Local Roads Conference
Rapid City, SD
“Nebraska’s Updated Standards for County Roads”
Dennis Smith – LTAP Program Coordinator
LeMoyne Schulz – NDOR Liaison Services

Nebraska’s Updated Design Standards For County Roads and Municipal Streets

Board of Public Roads Classifications and Standards

- Independent Board established by the Legislature in 1969 (Neb Rev. Stat. §39-2106)
- Eleven members appointed by Governor
  - Two members represent NDOR
  - Three county representatives (small, medium and large population county)
  - Three municipal representatives (small, medium and large municipal)
  - Three lay citizens – (one from each of the three congressional districts)
- Support staff provided by Nebraska Department of Roads (NDOR)
  - Liaison Services Section of Government Affairs
- Tasked with setting design, construction, and maintenance standards, developing functional classification system
- Oversee annual construction planning (OneAndSix) and fiscal reporting (SSAR)
- Meets ten times per year

Licensed County Highway and City Street Superintendents

- Board of Examiners for County Highway and City Street Superintendents
- Seven members, appointed by the Governor (four county, three city)
- Established by the Legislature in 1969
- Oversees the examination and licensing
- Incentive payments to counties and municipalities for having a licensed superintendent to manage their program
Separate Design, Construction, Maintenance Standards: State / County and Municipal

State Highway Standards

County Roads and Municipal Streets Standards


The Board collaborated with the Public and other interested Parties

- Widespread Outreach to Industry professionals and subject matter experts (county, municipal and consultants from all parts of the state)

- Included many of these experts in an initial Advisory Committee (May 2013)

- Started with basic ideas based on current practices and the 13 Controlling Criteria

Instrumental in Updating the Standards

Outreach

- Once the major parts were established, presentations were made to:
  - County Highway and City Street Superintendents
  - NACO, LONM, APWA, ASCE, NCPA and other professional organizations.
  - Numerous meetings with NDOR legal counsel
Formal Adoption

• Legal Public hearings were held in accordance with the Nebraska Administrative Procedure Act.

• Governor approved the new standards on May 12, 2016 and they became effective on May 17, 2016. *These standards have the same effect as law.*

What is 3-R?

• Resurfacing
• Restoration
• Rehabilitation

• *Refers to preservation and extension of the service life of existing facilities.*

Today’s Focus: Low Volume County Roads

- 3R standards (intermediate level added for first time, prior to this there were only Standards for New Construction and Maintenance.
- Existing New and Reconstruction standards were revamped.
- Added additional controlling criteria to New and Reconstructed Standards. (Stopping sight distance, K Values, and Vertical Clearance)

Nebraska’s Roads Program 1969 – The Modern Era Begins

- Nebraska’s Legislature revamped its approach to roads and bridges via many new statutes
- Recognized the importance of roads and bridges
- Overall direction and goals expressed in law
- Provided a system of funding and reporting
- Created Board of Examiners
- Created Board of Public Roads Classifications and Standards
3R Work - A little history . . .

1969 – the “modern” era of Nebraska’s roads program began. New & Reconstructed standards set. No 3R
1976 – Congress authorized federal aid for 3R work
1985 – 3R standards adopted for our state highway system
1987 – Unsuccessful attempt to adopt 3R standards for County Roads and Municipal Streets
2008 – Renewed effort to harmonize with industry and Federal standards and policies
2013 – Board of Public Roads begins standards update
2016 – Updated standards (including 3R) adopted for county roads and municipal streets

Combined Miles of **County Roads** and **Municipal Streets** – 2014 Data

<table>
<thead>
<tr>
<th>All Roads Mileage</th>
<th>National Functional Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OPA</td>
</tr>
<tr>
<td>ADT</td>
<td>3</td>
</tr>
<tr>
<td>≥ 4,000</td>
<td>159</td>
</tr>
<tr>
<td>2,000-3,999</td>
<td>10</td>
</tr>
<tr>
<td>1,500-1,999</td>
<td>0</td>
</tr>
<tr>
<td>750-1,499</td>
<td>3</td>
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</tr>
<tr>
<td>50-249</td>
<td>0</td>
</tr>
<tr>
<td>&lt; 50</td>
<td>1</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>174</td>
</tr>
</tbody>
</table>

OPA = Other Principal Arterial

17% paved, 83% unpaved

**State Functional Classification**


- **Rural Highways**
    - interstate
    - expressway
    - major arterial
    - other arterial
    - collector
    - local

- **Municipal Streets**
    - interstate
    - expressway
    - major arterial
    - other arterial
    - collector
    - local

428 NAC 1

**Why 3R standards (now)?**

- Many years since failed public hearing (Lesson: engage stakeholders early and often!)
- Time and expense to present requests for relaxation of standards
- 3R work is more acceptable to practitioners and local jurisdictions
- Puts Nebraska more in harmony with national standards and policies
- The potential for better compliance
Anticipated Effects of 3R Standards

- Reduce regulatory burden
- Stretch public funds
- Clearer scope of work decisions
- Fewer relaxation of standards
- Public Safety – opportunities for safety improvements
- Improved consistency with industry and state standards
- Better definition for projects in OneAndSix year plans
- Easier to comply with laws and regulations

3R – an Interim Measure


- 1969 law
- Objective: bring roads and bridges up to new and reconstructed standards over a 20-year period.
- Intent: to provide “reasonable” financing and more equitable distribution of revenue.

1969 Law assumed adequate financing going forward!

Primary Source for 3R Standards

Design Criteria and Values - Chapter 7

Minimum Design Standards

428 NAC 2-001.03, Pages 47-86
3R Defined By Scope of Work for

- Base (minor repairs)
- Pavement Strategy (2”-6”)
- Bridges  over 12,000 local bridges
- Unpaved Roads  over 80% of local road mileage

Depaving

- Depaving of a paved roadway is addressed in new standards under 3R standards

New 3R Standards have values for

- Design Speed (Posted)
- Lane Width
- Shoulder Width
- Bridge Width
- Structural Capacity
“Existing” in the Tables

- Means **Existing Design Feature**
- Not the same as whatever is out there now (not a free pass)
- Maintenance Standards still apply
- Consider risks

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**Bridge Widths – 3R**

- **New and Reconstruction**
  - Minimum widths 24’
  - Must meet HL93 specifications

- **3R**
  - Allows lesser bridge widths in certain cases
  - Also can allow lesser load rating
  - Can replace entire superstructure and widen bridge and not meet HL93 specs.

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**3R Standards**

- Safety Conscious Design
  - Systematically consider safety improvements
  - Safety is an integral part of design, not a secondary objective

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**Definitions**

- Systematically consider safety improvements
- Safety is an integral part of design, not a secondary objective
Horizontal and Vertical Alignment and Grade
New and Reconstructed Work

- Can reduce design speed to 40 MPH if
  - Constrained situation (next slide)
  - Rural Unpaved Roads
  - NFC Local and Minor Collector
  - ADT < 50 VPD
- 10% @ 40 MPH or 9% @ 45 MPH
  - 2% steeper OK for tangents < 500 ft

Constrained Situation
A site-specific condition such as
- terrain
- right-of-way
- social impact
- environmental impacts
- cost
that may make meeting a design standard impractical

Structure Replacement
ADT < 400 VPD
Where Rural Area Standards

If no significant related crash history,
N&R standards are not required for:

| Lane Width | Horizontal Curve Radius | Superelevation |
| Shoulder Width | Stopping Sight Distance | Grade |
| Vertical Alignment | Horizontal Clear Zone |

Conformance – The Board’s Intent

- Substantial Conformance to Plans
  - Limitation of construction methods
- Changes over life cycle
  - Natural – environmental, weather
  - Man-made – wear and tear
- Funding shortfalls
- Failure to meet standards at every location may not be improper, or a violation, or negligence.
  - Unless bad faith, or disregard of standards

Note 12, 13, 14

Slide 29
428 NAC 2-001.03A6d, A6e and A6f, Pages 45-46
428 NAC 2-001.03B Notes 12, 13 and 14, Pages 50-51

Slide 30
428 NAC 2-001.03A1h, Page 42
428 NAC 2-001.03B Notes 12, 13 and 14

Note 22 (new)

Slide 31
428 NAC 2-001.03B, Note 22, Page 54

Slide 31

Slide 32
428 NAC 2-001.01, Page 2
Conformance - Measuring

“For purposes of these standards, road or street paint striping shall not be used to determine . . . . “

- Lane width (edge of lane)
- Shoulder width
- Horizontal clear zone width (edge of traveled way)

Work exempt from standards

- Replace existing bad or failed piling as “maintenance” with steel piling
- Replace entire superstructure of a timber bridge as “maintenance” …

Relaxation of Standards (Design Exceptions)

- Peculiar or special hardship or unique situation.
- High costs or lack of funding to meet a specific standard can not in itself be a deciding factor to ask for a relaxation of standards.

Guidelines for Relaxation of Standards Requests

- As of May 17, 2016 the projects must meet the 2016 Standards unless the Board grants a relaxation.
- The exception being “Developed Projects” (see the next slide).
Grace Period for meeting New Standards
The Board has provided guidelines for developed projects, no relaxation required if:
- Meets 2010 Standards and awarded to contract by Nov 17, 2016 providing:
  - Plans complete as of May 17, 2016 or
  - A valid NEPA document as of May 17, 2016.

Minimum Maintenance Roads Standards
Approximately 5,000 miles of these roads in Nebraska, < 50 VPD
- Widths vary from two lane earth to “two-track” primitive roads that provide farm equipment access to agricultural lands.
- Provide travel during normal weather
- No snow removal or mowing required
- Cannot be only access to a permanent dwelling

Minimum Maintenance Roads (con’t.)
- Bridges and culverts can be removed and not replaced, but can be converted to low water crossings or fords with permission of Board of Public Roads (Relaxation)
- Relaxation required for any improvement that does not meet Local Road Standards.
- Signing required.
Wrap-up

Effects of Updated Standards on The Road Less Traveled

- Greater design flexibility
- Work scopes that address specific needs / “right-sizing”
- Potential for targeted safety improvements
- Fewer relaxation of standards requests
- Better use of public funds

Wrap-up (cont)

Nebraska now has
- 3R standards for all of its public highways, roads and streets
- New & Reconstructed standards consistent with the industry’s 13 controlling criteria
- More responsibility for designers
- Additional legal protections in its standards

Thank you for listening.

Questions?
LeMoyne Schulz – NDOR Liaison Services
Dennis Smith – LTAP Program Coordinator
Intent of Board for Interpretation of Design Standards

- Recognizes that: a particular roadway may not, after construction, strictly conform to the design standards set out in these rules.

  Due to:
  - Wear and tear related to human impacts
  - Varying environmental and weather conditions,
  - Changes from natural processes
  - Lack of available funding
  - Methods of measurement