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United States Department of the Interior
National Park Service

National Register of Historic Places
Registration Form

SEP 29 1989

NATIONAL REGISTER

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Intercity Bridge
other names/site number Ford Bridge (Bridge No. 3575)

2. Location

street & number Ford Parkway over Mississippi River N/A not for publication
city, town St. Paul N/A vicinity
state Minnesota code MN county Ramsey code 123 zip code 55116
See Continuation sheet 2:1

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
<input type="checkbox"/> private	<input type="checkbox"/> building(s)	Contributing	Noncontributing
<input checked="" type="checkbox"/> public-local	<input type="checkbox"/> district	_____	_____ buildings
<input type="checkbox"/> public-State	<input type="checkbox"/> site	_____	_____ sites
<input type="checkbox"/> public-Federal	<input checked="" type="checkbox"/> structure	<u>1</u>	_____ structures
	<input type="checkbox"/> object	_____	_____ objects
		<u>1</u>	<u>0</u> Total

Name of related multiple property listing: Reinforced-Concrete Highway Bridges in Minn., 1900-1945 Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property meets does not meet the National Register criteria. See continuation sheet.
Nina Archabal 9/22/89
Signature of certifying official Nina M. Archabal Date
State Historic Preservation Officer
State or Federal agency and bureau Minnesota Historical Society

In my opinion, the property meets does not meet the National Register criteria. See continuation sheet.
Signature of commenting or other official _____ Date _____
State or Federal agency and bureau _____

5. National Park Service Certification

I, hereby, certify that this property is:
 entered in the National Register.
 See continuation sheet.
 determined eligible for the National Register. See continuation sheet.
 determined not eligible for the National Register.
 removed from the National Register.
 other, (explain:) _____
Alvina Byrne Entered in the National Register 11/6/89
Signature of the Keeper Date of Action

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2. Location

city, town Minneapolis

county Hennepin code 053 zip code 55406

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INTERCITY BRIDGE (FORD BRIDGE; BRIDGE NO. 3575)

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8. SIGNIFICANCE

The Intercity Bridge (MNDOT Bridge No. 3575), spanning the Mississippi River to join the cities of St. Paul, Ramsey County, and Minneapolis, Hennepin County, Minnesota, is significant under Criterion C in the area of engineering in the context of Minnesota Reinforced-Concrete Highway Bridges, 1900-1945. It is an excellent example of the monumental urban, continuous-rib-arch, reinforced-concrete bridges constructed to span the high and scenic Mississippi River bluffs during the early automobile age in the Minnesota's Twin Cities. As such, it is one of the major extant examples of the second and "golden age" of reinforced-concrete, arch-bridge design and construction in Minnesota. The first era was the 1880s, metal-bridge era. Engineering historian Kenneth Bjork points to a series of factors that created the special bridges of the great reinforced-concrete bridge era between World War I and World War II in the Twin Cities: the common transportation obstacle of the high-bluffed Mississippi River; the coming of the automobile and the truck and the converging of many highways into the cities placing a heavy burden on the early bridges, thus demanding designs recognizing greater concentrated loadings than were needed for teams and carriages; the need to support streetcar tracks; the need for joint, two-city planning and financing in some cases.¹ With its overall structural length of 1,523.6 feet, and its three 300-foot main spans, it is among the largest reinforced-concrete bridges ever built in Minnesota² and a significant engineering accomplishment. Notable unusual features in the construction of the bridge were the sinking of the pier caissons and the construction of sheet-pile cofferdams, carried to solid rock 70 feet below water level, along with the construction-site installation, with its 1,900-foot, 15-ton cableway, large concrete plant, and concrete delivery system.³ The bridge also is significant as the major work of Norwegian-American engineer Martin Sigvart Grytbak. Although the deck was rebuilt and widened in 1972-73, the bridge retains full engineering integrity as a monumental, continuous-arch bridge.

The role of the Intercity Bridge in the development of the Highland Park neighborhood at its eastern terminus is an unusual one. It began in an conventional enough manner, being intended to link the area around the massive, new Ford Motor Company plant with Minneapolis and, likewise, allow Minneapolis residents to have easy access to the Ford works. The Ford complex, with its adjacent hydroelectric plant (Lock and Dam No. 1 had been completed in 1917; determined eligible to the National Register in 1984), had been designed by the architectural firm of Albert Kahn, Inc., and the engineering firm of Stone and Webster. It was built in 1923-24 and was expected to make that area of St. Paul extremely desirable. As a result, a massive effort was launched to design the "inter-city" bridge, and an impressive Joint Bridge Committee of politicians and engineers from the two cities was created to shepherd the process, under the chairmanship of the famed Minnesota Commissioner of Highways, Charles M. Babcock. Although engineering firms nationwide, including J.A.L. Waddell, were interested in designing the bridge,⁴ the work went to Martin Sigvart Grytbak, St. Paul city bridge engineer, under the general supervision of the two city engineers, George M. Shepard of St. Paul and N.W. Elsborg of Minneapolis. The contractor was James O. Heyworth, Inc., of Chicago. Thomas Oseth was

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INTERCITY BRIDGE (FORD BRIDGE; BRIDGE NO. 3575)

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superintendent of construction and C.R. Hansen was resident engineer for the bridge committee. Construction was commenced in August 1925, the last concrete in the bridge floor was poured in November 1926, and the remaining paving, sidewalks, and railing were completed in June 1927 (the contract called for completion by July 1). The bridge was dedicated in July 1927. The contract cost was \$1,324,000, with each city paying half.⁵

The city of St. Paul worked to prepare the amenities for the projected development. Edsel Ave., the original street connecting with the Ford Bridge, was remade into Ford Parkway in 1928, complementing the intended parklike setting of the Ford plant, and nearby Highland Park (1923-27). The city installed and paved neighborhood streets. The development didn't follow. It was deterred by the Depression and, ironically, by increased growth in already established Minneapolis neighborhoods across the Mississippi to the west, now easily accessible for Ford workers via the new bridge. Little commercial and residential development occurred on the east side until the World War II period and thereafter, as evidenced in the area's stores and houses that date largely from 1939 and post-1945. Only then did the bridge begin to fulfill its prescribed role instead of its opposite.⁶

The engineer of the bridge, Martin Sigvart Grytbak (c1883-1953), is significant as one of a group of four, major, innovative and influential Norwegian-American engineers that were involved in the design of the great bridges of the Twin Cities (the others are Kristoffer Olsen Oustad, Andreas W. Munster, and Frederick William Cappelen). Graduated in 1903 from Trondhjem's Technical College as a civil engineer, he came to the United States about 1903 and worked as a bridge engineer for the Northern Pacific Railway in St. Paul. He served as bridge engineer for the city of St. Paul from 1913 until after World War II. Not only is the Intercity Bridge considered to be one of the great reinforced-concrete-arch bridges in the Twin Cities, but it is the major work of Grytbak (his other large work, the 2,100-foot Kellogg Boulevard viaduct built in St. Paul in 1930, has recently been replaced).⁷

1. Kenneth Bjork, Saga in Steel and Concrete: Norwegian Engineers in America (Northfield, Minn.: Norwegian-American Historical Association, 1947), pp. 139-40; Carl Condit, American Building (Chicago: University of Chicago Press, 1968), p. 255.
2. See comparative discussion in "Six Concrete Arch Bridges at the Twin Cities," in Engineering News-Record 97 (September 2, 1926): 370-71
3. Bjork, pp. 152-53.
4. See proposals and correspondence in Records Storage File for Bridge No. 3575, Minnesota Department of Transportation, St. Paul.
5. David Gebhard and Tom Martinson, A Guide to the Architecture of Minnesota (Minneapolis: University of Minnesota Press, 1977), pp. 108-14; Judith A. Martin and

6. Function or Use

Historic Functions (enter categories from instructions)
Transportation, road-related

Current Functions (enter categories from instructions)
Transportation, road-related

7. Description

Architectural Classification
(enter categories from instructions)

Materials (enter categories from instructions)

Other: Reinforced-concrete bridge

foundation _____

walls _____

roof _____

other reinforced concrete

Describe present and historic physical appearance.

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7. DESCRIPTION

The Intercity Bridge (MNDOT Bridge No. 3575), also known as the Ford Bridge, is located at Mississippi River mile 847.8 above the Ohio River. At this point the river has a narrow gorge nearly 170 feet deep in loose sandstone rock, with 35 feet of sand, gravel, and boulders on the bottom. The river is navigable here. It joins the southern neighborhoods of the cities of St. Paul (Ramsey County) and Minneapolis (Hennepin County), Minnesota, linking St. Paul's Ford Parkway on the east bank with Minneapolis's Minnehaha Park on the west. The setting for the bridge is residential and park land, with several notable exceptions: at the southeast corner of the east approach is the St. Paul plant of the Ford Motor Company; just south and downstream from the bridge is the upper Mississippi River Lock and Dam No. 1 (also known as the Ford or High Dam; determined eligible for the National Register on December 19, 1984). At the east end of the dam is the Ford hydroelectric plant; the lock is located at the west end of the dam.

Aligned on an east-west axis, the Intercity Bridge is a reinforced-concrete, open-spandrel, two-rib, continuous-arch bridge, with an overall structure length of 1,523.6 feet. The three main arches each has two five-centered ribs with a 300-foot span; they are flanked by single arch spans of 139 feet each. The ribs are 32 feet apart, center to center. In all the arch spans, floor beams are supported by twin spandrel columns being uniformly 7 feet 3 inches center to center. On the 300-foot spans, the column pairs are spaced 18 feet 2 inches center to center, while those of the 139-foot spans are 15 feet 9 inches center to center. There are 6 deck-girder approach spans of varying lengths. The out-out deck width is 64.7 feet, carrying a 50-foot roadway and two 6-foot sidewalks.

All piers, except a few of the smaller approach piers, are on the solid sand rock, the two middle river piers being each supported on four cylindrical concrete caissons carried to rock about 70 feet below water level. In the larger piers, the upper body is hollow with 2-foot walls, and was constructed as two units, with the open faces toward each other. The two half piers are tied together at the water line by a heavy wall and at the top by the floorbeams. Half-columns corresponding to the spandrel columns face the sides of the piers.

An interesting point in the reinforcing is the fact that bids originally were taken on a plan of using five structural-steel ribs in each of the 300-foot arch ribs, but reinforcing bars were found to be considerable cheaper and ultimately were used.¹ All arch ribs were built on steel centering supported on timber towers.

Construction was accomplished using an large and innovative concreting plant on the west bluff, and a 15-ton cableway of 1,900-foot span, with movable timber towers 135 feet high.² In 1972-73 the deck was rebuilt and widened.

1. M.S. Grytbak, "Concrete Arch Bridge over the Mississippi," in Engineering News-Record 99 (November 10, 1927): 754-57.
2. See plant description in "Spans Mississippi River Between Twin Cities," in Improvement Bulletin, May 12, 1928.

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

nationally statewide locally

Applicable National Register Criteria A B C D

Criteria Considerations (Exceptions) A B C D E F G

Areas of Significance (enter categories from instructions)

Engineering

Period of Significance

1927

Significant Dates

1927

Cultural Affiliation

N/A

Significant Person

N/A

Architect/Builder

~~Engr.: Grytbak, Martin Sigvart~~
~~Bldg.: James O. Heyworth, Inc.~~

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

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INTERCITY BRIDGE (FORD BRIDGE; BRIDGE NO. 3575)

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David A. Lanegran, Where We Live: The Residential Districts of Minneapolis and Saint Paul (Minneapolis: University of Minnesota Press, 1983), pp. 137-38; Improvement Bulletin, May 12, 1928; Minneapolis Tribune, February 21, 1926, and June 26, 1927; Minneapolis Journal, November 2, 1925, and June 19, 1927; and Minneapolis Daily Star, February 15, 1925.

6. See Gebhard & Martinson, pp. 60-63; Martin & Lanegran, pp. 137-38; and newspaper articles cited above.
7. See Bjork, pp. 140-54; Robert M. Frame III, "Historic Bridge Project," A Report to the Minnesota State Historic Preservation Office (1985).

9. Major Bibliographical References

Bjork, Kenneth. Saga in Steel and Concrete: Norwegian Engineers in America. Northfield, Minn.: Norwegian-American Historical Association, 1947.

Grytbak, M.S. "Concrete Arch Bridge over the Mississippi." Engineering News-Record 99 (November 10, 1927): 754-58.

Minneapolis Daily Star, 1925. Journal, 1925, 1927. Tribune, 1926-27.

Minnesota. Department of Transportation, St. Paul. Records Storage File for Bridge No. 3575.

"Six Concrete Arch Bridges at the Twin Cities." Engineering News-Record 97 (September 2, 1926): 370-71

"Spans Mississippi River Between Twin Cities." Improvement Bulletin, May 12, 1928.

See continuation sheet

Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67) has been requested
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # _____
- recorded by Historic American Engineering Record # _____

Primary location of additional data:

- State historic preservation office
- Other State agency
- Federal agency
- Local government
- University
- Other

Specify repository: _____

10. Geographical Data

Acreage of property approximately 2.25 acres

UTM References

A

1	5
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4	8	3	9	1	0
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4	9	7	3	6	2	5
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 Zone Easting Northing

C

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B

1	5
---	---

4	8	4	3	5	0
---	---	---	---	---	---

4	9	7	3	6	2	5
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 Zone Easting Northing

D

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See continuation sheet

Verbal Boundary Description

The ~~boundary~~ property defines a rectangle measuring 1,525 feet east-west by 65 feet north-south, the vertices of which coincide with the outside corners of the bridge structure.

See continuation sheet

Boundary Justification

Based on dimensions for overall structure length and overall deck width as determined by the Minnesota Department of Transportation and reported on the Structure Inventory Sheet for Bridge 3575, the boundaries are designed to enclose the total bridge superstructure, total substructure, and all other integral abutment and approach elements.

See continuation sheet

11. Form Prepared By

Dr. Robert M. Frame III, Historical Consultant
 name/title _____
 organization 202 McBoal Street date August 15, 1988
 street & number St. Paul telephone 612-227-9531
 city or town _____ state MIN zip code 55102