

# Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

July 31, 2002

Form BLR 5253 – “Approval of Design Variances”

COUNTY ENGINEERS/SUPERINTENDENT OF HIGHWAYS  
MUNICIPAL ENGINEERS/DIRECTORS OF PUBLIC WORKS  
CONSULTING ENGINEERS

#02-16

The attached Form BLR 5253 has been developed to ensure as well as document that designers have identified and evaluated any design variances that may be necessary for local highway improvement projects. In general, the designer is responsible for making a reasonable effort to meet the criteria established in the Bureau of Local Roads and Streets (BLRS) manuals. However, recognizing that this will not always be practical, nor cost effective, the following process has been established to evaluate and approve variances. This process shall apply to all federal, state and MFT funded projects on local facilities for new construction, reconstruction, and 3R projects.

Design criteria have various levels of importance. BLRS has established two levels of design criteria for local agency projects processed through IDOT. Depending upon the level of the requested design variance, approval may be by either the IDOT district or the BLRS. Form BLR 5253 includes the design criteria to be evaluated for either a Level One or Level Two variance. The determination as to which level is required is discussed further in the following sections:

### **Level One Design Variances**

Level One Design Criteria are controlling design criteria judged to be the most critical indicators of a highway's safety and overall serviceability. Level One design variances must receive approval from the BLRS. For any Level One element not meeting BLRS design criteria, the designer shall prepare a statement identifying the design element, comparing proposed design with the BLRS design criteria, and providing justification for the design variance.

### **Level Two Design Variances**

Variances from Level Two design criteria shall receive approval from the district office except for projects covered by an Agreement of Understanding. The local agency may determine the acceptability of a Level Two design variance for those projects. For any Level Two element that does not meet BLRS design criteria, the designer should prepare a statement similar to the requirement for Level One variances. It should be noted that a Level Two design variance may not require as much justification as a Level One variance to receive approval of the variance.

### **Processing of Design Variances**

The designer shall use Form BLR 5253 to document the adherence of a proposed project to the BLRS design criteria as well as to summarize the justification and approval of variances that are necessary for the completion of

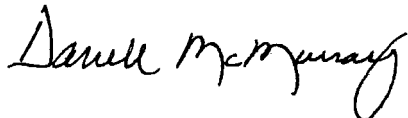
the project. The information in the form may be presented for approval at district project coordination meetings. The minutes of the coordination meeting will serve as the documentation of the approval. Requests for variances may also be submitted in writing to the district office. A written approval will then be sent to the local agency.

For federally funded projects, the entire form must be completed and submitted prior to the submittal of the project development report. The form, along with any approval and a copy of the minutes of any coordination meeting, shall be included in the project development report.

For MFT and state funded local projects, the form shall be completely filled out by those local agencies without a Professional Engineer (P.E.) on staff. Local agencies with a P.E. on staff will only need to fill out page one and those portions of the form where a design variance from a specific design criteria is being requested. The form should be submitted to the district prior to submittal of the plans. Local agencies operating under an Agreement of Understanding will be allowed to determine the acceptability of Level Two design variances without district approval. A copy of the form should be kept in the local agency's project file.

Form BLR 5253 is available on the Web at <http://www.dot.state.il.us/blr/blrforms.html>. Questions may be directed to your district office or Teresa Price at (217) 785-1664.

Sincerely,

A handwritten signature in black ink, appearing to read "Darrell W. McMurray". The signature is written in a cursive, flowing style.

Darrell W. McMurray, P.E.  
Engineer of Local Roads and Streets

TCP/dg

Attachment



**Project Identification**

Local Agency: \_\_\_\_\_ County: \_\_\_\_\_  
(County, Municipality, Road District / Township)

Section No.: - - - Route: \_\_\_\_\_

Street/Road Name: \_\_\_\_\_

Project Limits: \_\_\_\_\_  
\_\_\_\_\_

Project Length: \_\_\_\_\_ Functional Classification: \_\_\_\_\_

Design Year: \_\_\_\_\_ Design Traffic:  DHV \_\_\_\_\_  ADT

Existing Structure No.: \_\_\_\_\_ Proposed Structure No.: \_\_\_\_\_

**Project Scope of Work**

- a. Is this project located on the NHS?  Yes  No
- b. Is this project on a Strategic Regional Arterial (SRA) route?  Yes  No
- c. Funding  MFT/State Assistance  Federal
- d. Type of Work  New Construction  Reconstruction  3R
- e. Design Guidelines  Urban  Suburban  Rural  3R  Other \_\_\_\_\_
- f. Provide a brief project description (major construction elements):

**District Coordination Meetings**

Has project been previously discussed at district coordination meetings?  
(If yes, attach minutes of variance approvals)  Yes  No

Dates:

## Level One Design Variance Approval

Local Agency: \_\_\_\_\_ Section No.: \_\_\_\_\_

Design Criteria for Project (Provide numerical value where indicated)	BLR&S Criteria	Variance		Summary of Variance and Justification
		Yes	No	
1. Design Speed: _____ mph		<input type="checkbox"/>	<input type="checkbox"/>	
2. Level of Service (Mainline): _____		<input type="checkbox"/>	<input type="checkbox"/>	
3. Lane Widths				
a. Through Lanes: _____ feet		<input type="checkbox"/>	<input type="checkbox"/>	
b. Turn Lanes: _____ feet		<input type="checkbox"/>	<input type="checkbox"/>	
c. Parking Lanes: _____ feet		<input type="checkbox"/>	<input type="checkbox"/>	
d. Bike Lanes: _____ feet		<input type="checkbox"/>	<input type="checkbox"/>	
4. Through Travel Lane Cross Slopes				
Inside Lane: _____ %		<input type="checkbox"/>	<input type="checkbox"/>	
Outside Lane: _____ % (if more than 2 lanes)		<input type="checkbox"/>	<input type="checkbox"/>	
5. Shoulder Widths: _____ feet		<input type="checkbox"/>	<input type="checkbox"/>	
6. Horizontal Curvature (Minimum Radius)				
_____ feet		<input type="checkbox"/>	<input type="checkbox"/>	
<b>List curves not meeting criteria</b>				
<u>Sta.</u> <u>Radius</u> <u>Design Speed</u>		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
7. Superelevation Rates				
$e_{max}$ _____ %		<input type="checkbox"/>	<input type="checkbox"/>	
<b>List curves for which <math>e</math> does not meet criteria</b>				
<u>PI Sta.</u> <u>Radius</u> <u>e</u> <u>Design Speed</u>		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
8. Maximum Grade: _____ %		<input type="checkbox"/>	<input type="checkbox"/>	
9. Minimum Intersection Sight Distance				
_____ feet		<input type="checkbox"/>	<input type="checkbox"/>	
<b>List locations not meeting the criteria</b>				
<u>Cross Road</u> <u>Distance</u>		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
10. Minimum Stopping Sight Distance				
_____ feet		<input type="checkbox"/>	<input type="checkbox"/>	
a. Crest Vertical Curves – Min. K value		<input type="checkbox"/>	<input type="checkbox"/>	
<b>List curves not meeting the criteria</b>				
<u>VPI Sta.</u> <u>Sight Distance</u> <u>Design Speed</u> <u>Curve Length</u>		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
b. Sag Vertical Curves – Min. K value		<input type="checkbox"/>	<input type="checkbox"/>	
<b>List curves not meeting the criteria</b>				
<u>VPI Sta.</u> <u>Sight Distance</u> <u>Design Speed</u> <u>Curve Length</u>		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	

## Level One Design Variance Approval

Local Agency: \_\_\_\_\_ Section No.: \_\_\_\_\_

c. Inside of Horizontal Curves List curves not meeting the criteria			
<u>Sta.</u> <u>Sight Distance</u> <u>Design Speed</u> <u>Radius</u>			
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
11. Clear Roadway Bridge Widths: _____ feet	<input type="checkbox"/>	<input type="checkbox"/>	
12. Freeboard Above Design High Water: _____ feet	<input type="checkbox"/>	<input type="checkbox"/>	
13. Vertical Clearances: <input type="checkbox"/> Over Roadway/RR _____ feet <input type="checkbox"/> Under Structure _____ feet	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
14. Accessibility Criteria for Disabled Persons List any feature not meeting ADA Criteria	<input type="checkbox"/>	<input type="checkbox"/>	
15. Roadside Clear Zone: a. Tangent _____ feet b. Outside of Curve List criteria for each radius <u>Radius (ft)</u> <u>Clear Zone (ft)</u>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
16. Intersection(s) Level of Service:	<input type="checkbox"/>	<input type="checkbox"/>	
17. Warrants for Stop Signs or Signals <u>Cross Road</u> <u>Warrant</u>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	
18. Pavement Design (list any variance to policy)	<input type="checkbox"/>	<input type="checkbox"/>	

Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_  
Designer (Local Agency or Consultant)

When Prepared by Consultant  
 Local Agency Concurrence: \_\_\_\_\_ Date: \_\_\_\_\_

\_\_\_\_\_  
IDOT District Office Concurrence                      Date                      Central BLR&S Approval                      Date

## Level Two Design Variance Approval

Local Agency: \_\_\_\_\_ Section No.: \_\_\_\_\_

Design Criteria for Project (Provide numerical value where indicated)	BLR&S Criteria	Variance		Summary of Variance and Justification
		Yes	No	
1. Design Period: _____ years	20 years	<input type="checkbox"/>	<input type="checkbox"/>	
2. Horizontal Alignment (Mainline)				
a. Minimum Superelevation Transition Lengths: _____ feet		<input type="checkbox"/>	<input type="checkbox"/>	
b. Superelevation Distribution Between Tangent and Curve:	2/3 : 1/3	<input type="checkbox"/>	<input type="checkbox"/>	
3. Vertical Alignment (Mainline)				
a. Minimum Grade of Urban Cross Section _____ %	0.3%	<input type="checkbox"/>	<input type="checkbox"/>	
b. Minimum Length of Vertical Curves _____ feet		<input type="checkbox"/>	<input type="checkbox"/>	
c. Maximum K value of Vertical Curves (for curbed facilities)	167	<input type="checkbox"/>	<input type="checkbox"/>	
4. Cross Section Elements (Mainline)				
a. Design of Parking Lanes		<input type="checkbox"/>	<input type="checkbox"/>	
• Cross Slope: _____ %				
b. Design of Sidewalks		<input type="checkbox"/>	<input type="checkbox"/>	
• Width: _____ feet	4 feet	<input type="checkbox"/>	<input type="checkbox"/>	
• Buffer Distance: _____ feet	2 feet	<input type="checkbox"/>	<input type="checkbox"/>	
• Cross Slope: _____ %	2% max.	<input type="checkbox"/>	<input type="checkbox"/>	
• Longitudinal Grades: _____ %	5% max.	<input type="checkbox"/>	<input type="checkbox"/>	
c. Median		<input type="checkbox"/>	<input type="checkbox"/>	
• Type:		<input type="checkbox"/>	<input type="checkbox"/>	
• Width: _____ feet		<input type="checkbox"/>	<input type="checkbox"/>	
d. Shoulder Cross Slopes: _____ %		<input type="checkbox"/>	<input type="checkbox"/>	
e. Rollover Factor _____ %		<input type="checkbox"/>	<input type="checkbox"/>	
f. Curb and Gutter Type		<input type="checkbox"/>	<input type="checkbox"/>	
g. Roadway Element		<input type="checkbox"/>	<input type="checkbox"/>	
• Steepest Front Slopes: _____ (H:V)		<input type="checkbox"/>	<input type="checkbox"/>	
• Steepest Back Slopes: _____ (H:V)		<input type="checkbox"/>	<input type="checkbox"/>	
5. Drainage (Flood Frequency)				
a. Pavement: _____ years		<input type="checkbox"/>	<input type="checkbox"/>	
b. Structure: _____ years		<input type="checkbox"/>	<input type="checkbox"/>	
c. Storm Sewer: _____ years		<input type="checkbox"/>	<input type="checkbox"/>	
6. Intersections				
a. Level of Service for Individual Movement:		<input type="checkbox"/>	<input type="checkbox"/>	
• Through Lanes:		<input type="checkbox"/>	<input type="checkbox"/>	
• Turn Lanes:		<input type="checkbox"/>	<input type="checkbox"/>	
b. Skew Angle: _____ Degrees		<input type="checkbox"/>	<input type="checkbox"/>	
c. Approach Grades: _____ %		<input type="checkbox"/>	<input type="checkbox"/>	
d. Design Vehicle:		<input type="checkbox"/>	<input type="checkbox"/>	
e. Turning Radius for Design Vehicle:		<input type="checkbox"/>	<input type="checkbox"/>	

## Level Two Design Variance Approval

Local Agency: \_\_\_\_\_ Section No.: \_\_\_\_\_

<p>f. Minimum Corner Island Size:</p> <p>g. Minimum Turn Lane Length _____ feet</p> <ul style="list-style-type: none"> <li>• Approach Taper: _____ feet</li> <li>• Departure Taper: _____ feet</li> <li>• Bay Taper: _____ feet</li> </ul> <p>h. Entrances</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Entrance Type</th> <th style="text-align: left; border-bottom: 1px solid black;">Max. Width (ft.)</th> <th style="text-align: left; border-bottom: 1px solid black;">Min. Width (ft.)</th> <th style="text-align: left; border-bottom: 1px solid black;">Max. Grade(%)</th> </tr> </thead> <tbody> <tr> <td>Commercial</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Residential</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Entrance Type	Max. Width (ft.)	Min. Width (ft.)	Max. Grade(%)	Commercial				Residential					<input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>  <input type="checkbox"/> <input type="checkbox"/>	
Entrance Type	Max. Width (ft.)	Min. Width (ft.)	Max. Grade(%)													
Commercial																
Residential																
7. RR Crossings																
<p>a. Type of Railroad Protection:</p> <p>b. Crossing Width (at 90° angle) _____ feet</p>		<input type="checkbox"/>  <input type="checkbox"/>	<input type="checkbox"/>  <input type="checkbox"/>													
8. Lighting																
<p>a. Illuminance _____ lux</p> <p>b. Uniformity Ratio</p>		<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>													
9. Other Items																
		<input type="checkbox"/>	<input type="checkbox"/>													

Prepared By: \_\_\_\_\_  
Designer (Local Agency or Consultant)

Date: \_\_\_\_\_

When Prepared by Consultant  
 Local Agency Concurrence: \_\_\_\_\_

Date: \_\_\_\_\_

IDOT District Office Concurrence	Date	Central BLR&S Approval	Date
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