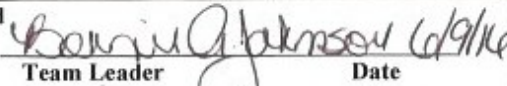




<b>Recommend Approval:</b>  Team Leader                      Date  Division Chief                      Date	Maryland Department of Transportation State Highway Administration Office of Materials Technology <b>MARYLAND STANDARD METHOD OF TESTS</b>	
<b>Approved:</b>  Director                      Date	<b>PROCEDURES FOR DETERMINING THE          RIDE SPECIFICATION PAY LIMITS</b>	<b>MSMT          736</b>

**SCOPE:**

These procedures are used to determine the Ride Specification Pay Limits.

**REFERENCE DOCUMENTS:**

Section 535

MSMT 563

[Spreadsheet application for calculating Ride Specification Limits](#)

**I. DETERMINE THE IRI VALUES FOR MAXIMUM INCENTIVE, FULL PAY, DISINCENTIVE AND DEFECTS:**

Use the spreadsheet application located at:

<http://www.roads.maryland.gov/Index.aspx?PageId=32> to calculate IRI<sub>a</sub>, IRI<sub>b</sub>, IRI<sub>c</sub>, IRI<sub>d</sub> and IRI<sub>e</sub>.

Locate the “RideSpecLimits” tab and use it to calculate IRI<sub>a</sub>, IRI<sub>b</sub>, IRI<sub>c</sub>, IRI<sub>d</sub> and IRI<sub>e</sub>. Enter the information into the yellow highlighted cells in Step 1 to compute the pay limits.

**II. COMPUTATION OF THE DEFECT COST:**

Use the “RideSpecLimits” tab to compute the defect cost. Enter the information into the yellow highlighted cells in Step 2 to compute the defect cost for a given defect section. Alternatively, refer to the remaining spreadsheet tabs for the range of defect costs for each functional class. Compute the defect cost for each defect section using the appropriate formula for the functional class:

***Interstates & Freeways/Expressways:***

$$P_{\text{defect, i}} = 100 + \left( \frac{270 * (IRI_{\text{defect}} - IRI_e)}{(600 - IRI_e)} \right)$$

***All other routes:***

$$P_{\text{defect, i}} = 100 + \left( \frac{190 * (IRI_{\text{defect}} - IRI_e)}{(600 - IRI_e)} \right)$$

***Locals:***

$$P_{\text{defect, i}} = 80 + \left( \frac{180 * (IRI_{\text{defect}} - IRI_e)}{(600 - IRI_e)} \right)$$

Where:  $P_{\text{defect}, i}$  = Defect cost for section  $i$   
 $IRI_{\text{defect}}$  = IRI value of section  $i$   
 $IRI_e$  =  $IRI_e$  obtained from Step 1

The total defect cost for the project is the sum of the defect costs of all 25' sections.

**Note:** OMT's Asphalt Technology Division (ATD) computes the total defect cost for every project in accordance with these procedures, using the Ridetool 2013 program.

**III. DETERMINE THE MAXIMUM INCENTIVE AND DISINCENTIVE COSTS:**

Based on the predominant functional classification for the project limits, obtain the maximum incentive ( $P_{\text{max}}$ ) and maximum disincentive ( $P_{\text{min}}$ ) from the table below:

FUNCTIONAL CLASS	MAXIMUM INCENTIVE FOR OVERALL RIDE ( $P_{\text{max}}$ in dollars per lane mile)	MAXIMUM DISINCENTIVE FOR OVERALL RIDE ( $P_{\text{min}}$ in dollars per lane mile)
Interstates & Freeways/Expressways	7350	7350
All other routes	6150	6150
Locals	5300	5300

**CALCULATIONS:**

**Example:**

*Roadway Classification: Urban Freeway/Expressway*

*Existing IRI = 225*

*Scope of paving: Grinding, 0.75" Wedge/Level, and 1.25" HMA overlay*

**I. DETERMINE THE IRI VALUES FOR MAXIMUM INCENTIVE, FULL PAY, DISINCENTIVE AND DEFECTS:**

Based on this information, make the following selections in Step 1 to calculate  $IRI_a$ ,  $IRI_b$ ,  $IRI_c$ ,  $IRI_d$  and  $IRI_e$ .

Existing IRI:	225
Number of HMA lifts:	1
Grinding on the project?	Yes
Wedge/Level?	Yes
Functional Class:	Interstates & Freeways/Expressways

Calculate the following values for  $IRI_a$ ,  $IRI_b$ ,  $IRI_c$ ,  $IRI_d$  and  $IRI_e$ :

IRI <sub>a</sub> =	63
IRI <sub>b</sub> =	75
IRI <sub>c</sub> =	113
IRI <sub>d</sub> =	125
IRI <sub>e</sub> =	177

**II. COMPUTATION OF THE DEFECT COST:**

Based on the IRI<sub>e</sub> value obtained in Step I, assume that the following 25’ sections are classified as “defects”:

Begin Station	End Station	L_IRI	R_IRI	Average IRI (IRI <sub>defect</sub> )
100	125	185	190	188
135	160	212	220	216
180	205	175	182	179

Given that the functional classification of the roadway is Urban Freeway/Expressway, use the following formula to compute the defect cost for each defect section:

$$P_{\text{defect, i}} = 100 + \left( \frac{270 * (IRI_{\text{defect}} - IRI_e)}{(600 - IRI_e)} \right)$$

Calculate the defect costs for each defect section as follows:

Begin Station	End Station	L_IRI	R_IRI	Average IRI (IRI <sub>defect</sub> )	Defect Cost (P <sub>defect, i</sub> )
100	125	185	190	188	\$ 107.02
135	160	212	220	216	\$ 124.89
180	205	175	182	179	\$ 101.28
TOTAL :					\$ 333.19

The total defect cost for the project is the sum of the defect cost of all sections; which equals \$333.19.

**III. DETERMINE THE MAXIMUM INCENTIVE AND DISINCENTIVE COSTS:**

Given that the roadway functional class is Urban Freeway/Expressway, the maximum incentive (P<sub>max</sub>) for the project is \$7,350 per lane mile, and the maximum disincentive (P<sub>min</sub>) is \$7,350 per lane mile.