Board of Historic Preservation

Wednesday, August 15
4:00 pm
City Center, Room 110
231 North Dakota Avenue
Sioux Falls, SD

MEETING ASSISTANCE. Upon request, accommodations for meetings will be provided for persons with disabilities. Please contact the Human Relations office, located on first floor of City Hall, 224 West Ninth Street, Sioux Falls, SD, at 367-8745 (voice) or 367-7039 (TDD) 48 hours in advance of the meeting.

AGENDA

Facilitator: Rachael Meyerink, Chair
Rob Collins, Vice Chair

1. Call to Order & Quorum Determination
2. Welcome & Introductions
3. Approval of July 11, 2018 Meeting Minutes
4. Public Input on Non-Agenda Items (5-minute period)
5. New Business
   A. 1602 S. 4th Ave., McKennan Park Historic District
      (Board action required)
   B. E. 8th St. Bridge, Individually Listed National Register
      (Board action required)
6. Other Business

Adjournment
BOARD OF HISTORIC PRESERVATION

Promoting the use and conservation of historic properties for the education, inspiration, pleasure and enrichment of the citizens of Sioux Falls

DRAFT Regular Meeting Minutes for July 11, 2018

Members Present:
Josh Chilson
Rob Collins
Jennifer Dumke
Thomas Keller
Pam Merchant
Rachael Meyerink
Lura Roti
Shelly Sjovold

Staff Present:
Diane deKoeyer, Urban Planner, BoHP Staff Liaison
Russ Sorenson, Urban Planner

Public in Attendance:
Kathrine Schnabel, All Saints Neighborhood
Jill Goud, All Saints Neighborhood
George Hamilton, All Saints Neighborhood
Katrina Lehr-Mcinney, All Saints Neighborhood
Brad Peterson
Danica Peterson
Alex Halbach
Dan Santella, KELO TV
Sean W, KELO TV

Members Absent:

1. Call to order – Vice Chairperson, Rob Collins, called the meeting to order at 4:02 p.m., welcomed board members and guests, and gave introductory comments.

2. Approval of the June 13, 2018, Meeting Minutes
   (Board action required)
   Vice Chairperson, Rob Collins, requested a motion to approve the June 13, 2018 meeting minutes. Member Lura Roti made the motion to approve the minutes as presented. Pam Merchant seconded the motion. The motion to approve the June 13, 2018 meeting minutes passed unanimously.

3. Update of By-laws
   See Article VII (page 3) Order of Regular Meeting or Public Meeting.
   Consider adding the following to meeting agendas as noted for item #3:
   Public input on non-agenda items
   (Five minute comment period per individual)
   (Board action required)
Vice Chairperson, Rob Collins, expressed that for the proposed by-laws amendment that he would like to add the word “maximum” be added so that the amendment reads:
Public input on non-agenda items
(Five minute maximum comment period per individual)
Other members acknowledged agreement.

There were no public comments expressed.

Pam Merchant made a motion to approve the proposed by-laws amendment, and adding the word “maximum” so that the amendment reads:
Public input on non-agenda items
(Five minute maximum comment period per individual)

Shelly Sjovold seconded the motion. The motion to approve the by-laws amendment passed unanimously.

4. Public Input on Non-agenda Items
There was no public input expressed on non-agenda items.

5. New Business
   A. Case Report for Dakota Ave. Properties  
      Diane deKoeyer
      (Board action required)
Diane deKoeyer, Urban Planner, BoHP Staff Liaison, presented the completed Case Report to the State Historic Preservation Office (SHPO) for 1005, 1023, and 1027 S Dakota Avenue and 414 W 19th Street properties. She noted the property owner is Johnson Properties, LLC, Justin Johnson and the applicant is Sam Assam.

The applicant requests razing four structures, three of which are contributing properties (1005, 1027 S. Dakota Ave. and 414 W. 19th St.) to the Sherman Historic District. Although not included in a historic district, the commercial properties to the west, adjacent to Minnesota Ave., would also be razed for a commercial development for the site. The applicant indicated that he was unaware that the homes were in a historic district. Photographs of the homes in their current condition were reviewed at the Board’s May 2018 meeting. At the Board of Historic Preservation’s May 23, 2018 meeting, the Board determined razing the structures would have an adverse effect on the Sherman Historic District.

Vice Chairperson, Rob Collins invited meeting attendees to provide comments on the case report.

All Saints Neighborhood residents attended this meeting. Mr. George Hamilton, All Saints Neighborhood resident, expressed that he had no further comments on the case report. Ms. Katrina Lehr-Mckinney, All Saints Neighborhood resident, inquired about item #3 of the case report regarding if the applicant’s proposed commercial redevelopment of the property is a feasible and prudent alternative. Diane deKoeyer, Urban Planner, BoHP Staff Liaison, responded that in addition to a possible commercial development that there has been discussion of a conceptual plan to also build small townhouses on the subject property. She noted that no plans were officially submitted by the applicant.

Board member, Tom Keller, arrived at the meeting.
Board member Shelly Sjovold commented the applicant did not provide any additional information for the case report.

Board member Pam Merchant asked what the Board could do to assist citizens to not allow properties to go into disrepair.

Diane deKoeyer responded that it comes down to property sales disclosure and education that informs potential buyers that certain properties are contributing and located within designated historic districts. Additionally, the city’s property code enforcement TEAM addresses property and structure conditions, and works within a certain timeline before buildings can be razed.

Pam Merchant also encouraged Board members continue providing public awareness and education through historic preservation education assistance, forums, tax incentives or moratoriums, Deadwood Grant Funding Program, and encouraging residential house flipping. Pam Merchant commented that she would like to be better informed about the city’s property maintenance ordinance and enforcement. She requested a future learning opportunity, be presented by city staff, as part of a meeting agenda item, for the Board. Diane deKoeyer acknowledged the request and asked Matt Toblas, Code Enforcement Manager to attend the August 15 meeting.

Board member Lura Roti asked how the Board can encourage and support historic property sales disclosures. It was noted by Tom Keller that such sales disclosure action would require State legislative action(s). Jennifer Dumke is a licensed realtor and noted that even on a disclosure form, a homeowner can acknowledge that they are unaware if the property is in a historic district and still sell a property. Pam Merchant asked if the Board could prepare a letter of support for sales disclosure of property located within designated historic districts?

Diane deKoeyer replied yes, the Board could draft an advocacy letter on this topic. She also suggested this topic discussion be tabled as it is not on the meeting agenda. Rob Collins, Vice Chairperson, suggested the topic be placed on next month’s meeting agenda and the Board work on an advocacy letter as a committee.

There were no further public comments expressed on the case report agenda item.

Tom Keller made a motion to approve the case report to the State Historic Preservation Office (SHPO) for 1005, 1023, and 1027 S Dakota Avenue and 414 W 19th Street properties. Shelly Sjovold seconded the motion. The motion passed unanimously.

B. August meeting will be held on August 15 in lieu of August 8, 2018. (Board action required)

Diane deKoeyer mentioned the BoHP’s August meeting will be held on August 15th, in lieu of August 8, 2018, due to staff’s availability. There were no public comments expressed.

Tom Keller made a motion to hold the Board of Historic Preservation’s August meeting on August 15, 2018, 4:00 pm, at the City Center, Conference Room 110, located at 231 North Dakota Avenue. Pam Merchant seconded the motion. The motion passed unanimously.
6. Other business:
   There was no other business presented.

Adjournment — Motion to adjourn meeting was made by Tom Keller. Seconded by Pam Merchant. With no further business, the Board of Historic Preservation meeting was adjourned at approximately 4:25 p.m.
Secretary of the Interior's Standards for Rehabilitation

The Standards for Rehabilitation, a section of the Secretary's Standards for Historic Preservation Projects, address the most prevalent preservation treatment today, rehabilitation. Rehabilitation is defined as the process of returning a property to a state of utility, through repair or alteration which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values.

The Standards that follow were originally published in 1977 and revised in 1990 as part of the Department of the Interior regulations (36 CFR Part 67, Historic Preservation Certifications). They pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior of historic buildings. The Standards also encompass related landscape features and the building's site and environment as well as attached, adjacent, or related new construction.

The Standards are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility.

(1) A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

(2) The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

(3) Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historic development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

(4) Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

(5) Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

(6) Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

(7) Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means possible.

(8) Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

(9) New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

(10) New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.
24:52:07:04. Standards for new construction and additions in historic districts. New construction or additions within a historic district must comply with The Secretary of the Interior's Standards for the Treatment of Historic Properties as incorporated by reference in § 24:52:07:02. In addition, the following standards apply:

(1) Compatibility of design. Massing, size, and scale of new construction must be compatible with surrounding historic buildings. Overall architectural features of new construction must be of contemporary design which does not directly mimic historic buildings. Architectural elements, such as windows, doors, and cornices, must be similar in rhythm, pattern, and scale to comparable elements in adjacent historic buildings. The overall visual appearance of new construction may not dominate or be distracting to the surrounding historic landscape;

(2) Height. The height of new buildings or additions to existing buildings may not exceed a standard variance of 10 percent of the average height of historic buildings on both sides of the street where proposed new construction is to be located;

(3) Width. The width of new buildings or additions to existing buildings must be similar to adjacent historic buildings;

(4) Proportion. The relationship between the height and width of new buildings or additions to existing buildings must be similar in proportion to existing historic buildings. The proportion of openings in the facades of new construction or additions must be compatible with similar openings in adjacent historic buildings;

(5) Rhythm and scale. The rhythm, placement, and scale of openings, prominent vertical and horizontal members, and separation of buildings which are present in adjacent historic buildings must be incorporated into the design of new buildings or additions to existing buildings;

(6) Materials. Materials which make up new buildings or additions to existing buildings must complement materials present in nearby historic properties. New materials must be of similar color, texture, reflective qualities, and scale as historical materials present in the historic district;

(7) Color. The colors of materials, trim, ornament, and details used in new construction must be similar to those colors on existing historic buildings or must match colors used in previous historical periods for identical features within the historic district;

(8) Details and ornament. The details and ornament on new buildings or additions to existing buildings must be of contemporary design that is complementary to those features of similar physical or decorative function on adjacent historic buildings;

(9) Roof shape and skyline. The roof shape and skyline of new construction must be similar to that of existing historic buildings;

(10) Setting. The relationship of new buildings or additions to existing buildings must maintain the traditional placement of historic buildings in relation to streets, sidewalks, natural topography, and lot lines; and

(11) Landscaping and ground cover. Retaining walls, fences, plants, and other landscaping elements that are part of new construction may not introduce elements which are out of character with the setting of the historic district.

<table>
<thead>
<tr>
<th><strong>Project Review</strong></th>
<th>August 15, 2018</th>
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<tr>
<td><strong>Property Address</strong></td>
<td>1602 S. 4th Ave.</td>
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| **Property Owner**    | Aaron & Dua Anderson  
                       1602 S. 4th Ave.  
                       Sioux Falls, SD |
| **Applicant**         | Corey Hjellming, Hjellming Construction |
| **Historic District** | McKennan Park Historic District |
| **National Register** | Descriptive |
| **Description**       | An emphasis on symmetry is clearly evident in this two-story stucco duplex with red tile decorative motifs set into the stucco. This tiled-roofed structure has an enclosed, one-story, front sunroom with three sets of three casement windows. Each set of windows is separated by pilasters decorated with the tile patterns. Six flower urns on pedestals extend from the front of the sunroom. The roof of the sunroom serves a second story. The stucco finish, tile roof, decorative urns, inset tile patterns and wrought iron balcony railing reflect a Mediterranean influence.  
This building is another fine example of one of the many eclectic styles popular during the 1920s. Delmar C. Lowe, as assistant cashier at Security National Bank had this residence built in 1924 as a duplex. He and his wife lived at one side, and his in-laws lived at the other side. Lowe owned this property until 1976.  
The National Register does not provide information on the detached garage. |
| **Project Representative** | Contractor |
| **Neighbor Notification** | Yes |
| **Staff Comments** | The homeowner is requesting to raze the garage structure to build a new garage.  
The tapered walls, roof edge, EIFS/stucco and half round window of the new garage matches the existing garage and is complimentary of the home.  
The owners are also requesting to move or add a new front door to the center of the west elevation in replacement of three existing windows. A new sidewalk is also proposed to the new door location. Steps will be added at the new sidewalk where it meets the existing sidewalk towards S. 4th Ave. |
| **Board Action** | Required. See Secretary of Interior Standards for New Construction. |
| **Photos & Drawings** | See attached |
Existing garage – front / west facade
Existing garage – rear / east facade
Existing home – front / west facade
Proposed new front door / west facade

Existing interior where proposed front door would be located.
Above: Google Earth

Below: 1927 Newspaper Supplement
Above: No information

Below: No Information
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<tr>
<td><strong>Property Address</strong></td>
<td>Structure 50-203-206, E. 8th St. Bridge</td>
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<tr>
<td><strong>Property Owner</strong></td>
<td>City of Sioux Falls</td>
</tr>
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<td></td>
<td>224 W. 9th St.</td>
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<td></td>
<td>Sioux Falls, SD</td>
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<tr>
<td><strong>Applicant</strong></td>
<td>Vanessa Victor, Infrastructure Design Group</td>
</tr>
<tr>
<td><strong>Historic District</strong></td>
<td>Listed on the National Register of Historic Places</td>
</tr>
<tr>
<td><strong>Project Representative</strong></td>
<td>Vanessa Victor, Infrastructure / Dena Knutson, City of Sioux Falls Engineer</td>
</tr>
<tr>
<td><strong>Neighbor Notification</strong></td>
<td>No</td>
</tr>
<tr>
<td><strong>Staff Comments</strong></td>
<td>See attached information</td>
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<tr>
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SUPPORTING DOCUMENTATION

A- ORIGINAL PLANS
B- ARCHEOLOGICAL REPORT
C- 1970’s REHABILITATION PLANS
D- REHABILITATION ANALYSIS
INFORMATIONAL HANDOUT
E- PROFILE PHOTOGRAPHS
F- PROPOSED REHABILITATION ELEMENTS
ORIGINAL PLANS
ARCHEOLOGICAL REPORT
Dear Ms. Victor,

Kogel Archaeological Consulting Services (KACS) conducted historical research of the Eighth Street Bridge in Sioux Falls, South Dakota ahead of a planned bridge rehabilitation project. This research was conducted in order to identify the architectural and historical traits of the bridge which have it to be considered historically significant and listed on the National Register of Historic Places (NRHP). The bridge was listed on the NRHP in 1993 as the Eighth Street Bridge, but the structure is also known as South Dakota Department of Transportation (SDDOT) Bridge Number 50-203-206 and as Structure MH00001372 by the South Dakota State Historic Preservation Office (SHPO). The bridge is located in the SW1/4 of the NE1/4 of the SW1/4 in Section 16, T101N, R49W in Sioux Falls, Minnehaha County, South Dakota. The location of the bridge is depicted on the United States Geological Survey’s (USGS) 7.5’ Sioux Falls East 1962 (photorevised 1971 and 1976) quadrangle in Figure 1. Overview photographs of the bridge can be found in Figures 2 though 4.

A records search of the bridge and surrounding area was conducted by Jane Watts, Records Manager of the Archaeological Research Center in Rapid City, South Dakota, on February 9, 2017. The records search revealed that no other structures or archaeological sites have been recorded within the immediate vicinity of the bridge. The bridge has been included in one previous cultural resources survey (Buhta and Kruse 2009a). Eight cultural resources surveys (Buhta 2007, Buhta and Kruse 2009b, Donohue 1991, Dorrance 2008, Hanson 2004, Kogel 2005, Lueck 2010a and 2010b) have been conducted within one mile of the bridge. Three archaeological sites, 10 bridges, and hundreds of structures are recorded within one mile of the bridge. Six of the historic districts of Sioux Falls are also within one mile of the bridge, but the bridge itself is not within a designated historic district. A series of historic atlases and platmaps (Getty and Wagner 1913, Ogle 1903, Webb 1917 and 1929) were examined at Historic MapWorks (2017) for details about the bridge and its surroundings. Each of the examined maps revealed that from its earliest days, a bridge crossing over the Big Sioux River was a part of Eighth Street and not part of any of the railroad networks that once passed through Sioux Falls.
When discussing the important structural aspects of the bridge, it is necessary to understand the history of the structure itself. Firstly, it is important to note that the current Eighth Street Bridge is not the only bridge to have been constructed in this location. At least two other structures were previously constructed to allow passage over the Big Sioux River in this location. The first of these structures was a single span, steel truss bridge built in 1876 (Figure 5; Hufstetler 2014: 15). A plaque on the modern bridge notes that this was the first bridge to cross the Big Sioux River in Sioux Falls. This structure quickly proved to be insufficient, as it was washed out by a flood shortly after its construction (Bragstad 1967: 138). The original bridge was replaced by a more substantial metal through truss bridge in 1882 (Figures 6 and 7, Hufstetler 2014:15). This bridge was not only wide enough to allow for two lanes of horse drawn carriage traffic, but also had a pedestrian footpath. The decision to construct the current Eighth Street Bridge was made in 1911, when the Minnehaha County Board resolved to replace the existing bridge with a concrete bridge (Traeger and Hess 1993: 7). A call for construction bids on the project went out in trade publications throughout the Midwest, with one such publication referring to the project as “the greatest and most costly concrete bridge in South Dakota” (Western Contractor 1911: 11). N.M. Stark and Company of Des Moines, Iowa submitted the only proposal for the project, and the new concrete arch span bridge was in place by April 1912 (Figures 8 and 9; Traeger and Hess 1993: 7). Overtime, the bridge was adapted to the changing transportation needs of the city (Figures 10 through 12).

Concrete was a relatively new material for bridge construction in the United States in the early 1900s. Reinforced concrete began to be widely touted for bridge construction due to its tensile strength, minimal maintenance, and the fact that such bridges were easier to construct than other common bridge forms of the time, such as stone arch and metal truss bridges (Hufstetler 2014: 36, Spero et al. 1995: 138). The first documented concrete bridge construction in South Dakota occurred in Yankton in 1908 (Hufstetler 2014: 36). While this bridge contained design flaws that inevitably lead to its demolition, its initial success lead to the construction of several additional concrete bridges in and around Yankton in the following years (Hufstetler 2014: 36-37). N.M. Stark and Company was one of the companies involved in the construction of concrete bridges in Yankton. And the success of their bridge projects there may have been part of the reason why they were awarded the contract for the Eighth Street Bridge in Sioux Falls, despite offering a proposal that was $5,000 over the projected budget for the project (Traeger and Hess 1993: 7, Western Contractor 1911: 11).

N.M. Stark and Company was known for their construction of a particular type of concrete arch bridge that used a patented design known as the Luten arch. The Luten arch was designed and patented by a civil engineer named Daniel Luten from Indianapolis, Indiana. The hallmark of the Luten arch included
reinforcement of the concrete in strategic locations in order to counteract the weight-bearing stress placed upon the concrete (Spero et al. 1995: 141-143). Luten designed a number of concrete arches using this principal, and eventually held over 30 patents ranging from variations of his original patent to concrete reinforcement systems to construction methodologies (Sperc et al. 1995: 142). Luten arch bridges were widely popular in the United States in the early 20th century, and by the 1920s, examples of his designs could be found in all but three states (Spero et al. 1995: 143). Because of the resilience of the Luten arch, it was popular with local governments who were funding bridge projects, but the Luten arch was popular with construction companies for a different reason. Use of the design was strictly controlled by Luten and his business, the National Bridge Company, and companies who wished to use the Luten arch (or any of its numerous variations) needed to first have a licensing agreement with the National Bridge Company. This arrangement was popular with savvy construction companies, as the licensing process allowed regional building companies, such as N.M. Stark and Company, to effectively have a local monopoly on the growing concrete bridge construction market (Iowa Department of Transportation 2017). It is not currently known which version of the Luten arch was used to construct the Eighth Street bridge, as the construction plans for the project have not been able to be located.

The Eighth Street concrete arch bridge measures approximately 241 feet (73.5 meters) long and 66 feet (20.1 meters) wide. The size of the bridge allows for two lanes of traffic, two lanes for parking, one central turning lane, and a pedestrian sidewalk along each side of the road (Figure 4). The bridge is wider than the average bridge built in the early 1900s, which has led to speculation that it once carried a trolley line across the Big Sioux River (Jorgensen 2013). Attempts to locate evidence of the trolley line during previous restoration work in 1977 were unsuccessful, and no records of such a line were able to be located during the current historical research (Jorgensen 2013). The bridge is composed of three reinforced arch segments, with each segment measuring approximately 80 feet (24.4 meters). The arches themselves are filled spandrels, with the only decorative details being lines incised in the exterior concrete panels (Figure 13). The concrete piers of the bridge are conical, with the piers on the south side of the bridge possessing pointed cutwaters that have been reinforced with metal strips (Figures 14 and 15). A plaque on the northwestern corner of the bridge notes that the bridge is “earth filled” and was “considered an engineering masterpiece at the time of its construction.”

Various repairs and improvements have been made to the bridge and the roadway passing over it, with the most notable being those done in 1977. These repairs included replacing the decorative concrete railing which runs along each side of the bridge. This is noted on the bridge by a plaque embedded in the southwestern corner of the southern railing. Both the original railing and the more modern replacement consist of a neoclassical balustrade topped with decorative
metal street lamps (Figures 8, 9, and 16). Like the railing, the original cast-iron street lamps have also been replaced with more modern equivalents (Figure 17). Other repairs and alterations that have occurred to the bridge over time include patching of the concrete arches and piers (Figures 13 and 18), installation of light fixtures underneath the arches of the bridge that coincide with modern pedestrian pathways, and the installation of a utility corridor along one side of the exterior deck of the bridge. This corridor is encased in concrete and can be seen as a bulge on the north side of the bridge between the balustrade and the arches of the bridge (Figure 19). The utilities within the concrete corridor no longer appear to be in use, though one modern, unmarked utility line currently crosses the bridge outside of the contained corridor. It is not known when this utility corridor and the concrete encasement were installed.

The bridge was evaluated in 1990 for possible inclusion on the National Register of Historic Places (NRHP), and was officially listed on the register in 1993 (Traeger and Hess 1993). The NRHP uses a defined set of criteria in order to evaluate the historical significance of locations, structures, and archaeological sites. In order to be listed on the NRHP, at least one of four criteria must be met (Townsend et al. 1993). Criterion A is used to identify historic properties that are significant based on their relation to historic events or patterns of history. Criterion B is used to identify historic properties with ties to historically significant individuals, while Criterion C qualifies historic properties due to unique elements of design, construction, or association with a master craftsman. The final criteria, Criterion D, is used to identify archaeological sites or historic districts which possess information generating potential.

The Eighth Street Bridge was listed on the NRHP under Criterion C, as a structure that typifies early concrete bridge construction in South Dakota, particularly due to the presence of the concrete deck arch (Buhta and Kruse 2009a). Concrete deck arch bridges are bridges where the deck is located completely above the arches which comprise the base of the bridge. This structure is also representative of a concrete bridge built before widespread standardization of reinforced concrete bridge construction methods and materials (Traeger and Hess 1993: 7). During this time, experimental bridge forms were common, though not all of these experimental bridges were structurally sound. Some of N.M. Stark and Company’s Luten arch bridges—such as the Squaw Creek Bridge in Ames, Iowa—collapsed not long after their completion (Fraser 1992: 6). Despite these occasional failures, the proprietor of N.M. Stark and Company, Nathaniel M. Stark, was still considered a master bridge builder of the time, and examples of his concrete arch bridges can be found listed on the NRHP throughout Minnesota, Iowa, and South Dakota (Fraser 1992: 3). His prolific career drastically altered and improved transportation systems throughout the upper Midwest in the early 1900s, until a combination of governmental bridge standardizations and the invalidation of his exclusive licensing of the Luten arch patent forced the company out of business (Fraser 1992: 6-7). Given this, if the
Eighth Street Bridge were ever to be re-evaluated for the NRHP, the argument could be made that the structure should also be listed under additional criteria. For example, the bridge could be listed under Criterion A for association with a pattern of history, in that it typifies a form of early, local government-funded transportation improvements in southeastern South Dakota. The bridge could also justifiably be listed under Criterion B, for close association with a regionally, historically significant individual (Nathanial M. Stark). However, the bridge currently remains listed only under Criterion C, as an example of an early reinforced concrete arch bridge.

Restoration work that has previously been conducted on the bridge, such as the replacement of the balustrade and streetlights, has been done in such a way as to maintain the historic integrity of the bridge. Repairs that have been made to the bridge over the years, such as concrete patching, have not significantly altered the form or function of the Eighth Street Bridge. As such, the bridge currently retains the characteristics necessary to remain on the NRHP, despite the numerous repairs and improvements the structure has undergone. Future improvements to the bridge should also be undertaken in such a manner as to not disturb the historic integrity of the bridge; the overall appearance of the filled spandrel concrete deck arch in particular should be maintained. Given that the older utilities located along the northern exterior of the bridge appear to be no longer in use, removal of the concrete-encased utility corridor may be feasible. If possible, removal of this corridor would allow restoration of the original façade of the bridge, including the incised concrete panels that were altered by the installation of the encased utility corridor. That being said, although the Eighth Street Bridge is 105 years old, it remains a viable historic symbol and transportation corridor from the early days of Sioux Falls. With the proper restoration, maintenance, and management, the structure could feasibly continue to be adapted to the needs of the community while still retaining its historic integrity.

Thank you for the opportunity to conduct the historical documentation of the Eighth Street Bridge for the planned improvement project.

Sincerely,

Suzanne Reece
Principal Investigator
Figure 1. The Eighth Street Bridge shown in relation to surrounding topography on the USGS 7.5' Sioux Falls East (1962, photorevised 1971 and 1976) quadrangle.
Figure 2. Overview of the Eighth Street Bridge, view to the north. Photograph taken by Suzanne Reece on February 14, 2017.

Figure 3. Overview of the Eighth Street Bridge, view to the south. Photograph taken by Suzanne Reece on February 21, 2017.
Figure 4. Overview of the Eighth Street Bridge at street level, view to the west. Photograph taken by Suzanne Reece on February 14, 2017.

Figure 5. Overview of the original Eighth Street bridge, photographed in 1876. Image courtesy of the Siouxland Heritage Museums, Sioux Falls, South Dakota (2017).
Figure 6. Overview of Eighth Street and the predecessor of the current Eighth Street Bridge in 1890, view to the west (Bragstad 1967).
Figure 7. Overview of Eighth Street and the predecessor of the current Eighth Street Bridge in 1908, view to the southwest (Fox 1908).
Figure 8. Postcard from 1913 showing the bridge shortly after its construction in 1912 (Fisher 2017).

Figure 9. Artistic postcard showing the concrete bridge shortly after its construction in 1913 (Fisher 2017).
Figure 10. Photograph from the 1930s of traffic and spectators on the bridge observing the removal of an ice jam, view to the north (Odland 2007: 81).

Figure 11. Photograph of the bridge taken in 1989, view to the north (South Dakota State Historical Society 1989a).
Figure 12. Photograph of the bridge taken in 1989, view to the south (South Dakota State Historical Society 1989b).

Figure 13. Overview of the incised concrete panels on the bridge, view to the north. Photograph taken by Suzanne Reece on February 14, 2017.
Figure 14. Overview of the conical piers on the north side of the bridge, view to the west. Photograph taken by Suzanne Reece on February 14, 2017.

Figure 15. Overview of the cutwaters on the south side of the bridge, view to the east. Photograph taken by Suzanne Reece on February 14, 2017.
Figure 16. Overview of the modern balustrade and streetlamps along the north side of the bridge, view to the west. Photograph taken by Suzanne Reece on February 14, 2017.

Figure 17. Appearance of the streetlights on the bridge in 1989 (left; South Dakota State Historical Society 1989c) and in 2017 (right).
Figure 18. Concrete repairs made to the eastern arch of the bridge, view to the northeast. Photograph taken by Suzanne Reece on February 14, 2017.

Figure 19. Overview of the utility corridor on the north side of the bridge, view to the west. Photograph taken by Suzanne Reece on February 14, 2017.
References Cited

Bragstad, R.E.
1967
Sioux Falls in Retrospect. R.E. Bragstad, Sioux Falls, South Dakota.

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Western Contractor
1970’s REHABILITATION PLANS
EIGHTH STREET
BRIDGE RENOVATION
AND STREET IMPROVEMENTS

INDEX OF SHEETS

PREPARED BY
R. F. SAYRE & ASSOCIATES
CONSULTING ENGINEERS
SIoux FALLS, SO. DAK.
Sioux Falls, SD Bridge Repair:
8th St. & Phillips Avenue

Repair Pedestals to Original Condition
Sioux Falls, SD Bridge Repair

Top: South View from a Distance
Bottom: North View
Sioux Falls, SD Bridge Repair

Chip to Sound Concrete and Replace to Original Lines With Shotcrete
The 8th Street Arch was constructed in 1912 at the advent of utilizing reinforced concrete in bridge construction. Recently the structure has been showing deterioration associated with its age. The crossing at 8th Street was the first bridge to cross the Big Sioux River in the City of Sioux Falls. The current arch bridge is actually the third structure constructed at this location. The first bridge was erected in 1876 and washed out from a flood. The second structure was constructed 6 years later in 1882 and proved to be insufficient. The current bridge is known to be a Luten arch and was constructed by N.M. Stark and Company.

The bridge was dubbed as "the greatest and most costly bridge in South Dakota." Western Contractor
The bridge was listed on the National Register of Historic Places in 1993. A plaque on the corner of the bridge denotes it as being an "Engineering Masterpiece" at the time of its construction.
ANALYSIS

An in-depth bridge inspection was conducted over a period of weeks in order to itemize deterioration and identify areas of concern. Concrete cores were extracted from the arches at specific locations to analyze the strength and chemical composition of the existing concrete. Reinforcement size and spacing were verified to analyze the structure through computer modeling.

FINDINGS

Proposed rehabilitation is a viable option for extending the life of the 8th Street Arch. Both options for rehabilitation will provide a design life of 75 years, which is the design standard in place today.

Projected costs take into consideration anticipated required maintenance costs and time delays for the needed construction detours.

Time for construction is significantly reduced when compared to new bridge construction.

Feasibility of undertaking the rehabilitation was examined by researching similar past projects from around the country and consulting with contractors.

Both rehabilitation options provide for a smooth, uniform finish and address the needed concrete repairs.

The final design will incorporate extensive coordination with the State Historic Preservation Office.

Rehabilitation will provide a savings of nearly $9M in initial construction costs.

REHABILITATION WILL RESTORE THE HISTORICAL SIGNIFICANCE OF THE BRIDGE
PROFILE PHOTOGRAPHS
Existing Profile Photos

Southern Face of Bridge

Northern Face of Bridge
Existing Profile Photos

East Approach

West Approach
PROPOSED REHABILITATION ELEMENTS
SURFACING CHANGES

8TH STREET ARCH

Replace roadway and sidewalks utilizing concrete surfacing.

Remove existing granular fill and replace with non-compromised fill material.

Existing Surfacing - Asphalt Roadway (up to 12" thick)
Concrete Sidewalk

Arch is filled with saturated granular material.
**REHABILITATION AESTHETICS**

- Rehabilitation techniques alone leave a “checkered” look
ARCH REPAIRS

Concrete Repairs and Shotcrete

Concrete Repairs and FRP Wrapping with Paint

OR

Existing Arch

8TH STREET ARCH
PIER NOSING REPAIRS

PIER CAP TO BE REMOVED AND REPLACED (TYP.)

Existing Pier Nosing
8TH STREET ARCH  
SPANDREL WALL REPAIRS

Removal of concrete to a specified depth

Existing Spandrel Walls

Installation of Precast Concrete Panels
Existing Drain Outlet – (1) centered in middle span over each pier

Replace with new piping and downspout nozzle. Add (4) additional downspouts for redundancy.
Existing Railing – Installed with 70's Rehabilitation

Replace with precast balustrades and precast top cap. Cast bottom toe kick section 4” taller to coincide with current design criteria.
LIGHTING IMPROVEMENTS

8TH STREET ARCH

Shadow Box Lights within Railing Pedestals

Historical Fixtures

Arch "UP" Lights