Bridge 2366, also known as the Nymore Bridge, carries a bicycle trail over the Mississippi River in downtown Bemidji, Minnesota. It is owned by the City of Bemidji. When built in 1917, the bridge carried "Old Highway 2," which connected the city of Bemidji with the village of Nymore. The bridge is currently owned by the city of Bemidji and closed to vehicular traffic. The Nymore Bridge is a three-span, reinforced-concrete, filled-spandrel, barrel-vault, segmental-arch bridge, with "U" abutments. The Nymore Bridge is historically significant as an excellent, unaltered, very early, large, urban, barrel-vault, reinforced-concrete bridge in Minnesota. It is additionally significant for its use of George Cheney's patented reinforcing system during the period of experimentation in reinforcing materials and systems.

A rehabilitation study on the Nymore Bridge was conducted in 2010-2011 by WSN and Mead & Hunt to outline rehabilitation needs and methods for the city of Bemidji. Proposed rehabilitation work includes the repair and reinstallation of salvageable features and the removal and disposal of the unsalvageable features. No work was ever performed on the bridge and there are no current plans to carry out the rehabilitation.
Bridge 2366 – OLD MIDWAY DR over MISSISSIPPI RIVER

PROJECT LOCATION
BELTRAMI COUNTY
SEC. 16, TO 146NN, R 33W
UTM ZONE: 15    NAD: 27
USGS QUAD NAME: BEMIDJI WEST
EASTING: 1176015 ft.
NORTHING: 17253125 ft.
Executive Summary

Bridge Location

I. Project Introduction
II. Historic Data
III. Bridge Data
IV. Work Completed
V. Projected Costs

Appendices

A. Glossary
B. Guidelines for Bridge Maintenance and Rehabilitation based on the Secretary of the Interior’s Standards
C. Documents
This Abridged Bridge Report is a product of a comprehensive study performed for approximately 140 historic bridges owned by county, city, township, private and other state agencies besides MnDOT. The study is the second phase of a multi-phased process developed and executed in partnership with representatives from the Federal Highway Administration (FHWA); State Historic Preservation Office (SHPO); MnDOT State Aid; MnDOT Cultural Resources Unit (CRU); the Army Corps of Engineers (CORPS); local public works and county highway departments; county and township boards and city councils; the preservation community and the general public. To perform the study, MnDOT retained the consultant team of LHB Inc., Mead & Hunt Inc., and The 106 Group.

The general goals of the study include:

- Gathering and compiling the existing historic and bridge condition data and other relevant information on the bridges in the study group into bridge reports.
- National Register nominations for a select number of bridges within the study group which the bridge owner may request a nomination to be prepared.
- Updating MnDOT’s Management Plan for Historic Bridges in Minnesota based on the study’s findings.
- Producing a narrative for the MnDOT Historic Bridge Website to disseminate information regarding locally owned historic bridges in Minnesota.
- Investigating and preparing a summary regarding how other states have funded historic bridge programs and structured Programmatic Agreements when multiple non-state entities are the owners of historic bridges.

The Bridge Reports compile and summarize the historic and engineering information concerning the structures. It is important to note that this report indicates if a bridge is located within a known historic district, but it does not identify all known or potential historic properties. Potential impacts to adjacent or surrounding historic properties, such as archaeological sites or other structures must be considered. Contact MnDOT CRU early in the project planning process in order to identify other potential historic properties. Due to private ownership, recently completed engineering/preservation studies, or recently executed rehabilitation projects, a small number of bridges were identified for abridged reports. An abridged report compiles readily available information, especially data about the bridge’s historical significance. Additionally, recent rehabilitation work that has been completed is described and documented with photographs where available. It is important that historic bridges receive appropriate annual maintenance work. This bridge was not assessed for annual maintenance needs however technical guidance on stabilization, preservation and maintenance activities can be found in the Management Plan for Historic Bridges in Minnesota, available on MnDOT’s website.

Recommendations are not included within the Abridged Bridge Reports. However any future work should be consistent with the Secretary of the Interior’s Standards for the Treatment of Historic Properties (Standards). The Standards are basic principles created to help preserve the distinct character of a historic property and its site, while allowing for reasonable change to meet new engineering standards and codes. The Standards recommend repairing, rather than replacing deteriorated features whenever possible. The Standards apply to historic properties of all periods, styles, types, materials and sizes and encompass the property’s location and surrounding environment.
The Standards were developed with historic buildings in mind and cannot be easily applied to historic bridges. The Virginia Transportation Research Council (Council) prepared Guidelines, which adapted the Standards to address the special requirements of historic bridges. They were published in the Council’s 2001 Final Report: A Management Plan for Historic Bridges in Virginia, *The Secretary’s Standards with Regard to Repair, Rehabilitation, and Replacement Situations*, provide useful direction for undertaking historic bridge preservation and are included in the Appendix to this plan.

Existing bridge data sources typically available for Minnesota bridges were gathered for the study. These sources include:

- PONTIS, a bridge management system formerly used by MnDOT to manage its inventory of bridges statewide, and its replacement system, SIMS (Structure Information Management System)
- The current MnDOT Structure Inventory Report and MnDOT Bridge Inspection Report. Reports are available for the majority of the bridges (not available for bridges in private ownership)
- Database and inventory forms resulting from the 2012 Minnesota Local Historic Bridge Study and other prior historic bridge studies as incorporated into the database
- Existing Minnesota historic contexts studies for bridges in Minnesota, including *Reinforced-Concrete Highway Bridges in Minnesota, 1900-1945*, *Minnesota Masonry-Arch Highway Bridges, 1870-1945*, *Iron and Steel Bridges in Minnesota, 1873-1945* and *Minnesota Bridges 1955-1970*
- Field investigations documenting the general structural condition and determining character-defining features

Additional data sources researched and gathered for some of the bridges as available also included:

- Files and records at MnDOT offices
- Original bridge construction plans, rehabilitation plans, and maintenance records of local owners
- Files and documents available at the SHPO office, including previous inventory forms, determinations of eligibility, studies, and compliance documents
- Existing historical and documentary material related to the National Register-eligible bridges

The Appendix contains the following: a Glossary explaining structural and historic preservation terms used in the report, the Guidelines for Bridge Maintenance and Rehabilitation based on the Secretary of the Interior’s Standards, a list of engineering and historic documents available for this bridge, and copies of the MnDOT Structure Inventory and Bridge Inspection Reports current at the time of the report preparation.

The Abridged Bridge Report will provide the bridge owner and other interested parties with detailed information related to the historic nature of the bridge and varied information concerning the condition of the bridge depending on information furnished at the time of report preparation. This information will enable historic bridge owners to make more informed decisions when planning for their historic properties.
**Minnesota Department of Transportation (MnDOT)**
Local Historic Bridge Report - Abridged

### Bridge Number: 2366

This narrative is drawn from previous documents, as available for the subject bridge, which may include determination of eligibility (also known as Phase II evaluation), Minnesota Architecture/History Inventory Form, National Register nomination, Multiple Property Documentation Form, and/or applicable historic contexts. See Sources for details on which documents were used in compiling this Historic Data section.

<table>
<thead>
<tr>
<th><strong>Contractor</strong></th>
<th>Illinois Steel Bridge Company</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Designer/Engineer</strong></td>
<td>Standard Reinforced Concrete Company</td>
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#### Description

Bridge 2366, more commonly referred to as the Nymore Bridge, is located in downtown Bemidji, Minnesota, where it carries a bicycle trail over the Mississippi River. At this point the Mississippi is essentially a channel between Lake Bemidji on the north and Lake Irving on the south. The Nymore Bridge is closed to vehicular traffic. Local vehicular traffic is carried by Bridge No. 5316, located a short distance northeast on Paul Bunyan Drive (Minnesota State Highway 197). A railroad bridge converted to pedestrian use is located just south of the bridge.

Aligned on a northwest-southeast axis, the Nymore Bridge is a three-span, reinforced-concrete, filled-spandrel, barrel-vault, segmental-arch bridge. The overall length of the bridge is 168 feet, with a main span length of 65 feet, and adjacent spans of approximately 40 feet. The bridge's out-out width is 31 feet, carrying a 28-foot roadway. Piers and abutments are marked by prominent pilasters. The piers are topped by square concrete pedestals projecting just above the railing, and have round starlings, identical on both upstream and downstream sides.

The bridge has Classical Revival elements, including raised, bush-hammered panels on the pilasters, abutments, and spandrel walls, and filled-panel railings. A large utility pipe obscures the exterior of the south railing. A concrete Doric column light standard sits on both endposts at the west end of the bridge; both are missing the light. No other light standards remain in place. A pipe metal rail runs along the top of the south railing and two utility pipes run along the interior of the railing. A curb lines the south side of the bridge, and the deck is covered in a bituminous overlay.

#### Significance

Designed and built in 1916-1917, the Nymore Bridge is one of a small group of early, large, reinforced-concrete arch bridges designed in the Classical Revival style appropriate for the City Beautiful movement then in vogue for prominent urban structures. It was planned to connect the city of Bemidji with the village of Nymore, which was annexed by Bemidji about 1917 and became the city's fifth ward. Not only was the crossing of political significance, giving the bridge its original name, but it was also a geographically important crossing. When built, Nymore Bridge carried State Route No. 2 over the Mississippi River channel between the city's two major lakes, Lake Bemidji and Lake Irving. Today, city traffic is carried by MnDOT bridge 5316, located a short distance northeast on Paul Bunyan Drive.

The plans and specifications for the Nymore Bridge were prepared by the Standard Reinforced Concrete Company of Indianapolis, Indiana. The firm used the assigned Letters Patent No. 820,921 for "Concrete-Bridge Reinforcement," which was granted in 1906 to George M. Cheney of Indianapolis, Indiana.
Cheney patented his concrete reinforcement system at a time when many concrete reinforcing methods were being developed, including the well-known Melan system. Cheney's system involved embedding a metal-arch truss in the concrete, which was engineered to produce a minimum amount of cracking in the finished surface. Cheney's "Concrete-Bridge Reinforcement" design included constructing an arched metal truss of angles and gusset plants, separated into vertical panels, all of which are pinned and/or wired together. Angles extend up to reinforce the spandrel walls. This structure is erected, forms constructed around it, concrete poured and the arch truss becomes embedded in the concrete. Cheney's method was similar to the Melan arch reinforcement technique; however where the Melan system is formed of bent I-beams, Cheney's patent called for a series of arch truss pieces wired together. Cheney claimed in *The Specifications of Letters Patent for Patent No. 820,921* that his system was designed "to produce a reinforcing structure adapted to be embedded within the concrete, the construction and arrangement of said reinforcing structure being such as to eliminate or nearly eliminate the probability of cracking, but also being such that if there be cracking it will occur along predetermined lines the concrete structure being so formed as to render less apparent any such cracks."

Two contractors are reported to have bid on the Standard Company's design incorporating Cheney's patent: the Illinois Steel Bridge Company and the Minneapolis Bridge Company. The Illinois firm, represented by St. Paul, Minnesota, agents John Zelch and P.T. Walton, had the winning low bid. The final bid, following negotiations with the city, was $22,772. Both firms also bid on a two-arch version and a steel bridge. The scheduled completion date for the bridge was January 1, 1917, but a series of problems, including strikes and bad weather delayed the work. As a result, the structure was not completed until the fall of 1917.

The bridge railings and arches retain most of their classical decoration, but are missing all light posts except those on the west end. The deck has been covered with a bituminous overlay, and a sidewalk has been added to the north side of the deck. A pipe railing was added to the north railing. Some concrete is delaminated, unsound, or deteriorated. Despite these alterations the bridge retains its historic integrity. The period of significance for this bridge is 1917, corresponding with the construction of the bridge.

The Nymore Bridge is historically significant as an unaltered, very early, large, urban, barrel-vault, reinforced-concrete bridge in Minnesota in the areas of architecture and engineering, and in context of *Minnesota Reinforced-Concrete Highway Bridges, 1900-1945*. It is also significant for the use of a George Cheney’s patented reinforcing system during the period of experimentation in reinforcing materials and systems. The Nymore Bridge is listed in the National Register under *Criterion C* in the area of Engineering.

**Historic Context**
Reinforced-Concrete Highway Bridges in Minnesota, 1900-1945

**National Register Status**
Listed (Individually)

**Criterion A Significance**
N/A

**Criterion C Significance**
Engineering: Evolution or transition of type
Minnesota Department of Transportation (MnDOT)  
Local Historic Bridge Report- Abridged

<table>
<thead>
<tr>
<th>II – Historic Data</th>
<th>Bridge Number: 2366</th>
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<tbody>
<tr>
<td>Historic District</td>
<td>N/A</td>
</tr>
<tr>
<td>SHPO inventory number</td>
<td>BL-BJC-058</td>
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Sources Used to Compile Section II -- Historic Data


Mead & Hunt, Inc. “Nymore Bridge (Bridge No. 2366).” MnDOT Contract No. 95265. Prepared for the Minnesota Department of Transportation (2011)
Character-Defining Features

Character-defining features are prominent or distinctive aspects, qualities, or characteristics of a historic property that contribute significantly to its physical character. Features may include materials, engineering design, and structural and decorative details. Often, the character-defining features include important historic fabric. However, historic fabric can also be found on other elements of a bridge that have not been noted as character-defining. For this reason, it is important to consider both character-defining features and the bridge’s historic fabric when planning any work.

Feature 1: Design and construction of a reinforced-concrete arch that utilizes George M. Cheney’s 1906 patent. The bridge employs a metal arch reinforcing system embedded in concrete to reduce surface cracking.
II – Historic Data

Feature 2: Overall Classical Revival aesthetic including raised bush-hammered panels on the spandrel walls, pilasters with raised bush-hammered rectangular panels and starlings, and concrete light standards with bronze brackets and globes.
Minnesota Department of Transportation (MnDOT)
Local Historic Bridge Report - Abridged

III – Bridge Data

<table>
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<tr>
<th>Date of Construction (remodel)</th>
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<tbody>
<tr>
<td>Common Name (if any)</td>
<td>Nymore Bridge</td>
</tr>
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</table>

**Location**

- Feature Carried: OLD MIDWAY DR
- Feature Crossed: Mississippi River
- County: Beltrami
- Ownership: City of Bemidji

**MnDOT Structure Data**

- *Data Current (as of):* Sep 2013
- Main Span Type: 112 CONC ARCH
- Main Span detail: SPANDREL FILLED ARCH
- Substructure Type - Foundation Type:
  - Abutment: 1-Concrete - 0-Unknown
  - Piers: 1-Concrete - 0-Unknown
- Total Length: 168 ft
- Main Span Length: 65 ft
- Total Number of Span(s): 3
- Skew (degrees): 0
- Structure Flared: No Flare
- Roadway Function: Urban, Collector
- Custodian/Maintenance Type: City

**Reported Owner Inspection Date**

9/26/2012

**Sufficiency Rating**

37.9

**Operating Rating**

HS 18

**Inventory Rating**

HS 12

**Structure Status**

K – Bridge Closed

**Posting**

VEH: -- SEMI: -- DBL: --

**Design Load**

UNKN

**Current Condition Code**

- Deck: 5
- Superstructure: 4
- Substructure: 4
- Channel and Protection: 6
- Culvert: N

**Current Appraisal Rating**

- Structural Evaluation: 4
- Deck Geometry: 4
- Underclearances: N
- Waterway Adequacy: 8
- Approach Alignment: 6

**Fracture Critical**

- No

**Deficient Status**

- S.D

**Roadway Clearances**

- Roadway Width: 28 ft
- Vert. Clearance Over Rdwy: N/A
- Vert. Clearance Under Rdwy: N/A
- Lat. Clearance Right: 0 ft
- Lat. Clearance Left: 0 ft

**Roadway Data**

- Truck ADT Percentage: Not given
- Bypass Detour length: 1 miles
- Number of Lanes: 2

**Waterway Data**

- Scour Code: I-LOW RISK

**Non-MnDOT Data**

**Approach Roadway Characteristics**

- Lane Widths: 14 ft
- Shoulder Width: No Shoulder
- Shoulders Paved or Unpaved: N/A
- Roadway Surfacing: Bituminous

**Location of Plans**

- City of Bemidji

**Plans Available**

2011 Rehabilitation Plan (Not Constructed)

* Non-MnDOT data collected during field survey. All other fields of data collected from MnDOT September of 2013. See Appendix C for MnDOT inventory and inspection report data.

**Unless a significant number of crashes are noted on or near a bridge, the accident data is not detailed in this report.
WSN and Mead & Hunt conducted a rehabilitation study of the Nymore Bridge in 2010-2011. The project went through the Section 106 review process and the Minnesota Department of Transportation found it to have no adverse effect. The State Historic Preservation Office concurred with the recommendation in March of 2011. The “Special Provisions Division SB” for bridge 2366 outlined the historic significance of the bridge, its character-defining features, and the work necessary to rehabilitate the structure. A summary of the Special Provisions is below. An electronic copy of the rehabilitation plans and special provisions is available from MnDOT CRU (see Appendix C for all electronic resources provided to MnDOT CRU as part of this bridge report).

Proposed rehabilitation of the bridge would include removal and disposal of the following features: the metal railing on the south side of the bridge, the concrete sidewalk and approaches on the south side of the bridge, the bituminous surface and concrete pavement on the bridge and bridge approaches, the concrete curb and gutter on bridge approaches, and the soil fill atop the concrete arch spans. The two extant concrete light standards along with two standards salvaged from the river would be repaired and reinstalled. If the light standards cannot be salvaged, new ones would be fabricated with surface finish matching the originals on the bridge.

Concrete repair would entail removal, disposal, repair, and aesthetic restoration of concrete that is delaminated, unsound, or deteriorated. Work would follow the requirements listed and as directed by the engineer, including specifications guiding removal, disposal, repair, and restoration. Surfaces would match the color, finish, texture, and surface detail of the original surface surrounding the repaired area.

A reinforcement bar anchorage system would be installed following the requirements of the Special Provisions. Structure excavation beyond the ends of the bridge would include sheeting, shoring, and other protection necessary to complete bridge rehabilitation. An epoxy resin coating and markings would be applied to the trail surface.

Rehabilitation work has not yet been undertaken on the Nymore Bridge; proposed rehabilitation work is not currently planned. Refer to the Management Plan for Historic Bridges in Minnesota for technical guidance on stabilization, preservation and maintenance activities, available on MnDOT’s website.
Summarized Preservation Cost Estimates:
Projected costs for rehabilitation are based on bids submitted for the work in 2011. This opinion of construction cost range has been taken from the bids submitted for the project. The estimates were not revisited in preparing this report.

Opinion of Construction Cost- Rehabilitation Activities: $ 500,000-$ 950,000
Appendix A. Glossary
Glossary

Abutment – Component of bridge substructure at either end of bridge that transfers load from superstructure to foundation and provides lateral support for the approach roadway embankment.

Appraisal ratings – Five National Bridge Inventory (NBI) appraisal ratings (structural evaluation, deck geometry, under-clearances, waterway adequacy, and approach alignment, as defined below), collectively called appraisal ratings, are used to evaluate a bridge’s overall structural condition and load-carrying capacity. The evaluated bridge is compared with a new bridge built to current design standards. Ratings range from a low of 0 (closed bridge) to a high of 9 (superior). Any appraisal item not applicable to a specific bridge is coded N.

Approach alignment – One of five NBI inspection ratings. This rating appraises a bridge’s functionality based on the alignment of its approaches. It incorporates a typical motorist’s speed reduction because of the horizontal or vertical alignment of the approach.

Character-defining features – Prominent or distinctive aspects, qualities, or characteristics of a historic property that contribute significantly to its physical character. Features may include structural or decorative details and materials.

Condition, fair – A bridge or bridge component of which all primary structural elements are sound, but may have minor deterioration, section loss, cracking, spalling, or scour.

Condition, good – A bridge or bridge component which may have some minor deficiencies, but all primary structural elements are sound.

Condition, poor – A bridge or bridge component that displays advanced section loss, deterioration, cracking, spalling, or scour.

Condition rating – Level of deterioration of bridge components and elements expressed on a numerical scale according to the NBI system. Components include the substructure, superstructure, deck, channel, and culvert. Elements are subsets of components, e.g., piers and abutments are elements of the component substructure. The evaluated bridge is compared with a new bridge built to current design standards. Component ratings range from 0 (failure) to 9 (new) or N for (not applicable); elements are rated on a scale of 1-3, 1-4 or 1-5 (depending on the element type and material). In all cases condition state 1 is the best condition with condition state 3, 4 or 5 being the worst condition. In rating a bridge’s condition, MnDOT pairs the NBI system with the newer and more sophisticated Pontis element inspection information, which quantifies bridge elements in different condition states and is the basis for subsequent economic analysis.

Corrosion – The general disintegration of metal through oxidation.

Cutwater – The wedge-shaped end of a bridge pier, designed to divide the current and break up ice.
**Decay** – Deterioration of wood as a result of fungi feeding on its cell walls.

**Delamination** – Surface separation of concrete, steel, glue laminated timber plies etc. into layers.

**Deck geometry** – One of five NBI appraisal ratings. This rating appraises the functionality of a bridge’s roadway width and vertical clearance, taking into account the type of roadway, number of lanes, and ADT.

**Deficiency** – The inadequacy of a bridge in terms of structure, serviceability, and/or function. Structural deficiency is determined through periodic inspections and is reflected in the ratings that are assigned to a bridge. Service deficiency is determined by comparing the facilities a bridge provides for vehicular, bicycle, and pedestrian traffic with those that are desired. Functional deficiency is another term for functionally obsolete (see below). Remedial activities may be needed to address any or all of these deficiencies.

**Deficiency rating** – A nonnumeric code indicating a bridge’s status as structurally deficient (SD) or functionally obsolete (FO). See below for the definitions of SD and FO. The deficiency rating status may be used as a basis for establishing a bridge’s eligibility and priority for replacement or rehabilitation.

**Design exception** – A deviation from federal design and geometric standards that takes into account environmental, scenic, aesthetic, historic, and community factors that may have bearing upon a transportation project. A design exception is used for federally funded projects where federal standards are not met. Approval requires appropriate justification and documentation that concerns for safety, durability, and economy of maintenance have been met.

**Design load** – The usable live-load capacity that a bridge was designed to carry, expressed in tons according to the AASHTO allowable stress, load factor, or load resistance factor rating methods. An additional code was recently added to assess design load by a rating factor instead of tons. This code is used to determine if a bridge has sufficient strength to accommodate traffic load demands. A bridge that is posted for load restrictions is not adequate to accommodate present or expected legal truck traffic.

**Deterioration** – Decline in condition of surfaces or structure over a period of time due to chemical or physical degradation.

**Efflorescence** – A deposit on concrete or brick caused by crystallization of carbonates brought to the surface by moisture in the masonry or concrete.

**Extant** – Currently or actually existing.

**Extrados** – The upper or outer surfaces of the voussoirs which compose the arch ring. Often contrasted with intrados.
**Footing** – The enlarged, lower portion of a substructure which distributes the structure load either to the earth or to supporting piles.

**Fracture Critical Members** – Tension members or tension components of bending members (including those subject to reversal of stress) whose failure would be expected to result in collapse of the bridge.

**Functionally obsolete** – The Federal Highway Administration (FHWA) classification of a bridge that does not meet current or projected traffic needs because of inadequate horizontal or vertical clearance, inadequate load-carrying capacity, and/or insufficient opening to accommodate water flow under the bridge. An appraisal rating of 3 or less for deck geometry, underclearance, approach alignment, structural evaluation or waterway adequacy will designate a bridge as functionally obsolete.

**Gusset plate** – A plate that connects the horizontal and vertical members of a truss structure and holds them in correct position at a joint.

**Helicoidal** – Arranged in or having the approximate shape of a flattened coil or spiral.

**Historic fabric** – The material in a bridge that was part of original construction or a subsequent alteration within the historic period of the bridge (i.e., more than 50 years old). Historic fabric is an important part of the character of the historic bridge and the removal, concealment, or alteration of any historic material or distinctive engineering or architectural feature should be avoided if possible. Often, the character-defining features include important historic fabric. However, historic fabric can also be found on other elements of a bridge that have not been noted as character-defining.

**Historic bridge** – A bridge that is listed in, or eligible for listing in, the National Register of Historic Places.

**Historic integrity** – The authenticity of a bridge’s historic identity, evidenced by the survival and/or restoration of physical characteristics that existed during the bridge’s historic period. A bridge may have integrity of location, design, setting, materials, workmanship, feeling, and association.

**Inspections** – Periodic field assessments and subsequent consideration of the fitness of a structure and the associated approaches and amenities to continue to function safely.

**Intrados** – The inner or lower surface of an arch. Often contrasted with extrados.

**Inventory rating** – The load level a bridge can safely carry for an indefinite amount of time expressed in tons or by the rating factor described in design load (see above). Inventory rating values typically correspond to the original design load for a bridge without deterioration.

**Keystone** – Wedge-shaped stone, or voussoir, at the crown of an arch.
Load Rating – The determination of the live load carrying capacity of a bridge using bridge plans and supplemented by field inspection.

Maintenance – Work of a routine nature to prevent or control the process of deterioration of a bridge.

Minnesota Historical Property Record – A documentary record of an important architectural, engineering, or industrial site, maintained by the Minnesota Historical Society as part of the state’s commitment to historic preservation. MHPR typically includes large-format photographs and written history, and may also include historic photographs, drawings, and/or plans. This state-level documentation program is modeled after a federal program known as the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER).

National Bridge Inventory – Bridge inventory and appraisal data collected by the FHWA to fulfill the requirements of the National Bridge Inspection Standards (NBIS). Each state maintains an inventory of its bridges subject to NBIS and sends an annual update to the FHWA.

National Bridge Inspection Standards – Federal requirements for procedures and frequency of inspections, qualifications of personnel, inspection reports, and preparation and maintenance of state bridge inventories. NBIS applies to bridges located on public roads.

National Register of Historic Places – The official inventory of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and culture, which is maintained by the Secretary of the Interior under the authority of the National Historic Preservation Act of 1966 (as amended).

Non-vehicular traffic – Pedestrians, non-motorized recreational vehicles, and small motorized recreational vehicles moving along a transportation route that does not serve automobiles and trucks. Includes bicycles and snowmobiles.

Operating rating – Maximum permissible load level to which a bridge may be subjected based on a specific truck type, expressed in tons or by the rating factor described in design load (see above).

Pack rust – Rust forming between adjacent steel surfaces in contact which tends to force the surfaces apart due to the increase in steel volume.

Pier – A substructure unit that supports the spans of a multi-span superstructure at an intermediate location between its abutments.

Pointing – The compaction of mortar into the outermost portion of a joint and the troweling of its exposed surface to secure water tightness and/or desired architectural effect (when replacing deteriorated mortar).
**Pony truss** – A through bridge with parallel chords and having no top lateral bracing over the deck between the top chords.

**Posted load** – Legal live-load capacity for a bridge which is associated with the operating rating. A bridge posted for load restrictions is inadequate for legal truck traffic.

**Pontis** – Computer-based bridge management system to store inventory and inspection data and assist in other bridge data management tasks.

**Preservation** – Preservation, as used in this report, refers to historic preservation that is consistent with the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*. Historic preservation means saving from destruction or deterioration old and historic buildings, sites, structures, and objects, and providing for their continued use by means of restoration, rehabilitation, or adaptive reuse. It is the act or process of applying measures to sustain the existing form, integrity, and material of a historic building or structure, and its site and setting. MnDOT’s *Bridge Preservation, Improvement and Replacement Guidelines* describe preservation differently, focusing on repairing or delaying the deterioration of a bridge without significantly improving its function and without considerations for its historic integrity.

**Preventive maintenance** – The planned strategy of cost-effective treatments that preserve a bridge, slow future deterioration, and maintain or improve its functional condition without increasing structural capacity.

**Reconstruction** – The act or process of depicting, by means of new construction, the form, features, and detailing of a non-surviving site, landscape, building, structure, or object for the purpose of replicating its appearance at a specific period of time and in its historic location. Activities should be consistent with the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*.

**Rehabilitation** – The act or process of returning a historic property to a state of utility through repair or alteration which makes possible an efficient contemporary use, while preserving those portions or features of the property that are significant to its historical, architectural, and cultural values. Historic rehabilitation, as used in this report, refers to implementing activities that are consistent with the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*. As such, rehabilitation retains historic fabric and is different from replacement. MnDOT’s *Bridge Preservation, Improvement and Replacement Guidelines* describe rehabilitation and replacement in similar terms.

**Restoration** – The act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time. Activities should be consistent with the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*.

**Ring stone** – One of the separate stones of an arch that shows on the face of the headwall, or end of the arch. Also known as a voussoir.
**Scaling** – The gradual distentegration of a concrete surface due to the failure of the cement surface caused by chemical attack or freeze-thaw cycles or rebar too close to the surface and oxidizing from exposure to chlorides.

**Scour** – Removal of material from a river’s bed or bank by flowing water, compromising the strength, stability, and serviceability of a bridge.

**Scour critical rating** – A measure of a bridge’s vulnerability to scour (see above). MnDOT utilizes letter designations to represent specific descriptions of a bridge’s susceptibility and/ or present condition in regards to scour. Range in condition and scour susceptibility does not necessarily correlate alpha numerically to the MnDOT scour code letters so it is important to understand the specific scour description for each MnDOT scour code. The scour codes and descriptions can be found in the “MNDOT Bridge Inspection Field Manual”.

**Section loss** – Loss of a member’s cross sectional area and resulting strength usually by corrosion or decay.

**Serviceability** – Level of facilities a bridge provides for vehicular, bicycle, and pedestrian traffic, compared with current design standards.

**Smart flag** – Special Pontis inspection element used to report the condition assessment of a deficiency that cannot be modeled, such as cracks, section loss, and steel fatigue.

**Spall** – Depression in concrete caused by a separation of a portion of the surface concrete, revealing a fracture parallel with or slightly inclined to the surface.

**Spring line** – The imaginary horizontal line at which an arch or vault begins to curve. As example, the point of transition from the vertical face of an abutment to the start of arch curvature extending from abutment face.

**Stabilization** – The act or process of stopping or slowing further deterioration of a bridge by means of making minor repairs until a more permanent repair or rehabilitation can be completed.

**Stringcourse** – A horizontal band of masonry, generally narrower than other courses and sometimes projecting, that extends across the structure’s horizontal face as an architectural accent. Also known as belt course.

**Structural evaluation** – Condition rating of a bridge designed to carry vehicular loads, expressed as a numeric value and based on the condition of the superstructure and substructure, the inventory load rating, and the ADT.
**Structurally deficient** – Classification indicating NBI condition rating of 4 or less for any of the following: deck condition, superstructure condition, substructure condition, or culvert condition. A bridge is also classified as structurally deficient if it has an appraisal rating of 2 or less for its structural evaluation or waterway adequacy. A structurally deficient bridge is restricted to lightweight vehicles; requires immediate rehabilitation to remain open to traffic; or requires maintenance, rehabilitation, or replacement.

**Sufficiency rating** – Rating of a bridge’s structural adequacy and safety for public use, and its serviceability and function, expressed on a numeric scale ranging from a low of 0 to a high of 100. It is a relative measure of a bridge’s deterioration, load capacity deficiency, or functional obsolescence. MnDOT may use the rating as a basis for establishing eligibility and priority for replacement or rehabilitation. Typically, bridges which are structurally deficient and have sufficiency ratings between 50 and 80 are eligible for federal rehabilitation funds and those which are structurally deficient with sufficiency ratings of 50 and below are eligible for replacement.

**Through truss** – A bridge with parallel top and bottom chords and top lateral bracing with the deck generally near the bottom chord.

**Under-clearances** – One of five NBI appraisal ratings. This rating appraises the suitability of the horizontal and vertical clearances of a grade-separation structure, taking into account whether traffic beneath the structure is one- or two-way.

**Variance** – A deviation from State Aid Operations Statute Rules that takes into account environmental, scenic, aesthetic, historic, and community factors that may have bearing upon a transportation project. A design variance is used for projects using state aid funds. Approval requires appropriate justification and documentation that concerns for safety, durability and economy of maintenance have been met.

**Vehicular traffic** – The passage of automobiles and trucks along a transportation route.

**Voussoir** – One of the separate stones forming an arch ring; also known as a ring stone.

**Waterway adequacy** – One of five NBI appraisal ratings. This rating appraises a bridge’s waterway opening and passage of flow under or through the bridge, frequency of roadway overtopping, and typical duration of an overtopping event.
Appendix B. Guidelines for Bridge Maintenance and Rehabilitation based on the Secretary of the Interior’s Standards
The Secretary’s Standards with Regard to Repair, Rehabilitation, and Replacement Situations

Adapted from:

The Secretary of the Interior’s Standards for the Treatment of Historic Properties, first codified in 1979 and revised in 1992, have been interpreted and applied largely to buildings rather than engineering structures. In this document, the differences between buildings and structures are recognized and the language of the Standards has been adapted to the special requirements of historic bridges.

1. Every reasonable effort shall be made to continue an historic bridge in useful transportation service. Primary consideration shall be given to rehabilitation of the bridge on site. Only when this option has been fully exhausted shall other alternatives be explored.

2. The original character-defining qualities or elements of a bridge, its site, and its environment should be respected. The removal, concealment, or alteration of any historic material or distinctive engineering or architectural feature should be avoided.

3. All bridges shall be recognized as products of their own time. Alterations that have no historical basis and that seek to create a false historical appearance 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 engineering and stylistic features, finishes, and construction techniques or examples of craftsmanship that characterize an historic property shall be preserved.

6. Deteriorated structural members and architectural features shall be retained and repaired, rather than replaced. Where the severity of deterioration requires replacement of a distinctive element, the new element should match the old in design, texture, and other visual qualities and where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical and physical treatments that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the most environmentally sensitive means possible.
8. Significant archaeological and cultural 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, structural reinforcements, 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.
Appendix C. Documents
Additional Electronic Data
Bridge 2366

Historic Data
• Research

Local Data
• 2366 FW Historic Bridges.msg
• 2366 Local Historic Report returned with comments
• Copy of Schroeder Bid Results_6-30-11
• Nymore Bridge_Prelim Bid Results

MnDOT Reports
• 2366_2007 UW Report
• 2366_Accident Report
• 2366_Pontis
• 2011_ConditionSheet_2366
• 2366 Inspection 9-26-12
• 2366 Inventory 05-28-13
• 2366 Rating Report 2006

Photos
• 2366_M&H Photos_8-8-13
• Historic Photos
• Nymore Bridge 2012
• Nymore Bridge 2-22-10
• Report Photos

Plans
• 2366Plans_2011
• DRAFT_Nymore Rehab_Div SB_Rev 3-29-2011
• SP105-090-05 SHPO concur
• SP 105-090-05 NAE finding
# Mn/DOT Bridge Inspection Report

**Bridge 2366**  
**Old Midway Dr Over Mississippi River**  
**Inspection Date: 09-26-2012**

<table>
<thead>
<tr>
<th>ELEM NBR</th>
<th>ELEMENT NAME</th>
<th>ENV</th>
<th>INSPE. DATE</th>
<th>QTY</th>
<th>CS 1</th>
<th>CS 2</th>
<th>CS 3</th>
<th>CS 4</th>
<th>CS 5</th>
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<tbody>
<tr>
<td>13</td>
<td>BIT. OIL (CONC DECK)</td>
<td>2</td>
<td>09-28-2012</td>
<td>5.544 SF</td>
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<td>5.544</td>
<td>0</td>
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<td>0</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>11-08-2011</td>
<td>5.544 SF</td>
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<td>5.544</td>
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</tbody>
</table>

**Notes:**
- 5 Lin R of spall on coping @ SE cor w/steel conduit exposed. 113) 4 Lin R of spall on coping @ SE cor w/rebar exposed. 1 Lin R of spall on coping @ E. end of W. arch on So side. w/rebar exposed.
- Transverse crack over E & W pier.
- 11-8-11 No Change.
- 9-25-12 No Change.

| 407      | BITUMINOUS APPROACH     | 2   | 09-26-2012  | 2 EA | 0 | 2 | 0 | 0 | N/A |
|          |                         |     | 11-08-2011  | 2 EA | 0 | 2 | 0 | 0 | N/A |

**Notes:**
- Potholes developing - w/b.i. - east and west end. 99) Some cracking of bit-rough.
- 2006 - OK.
- 11-8-11 No Change.
- 9-25-12 No Change.

| 331      | CONCRETE RAILING        | 2   | 09-26-2012  | 336 LF | 0 | 288 | 48 | 0 | N/A |
|          |                         |     | 11-08-2011  | 336 LF | 0 | 288 | 48 | 0 | N/A |

**Notes:**
- [2006] A 3 ft. broken section NW quad has been displaced 3 in. by traffic impact. A sect. of railing in SW quad has been displaced 3 in. - 6 in by traffic impact.
- [2007] City adjusted SW rail and added plates and stainless bolts to both sections to strengthen and hold in alignment.
- Quant shows 168 Lin Ft - field meas shows 336 Lin Ft so Qty should be 288 and leave 48 in Qty 3.
- 11-8-11 No Change.
- 9-25-12 No Change.

| 333      | RAILING - OTHER         | 2   | 09-26-2012  | 188 LF | 0 | 148 | 20 | N/A | N/A |
|          |                         |     | 11-08-2011  | 188 LF | 0 | 148 | 20 | N/A | N/A |

**Notes:**
- 1041 36' lineal feet of pipe rail is missing on the south side. Balance loose in areas 1/2 of West rail hanging in midair because of misalignment of concrete rail. rail broken off at bases.
- [2007] 36 lin Ft of pipe rail is missing on S side, has been repaired. One sect of W rail is hanging in midair as one base is broke and out of alignment. Quant: 148 in Qty 2 and 20 in Qty 3.
- 11-8-11 No Change.
- 9-25-12 No Change.
## Mn/DOT Bridge Inspection Report

**Structure Unit:** 0

### Concrete Arch

<table>
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<tr>
<th>EleM Nbr</th>
<th>Element Name</th>
<th>ENV Insp. Date</th>
<th>Quantity</th>
<th>QTY</th>
<th>CS 1</th>
<th>QTY</th>
<th>CS 2</th>
<th>QTY</th>
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<tr>
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<td>Concrete Arch</td>
<td>2 09-26-2012</td>
<td>99 LF</td>
<td>99</td>
<td>59</td>
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<tr>
<td></td>
<td></td>
<td>11-08-2011</td>
<td>99 LF</td>
<td>99</td>
<td>59</td>
<td>40</td>
<td>0</td>
<td>N/A</td>
<td></td>
<td></td>
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</table>

**Notes:**
1. Dates of last snooper inspection found in general notes.
2. Spalling on arch where it meets the piers. 3 spalls on center arch on the N side-2 Sqft by 6 inches deep, 6 inch spall @ W arch on N side. Hairline cracks on underside with leaking, there's a 6 inch spall with rebar exposed on the NW corner of the E arch, spalls on the W arch on the N side & W pier on the N side 4 inch deep with rusting steel. Center arch N side has vertical cracks with efflorescence & leaking. Heavy deterioration at bottom of E arch near NE column.
3. Framing is exposed & corroding. Previous Minor spalling on the arch where it meets the piers, 3 spalls on center arch on the N side-1 Sqft by 6 inches deep. Hairline cracks on the underside with leaking, there's a 6 inch spall with rebar exposed on the NW corner of the E arch, spalls on the W arch on the N side & W pier on the N side, long crack on N side of W arch, underside of center & W arches on the S side appear to have spalls approx 10 ft long by 6 inches wide with possible rebar or framing exposed, a 1 Sqft spall with rebar exposed & section loss on the underside of the W arch on the N side. Iron truss-work for arches is showing thru on bottom side in various locations with corrosion & some section loss, horizontal cracks on N and S side of arches with efflorescence, spalling continues on underside of arches, the bases of the arches are map cracked at piers & abutments. Active corrosion cont's of exposed rebar & framing. 1.5 LF of spall on S side of center arch.
4. 11-8-11 No Change.
5. 2006 OK
6. [2007] Con arch - low water level for the past couple years is cause for conc at waterline to rapidly deteriorate, along with map cracking of the arch bases to propagate further out with additional spalling. Vert cracks at the center of arch faces are starting to spall with more framework being exposed on the underside of arch face. Quant shows 99 Linft with some

### Concrete Column

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<tr>
<td>205</td>
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<td>11-08-2011</td>
<td>2 EA</td>
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<td>N/A</td>
<td></td>
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</table>

**Notes:**
1. Heavy concrete deterioration at base of columns. 1/4" dia. crack at N.E. column. Heavy scaling around perimeter 2-2 1/2" below waterline with 3-5" penetrations.
2. Severe cracking at column bases and cracks in columns.
3. 11-8-11 No Change.
4. 9-29-12 Due to low water, pier concrete could be observed and condition looks good.

### Concrete Abutment

<table>
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<tr>
<th>EleM Nbr</th>
<th>Element Name</th>
<th>ENV Insp. Date</th>
<th>Quantity</th>
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<tbody>
<tr>
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<td>Concrete Abutment</td>
<td>2 09-26-2012</td>
<td>66 LF</td>
<td>20</td>
<td>40</td>
<td>6</td>
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<td>66 LF</td>
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<td>40</td>
<td>6</td>
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<td>N/A</td>
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</tbody>
</table>

**Notes:**
1. 62) Cracks in the backwall, concrete is deteriorating. Map cracks & impending spalls observed @ and 4.5' below waterline.
2. [2007] No changes.
3. 11-8-11 No Change
4. 9-29-12 No Change

### Concrete Cap

<table>
<thead>
<tr>
<th>EleM Nbr</th>
<th>Element Name</th>
<th>ENV Insp. Date</th>
<th>Quantity</th>
<th>QTY</th>
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<td>66 LF</td>
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<td>11-08-2011</td>
<td>66 LF</td>
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<td>0</td>
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<td>N/A</td>
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**Notes:**
1. Length of cap, heavy deterioration at and above the waterline. Heavy scaling 2 - 2 1/2" below waterline. 41 & 58) Piers are spalled & scaled at the waterline approx 3-4 inches deep. Vertical crack in the north side of both piers, bases of the piers are map cracked at the ends & all 4 piers have diag & vert. cracks. Noses of the pier concrete cont's to deteriorate at the water line and above. Map cracks 1/16" wide & impending spalls observed from waterline to 4.5' below.
2. [2007] No changes.
3. 11-8-11 No Change.
4. 9-29-12 No Change

### Concrete Wingwall

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<tr>
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<th>Element Name</th>
<th>ENV Insp. Date</th>
<th>Quantity</th>
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<tbody>
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<td>387</td>
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<td>2 09-26-2012</td>
<td>4 EA</td>
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<td>11-08-2011</td>
<td>4 EA</td>
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**Notes:**
1. 71) Top of the southwest wingwall is deteriorated to a depth of 3"+. Trees & brush should be removed here.
2. [2007] No changes.
3. 11-8-11 No Change.
4. 9-29-12 No Change.
### Mn/DOT Bridge Inspection Report

**Bridge 2366**  
**Old Midway Dr Over Mississippi River**  
**Inspection Date:** 09-26-2012

#### Structure Unit 0

<table>
<thead>
<tr>
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<td>CRITICAL FINDING</td>
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**Notes:**  
[2007] No changes.  
11-8-11 No Change.  
9-26-12 No Change.

<table>
<thead>
<tr>
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<td>11-08-2011</td>
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**Notes:**  
[2007] No changes.  
11-8-11 No Change.  
9-26-12 No Change.

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<td>986</td>
<td>CURB &amp; SIDEWALK</td>
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<td>11-08-2011</td>
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<td>1</td>
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**Notes:**  
[180] Curbs & sidewalk spalled & scaled on S side.  
11-8-11 No Change.  
9-26-12 No Change.

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<td>11-08-2011</td>
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<td>1</td>
<td>0</td>
<td>N/A</td>
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</table>

**Notes:**  
1 hanger bent down for the conduit at the northwest corner.  
3 hangers bent on N side at center of bridge.  
165) 2 hangers bent down for the conduit at the northwest corner.  
Old concrete light bases have been knocked off on East rail.  
Concrete light base is located in river.  
Light bases should be salvaged because of historic value.  
Brush should be removed @ all 4 quads.  
[2007] Bituminous is map cracked and poor cond.  
Approx 3 potholes need bid patching.  
[2007] Spalls and delaminations in arches a safety concern for boats traveling through.  
11-8-11 No Change.  
9-26-12 No Change.

**General Notes:**  
Tree in NW quadrant in water.  
*Bridge 2366 180)* Debris in channel downstream side side of the span.  
Tree in NE quadrant in water.  
Structural analysis performed July 2001.  
Snooper inspected 4/24/2006 - Graffiti Painted over.  
Snooper/ Joe  
GK  
DZ  
PK  
Joel Sywol  
[11-14-2007] Imp by T Moe (Engr) and G Lorenz (Eng Tech) from Widseth Smith & Nolting for the City of Bemidji for possible repairs and renovations.  
[2008] Snooper inspection by TM & GK.  
Repair of structure in 2012 STIP.  
Asphalt wear course added summer 2008.  
Transverse crack over E pier. Designated trail, vehicular traffic excluded.  
11-8-11 No significant new findings.  
9-26-12 No significant changes noted. Most of the drains appear to be functioning. Historic concrete light posts have been pushed off the bridge and are visible upstream & downstream of bridge.

---

**Inspector's Signature**  
**Reviewer's Signature / Date**
**Mn/DOT Structure Inventory Report**

**Bridge ID:** 2366  
**OLD MIDWAY DR over MISSISSIPPI RIVER**  
**Date:** 05/28/2013

### GENERAL
- **Agency Br. No.:**  
- **District:** 2  
- **Maint. Area:**  
- **County:** 04 - BELTRAMI  
- **City:** BEMIDJI  
- **Township:**  
- **Desc. Loc.:** SE OF JCT 2ND STREET  
- **Sect., Twp., Range:** 16 - 146NN - 33W  
- **Latitude:** 47d 26m 00.90s  
- **Longitude:** 94d 52m 41.68s  
- **Custodian:** CITY  
- **Owner:** CITY  
- **Inspection By:** CITY OF BEMIDJI  
- **BIMU Agreement:**  
- **Year Built:** 1916  
- **Year Fed Rehab:**  
- **Year Remodeled:**  
- **Temp:**  
- **Plan Avail.:** NO PLAN

### ROADWAY
- **Bridge Match ID (TIS):** 1  
- **Roadway O/U Key:** 1-ON  
- **Route Sys/Nbr:** MUN 571  
- **Roadway Name or Description:** OLD MIDWAY DR  
- **Roadway Function:** MAINLINE  
- **Roadway Type:** 2 WAY TRAF  
- **Control Section (TH Only):**  
- **Ref. Point (TH Only):**  
- **Date Opened to Traffic:** 01-01-1916  
- **Detour Length:** 1 mi.  
- **Lanes:** 2 Lanes ON Bridge  
- **ADT (YEAR):** 4,900 (2003)  
- **HCDT:**  
- **Functional Class:** URB.COLL  
- **Divided Side:**  
- **Roadway Width:** 28.0 ft

### STRUCTURE
- **Service On:** HWY:PED  
- **Service Under:** STREAM  
- **Main Span Type:** CONC ARCH  
- **Main Span Detail:** SPANDREL FILLED ARCH  
- **Appr. Span Type:**  
- **Appr. Span Detail:**  
- **Skew:**  
- **Culvert Type:**  
- **Barrel Length:**  
  - **Number of Spans:** MAIN: 3  
  - **APPR: 0**  
  - **TOTAL: 3**  
- **Main Span Length:** 65.0 ft  
- **Structure Length:** 168.0 ft  
- **Deck Width:** 33.0 ft  
- **Deck Material:** CH-P CONCRETE  
- **Wear Surf Type:** BITUMINOUS  
- **Wear Surf Install Year:**  
- **Wear Course/Fill Depth:** 0.70 ft  
- **Deck Membrane:** NONE  
- **Deck Protect.:** N/A  
- **Deck Install Year:**  
- **Structure Area:** 5,544 sq ft  
- **Roadway Area:** 4,704 sq ft  
- **Sidewalk Width - L/R:** 2.6 ft  
- **Curb Height - L/R:** 0.30 ft  
- **Rail Codes - L/R:** 02 02

### INSPECTION
- **Deficient Status:** S.D.  
- **Sufficiency Rating:** 37.9  
- **Last Inspection Date:** 09-26-2012  
- **Inspection Frequency:** 12  
- **Inspector Name:** BEMIDJI  
- **Structure:** P-LOAD POSTED

### HSI CONDITION RATING
- **Deck:** 5  
- **Superstructure:** 4  
- **Substructure:** 4  
- **Channel:** 6  
- **Culvert:** N

### HSI APPRAISAL RATING
- **Structure Evaluation:** 4  
- **Deck Geometry:** 4  
- **Underclearances:** N  
- **Waterway Adequacy:** 6  
- **Approach Alignment:** 5

### SAFETY FEATURES
- **Bridge Railing:** 0-SUBSTANDARD  
- **GR Transition:** 0-SUBSTANDARD  
- **Appr. Guardrail:** 0-SUBSTANDARD  
- **GR Terminal:** N-NOT REQUIRED

### IN DEPTH INSPECTION
- **Frac. Critical:**  
- **Underwater:** Y 60 mo 06/2007  
- **Pinned Asby:**  
- **Spec.Feat:**

### WATERWAY
- **Drainage Area:**  
- **Waterway Opening:** 1565 sq ft  
- **Navigation Control:** NO PRMT REQD  
- **Pier Protection:**  
- **Nav. Vert./Hoz. Ctr.:**  
- **Nav. Vent. Lift Bridge Clear:**  
- **MN Scour Code:** I-LOW RISK  
- **Scour Evaluation Year:** 2009

### CAPACITY RATING
- **Design Load:** UNKN  
- **Operating Rating:** HS 18.00  
- **Inventory Rating:** HS 12.00  
- **Posting:** VEH: 28 SEMI: 40 DBL: 40  
- **Rating Date:** 09-17-2006

### Mn/DOT Permit Codes
- **A:** N  
- **B:** N  
- **C:** N