

RIDE QUALITY REQUIREMENTS (VERSION 1.01-Web)

DISCLAIMER

This Ride Quality Requirements (RQR) software is prepared by the New Jersey Department of Transportation as a design tool for use by the Designers to estimate target IRI, generate ride quality pay adjustment equations and calculate exclusions for pavement projects. It is made available to authorized users only. This design tool is not a project's specification and it is not intended as a substitute for ride quality pay adjustment equations presented in table No. 401.03.03-7 of Special Provisions of the project. The equations specified in the table of Special Provisions may be different from the equations generated using this software due to site condition and other factors not included in this software

The New Jersey Department of Transportation makes great effort to update information in this version of software available on NJDOT web site. However, portions of the information contained in this software may be incorrect or not current. Any errors or omissions should be reported to RQSPECSUPPORT@DOT.STATE.NJ.US for investigation and correction.

Unauthorized modifications or attempts to modify any information in this software are not allowed.

INSTRUCTIONS

The RQR is a Microsoft Excel work book containing various macros to automate production of required pay equations and exclusions for the ride quality specification. It is created using Microsoft Office 2010 Professional. This version generates pay equations to be included in the ride quality requirements for a project. It also calculates and distributes exclusions in the lane.

I. HOW TO DOWNLOAD THIS EXCEL FILE FOR YOUR PROJECT?

Download the RQR Microsoft Excel file from our webpage at <http://www.state.nj.us/transportation/eng/pavement/ridequality.shtm>. We recommend downloading the updated version of the file to ensure that updated information is used for the project. After the download is complete, save the file on your computer.

Make sure the file is saved with the Macro Enabled Excel (Extension-XSLM) file. See figure 1.

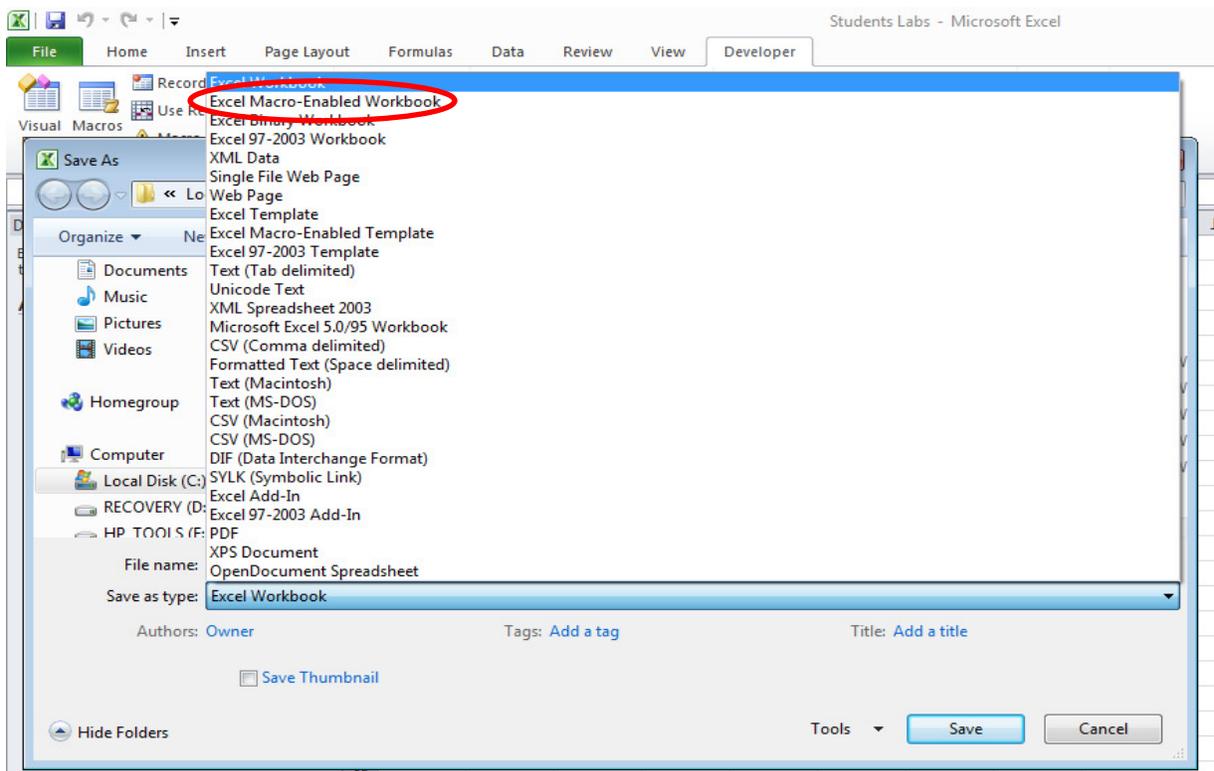


FIGURE 1

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II. HOW TO ENABLE MACRO

If the window shown in Figure 2 appears upon opening the excel file, it indicates that macros are disabled. It is necessary to enable macros for proper use of this Excel file.



FIGURE 2

In order to enable macros, follow one of the following steps. Below, several possible steps are shown. Use the step which is appropriate for your version of Excel. If in the following steps, your version is not mentioned, please search for the appropriate steps for your version from Microsoft.com.

(A) If you see the Ribbon with **security Warning** as shown in Figure 3. Click **“ENABLE CONTENT”**.

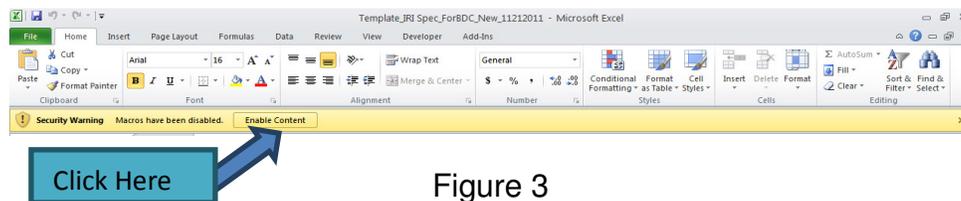


Figure 3

(B) If you do not see Security Warning, follow the following steps:

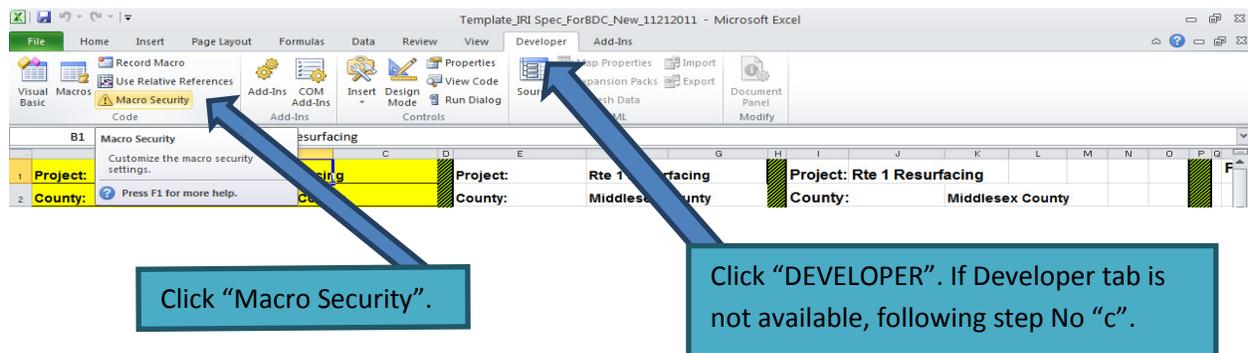
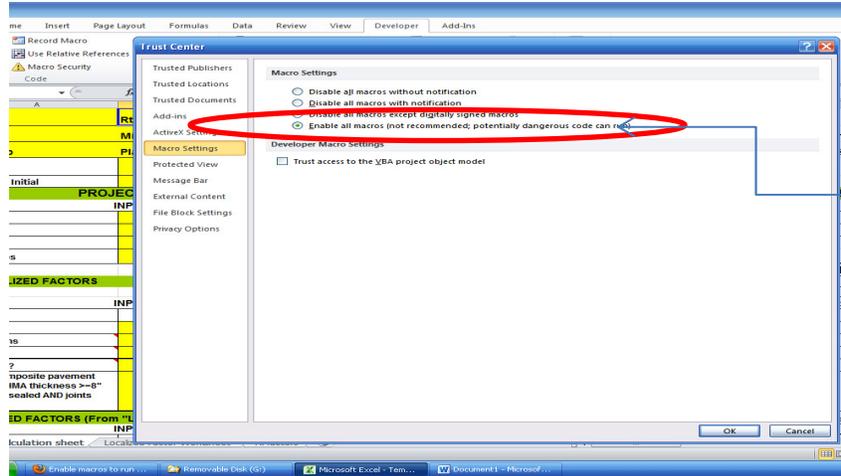


Figure 4

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Select "Enable all macros...."
And then click "OK".

Figure 5

(C) How to show the **DEVELOPER** Tab

(i) (Excel 2010)

- 1 Click the **File** tab.
- 2 Click **Options**.
- 3 Click **Customize Ribbon**.
- 4 Under Customize the Ribbon and under **Main** Tabs, Select the **Developer** check box.

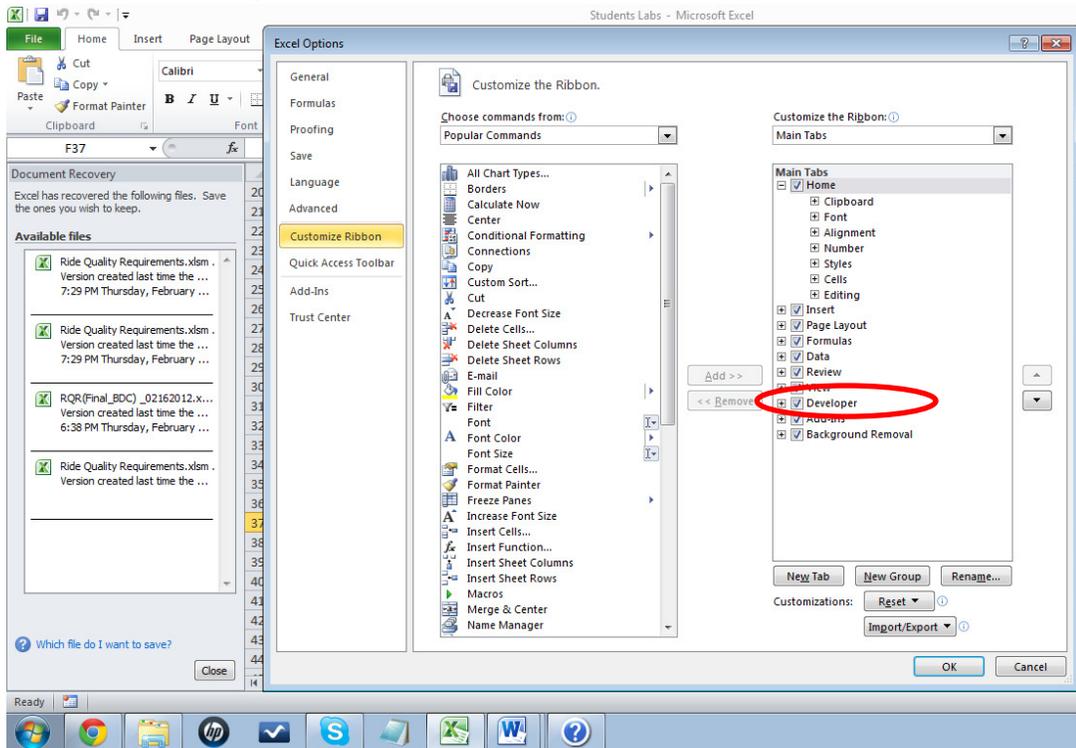


Figure 6

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- (ii) To show the Developer tab for Excel 2007
 - 1 Start the application.
 - 2 Click the **Microsoft office Button**.
 - 3 Click **Excel options**.
 - 4 In the categories pane, click **Popular**.
 - 5 Select Show **Developer tab** in the Ribbon.
 - 6 Click **OK** to close the Options dialog box.

II. HOW TO OPEN RQR EXCEL FILE

- 1 Open Microsoft Excel program and click **FILE**.
- 2 From the drop down menu, select **open** and then select the file downloaded above.
- 3 If the macro is enabled on the user's computer, the window in figure 7 will appear.
- 4 Print (a) Input Sample of Localized Factors (b) Instructions for Localized Factor Worksheet (These options are also available on 'Localized Factor Worksheet').
- 5 Check disclaimer box, if you understand disclaimer or close the program and send an email to RQ support for any question.
- 6 Click "Continue".

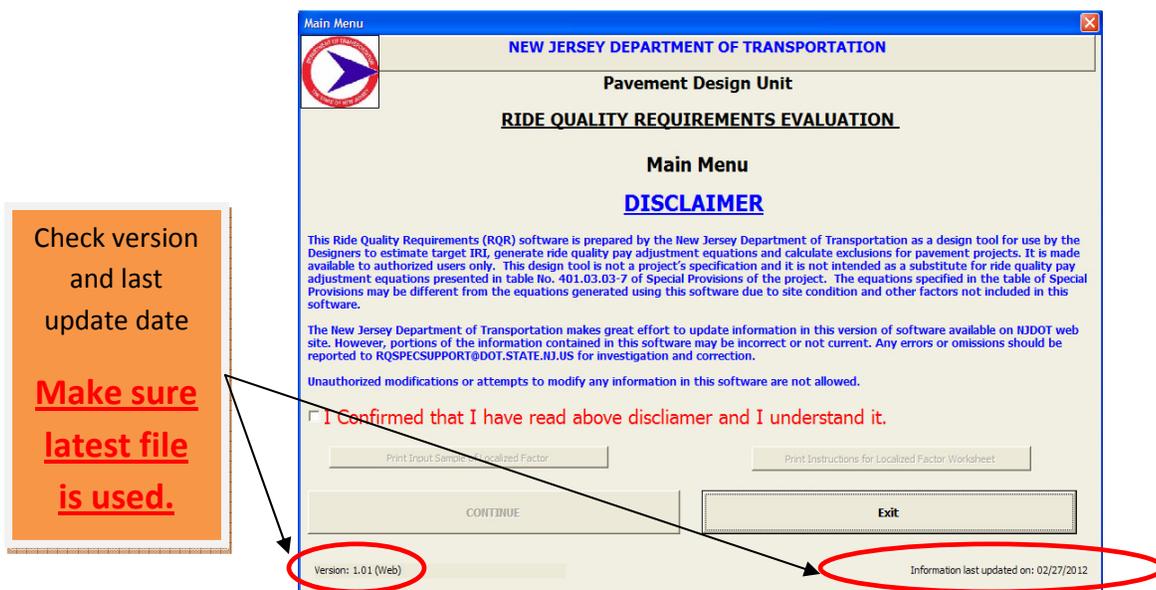


Figure 7

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7 Select Mix type



Figure 8

- (i) If **diamond grinding** is proposed for the project, select “**Diamond Grinding**”. Pay equations for Diamond Grinding will appear. For diamond grinding, no localized factor input is required. Use one exclusion for each lane in RQR specifications.
- (ii) If **other treatments for surface course is proposed in the project**, some input information will be required to generate pay equations and number of exclusions for the project.

III. HOW TO GENERATE PAY EQUATIONS FOR A PROJECT

Project:	Rt49	
County:	Bergan County	
Township	Salem	
IRI _{baseline}	45	
Designer's Initial	nsk	
PROJECT DATA		
INPUT		
Direction	North	West
MP Begin	3	3
MP End	4	5
No. of Lanes	3	4
GENERALIZED FACTORS		
INPUT		
Direction	North	West
Speed	45	65
# Operations	4	4
Existing IRI	113	1
Composite?	No	No
Will the composite pavement have final HMA thickness >=8" AND joints sealed AND joints stabilized?	No	No

Figure 9

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The following information will be required to generate pay equations for a project. Click  icon for help. This will define the inputs that the spreadsheet needs in order to perform the calculations.

Speed- Use NJDOT straight line diagram to determine “POSTED SPEED LIMIT” within the project limits. For multiple posted speed limits within the project limits, contact SME at RQSPECSUPPORT@DOT.STATE.NJ.US

IRI _{Baseline} – The starting value of IRI which is based on the type of roadway for the project. Use the latest version of RQR spread sheet for every project to make sure information used in the project is updated. Click  to know the value to be used.

Number of operation is defined as the number of improvement events proposed on the plan for a project. This is calculated by adding one operation for milling and, if necessary, one for each lift that will be constructed for the project.

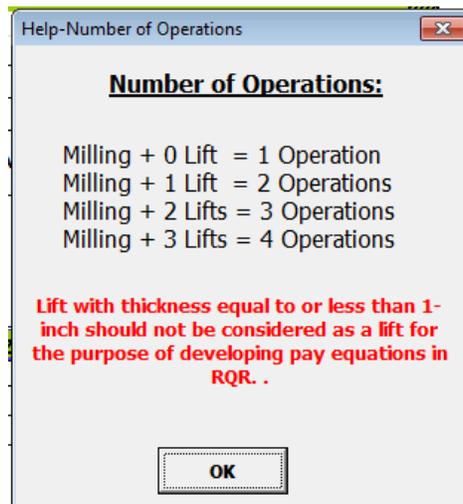


Figure 9

Existing IRI – is the average, latest available pre-construction IRI. The existing IRI will be provided by the pavement design unit. Send an email to Pavement Design Engineer of the project or to: RQSpecSupport@dot.state.nj.us.

Composite pavements - an asphalt, that is, hot mix asphalt (HMA), layer over a concrete pavement surface layer. Select “Yes” or “No” based on the type of pavement within the project limits. If there are two types of pavement, that is, Flexible or Composite pavement, develop separate pay equations for both sections.

If the project consists of composite sections, select “**Yes,**” if the asphalt layer’s thickness is greater or equal to eight inches and if the joints of the pavement are sealed and stabilized. If the asphalt thickness is less than 8-inches, select “**No**”. Figure 10 illustrates how to determine the thickness of the asphalt layer. **PLEASE NOTE THAT THE PROPOSED ASPHALT THICKNESS SHOULD BE CONSIDERED.**

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For example: if as per pavement core information or GPR (spell out GPR) test of existing HMA thickness over concrete is 7-inches, and mill 2-inches and pave with 4-inches is proposed on the plans, it means that after the completion of project, the pavement will have total 9-inch thick HMA over the concrete. Select “**YES**” for this project.

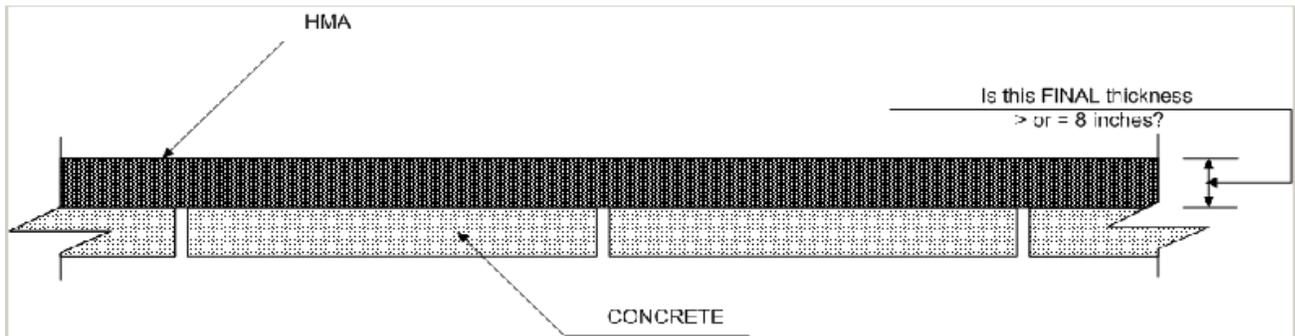


Figure 10

IV. HOW TO INPUT LOCALIZED FACTORS

*Localized factors are the situation that would make it difficult for the contractors to achieve the target IRI. Such factors are categorized under Impediments (IM), Structures (SR), or Short Segments/Sections (SS). Print the instructions, the examples and the sample input from “**LOCALIZED FACTORS WOPRKSHEET**”. Follow the instructions and the example to determine the number of exclusions.*

Select the localized factor worksheet. The worksheet will open to enter the locations of the localized factors. However, the user can enter the number of occurrences of the localized factors. If the user decides to enter the number of occurrences, not locations, click the “**Enter Impediments Based on Counts**” button to bring up the impediment worksheet if inputting localized factors by entering the number of occurrences.

(Please note that if you choose this method, you are advised to save the survey sheet/ field notes for review and to answer any possible future questions.)

Click the “**Print Instructions**” button to see the Guidelines for Entering Localized Factors which can be used to classify the different localized factors and to determine what information is needed to enter into the worksheet.

Click the “**See Sample Input**” button to see Sample Localized Factors Input. This sheet will show how to input the information for each type of localized factors.

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A summary of “**PAY EQUATIONS**” and “**EXCLUSIONS**” can be printed by clicking “**SEE PAY EQUATIONS**”.

V. RIDE QUALITY SPECIFICATIONS

Use the summary sheet to develop the Ride Quality Requirements for the project. The pay equations and exclusions for each lane will be included in table 401.03.03-7 of the Standard Input (which become the Special Provisions) of the project.

For any question, send email to RQSPECSUPPORT@DOT.STATE.NJ.US