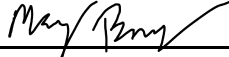


## Nebraska Department of Transportation (NDOT)

Roadway Design Division – Policy Letter

Policy Number: **DES 22–03**

Approval Date: 12/7/2022 By:  NDOT Roadway Design Engineer

Approval Date: 1/18/2023 By:  FHWA – Nebraska

This policy affects Roadway Design Manual: Chapter One: Roadway Design Standards, Section 6 and Chapter Seventeen: Resurfacing, Restoration and Rehabilitation (3R) Projects, Section 10.B and the Drainage Design and Erosion Control Manual, Section 8

### **Practical Design: Bridge or Culvert Replacement Projects**

#### **Purpose**

This policy provides flexibility in the application of Nebraska’s highway design standards, in accordance with a Memorandum of Understanding between the Nebraska Department of Transportation (NDOT) and the Nebraska Board of Classifications and Standards (Board), executed on October 26, 2022 (<https://dot.nebraska.gov/business-center/lpa/boards-liaison/nbcs/downloads/>).

#### **Policy:**

This policy provides for (a) complete replacement of a single structure or multiple structures (bridges, non-buried structures, and/or culverts), or (b) for structure replacement(s) (bridges, non-buried structures, and/or culverts) done as part of a Resurfacing, Restoration and Rehabilitation (3R) work or project when the conditions of this policy are satisfied.

#### **Standards and Intent:**

In this policy, unless stated otherwise, reference to the Board’s standards or current standards refers to the Nebraska Administrative Code, Title 428, Chapter 2, in effect during the design phase of a project or work. The intent of projects and works done under this policy is to design and build as close to the Board’s New & Reconstructed geometric design standards as practicable – in the judgement of NDOT – but not to build below the Board’s 3R geometric design standards. Under this policy, the design of the replacement culvert(s), bridge(s), or non-buried structure(s) shall be as follows (“existing” refers to design features as per the most recent construction plans).

#### **General Conditions:**

- 1) There has been a 3R or New & Reconstructed project completed that conformed to Board standards, since 1985, at the location of each culvert(s), bridge(s), or non-buried structure(s) to be replaced, i.e., the highway has been previously improved, and
- 2) NDOT has completed a recent crash history review using a standard crash analysis model at and near each bridge or culvert location, and that study does not reveal a crash history related to a Board non-complying geometric feature.

Sent to: NDOT Roadway Design, NDOT “Distribution B”, and selected consultants.

**Replacement Bridges or Non-Buried Structures:**

- A. Shall meet the Board's New & Reconstructed standard for structural capacity.
- B. Will meet current NDOT hydrologic and hydraulic conditions (not a Board standard)
- C. Roadways approaching and adjacent to the bridge or non-buried structure within project or work termini will
  - Match existing lane width, shoulder width, and paved shoulder width (see I. below) and
  - Transition horizontal and vertical alignment from the replacement bridge or non-buried structure into (1) existing alignment, or (2) meeting or exceeding Board's 3R standards, whichever is the greater (either 1 or 2)

**Replacement Culvert (Buried Structures, even if greater than the 20-foot span width):**

- A. Shall meet the Board's New & Reconstructed standard for structural capacity.
- B. Will meet current NDOT hydrologic and hydraulic conditions (not a Board standard)
- C. Roadways within project or work termini will
  - (1) Match existing lane width, shoulder width, paved shoulder width, and fixed obstacle clearance or (2) meet or exceed 3R standards, whichever is the greater (either 1 or 2), and
  - Transition horizontal and vertical alignment from culvert replacement into (1) existing alignment, or (2) meeting Board 3R standards, whichever is the greater (either 1 or 2)

**Other Conditions and Clarifications:**

- I. For a bridge or non-buried structure replacing a bridge or non-buried structure, the clear bridge width shall at least match the approach geometry. For example, if lane widths are 12 feet wide, and shoulders are 6 feet wide, the design clear bridge width will be 36 feet (see the first bullet in C, above)
- II. There shall be no significant changes expected in the foreseeable future for (a) land use along the highway or change in highway functional classification, or (b) traffic volume, i.e., volumes are expected to stay within the highway segment's current ADT category within the Board's New & Reconstructed minimum standards.
- III. If NDOT decides to replace a bridge or culvert under this policy on a state or federal highway within the corporate limits of a Municipality, NDOT will coordinate with the Municipality through normal processes.
- IV. The Board will not require specifically and separately tracked documentation concerning the cost savings for use of this program, in part because NDOT's planning and design process has several built-in processes, reports, and documentation that will confirm that a project or work is eligible for this program, including the Plan-in-Hand decision making process of the District Engineer, Roadway Design Engineer, and other key staff. NDOT will include or add the savings from this program with or into the current practical design savings reports that are reported annually to the

Director of NDOT. The Board may ask for a report on these savings periodically from NDOT.

If the above conditions are not met, NDOT would not move forward with a Bridge or Culvert replacement project or work under this policy; in that case NDOT may request a relaxation of standards from the Board and a design exception from the appropriate FHWA/ NDOT level of authority.

## **Implementation**

This policy is effective on the date it is executed by NDOT and FHWA.