in the state.

While the department largely constructed steel truss and short-span concrete and steel beam bridges prior to 1930, standard design began to change radically during the 1930s as a result of an ambitious railroad grade elimination program. During this decade, the long span concrete beam bridge was adopted as a more economical type for the grade separation projects. Continuous concrete T-beam structures were also employed for the first time.

Although the department's bridge program was fairly unremarkable during World War II, the most notable change was the abandonment of the truss bridge. Except for reconstruction of older structures, truss bridges virtually disappeared from the highway system during the 1940s. The truss form was used rarely after World War II, when advanced developments in pre-stressed concrete created a new revolution in bridge building.

ENDNOTES

1. Idaho Transportation Department, "Idaho State Highway History," p. 28.
2. Ibid., p. 27.
3. David Bitton, "Blackfoot: The Making of a Community," Idaho Yesterdays, Volume 19, No. 1, pp. 2-15; Blackfoot Register, June 25, 1881, p. 4, c. 1.
4. Idaho Statesman, July 22, 1891, p. 8, c. 1; October 9, 1891, p. 8, c. 1.
5. U.S. Census Data, 1890.
6. James H. Hawley, History of Idaho, Volume I, p. 442.
7. Beal and Wells, History of Idaho, p. 124.
8. Ibid., p. 136.
9. U.S. Census Data, 1890-1900.
10. Hawley, History of Idaho, Volume I, p. 407.
11. Idaho Department of Commerce and Development, The Idaho Almanac, p. 228.
12. Yongue, Roots of Middle Valley, p. 27.
13. French, History of Idaho, Volume I, p. 169.
14. Weiser Signal, September 17, 1910, p. 1, c. 1 & 2.
15. Nameplates on South Cambridge and Burton Road bridges.
16. Beal, A History of Southeastern Idaho, p. 182.
17. Bear Lake County Commissioners' Minutes, October 12, 1910; November 28, 1910.
18. West Georgetown Bridge nameplate.

19. Nez Perce County Commissioners Minutes, July 20, 1908.
20. Hawley, History of Idaho, Volume I, p. 437.
21. Idaho State Highway Commission Biennial Report, 1913-1914, pp. 12-13.
22. Idaho Transportation Department, "Idaho State Highway History," p. 85.
23. Idaho Department of Public Works Biennial Report, 1919-1920, p. 13.
24. Ibid., p. 13.
25. Idaho Transportation Department, "Idaho State Highway History," p. 95.
26. North Side News, 75th Anniversary Edition, August 15, 1982, p. 13.
27. Ibid., p. 13.
28. Idaho Transportation Department, "Idaho State Highway History," (Part II), p. 31.
29. Idaho Statesman, October 9, 1891, p. 8.
30. French, History of Idaho, Volume I, p. 778.
31. Hawley, History of Idaho, Volume I, p. 507.
32. Ibid.
33. Ibid.
34. Harold R. Hewett, The Saga of the William S. Hewett Family, p. 2.
35. Ibid., p. 3.
36. William S. Hewett, The Hewett System.
37. Idaho Department of Public Works Biennial Reports, 1919-1920, p. 21.
38. Ibid.

F. ASSOCIATED PROPERTY TYPES

Before discussing individual property types, it is necessary to provide a brief overview of bridge and truss terminology. The definitions which follow are intended to remain consistent throughout this MPL as well as subsequent individual property nominations.

A truss bridge is a bridge which is constructed with relatively small individual members joined in a web-like configuration to form a larger structural system to carry loads. The two principal stresses which a truss bridge must counteract are *compression* (pushing force) and *tension* (pulling force). In a simple truss the top of the bridge (called the top chord) is under compression and the bottom chord is under tension. In general, a simple truss performs like a beam.

The side of a truss (the *web*) is comprised of vertical or diagonal members (or a combination of both) which counteract compressive and tensile forces. Many variations of chord and web combinations can be developed, and it is by these various configurations that different basic truss types are identified and classified. A truss' *panel* is defined as one segment of the web consisting of the joined compression and tension members. It can be thought of as the smallest functioning subdivision of a truss. A truss usually is comprised of several panels.

Superstructure/substructure configurations.

Truss bridges can be configured in three basic ways: (1) as a *through truss* (the roadbed on the bottom chord of the truss with the upper chords connected to each other, thus the vehicle travels through the structure); (3) as a *pony truss* if the roadbed is supported by the bottom chord of the truss but the top chords are not connected to each other; and (3) as a *deck truss* with the roadbed on the top chord with the trusswork underneath.

Assembly methods.

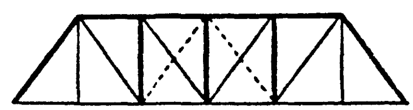
Truss bridges are assembled in two basic ways: *pin-connected* or *riveted*. Pin-connected structures utilize simple nut-and-bolt technology with the primary structural components pinned together. By the early Twentieth Century, economical methods of using riveted connections had evolved. This advance, the ability to join steel by rivets at the actual bridge construction site, greatly increased the speed of bridge erection, and therefore, labor costs. As a general observation, bridges which are found to be pin-connected tend to be the older structures and the riveted bridges newer.

Exceptions, of course, abound.

In order to discuss and evaluate the many types of truss bridge configurations, it is necessary to subdivide the large category of "metal truss bridges" into more manageable and useful property types. Over two centuries of bridge history and engineering have developed dozens of truss systems which have been incorporated into bridge construction and technology. However, rather than developing a major treatise on all possible truss bridge configurations, this Multiple Property documentation form will only address those property types known to exist in Idaho.

A. Pratt.

Pratt



The Pratt truss is characterized by parallel top and bottom chords with the vertical members under compression and the diagonals under tension. Patented in 1844 by Thomas and Caleb Pratt, the truss was originally designed with the compression members of wood timbers and the tension members of iron. The design was easily adapted to all-metal construction as iron and steel technology continued to develop. The Pratt truss was widely used through the early twentieth century and is one of the most common truss types found in the state.

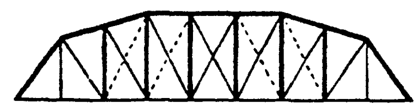
As with most common bridge types, Pratt truss structures can be found in various configurations; primarily as either a through truss or pony truss, and occasionally as a deck truss.

Variations on the Pratt truss include bedstead (where the compression posts at either end are vertical rather than sloped), half-hip (the end panels are configured without a compression post at the top end joints). These two subtypes are generally useful only on small spans, and therefore are found only as pony trusses in Idaho. They are rare in this state. Another variation is the double-intersection Pratt in which the diagonal tension members span two panels rather than only one.

Seventy-seven Pratt truss bridges have been identified in the state inventory.

B. Pratt Camelback.

Pratt Camelback

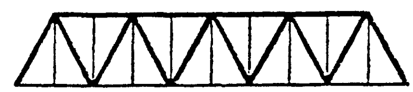


The Pratt Camelback is a Pratt truss with a polygonal top chord, usually of five or seven slopes, where a top member spans more than one panel. While in some ways the polygonal top chord may meet the definition of a Parker truss (see below), for the purposes of this MPL it is considered more accurately as a modified version of the Pratt. Pratt Camelbacks can be found as through trusses or as pony trusses.

Nineteen Pratt Camelback bridges were identified as extant in the 1982 survey.

C. Warren.

Warren



Another very common bridge type in Idaho (and the nation) is the Warren truss. This design is characterized by the diagonal members carrying the compression forces and the vertical members in tension; therefore, the diagonal elements are more substantial and give a "zigzag" appearance in elevation. Like the Pratt, the simple versions incorporate parallel top and bottom chords. The distinction between Pratt and Warren can be remembered by visualizing the compression posts as forming a series of "W"s signifying "Warren."

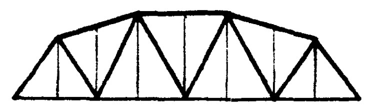
Warren trusses are generally configured such that the diagonal (compression) members meet at the top and bottom of the tensile verticals which form one panel. Some variations occur, however, where the diagonals cross two or three panels thereby forming what are termed "double-intersection" or "triple-intersection" Warren trusses. Generally found as railroad bridges, these variants are rare in Idaho and particularly rare as highway structures.

Like the Pratt and its variations, the Warren bridge type can be found in through-truss or pony-truss forms, and occasionally as a deck truss.

Fifty-two Warren variation bridges are identified in the 1982 survey and inventory.

D. Warren Camelback.

Warren Camelback



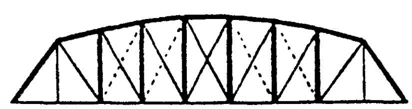
As with Pratt designs, the Warren truss can be configured with a polygonal top chord of (usually) five or seven slopes, with the top members spanning more than one panel. The Warren Camelback can be configured as a through truss or pony truss.

Twenty-three Warren Camelbacks were identified in the 1982 survey.

E. Parker.

A variation of the Pratt is the Parker design which structurally resembles a Pratt except that a polygonal top chord rather than parallel chord is used. Because the primary stresses of a truss bridge occur in the middle, with less strength required at either end, bridge designers incorporated a polygonal or curved top chord in order to conserve steel yet retain the same degree of strength for a given length. Parker trusses have a distinctive top chord shape where each top panel member is designed to join the two adjoining posts, each of which are of different lengths. This tends to give the appearance of a relatively uniform curve to the top of the bridge. Later examples often used straighter top chord members joining two or more panels, thus giving a starker polygonal appearance. Such a configuration is sometimes called "camelback,"discussed above.

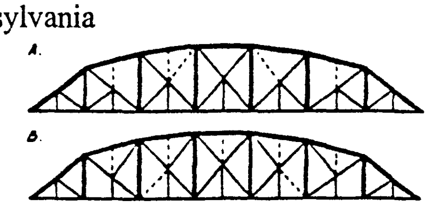
Parker



Only four Parker truss highway bridges were identified.

F. Pennsylvania.

Pennsylvania



A rare bridge type in Idaho is the Pennsylvania truss. This design is a further variation of the Pratt/Parker with additional substruts and subties which give it a more complex visual appearance. The Pennsylvania truss is well-designed for very long spans; thus the bridges they are used in tend to be over substantial crossings. Only a handful of Pennsylvania trusses existed in the state, most notably at the Clearwater River near Lapwai and across the Salmon River near Lucile.

G. Other truss types.

The above truss systems comprise the vast majority of bridge designs in the state. Nevertheless, other types may be found such as Kingpost and Queenpost. Rather than address these rare designs in this MPL, it is suggested that such other truss configurations will be eligible for the National Register and a fuller discussion of their significance will be covered in their individual nominations.

REGISTRATION REQUIREMENTS

Integrity

In order to meet the National Register requirements for integrity, a property should possess enough of its original or historic characteristics to reflect the period or reasons for which it is considered significant. These integrity aspects include location, design, setting, materials, workmanship, feeling, and association. It is not necessary that all seven of these aspects be present for a bridge to meet the integrity threshold.

As with most National Register properties, the original **location** is an important aspect of a bridge's integrity. However, for purposes of this MPL, it should be noted that truss bridges, by their very nature, can be considered moveable structures. Many of the historic bridges in Idaho have been disassembled from their original locations and reassembled at new sites where the load requirements are not as stringent. When evaluating a bridge for its historic associative values, such as a linkage in a significant road system, location may be a more important factor, but if the primary importance of a bridge is its truss type then its integrity of location should be interpreted with more flexibility.

Unless the bridge is a relatively rare truss type, an important aspect to consider in terms of **design** is that the truss still functions as a truss. If a bridge has been modified or reinforced to such a degree that the truss system no longer carries at least a portion of the load, or if the reinforcing visually detracts from or obscures the distinctive characteristics of the truss, it should not be considered to have retained integrity of design.

Terms such as **setting**, **feeling**, and **association** can be difficult to evaluate when considering historic bridges located in an environment which has undergone significant change over time. For example, if a bridge is considered historically important as a rural structure under Criterion A, but the community has grown around it, it may still be considered eligible even though its original rural setting and feeling has disappeared. Each structure should be evaluated on its own merits and the appropriate historic criteria for which it is considered significant. Again, since this MPL is concerned primarily with Criterion C (engineering), the integrity aspects of setting, feeling, and association are less critical.

For a bridge to retain integrity of **materials** and **workmanship**, enough should be present in the bridge structure to give a clear indication of its historic appearance. For truss bridges, as discussed previously, the most important material aspect is the truss itself. The actual roadbed need not be original, and in only rare instances would be original anyway. Elements or features added later to a bridge, such as additional guardrails or reinforced piers and abutments, should not unduly detract from the original. When present, historic decorative or interpretive elements (such as lattice railings or dedication plaques) should also be examined and evaluated in terms of relative importance to a particular bridge.

Physical attributes.

Aside from integrity issues, it is important to consider various other physical attributes when evaluating a historic bridge under this context.

Multi-span and combination structures. Besides the truss type, a bridge may meet National Register criteria as being an unusual multi-span structure. Clearly, for major rivers or canyons, a single span was often inadequate; thus several spans were linked to accomplish the crossing. A bridge may be considered eligible for listing at a statewide level of significance if it is a rare five-span pony truss even if it is a type which would otherwise be only locally significant because of its truss type. Likewise, the incorporation of two or more different truss types in one bridge would warrant registration.

Scale. Major crossings require major bridges, thus, such a bridge would generally be considered eligible as a major engineering feat. In some cases, size does matter.

Age. The age of a bridge can be considered a significant factor in several respects. By itself, however, the age of the structure should be weighed with other factors when evaluating its significance. The oldest bridge (of any type) in Idaho, for example, would clearly be of statewide importance, but being the oldest bridge in City X (local level of significance) may push the eligibility criteria to a meaningless conclusion. Another aspect to consider is the assembly method: pin-connected versus riveted. As discussed in the Narrative, pin-connected structures tend to predate the riveted bridges. A late date pin-connected bridge, however, may serve as an important example of the transition period from pin to rivet technology.

Associative qualities.

Historic associations with which a particular bridge may be related include the designing engineer, the bridge manufacturer, the builder (such as a county, federal agency, CCC association, and so forth), state highway development and expansion, and others, are possible avenues for documenting and evaluating the structure. Again, since this MPL is based solely on Criterion C for Engineering, historic associations should relate to those elements discussed in the Statement of Historic Context. Again, however, care must be taken to ensure that other historic associations not covered by this MPL are not ignored when evaluating an individual bridge.

H. SUMMARY OF IDENTIFICATION AND EVALUATION METHODS.

This Multiple Property Listing is based on an extensive historical study and survey conducted in 1982 by Rebecca Herbst of the National Park Service under contract with the Idaho Transportation Department under the auspices of the Federal Highway Administration.

The survey was a comprehensive study of all highway bridges located on the state highway system over twenty feet in length built before 1945. This accounted for over 500 structures. In addition, at least forty bridges not on the system (city, county, and privately owned structures as well as many railroad bridges) were included in the study because of their proximity to highway system bridges or because of their known historic potential.

The inventory resulting from this survey documented most relevant facts about individual structures including (when known): date of construction, location, engineer, builder, length and other dimensions, bridge type, brief historical overview, maps, and photographs. The comprehensive nature of the inventory gives the Idaho SHPO a detailed data base in which to compare and evaluate not only the highway system bridges, but virtually any other bridge type found in the state.

The bridges to be included within this MPL, as discussed in Sections E and F, will be evaluated only against Criterion C for engineering. Furthermore, it is important to note that in terms of engineering design, most of the bridges to be considered under this MPL will be at a statewide level of significance. It would be meaningless to consider engineering criteria at a local level - for example, a statement that Bridge X is the only pin-connected Pratt through truss in Y County would be virtually pointless as there are a myriad of qualifiers which could be added to a description to make a bridge appear to be unique. Therefore, the eligibility criteria established here are to evaluate properly and appropriately the engineering importance of a given structure within its engineering context. As discussed above, however, a great many bridges in the state which may not meet these evaluation criteria MAY still be eligible for their historic association with transportation history, local settlement, commercial development, and so forth.

I. MAJOR BIBLIOGRAPHICAL REFERENCES

A. The following bibliography is for Section E, Statement of Historic Contexts.

Abdill, George. This Was Railroading. New York: Bonanza Books, 1956.

An Illustrated History of North Idaho. N.p.: Western Historical Publishing Company, 1903.

Athearn, Robert G. Union Pacific Country. Chicago: Rand McNally Company, 1971.

Beal, Merrill D. A History of Southeastern Idaho. Caldwell, Idaho: The Caxton Printers, 1941.

Beal, Merrill D. Intermountain Railroads: Standard and Narrow Guage. Caldwell, Idaho: The Caxton Printers, 1962.

Beal, Merrill D., and Merle W. Wells. History of Idaho. Volume II, New York: Lewis Historical Publishing Company, Inc., 1959.

Bear Lake County, Commissioners Minutes, 1910s, Recorders Office, Paris, Idaho.

Bilger, Harry E. "History of Railroads in Idaho." Masters thesis, University of Idaho, 1969.

Bitton, David. "Blackfoot: The Making of a Community." Idaho Yesterdays, Volume 19, No. 1, n.d.

Blackfoot Register, June 25, 1981. Idaho Historical Society Microfilm Collection, Boise, Idaho.

Bolino, August C. "The Big Bend of the Northern Pacific." Idaho Yesterdays, (Summer 1950), Volume III, pp. 5-10.

Brazilla, W. Clark. Bonneville County in the Making. n.p.: published by author, 1941.

Condit, Carl W. American Building. Chicago: University of Chicago Press, 1968.

Ehernberger, James L. Smoke Down the Canyons: Union Pacific Idaho Division. Callaway, Nebraska: E. & G. Publications, 1966.

Great Falls, Montana. Author's home. "The Saga of the William S. Hewett Family." (By Harold R. Hewett).

Hewett, William S. "The Hewett System." Chicago: promotional literature of the William S. Hewett Company, in the possession of Harold R. Hewett, Great Falls, Montana, n.d.

Hopkins, H. J. A Span of Bridges. New York: Praeger Publishers, 1970.

Huntley, James L. Ferryboats in Idaho. Caldwell, Idaho: The Caxton Printers, 1979.

Idaho Department of Commerce and Development, Idaho Almanac, 1863-1963, Centennial Edition, Boise, Idaho, 1963.

Idaho Department of Public Works Biennial Reports, 1919-1945, Boise, Idaho.

Idaho Society of Professional Engineers. "Fifty Years of Professional Engineering in Idaho, 1910-1960." Anniversary Edition. Boise, Idaho: Idaho Historical Society.

Idaho State Highway Commission Biennial Reports, 1913-1918, Boise, Idaho.

Idaho Statesman. Various dates. Idaho Historical Society Microfilm Collection. Boise, Idaho.

Idaho Transportation Department, "Idaho State Highway History," unpublished, 1982, Boise, Idaho.

Idaho Transportation Department Pamphlet Series, "The Lewis and Clark Trail: A New Highway with a Long History," n.d., Boise, Idaho.

Lamb, W. Kaye. History of the Canadian Pacific Railway. New York: MacMillan Publishing Company, 1977.

Lewiston Morning Tribune. Various dates. Idaho Historical Society Microfilm Collection, Boise, Idaho.

Livingston-Little, D. E. An Economic History of North Idaho, 1800-1900. Los Angeles: Lorin L.

Morrison, 1965.

"The Mullan Road in Idaho." Idaho Historical Society Reference Series, Number 287, December 1964.

Nez Perce County, Commissioners Minutes, 1910s - 1920s, Recorders Office, Lewiston, Idaho.

North Side News. Seventy-fifth Anniversary Edition, August 15, 1982. Jerome, Idaho.

Peterson, F. Ross. Idaho: A Bicentennial History. New York: W. W. Norton and Company, Inc., 1976.

Stout, Tom, editor. Montana: Its History and Biography. Volume II, Chicago: American Historical Society, 1921.

Talkington, Henry L. "Story of the River." Oregon Historical Quarterly, Volume 16, June 1915, pp. 181-195.

U. S. Department of the Interior, National Park Service, Rocky Mountain Region Office, Historic Bridges of Montana by Fred L. Quivik, 1981.

Waddell, J. A. L. Bridge Engineering. Volume I, New York: John Wiley and Sons, 1916.

Washington County, Commissioners Minutes, 1900s-1910s, Recorder's Office, Weiser, Idaho.

Weiser Signal. September 17, 1910. Idaho Historical Society Microfilm Collection. Boise, Idaho.

Wells, Merle W. Idaho: An Illustrated History. Idaho State Historical Society, 1976.

Winther, Oscar O. The Transportation Frontier: Trans-Mississippi West, 1865-1890. New York: Holt, Rinehart and Winston, 1964.

Wood, Charles R. and Dorothy M. Milwaukee Road West. Seattle: Superior Publishing Company, 1968.

Wood, Charles R. and Dorothy M. The Northern Pacific. Seattle: Superior Publishing Company, 1968.

Yongue, Gerald W. Roots of Middle Valley. McCall: Idaho Mountain Graphics, 1980.

B. The following bibliography is for Section F, Associated Property Types.

Billington, David P. The Tower and the Bridge: The New Art of Structural Engineering. New York: Basic Books, Inc., 1983.

Comp, T. Allan, and Donald Jackson. Bridge Truss Types: A Guide to Dating and Identifying. Nashville: American Association for State and Local History, Technical Leflet 95, n.d.

Condit, Carl W. American Building Art: The Nineteenth Century. New York: Oxford University Press, 1960.

Edwards, Llewellyn Nathaniel. A Record of History and Evolution of Early American Bridges. Orono, Maine: The University Press, 1959.

Herbst, Rebecca. Idaho Bridge Inventory, Volume I, History. Idaho Transportation Department, 1983. (Idaho SHPO Report #17).

Jackson, Donald C. Great American Bridges and Dams. Washington, D.C.: The Preservation Press, National Trust for Historic Preservation, 1988.

Tyrrell, Henry Grattan. History of Bridge Engineering. Chicago: G. B. Williams Co., 1911.

Watts, Donald W. "Historic Highway Bridges of Idaho, 1890-1945, A Planning Context", Idaho SHPO Context CS2, 1993.

NPS Form 10-900-a
(7-81)

OMB NO. 1024-0018
EXP. 12/31/84

[redacted]

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

Continuation sheet **Item number** **Page** 1 of 3

Multiple Resource Area
Thematic Group

dnr-11

Name Keyser Township MRA
State Indiana

Nomination/Type of Review			Date/Signature
1. Shull, Henry, Farmhouse Inn	Entered in the National Register	for Keeper	Delores Byers 5/6/83
		Attest	
2. Gump House	Entered in the National Register	for Keeper	Delores Byers 5/6/83
		Attest	
3. Fountain, William, House	Entered in the National Register	for Keeper	Delores Byers 5/6/83
		Attest	
4. Clark, Orin, House	Entered in the National Register	for Keeper	Delores Byers 5/6/83
		Attest	
5. Kelham, Edward, House	Entered in the National Register	for Keeper	Delores Byers 5/6/83
		Attest	
6. DePew, Samuel, House	Substantive Review	Keeper	
		Attest	
7. Breechbill-Davidson House	Entered in the National Register	for Keeper	Delores Byers 5/6/83
		Attest	
8. Bowman, Joseph, Farmhouse	Entered in the National Register	for Keeper	Delores Byers 5/6/83
		Attest	
9. Haag, J. H., House	Entered in the National Register	for Keeper	Delores Byers 5/6/83
		Attest	
10. Lehmback, Charles, Farmstead	Entered in the National Register	for Keeper	Delores Byers 5/6/83
		Attest	

NPS Form 10-900-a
(3-82)

OMB No. 1024-0018
Exp. 10-31-84

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

For NPS use only
received
date entered

Continuation sheet | Item number | Page 2-43

Multiple Resource Area
Thematic Group

Name Keyser Township MRA
State Indiana

Nomination/Type of Review			Date/Signature	
11. Peters, Henry, House	Entered in the National Register	for Keeper	Delores Byers	5/6/83
		Attest		
12. Bevier, Samuel, House	Entered in the National Register	for Keeper	Delores Byers	5/6/83
		Attest		
13. Wilderson, John, House	Entered in the National Register	for Keeper	Delores Byers	5/6/83
		Attest		
14. Rakestraw House	Entered in the National Register	for Keeper	Delores Byers	5/6/83
		Attest		
15. Brethren in Christ Church	Entered in the National Register	for Keeper	Delores Byers	5/6/83
		Attest		
16. Altona Baptist Church	Substantive Review	Keeper		
		Attest		
17. Keyser Township District School 5		Keeper		
		Attest		
18. Keyser Township School 8	Entered in the National Register	for Keeper	Delores Byers	5/6/83
		Attest		
19. DeKalb County Home and Barn	Entered in the National Register	for Keeper	Delores Byers	5/6/83
		Attest		
20. Altona Bridge	DOE/OWNER OBJECTION	Keeper		
		Attest		

NPS Form 10-900-a
(3-82)

OMB No. 1024-0018
Exp. 10-31-84

United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

For NPS use only
received
date entered

Continuation sheet | Item number | Page 3 of 3

Multiple Resource Area
Thematic Group

Name Keyser Township MRA
State Indiana

Nomination/Type of Review			Date/Signature
21. Garrett Historic District	Entered in the National Register	for Keeper	Delores Byers 5/6/83
		Attest	
22.		Keeper	
		Attest	
23.		Keeper	
		Attest	
24.		Keeper	
		Attest	
25.		Keeper	
		Attest	
26.		Keeper	
		Attest	
27.		Keeper	
		Attest	
28.		Keeper	
		Attest	
29.		Keeper	
		Attest	
30.		Keeper	
		Attest	