FHR-8-300 (11-78)

United States Department of the Interior
Heritage Conservation and Recreation Service

National Register of Historic Places Inventory—Nomination Form

[redacted] 985

See instructions in *How to Complete National Register Forms*
Type all entries—complete applicable sections

1. Name

historic

and/or common Vehicular Truss and Arch Bridges in Wyoming

2. Location

street & number multiple locations (see Inventory Data, Item 7) ___ not for publication

city, town ___ vicinity of congressional district first

state Wyoming code 056 county code

3. Classification

Category	Ownership	Status	Present Use	
___ district	_X_ public	_X_ occupied	___ agriculture	___ museum
___ building(s)	___ private	_X_ unoccupied	___ commercial	___ park
_X_ structure S	___ both	___ work in progress	___ educational	___ private residence
___ site	**Public Acquisition**	**Accessible**	___ entertainment	___ religious
___ object	___ in process	_X_ yes: restricted	___ government	___ scientific
	___ being considered	_X_ yes: unrestricted	___ industrial	_X_ transportation
		___ no	___ military	_X_ other: abondoned

4. Owner of Property

name multiple ownership (see Addendum, Item 4)

street & number

city, town ___ vicinity of state

5. Location of Legal Description

courthouse, registry of deeds, etc. multiple locations (see Addendum, Item 4)

street & number

city, town state

6. Representation in Existing Surveys

title Wyoming Truss Bridge Survey has this property been determined elegible? _X_ yes ___ no

date November 1981 ___ federal _X_ state ___ county ___ local

depository for survey records State Historic Preservation Office

city, town Cheyenne state Wyoming 82002

7. Description

Condition		Check one	Check one
X excellent	___ deteriorated	X unaltered	X original site
X good	___ ruins	X altered	X moved date (see data for individual bridges)
X fair	___ unexposed		

Describe the present and original (if known) physical appearance

Thirty one bridges are included in this thematic nomination of vehicular trusses and arches in Wyoming. These bridges - twenty-nine steel trusses, one timber truss and the state's only reinforced concrete arch - are the most significant representatives of vehicular bridgebuilding remaining in the state; their selection culminates and historical survey and evaluation of all timber and steel truss bridges currently in use on the state and county road systems in Wyoming. Conducted for the Wyoming State Highway Department, it includes all truss and arch bridges, regardless of age, which are now owned and maintained as functional by the WSHD and the individual counties, both on and off of the Federal Aid System. One bridge of exceptional significance, the Rairden Bridge, closed to traffic in 1979 but still owned by Big Horn County, has also been included. Undertaken in compliance with survey guidelines established by the Wyoming State Historic Preservation Office (SHPO) and the National Architectural and Engineering Record (NAER), the study functions on three levels: first, it provides a comprehensive overview of trussbuilding in Wyoming, relating local trends with state and state with national; second, the survey acts as an inventory for all structures included in the above-delineated categories, with historical narratives and engineering classifications given for the individual bridges; finally, it evaluates all of the bridges for relative historical and/or technological significance. A total of 171 bridges have been surveyed in this manner.

The research methodology used in the study has involved the collection of published secondary source material for the synthesis of a national truss bridge historical overview, primary and secondary material for the state overview and primary material for the narratives of the individual structures. The survey relies heavily for identification and location of the bridges and technical data on a general bridge survey previously conducted by the WSHD. The research has entailed use of WSHD biennial reports to the state legislature, county commissioners' minutes, newspaper articles, oral interviews with county commissioners and state and county bridge engineers, primary and secondary source information from a variety of government entities and on-site inspection of approximately 40% of the bridges.

Intended as a cultural resource management document to be used by the WSHD in processes (bridge replacement and rehabilitation) which have federal involvement from the Federal Highway Administration, significance is therefore gauged by eligibility for the Register. Selection of significant bridges follows the application of several specific criteria:

> Typicality or uniqueness - whether the bridge is the only remaining example of its genre or one of many, and whether it represents technological or historical trends or is anachronistic or unrepresentative.
>
> Date of erection - with the earliest example given more favorable consideration than its successors. Pin-connected bridges, although not always older than rigid-connected, are given consideration as an earlier technology.
>
> Level of available information - when other factors are equal among several like bridges, those for which more complete narratives can be ascertained, allowing the potential for greater understanding and interpretation of historical trends, are given preference.

Span length - (or number of spans) with longest or most spans of like bridges given preference as ususally the most historically significant to the communities they serve and to a lesser extent as indicators of technological achievement.

Present state of integrity - whether the bridge today functions as originally designed or has been altered through subsequent modifications or deterioration.

Probability of preservation - factored into the consideration carefully, for in many cases the elements which make a particular bridge technologically significant (age, span length, connection type, etc.) are the same elements which make it a prime candidate for replacement.

Historical association - whether the bridge is characterized by any historical superlatives (first of its type, oldest remaining, etc.) or has played an important role in the development of a community or area.

Even after the winnowing process of applying the above criteria, several bridges of a number of major truss configurations emerge as virtually equal in significance. To address this a three-tier system has been employed:

Eligible - bridges which are unique examples of technologically important types or have exceptional representational value from larger groups of truss types.

Possibly eligible - bridges which are good early examples of their truss configurations or are notable variations from classic configurations.

Not eligible - bridges which are typical later examples of common truss types.

The distinction between the first two groups becomes exceedingly fine at times when no clear-cut examples emerge from a particular thematic grouping. The cutoff between the possibly eligible bridges and those determined not eligible is more sharply defined. To form a definitive listing of those bridges definitely eligible for the Register an Advisory Committee was formed to review the evaluations. The Committee was made up of representatives from the State Highway Department, State Historic Preservation Office, Federal Highway Administration and the National Park Service, with an independent expert on the history of technology. The Committee consolidated the eligible and possibly eligible groupings, devaluating some to not eligible status and raising one from the not eligible status and one which did not originally appear on the survey to eligible. With a concensus reached, this single list of potentially eligible bridges has been compiled.

With perhaps one exception, none of the bridges included in the survey displays the engineering or historical significance to make it nationally important. Rather, the bridges generally exhibit the standard configurations of the thousands of mass-produced steel trusses erected from the standard plans of the great Midwestern bridge companies (and later the Highway Department). The nominated bridges are grouped within a narrow time span - roughly the thirtyyears between 1905 and 1935. With few wide watercourses in the state to span, they are all short- to medium-span structures. Cases for significance are, more often than not, based upon the bridges' representation

of particular designs, whether as the best or earliest examples of their types from relatively large groups or as the only surviving examples of specific configurations. With few truly outstanding trusses encountered in the survey, the intent of the evaluation is to select the best representative bridges from each major generic type (Pratt through trusses for instance), along with notable deviations from standard form, and tie these together with the history of trussbuilding in Wyoming. The result is a group of structures which, preserved and interpreted, forms the tangible basis for the telling of part of the state's history.

Following is a listing by type of the bridges included in this nomination:

Pratt Through Trusses:

Patented in 1844 by Thomas and Caleb Pratt, the Pratt through truss became the bridge of choice for medium-span vehicular crossings during the late 19th and early 20th centuries. 26 Pratt throughs are found in the survey - 18 pin-connected and 8 of the later rigid-connected bridges; these range from 80' to 155' in length. Five bridges have been selected from this configuration. One is the longest and oldest of the remaining Pratts (as well as one of only two two-span Pratts), three are early 150' spans built within three years of each other, all by Charles G. Sheely, and one is an excellent early example of a railroad bridge salvaged for use on a county road.

ETR Big Island Bridge — Sweetwater County (over Green River)

erection date:	1909-10	contractor:	Charles G. Sheely Denver Colorado
span length:	155'0" ea.	abutments:	concrete retaining w/ sweptback wings
total length :	352'0"	piers:	steel-cased concrete columns
roadway width:	12'5"	roadway:	steel stringers w/ timber decking
span type:	simple	approaches:	20' steel deck girders

Two-span, steel pin-connected, 7-panel Pratt through truss
top chords: two channels w/ cover plates and lacing; bottom chords: paired rectangular eyebars; verticals: two channels w/ lacing; diagonals: paired rectangular eyebars; struts: angle; lateral and sway bracing: round bars; laced guardrails.

Sweetwater County Road CN4-4 milepost: 2.5
21.5 miles northwest of Green River city T21N, R109W, S26.
USGS Big Island Bridge 7½' quad UTM: 12.605175.4624190

* DDW Granger Bridge — Sweetwater County (over Black's Fork)

erection date:	1912-13	contractor:	Charles G. Sheely Denver Colorado
span length:	150'0"	abutments:	concrete retaining w/ sweptback wings
total length:	180'0"	piers:	steel-cased concrete columns
roadway width:	15'0"	roadway:	steel stringers w/ timber decking
span type:	simple	approaches:	15' timber stringers

Single-span, steel pin-connected, 8-panel Pratt through truss

* DDW (continued)

top chords: two channels w/ cover plates and lacing; bottom chords: paired rectangular eyebars; verticals: two channels w/ lacing; diagonals: paired rectangular eyebars; struts: angle; lateral and sway bracing: round bars; laced guardrails.

Sweetwater County Road 175-1 milepost: 0.70
0.2 mile south of Granger T19N, R111W, S32.
USGS Granger 7½' quadrangle UTM: 12.586060.4604505

ETD Bridge over Green River Sweetwater County

erection date: 1913 contractor: Colorado Bridge and Construction Co.
span length: 150'0" abutments: concrete retaining w/ sweptback wings
total length: 153'0" piers: none
roadway width: 14'9" roadway: steel stringers w/ timber decking
span type: simple approaches: none
Single-span, steel pin-connected, 8-panel Pratt through truss
top chords: two channels w/ cover plates and lacing; bottom chords: paired rectangular eyebars; verticals: two channels w/ lacing; diagonals: paired rectangular eyebars; struts: angle; lateral and sway bracing: round bars; laced guardrails.

Sweetwater County Road CN4-8SS (Fontenelle Townsite Road) milepost: 1.0
1 mile east of Fontenelle T23N, R111W, S7.
USGS Fontenelle 7½' quadrangle UTM: 12.579105.4647800

* DFT Bridge over Medicine Bow River Carbon County

erection date: 1911-12 contractor: Charles G. Sheely Denver Colorado
span length: 152'0" abutments: concrete full retaining
total length: 178'0" piers: concrete columns
roadway width: 17'7" roadway: steel stringers w/ timber decking
span type: simple approaches: 12' timber stringers
Single-span, steel pin-connected, 8-panel Pratt through truss
top chords: two channels w/ cover plates and lacing; bottom chords: paired rectangular eyebars; verticals: two channels w/ lacing; diagonals: paired rectangular eyebars; struts: angle; lateral and sway bracing: round bars; angle guardrails.

Carbon County Road 291 milepost: 11.00
10 miles north of Hanna T24N, R81W, S34.
USGS T.E. Ranch 7½' quadrangle UTM: 13.374825.4651840

* EEN Schoonover Bridge Johnson County (over Powder River)

erection date: unknown contractor: unknown
moved: ca.1928

* EEN (continued)

span length: 125'4" ea. abutments: timber retaining w/ steel piles
total length: 254'0" piers: steel pile bent
roadway width: 13'1" roadway: timber stringers and decking
span type: simple approaches: none
Two-span, steel pin-connected, 7-panel Pratt through truss
top chords: two channels w/ cover plates and lacing; bottom chords: paired rectangular eyebars; verticals: two channels w/ lacing; diagonals: paired square eyebars; struts: angle; lateral and sway bracing: round bars; timber guardrails.

Johnson County Road CN16-204 (Schoonover Road) milepost: 7.8
31.1 miles southeast of Buffalo T48N, R77W, S8.
USGS Juniper Draw 7½' quad. UTM: 13.408930.4888295

For shorter span ranges, Pratt pony trusses were used extensively for vehicular bridges during the late 19th and early 20th centuries. These featured similar compression-tension configurations as the Pratt throughs but had lower web heights. The most common type of truss in Wyoming, with a total of 36 still in use on the county road systems, most of the Pratt ponies are rigid-connected, erected after 1915. A handful of pin-connected examples still exist; from these four of the better preserved representatives for which the amount of available data is relatively complete have been selected.

EDL Peloux Bridge Johnson County (over Clear Creek)

erection date: 1912-13 contractor: Canton Bridge Company Canton Ohio
span length: 75'0" abutments: timber retaining w/ steel piles
total length: 81'6" piers: none
roadway width: 13'6" roadway: timber stringers and deck
span type: simple pproaches: none
Single-span, steel pin-connected 5-panel Pratt pony truss
top chords: two channels w/ cover plates and lacing; bottom chords: paired rectangular eyebars; verticals: four angles w/ double lacing; diagonals: paired square eyebars (single eyebar counters w/ turnbuckles); angle guardrails.

Johnson County Road CN16-40 milepost: 0.2
2.6 miles northeast of Buffalo T51N, R81W, S30.
USGS Buffalo 7½' quadrangle UTM: 13.368215.4913300

ECR Kooi Bridge Sheridan County (over Tongue River)

erection date: 1913 contractor: Jack Gregg Sheridan Wyoming
span length: 80'0" abutments: concrete retaining w/ sweptback wings
total length: 81'6" piers: none
roadway width: 16'0" roadway: timber stringers and decking
span type: simple approaches: none

ECR (continued)

Single-span, steel pin-connected, 5-panel Pratt pony truss
top chords: two channels w/ cover plates and lacing; bottom chords: paired rectangular eyebars; verticals: four angles w/ double lacing; diagonals: paired square eyebars w/ turnbuckles (single eyebar counters w/ turnbuckles); timber guardrails.

Sheridan County Road CN3-93	milepost:	0.5
2.7 miles west of Monarch		T57N, R85W, S14.
USGS Monarch 7½' quadrangle	UTM:	13.335250.4974775

EWZ Bridge over East Channel of Laramie River Platte County

erection date:	1913-14	contractor:	Pueblo Bridge Co. Pueblo Colorado
span length:	70'0"	abutments:	timber retaining w/ steel piles
total length:	71'2"	piers:	none
roadway width:	15'8"	roadway:	timber stringers and decking
span type:	simple	approaches:	none

Single-span, steel pin-connected 5-panel Pratt pony truss
top chords: two channel w/ cover plates and lacing; bottom chords: paired rectangular eyebars; verticals: four angles w/ lacing; diagonals: paired square eyebars w/ turnbuckles (single eyebar counters w/ turnbuckles).

Platte County Road CN8-204	(Palmer Canyon Road) milepost:	2.4
10.1 miles west of Wheatland		T24N, R69W, S20.
USGS Hightower SW 7½' quad.	UTM:	13.487795.4654540

ECS Bridge over Big Goose Creek Sheridan County

erection date:	1914	contractor:	Canton Bridge Company Canton Ohio
span length:	50'0"	abutments:	concrete retaining w/ sweptback wings
total length:	50'0"	piers:	none
roadway width:	15'0"	roadway:	steel stringers w/ timber decking
span type:	simple	approaches:	none

Single-span, steel pin-connected 4-panel Pratt pony truss
top chords: two channels w/ cover plates and lacing; bottom chords: paired rectangular eyebars; verticals: four angles w/ double lacing; diagonals: paired square eyebars w/ turnbuckles (single eyebar counters w/ turnbuckles).

Sheridan County Road CN3-53	milepost:	0.1
9.4 miles southwest of Sheridan		T55N, R85W, S17.
USGS Beckton 7½' quadrangle	UTM:	13.331435.4956400

One bridge in the survey features tandem Pratt through and pony trusses. Although not unique in its combination of through and pony spans or dissimilar truss types, it provides an unusual opportunity to view both of the major Pratt configurations.

ENP Bridge over Green River Sublette County

erection date:	ca. 1905	contractor:	Western Bridge and Const. Co. Omaha
span length:	105'6"(through) 63'6"(pony)	abutments:	pile bent w/ concrete retaining wall
total length:	221'11"	piers:	steel pile bent
roadway width:	15'7"	roadway:	timber stringers and decking
span type:	simple	approaches:	timber stringers

Two-span steel pin-connected 6-panel Pratt through and 4-panel Pratt pony truss top chords: two channels w/ cover plates and lacing; bottom chords: paired rectangular eyebars; verticals: two channels w/ lacing (through) two angles w/ lacing (pony); diagonals: paired square eyebars w/ single eyebar counters; struts (through): angle; lateral and sway bracing (through): round bars; timber guardrails.

Sublette County Road CN23-145	milepost:	4.2
7.8 miles southeast of Daniel		T33N, R110W, S34.
USGS Mount Airy 7½' quadrangle	UTM:	12.584360.4736655

A notable variation of the Pratt truss is a subtype termed the Pratt Half-hip. Generally used in short span applications as a pony truss, this type received only limited usage in the late 19th and early 20th centuries. Eleven Pratt Half-hip ponies are included in the survey, some on the verge of collapse due to damage and deterioration. As an unusual configuration, six of these are included in the nomination - five single-span pin-connected bridges and one later two-span rigid-connected. All but one of the early bridges were erected by the Canton Bridge Company, and three included here were built under the same contract with Sheridan County.

*EAW Bridge over Little Goose Creek Sheridan County

erection date:	1911	contractor:	Canton Bridge Company Canton Ohio
span length:	60'0"	abutments:	concrete retaining w/ sweptback wings
total length:	61'0"	piers:	none
roadway width:	15'6"	roadway:	timber stringers and decking
span type:	simple	approaches:	none

top chords: two channels w/ cover plates and lacing; bottom chords: paired square eyebars; verticals: four angles w/ lacing; diagonals: paired square eyebars w/ single eyebar counters; timber guardrails.

Sheridan County Road CN3-66	milepost:	0.3
3.3 miles south of Sheridan		T55N, R84W, S15.
USGS Big Horn 7½' quadrangle	UTM:	13.345235.4956595

* EAX Bridge over Little Goose Creek Sheridan County

erection date:	1911	contractor:	Canton Bridge Company Canton Ohio

* EAX (continued)

span length: 40'0" abutments: concrete retaining w/ sweptback wings
total length: 41'0" piers: none
roadway width: 16'0" roadway: timber stringers and decking
span type: simple approaches: none

Single-span, steel pin-connected, 3-panel Pratt Half-hip pony truss top chords: two channels w/ cover plates and lacing; bottom chords: paired square eyebars; verticals: four angles w/ lacing; diagonals: paired square eyebars w/ single eyebar counters.

Sheridan County Road CN3-28 milepost: 0.1
Town of Big Horn T54N, R84W, S4.
USGS Big Horn 7½' quadrangle UTM: 13.342580.4949490

* DGC Bridge over Wolf Creek Sheridan County

erection date: 1911 contractor: Canton Bridge Company Canton Ohio
span length: 34'0" abutments: concrete retaining w/ sweptback wings
total length: 35'0" piers: none
roadway width: 15'6" roadway: timber stringers and decking
span type: simple approaches: none

Single-span, steel pin-connected, 2-panel Pratt Half-hip pony truss top chords: two channels w/ cover plates and lacing; bottom chords: paired square eyebars; verticals: four angles w/ lacing; diagonals: paired square eyebars w/ single eyebar counters.

Sheridan County Road 67 milepost: 1.80
4.7 miles south of Ranchester T56N, R86W, S11.
USGS Wolf 7½' quadrangle UTM: 13.327030.4967715

* EWA Bridge over Garland Canal Park County

erection date: ca.1910 contractor: unknown
span length: 60'0" abutments: concrete retaining w/ sweptback wings
total length: 62'0" piers: none
roadway width: 14'1" roadway: timber stringers and decking
span type: simple approaches: none

Single-span, steel pin-connected, 4-panel Pratt Half-hip pony truss top chords: two channels w/ cover plates and lacing; bottom chords: paired flat eyebars; verticals: two angles w/ batten plates; diagonals: paired square eyebars w/ single eyebar counters; lattice guardrails.

Park County Road CN11-35 milepost: 1.1
2.4 miles east of Ralston T55N, R99W, S19.
USGS Ralston 7½' quadrangle UTM: 13.674255.4956010

*ERF Bridge over Mill Creek Uinta County

erection date:	1907	contractor:	Charles G. Sheely
span length:	36' 0"	abutments:	concrete retaining w/ sweptback wings
total length:	36'11"	piers:	none
roadway width:	13' 6"	roadway:	timber stringers and decking
span type:	simple	approaches:	none

Single-span, steel pin-connected 3-panel Pratt Half-hip pony truss
top chords: two channels w/ cover plates and lacing; bottom chords: paired square eyebars; verticals: four angles w/ lacing; diagonals: paired square eyebars w/ single eyebar counters w/ turnbuckles; lattice guardrails.

Uinta County Road CN19-157	milepost:	7.0
13.4 miles south of Evanston		T13N, R120W, S25.
USGS Myers Reservoir 7½' quad.	UTM:	12.507605.4547020

DOE Bridge over Laramie River Albany County

erection date:	1926 (mvd:1932)	contractor:	N.A. Swenson Laramie Wyoming
span length:	75'0" ea.	abutments:	concrete retaining w/ sweptback wings
total length:	153'7"	piers:	steel cased concrete piles
roadway width:	15'7"	roadway:	timber stringers and decking
span type:	simple	approaches:	none

Two-span, steel rigid-connected 5-panel Pratt Half-hip pony truss
top chords: two channels w/ cover plates and lacing; bottom chords: two channels w/ batten plates; verticals: four angles w/ lacing; diagonals: two angles w/ batten plates; angle guardrails; supplemental pile bents under spans.

Albany County Road CNA-740	milepost:	1.0
1.4 miles north of Bosler		T19N, R74W, S28.
USGS Bosler 7½' quadrangle	UTM:	13.445290.4604500

Pratt through trusses with straight top chords were overshadowed on the longer spans by the polygonal top chord Pratt variants - the Parker, Camelback and Pennsylvania trusses. These graceful long-span bridges combined the compression-tension web members of the standard Pratt truss with multi-faceted top chords. The long spans and attenuated members, however, have made these types principal targets for bridge replacement programs, as they have been rendered functionally obsolete by today's heavier loading requirements. Consequently, few of the early pin-connected Parker and Camelback throughs remain in use on the county road systems - two of each type. All four bridges are included here.

EAU Arvada Bridge Sheridan County (over Powder River)

erection date:	1917	contractor:	Monarch Engineering Company Denver
span length:	160'0"	abutments:	concrete retaining w/ sweptback wings

EAU (continued)

total length: 162'0" piers: none
roadway width: 15'6" roadway: timber stringers and decking
span type: simple approaches: none
Single-span, steel pin-connected 8-panel Parker through truss
top chords: two channels w/ cover plates and lacing; bottom chords: rigid-connected channels or pin-connected paired flat eyebars; verticals: two channels w/ lacing; diagonals: paired square eyebars; struts: angle; sway bracing: angles in lattice configuration; lateral bracing: round bars; angle guardrails.

Sheridan County Road CN3-38 milepost: 0.3
southern fringe of Arvada T54N, R77W, S16.
USGS Arvada 7½' quadrangle UTM: 13.410415.4945545

✓ DMJ Pick Bridge Carbon County (over North Platte River)

erection date: 1909-10 contractor: Charles G. Sheely Denver Colorado
span length: 175' 0" abutments: west - steel-cased concrete caissons
east - timber retaining w/steel piles
total length: 194'10" piers: steel-cased concrete caissons
roadway width: 14' 5" roadway: timber stringers and decking
span type: simple approaches: 18'4" timber stringer on west end
Single-span, steel pin-connected 10-panel Parker through truss
top chords: two channels w/ cover plates and lacing; bottom chords: paired flat eyebars; verticals: two channels w/ lacing; diagonals: paired rectangular eyebars w/ single eyebar counters; struts: angle; lateral and sway bracing: round bars; timber guardrails.

Carbon County Road CN6-508 (Pick Bridge Road) milepost: 4.2
7.0 miles northwest of Saratoga T18N, R84W, S17.
USGS Overland Crossing 7½' quad. UTM: 13.343110.4600140

✓ DML Butler Bridge Carbon County (over North Platte River)

erection date: 1930 contractor: Chris O'Neil Platteville Colorado
span length: 170'0" abutments: timber and concrete retaining
total length: 282'2" piers: timber piles and steel-cased concrete caissons
roadway width: 15'8" roadway: steel stringers w/ timber decking
span type: simple approaches: 112'2" timber stringer
Single-span, steel pin-connected 8-panel Camelback through truss
top chords: two channels w/ cover plates and lacing; bottom chords: paired flat eyebars; verticals: two channels w/ lacing or four angles w/ batten plates; diagonals: paired rectangular eyebars w/ single eyebar counters w/ turnbuckles; struts: angle; sway bracing: round bars in lattice configuration; lateral bracing: round bars.

DML (Continued)

Carbon County Road CN6-203 milepost: 7.5
7.8 miles northeast of Encampment T15N, R82W, S20.
USGS Cow Creek 7½' quadrangle UTM: 13.362650.4568315

EFP Bridge over Owl Creek Hot Springs County

erection date: 1919-20 contractor: Monarch Engineering Company Denver
span length: 124'0" abutments: sandstone ashlar retaining
total length: 126'0" piers: none
roadway width: 15'0" roadway: steel stringers w/ timber decking
span type: simple approaches: none
Single-span, steel pin-connected 7-panel Camelback through truss
top chords: two channels w/ cover plates and lacing; bottom chords: paired flat eyebars; verticals: two channels w/ double lacing; diagonals: two rectangular or one round eyebar; struts: angle; sway bracing: angles in lattice configuration; lateral bracing: round bars; lattice guardrails; supplemental timber piers added under panel points.

Hot Springs County Road CN15-28 milepost: 1.3
9.5 miles west of Thermopolis T43N, R96W, S16.
USGS Thompson Reservoirs 7½' quad. UTM: 13.710120.4840645

During the early- to mid-1930s the Wyoming Highway Department erected several rigid-connected Parker through trusses across the state. Of these seven remain; most are in the 120' - 175' span range, but one bridge freespans 250' - the longest single span highway truss in Wyoming still functional. It is included here.

BMU Bridge over Wind River Fremont County

erection date: ca.1935 contractor: unknown
moved: 1953-54 Charles M. Smith Thermopolis Wy.
span length: 250'0" abutments: concrete retaining w/ sweptback wings
total length: 283'0" piers: none
roadway width: 20'0" roadway: steel stringers w/ concrete decking
span type: simple approaches: none
Single-span, steel rigid-connected 10-panel Parker through truss
top chords: two channels w/ cover plates and lacing; bottom chords: two channels w/ batten plates; verticals: wide flange; diagonals: wide flange; struts: four angles w/ lacing; sway bracing: angle; lateral bracing: two angles w/ lacing; steel pipe guardrails.

Wyoming State 132 milepost: 16.32
8.75 miles north of Ethete T02N, R01E, S13.
USGS Pavillion 7½' quadrangle UTM: 12.686390.4779070

For vehicular spans in the 80'-100' range an early 20th century alternative to the straight chorded Pratt pony truss was the Camelback pony. Ten rigid-connected Camelback ponies still function in the county road systems; all of those traceable have been erected by one bridge company, the Monarch Engineering Company of Denver. One Camelback pony - the oldest and one of the longest - has been selected from this group.

EJP County Line Bridge — Big Horn County (over Nowood River)

erection date:	1917	contractor:	Monarch Engineering Company Denver
span length:	100'0"	abutments:	timber retaining w/ steel pilings
total length:	102'0"	piers:	none
roadway width:	14'11"	roadway:	timber stringers and decking
span type:	simple	approaches:	none

Single-span, steel rigid-connected 5-panel Camelback pony truss
top chords: two channels w/ cover plates and lacing; bottom chords: two channels w/ batten plates; verticals: four angles w/ lacing; diagonals: two angles w/ batten plates; angle guardrails.

Big Horn County Road CN9-60 milepost: 0.4
6.8 miles southwest of Hyattville T49N, R90W, S32.
USGS Weintz Draw 7½' quadrangle UTM: 13.285430.4893645

A notable subtype of the Parker truss design is the Pennsylvania truss, named after the Pennsylvania Railroad which used it extensively. With the diagonals braced by sub-struts or sub-ties, the Pennsylvania represented a strengthening of the basic Parker configuration. It has been used primarily as a railroad bridge, with less usage as a vehicular truss. Nevertheless, four Pennsylvania trusses - two rigid-connected with sub-struts and two pin-connected with sub-ties - are found in the survey; all are included in this nomination.

CQA Four Mile Bridge — Hot Springs County (over Big Horn River)

erection date:	1927-28	contractor:	Charles M. Smith Thermopolis Wy.
span length:	175'0"	abutments:	concrete retaining w/ sweptback wings
total length:	295'0"	piers:	concrete solid shaft
roadway width:	20'0"	roadway:	steel stringers w/ concrete deck
span type:	simple	approaches:	two 60' rigid-connected steel Warren (w/verticals) pony trusses

Single-span, steel rigid-connected 7-panel Pennsylvania through truss w/sub-struts
top chords: two channels w/ cover plates and lacing; bottom chords: two channels w/ batten plates; verticals: rolled beams or four angles w/ batten plates; diagonals: rolled beams or two channels w/ batten plates; sub-struts: two channels w/ lacing; struts: four angles w/ lacing; sway bracing: angle; lateral bracing: two angles w/ lacing; lattice guardrail.

CQA (continued)

Wyoming State 173 (Thermopolis - Buffalo Creek Road)
2.9 miles south of Thermopolis T42N, R95W, S13.
USGS Wedding of Waters 7½' quad UTM: 12.726265.4831445

DSD Bridge over Cheyenne River Niobrara County

erection date: ca. 1915 contractor: unknown
span length: 130'8" abutments: concrete bent cap and full retaining
total length: 133'0" piers: none
roadway width: 16'6" roadway: timber decking
span type: simple approaches: none
Single-span, steel rigid-connected 7-panel Pennsylvania through truss w/ sub-struts top chords: two channels w/ cover plates and lacing; bottom chords: two channels w/ batten plates; verticals: two channels w/ batten plates or lacing; diagonals: two angles w/ lacing; struts, lateral and sway bracing: angle; lattice guardrail.

Niobrara County Road CN14-46 milepost: 18.7
3.2 miles east of Riverview T40N, R61W, S25.
USGS Riverview 7½' quadrangle UTM: 13.570315.4807740

EDZ Irigary Bridge Johnson County (over Powder River)

erection date: 1913 contractor: Canton Bridge Company Canton Ohio
moved: 1963 mover: Etlin Petersen Const. Casper Wyoming
span length: 200'0" abutments: concrete sills on steel piles
total length: 283'0" piers: steel pile bents w/ concrete caps
roadway width: 14'2" roadway: timber decking
span type: simple approaches: 39'4" steel girders
Single-span, steel pin-connected 10-panel Pennsylvania through truss w/ sub-ties top chords: two channels w/ cover plates and lacing; bottom chords: paired eyebars; verticals: eyebars and two channels w/ lacing; diagonals: eyebars; struts: two angles w/ lacing; lateral and sway bracing: round bars; angle guardrails; decorative builder's plate mounted over portal strut.

Johnson County Road CN16-254 milepost: 0.1
18.1 miles northeast of Sussex T46N, R77W, S19.
USGS Hoe Ranch 7½' quadrangle UTM: 13.407210.4865885

Rairden Bridge Big Horn County (over Big Horn River)

erection date: 1916 contractor: Monarch Engineering Company Denver
span length: 250'0" abutments: concrete retaining w/ sweptback wings
total length: 252'0" piers: none
roadway width: 15'6" roadway: timber stringers and decking
span type: simple approaches: none
Single-span, steel pin-connected 12-panel Pennsylvania through truss w/ sub-ties

(continued)

top chords: two channels w/ cover plates and lacing; bottom chords: paired flat eyebars; verticals: two channels w/ lacing; diagonals: paired flat eyebars or single square eyebars w/ turnbuckles; struts: angle; sway bracing: angles in lattice configuration; lateral bracing: round bars; lattice guardrails.

Immediately south of Big Horn County Road CN9-30 (abandoned)
5.7 miles south of Manderson T49N, R92W, S28.
USGS Rairden 7½' quadrangle UTM: 13.267080.4897390

Pratt truss configurations have also been used extensively for deck trusses in this country. Wyoming has no major deck trusses on its county road systems and only two on the state highway system. Both built in the early 1930s, these represent two distinct forms of later truss design - the continuous deck truss and the cantilevered truss. Both are included here.

CKW Bridge over Powder River Sheridan County

erection date:	1932-33	contractor:	W.P. Roscoe Co.
span length:	102' ea.	abutments:	concrete spill-through w/ sweptback wings
total length:	452'0"	piers:	multiple columns on spread footings
roadway width:	20'0"	roadway:	steel stringers w/ concrete deck
span type:	continuous	approaches:	shallower Pratt deck trusses

Three-span, steel rigid-connected continuous Pratt deck truss
top chords: two channels w/ batten plates and lacing; bottom chords: two channels w/ batten plates; verticals: rolled beams; diagonals: rolled beams; steel pipe guardrails.

U.S. 14/16 (Ucross Junction - Gillette Road; S-0302) milepost: 55.06
3.1 miles north of Arvada T55N, R77W, S34.
USGS Arvada NE 7½' quadrangle UTM: 13.412885.4949715

AJX Bridge over South Fork of Powder River Johnson County

erection date:	1931-32	contractor:	Omaha Steel Works Omaha Nebraska
span length:	unknown	abutments:	concrete retaining w/ sweptback wings
total length:	306'10"	piers:	concrete solid shaft
roadway width:	20' 0"	roadway:	steel stringers w/ concrete deck
span type:	cantilevered	approaches:	none

Three-span, steel rigid-connected cantilevered Pratt deck truss w/ pin-connections between cantilever and approach spans
top chords: two channels w/ batten plates; bottom chords: two channels w/ batten plates; verticals: rolled beams; diagonals: rolled beams; steel pipe guardrails.

I-25 West Service Road (old Highway 87) milepost: 246.30
6.9 miles south of Kaycee T42N, R81W, S09.
USGS Johnson Wall Creek 7½' quad. UTM: 13.372815.4830690

Another truss configuration which received extensive use on Wyoming's highways and roads during the first three decades of this century was the Warren truss. Patented by two British engineers four years after the Pratt truss, the Warren trusses were generally overshadowed by the Pratt variations for vehicular bridges in the state until the 1920s. After that, Warren trusses - almost universally rigid-connected ponies - became the steel bridge of choice for spans in the 50'- 100' range. Like the Pratt design, several variations on the basic Warren configuration can be found among the surveyed bridges. The "pure" Warren truss featured a fairly straightforward design which transferred loads through triangulation of its members, with diagonals alternating between tension and compression and no verticals. Only three of this type exist, about which very little information can be found. A variation features straight top chords with verticals at alternating panel points. Five in this group remain in use in the county road systems, among them the oldest traceable Warren pony. The oldest and the longest for which data is available are included here.

* DMS Bridge over Cow Creek — Carbon County

erection date:	1915	contractor:	Petry-Moulton Contr. Co. Cheyenne Wy.
span length:	40'0"	abutments:	concrete full retaining
total length:	42'0"	piers:	none
roadway width:	15'1"	roadway:	steel stringers w/ concrete deck
span type:	simple	approaches:	none

Single-span, steel rigid-connected 6-panel Warren pony truss with verticals at alternating panel points.
top chords: two angles w/ cover plates; bottom chords: two angles w/ batten plates; verticals: two angles w/ batten plates; diagonals: two angles; lattice guardrails.

Carbon County Road CN6-303 — milepost: 2.6
7.1 miles north of Encampment — T16N, R84W, S36.
USGS Cow Creek Ranch 7½' quad. — UTM: 13.351150.4574530

EJE Bridge over Shell Creek — Big Horn County

erection date:	1920	contractor:	Midland Bridge Co. Kansas City Mo.
span length:	60'0"	abutments:	concrete retaining w/ sweptback wings
total length:	60'0"	piers:	none
roadway width:	15'7"	roadway:	timber stringers and decking
span type:	simple	approaches:	none

Single-span, steel rigid-connected 8-panel Warren pony truss with verticals at alternating panel points.
top chords: two channels w/ cover plates and lacing; bottom chords: two angles; verticals: two angles w/ batten plates; diagonals: two angles w/ batten plates; angle guardrails.

Big Horn County Road CN9-57 — milepost: 0.5
1.1 mile west of Shell — T53N, R91W, S34.
USGS Shell 7½' quadrangle — UTM: 13.277400.4934870

The most common Warren subtype features straight top chords and verticals at all panel points. Eighteen of these rigid-connected ponies are found in the survey, ranging in date from 1919 to 1957 and in length from 45' to 140'. By far the most outstanding among this group is the Wind River Diversion Dam Bridge. With its eight simple spans mounted atop concrete piers formed integrally with the dam the bridge spans, this is one of the state's most significant vehicular bridges.

ELY Wind River Diversion Dam Bridge — Fremont County

erection date:	1924-25	contractor:	Taggart Construction Co. Cody Wy.
span length:	unknown	abutments:	concrete full retaining
total length:	655'0"	piers:	concrete solid shaft mounted on dam
roadway width:	18'0"	roadway:	steel stringers w/ concrete deck
span type:	simple	approaches:	62' concrete beam

Eight-span, steel rigid-connected 8-panel Warren pony truss with verticals top chords: two channels w/ cover plates and lacing; bottom chords: four angles w/ batten plates; verticals: four angles w/ batten plates; diagonals: two angles w/ batten plates and lacing; lattice guardrails.

Fremont County Road CN10-24	milepost:	5.8
9.2 miles west of Morton		T3N, R2W, S23.
USGS Argo Butte 7½' quadrangle	UTM:	12.666120.4787605

The Wyoming Highway Department built several Warren pony trusses during the 1920s and 30s. Around 1930 it began designing them with polygonal instead of straight top chords - a refinement which proved more economical than its predecessor. Fifteen Warren pony trusses with polygonal top chords and verticals at all panel points remain in use today, with span lengths ranging from 70' to 100'. All but one of these appear to have been erected from a single standardized design used by the Highway Department. The one exception appears to be a transitional structure - built for one of the counties from a different design; it is included in this nomination. The most outstanding of the Highway Department-designed trusses of this type is also included.

ERT Bridge over Black's Fork — Uinta County

erection date:	ca.1920	contractor:	unknown
span length:	80'0"	abutments:	concrete retaining w/ sweptback wings
total length:	80'8"	piers:	none
roadway width:	15'9"	roadway:	steel stringers w/ timber decking
span type:	simple	approaches:	none

Single-span, steel rigid-connected 10-panel Warren pony truss with polygonal top chords and verticals.
top chords: two channels w/ cover plates and lacing; bottom chords: two channels w/ batten plates; verticals:two angles w/ gusset plates; diagonals: two angles w/ lacing or batten plates; steel angle guardrails.

ERT (continued)

Uinta County Road CN19-217 milepost: 1.4
1.1 mile south of Fort Bridger T15N, R115W, S4.
USGS Fort Bridger 7½' quad. UTM: 12.550960.4572200

EJZ Bridge over Shoshone River Big Horn County

erection date:	1925-26	contractor:	McGuire and Blakeslee Lovell Wy.
span length:	95'0"ea.	abutments:	concrete retaining w/ sweptback wings
total length:	389'6"	piers:	concrete solid shaft on spread ftgs.
roadway width:	20'0"	roadway:	steel stringers w/ concrete deck
span type:	simple	approaches:	none

Four-span, steel rigid-connected 10-panel Warren pony truss with polygonal top chords and verticals.
top chords: two channels w/ cover plates and lacing; bottom chords: four angles w/ batten plates; verticals: four angles w/ gusset plates; diagonals: four angles w/ lacing or gusset plates; lattice guardrails.

Big Horn County Road CN9-111 (Cowley-Lovell Road) milepost: 0.5
2.1 miles south of Lovell T56N, R96W, S17.
USGS Lovell 7½' quadrangle UTM: 13.702810.4967980

An unusual Warren variation features polygonal top chords with verticals at alternating panel points. Four pony trusses and one through of this type are included in the survey. The through and the best pony example are included here.

DUX Bessemer Bend Bridge Natrona County (over North Platte River)

erection date:	1921-22	contractor:	unknown
span length:	195'0" through 65'0" ponies	abutments:	concrete full retaining
total length:	330'0"	piers:	concrete solid shaft
roadway width:	18'10"	roadway:	steel stringers w/ concrete deck
span type:	simple	approaches:	two steel rigid-connected Warren pony trusses with verticals at alternating panel points

Single-span, steel rigid-connected Warren through truss with verticals at alternating panel points.
top chords: two channels w/ cover plates and lacing; bottom chords: two channels w/ batten plates; verticals: four angles w/ lacing; diagonals: two channels w/ lacing or rolled beams; struts: four angles w/ lacing; lateral bracing: two angles w/ lacing; sway bracing: angle; steel pipe guardrails.

DUX (continued)

Natrona County Road CN1-58 (Bessemer Bend Road) milepost: 2.0
town of Bessemer Bend T32N, R81W, S3.
USGS Emigrant Gap 7½' quadrangle UTM: 13.374785.4736380

DFU Elk Mountain Bridge Carbon County (over Medicine Bow River)

erection date:	1923-24	contractor:	D.B. Miller Cheyenne and Denver
span length:	102'0"	abutments:	concrete full retaining
total length:	106'0"	piers:	none
roadway width:	16'0"	roadway:	steel stringers w/ timber decking
span type:	simple	approaches:	none

Single-span, steel rigid-connected Warren pony truss with polygonal top chords and verticals at alternating panel points.
top chords: two channels w/ cover plates and lacing; bottom chords: two angles w/ batten plates; verticals: two angles w/ gusset plates; diagonals: two angles w/ batten plates; steel angle guardrails.

Carbon County Road 120-1 milepost: 0.1
0.1 mile south of Elk Mountain T20N, R80W, S20.
USGS Elk Mountain 7½' quad. UTM: 13.382700.4615735

The last Warren truss included in this nomination is a Warren through truss - the only one of its type still in use in the state. A two-span bridge used in tandem with a Pratt through, this bridge is an early (for Wyoming) rigid-connected example, representing a transition from the earlier pin-connected designs.

EBF Bridge over Powder River Sheridan County

erection date:	1915	contractor:	Gregg and Stout Sheridan Wyoming
span length:	unknown	abutments:	stone/timber retaining
total length:	201'6"	piers:	stone solid shaft on concrete base
roadway width:	16'4"	roadway:	timber stringers and decking
span type:	simple	approaches:	none

Two-span, steel rigid-connected 6-panel Pratt through and 6-panel Warren through truss with verticals.
top chords: two channels w/ cover plates and lacing; bottom chords: two angles w/ batten plates; verticals: two channels w/ lacing; diagonals: two angles w/ batten plates; struts: angle; sway bracing: angle; lateral bracing: round bar; lattice guardrails.

Sheridan County Road CN3-269 milepost: 13.5
15.1 miles northeast of Leiter T57N, R76W, S31.
USGS Cabin Creek NE 7½' quad. UTM: 13.416160.4969980

Although most of the trusses erected on the county and state road systems were made of steel, a number of timber trusses were also erected and several still remain in use. The oldest and most sophisticated timber truss in the survey - a two-span Kingpost pony - is included here.

DDZ Bridge over New Fork River Sublette County

erection date:	1917	contractor:	unknown
span length:	46'0"ea.	abutments:	timber full retaining
total length:	94'0"	piers:	timber cribbing
roadway width:	16'2"	roadway:	timber stringers and decking
span type:	simple	approaches:	none

Two-span, timber rigid-connected Kingpost pony truss
all chords: timber; verticals: steel rods.

Sublette County Road 136 milepost: 0.20
0.9 mile west of Boulder T32N, R108W, S9.
USGS Boulder Lake 7½' quad. UTM: 12.604270.4733690

The final two trusses are something of engineering anomolies, not belonging to any of the trends described on the preceding pages and unlike any other in the state.

DXN Bridge over Missouri River Crook County

erection date:	ca.1920	contractor:	unknown
span length:	72' 1"	abutments:	concrete sill w/ timber piles
total length:	72'10"	piers:	none
roadway width:	18'0"	roadway:	timber decking
span type:	simple	approaches:	none

Single-span, steel rigid-connected 8-panel Pratt pony truss without inclined end posts.
top chords: one channel and two angles; bottom chords: two angles; verticals and diagonals: two angles.

Crook County Road 18-200 (Little Missouri River Road) milepost: 34.8
21.2 miles north of Hulett T58N, R64W, S36.
USGS Mona 15' quadrangle UTM: 13.539875.4980980

ELS Bridge over Big Wind River Fremont County

erection date:	ca.1920	contractor:	unknown
span length:	37'0"; 36'7"	abutments:	concrete culverts w/ timber walls
total length:	78'7"	piers:	concrete solid shaft
roadway width:	14'0"	roadway:	timber stringers and decking

ELS (continued)

span type:	simple	approaches:	none
Fremont County Road CN10-21		milepost:	0.1
2.8 miles northwest of Dubois			T41N, R107W, S3.
USGS Dubois 7½' quadrangle		UTM:	12.606700.4822705

Reinforced concrete arches, common in other parts of the country, are rare in Wyoming. Because they require a solid canyon wall or massive masonry or concrete abutment to withstand the extreme lateral thrust of the primary arch, they have proved unsuitable for most locations in the state. Only one major concrete arch is known to have been built on the road and highway systems in Wyoming. Fortunately it is still standing and is included in this nomination.

Hayden Arch Bridge

erection date:	1924-25	contractor:	Crocker Construction Company
		designer:	C.E. Hayden (Wyoming Highway Department)
span length:	115'0"	abutments:	concrete on canyon walls
roadway width:	20'0"	piers:	concrete
span type:	concrete arch	approaches:	smaller concrete arches

Single-span reinforced concrete arch bridge with two smaller arch approach spans

Old U.S. 14/16 (Cody-Yellowstone Highway)			
Approximately 2½ miles west of Cody			T52N, R102W, S35.
USGS Cody 15' quadrangle		UTM:	12.647310.4930010

8. Significance

Period	Areas of Significance—Check and justify below			
___ prehistoric	___ archeology-prehistoric	___ community planning	___ landscape architecture	___ religion
___ 1400–1499	___ archeology-historic	___ conservation	___ law	___ science
___ 1500–1599	___ agriculture	___ economics	___ literature	___ sculpture
___ 1600–1699	___ architecture	___ education	___ military	___ social/ humanitarian
___ 1700–1799	___ art	X engineering	___ music	___ theater
___ 1800–1899	___ commerce	___ exploration/settlement	___ philosophy	X transportation
X 1900–	___ communications	___ industry	___ politics/government	___ other (specify)
		___ invention		

Specific dates built: 1905-1935 **Builder/Architect** multiple; see Inventory Data, Item 7

Statement of Significance (in one paragraph)

Simply stated, the forty bridges in this thematic nomination are the best of their types still in use on the state and county road systems in Wyoming. Selected from a statewide survey of all functional vehicular trusses and arches using the evaluation criteria and methodology described in Item 7, most represent superlatives of their generic engineering types (i.e. truss configuration and connection types) while typifying bridgebuilding and transportation trends in the state. All were built in the first three decades of this century and display a remarkable homogeneity of construction and operational histories. Generally the county-built trusses were contracted through competitive bidding among several Midwestern bridge erectors and built from standardized designs using prefabricated components. The later highway department bridges were typically designed from standard plans maintained by the department and built by local contractors from components fabricated in the same Midwestern foundaries. Although the cyclical maintenance of the bridge superstructures and supports has varied from county to county, all of the bridges included here have retained a high level of structural and material integrity; and although some have undergone subsequent moves from their original positions, this is the result of the portable nature of steel trusses, and all display integrity of setting, feeling and association. As the most significant remaining structures from what was at one time an extensive collection of late nineteenth and early twentieth century spans, these bridges as a group relate the history of trussbuilding in Wyoming, as well as general transportation and development themes, and as such deserve enrollment on the Register.

Addendum

Following is an historical overview of truss development in America and Wyoming, with brief histories and statements of significance given for the individual bridges.

Bridges, as integral elements of a developing transportation network, have played a pivotal part in the spanning of the North American continent. Generally the most sophisticated components of any overland transportation system - from the networks of county roads and state highways to the transcontinental railroad, they are also the most prominent, and serve not only as gauges of technological advancement in design and construction, but as singular indicators of the values and ambitions of the people who erected them. According to David Plowden in Bridges: the Spans of North America, "Abroad, transportation systems and the paths, passages and crossings on which the systems operated were created to serve an existing society. In America, they helped

to create the society. . . and make a single, unified nation." While descriptive of the country in general, this has been particularly true for Wyoming, a state in which overland transportation forms a central historical theme. Although bridges were put up during the early periods of overland emigration, they had not begun to proliferate in the state until later, during the first decades of this century, with the emergence of the automobile as a principal form of transportation. A common sight in those first years of auto travel and still present today are the different examples of what may be considered primarily an American achievement: the truss bridge.

Truss Development in America

The introduction of the truss in America in the eighteenth century marked the beginning of continually more sophisticated bridge design in the country. Beginning with the simple kingpost, the most basic truss form, New England carpenters and designers developed more complex variations and several new timber truss forms appeared. By the 1820s truss design was becoming more sophisticated. The empirical trial and error method was eschewed in favor of increasingly skillful engineering design. The great proliferation of truss bridges in the mid-nineteenth century can be attributed to the railroad. Such spans as the Howe, Pratt and Whipple - all named after their inventors - were developed to carry the heavier loads, longer crossings and greater rigidity requirements of the railroads. Any number of configurations could be utilized and still allow the bridge to behave as a unit while also being sufficiently rigid. Massachusetts millwright William Howe's contribution, patented in 1840, was a truss design which utilized wood timbers for the diagonal and horizontal compression members but substituted wrought iron for wood in the vertical tension members. His combination wood/iron design represented an improvement in spanning and loading capacities over its all-timber predecessors. Because of its greater strength and uncomplicated erection it was the standard American railroad bridge before 1850. A series of disasterous collapses of Howe trusses in the late eighteenth century, however, combined with the maintenance problems of wood, directed railroad truss design toward all-metal configurations. But the wooden Howe truss was not exclusively a railroad bridge and continued to be used extensively for highway bridges well into the twentieth century.

In 1844 Thomas and Caleb Pratt received a patent for what would be known as the Pratt truss - one of the first of the scientifically designed truss bridges. The Pratt truss resembled the Howe except the verticals were compression members and the diagonals, tension. This had the effect of shortening the compression members, increasing their theoretical crippling load and substantially strengthening the truss. The first Pratt trusses, like Howe's, used a combination of wood for the compression members and iron for tension but never gained the popularity of Howe's design because they required a greater quantity of then-expensive iron. All-iron versions were fabricated later, and as the comparative costs of iron (and later steel) came down, the Pratt truss became the American standard for highways and railroads. Eventually, the variations of the Pratt design began to appear: the Parker, with its polygonal top chords, Pennsylvania, Baltimore, Kellogg and Lenticular trusses, all designed before 1900.

Four years after the Pratts patented their design, the Warren truss was patented by two British engineers. Like the Pratt, the Warren truss featured a fairly straightforward design which transferred loads through triangulation of its members, with metal diagonals alternating in tension and compression. The Warren is easily recognizable, with or without stiffening verticals. Later it would become another vehiclar bridge standard.

All of these early truss designs were based upon the experience and judgement of their builders. Some of the early developers may have based their plans on mathematical theory, but there was no published analysis of stress in members until Squire Whipple's 1847 An Essay on Bridge Building. The book rationalized truss bridge construction and design and "launched the science of bridge engineering," according to Joseph Gies in Bridges and Men. Whipple, largely self-taught, is responsible for the world's first scientifically designed metal bridge, a cast iron arch truss over the Erie Canal at Utica, New York, built in 1840. In April 1841 he received a patent for his "Iron Bowstring Bridge." Since then many bowstring trusses have been erected, including the well-known Platte River Bridge at Fort Laramie, built in 1875 by the King Iron Bridge and Manufacturing Company.

A number of companies were formed after 1850 to fill the demand for highway and railroad truss bridges. Among the larger of these early national firms were the Keystone Bridge Company of Pittsburgh (later the foundation of the American Bridge Company), the Union Bridge Company of New York and the King Iron Bridge Company of Cleveland. Few bridge engineers at the time completely understood stess analysis and truss design, allowing the national firms to gain power. Typically, these foundaries would patent standardized truss variations and mass-produce the individual members, depending on the speed and economy of the operation for profit. The accepted practice of the time was for the various bridge companies to submit competing bids for specific bridges. Each company submitted its own plans and specifications for the bridge design. "This was satisfactory when the contractor had a competent engineer or retained a knowledgeable consultant, but this was seldom the case. While many safe and satisfactory bridges were built by this procedure, there were also many unsatisfactory ones." From 1850 to 1875, twenty-five or more bridges failed each year.

Highway bridges failed more frequently than railroad bridges, as economy-minded state or local county officials with no technical knowledge contracted for local roadway bridges. Economy was the foremost consideration, with the bottom line in the competitive bidding being the proposed cost. Bridge design was secondary, assumed by the locals to be adequately safe. As a result, "fly-by-night operators sold whenever and however they could, threw together a bridge, and moved on in a hurry." Few of the major manufacturers were still in business by the turn of the century.

Bridges became safer when steel replaced iron as the major structural material in the 1890s. Stronger, more reliable and more versatile than iron, steel had been expensive and could be produced in only limited quantities throughout much of the nineteenth century. In 1856 Englishman Henry Bessemer patented a process of fabricating steel

which began to remedy these problems. During 1878 General William Smith proved that an all-steel bridge could be built economically with the completion of a railroad span across the Missouri River at Glasgow, South Dakota. By the turn of the century steel was the preferred material and the truss the preferred design for short- to long-span highway bridges. The early years of the twentieth century represented the final development and climax for truss design. Steel components could be fabricated economically in quantity, and pin connections, the earliest method of joining the members,were then being phased out by the more rigid riveted connections. Large-scale cantilevered spans were executed at major river crossings; designers had learned to calculate the complex secondary stresses generated in continuous trusses, making their use feasible. The truss has more recently been superceded largely by I beams, box girders and prestressed concrete beams.

Trussbuilding in Wyoming

Wyoming historically has been a thoroughfare and only in relatively recent years has become a destination. As tens of thousands of emigrants crossed the state westward over the Oregon Trail (with its many cutoffs) and later the more southerly Overland Trail, a rudimentary system of primarily east-west arteries began to develop. These early roads were served by a string of rather isolated outposts catering to emigrant traffic - forts, stage and pony express stations, ranches, trading posts and ferries and bridges. The bridges were often crude affairs (John Richard's Platte River bridge reportedly sank four feet when wagons crossed it), but provided a safe alternative to fords. All were made of timber, usually stringers supported by timber cribbed piers or perhaps simple king post trusses, and were technologically anachronistic when viewed against contemporary national trends. By the 1860s overland emigration by wagon and stage had begun its precipitous decline, as the first transcontinental railroad was nearing completion. The railroad brought with it new technologies, the means to transport heavy equipment and supplies and the population to use them. Most of the early railroad bridges in Wyoming were timber trestles. Built hurriedly and in many cases intended only as stopgap measures, they were often breathtakingly unsafe structures. Several failed or were washed away before they could be replaced with metal trusses or girders.

After the Union Pacific had crossed the state in the late 1860s, the caravans of wagons heading westward diminished. The flow of overland traffic instead shifted northward in the 1870s - from the railhead in Cheyenne to the gold fields of South Dakota and Montana. Shortly after gold was discovered in the Black Hills in 1874, Cheyenne had become the jumping-off point for would-be prospectors and provisioners. The city's distinction, a bonanza for local merchants, was due at least in part to the first major roadway truss built in the new territory. Cheyenne businessmen began boosting for a new bridge over the North Platte River eighty miles north as soon as it became apparent that money was to be made from the Cheyenne-Black Hills link. When county officials refused to open a ferry across the river, they began lobbying for a "government military bridge near Fort Laramie. Wyoming's territorial delegate to Congress, W.R. Steele,

explained to Secretary of War W.W. Belknap in a letter dated 26 February 1874 that such a bridge would allow quick transfer of troops to the north if trouble occurred among the Sioux, who were at the time defending their land from the massive influx of White settlers. Congress authorized the bridge on June 23, and the construction contract was awarded shortly after to the King Iron Bridge Company. The three-span 420' bowstring arch truss was completed in December 1875. It was officially accepted by the army the following February. The bridge opened the route from Cheyenne to Deadwood, South Dakota, and that same month the Black Hills Stage, Mail and Express Line began operation. The army abandoned Fort Laramie in 1890; in 1894 the government gave the bridge to Laramie County. It received daily use until 1958 and is now under the aegis of the National Park Service at Fort Laramie National Historic Site. Recently designated a Wyoming Civil Engineering Landmark by the American Society of Civil Engineers, the bridge is the oldest vehicular truss in Wyoming and is believed to be the oldest military bridge west of the Mississippi River.

Road and bridge construction during the territorial and early state period was the responsibility of the individual counties. Rarely following a premeditated plan, county commissioners would authorize the surveying and clearing of roads and construction of bridges as needed, usually in response to local petitions. Perhaps the first county-built bridge in the state was put up by Laramie County in 1876, soon after the completion of the Platte River Bridge at Fort Laramie. After considering a citizens' petition, the commissioners contracted with C.E. Clay to build a bridge across the Laramie River on the Fetterman Cutoff Road. The cost was $1888. In a sparsely populated territory, however, with minimal government revenues, relatively few vehicular bridges were erected before the turn of the century, and none remain today. Intrastate travelers during this time had to rely upon private bridges and ferries (often toll) or simply encountered no bridges at all and were forced to ford the watercourses.

It was not until the first decade of this century that any concerted bridgebuilding efforts by the counties began to appear in the state. The emergence of the automobile as the principal form of transportation provided a tremendous impetus to county bridge programs. As people gained more mobility between towns which had previously been isolated outposts and, perhaps more important, as tourists began streaming into the region in autos and excursion buses, county commissioners received increasing pressure from their constituants for more and better roads and crossings. Concurrent with this was the population increase experienced by Wyoming at the time. This provided greater revenues for local governments, allowing more ambitious bridgebuilding programs. Sheridan County, one of the more active in trussbuilding, alloted $10,000 for bridge construction in 1916 and $15,000 for each of the next two years. In 1919 bridge construction was included with road clearance and maintenance and the total budget was $60,000. This climbed steadily through the 1920s, dipped during the early Depression years to a low of $27,000 in 1935 and rose sharply the next year to $54,000. The decision to build a truss bridge was a serious one for a county strapped for funds, as most perennially were. Counties could usually afford to fund no more than half a dozen - and often only one - truss bridges per fiscal year. Costing several thousand dollars each, the bridges soon depleted annual funds. Frequently a county would issue Certificates of Indebtedness - official IOUs - when it had run out of cash. Or

it would delay construction of certain bridge projects because all of the available funds for the year had been expended. Typically, payments to a bridge contractor were the single greatest line item in a county's expense ledger, approached in size only by the payments to the local bank for retirement of bonds (which may have been issued to fund bridge construction).

The decision to build a truss bridge usually would be made in the early spring or summer, after the flooded rivers and creeks washed away existing timber bridges, or in late autumn, when riverbeds were dry and concrete foundations could be poured economically. The Butler Bridge [DML] over the North Platte River was erected as a replacement of an earlier timber bridge which had been heavily damaged during the spring flood of 1929. Responding to a petition in May from Platte Valley residents for reconstruction of the timber bridge, the Carbon County commissioners instead advertised for bids for the 170' steel truss in January 1930. Conversely, the construction contract for the piers of the Powder River Bridge [EBF] was let in October 1914 to take advantage of the atypically dry riverbed that year.

The usual procedure was for the county clerk or surveyor to advertise for competitive bids, giving only the location and span length of the proposed bridge and requiring the contractors to submit their own designs. (Occasionally even the location was not determined until later, as was the case with the Granger Bridge [DDW] over Blacks Fork. Contracted for in May 1912, the bridge location still had not been firmly committed to by the Sweetwater County commissioners in November when the steel for the superstructure was delivered to the site.) After solicitation and receipt of the proposals, the construction contract was then awarded to the "lowest and best" bidder. For some span lengths - particularly in the 80-100' range - bids were solicited for both through and pony configurations. This was the case with the Kooi Bridge [ECR]. The commissioners predictably opted for the less expensive pony type. Other times separate contracts were awarded for the abutments and superstructure. The Powder River Bridge [EBF] was built in this fashion. The Arvada Bridge [EAU] was to have been built in two stages, with the abutments poured in the winter of 1916 and the superstructure erected the following spring. All bids for the abutments, however, were rejected in November 1916, and they were eventually built with the superstructure.

Often most or all of the trusses built by a county for the year were let out in a single bidding, and several of the bridges in this nomination resulted from multi-bridge contracts. Sheridan County's four steel trusses of 1911 were contracted for in this manner, with a single contract awarded to the Canton Bridge Company for $2360. Remarkably all four of the Pratt Half-hip ponies still stand in their original positions today: 40' [EAX] and 60' [EAW] spans over Little Goose Creek and two [DGC] and [DGB] over Wolf Creek. Similarly, all four of the county's bridges for 1914 were let under a single contract for $4800, again with Canton. The Big Goose Creek Bridge [ECS] remains in its original position from this group. Probably the most expensive multi-truss contract was awarded by Big Horn County in 1916. Originally bids had been solicited for three major steel trusses: one over the Nowood River above Manderson and two over the Big Horn at Rairden and Kane. When the lowest proposal totalled $30,986, the Manderson bridge was quickly laid over for further consideration (i.e. killed). A contract

was awarded to the Monarch Engineering Company for the remaining two. Of these, one remains - the Rairden Bridge [ ] - the longest single-span county truss erected in the state.

A typical solicitation for bids would be answered by a handful of national steel bridge contractors with an occasional local contractor submitting a proposal. The major foundaries were located in the West and Midwest. They fielded regional representatives in the state to keep up with the county bridge projects. Among the large firms which bid regularly on Wyoming bridges were: the Midland Bridge Company and Kansas City Bridge Company, both of Kansas City, Canton Bridge Company of Canton, Ohio (with a regional office in Denver), Security Bridge Company of Billings, Montana, Pueblo Bridge Company of Pueblo, Colorado, Hennepin and Great Northern Bridge Companies of Minneapolis and the Monarch Engineering Company, Denver Bridge Company, Midwest Steel and Iron Works and Charles G. Sheely Construction Company (which became the Colorado Bridge and Construction Company in 1912-13), all of Denver. The companies seemed to be regionally competitive. Denver-based C.G. Sheely, for instance, was almost unbeatable for a time across the lower tier of counties and built several pin-connected through and pony trusses which remain today: the Big Island Bridge [ETR] (1909-10), Granger Bridge [DDW] (1912-13) and the Green River Bridge [ETD] (1913) in Sweetwater County, Medicine Bow River Bridge [DFT] (1911-12) and Pick Bridge [DMJ] (1909-10) in Carbon County and the Mill Creek Bridge [ERF] (1907) in Uinta County. As competitive as he was in the southern part of the state, however, Sheely fared poorly in the northern counties. There the Canton Bridge Company and Monarch Engineering Company captured the lion's share of construction contracts. Further, most companies seemed to market specific truss types which were particularly competitive. Sheely erected a large number of Pratt through trusses and Canton fared best with Pratt and Pratt Half-hip ponies. Monarch tended toward configurations with polygonal top chords - Parkers, Camelbacks and Pennsylvanias. All of the traceable Camelback pony trusses in the survey were erected by Monarch between 1917 and 1924. Included in this group is the County Line Bridge [EJP], built in 1917 over the Nowood River.

One typical bidding occured in 1923, when the Carbon County commissioners solicited proposals for three medium-span steel trusses. Five bridge contractors competed for the construction contract with proposals which were quite close: Midland Bridge Company ($30,700), Monarch Engineering Company ($23,428), Missouri Valley Bridge and Construction Company ($23,766), Colorado Bridge and Construction Company ($23,977) and D.B. Miller of Cheyenne and Denver ($22,870). Miller was awarded the project, which included the Elk Mountain Bridge [DFU]. When the proposals were higher than the county had funds to pay, the commissioners followed several options. All bids could be rejected, as was the case with the abutments for the Arvada Bridge. One or more bridges from a multi-bridge letting could be deleted, such as the Manderson Bridge over the Nowood. Or the county could negotiate with erectors to lower the price. Monarch was granted the contract for the Arvada Bridge [EAU] and three others on 7 February 1917 for $18,000, although the company's initial proposal the day before had been $19,201.

Major truss fabricators advertised frequently in trade journals like Western Contractor,

Rocky Mountain Contractor and Civil Engineering. Directed toward potential government clients and other contractors, the ads looked like:

Midwest was a firm often involved on Wyoming bridge projects. Another regional erector which built several trusses in the state was the Denver Steel and Iron Works Company:

Although competitive bidding for construction of bridges was the norm, counties acquired bridges using other means. Sometimes a private owner would donate or sell to the county an existing bridge on a road just designated a county route. In some instances, if a person was unable to pay his taxes, the construction of a small (non-truss) bridge or repairs on an existing bridge could be substituted, a practice which was quite common. In June 1905, Carbon County entered into an agreement with W.H. Butler in which he built a bridge over Sommer's Ditch, sold an existing bridge over the Platte River known as the Butler Bridge to the county and granted a right-of-way for a road. The financial arrangement was curious. The county agreed to pay Butler $2000, broken down as follows: $47.52 to pay Butler's taxes; $860 to pay Mrs. Marie Terwilliger and amounts of $174.48 and $1050.00 to Butler. His part came in the form of vouchers of indebtedness - the

county was short of money again. This bridge was replaced in 1930 by a steel truss [DML] which also became known as the Butler Bridge. Another, more organized way for people to work off their tax indebtedness was in a periodic event called Good Roads Day. On this day road and bridge maintenance labor could be credited toward a person's taxes. Counties often purchased trusses from the railroads which could not carry the increased loads of heavier train traffic and resorted to other imaginative means to acquire bridges.

Big Horn County was particularly innovative in its acquisition of bridges. On 30 March 1907, the Chicago, Burlington and Quincy Railroad informed the county commissioners that it would soon "release from use" certain timber bridges and offered to sell - at $5.50 per lineal foot - some to the county for use at Greybull, Basin and Manderson. Two of them were to be erected that same year and the county would pay moving costs. Cautioning that the offer "should not be considered a precedent for future requirements of the County as far as bridges are concerned," the railroad desired only "to assist Big Horn County in constructing bridges across the Big Horn River at places where settlement and the general development of the county would be promoted thereby and trade brought to the railroad. . ." The county commissioners eventually did accept the railroad's offer but avoided paying the asking price. That August they authorized A.C. Newton to travel to Omaha to arrange for the erection of the bridges in the the cities. Early in 1908, the Lincoln, Nebraska-based Lincoln Land Company bought from the railroad two Howe trusses and paid for their erection over the Big Horn at Manderson and Greybull. The company also agreed to the same procedure near Kane.

Another agreement made by the Big Horn county commissioners involved the federal government, as the Bureau of Reclamation agreed to fund partially a portion of a highway (with attendant bridges) near the Shoshone Reservoir. The county, of course, granted the right-of-way for the highway. Park County negotiated a similar arrangement in 1922. The Bureau paid half the costs of a county-contracted truss bridge near the Willwood Diversion Dam. Similarly the Wyoming Highway Department two years later erected an eight-span steel truss over the Wind River Diversion Dam [ELY] . Built on concrete piers which were formed as an integral part of the dam, this is reportedly the first bridge of its type in America.

In 1917 the Big Horn County commissioners entered into an agreement with the commissioners of Washakie County for a joint construction venture on a bridge. Big Horn County would pay for the west abutment, Washakie the east. The counties would split the superstructure cost evenly, with Big Horn advertising for bids and supervising construction. Originally thought to straddle the border between the two counties, the bridge has been revealed by subsequent surveys to lie entirely within Big Horn County. Such cooperative projects were common in states in which watercourses formed the dividing lines between counties. In Wyoming, however, county borders were seldom geographically determined, and this County Line Bridge [EJP] is the only known two-county truss.

Despite the continual financial woes of the counties, they did manage to erect a large number of steel or timber trusses during the first two decades of this century. Like thousands of contemporary bridges built across the country, Wyoming's early trusses were primarily of two types: the Pratt (with its many permutations of form) and the

Warren. Both through and pony trusses were built in abundance, the size and configuration of their chords, struts, posts and bracing determined by the loading conditions and span length. These bridges seldom displayed anything other than standard form. There were none of the rare Bollman or Fink trusses or the striking Lenticular truss erected in the state. The highly competitive bidding process and the fact that the spans required were generally relatively short did little to encourage engineering innovation in the bridges' design. Most steel trusses in Wyoming were fabricated from standardized designs, mass-produced by the great Midwestern bridge companies. The 1908 Design of Highway Bridges by Milo S. Ketchum listed standard low truss spans then used by the American Bridge Company, one of the industry giants:

	span in feet
Low Warren riveted truss with parallel chords, box-section	30 to 85
Low Warren riveted trusses with inclined chords	90 to 102
Low Warren riveted truss with parallel chords, T-section	36 to 75
Low Pratt riveted truss, box-chord	30 to 90
Low Pratt riveted truss, T-section	36 to 60
Low Pratt full-slope pin-connected trusses	36 to 90
Low half-hip pin-connected trusses	36 to 56

For vehicular trusses in Wyoming, the shift from pin connections to riveted occured around 1915. Large through trusses were continued to be erected with pin connections after this point, up to 1930 with the Butler Bridge, but they represented an earlier and obsolete technology. One of the earliest known rigid-connected through trusses remaining is the Powder River Bridge [EBF] , erected in 1915 by Gregg and Stout. A two-span truss which combines a Warren with a Pratt span, the bridge lacks the massive gusset plates at the connections which distinguish its many followers. It thus appears as a transition from the attenuated pin-connected roadway trusses to the more substantial rigid highway trusses.

County officials, generally lacking engineering skills, depended upon the bridge builders to provide their own designs, but Sheridan County, in an effort to erect more bridges more quickly and economically, acquired a set of standardized plans for itself. In March 1915 the county commissioners ordered the county clerk and county surveyor to purchase drawings and specifications for steel bridges of 40, 50, 60, 70 and 100 foot spans with a 16' width. The hope was to standardize bridge building in the county. The commissioners adopted the standard plans, specifications and instructions to bidders for five types of bridges, explaining the move as "necessary for convenience of the county and all others interested in the construction of such bridges, including prospective bidders."

One feature that all steel truss types shared, and which endeared them to the hearts of penurious county officials, was their versatility. Quickly erected, they could also be dismantled and moved if necessary. Many county road bridges in Wyoming had begun service as railroad bridges, sold or given to the counties as obsolete structures. The Schoonover Bridge [EEN] in Johnson County is reportedly one such railroad bridge, hauled over the

frozen Powder River during the winter and hoisted into place. Similarly, early highway bridges which had become unsuitable to handle increasing volumes of traffic were sometimes replaced with newer trusses, with the older bridges demoted to places along less traveled roads. The Pick Bridge [DMJ] was moved in this manner. Erected in 1909-10 a mile and a half south of Fort Steele, it remained the major crossing over the North Platte River until 1929, when it was replaced with a 180' truss by the Wyoming Highway Department. Carbon County contracted with Frank Anderson in 1934 to move the bridge 21 miles up the river to its present location on the Pick Road. Other moved bridges include the Laramie River Bridge [DOE] ,erected in 1926 on the Bosler-Laramie Road and replaced in 1932, and the Irigary Bridge [EDZ] , erected in 1913 and moved in 1963. It is this perapatetic nature that makes research and location of truss bridges a sometimes tenuous venture.

Once erected, the bridges often opened large tracts of previously inaccessible land for development. In January 1916, for instance, several citizens appeared before the Big Horn County commissioners to petition for a bridge over the Big Horn River at Rairden. According to the Big Horn County Rustler: "They make an especially strong plea for this bridge because it would bring into the field immediately ready for sugar beets a large acreage of land." The Rairden Bridge [ ] was erected later that year. Several of the bridges spanned rivers at crossings which had been used much earlier by emigrant traffic. As the original emigrant trails evolved into county roads, trusses replaced earlier fords or bridges. The Bessemer Bend Bridge [DUX] over the North Platte is situated at the historic Bessemer Bend crossing of the Oregon Trail. The Granger Bridge [DDW] and Green River Bridge [ETD] span over historic fords, and the Blacks Fork Bridge [ERT] crosses that river only a mile south of Fort Bridger, an early trading post and military garrison on the Oregon Trail. But, although the bridges formed vital links between distant parts of the state, they received surprisingly little fanfare at their openings. Almost universally, the trusses were put into service quietly and unceremoniously. Little has been written about them since, and they appear not to have been attached prominently to the public psyche.

After creation of the Wyoming Highway Department in 1917, the role of the counties in truss bridge construction diminished. Bridges on county roads were continued to be built, but the highways fell under the jurisdiction of the state agency, with the counties paying only a predetermined percentage of the construction costs.

Wyoming Highway Department

Roads all across the country in the 1910s, built for wagon and horse usage, were ill-suited for the increasing automobile traffic. In 1914, there were 71,000 miles of state highways in America, half of which were merely graded earth. Only half of the states even had highway departments. Wyoming was not totally devoid of highways at the time. A group of enterprising businessmen had formed the Lincoln Highway Association in 1913 to build the first transcontinental highway, which eventually extended across the south part of the state. Additionally, the Black and Yellow trail crossed northern Wyoming in 1914. Beginning in Minneapolis, it passed through the Black Hills, then

Newcastle, Gillette, Buffalo, Tensleep, Worland, Cody and on to Yellowstone Park. Sheridan, bypassed by the Black and Yellow, promoted the Custer Battlefield Highway from the Black Hills to Glacier National Park. But off of these few improved highways, the road and bridge situation in Wyoming was dismal. The Wyoming Highway Department was established in 1917, in accordance with the 1916 Federal Highway Act, to improve road conditions in the state. That same year the state received $61,200 of the first federal appropriation for highway funds. Plagued from the start by meager finances, the newly created agency was hampered in its efforts to correct the discouraging statewide road and bridge situation:

> At this time Wyoming was a vast wilderness so far as her road system was concerned. A number of trails connected up the principal centers of population, and there was little if any travel on them with the exception of the rural mail delivery. The County or State had no right of way to speak of, and where there were any roads or trails, their location was such as made it impractical to retain the modern traffic such as improved roads would develop.

The Department ascribed the prominent place of the highway in the transportation system "to the very rapid and increasingly extensive use of the motor truck."

One of the first acts of the new highway department was to standardize bridge plans and specifications. These were printed and distributed to each board of county commissioners, representing the first major in-state design of trusses and marking the decline of bridge engineering by national construction firms. The state hoped to reduce the number of bridge failures, which were attributed mostly to faulty foundations. The State Highway Commission, in its First Biennial Report, stated:

> The use of standard plans and specifications will result in a real saving to the taxpayer through decreasing the liability of bridge failures and will bring about wider competition among the bidders when the bidder knows just what is to be required of him. . . There is another important consideration in the protection afforded the traveling public because of the uniformity in the capacity of the bridges.

The American Association of State Highway Officials (AASHO) also sought to standardize bridge construction and established a Subcommittee on Bridges and Structures in 1921. Realizing that in earlier years bridge plans and specifications had been prepared by consulting engineers, bridge fabricators and railroads, the committee hoped that, in cooperation with federal and state highway departments and other associations, societies and institutions, "uniform standard methods of construction and maintenance and in standardizing" could be formed. In 1929 AASHO accepted as its standard the specifications compiled in the March 1929 Conference Specifications for Steel Highway Bridges.

Standardizing, usually an asset economically, could, however, work to the detriment of the truss design. The Highway Department believed that from 1 October 1920 to 20 September 1922 the "most important bridges in the state have been designed and constructed," all with specially prepared plans. With a potential saving of $10,000 to $20,000 per structure, it soon became apparent that for large structures it was much more economical to prepare a custom design than to combine existing standards. Evidently

proud of the new bridges, the Highway Department stated:

> From comparisons of cost of similar bridges built elsewhere, it is safe to say that this Department has constructed its bridges at the lowest possible costs, and in addition has secured structures of handsome appearance which will be of permanent credit to the state.

Truss-building in Wyoming reached its peak in the early 1920s. During the fourth biennial period of the Highway Department, the state built the Green River and Cheyenne River bridges and began construction of the Wind River Diversion Dam Bridge. This last truss was built as part of Federal Aid Project 159A. With an aggregate length of 720', it was made up of eigth 80-foot low steel truss spans, costing $58,000. The Reclamation Service provided the piers, and the spans were integrated with the dam, reportedly the first of its type built in this country. It was described by the department as a "splendid structure and offers a much needed permanent crossing of the Wind River between Riverton and Dubois."

Bridges designed by the Highway Department differed only in degree from the earlier county-built structures. Favoring the classic over the exotic, department engineers used a few standard bridge types, with the Pratt variations for the through trusses and straightforward Warren trusses for the shorter ponies. Designed for greater loading capacities than their predecessors, state-built bridges of the twenties and thirties tended to consist of heavier members and present a more massive appearance than the often attenuated county bridges of a decade before. One truss design which received extensive use during the mid-1930s was the rigid-connected Warren pony with polygonal top chords. Dozens of nearly identical spans were erected from this design during the period, the most outstanding of which was the Shoshone River Bridge [EJZ]. Built in 1925-26, it replaced an earlier bridge. Stated the October 1925 Wyoming Roads:

> The necessity of a new bridge at this point was clearly demonstrated several days ago when a loaded five-ton truck broke through the floor of the old bridge and landed on the bottom of the river. This old bridge has been posted for light loading only for a number of years, but it has been the practice of drivers of heavily loaded trucks to take a chance at this point.

Funding in the 1920s was inadequate. By 1926, with little less than half of the state highways completed, construction almost ceased because the 2.5¢ gasoline tax and the decreasing federal oil royalties could not keep pace. In an attempt to raise additional funds, the State Legislature in 1927 raised the gasoline tax to 3¢ per gallon, all earmarked for road and bridge maintenance, and provided receipts from the motor vehicle license fees to augment oil royalty funds.

The onset of the Depression was a boon to state road and bridge construction. The federal government appropriated the money for various relief programs during this period, among them the construction of thousands of federal and local government buildings and an expanded highway construction program. Congress advanced $80 million to the states in December 1930, with the stipulation that it would be deducted from the Federal Aid authorizations beginning in fiscal year 1933. Wyoming received over a million and spent it all by September 1931. Relief projects employed some 632 men in the state by the end

of that month and were expected to increase the number to 2600 by November. In July 1932 Congress passed the Emergency Relief Act, appropriating $120 million for emergency highway construction; Wyoming received a little over $1.5 million. It was estimated in 1934 that the highway program provided jobs for 25% of the state's unemployed during seasonable working weather. Due to the depressed construction market, with its attendant low material and labor prices, and the massive federal aid, the State Highway Program improved more from 1930 to 1934 than in any other comparable period. A number of steel trusses were put up during this time, including two spans over the Powder River [AJX] and [CKW] , two of the state's most significant remaining bridges.

State-backed bridgebuilding resembled the efforts by the individual counties in a number of ways. Construction contracts were still generally issued through competitive bidding. The bidders, though, were no longer national bridge erectors acting through regional agents, but local contractors such as Charles M. Smith of Thermopolis (who built the Four Mile Bridge [CQA] among many others), Taggart Construction Company of Cody (Wind River Diversion Dam Bridge [ELY]), N.A. Swenson of Laramie (Laramie River Bridge [DOE]) and McGuire and Blakeslee of Lovell (Shoshone River Bridge [EJZ]). These contractors still used steel forged in the great Midwestern foundaries, but did not provide their own designs, using instead the plans of the Highway Department. Like the county-built bridges, little fanfare attended the opening of Highway Department bridges, as they were put quietly to use. The single notable exception to this was the Hayden Arch Bridge [A] built in 1924-25 over the Shoshone River west of Cody. The town, which had enjoyed a tremendous boost in Yellowstone-bound tourist trade with the opening of the Black and Yellow Trail in 1915, welcomed the bridge with unrivaled zeal. Reported the Park County Herald on 24 June 1925:

> The new canyon road project and concrete arch just completed by the Wyoming state highway department thru Shoshone canyon was formally opened on Sunday with very pretentious dedicatory ceremonies under the auspices of the Cody club, commercial organization of Cody, Wyoming. Horace M. Albright, of Yellowstone National park, made the principal address at the site of the bridge, and Miss Jane Garlow, granddaughter of Col. W.F. Cody, broke a bottle of the famous DeMaris mineral water over the rail of the bridge as it was given the name Hayden Arch... (It) was named after C.E. Hayden, the first engineer to locate in the Cody country, and one of Cody's most esteemed citizens. For the last few years Mr. Hayden has been connected with the state highway department, and has been resident engineer while the new road and bridge have been under construction in this canyon... The highway department entered heart and soul into the work, and it is a fitting memorial to the efficiency of this department of the state government.
>
> Supt. Albright spoke of the wonderful improvement which this new thoroughfare means to the travel in and out of the eastern gateway to Yellowstone, and expressed the belief that the southside road, and the broad even grade which it has developed through Shoshone canyon that the travel this way will be increased many fold, and that the tourist who now comes the Cody way will have nothing but praise and admiration for this entrance, whereas a few years ago, using the old road, they made the trip only with the greatest of discomfort and fear, and warned friends to use other entrances of the park in preference to the eastern entrance.

After World War II, new trussbuilding was rare in Wyoming. Most trusses erected from that time to the present have been salvaged from other locations - dismantled, transported and reassembled at the new locations. In 1952 the Highway Department removed a 119-foot, six-panel truss from the Laramie River near Uva and moved it intact into Platte County; the county elected to use only 85' (five panels) of the truss to replace a washed-out bridge over the North Laramie River. The Wind River Bridge [BMU] is another Highway Department-moved truss, assembled at its present location by Charles M. Smith in 1953. Today trusses have been largely superceded by more sophisticated engineering designs - girders, box beams, twin Ts - and are seldom erected. The remaining highway and roadway truss bridges are just that - remnants of past technologies, whose numbers are continually dwindling through attrition.

Individual Bridges

AJX ✓Bridge over South Fork of Powder River

This 306' steel deck truss, built in 1931-32 by the Omaha Steel Works of Omaha, Nebraska, under contract with the Wyoming Highway Department, is one of the state's spectacular vehicular bridges built during the Depression-sparked 1930s. Erected at a time when the large interstate-type highway cantilevered trusses were appearing across the country, this three-span Pratt truss is Wyoming's only large cantilever bridge. As such it is one of the state's most important highway trusses.

BMU ✓ Bridge over Wind River

During the early- to mid-1930s the Highway Department erected several rigid-connected Parker through trusses across the state. Of these seven remain. Most are in the 120'- 175' span range, but one bridge freespans 250'. The Highway Department contracted with Charles M. Smith of Thermopolis in July 1953 to reassemble this bridge over the Wind River on Wyoming 132. It is the longest single-span highway truss in Wyoming still in use.

CKW Bridge over Powder River

The Highway Department contracted with the W.P. Roscoe Company in August 1932 to construct two steel bridges on the Sheridan-Gillette Road as part of Federal Aid Project 206B. This Pratt deck truss is one of the bridges. Consisting of three continuous main spans and two shallower approach spans, it is an excellent example of the long span deck trusses built in the 1930s through the 1950s for major highway crossings. As one of only two major highway deck trusses built in Wyoming and the only continuous vehicular truss still in use in the state, it is an important representative of the most recent truss development. Although slightly less than fifty years old, it possesses the exceptional significance as the only one of its type for eligibility.

CQA Four Mile Bridge

The Highway Department reopened Federal Aid Project 90 in 1927, and in April awarded

CQA (continued)

the construction contract for this bridge over the Big Horn River to Charles M. Smith of Thermopolis. The bridge is one of only two rigid-connected Pennsylvania through trusses with sub-struts still functional in the state and county road systems of Wyoming. With a simple span of 175' it is the longer of the two. As such it is an uncommon truss type for a highway bridge, more usually associated with railroad spans, and is one of Wyoming's more significant trusses.

DDW Granger Bridge

The construction contract for this bridge over Blacks Fork at Granger was awarded in June 1912 to the C.G. Sheely Contracting Company of Denver by the Sweetwater County commissioners. Sheely, later president of the Colorado Bridge and Construction Company, had submitted the lowest bid at $3999. By November he had delivered the steel for the superstructure for the 150' truss, requesting that the Board visit Granger and decide upon a bridge site. Construction was completed the following year. This pin-connected Pratt through truss, one of the longest of its type in the state, displays classic member configuration. It is a well-preserved early example of a truss type which is common for Wyoming's county and state roads.

DDZ Bridge over New Fork River

This bridge reportedly erected in 1917 by Lincoln County, is the only two-span kingpost timber truss in the state. With its paired chords with timber spacer blocks and steel rod stiffeners, it is the most sophisticated of the few timber trusses still functional on the county road system. As the best example of its configuration and material, it is one of the more significant trusses in Wyoming.

DFT Bridge over Medicine Bow River

In August 1911 the Carbon County commissioners toured the county to inspect the current road and bridge conditions. After reviewing the numerous petitions from around the county for bridge construction and repair, they arrived at two conclusions: an additional two mill levy was needed to finance the large volume of work and three bridges were needed immediately. The three - one over Savery Creek southeast of Wamsutter, one over Big Creek southeast of Encampment and this bridge over the Medicine Bow River north of Hanna. Bids were opened in September, and the contract was awarded to Charles G. Sheely of Denver, lowest bidder in a group of six with a total of $19,445 (this bridge cost $9873). With a span of 152' this bridge is one of the longest pin-connected Pratt throughs built in the state; it is an excellent example of a truss type which proved to be a staple for the early county road system - one of the earlier remaining bridges in the survey.

DFU Elk Mountain Bridge

Carbon County awarded the construction contract for three trusses (over Pass Creek southeast of Walcott, the Medicine Bow River at Elk Mountain and Mill Creek just north of Elk Mountain) in August 1923 to D.B. Miller of Cheyenne and Denver. With

DFU (continued)

a proposal of $22,970, Miller had underbid three other bridge contractors - Midland Bridge Company, Monarch Engineering Company and the Colorado Bridge and Construction Company, all national bridge erectors. Two of the three bridges remain today in use by the county in their original locations - this and the bridge over Pass Creek (DMM). Both feature identical designs and component parts (this bridge is the longer of the two with a span of 102'). Miller's bridges are interesting hybrid pony trusses, with Warren diagonals and verticals at alternating panel points and a Parker-like top chord. As the longest of this type on the county road system, this bridge is an important representative of an engineering anomoly.

DGC Bridge over Wolf Creek

This bridge is one of four small spans erected in Sheridan County under a single contract issued by the county commissioners in June 1911. The contract was awarded to the Canton Bridge Company of Canton, Ohio, lowest bidder at $2360; Canton had underbid six other bridge manufacturers - the Missouri Valley Bridge and Iron Company, Security Bridge Company, Charles G. Sheely Bridge Company, Western Contractor Supply Company, Perham and Harris and the North-West Bridge Company. Remarkably all four bridges remain today in their original positions: two over Little Goose Creek (EAW and EAX) and this and another 35' span over Wolf Creek. All are Pratt Half-hip ponies featuring identical designs and component parts. The better of the two shorter lengths, this is the only two-panel Pratt Half-hips (an uncommon truss type) remaining with any degree of integrity - a significant early short-span steel truss.

DMJ Pick Bridge

Carbon County commissioners received a petition in December 1909 from the citizens of Rawlins and Fort Steele "praying" for a steel bridge across the North Platte River. In September 1909, bids were solicited for a 175' highway truss with a 650' pile approach over the river 1.5 miles south of the Fort. The construction contract was given in October to Charles G. Sheely for $12,700 (which also included a truss over the Little Snake River near Baggs). The bridge remained in place until 1929, when it was replaced with a 180' truss by the Wyoming Highway Department. The county hired Frank Anderson in 1934 to move the bridge about 21 miles up the river to the Pick Road Crossing, its present location. An early pin-connected Parker through truss, it is one of only two of its type remaining in use today in Wyoming. With a span length of 175' it features one of the longer simple spans of the county-built trusses. An important early example of its type.

DML Butler Bridge

Carbon County purchased the "Butler Bridge" over the North Platte River in June 1905 from W.H. Butler. By May 1929, the timber bridge had been damaged heavily, and Platte Valley residents petitioned the county commissioners for its reconstruction. The commissioners instead called for bids for a steel truss in January 1930 and awarded a contract to Chris O'Neil of Platteville, Colorado, for this bridge,

DML (continued)

also called the Butler Bridge. O'Neil's bid for $11,920 was the lower of only two received. With a span of 170', the Butler Bridge is the longer of two pin-connected Camelback throughs remaining in use on the county road system. As such it is an important early example of its generic type.

DMS Bridge over Cow Creek

This bridge is one of three contracted for by Carbon County in March 1915. The construction contract was awarded to the Petry-Moulton Company of Cheyenne for this 40' span ($1300), a 50' truss across Spring Creek three miles south of Saratoga ($1440) and an 80' truss over the Medicine Bow River ($2190). Petry-Moulton had underbid several other bridge manufacturers - the Midland Bridge Company, Pueblo Bridge Company, James J. Burke and Company, the Kansas City Bridge Company and the Monarch Engineering Company. This small pony truss is a modified Warren, with verticals at alternating panel points, one of four examples of its type in Wyoming's state and county road systems. It is also the oldest traceable Warren truss still in use on a county road in the state. As such it is one of the more significant of Wyoming's vehicular trusses.

DOE Bridge over Laramie River

The Wyoming Highway Department awarded the construction contract for this bridge in May 1926 to N.A. Swenson of Laramie as part of Federal Aid Project 156B. Originally located over the Laramie River on the Bosler-Laramie Road (the old Lincoln Highway, U.S. 30), this bridge was replaced in 1932 by two 100' spans, which were in turn replaced in 1947. Now located on a secondary county road north of Bosler, this bridge is distinguished somewhat as the only two-span Pratt Half-hip still in use in the state. It is one of the best examples of a relatively uncommon truss configuration.

DSD Bridge over Cheyenne River

Probably originally a railroad truss, subsequently moved to this location, this bridge is the only example of its type functioning presently on the county road system in Wyoming. As one of only two rigid-connected Pennsylvania throughs in the state, it is an important early remnant.

DUX Bessemer Bend Bridge

Built in 1921-22 for Natrona County, this bridge is a unique subtype of the standard Warren truss. One of only three Warren throughs still in use on the county road systems, it is the only one with verticals at alternating panel points; the two pony approach spans are also unusual, though not unique in their configuration. This bridge spans the North Platte River at the historic Bessemer Bend crossing of the Oregon Trail, an important emigrant site.

DXN Bridge over Missouri River

Unique for its type in Wyoming, this eight-panel Pratt pony truss lacks inclined

DXN (continued)

end posts. It is an interesting variation for a vehicular bridge in the state.

EAU Arvada Bridge

In February 1917, the Sheridan County Board of Commissioners received bids for 4 steel trusses - this one over the Powder River at Arvada, a 100' span over Clear Creek, an 80' span over the Tongue River and a 60' span over Lower Prairie Dog Creek. Monarch Engineering Company of Denver received the contract out of a field of eight bidders, with a proposal of $18,000 ($19,201 the day before). This pin-connected Parker through is one of only two examples remaining of its type in the state - one of the more significant of Wyoming's early bridges.

EAW Bridge over Little Goose Creek

(History - see DGC) An excellent early example of an uncommon truss type.

EAX Bridge over Little Goose Creek

(History - see DGC) An excellent early example of an uncommon truss type.

EBF Bridge over Powder River

In October 1914 the Sheridan County commissioners, seeking to take advantage of an atypically dry riverbed for the Powder River, contracted with Gregg and Stout Bridge Company of Sheridan to build a center pier for a two-span truss bridge. Jack Gregg was awarded the contract for the superstructure in February 1915. This through truss, consisting of a Pratt and a Warren span, presents classic configurations of the two truss types. One of the earlier rigid-connected vehicular trusses in Wyoming, it presents a transition from the earlier pin-connected bridges. One of the state's more interesting vehicular trusses.

ECR Kooi Bridge

In May 1913 the Sheridan County commissioners advertised for bids for two 80' steel trusses - one over Lower Piney Creek and this one over the Tongue River at the town of Kooi. Five bridgebuilding firms submitted proposals for both high (through) and low (pony) trusses: Canton Bridge Company (low - $4740; high - $5080), Missouri Valley Bridge Company (low - $3791; high - $5733), C.G. Sedgewick (low - $5298), Midland Bridge Company (low - $5335) and Jack Gregg (low - $3791; high - $4493). Gregg from Sheridan was awarded the contract received the contract and completed the bridges later that year. This five-panel, pin-connected Pratt truss is a classic early example of a relatively common vehicular truss type in Wyoming. With a clear span of eighty feet, it is the longest pin-connected Pratt pony still in use on the state and county road systems.

ECS Bridge over Big Goose Creek

The Canton Bridge Company of Canton, Ohio, was awarded the construction contract

ECS (continued)

by Sheridan County in June 1914 for four steel bridges - this and another span over Big Goose Creek, a 40' span over North Piney Creek south of Sheridan) and another. With the low bid of $4800 for all four, Canton had underbid several other national bridge erectors: the Elkhart Bridge and Iron Company, Midland Bridge Company, Clinton Bridge Company, Gregg and Stout, Missouri Valley Bridge and Iron Company, Security Bridge Company, Minneapolis Steel and Machinery Company and Walsh and Patterson. The bridges were completed by November of that year. This small four-panel Pratt pony is an excellent early example of a roadway truss configuration which is common for Wyoming.

EDL Peloux Bridge

Johnson County awarded the contract for this bridge in August 1912 to the Canton Bridge Company. With a low proposal of $1967.50, Canton had underbid three other national bridges manufacturers - the Hennepin Bridge Company, Security Bridge Company and Missouri Valley Bridge and Iron Company. This pin-connected five-panel Pratt pony is one of the earlier and better preserved examples of a common truss configuration.

EDZ Irigary Bridge

Johnson County, on 4 February 1913, awarded the contract for this bridge over the Powder River near the town of Sussex to the Canton Bridge Company; it was completed later that year. The structure was moved from that location in 1963 by the Etlin Peterson Construction Company of Casper under contract with the Wyoming Highway Department. Moved 18 miles to the Irigary Road, it again spans the Powder River in its new location. The Irigary Bridge's span of 200' is the longest clear span of any county bridge still in use in the state. It is exceeded in simple span length by only one highway truss and one abandoned roadway truss, both 250' in length. As one of only two pin-connected Pennsylvania throughs in the survey, it is one of the most important bridges in Wyoming.

EEN Schoonover Bridge

Originally a railroad bridge, by one report, the two trusses for the Schoonover Bridge were hauled over the frozen Powder River ca. 1928 and lifted into place at this location on the Schoonover Road. Classic seven-panel through trusses, the two spans are supported by the original steel pile bent center pier. This bridge is one of three two-span Pratt throughs still functional on the county road system; it exemplifies the frequent acquisition of surplus trusses for highway use by the state's counties.

EFP Bridge over Owl Creek

Built in 1919-20 for Hot Springs County by the Monarch Engineering Company of Denver, this bridge over Owl Creek is one of the more outstanding of the early county system vehicular trusses in Wyoming. Although several long-span, pin-connected

EFP (continued)

Camelbacks and Parkers had been built in the state during the first decades of this century, their attentuated long-span configurations have made them targets for county bridge replacement programs. The Owl Creek Bridge is one of only two pin-connected Camelback throughs left. An important early remnant.

EJE Bridge over Shell Creek

Big Horn County received only one bid for the erection of this bridge over Shell Creek, and therefore awarded the contract to the Midland Bridge Company of Kansas City for $4500 in 1920. A rigid-connected Warren pony truss with verticals at alternating panel points, it is the longest traceable example of its type - an excellent early example of a Warren variation.

EJP County Line Bridge

A joint venture between Big Horn and Washakie counties, the construction contract for this bridge was awarded in October 1917 to the Monarch Engineering Company. Big Horn County built the west abutment, Washakie the east and the counties each paid half for the bridge superstructure. Thought to straddle the border between the two counties, later surveys have revealed that this bridge lies entirely within Big Horn County. It is one of the earliest of five 100' rigid-connected Camelback ponies in use on the county and state road systems in Wyoming - the longest of its type in the state. As a classic example of its truss configuration and the only known instance of such collaboration between counties, it is one of the more significant roadway trusses in Wyoming.

EJZ Bridge over Shoshone River

This bridge was built in 1925-26 on Federal Aid Project 176A by contractors McGuire and Blakeslee of Lovell. It replaced an earlier bridge at this crossing of the Shoshone River on the Lovell-Cowley Road. Designed by Wyoming Highway Department, it is one of many Warren pony trusses with verticals and polygonal top chords erected in the state during the 1920s and 30s. This bridge is distinguished by its multiple spans - the second greatest number for a highway truss in the state. A significant example of later highway truss design.

ELS Bridge over Big Wind River

A juryrigged structure which combines an arched top chord with the simplistic bearing of a King Post truss, this modest two-span pony truss is unique for Wyoming. It appeard to be constructed from salvaged materials, including tunnel sets for the arches, and lacks construction sophistication. An interesting departure from standard form for a small vehicular truss.

ELY Wind River Diversion Dam Bridge

Erected on piers provided by the U.S. Reclamation Service and built integral with

ELY (continued)

the Wind River Diversion Dam, this bridge is reportedly the first vehicular truss to be incorporated into a dam structure in this fashion. The Wyoming Highway Department awarded the construction contract for it on 2 May 1924 to Taggart Construction Company of Cody; truss material was supplied by the American Bridge Company. At the estimated cost of $58,000, the spans were built on Federal Aid Project 159A. The bridge consists of eight Warren pony trusses - the gretest number of spans for a highway bridge in Wyoming, which combined, span a length of 655' - the longest highway truss in the state. It is one of Wyoming's most significant trusses.

ENP Bridge over Green River

Built early in this century by the Western Bridge Construction Company, this two-span truss is a classic example of early roadway bridge technology. It consists of two Pratt trusses - one through and one pony, both pin connected - which are typical representatives of truss configurations common in the state's county road system. The combination of through and pony spans is unusual, though not unique, in Wyoming; this is the only pinned Pratt combination left. One of the more interesting of the earliest trusses.

ERF Bridge over Mill Creek

This 36' pony truss, built by Charles G. Sheely in 1907, is an excellent early example of a pin-connected Pratt Half-hip - a truss configuration which is relatively uncommon on the county roads in Wyoming. One of the oldest remaining steel trusses in the state.

ERT Bridge over Blacks Fork

Spanning Blacks Fork, this 80' pony is an early example of a rigid-connected Warren with verticals and polygonal top chords - a configuration which was later used extensively by the Wyoming Highway Department from standard designs. Erected for Uinta County, it represents a transition from county-built roadway bridges to Highway Department highway bridges.

ETD Bridge over Green River

In June 1913 the Sweetwater County commissioners solicited bids for two bridges in the county; later that month the contract was awarded to the Colorado Bridge and Construction Company for $5895. With a span of 150' this bridge is one of the longest of the early pin-connected Pratt throughs built in the state. It is an excellent example of a truss type which proved to be a staple for the early county road system - a significant early remnant.

ETR Big Island Bridge

In October 1909 Charles G. Sheely was awarded the contract for this bridge over

ETR (continued)

the Green River and another over the Little Sandy about fifty miles north of Rock Springs. Called the Big Island Bridge for the region it opened, this two-span Pratt through features the longestsimple spans for its type in the state; it is also one of the oldest existing trusses in the state. One of the most significant of the early county-built vehicular bridges.

EWA Bridge over Garland Canal

This short-span pony truss over the Garland Canal is the best preserved of the early pin-connected Pratt Half-hips in use on Wyoming's county road system. With outriders on the verticals it is also the most technologically sophisticated of this uncommon truss type. An excellent early remnant.

EWZ Bridge over East Channel of Laramie River

An excellent early example of a pin-connected, five-panel Pratt pony truss, a relatively common truss configuration for Wyoming, this bridge was erected by the Pueblo Bridge Company of Pueblo Colorado. In September 1913, the Platte County commissioners awarded the contract for this bridge and another to Pueblo, low bidder among five with a price of $3650 ($2200 for this bridge). The two were completed the following year.

Hayden Arch Bridge

Named for its designer, Wyoming Highway Department engineer C.E. Hayden, the Hayden Arch Bridge was designed by the Wyoming Highway Department and built by the Crocker Construction Company. Spanning the Shoshone River on old U.S. 14/16 (the Black and Yellow Highway), this medium-span concrete arch is the only example of its type in the state. The Hayden Arch features concrete railings with round arch balustrades, a reinforced concrete roadway and a single 115' open spandrel primary arch upon which rest eight secondary arches. It is now situated on a secondary road with the subsequent relocation of the highway. Unique for Wyoming, it is one of the state's most significant vehicular bridges.

Rairden Bridge

In February 1916 the Big Horn County commissioners advertised for bids on three steel truss bridges: one over the Nowood River above Manderson, one over the Big Horn at Kane and this bridge at Rairden. The following month six bridge erectors submitted proposals in what is probably the most costly multi-bridge bidding in the state. Monarch Engineering Company, which had bid $30,986 received the contract for the Rairden and Kane bridges, and the structures were completed later that year. This 250' pin-connected Pennsylvania truss is distinguished in a number of ways: it is the longest single-span truss erected on the county road system; it is also perhaps the most expensive bridge erected by one of the counties; it is the longest remaining county bridge and one of only two pin-connected Pennsylvania throughs

(continued)

left. Although abandoned in 1979 with the construction of a new two-span pony truss, the Rairden Bridge remains a substantial structure - one of the most significant in Wyoming.

9. Major Bibliographical References

See Addendum, Item 9

10. Geographical Data

Acreage of nominated property Less than one acre

Quadrangle name Multiple (See Item #7) **Quadrangle scale** _____

UMT References multiple resources (see Inventory Data, Item 7)

	Zone	Easting	Northing		Zone	Easting	Northing
A				B			
C				D			
E				F			
G				H			

Verbal boundary description and justification

(SEE ADDENDUM)

List all states and counties for properties overlapping state or county boundaries

state	code	county	code
state	code	county	code

11. Form Prepared By

name/title Clayton B. Fraser, Principal

organization Fraserdesign **date** 24 May 1982

street & number 1269 Cleveland Avenue Suite Two **telephone** 303-669-7969

city or town Loveland **state** Colorado 80537

12. State Historic Preservation Officer Certification

The evaluated significance of this property within the state is:

___ national X state ___ local

As the designated State Historic Preservation Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the Heritage Conservation and Recreation Service.

State Historic Preservation Officer signature Alvin J. Bastron

title State Historic Preservation Officer **date** Dec. 14, 1984

For HCRS use only

I hereby certify that this property is included in the National Register

Keeper of the National Register

Attest:

Chief of Registration

GPO 938 835

United States Department of the Interior
Heritage Conservation and Recreation Service

National Register of Historic Places Inventory—Nomination Form

Addendum, Item 9: Major Bibliographical References

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1488	(BLL)	452Lt.9	(DAR)
1676	(BMM)	4019	(DDR)
2602	(BMU)	3399	(DEY)
1706	(BPL)	2498	(DQQ)
1091	(BRT)	452Lt.9	(DXJ)
2869	(BTR)	1194	(DYK)
2105	(CED)	3658	(EDZ)
1191	(CKI)	412Lt.5	(EIQ)
1131	(CKW)	461P.4	(EJZ)
3374	(COV)	4557	(ELI)
452Lt.11	(CPK)	1129	(ELV)
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DFU Elk Mountain Bridge
Historical Bridge Survey and Inventory Form: Bridge DFU. Wyoming State Highway Department, Cheyenne Wyoming.
Carbon County Commissioners' Minutes: 1 July 1923, 7 August 1923 and 4 September 1923. Carbon County Courthouse, Rawlins Wyoming.
"Commissioners Let Contracts." Rawlins Republican, 9 August 1923.

DGC Bridge over Wolf Creek
Historical Bridge Survey and Inventory Form: Bridge DGC. Wyoming State Highway Department, Cheyenne Wyoming.
Sheridan County Commissioners' Minutes: 3 May 1911 and 6 June 1911. Sheridan County Courthouse, Sheridan Wyoming.
"County Commissioners' Proceedings." Sheridan Post, 9 May 1911.
"County Commissioners' Proceedings." Sheridan Post, 13 June 1911.
"Commissioners Do Business." Sheridan Post, 10 November 1914.
Plaque on bridge giving builder's name.

DMJ Pick Bridge
Historical Bridge Survey and Inventory Form: Bridge DMJ. Wyoming State Highway Department, Cheyenne Wyoming.
Carbon County Commissioners' Minutes: 4 December 1907, 7 September 1909, 5 October 1909 and 3 January 1934. Carbon County Courthouse, Rawlins Wyoming.
Plaque on bridge giving builder, date and county commissioners.

DML Butler Bridge
Historical Bridge Survey and Inventory Form: Bridge DML. Wyoming State Highway Department, Cheyenne Wyoming.
Carbon County Commissioners' Minutes: 7 June 1905, 3 June 1913, 7 May 1929 and 11 February 1930. Carbon County Courthouse, Rawlins Wyoming.
"'Roads, Roads' Is Cry Before Commissioners." Rawlins Republican, 9 May 1929.
Plaque on bridge giving builder, date and county commissioners.

DMS Bridge over Cow Creek
Historical Bridge Survey and Inventory Form: Bridge DMS. Wyoming State Highway Department, Cheyenne Wyoming.
Carbon County Commissioners' Minutes: 6 February 1915 and 16 March 1915. Carbon County Courthouse, Rawlins Wyoming.

DOE Bridge over Laramie River
Historical Bridge Survey and Inventory Form: Bridge DOE. Wyoming State Highway Department, Cheyenne Wyoming.
Wyoming State Commissioners' Minutes: 4 May 1926. Wyoming State Highway Department, Cheyenne Wyoming.
"Laramie Man Successful in Road Bidding." Laramie Republican-Boomerang, 4 May 1926.

DSD Bridge over Cheyenne River
Historical Bridge Survey and Inventory Form: Bridge DSD. Wyoming State Highway Department, Cheyenne Wyoming.

DUX Bessemer Bend Bridge
Historical Bridge Survey and Inventory Form: Bridge DUX. Wyoming State Highway Department, Cheyenne Wyoming.
Natrona County Commissioners' Minutes: 5 October 1921. Natrona County Courthouse, Casper Wyoming.

DXN Bridge over Missouri River
Historical Bridge Survey and Inventory Form: Bridge DXN. Wyoming State Highway Department, Cheyenne Wyoming.

EAU Arvada Bridge
Historical Bridge Survey and Inventory Form: Bridge EAU. Wyoming State Highway Department, Cheyenne Wyoming.
Sheridan County Commissioners' Minutes: 8 November 1916, 6 February 1917 and 7 February 1917. Sheridan County Courthouse, Sheridan Wyoming.
"Reject Pier Bids." Sheridan Post, 10 November 1916.
"Open Bridge Bids." Sheridan Post, 6 February 1917.

EAW Bridge over Little Goose Creek
Historical Bridge Survey and Inventory Form: Bridge EAW. Wyoming State Highway Department, Cheyenne Wyoming.
Sheridan County Commissioners' Minutes: 3 May 1911 and 6 June 1911. Sheridan County Courthouse, Sheridan Wyoming.
"County Commissioners' Proceedings." Sheridan Post, 9 May 1911.
"County Commissioners' Proceedings." Sheridan Post, 13 June 1911.
Plaque on bridge giving builder's name.

EAX Bridge over Little Goose Creek
Historical Bridge Survey and Inventory Form: Bridge EAX. Wyoming State Highway Department, Cheyenne Wyoming.
Sheridan County Commissioners' Minutes: 3 May 1911 and 6 June 1911. Sheridan County Courthouse, Sheridan Wyoming.
"County Commissioners' Proceedings." Sheridan Post, 9 May 1911.
"County Commissioners' Proceedings." Sheridan Post, 13 June 1911.
Plaque on bridge giving builder's name.

EBF Bridge over Powder River
Historical Bridge Survey and Inventory Form: Bridge EBF. Wyoming State Highway Department, Cheyenne Wyoming.
Sheridan County Commissioners' Minutes: 7 October 1914, 4 November 1914, 5 January 1915 and 2 February 1915. Sheridan County Courthouse, Sheridan Wyoming.
"Commissioners Do Business." Sheridan Post, 10 November 1914.

ECR Kooi Bridge
Historical Bridge Survey and Inventory Form: Bridge ECR. Wyoming State Highway Department, Cheyenne Wyoming.
Sheridan County Commissioners' Minutes: 7 May 1913, 3 June 1913. Sheridan County Courthouse, Sheridan Wyoming.

ECS Bridge over Big Goose Creek
Historical Bridge Survey and Inventory Form: Bridge ECS. Wyoming State Highway Department, Cheyenne Wyoming.
Sheridan County Commissioners' Minutes: 6 May 1914, 2 June 1914 and 4 November 1914. Sheridan County Courthouse, Sheridan Wyoming.
"Four Modern Steel Bridges." Sheridan Post, 7 May 1914.
"Commissioners Do Business." Sheridan Post, 10 November 1914.

EDL Peloux Bridge
Historical Bridge Survey and Inventory Form: Bridge EDL. Wyoming State Highway Department, Cheyenne Wyoming.
Johnson County Commissioners' Minutes: 6 August 1912. Johnson County Courthouse, Buffalo Wyoming.
"Commissioners' Proceedings." Buffalo Bulletin, 8 August 1912.
Iberlin, Simon, Chairman, Johnson County Board of Commissioners and Highway Commissioner, Buffalo Wyoming. Oral interview, 29 September 1981.

EDZ Irigary Bridge
Historical Bridge Survey and Inventory Form: Bridge EDZ. Wyoming State Highway Department, Cheyenne Wyoming.
Johnson County Commissioners' Minutes: 4 February 1913. Johnson County Courthouse, Buffalo Wyoming.
Wyoming State Highway Department Drawing Number 3658. Wyoming State Highway Department, Cheyenne Wyoming.

EEN Schoonover Bridge
Historical Bridge Survey and Inventory Form: Bridge EEN. Wyoming State Highway Department, Cheyenne Wyoming.
Iberlin, Simon, Chairman, Johnson County Board of Commissioners and Highway Commissioner, Buffalo Wyoming. Oral interview, 29 September 1981.

EFP Bridge over Owl Creek
Historical Bridge Survey and Inventory Form: Bridge EFP. Wyoming State Highway Department, Cheyenne Wyoming.
Hot Springs County Commissioners' Minutes: 2 March 1920. Hot Springs County Courthouse, Thermopolis Wyoming.

EJE Bridge over Shell Creek
Historical Bridge Survey and Inventory Form: Bridge EJE. Wyoming State Highway Department, Cheyenne Wyoming.
Big Horn County Commissioners' Minutes: 6 April 1920. Big Horn County Courthouse, Basin Wyoming.

EJP County Line Bridge
Historical Bridge Survey and Inventory Form: Bridge EJP. Wyoming State Highway Department, Cheyenne Wyoming.
Big Horn County Commissioners' Minutes: 3 October 1917 and 22 October 1917. Big Horn County Courthouse, Basin Wyoming.

EJP (continued)
Washakie County Commissioners' Minutes: 2 October 1917. Washakie County Courthouse, Worland Wyoming.
"Commissioners' Proceedings." Basin Big Horn County Rustler, 12 October 1917.
"Commissioners' Proceedings." Basin Big Horn County Rustler, 9 November 1917.

EJZ Bridge over Shoshone River
Historical Bridge Survey and Inventory Form: Bridge EJZ. Wyoming State Highway Department, Cheyenne Wyoming.
Wyoming State Highway Department Drawing Number 45Lt.4. Wyoming State Highway Department, Cheyenne Wyoming.
Wyoming Roads. October 1925.
"Bids to be Let for New Project in Canyon." Cody Park County Herald, 15 September 1924.

ELS Bridge over Big Wind River
Historical Bridge Survey and Inventory Form: Bridge ELS. Wyoming State Highway Department, Cheyenne Wyoming.

ELY Wind River Diversion Dam Bridge
Historical Bridge Survey and Inventory Form: Bridge ELY. Wyoming State Highway Department, Cheyenne Wyoming.
Wyoming State Highway Department Commissioners' Minutes: 2 May 1924. Wyoming State Highway Department, Cheyenne Wyoming.
Wyoming State Highway Department Drawing Number 2A-3134-24. Wyoming State Highway Department, Cheyenne Wyoming.
Fourth Biennial Report of the State Highway Commission. . .
Plaque on Bridge giving fabricator's name.

ENP Bridge over Green River
Historical Bridge Survey and Inventory Form: Bridge ENP. Wyoming State Highway Department, Cheyenne Wyoming.

ERF Bridge over Mill Creek
Historical Bridge Survey and Inventory Form: Bridge ERF. Wyoming State Highway Department, Cheyenne Wyoming.
Plaque on bridge giving date and contractor's name.

ERT Bridge over Blacks Fork
Historical Bridge Survey and Inventory Form: Bridge ERT. Wyoming State Highway Department, Cheyenne Wyoming.

ETD Bridge over Green River
Historical Bridge Survey and Inventory Form: Bridge ETD. Wyoming State Highway Department, Cheyenne Wyoming.
Sweetwater County Commissioners' Minutes: 3 June 1913, 23 June 1913. Sweetwater County Courthouse, Green River Wyoming.

ETR Big Island Bridge
Historical Bridge Survey and Inventory Form: Bridge ETR. Wyoming State Highway Department, Cheyenne Wyoming.
Sweetwater County Commissioners' Minutes: 17 September 1909 and 5 October 1909. Sweetwater County Courthouse, Green River Wyoming.
Plaque on bridge giving builder, date and county commissioners.

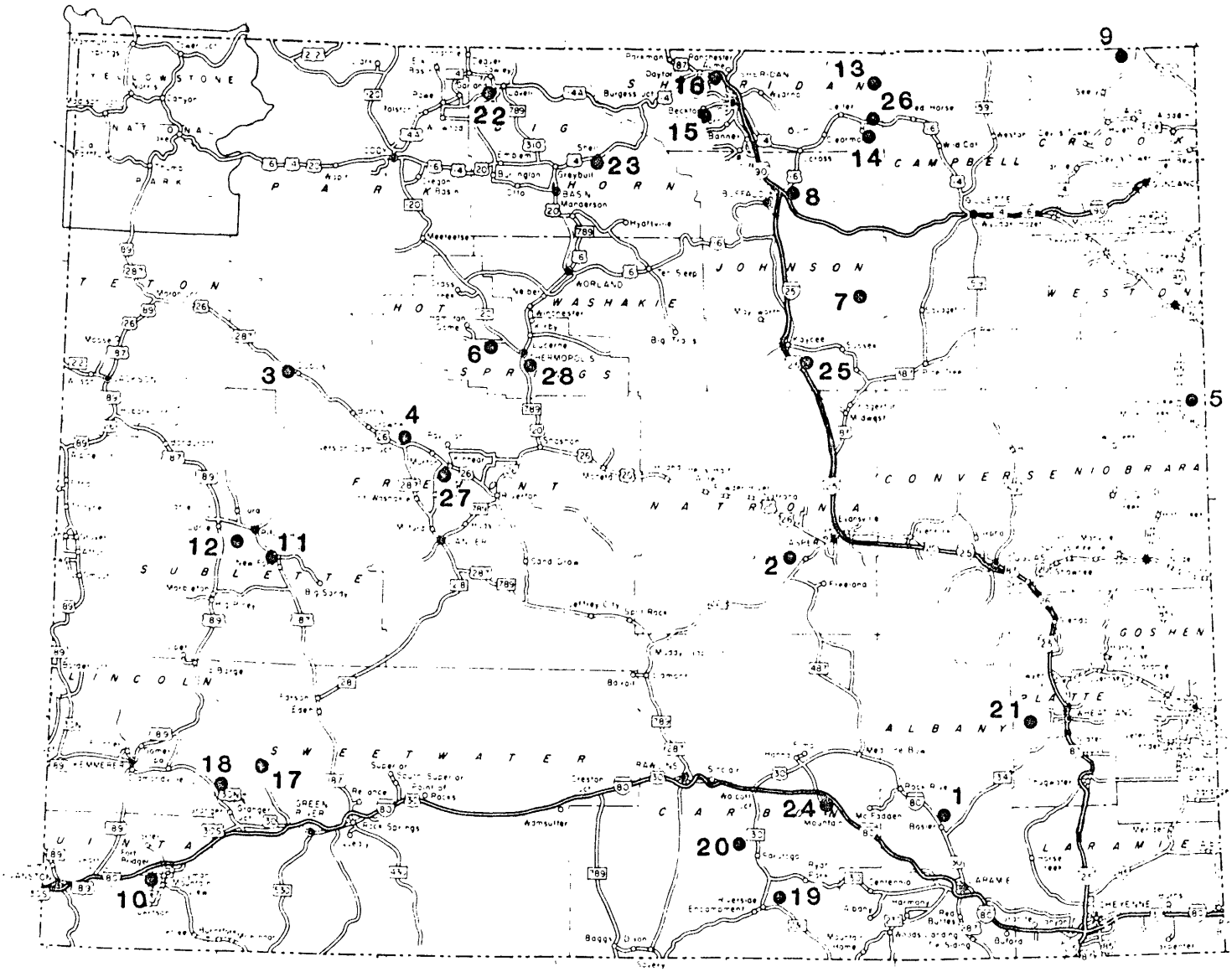
EWA Bridge over Garland Canal
Historical Bridge Survey and Inventory Form: Bridge EWA. Wyoming State Highway Department, Cheyenne Wyoming.

EWZ Bridge over East Channel of Laramie River
Historical Bridge Survey and Inventory Form: Bridge EWZ. Wyoming State Highway Department, Cheyenne Wyoming.
Platte County Commissioners' Minutes: 5 September 1913. Platte County Courthouse, Wheatland Wyoming.

Hayden Arch Bridge
Wyoming State Highway Department construction drawings. Wyoming State Highway Department, Cheyenne Wyoming.
"Canyon Road to be Closed Soon." Cody Park County Herald, 10 September 1924.
"Bids to be Let for New Project in Canyon." Cody Park County Herald, 15 September 1924.
"Canyon Road to Close Friday Says Taggart." Cody Park County Herald, 8 October 1924.
"Shoshone River Arch and New Southside Road Will Have Strong Appeal to Tourist." Cody Park County Herald, 3 December 1924.
"Canyon Road to be Open for Holidays." Cody Park County Herald, 24 December 1924.
"Second Arch Shoshone Bridge Poured Tuesday." Cody Park County Herald, 28 January 1925.
"Cody Club Planning Big Dedication Ceremonies at Formal Opening Shoshone Arch in Canyon." Cody Park County Herald, 25 March 1925.
"Formal Opening Canyon Sunday." Cody Park County Herald, 24 June 1925.

Rairden Bridge
Big Horn County Commissioners' Minutes: 1 February 1916 and 17 March 1916. Big Horn County Courthouse, Basin Wyoming.
"Three Bridges Asked For." Basin Big Horn County Rustler, 7 January 1916.
"Auto Bridge to Span Greybull." Basin Big Horn County Rustler, 11 February 1916.
"Contract for Two Bridges." Basin Big Horn County Rustler, 24 March 1916.

BRIDGE LOCATION MAP



1 DOE Laramie River
2 DUX Bessemer Bend
3 ELS Big Wind River
4 ELY Wind River-Diversion Dam
5 DSD Cheyenne River
6 EFP Owl Creek
7 EDZ Irigary
8 EDL Peloux
9 DXN Missouri River
10 ERT Blacks Fork
11 DDZ New Fork River
12 ENP Green River
13 EBF Powder River
14 EAU Arvada
15 ECS Big Goose Creek
16 ECR Tongue River
17 ETR Big Island
18 ETD Green River
19 DML Butler
20 DMJ Pick
21 EWZ Laramie River
22 EJZ Shoshoni River
23 EJE Shell Creek
24 DFU Medicine Bow River
25 AJX South Fork River
26 CKW Powder River
27 BMU Wind River
28 CQA Four Mile

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(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

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date entered

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Multiple Resource Area
Thematic Group

dnr-11

Name Vehicular Truss and Arch Bridges in Wyoming Thematic Resources
State Albany County and others, Wyoming

Nomination/Type of Review — Date/Signature

1. DOE Bridge over Laramie River — Substantive Review
   Keeper 2-22-85 Carol D. Shull
   Attest William B. Bushong
2. EJE Bridge over Shell Creek — Entered in the National Register
   for Keeper Arlene Byers 2/22/85
   Attest
3. EJP County Line Bridge — Entered in the National Register
   for Keeper Arlene Byers 2/22/85
   Attest
4. EJZ Bridge over Shoshone River — Entered in the National Register
   for Keeper Arlene Byers 2/22/85
   Attest
5. Rairden Bridge — Entered in the National Register
   for Keeper Arlene Byers 2/22/85
   Attest
6. DFU Elk Mountain Bridge — Substantive Review
   Keeper William B. Bushong 2-22-85
   Attest Carol D. Shull
7. DMJ Pick Bridge — Entered in the National Register
   for Keeper Arlene Byers 2/22/85
   Attest
8. DML Butler Bridge — Entered in the National Register
   for Keeper Arlene Byers 2/22/85
   Attest
9. DXN Bridge over Missouri River — Entered in the National Register
   for Keeper Arlene Byers 2/22/85
   Attest
10. DMU Bridge over Wind River — Entered in the National Register
    for Keeper Arlene Byers 2/22/85
    Attest

NPS Form 10-900-a
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United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

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Multiple Resource Area
Thematic Group

Name Vehicular Truss and Arch Bridges in Wyoming Thematic Resources
State Wyoming

Nomination/Type of Review			Date/Signature
11. ELS Bridge over Big Wind River	Substantive Review	Keeper	Carol D Shull 2-22-85
		Attest	William B. Bushong
12. Ely Wind River Diversion Dam Bridge	Entered in the National Register	Keeper	Delores Byrd 2/22/85
		Attest	
13. CQA Four Mile Bridge	Entered in the National Register	Keeper	Delores Byrd 2/22/85
		Attest	
14. EFP Bridge over Owl Creek	Entered in the National Register	Keeper	Delores Byrd 2/22/85
		Attest	
15. AJX Bridge over South Fork and Powder River	Entered in the National Register	Keeper	Delores Byrd 2/22/85
		Attest	
16. EDL Peloux Bridge	Substantive Review	Keeper	Carol D Shull 2-22-85
		Attest	William B. Bushong
17. EDZ Irigary Bridge	Entered in the National Register	Keeper	Delores Byrd 2/22/85
		Attest	
18. DUX Bessemer Bend Bridge	Entered in the National Register	Keeper	Delores Byrd 2/22/85
		Attest	
19. DSD Bridge over Cheyenne River	Entered in the National Register	Keeper	Delores Byrd 2/22/85
		Attest	
20. Hayden Arch Bridge	[illegible]	Keeper	Carol D Shull 2-22-85
		Attest	William B. Bushong

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

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United States Department of the Interior
National Park Service

National Register of Historic Places Inventory—Nomination Form

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Multiple Resource Area
Thematic Group

Name Vehicular Truss and Arch Bridges in Wyoming Thematic Resources
State Wyoming

		Nomination/Type of Review		Date/Signature
21.	EWZ Bridge over East Channell of Laramie River	Substantive Review	Keeper	Carol D Shull 2-22-85
			Attest	William B. Bushong
22.	EAU Arvada Bridge	Entered in the National Register	for Keeper	Deborah Byers
			Attest	
23.	ECR Kooi Bridge	Entered in the National Register	for Keeper	Deborah Byers 2/22/85
			Attest	
24.	ECS Bridge over Big Goose Creek	Entered in the National Register	for Keeper	Deborah Byers 2/22/85
			Attest	
25.	EBF Bridge over Power River	Entered in the National Register	for Keeper	Deborah Byers 2/22/85
			Attest	
26.	CKW Bridge over Power River	Substantive Review	Keeper	Carol D. Shull 2-22-85
			Attest	William B. Bushong
27.	DDZ Bridge over New Fork River	Entered in the National Register	for Keeper	Deborah Byers 2/22/85
			Attest	
28.	ENP Bridge over Green River	Entered in the National Register	for Keeper	Deborah Byers 2/22/85
			Attest	
29.	ETD Bridge over Green River	Entered in the National Register	for Keeper	Deborah Byers 2/22/85
			Attest	
30.	ETR Big Island Bridge	Entered in the National Register	for Keeper	Deborah Byers 2/22/85
			Attest	

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Multiple Resource Area
Thematic Group

Name Vehicular Truss and Arch Bridges in Wyoming Thematic Resources
State Wyoming

Nomination/Type of Review		Date/Signature
31. ERT Bridge over Black's Fork	Keeper	Carol D Shull 2-22-85
	Attest	William B Bushong
32.	Keeper	
	Attest	
33.	Keeper	
	Attest	
34.	Keeper	
	Attest	
35.	Keeper	
	Attest	
36.	Keeper	
	Attest	
37.	Keeper	
	Attest	
38.	Keeper	
	Attest	
39.	Keeper	
	Attest	
40.	Keeper	
	Attest	