

ERRATA for

Nebraska Department of Roads – Roadway Design Manual

June 2016

The Roadway Design Manual (*RDM*) was last updated in 2006. In the intervening years some design guidance has become obsolete, new/updated guidance has become available, offices of responsibility have changed, design procedures have been streamlined, etc. The NDOR is in the process of updating the *RDM* but, in the interim, the obsolete/incorrect guidance is being addressed through this document and a re-issued *RDM*. Page numbers cited in this document are referenced to the June 2016 Errata RDM. Deleted text will be shown in the June 2016 Errata RDM in green with a strike through (~~errata~~) and new/corrected text will be in red (**correct**). The following chapters have already been addressed:

- Contents (updated in June 2016)
- List of Exhibits (updated in June 2016)
- Chapter Three: Roadway Alignment (updated on June 17, 2011)
- Chapter Four: Intersections, Driveways and Channelization (updated on April 19, 2012)
- Chapter Six: The Typical Roadway Cross-Section (updated on February 18, 2016)
- Chapter Eight: Surfacing (updated on December 15, 2015)
- Chapter Nine: Guardrail and Roadside Barriers (updated on October 16, 2012)
- Chapter Sixteen: Pedestrian and Bicycle Facilities (added on February 8, 2016)
- Chapter Seventeen: Resurfacing, Restoration and Rehabilitation (3R) Projects (added on March 26, 2014)

The Index was updated in June 2016.

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Chapter Seventeen

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Section 1: RESURFACING, RESTORATION AND REHABILITATION PROJECTS –
 “Pavement recommendations that require removal of the entire pavement structure and the construction of a new base or the modification of the existing base will be designed to reconstruction standards (minor or incidental shaping and re-compaction of the base will be allowed under 3R, “Subgrade Preparation” is considered to be a modification).”

“Pavement recommendations that require removal of the entire pavement structure and the construction of a new base or the modification of the existing base will be designed to reconstruction standards. Pavement recommendations that require pavement replacement and restoration of the base can be designed to 3R standards. Restoration of the base is defined as restoring the original condition of the base (subgrade preparation). A portion of the existing base may be removed to allow the required pavement thickness under 3R standards. Modification of the base is defined as improving (addition of a drainage layer) or strengthening the existing base through chemical (fly ash, lime, etc.) or mechanical (geofabric, geogrid, etc.) means and will require designing to reconstruction standards.”

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Interstate NHS Projects – “The remaining thirteen controlling design criteria (See Chapter One: Roadway Design Criteria, Section 13.A) may be designed to the **AASHTO** Interstate guidance that was in effect at the time of the latest new and reconstructed project on the section of the project. Deviation from either the new or existing guidance will require a design exception (See Chapter One: Roadway Design Criteria, Section 13.B). In addition, 3R type work on Interstates must conform to the Nebraska Minimum Design Standards (MDS) (Ref. 17.3) or a design relaxation must be obtained from the **Board of Public Roads Classifications and Standards (Board of Public Roads)** (See Chapter One: Roadway Design Criteria, Section 13.C).”

“The remaining thirteen controlling design criteria (See Appendix H, “Application of Design Standards”) may be designed to the **AASHTO** Interstate guidance that was in effect at the time of the latest new and reconstructed project on the section of the project. Deviation from either the new or existing guidance will require a design exception (See Appendix H, “Application of Design Standards”). In addition, 3R type work on Interstates must conform to the Nebraska Minimum Design Standards (MDS) (Ref. 17.3) or a design relaxation must be obtained from the **Board of Public Roads Classifications and Standards (Board of Public Roads)** (See Appendix H, “Application of Design Standards”).”

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Non-Interstate Freeway NHS Projects – “The federal design criteria for work in excess of pavement preservation (maintenance) on non-Interstate freeways regardless of project funding are the thirteen controlling criteria (See Chapter One: Roadway Design Criteria, Section 13.A) as detailed in A Policy on Geometric Design of Highways and Streets (the *Green Book*) (Ref. 17.2). Work on non-Interstate freeways on the NHS must conform to the thirteen controlling criteria or a design exception will be required (See Chapter One: Roadway Design Criteria, Section 13.B). 3R type work on non-Interstate freeways on the NHS must also conform to the *MDS* (Ref. 17.3) or a design relaxation must be obtained from the **Board of Public Roads** (See Chapter One: Roadway Design Criteria, Section 13.C).”

“The federal design criteria for work in excess of pavement preservation (maintenance) on non-Interstate freeways regardless of project funding are the thirteen controlling criteria (See Appendix H, “Application of Design Standards”) as detailed in A Policy on Geometric Design of Highways and Streets (the *Green Book*) (Ref. 17.2). Work on non-Interstate freeways on the NHS must conform to the thirteen controlling criteria or a design exception will be required (See Appendix H, “Application of Design Standards”). 3R type work on non-Interstate freeways on the NHS must also conform to the *MDS* (Ref. 17.3) or a design relaxation must be obtained from the **Board of Public Roads** (See Chapter Appendix H, “Application of Design Standards”).”

17-3

Non-Interstate, Non-Freeway NHS Projects – “Deviations from this requirement will require a design exception (See Chapter One: Roadway Design Criteria, Section 13.B) and will be documented in the project file (and in Falcon). If the project does not meet the standards found in the *MDS* (Ref. 17.3) the procedure for the relaxation of the minimum design standards will be followed (See Chapter One: Roadway Design Criteria, Section 13.C).”

“Deviations from this requirement will require a design exception (See Appendix H, “Application of Design Standards”) and will be documented in the project file. If the project does not meet the standards found in the *MDS* (Ref. 17.3) the procedure for the relaxation of the minimum design standards will be followed (See Appendix H, “Application of Design Standards”). ”

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17-3	Non-NHS State Highway System – “If these standards cannot be satisfied, the procedure for the relaxation of the minimum design standards will be followed (See Chapter One: <u>Roadway Design Criteria</u> , Section 13.C).”	“If these standards cannot be satisfied, the procedure for the relaxation of the minimum design standards will be followed (See Appendix H, “Application of Design Standards”).”
17-4	Design Speed: - second bullet “For segments designed to new and reconstructed standards, the design speed of the segment will be the appropriate new and reconstructed project design speed (See Chapter: <u>Roadway Design Criteria</u> , Section 11.B).”	“For segments designed to new and reconstructed standards, the design speed of the segment will be the appropriate new and reconstructed project design speed (See Chapter: <u>Roadway Design Standards</u> , Section 6.B).”
17-4	Safety Improvements: - sixth bullet “Shoulder rumble stripes should be constructed on rural high-speed two-way two-lane highways with a 28 feet top width and an ADT in excess of 1500.”	“Shoulder rumble stripes should be constructed on rural high-speed two-way two-lane highways with a 28 feet top width and an ADT in excess of 500.”
17-5	Safety Improvements: - second bullet “1. The project includes 3 inches or greater of surfacing placement”	“1. The project includes 2 inches or greater of surfacing placement”
17-6	Plan-in-hands: - second bullet “For additional information, see ADA and Lighting in this section and DOR-OI 60-11, “Municipal Cost Sharing” (Appendix F, “Selected NDOR Operating Instructions”).”	“For additional information, see ADA and Lighting in this section and DOR-OI 60-11, “Municipal Cost Sharing” (Appendix B, “Selected NDOR Operating Instructions”).”
17-6	Plan-in-hands: - last bullet “See Chapter Two: <u>Roadway Design Process</u> , Sections 7 and 8, for further information.”	“See the DPO (Ref. 17.5), Activity 5300, Clarity Task Codes 5380 & 5388 and EXHIBITS J & K for further information.”

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17-7	<p>Vertical Alignment Design: - “2. If the curve does not meet the requirements of the <i>MDS</i> (Ref. 17.3) and is not reconstructed, a design relaxation must be obtained (See Chapter One: <u>Roadway Design Criteria</u>, Section 13.C).”</p>	<p>“2. If the curve does not meet the requirements of the <i>MDS</i> (Ref. 17.3) and is not reconstructed, a design relaxation must be obtained (See Appendix H, “Application of Design Standards”).”</p>
17-8	<p>Horizontal Alignment Design: - “4. If the correction of the horizontal curve will result in the loss of federal funds due to delay of the project beyond the federal fiscal year or will result in significant inflation costs to the project due to delay, the correction may be removed from the project and programmed as a “Phased 3R Project” according to DOROI 60-16,” Policy for Phase Constructed 3R Projects” (See Appendix F, “Selected NDOR Operating Instructions”).”</p>	<p>“4. If the correction of the horizontal curve will result in the loss of federal funds due to delay of the project beyond the federal fiscal year or will result in significant inflation costs to the project due to delay, the correction may be removed from the project and programmed as a “Phased 3R Project” according to DOROI 60-16,” Policy for Phase Constructed 3R Projects” (See Appendix B, “Selected NDOR Operating Instructions”).”</p>
17-13	<p>Typical Roadway Cross-Sections: - fourth bullet “This arrangement would require either expanding the existing surfaced shoulders to 6 feet or obtaining a design relaxation (See Section 13.C).”</p>	<p>“This arrangement would require either expanding the existing surfaced shoulders to 6 feet or obtaining a design relaxation (See Appendix H, “Application of Design Standards”).”</p>

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Culverts and Hydraulic

Considerations: - last bullet

- “To reduce channel and right-of-way impacts, a 3 feet or less increase in earthwork elevation on a concrete box culvert can generally be handled by raising the parapet and wing heights rather than by extending the box. The designer should contact the **Special Projects Unit** in **Bridge** for additional guidance.

- “There are instances where limitations to impacts in channels/wetlands or absence of time in the schedule to acquire property rights prohibits extending concrete box culverts to the appropriate clear zone. In these instances it may be possible to extend the parapet and wings vertically to account for a raise in grade. The ability to increase the height of the parapet and wings is structure dependent and requires the approval of the **Bridge Special Projects Unit** prior to the plan-in-hand visit. The designer shall contact the **Bridge Special Projects Engineer** prior to the plan-in-hand visit to discuss the needs of the project and, if appropriate and following analysis, gain the written concurrence of the **Bridge Special Projects Engineer** to raise the parapets and walls on each culvert or bridge sized box culvert prior to assuming that the parapets will be raised. In the event none of these options are feasible, an acceptable solution may be to remove the wings and a portion of the box and extend back the same distance with a taller parapet and wings designed to handle the increased soil pressures.”

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17-17	<p>Roadside Barrier Design: - second bullet</p> <ul style="list-style-type: none"> • “If a culvert is <u>within</u> the 3R fixed obstacle clearance and a cost-effectiveness analysis indicates that the culvert should be used in place without shielding (shielding is less than a 1:1 benefit to cost), a note should be placed in the project file (and in Falcon) stating: “Use in Place – Not cost effective to extend to fixed obstacle clearance or shield” (include the analysis data in the project file).” 	<ul style="list-style-type: none"> • “If a culvert is <u>within</u> the 3R fixed obstacle clearance and a cost-effectiveness analysis indicates that the culvert should be used in place without shielding (shielding is less than a 1:1 benefit to cost), a note should be placed in the project file stating: “Use in Place – Not cost effective to extend to fixed obstacle clearance or shield” (include the analysis data in the project file).”
17-17	<p>Roadside Barrier Design: - fifth bullet</p> <ul style="list-style-type: none"> • “When it is not possible to install sufficient roadside barrier length to shield either the clear zone distance or the fixed obstacle clearance, as appropriate (e.g. a railroad access drive which cannot be relocated and is within the development length of the guardrail), the designer will obtain the concurrence of the Unit Head and document the reason in the project file (and in Falcon).” 	<ul style="list-style-type: none"> • “When it is not possible to install sufficient roadside barrier length to shield either the clear zone distance or the fixed obstacle clearance, as appropriate (e.g. a railroad access drive which cannot be relocated and is within the development length of the guardrail), the designer will obtain the concurrence of the Unit Head and document the reason in the project file.”
17-20	<p>Americans with Disabilities Act (ADA): - fourth bullet</p> <ul style="list-style-type: none"> • “An exemption to the construction of a curb ramp requires the Roadway Design Engineer’s written approval in the project file as well as noted in the Falcon environment ADA, Project, District #, City/Village name.” 	<ul style="list-style-type: none"> • “An exemption to the construction of a curb ramp requires the Roadway Design Engineer’s written approval in the project file.”

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Americans with Disabilities Act (ADA): - fifth bullet

- “If curb ramps are not provided, the designer **must** document in the plan-in-hand report or in a decision document in the project file (and in Falcon) that there are no pedestrian facilities crossing the area of the project that will be altered.”

- “If curb ramps are not provided, the designer **must** document in the plan-in-hand report or in a decision document in the project file that there are no pedestrian facilities crossing the area of the project that will be altered.”

17-20

Americans with Disabilities Act (ADA): - last bullet

- “If traffic signals are being modified, the designer will coordinate the alteration/inclusion of accessible pedestrian signals at crosswalks with **Traffic** (See the Nebraska Department of Roads Operating Instruction 60-10, “ADA Accessibility Requirements in Transportation Projects”, Appendix F, “Selected NDOR Operating Instructions”).”

- “If traffic signals are being modified, the designer will coordinate the alteration/inclusion of accessible pedestrian signals at crosswalks with **Traffic** (See the Nebraska Department of Roads Operating Instruction 60-10, “ADA Accessibility Requirements in Transportation Projects”, Appendix B, “Selected NDOR Operating Instructions”).”

17-21

Americans with Disabilities Act (ADA): - second bullet

- “For ADA cost sharing information see Chapter Sixteen: Pedestrian and Bicycle Facilities, Section 13 and DOR-OI 60-11, “Municipal Cost Sharing” (Appendix F, “Selected NDOR Operating Instructions”).”

- “For ADA cost sharing information see Chapter Sixteen: Pedestrian and Bicycle Facilities, Section 13 and DOR-OI 60-11, “Municipal Cost Sharing” (Appendix B, “Selected NDOR Operating Instructions”).”

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17-21	<p>Americans with Disabilities Act (ADA): - fourth bullet</p> <ul style="list-style-type: none"> • “For additional information, see Chapter Sixteen: <u>Pedestrian and Bicycle Facilities</u>, and the Nebraska Department of Roads Operating Instruction 60-10, “ADA Accessibility Requirements in Transportation Projects” (Appendix F, “Selected NDOR Operating Instructions”).” 	<ul style="list-style-type: none"> • “For additional information, see Chapter Sixteen: <u>Pedestrian and Bicycle Facilities</u>, and the Nebraska Department of Roads Operating Instruction 60-10, “ADA Accessibility Requirements in Transportation Projects” (Appendix B, “Selected NDOR Operating Instructions”).”
17-21	<p>Lighting: - second bullet</p> <ul style="list-style-type: none"> • “Refer to DOR-OI 60-11, “Municipal Cost Sharing” (Appendix F, “Selected NDOR Operating Instructions”) for cost sharing information.” 	<ul style="list-style-type: none"> • “Refer to DOR-OI 60-11, “Municipal Cost Sharing” (Appendix B, “Selected NDOR Operating Instructions”) for cost sharing information.”
17-21	<p>Lighting: - third bullet</p> <ul style="list-style-type: none"> • “See Chapter Ten: <u>Miscellaneous Design Issues</u>, Section 12, for additional information.” 	<ul style="list-style-type: none"> • “See Chapter Ten: <u>Miscellaneous Design Issues</u>, Section 11, for additional information.”
17-21	<p>Temporary Roads:</p> <ul style="list-style-type: none"> • “See Chapter Ten: <u>Miscellaneous Design Issues</u>, Section 10.” 	<ul style="list-style-type: none"> • “See Chapter Ten: <u>Miscellaneous Design Issues</u>, Section 9.”
17-22	<p>Cost Sharing: -</p> <ul style="list-style-type: none"> • “See the Nebraska Dept. of Roads Operating Instruction 60-11, “Municipal Cost Sharing” (Appendix F, “Selected NDOR Operating Instructions”).” 	<ul style="list-style-type: none"> • “See the Nebraska Dept. of Roads Operating Instruction 60-11, “Municipal Cost Sharing” (Appendix B, “Selected NDOR Operating Instructions”).”