National Register of Historic Places
Date listed 11-14-2012
NRIS No. 12000932
Oregon SHPO

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form.* If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. **Place additional certification comments, entries, and narrative items on continuation sheets if needed (NPS Form 10-900a).**

1. Name of Property

historic name Hawthorne Bridge

other names/site number

2. Location

street & number Spanning the Willamette River at RM 13.1 not for publication

city or town Portland ☐ Vicinity

state Oregon code OR county Multnomah code 051 zip code 97201

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,

I hereby certify that this X 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 X meets ___ does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

X national X statewide ___ local

[signature] 9.20.12

Signature of certifying official/Title: Deputy State Historic Preservation Officer Date

Oregon State Historic Preservation Office
State or Federal agency/bureau or Tribal Government

In my opinion, the property ___ meets ___ does not meet the National Register criteria.

Signature of commenting official Date

Title State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:

___ entered in the National Register

___ determined eligible for the National Register

___ determined not eligible for the National Register

___ removed from the National Register

___ other (explain:)

Signature of the Keeper Date of Action

Hawthorne Bridge
Name of Property

Multnomah Co., OR
County and State

5. Classification

Ownership of Property
(Check as many boxes as apply.)

- [ ] Private
- [X] public – Local
- [ ] public – State
- [ ] public – Federal

Category of Property
(Check only **one** box.)

- [ ] building(s)
- [ ] district
- [ ] site
- [X] structure
- [ ] object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
1		buildings
		district
		Site
		structure
		object
1	0	**Total**

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing)

Willamette River Highway Bridges of Portland, Oregon

Number of contributing resources previously listed in the National Register

N/A

6. Function or Use

Historic Functions
(Enter categories from instructions.)

TRANSPORTATION: Road Related, Bridge

Current Functions
(Enter categories from instructions.)

TRANSPORTATION: Road Related, Bridge

7. Description

Architectural Classification
(Enter categories from instructions.)

NO STYLE

Materials
(Enter categories from instructions.)

foundation: CONCRETE
walls: N/A

roof: N/A
other: STEEL

Narrative Description

(Describe the historic and current physical appearance of the property. Explain contributing and noncontributing resources if necessary. Begin with **a summary paragraph** that briefly describes the general characteristics of the property, such as its location, setting, size, and significant features.)

Summary Paragraph

The oldest remaining trans-Willamette River bridge in Portland, Oregon, the Hawthorne Bridge was built between 1909 and 1910 and opened to traffic on December 19, 1910. Spanning the Willamette River at River Mile 13.1 in downtown Portland, it is situated just upstream from the Morrison Bridge, within the core of the central commercial district of the city. A steel through-truss with a vertical-lift section, the Hawthorne Bridge measures 1,169.89 feet long, not including the approach spans. Its 205'-10⅛" vertical-lift section was the longest built at that time, and the bridge is the oldest example of vertical-lift bridge technology in the United States. The bridge was designed by the notable engineering firm of Waddell & Harrington. The Hawthorne Bridge, retains substantial integrity with respect to its original design and construction, and under the ownership of Multnomah County has been expertly maintained and modified.

Narrative Description

The Hawthorne Bridge has been well documented in recent years, most related to proposed modifications and upgrades to maintain the structure as a viable element of the Portland area transportation system. In 1999 the Hawthorne Bridge was documented by Judith A. McGaw to augment an earlier submittal to the Historic American Engineering Record.[1] That document, HAER Project Number OR-20, as amended, serves as the primary basis for the following information, most of which is taken verbatim from that exhaustively researched narrative.

Setting

The Hawthorne Bridge spans the Willamette at River Mile 13.1, in the heart of downtown Portland, Oregon. The western approach includes multiple connections, two in each direction, that link the Hawthorne Bridge to Front Street (Naito Parkway) heading north and south, as well as Main and Madison streets. On the east extended approach ramps extend to Martin Luther King and Grand avenues, parallel to Madison and Hawthorne. The Hawthorne Bridge is one of several trans-Willamette River crossings that tie the downtown commercial district of SW Portland to the commercial and residential areas of SE Portland.

Design

Describing the design of the Hawthorne Bridge, or of any modern movable bridge, is a complex task that is not easily encapsulated into a typical narrative. While certain elements of the structure, piers, truss, deck, and railings, are fairly typically described by material, size, and fabrication, the workings of a lift bridge incorporate massive, complex technology that relies upon multiple elements working in concert to both bear and move a huge and incredibly heavy structure on command, and then put it back into the original configuration and cycle back and forth, over and over again, as the river traffic warrants.

The Hawthorne Bridge of 1910 was strikingly large for its time. Its 250'-10⅛"-long lift span surpassed any such structure built and most of those then under construction. A decade later only a handful of lift spans exceeded that length, and none of those spans exceeded it by a substantial amount. By contrast the lift span of the Hawthorne Bridge was nearly twice as long as its most logical predecessor, the South Halsted Street Bridge.

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[1] Judith A. McGaw. *Hawthorne Bridge—Addendum to Historic American Engineering Record OR-20.* (HAER/ODOT in cooperation with Multnomah County), 1999.

The Hawthorne Bridge consists of six steel through-truss spans, all the Parker type. There are five fixed spans, which from east to west are of the following lengths: 212'-8.5", 213'-2.1", 246'-10.5" and then, after the lift span, 246'-3.5" for a total structure length of 1,169.89 feet. The roadbed between the trusses is 23'-3" center-to-center with cantilevered decks outside either side of trusses that extend another 19'-4.5" to create a total road width (four traffic lanes, two 10-foot sidewalks, plus the truss width itself) of approximately 73 feet.

The Hawthorne Bridge demonstrates several improvements over the earlier vertical-lift technology, most of which display the simple elegance in mechanical engineering that John Lyle Harrington brought to the firm. For example, at the Hawthorne, heavy counterweight cables connect to the counterweights at one end to the lift span at the other, traveling over the main sheaves, in the process assuring a rough balance as the span lifts and lowers.[2] Lighter operating cables connect to the operating drums on the lift span and to either the top or bottom of the tower. When the drums rotate in one direction, the span is lifted by winding the uphaul cables and paying out the downhaul ones; reversing the direction of the drum reverses the process and lowers the span. Functionally, wear and tear is therefore concentrated on the operating cables, which are less costly and, mechanically, were easier to replace compared to the heavy, and far more expensive, counter-weight cables.

Another first at the Hawthorne Bridge was the placement of the machinery and operator's room between the top chords at the center of the lift span. This location simplified the problem of keeping the span in balance by assuring the operating cables, though running in opposite directions, could be of the same length. After Hawthorne this configuration became the standard design for vertical-lift bridges. It is worth noting that since the Hawthorne Bridge was the first modern vertical-lift bridge to be built with electric motors, its designers had less weight in the machine room to support, giving them greater flexibility about the location.

While the Hawthorne Bridge included many improvements in vertical-lift bridge technology, in other areas it either retained elements first worked out on the South Halsted Street Bridge, or it incorporated transitional elements. Most notable of these are the equalizers, devices that are generally described as functioning to maintain equal loads on all the counterweight cables. While the equalizers at Hawthorne were a major step in developing a standard, their design was perfected later, the subject of one of Waddell & Harrington's many patents related to vertical-lift bridge technology.

Modifications and Upgrades

As McGaw points out, improvements and modifications to the Hawthorne Bridge began almost immediately after the contractors turned the structure over to the City of Portland in December 1910, and several were already completed when John Lyle Harrington arrived to inspect the finished work in February 1911.[3] Multnomah County, which accepted responsibility for maintenance and operation of the bridge in 1911, and assumed full ownership in 1913, has continually monitored, maintained, rebuilt, and improved the Hawthorne Bridge's operating mechanism for the past 100 years, assuring the bridge continues to function as intended and meets the ever-growing needs of the city.

Early on, the county developed solutions to address the bridge's constant fluctuation in shape and behavior as the result of temperature change. Expansion joints were one area of concern, where modifications to Harrington's original design were undertaken within a decade of completion. The bridge's original road deck was made of timbers, resulting in major seasonal change as the wood either dried out in the summer or gained water weight during the wet winters. During the dry summer season, the wood deck lost so much weight that the lift span became lighter than its balancing counterweights. By 1921 the county simply adopted a routine practice of adding extra weight blocks to the lift span during the summer.

[2] A "sheave" is a grooved wheel or pulley, in this case located at the top of the vertical-lift towers. The counterweight cable runs over the sheave as the lift span rises and falls and typically the slack is wound upon a circular girder drum.

[3] Judith A. McGaw. *Hawthorne Bridge—Addendum*, 1999, 21.

Coated with creosote, the deck was also extremely flammable and in 1914 the lift span deck caught fire, burning enough to reduce its weight substantially. As a result the lift deck flew up and the counterweights came crashing down. When the smoke cleared, it revealed four broken haul cables and bent ends on the 18-inch I-beams near the lift span on the adjacent fixed spans.

The original decking of the bridge of 4-inch creosoted wood blocks was set into a layer of hot tar and asphalt on top of a 4-inch creosoted plank base. The wear surface coating the top of the blocks was tar and asphalt topped with coarse sand. To accommodate the streetcar rails on the outer deck areas the surface had a 2-inch plank wearing surface placed perpendicular to the rails, like “ties,” on a 3-inch wood base. In 1921 the county installed a bitulithic-asphalt wear surface that required the installation of additional wood ties and the replacement of the 4-inch plank underlayment. The bridge received yet another new deck in 1930, in keeping with the anticipated ten-year life expectancy for an element that took a regular pounding from thousands of cars and trucks on a daily basis. By 1944 the wood deck was again at the end of its useful life and repair was costing the county an estimated $500 monthly. As a result, the county decided to replace the Hawthorne’s wood-and-asphalt deck with a steel grate, despite the wartime restrictions on the unnecessary use of steel.

As it had done before, the county combined re-decking operations with other changes designed to ease traffic flow. Portland’s leaders had just signaled their commitment to rebuild the city around the automobile by bringing Robert Moses, the famed “master builder” of New York City, to town to prepare a new urban plan. Not surprisingly, Hawthorne’s sidewalks were trimmed to 5'-6.5" to allow the outside traffic lanes to expand to 12 feet wide. Taking advantage of the increased clearances, trolley buses were shifted to the outer lanes, while streetcars remained in the center. The re-decking of the Hawthorne would make it Portland’s first steel-deck bridge. The wood surface and underlayment were removed, replaced with a system of steel grates and additional supporting members.

By 1957 the steel design, which was based on minimal amounts of steel to save material and money during wartime, was experiencing problems that were addressed by remedial action that added additional structure. In 1998–99 new steel decking was installed, replacing the 1945 decking after more than 50 years of service.

As a movable span, the Hawthorne Bridge lift span and operating mechanism have been, by their very nature, subject to almost constant refinement, repair, and replacement. More than a century of maintenance and repair records for the Hawthorne Bridge exist, documenting portions of the original design that have been modified since December 1910. While four operating cables broke and were replaced in 1914 just four years after the bridge opened, by 1924 all the operating cables, the lighter up-haul and down-haul cables, had been replaced, simply the result of heavy stress and natural wear and tear. They were replaced again in 1970 and then most recently in 1998–99. The heavier, more expensive, and far more difficult-to-replace counterweight cables lasted longer, but they too have been replaced, with upgraded stronger cables, in 1941 and then again in 1970. The current set of counterweight cables was installed in 1998–99, again with a stronger grade of cable, each tested to an average breaking strength of 232,000 pounds.

Like most major bridges, the Hawthorne has seen a steady change in use over its century-plus existence, as the methods of transportation, and the fortunes of public and private systems, have waxed and waned. Built to accommodate horse and street car systems, with considerable provisions for pedestrians,the Hawthorne had almost entirely been converted to serve automobile and bus traffic by the 1950s, a result of the decline of Portland’s once laudable street car system. The bridge’s approach spans show similar evidence of the shift toward a more varied and complex surface transportation network, with major reconstruction on both the west and the east ends to accommodate changing needs over time.

In 1975–76, the original 125-hp Westinghouse motors that powered the lift mechanism were replaced with larger 150-hp General Electric DC motors. New electrical equipment included rectifiers and two 175 kV transformers. None of these changes came about because the old system had worn out. The local electric company set the stage when it notified the county that it would no longer supply Direct Current (DC) power to the bridge. While the county considered its options, including conversion to Alternating Current (AC), it ultimately elected to install transformers and rectifiers and retain DC motors as they served better to provide the torque (rotational force) needed for the movable bridges. It made sense at that time to also replace the original motors along with the addition of other new electrical equipment. In 1998–99, as the Hawthorne Bridge approached its 90th year, Multnomah County undertook a major renovation effort in connection with structural repairs, deck replacement, and repainting that substituted the bridge's drab ochre paint job for one that set dark green metal work against red counterweights and deck railings.[4] Mechanical work included new sheaves, new operating drums, a modernized electrical system with computer-based controls, and other work that included modifying the outriggers to support widened sidewalks that would more safely accommodate bicycles and pedestrians.

Summary

The Hawthorne Bridge, completed in 1910 from design by Waddell & Harrington, of Kansas City, Missouri, was built by Robert Wakefield & Company (substructure) and the United Engineering & Construction Company (superstructure), both of Portland. Initially owned by the City of Portland, the bridge has always been maintained by Multnomah County, which assumed ownership from the city in 1913.

The Hawthorne Bridge represents a number of important aspects of vertical-lift bridge design, being the second operational vertical-lift bridge in the United States and the first such structure completed by the Waddell & Harrington firm. Its mechanical system and design served as the "standard" for most vertical-lift bridges that followed, resulting in multiple design patents related to the vertical-lift technology.[5] Today the Hawthorne Bridge remains not only the oldest of Portland's trans-Willamette River bridges, it is the oldest operating vertical-lift bridge in the United States.[6]

Although modified over time, most notably via the replacement of its original wooden decking with the current steel grate, the essential character and design of the Hawthorne Bridge remains substantially intact and as it appeared upon completion in 1910. The near continual upgrade and repair/replacement of the movable mechanisms of the bridge, including cabling, sheaves, electrical equipment, and other operational-related elements that allow the massive lift span and twin counterweights to move in combination to open and lower the roadway for river traffic do not in any meaningful way reduce the integrity of the structure.

[4] As originally built the Hawthorne was originally painted black. The ochre color dates from a 1964 to give downtown's publicly owned bridges new and brighter colors.

[5] Waddell & Harrington's 1909 design for the Keithsburg Bridge, across the Mississippi River in Illinois, pre-dates the Hawthorne and had significant impact on the Portland project design however the Keithsburg bridge, now demolished, was actually constructed after the Hawthorne and so likely took advantage of information the engineers gained during the Portland project's construction.

[6] Of its type, as a modern, large scale, vertical lift, the Hawthorne is a key element in this technology worldwide, representing a major leap in bridge scale over its American predecessor, the South Halsted Street Bridge in Chicago, built in 1893 and replaced in 1934. The only identified operational vertical-lift bridge known to be older than the Hawthorne is the Pont Levant de la rue de Cremée Bridge in Paris, that was completed in 1885, a bridge that is also significantly smaller than the Hawthorne span.

8. Statement of Significance

Applicable National Register Criteria
(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- [X] A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- [ ] B Property is associated with the lives of persons significant in our past.
- [X] C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- [ ] D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations
(Mark "x" in all the boxes that apply.)

Property is:

- [ ] A Owned by a religious institution or used for religious purposes.
- [ ] B removed from its original location.
- [ ] C a birthplace or grave.
- [ ] D a cemetery.
- [ ] E a reconstructed building, object, or structure.
- [ ] F a commemorative property.
- [ ] G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance
(Enter categories from instructions.)

COMMUNITY PLANNING & DEVELOPMENT
TRANSPORTATION
ENGINEERING

Period of Significance

1910–73 (Criterion A)
1910 (Criterion C)

Significant Dates

December 19, 1910, Opened

Significant Person
(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

Waddell & Harrington, Kansas City, MO
United Engineering & Construction Co. Portland, OR
Robert Wakefield & Company, Portland, OR

Period of Significance (justification)

The period of significance begins with the completion of the Hawthorne Bridge in 1910 in response to the increasing need for cross-river transportation and ends in 1973, spanning the entire context for the Multiple Property Document entitled Willamette Highway River Bridges of Portland, Oregon.

Criteria Considerations (explanation, if necessary) N/A

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance and applicable criteria.)

The Hawthorne Bridge, opened in 1910, is the oldest trans-Willamette River Bridge in Portland, Oregon, and is intrinsically linked to the city's long history of transportation and development. One of the oldest vertical-lift spans in the world, and without question the oldest operating vertical-lift bridge in the United States, the Hawthorne Bridge continues to function as intended more than a century ago with high integrity to its original design.

Narrative Statement of Significance (Provide at least **one** paragraph for each area of significance.)

Nominated under the framework of the Willamette River Highway Bridges Multiple Property Document and built within the earliest period of bridge development as defined by that document, the Hawthorne Bridge is significant statewide under National Register eligibility Criterion A, Community Planning and Development and Transportation, for its association with the development of the city and its transportation network between its construction in 1910 and the close of the period of significance for the MPD document in 1973. The Hawthorne Bridge is additionally of national significance under Criterion C, Engineering, for its relationship to the notable engineering firm of Waddell & Harrington, for its embodiment of multiple improvements in vertical-lift bridge technology, and as the oldest operating vertical-lift bridge in the United States. The period of significance under Criterion C is the date of construction, 1910. The Hawthorne Bridge meets all the general and the necessary specific registration requirements for listing under the MPD.

Developmental history/additional historic context information (if appropriate)

Bridges in Portland

Portland's first trans-Willamette Bridge, the first Morrison Bridge, was a wooden swing span that was built by private interests in 1887 to connect Portland with the separate incorporated city of East Portland. Four years later the two communities, along with Albina, another independent city in what is now North Portland, voted resoundingly to consolidate, forming a united municipality lining both sides of the Willamette River. Five more bridges followed, including vehicular and railroad spans, some of which had to be replaced due to poor construction, between 1891 and 1910.

The important shipping and port traffic on the Willamette made the crossings controversial, and direct and easy vehicular connection competed with the need to maintain an open river channel. Early spans were uniformly of swing-span design, meaning a portion of the bridge could rotate on a fixed center pier, turning 90 degrees from its normal cross-river orientation to a run parallel with the flow, creating two open channels on either side of the "swing" or pivoting span. Aside from the mechanical issues inherent in the operation of swing spans during this era, the slow speed at which the bridges could be opened or closed proved irksome to both vehicular and river traffic; the latter was additionally constrained by the comparatively narrow passage afforded on either side of the central pivot point.

In hiring the firm of Waddell & Harrington of Kansas City, Missouri, Portland turned to a comparatively new and somewhat untried technology, the vertical-lift bridge. In a vertical-lift bridge, the “lift span” rises vertically between two tall towers to create a single river channel that essentially can be twice as wide as a comparable swing, since it does not include the obstruction of the central pivot point. Where vertical clearance is an issue, as it was on the Willamette, the height of the towers allows for a considerable clearance above average river water level.

John Alexander Low Waddell had built what is generally credited as the first vertical-lift bridge in America, the South Halstead Street Bridge in Chicago, completed in 1893. While considered a success, the Chicago span was marred by some technical problems, and no additional vertical-lift bridges were built in the United States by Waddell or anyone else for more than a decade. In 1909, after Waddell partnered with John Lyle Harrington, the firm turned back to the vertical-lift form. It was largely faith in their earlier works that persuaded Portland to bring them and their patented technology to town for the design of a new bridge in downtown. The Hawthorne Bridge would become the first vertical-lift bridge in Portland but was soon to be followed by the unusual double-vertical-lift Steel Bridge, also designed by Waddell & Harrington, in 1912. Later movable bridges — the Broadway (1913), the Burnside (1926), and the third Morrison Bridge (1958) — would rely upon a bascule or drawbridge form. The rest of Portland’s bridges are termed “high spans,” bridges that are built with sufficient clearance below their fixed decks that ships can pass without interrupting cross-river vehicular traffic.

Engineers & Builders

The Hawthorne Bridge was completed following the passage of a 1907 city bond issue that would pay for its construction. Portland City Engineer D. W. Taylor hired J. B. C. Lockwood, consulting engineer, to prepare preliminary plans and cost estimates for the new bridge. Lockwood, a graduate of Ames College (now Iowa State University), first came to Seattle in the mid-1880s and served as the first president of Puget Sound Bridge and Dredge, which was established in 1889. Lockwood arrived in Portland shortly before 1907 and served as consulting chief engineer for the Port of Portland Commission, an agency authorized by the State to maintain and deepen the shipping channel between Portland and the Pacific Ocean. Part of the commission’s responsibilities included the review and authorization of any bridge construction across the Willamette. As chief engineer for the Port, Lockwood knew what it took to get bridges approved by the various political authorities concerned. He was also in a good position to learn the latest about nationwide bridge developments, a topic on which the Port needed to stay posted. In 1906, for example, he was part of the Portland delegation that toured Chicago’s rich collection of movable bridges.

While in Chicago, Lockwood had seen the South Halstead Bridge, designed by J. A. L. Waddell and completed in 1893, one of the first modern vertical-lift bridges in the United States. In mid-1909 the Oregon Railroad and Navigation Company (OR&N) had contracted with Waddell, by then in partnership with John Lyle Harrington, to design what would become the Steel Bridge, downstream from the proposed Hawthorne site. On May 20, 1909, Waddell & Harrington, based in Kansas City, Missouri, signed an agreement with the City of Portland for engineering services on what would become the Hawthorne Bridge.

John Alexander Low Waddell (1854–1938) was born in Canada and educated at Rensselaer Polytechnic Institute, in Troy, New York, Waddell was among the most prolific bridge designers in American history, responsible for more than 1,000 structures throughout North America, as well as in Europe, Asia and elsewhere. Waddell designed several steel vertical-lift bridges but the first to be constructed was the 1893–94 South Halsted Street Bridge, in Chicago. While that bridge was ultimately successful, it was beset by various mechanical problems shortly after construction and Waddell would not build another lift structure for a decade. In 1898, Waddell joined in partnership with John Lyle Harrington (1868–1942), who had started as an intern with Waddell while he was studying engineering at the University of Kansas in the early 1890s. Waddell and Harrington shared several important patents for lift bridge designs and are both considered the inventors of the modern lift bridge form. While the firm, and particularly Waddell, was well known, they had yet to demonstrate the success of the modern vertical lift in any widespread way. The Hawthorne Bridge would be a major opportunity to take advantage of Harrington's improvements to the earlier designs.

When Portland hired Waddell & Harrington, the South Halsted Street Bridge was operating more reliably and cheaply largely because a major 1907 investment had replaced its original steam engine with electric motors, reducing vibration as well as operating expenses. Buoyed by that development, the firm was pursuing three other lift-bridge ventures, one of which, a vertical lift at Keithsburg, Illinois, for the Minneapolis and St. Louis Railway, was similar to what Portland wanted. Clearly, Portland hired Waddell & Harrington based more on the promise of its vertical-lift bridges than their proven superiority. Waddell & Harrington's years of experience building other sorts of bridges must have offered reassurance, especially because it included many projects with steel structures of the sort that Portland wanted. Portland's history of struggles with slow and unpredictable swing spans such as the Madison Bridge must have made the concept of a vertical-lift bridge appealing. The rapid cycle of such spans, compared to swing spans, and the increased horizontal clearance of a lift bridge without a center pivot would have been attractive to the shipping interests on the river.

Nothing dramatizes the advantage of hiring a nationally renowned firm such as Waddell & Harrington better than the fact that almost as soon as the June 9, 1909, charter vote authorized the sale of the Hawthorne Bridge bonds, the firm prepared specifications and drawings for the bridge. While the firm's "general specifications" were already prepared, 24 pages of additional "special instructions" and 15 sheets of blueprints for the Hawthorne were evidence of a firm with well-established expertise in heavy steel-bridge construction. Waddell & Harrington's experience and capacity additionally offered Portland the benefit of speedy completion of the bridge's design phase. What the firm ultimately proposed had enough similarities to the Keithsburg bridge project that nearly half the drawings included as part of the Hawthorne Bridge specifications were for Keithsburg. The firm of Waddell & Harrington was able to offer "complete drawings" for Hawthorne within 60 days of the contract's award. The terms of the contract called for successful bidders to complete the bridge within ten months of signing on, predicated in turn on the substructure being completed within eight months and far enough advanced within five months for work on the superstructure to begin. Bids for construction were due June 21, 1909; contracts were signed a week later, on June 28.

Construction Process

As it turned out, less than eighteen months later, Waddell & Harrington, through its resident engineer C. K. Allen, notified the city that the Hawthorne Bridge was ready for use. Although that pace seems rapid ninety years later, Portland residents at the time complained bitterly. Likely departing from the measured phrases of the legal opinion he generally offered, Portland's city attorney observed that "…it is a well known fact, in the mind of not only the city officials, but in the public generally that there was gross delay on the part of the Contractor."[7]

The story of construction difficulties and achievements begins with the work of Robert Wakefield, contractor for the substructure. The 65-year-old Wakefield brought a wealth of experience to the Hawthorne Bridge project. Of English birth and education, he had arrived in America while still in his teens. Wakefield gained extensive technological experience, including several years spent as the Union Pacific Railroad's superintendent of tracks and bridges, before arriving in Portland in 1887. Wakefield's accomplishments in the late 19th century included the erection of Portland's first steel building, for Wells Fargo, and service as the contractor for the city's "magnificent" Union Station. South of Portland, Wakefield built a steel bridge across the Willamette at Albany, Oregon, one of his many projects for the OR&N.[8]he would sign a contract for the construction of the Steel Bridge while still working on the Hawthorne project.

[7] Judith A. McGaw. *Hawthorne Bridge—Addendum*, 1999, 15.
[8] He would sign a contract for the construction of the Steel Bridge while still working on the Hawthorne project.

Wakefield was well-known locally, and well-respected and popular with his work force, but neither of those skills brought him much success in taming the Willamette River. The tight plan for construction of the substructure and concurrent work on the superstructure of the Hawthorne Bridge was scrapped early on, as the result of the river's high water. Planned construction for the support piers of the bridge, originally intended to progress in orderly fashion from east to west, was delayed repeatedly due to river conditions. John Harrington, charged with adjudicating the opposing claims for added costs and construction delay penalties, attributed 109 days of delay to high water on the Willamette River.

Construction of the substructure for the Hawthorne Bridge began with 50-foot-tall cofferdams that were sunk 15 feet into the river bottom, Wooden piles, 65 to 105 per pier, were then driven another 45 feet below the bottom of the crib bottom. After using a tremie,[9] which pumped a thick mass of concrete through the water to the bottom of the cofferdam, water was pumped out and the surface of this "seal course" of concrete was scraped to remove a thin top layer, the only concrete that suffered damage through contact with the water when using this technique. Next, the cofferdam was pumped dry, the piles were cut, and the remaining concrete was placed in open air. Naturally, since the coffer dam was 50 feet high, leaving only 35 feet above the river bottom, and mean low water was 35 feet at the lift span, high water easily delayed construction, with high water filling the cofferdam.

While Wakefield was in charge of the construction of the piers, United Engineering & Construction Company had been contracted for the construction of the superstructure. Also based in Portland, United's president Drake C. Reilly was well-connected politically through membership in several private clubs and also served as a director of the Port of Portland. After working for the Union Pacific in Omaha and Denver, Reilly arrived in Portland in 1891 and became the OR&N's freight agent. Reilly had multiple business ventures in the city, one of which was United Engineering. Day-to-day operations at the Hawthorne Bridge were in the hands of A. S. Eldredge, the company's vice-president, general manager and engineer.

Various modifications to the Hawthorne Bridge design resulted in final costs above United's original contract amount. This was largely because May Simon brokered a delayed decision to widen the outside lanes to accommodate the new and larger cars of the Portland Railway Light & Power Company. The result was a road deck that was nearly three times as wide as the space between the trusses, the 19-foot overhang of the floor beams on either side posing challenges for lateral stability that were not foreseen in the original design. Waddell & Harrington addressed this by asking for more rigid connections in the cantilever support structure and by increasing the amount of steel in the structure with new, heavier, floor beams that were 60 inches deep. Concern that heavily laden street railway cars running along one side of the bridge might tilt the lift span and cause a tragedy also prompted the addition of cantilever stabilizing brackets on the substructure that were placed to receive the end of the cantilevered brackets to support the lift-span deck. Like many features worked out on the Hawthorne Bridge, Harrington's creative solution to this unexpected problem would become standard practice for lift bridge design. Other "add-ons" to the original design of the Hawthorne Bridge included steel rails for the PRL&P cars and bridge lighting.

Wakefield's delays with completing the substructure, along with Harrington's modifications to the steel frame to address design changes, delayed the start of United's work on the superstructure until March 1910.[10] United compensated for the delays in pier construction by working Sundays and nights. About 60 percent of the bridge, three spans and two towers, went up between 13 July, when the first lift pier was ready, and 13 October.

[9] Methods of placing concrete underwater are designed to prevent washout and minimize the formation of weakly cemented sand and gravel pockets. "In the tremie process, concrete is placed through a vertical steel pipe with an open, funnel-shaped upper end. The lower end of the tremie is kept immersed in plastic concrete so that freshly placed concrete doesn't come into contact with water" (see www.concreteconstruction.net, visited 26-August-2010).

[10] Although the Hawthorne Bridge is credited to the Waddell & Harrington firm, as Judith McGaw eloquently points out in the HAER documentation, "…there is every reason to give Harrington credit for much of what made Hawthorne a distinct advance over the South Halsted Street Bridge" (McGaw, 1999:21).

Construction of the giant steel-framed concrete counterweights, each weighing 420 tons, waited until the lift towers that would hold them were completed as their massive scale required that they be poured in place, near the tops of the towers. Since such an operation was new, Waddell & Harrington had taken pains to be quite specific when writing the specifications for the project. They noted, for example, that the weights be constructed at a point about three feet lower than their ultimate height, a provision that was made to accommodate the 2'-5" falsework height required for the transfer of the lift span to the lift piers. The counterweights were completed on November 1, 1910.

The lift span was constructed downstream on falsework so as to permit barges to enter below it. When the lift piers were ready to receive it, three scows were braced together. Once in place, the barges were filled with enough water to drop them under the construction falsework. When in place, the water was pumped out and the span rose on the barges, supported by new falsework. To assure that the span rode 2'-5" above its bridge pier seats, careful advance calculation took into account a multitude of relevant factors, including probable river state and draft of the barges under a combined load of an 880-ton lift span and 70 tons of falsework.

Steamers moved in downstream and between the barges and they worked the span across the river and upstream to the bridge piers. As a system of cables and windlasses guided the span into position on the bridge, the counterweight cables were attached to the hangers. The guide angles and rollers, which had needed some play, had their bolts firmly and finally tightened down. Water was again let into the barges, freeing the span from the falsework. As the barges moved away, the lift span was lowered enough to raise the counterweights from their falsework, which was then removed. Once the operating cables and their machinery were connected, the lift span was raised, allowing river traffic to pass under the bridge.

After some minor alterations and final cleaning and painting, the Hawthorne Bridge was fully operational and was presented on December 19, 1910. Under the amended 1907 City Charter provisions, Mayor Simon accepted the bridge and then turned it over to Multnomah County, which accepted the responsibility for its control and operation. The city retained ownership of the Hawthorne Bridge until 1913, at which time that too was transferred to the county, where it remains.

While some of the local reaction to the Hawthorne Bridge focused upon the delays in its construction, much of the delay derives from the reality that its engineers and its builders were engaged in a very new venture. *Engineering News* summed up the problem succinctly when it referred to the Hawthorne as a “rare type.” With essentially no direct precedents to go on, how to erect the heavy lift span, how to maintain its lateral and longitudinal stability during construction and thereafter, and how to coordinate the assembly of the various components demanded repeated technological creativity on the part of the engineers and the contractors responsible for implementing their plans. The surprise is not that construction took longer than expected, but that contractors, fabricators, and engineers actually managed the feat as expeditiously as they did.

The Hawthorne Bridge

Portland grew significantly during the first decade of the 20th century, in large part due to the city’s increased national exposure as host of the Lewis and Clark Centennial Exposition. In order to improve connections between the growing downtown business core and the residential districts, primarily located to the east, local pressure for more and more bridges to accommodate streetcars and other travel increased significantly.

In 1907, voters passed a $450,000 bond to replace the failing Madison Bridge, built in 1900 to replace an earlier wooden span of the same name that had been privately built as a toll bridge. Opened in February 1891, the first Madison Bridge was purchased by the city in November 1891, just a few months after the consolidation of Portland, East Portland, and Albina into a single entity. The city converted the Madison Bridge to a free bridge, a response to a region-wide issue that had played an important part in the consolidation movement. There has never been another toll bridge across the Willamette River in Portland. The 1900 bridge was almost immediately recognized as being nearly as poorly built as the first bridge. By

1909, though less than a decade old, the second Madison Bridge was in such bad structural condition that it had to be closed to traffic.

Politics interceded and for two years the city dragged its feet about replacing the Madison Bridge with a new span. Largely this was related to an existing lease clause between the railway system, which had a grandfathered deal dating back to the original sale of the first Madison Bridge, a deal that limited the lease income the city received for allowing streetcars to use the bridge. As is often the case, competing interests, being other neighborhoods or business districts in Portland that recognized the value of bridge right-of-way, took advantage of the situation and proposed shifting the $450,000 Madison Bridge funding to build on another right-of-way under the guise that such a new, relocated span would not be subject to the terms of the outdated lease.

Although, from a modern perspective, the concept of shifting one approved project to another prospective project two years after the fact sounds unlikely, in early-20th-century Portland such odd political machinations were all too common. As a result, powerful foot-dragging slowed what would become the Hawthorne Bridge project, even though the bonds had been sold and the city was paying interest on the funds. A ballot measure on the June 1909 ballot was scheduled to ask voters their opinion on several bridge issues, one of which was "transferring the Hawthorne Bridge Fund to the Market Street Bridge Fund and discontinuing the proceedings for the construction of the Hawthorne Bridge."[11]

As the issue was awaiting the voters' decision, supporters of the reconstruction of the original (Madison Street Bridge) plan, including a majority of the city council, pushed forward with the planning process so as to avoid any further delay. In May 1909 Waddell & Harrington was hired to develop plans for the bridge so that it could be let for a construction contract immediately following the vote, should the voters turn down the shift of funding. Pointing out that even further delay would result from shifting to a new project site, a majority of the council's executive committee voted in support of the contract.[12]

The *Oregonian* reported that,

> At Madison Street a bridge has been established these twenty years. To the bridge at this point, thoroughfares have been adjusted, South East Portland and Oregon City can come that way more conveniently into the center of the West Side than by any other.…There should be but one bridge south of Morrison street; and renewal of the Madison Bridge clearly is the proposition that most commends itself — especially since the bonds have been sold for it and the money is in hand.[13]

Virtually the entire business community of Portland was adamantly against the shift and numerous articles, editorials, resolutions, and public statements on the need to rebuild on the Madison site were published prior to the June 7, 1909, election.[14] The preliminary plans of Waddell & Harrington were presented to the executive Committee of the Portland City Council on May 22, 1909, and approved. They called for a lift span of 235 feet, approximately 50 feet wider than the openings for vessels on any of the other bridges of the city, which were swing spans. The cost for the lift span was said to be about $15,000 less than a swing span, with the difference accounted for in the cost to construct a central pier.[15]

[11] Having had such poor luck under the "Madison Street" name, the city elected to drop that name and to call the replacement span the Hawthorne Bridge.
[12] *Oregonian,* 1-May-1909, 11:3.
[13] *Oregonian*, 14-May-1909, 10:2.
[14] See, for example "Madison Site Favored," reporting on the view of the Kenilworth Club (*Oregonian* 19-May-1909, 13:2), "Willamette Bridges," an editorial on the issue (*Oregonian*, 20-May-1909, 4:1), or "Want Bridge Left," documenting the views of the South Portland Improvement Association (*Oregonian*,22-May-1909, 9:3).
[15] *Oregonian*, 23-May-1909, 5:3.

In late May, the city released the details of the proposed Hawthorne span to a curious public. Under the headline stating "Draw of New Madison Street Bridge will be Larger than any Other in the World," the superlatives of the span were enumerated. The *Oregonian* reported that,

> Portland will have the longest lift-draw bridge in the world when the Madison street steel bridge is completed.…This will be the first lift bridge to be built here and great things are expected from it. The draw can be lifted for the passing of a vessel in 34 seconds so that the time is scarcely worth mention.…In summary it might be said that the Hawthorne avenue bridge will be wider, stronger, and more rapid in operation than any other in the city.[16]

Despite several last ditch efforts to dissuade the public, the voters strongly favored replacing the Hawthorne Bridge, as they had approved two years earlier. The proposal to shift funding to another span was soundly defeated by a vote of 1,530 for, 5,453 against.[17]

With plans in place and assurance of funding, work on the Hawthorne Bridge proceeded rapidly. Bids that had already been advertised before the election were due on June 21, 1909, and contracts were signed before the end of that month. Robert Wakefield & Company began construction of the bridge's substructure in summer 1909, although as noted above, they were delayed by high water.

On December 15, 1910, construction of the Hawthorne Bridge was essentially completed, with everything but the painting done, and the contractor officially conveyed the bridge to the city amid a small ceremony that demonstrated the bridge's mechanism. In chronicling the bridge's construction, the *Oregonian* reported that,

> The huge lift span took its first official trip to the top of the great upright towers with Mayor Simon, George W. Brown and John F. O'Shea, of the bridge committee of the Executive Board, County Judge Cleton, County Commissioner Goddard, County Commissioner-elect Hart and several Councilmen, and other county officers as passengers.…in all there were nearly 100 persons on the lift when the current was turned on and the electrical motors began to revolve.[18]

Three days later, C. K. Allen, Waddell & Harrington's engineer in charge of the project, formally recommended acceptance of the span to the city. At about 11:00 a.m. on December 19, 1910, Mayor Simon formally opened the bridge to traffic in what was termed a "pert sentence." He declared "Let it open!"[19]

Registration Requirements

The Hawthorne Bridge is being nominated to the National Register under the Willamette River Highway Bridges of Portland, Oregon Multiple Property Document. Evaluation of the bridge within the registration requirements of Section F of that document finds the following:

The Hawthorne Bridge meets the Minimum Eligibility Requirements:

- The bridge is located on the Willamette River, at River Mile 13.1, entirely within the City of Portland, Multnomah County, Oregon.
- The bridge's primary function is to provide highway/vehicular needs within the city's transportation system, although it also provides for bike and pedestrian use, as well as auto, truck, and bus traffic. Additionally, the bridge was historically an element in Portland's street railway system.

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[16] *Oregonian*, 30-May-1909, 12:1.
[17] *Oregonian*, 8-June-1909, 6:2.
[18] *Oregonian*, 15-December-1910, 16:1.
[19] *Oregonian*, 20-December-1910, 16:1.

- The bridge is owned and maintained by Multnomah County. The county has had the responsibility of maintaining the Hawthorne Bridge since its completion in 1910 but did not assume ownership from the City of Portland until 1913.
- The bridge was completed in December 1910, and so meets the temporal context of the MPD. It is the oldest example of the three spans identified as being within the 1910–13 subgroup of that context.

The Hawthorne Bridge meets the Minimum Integrity Requirements:

- The bridge remains on its original piers and its original alignment.
- The bridge remains substantially "as-built" with high integrity to its original steel superstructure and concrete piers. Serial modification of the deck and repair/upgrade of the mechanical and operational elements of the lift system do not seriously impact integrity in any way.
- The bridge possesses very high integrity of feeling and association, effectively relating its original character, design and appearance so as to convey its relationship to the history of Portland, Oregon.

As a result of the above, the Hawthorne Bridge meets the eligibility requirements for listing on the National Register under Criterion A, as defined by the Willamette River Highway Bridges of Portland Multiple Property Document.

In addition to eligibility under Criterion A, the Hawthorne Bridge is considered to have national significance under Criterion C. Evaluation under the registration requirements finds the following:

- The Hawthorne Bridge is a nationally significant example of a vertical-lift bridge, being the oldest operating example of such a structure in the United States and one of the oldest such bridges in the world.
- The design of the Hawthorne Bridge represented a major technological advancement in movable bridge technology, exhibiting several new design elements that became "standard" for all subsequent vertical-lift bridge design.
- The Hawthorne Bridge was the first vertical-lift bridge constructed by the Waddell & Harrington firm of Kansas City, Missouri. Although based on a slightly earlier design for the now-demolished Keithsburg bridge, the Hawthorne Bridge was actually constructed first and allowed the firm the opportunity to test and correct its designs before construction of the Keithburg. As the first vertical-lift bridge to show the influence of John Lyle Harrington, the Hawthorne Bridge demonstrated significant advances in movable bridge technology that ultimately helped lead the series of patents Waddell & Harrington obtained for their work.
- Retaining a high degree of integrity in both design and workmanship, the Hawthorne Bridge is an exemplar of its type, of the vertical-lift technology of Waddell & Harrington, and of the improvements in movable bridge design during the first decade of the 20th century.

As a result of the above, the Hawthorne Bridge, in addition to its already demonstrated eligibility under Criterion A, represents associations of larger design and technological significance related to the works of Waddell & Harrington and the development of the vertical-lift bridge form, while demonstrating sufficient integrity to convey those associations, as required for eligibility under National Register Criterion C.

Hawthorne Bridge
Name of Property

Multnomah Co., OR
County and State

9. Major Bibliographical References

Bibliography (Cite the books, articles, and other sources used in preparing this form.)

DeLony, Eric. *Landmark American Bridges*. Boston, MA: Little, Brown and Company, 1993.

Lansing, Jewell. *Portland: People, Politics and Power 1851–2001*. Corvallis, OR: Oregon State University Press, 2003–2005.

MacColl, E. Kimbark. *The Growth of a City: Power and Politics in Portland, Oregon 1915–1950*. Portland, OR: The Georgian Press, 1979.

McGaw, Judith A. *Hawthorne Bridge, Historic American Engineering Record [HAER No. OR-20]*. Prepared as part of the Willamette River Bridges Recording Project, HAER/Oregon Department of Transportation, in cooperation with Multnomah County, 1999.

Oregonian. Misc. issues as cited by date/page in text.

Oregon Journal. Misc. issues as cited by date/page in text.

Plowden, David. *Bridges: The Spans of North America*. New York, NY: The Viking Press, 1974.

Ritz, Richard Ellison. *Architects of Oregon.* Portland, OR: Lair Hill Publishing, 2002.

Smith, Dwight, James B. Norman and Pieter T. Dykman. *Historic Highway Bridges of Oregon* (2nd, Revised Ed.). Portland, OR: Oregon Historical Society Press, 1986.

Wood Wortman, Sharon, with Ed Wortman. *The Portland Bridge Book* (3rd Edition). Portland, OR: Urban Adventure Press, 2006.

Previous documentation on file (NPS):

____preliminary determination of individual listing (36 CFR 67 has been requested)
____previously listed in the National Register
__X__previously determined eligible by the National Register
____designated a National Historic Landmark
____recorded by Historic American Buildings Survey #____________
__X__recorded by Historic American Engineering Record # OR-20
____recorded by Historic American Landscape Survey # ___________

Primary location of additional data:

____State Historic Preservation Office
__X__Other State agency
____Federal agency
__X__Local government
____University
____Other
Name of repository: Oregon Dept of Trans., Multnomah Co.

Historic Resources Survey Number (if assigned): N/A

Hawthorne Bridge
Name of Property

Multnomah Co., OR
County and State

10. Geographical Data

Acreage of Property Less than one acre
(Do not include previously listed resource acreage.)

UTM References
(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing		Zone	Easting	Northing
1	10	525835	5039810	3			
2				4			

Verbal Boundary Description (Describe the boundaries of the property.)

The nominated area includes the entire Hawthorne Bridge structure, above the river bed and between the approach spans that connect the structure to the road system on either side of the Willamette River.

Boundary Justification (Explain why the boundaries were selected.)

The nominated area encompasses the entirety of the historic Hawthorne Bridge, while excluding the adjacent non-contributing public streets and structures.

11. Form Prepared By

name/title George Kramer, M.S., Senior Preservation Specialist
organization Heritage Research Associates, Inc. date February 2011
street & number 1997 Garden Ave telephone (541) 482-9504 (541) 485-0454
city or town Eugene state OR zip code 97403
e-mail george@preserveoregon.com

Photographs:

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map.

Name of Property: Hawthorne Bridge

City or Vicinity: Portland

County: Multnomah **State:** OR

Photographer: George Kramer
Heritage Research Associates, Inc. Eugene, OR

Date Photographed: April 2011

Description of Photograph(s) and number:

Photo 1 of 5: (OR_MultnomahCounty_WillametteHwyBridgesMPD_HawthorneBridge_0001)
General View, Looking Upstream (NE) from McCall Park

Photo 2 of 5: (OR_MultnomahCounty_WillametteHwyBridgesMPD_HawthorneBridge_0002)
General View, Looking E, from McCall Park

Photo 3 of 5: (OR_MultnomahCounty_WillametteHwyBridgesMPD_HawthorneBridge_0003)
On bridge, looking west, toward downtown

Photo 4 of 5: (OR_MultnomahCounty_WillametteHwyBridgesMPD_HawthorneBridge_0004)
On bridge, looking east, toward East Portland

Photo 5 of 5: (OR_MultnomahCounty_WillametteHwyBridgesMPD_HawthorneBridge_0005)
On bridge, looking east, toward East Portland

Additional Documentation

Submit the following items with the completed form:

- **Maps:** A **USGS map** (7.5 or 15 minute series) indicating the property's location.

  A **Sketch map** for historic districts and properties having large acreage or numerous resources. Key all photographs to this map.

- **Continuation Sheets**

- **Additional items:** (Check with the SHPO or FPO for any additional items.)

Hawthorne Bridge
Name of Property

Multnomah Co., OR
County and State

Property Owner: (Complete this item at the request of the SHPO or FPO.)

name Multnomah County Bridge Section, attn: Ian Cannon, County Bridge Services Manager

street & number 1403 SE Water Ave telephone (503) 988-3757

city or town Portland state Oregon zip code 97214

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).
Estimated Burden Statement: Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management. U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

Documents

United States Department of the Interior
National Park Service

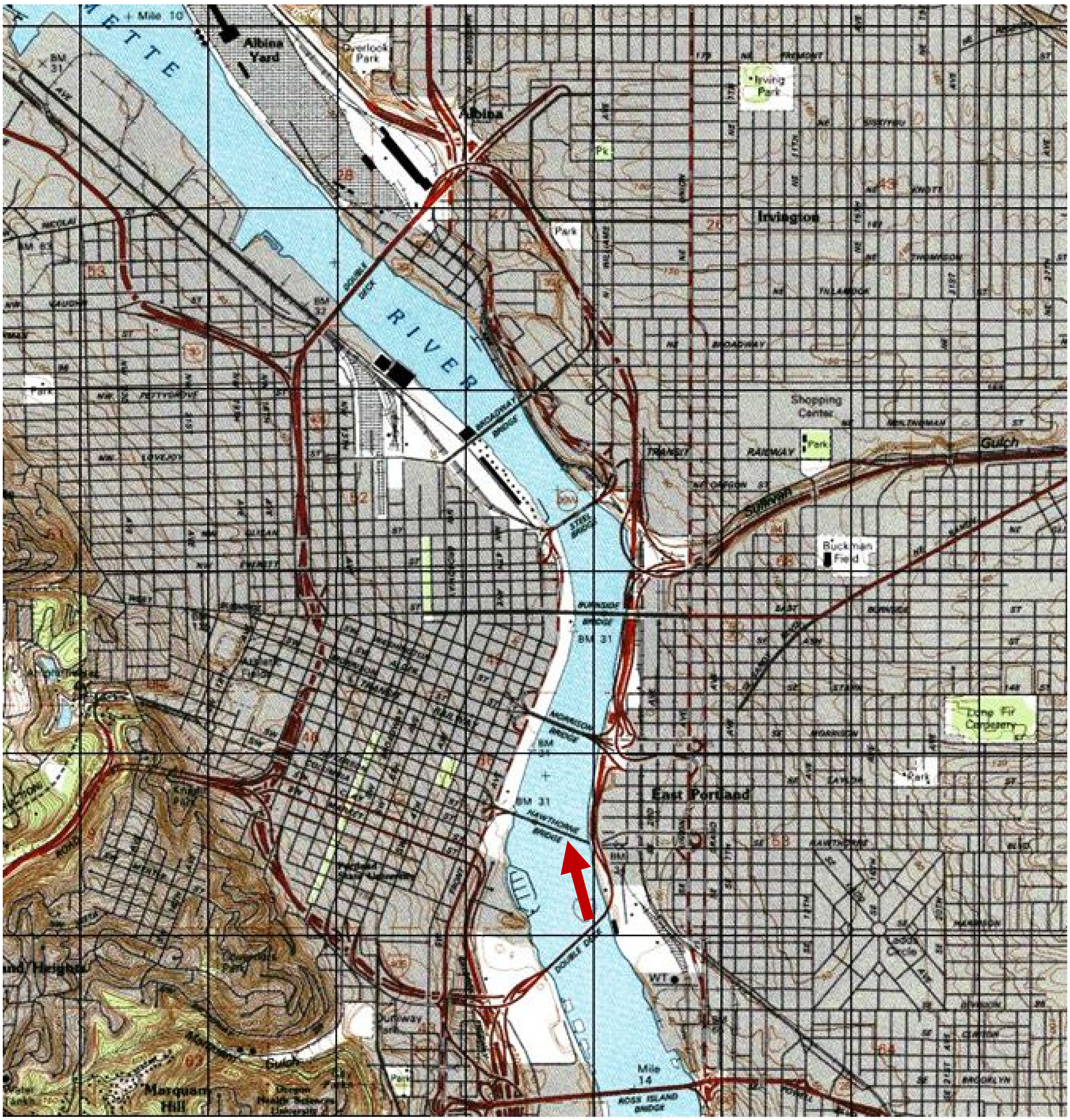
National Register of Historic Places Continuation Sheet

Section number Documents Page 21

Hawthorne Bridge	
Name of Property	
Multnomah Co., OR	
County and State	
Willamette River Highway Bridges of Portland, Oregon	
Name of multiple listing (if applicable)	

Figure 1: Project Location Map, ODOT, City of Portland Quadrangle, Subject property indicated with arrow

Figure 2: USGS, Portland 7.5 Quadrangle, 1990, Subject property indicated with arrow



National Register of Historic Places Continuation Sheet

Figure 3: Hawthorne Bridge Boundary Map, Boundary marked with black line

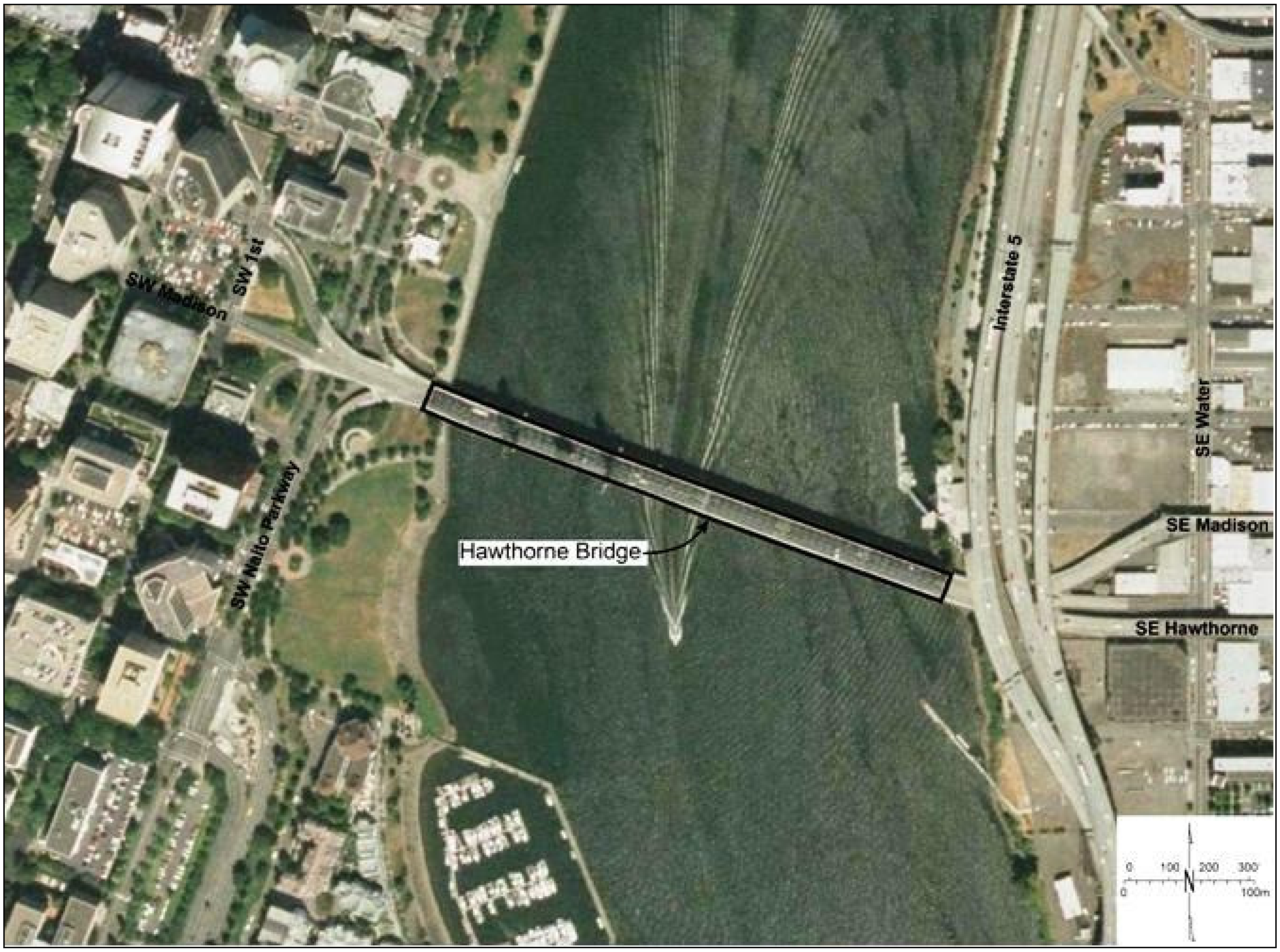


Figure 4: Newspaper excerpt, Portland (OR) *Oregonian* 20-December-1910, Page 16

BRIDGE DECLARED OPEN FOR TRAFFIC

Mayor and Other Officials Ascend on New Lift Span 160 Feet Above River.

ACCEPTED ON CONDITION

Some Bolts to Be Replaced and Finishing Work on Shelter House Yet Remains—Structure Is Safe, Say Engineers.

"Let it open."

In that pert sentence the Hawthorne bridge was accepted for the city by Mayor Simon yesterday after a discussion of minor defects in the machinery of the bridge, which for a time bid fair to delay acceptance of the viaduct for another fortnight.

Engineer Stutsman, delegated by the County Court to inspect the bridge, reported yesterday morning that 36 bolts in the lift machinery of the structure and keys on the wheels of the shaft were loose. This report was made to the County Court in the presence of City Engineer Morris, D. C. O'Reilly, president of the construction company, and C. K. Allen, engineer for Waddell & Harrington. The discussion that followed led to personalities which were hushed when Mayor Simon was summoned to the conference by Judge Cleeton.

It then developed that Engineer Stutsman reported adversely to the bridge, not knowing the contract which requires the construction company to operate the span for a year before its final official acceptance.

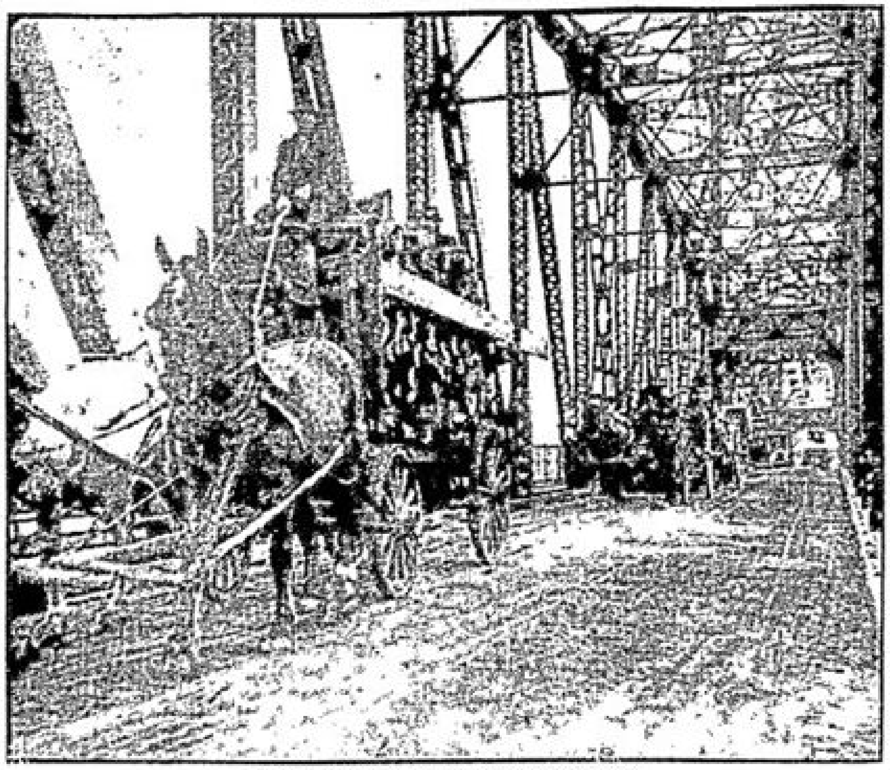
All the bridge engineers admitted that bolts were loose and the keys not tight but said that provision had already been made to readjust them. All, including Engineer Stutsman, were one in declaring that no danger was entailed by the looseness of keys and bolts. It was then that Mayor Simon agreed to accept the bridge as it stood and County Judge Cleeton said he was willing if the city were ready to accept the responsibility.

The bridge builders declared that the bolts could be tightened without halting traffic and that new keys could be inserted in the shaft over night. The bolts will be adjusted immediately and new keys are being made.

The conference over, Mayor Simon, constructors of the bridge and Engineer Stutsman visited the new city possession and inspected the bridge again. The Mayor, other officials and bridgemen ascended on the lift 160 feet over the level of the river, Engineer Hicks, who will operate the lift for the county, handling the levers. The bridge was then officially accepted, Mayor Simon saying to Engineer Stutsman:

"I now turn this bridge over to you, Mr. Stutsman. You are now in full charge. The bridge is open for traffic."

SCENE ON NEW HAWTHORNE BRIDGE.



TEAMS ON ROADWAY SOON AFTER OPENING.

Engineer Is Satisfied.

Mr. Stutsman expressed himself as satisfied with the mechanism and construction of the bridge and promised to do his best to make the span, lift and all, a complete success.

Prior to Mr. Stutsman's complaint against loose parts of the bridge, the construction company had referred to these defects in a letter to the Mayor and members of the Executive Board.

In the report recommending acceptance, filed with Mayor Simon yesterday, Engineer Allen said that a few bolts and two small sheave wheels must be replaced, also that there is some finishing work yet to be done on the shelter-houses, and that both these and the machinery-house, must receive more paint.

In a few days J. L. Harrington, of Waddell & Harrington, who is here from Kansas City, will inspect the structure, he said. If Mr. Harrington discovers any defects he will call the contractors' attention to them and they must be made good. All defects in material or machinery, developing within a year, must be made good by the contracting company. Engineer Allen called the Mayor's attention to this provision of the contract.

On the strength of this report Mayor Simon wrote a letter to the United Engineering & Construction Company, officially accepting the bridge, subject to the work referred to in Mr. Allen's letter, which must be done as soon as possible.

Before 11 o'clock in the forenoon the bridge had been thrown open to general traffic.

Figure 5: Five Bridges Over the Willamette River, looking north, c. 1927
author's collection, Hawthorne Bridge at bottom of image

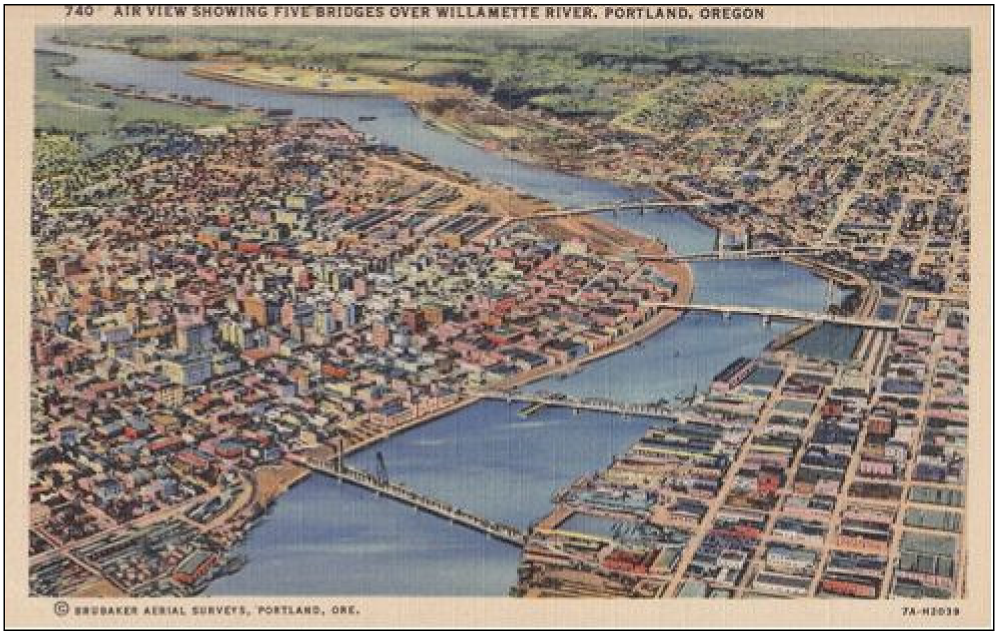


Figure 6: Aerial View of Portland, c. 1927, author's collection, Hawthorne Bridge at bottom of image

Figure 7: Postcard Image, circa 1911, author's collection

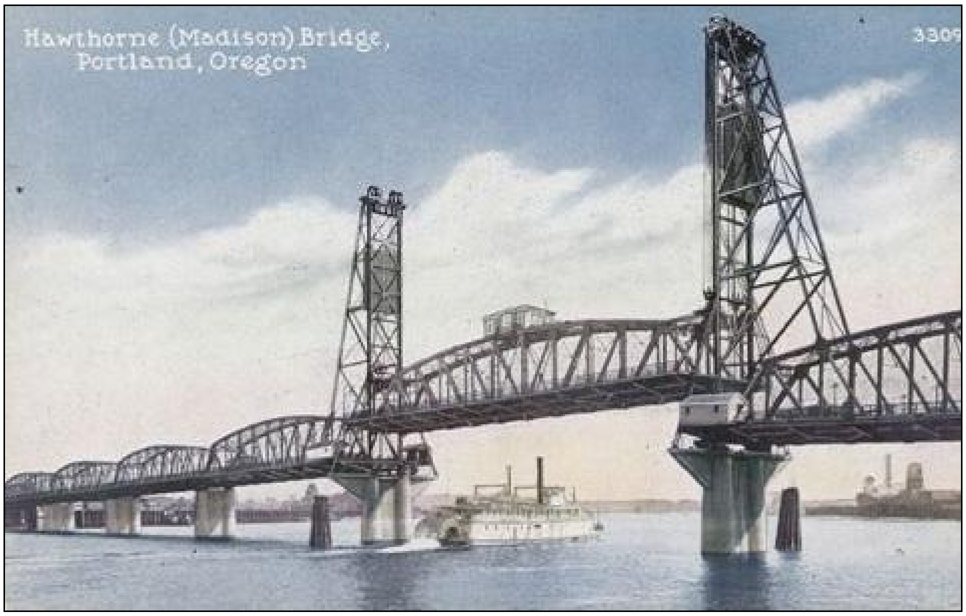


Figure 8: Postcard Image, circa 1911, author's collection

Photo 1 of 5: (OR_MultnomahCounty_WillametteHwyBridgesMPD_HawthorneBridge_0001)
General View, Looking Upstream (NE) from McCall Park

Photo 2 of 5: (OR_MultnomahCounty_WillametteHwyBridgesMPD_HawthorneBridge_0002)
Upstream General View, Looking E, from McCall Park

Hawthorne Bridge
Portland, Multnomah Co., Portland
National Register Photos

Photo 3 of 5: (OR_MultnomahCounty_WillametteHwyBridgesMPD_HawthorneBridge_0003)
On bridge, looking west, toward downtown

Photo 4 of 5: (OR_MultnomahCounty_WillametteHwyBridgesMPD_HawthorneBridge_0004)
On bridge, looking east, toward East Portland

Hawthorne Bridge
Portland, Multnomah Co., Portland
National Register Photos

Photo 5 of 5: (OR_MultnomahCounty_WillametteHwyBridgesMPD_HawthorneBridge_0005)
On bridge, looking east, toward East Portland