

### A web-based pavement design app

## Housekeeping



You can find these slides on the MEAPA website

https://paveapps.com/meapa/



You will get a recording of this session by email



Click on the 🔜 icon and ask your questions to the panelists

# Webinar objectives



Introduce MEAPA and some of its features



Provide a quick user guide



#### Access from any web browser

- Google Chrome is recommended
- Smartphone
- iPad/tablet
- Other handheld device
- No installation
- All data is saved in the cloud

https://paveapps.com/meapa/

## MEAPA Webinar

M. Emin Kutay, Ph.D., P.E. Professor Department of Civil and Environmental Engineering Michigan State University



	<ul> <li>Mechanistic Empirical Asphalt x +</li> <li>← → C a paveapps.com/meapaapp2/</li> </ul>	ञ ६ के 🖾 🖲 🖉 🌟 🍘 :
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Initial page



### Initial page

Please make sure to go through the video tutorials.





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xle Loads <	Quad axle spacing (in)	49.2				Climate Type	NARR				-
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elp < pack @ ut G•	FATIGUE CRACKING CALIBRATION Bottom-Up fatigue β <sub>f1</sub> , β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> C <sub>1-bu</sub> , C <sub>2-bu</sub> , and C <sub>4-bu</sub>	0.0205 3.75 1.31	S 1.38 2.87 2.16	0.88	<b>π</b> ]]	pp-Down fatigue β <sub>f1</sub> , β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> C <sub>1-td</sub> , C <sub>2-td</sub> , and C <sub>4-td</sub>	0.0205 3.75 7.0	1.38 2.87 3.5	0	.88 .46 000.0	
elp < oack @ ut G+	FATIGUE CRACKING CALIBRATION         Bottom-Up fatigue         βr1, βr2, and βr3         kr1, kr2, and kr3         C1-bu, C2-bu, and C4-bu         Bottom-Up Fatigue Standard         Deviation	0.0205 3.75 1.31 1.13 + 13/(1+ex	S 1.38 2.87 2.16 p(7.57-15.5*LOG10(f	0.88 1.46 6000.0 BOTTOM+0.0001)))	<ul> <li>π</li> <li></li></ul>	pp-Down fatigue β <sub>f1</sub> , β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> C <sub>1-td</sub> , C <sub>2-td</sub> , and C <sub>4-td</sub> Top-Down Fatigue Standard Deviation	0.0205 3.75 7.0 10 + 130/(1+exp	1.38 2.87 3.5 4(1072-2.1654*L	0 1. 1 00510(ToP+0	.888 .46 000.0	





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<ul> <li>Project Detail</li> <li>Pavement Profile</li> <li>Vehicle Class Distributions</li> <li>Axle Loads</li> <li>Advanced Coefficients</li> <li>Analyze</li> <li>Last Run Data</li> <li>Help</li> </ul>	AC (4) EAC (3) Stability	E3 PG64-22) EE3 PG58-22) Temically ized materiat (CSM) SHITO A-1 Miravel	AC LAYERThicknessCodes (va)Codes (va) </th <th></th> <th></th> <th></th> <th></th> <th></th>					
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	Layer Thickness (in)	4.0	Heat Capacity (C) (btu/(lb*F))	0.23				
	Unit Weight (lb/ft3)	150.0	Thermal Conductivity (K) (btu/(hr*ft*F))	0.67				
	Air Voids (%)	7.0	Indirect Tensile Strength @ 14F (-10C) (psi)	461.7				
	Effective Binder Content by Volume (%)	10.0	Reference Temperature for  E*  Master Curve (F)	70.0				



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=	PROJECT : I131_Sta	a122-149 ~				PAVEMENT	PROFILE				
	AC (4E3 PG64	-22)									
	Identifier		AC (4E3	PG64-22)		Poisson's Ratio	D		0.25		
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د د	Tables like           Mixture (           14.0           F           70.0           F           130.0	these cal dynamic modulus 25.0 Hz 3219895.0 2159811.0 988273.0 105379.0	n be each of the second	Dited by           bhase angle           bynamic Modulus []           1.0           Hz           2620710.0           1429729.0           472446.0           32047.0	Clicking E*1 (psi) E*1 (psi) 2119187.0 952944.0 242984.0 13495.0	Curve (F) the 'th 25.0Hz 5.5 11.5 19.9 31.1	Phase angle           10.0Hz           6.3           12.8           21.4           31.8	S' (degrees) (1.0Hz 8.8 16.4 25.1 32.8	0.1Hz 0.1Hz 11.8 20.2 28.4 32.6		

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👕 Project Detail	AC (4E3 PG64	I-22)										
Pavement Profile	Identifier		AC (4E3	PG64-22)		Poisson's Ratio		0.25				
Vehicle Class istributions	Layer Thi	ickness (in)		4.0		Heat Capacity (	<b>C)</b> (btu/(lb*F))	0.23				
Axle Loads <	Unit Weig	ght (lb/ft3)		150.0		Thermal Condu	ctivity (K) (btu/(hr*ft*F))	0.67				
Advanced Coefficients	Air Voids	(%)		7.0		Indirect Tensile (psi)	Strength @ 14F (-10C)	461.7				
센 Analyze	Effective	Binder Content by	Volume (%)	10.0		Reference Temp Curve (F)	perature for  E*  Master	70.0				
📥 Last Run Data 🛛 <	A	l actions	that ca	n be tak	en with	n this						
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ogout 🕞			[	)ynamic Modulus  I	E*  (psi)		Ph Paste entire ta	ble				
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	14.0 F	3219895.0	3063886.0	2620710.0	2119187.0	5.5	6.: Select  E*  from	n the database			1	
	40.0 F	2159811.0	1951706.0	1429729.0	952944.0	11.5		es & temperatu	res	-		
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Detail	AC (4E3 PG64-22)										
t Profile	Identifier		AC (4E3	PG64-22)		Poisson's Rat	lio	0.25			
Class	Layer Thickness	ss (in)		4.0		Heat Capacit	<b>y (C)</b> (btu/(lb*F))	0.23			
ds <	Unit Weight (/b/	/ft3)		150.0		Thermal Cone	ductivity (K) (btu/(hr*ft	(F)) 0.67			
d Coefficients	Air Voids (%)			7.0		Indirect Tens (psi)	ile Strength @ 14F (-10	461.3	7		
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4	69.8	973730	793759	671263	429366	350556	202806	9.9	23	24.4	27 3	28.4	19.0					-
5	98.6	326851	235027	181471	97871	77673	45506	31.2	31.9	31.7	30.7	29.3	26.8					-
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Re	eady							Average:	427586.272	23 Count	: 78 Sur	n: 3035862	5.33		<u> </u>	-0-	<b>+</b> 100	%

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EAPA =	PROJECT : 1131_Sta122-149 ~				PAVEMEN	IT PROFILE				
ct Detail	AC (4E3 PG64-22)									
nent Profile	Identifier	A	C (4E3 PG64-22)		Poisson's Ra	tio	0.25			
le Class Ins	Layer Thickness (in)		4.0		Heat Capaci	<b>ty (C)</b> (btu/(lb*F))	0.23			
oads <	Unit Weight (lb/ft3)		150.0		Thermal Con	ductivity (K) (btu/(hr*ft*F))	0.67			
ced Coefficients	Air Voids (%)		7.0		Indirect Tens (psi)	sile Strength @ 14F (-10C)	461.7			
	Effective Binder Co	ntent by Volume (%	) 10.0		Reference Te	emperature for  E*  Master				
ze					Curve (F)		70.0			
un Data <					Curve (F)		70.0			
ee un Data <					Curve (F)		70.0		,	
ee un Data < < @	Mixture dynamic	modulus ( E* )	and phase angle		Curve (F)	Copy entire	70.0	(		
ee un Data < < @ @	Mixture dynamic	modulus ( E* )	and phase angle Dynamic Modulus	E*  (psi)	Curve (F)	Copy entire Ph Paste entire	70.0 table table	(		
ee un Data < < @ Ge	Mixture dynamic	10.0 Hz	and phase angle Dynamic Modulus	E*  <i>(psi)</i> 0.1 Нz	25 <u>04</u>	Copy entire Ph Paste entire Enter  E*  n	70.0 table table aster curve c	coefficie	ents	
ee un Data < < @	Mixture dynamic           Temp/Freq         25.0           Hz         14.0           F         321989	modulus ( E* ) 10.0 Hz 5.0 306388	and phase angle Dynamic Modulus 1.0 Hz 5.0 2620710.0	IE*  (psi) 0.1 Hz 2119187.0	Curve (F)	Copy entire Ph Paste entire Enter  E*  n 6.: Select  E*  5  k (	table table table table table table	coefficie	ents	
ee un Data < ¢ ©	Temp/Freq         25.0           14.0         321989           F         40.0         215981           F         215981         215981	10.0 ( E* ) Hz 5.0 306388 1.0 1951706	Indext         Indext <thindex< th=""> <thindex< th="">         Index</thindex<></thindex<>	IE*1 ( <i>psi</i> ) 0.1 Hz 2119187.0 952944.0	Curve (F) 25.015 5.5 11.5	Copy entire Ph Paste entire Enter  E*  m 6.; Select  E*  12	table table aster curve c from the datal	coefficie base eratures	ents	
ee un Data < < @	Mixture dynamic           Temp/Freq         25.0           Hz         321989           40.0         215981           F         215981           70.0         988273           F         988273	modulus ( E* ) 10.0 Hz 5.0 306388 1.0 1961700 .0 819309	and phase angle Dynamic Modulus I.0 I.2 Exercise Dynamic Modulus I.0 I.2 Exercise Dynamic Modulus I.0 I.2 Exercise Dynamic Modulus I.0	E*  ( <i>psi</i> ) 0.1 Hz 2119187.0 952944.0 242984.0	Curve (F) 25.040 5.5 11.5 19.9	Copy entire Ph Paste entire Enter  E*  n 6.: Select  E*  12 21.4 25.	table table table inaster curve c irom the datal incies & tempe	coefficie base eratures	ents	



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A <b>PA ≡</b> P	PROJECT : I131_Sta122-149	9 ~				PAVEMEN	T PROFILE						
Detail	AC (4E3 PG64-22)												
nt Profile	Identifier		AC (4E3 F	PG64-22)		Poisson's Rat	io		0.25				
class s	Layer Thickness	(in)		4.0		Heat Capacity	/ (C) (btu/(lb*F)		0.23				
ads <	Unit Weight (lb/ft	t3)		150.0		Thermal Conc	luctivity (K) (bt	u/(hr*ft*F))	0.67				
ed Coefficients	Air Voids (%)			7.0		Indirect Tensi (psi)	le Strength @ 1	4F (-10C)	461.7				
	Effective Binder (	Content by Volum	ne (%)	10.0		Reference Ter	mperature for  I	*  Master	70.0				
n Data <													
¢										1			
< 8	Mixture dunam	nic modulus (I)	[E*1] and n	hase angle					1-	(			
¢ 9	Mixture dynam	nic modulus (	E*/) and p	hase angle ynamic Modulus (E	*  (psi)		Cc Ph Pa	py entire tab ste entire tab	le Dle	(			
¢	Mixture dynam	nic modulus (/i	E*[) and p	hase angle ynamic Modulus (E	*  (psi)	25.0Hz	Ph Pa 10. En	py entire tab ste entire tab ter  E*  maste	le ole er curve co	efficie	nts		
¢	Mixture dynam           Temp/Freq         25.0           Hz         14.0         3216           F         5         5	nic modulus (// 0 10 9895.0 30	E*() and p Dy 0.0 20063886.0	hase angle ynamic Modulus (E 1.0 Hz 2620710.0	*  (psi) 0.1 Hz 2119187.0	25.0Hz 5.5	Ph Pa 10. En 6.3 Se	py entire tab ste entire tab ter  E*  maste lect  E*  from	le ble er curve co h the databa	pefficien ase	nts		
¢	Temp/Freq         25.0           14.0         3210           F         40.0         2156           F         2156	nic modulus (/ 0  10 9895.0  30 9811.0  19	E*() and p Dy Do38886.0 251706.0	hase angle ynamic Modulus (E 1.0 Hz 2620710.0 1429729.0	*) ( <i>psi</i> ) 0.1 Hz 2119187.0 952944.0	25.0Hz 5.5 11.5	Ph Pa 10. En 6. Se 12. Ed	py entire tab ste entire tab ter  E*  mast lect  E*  from it frequencie	le ole er curve co n the databa s & temper	efficien ase ratures	nts		
¢	Temp/Freq         25.0           14.0         3210           F         3210           40.0         2156           F         988           F         120.0         125	nic modulus () 0 10 Hz 9895.0 30 9811.0 19 3273.0 81 3270.0 75	E*/) and p Dy 200 200 200 200 200 200 200 200 200 20	hase angle           ynamic Modulus [E           1.0           Hz           2620710.0           1429729.0           472446.0           230470	*  (psi) 0.1 Hz 2119187.0 952944.0 242984.0 12405.0	25.0Hz 5.5 11.5 19.9	Ph Pa 10. En 0.3 Se 12 Ed 21.4	py entire tab ste entire tab ter  E*  mast lect  E*  from it frequencie	le ble er curve co o the databa s & temper 28.4	befficien ase ratures	nts		

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MEAPA = PROJECT meminkutay	T : 1131_Sta122-149         Laboratory-measured  E*  database         (4E3 PG64-22)         Select HMA/WMA         [481 EE20 /0 Emm)PC64.22 MUUS	DAV/EMENT PROFILE		
<ul> <li>Vehicle Class Distributions</li> <li>Axle Loads</li> <li>Advanced Coefficients</li> <li>Advanced Coefficients</li> <li>Analyze</li> <li>Last Run Data</li> <li>Help</li> <li>K</li> </ul>	Identifier         482, 3E30 (19mm)PG64-28, MI,US           Layer Thickness (i)         483, 4E30 (12.5mm)PG70-28P, MI,US           Unit Weight (lb/ft3         486, 4E10 (12.5mm)PG64-28, MI,US           Vinit Weight (lb/ft3         486, 4E10 (12.5mm)PG64-28, MI,US           Air Voids (%)         486, 4E10 (12.5mm)PG64-28, MI,US           Effective Binder Ct         480, 4E10 (12.5mm)PG70-28P, MI,US           489, 5E10 (9.5mm)PG64-28, MI,US         489, 5E10 (9.5mm)PG70-28P, MI,US           490, 4E10 (12.5mm)PG70-28P, MI,US         490, 4E10 (12.5mm)PG70-28P, MI,US           491, 5E10 (9.5mm)PG70-28, MI,US         493, 3E3 (19mm)PG58-22, MI,US           493, 3E3 (19mm)PG58-28, MI,US         494, 3E3 (19mm)PG64-28, MI,US           494, 4E3 (12.5mm)PG64-28, MI,US         496, 4E3 (12.5mm)PG64-28, MI,US	MEAPA in  E*  valu Simply se the one y  E*  table measured	cludes a datal es for many m lect a mixture ou're designin e will be popu d data	base of measured nixtures. that is closest to ng for, and MEAPA lated with
Feedback <table-cell></table-cell>	497, 553 (9.5mm)PG64-28, MI,US         499, 653 (9.5mm)PG70-28P, MI,US         500, 453 (12.5mm)PG70-28P, MI,US         500, 453 (12.5mm)PG70-28P, MI,US         500, 453 (12.5mm)PG70-28P, MI,US         501, 553 (9.5mm)PG70-28P, MI,US         503, 553 (9.5mm)PG70-28P, MI,US         503, 553 (9.5mm)PG70-28P, MI,US         504, 451 (12.5mm)PG58-28, MI,US         505, 551 (9.5mm)PG58-28, MI,US         506, 451 (12.5mm)PG58-28, MI,US         506, 451 (12.5mm)PG64-28, MI,US	Phase angle (degrees)           10.0Hz         1.0Hz           6.3         8.8           12.8         16.4           21.4         25.1           31.8         32.8	0.1Hz 11.8 20.2 28.4 32.6	

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MEAPA ≡ meminkutay	PROJECT : I131_St	a122-149 ~			PAV	EMENT PRO	OFILE				(	Save	
Project Detail	AC (4E3 PG64	1-22)											
Pavement Profile	Identifie		AC (4E3	PG64-22)		Poisson's Ratic	þ		0.25				
Vehicle Class stributions	Layer Th	ickness (in)		4.0		Heat Capacity	(C) (btu/(lb*F))		0.23				
Axle Loads <	Unit Wei	ght (lb/ft3)		150.0		Thermal Condu	uctivity (K) (btu/	(hr*ft*F))	0.67				
Advanced Coefficients	Loaded  E'	*  data is	showr	n with di	fferent	ndirect Tensile 'psi)	e Strength @ 14F	(-10C)	461.7				
Analyze	color.					Reference Tem	perature for  E*	Master	70.0				
Analyze Last Run Data <	color.					Reference Tem Surve (F)	perature for  E*	Master	70.0				
Analyze Last Run Data < Help <	color. Make sure	to save u	using th	e butto	n on	Reference Tem	perature for  E*	Master	70.0				
Analyze Last Run Data < Help < edback @	color. Make sure the upper	to save u right corr	using th ner	e butto	n on	Reference Tem Surve (F)	perature for  E*	Master	70.0		•		
Analyze Last Run Data < Help < edback @ gout ©	color. Make sure the upper	to save u right corr	using th ner		<b>1 ON</b> E*  (psi)	Reference Tem	pperature for  E*  Phase angle	Master	70.0		•••		
Analyze Last Run Data < Help < kdback @ yout ©	Color. Make sure the upper	to save u right corr	using the ner	e buttor	n on E*I (psi)	25.0Hz	Phase angle	Master • (degrees) 1.0Hz	0.1Hz		:		
Analyze Last Run Data < Help < edback @ gout @	color. Make sure the upper Temp/Freq 14.0 F	to save u right corr	using th ner	e buttor pynamic Modulus    1.0 Hz 2422625	<b>1 ON</b> <b>E*1 (<i>psi</i>) 0.1 Hz 1940641</b>	25.0Hz           4.72	Phase angle 10.0Hz 5.59	Master (degrees) 1.0Hz 8.28	0.1Hz 11.7				
Analyze Last Run Data < Help < edback @ gout ©	Color. Make sure the upper Temp/Freq 14.0 F	25.0 H2 2985631 1994293 272405	Using th ner 2840894 1793233	Pynamic Modulus    1.0 Hz 2422625 1287706	C ON E*I ( <i>psi</i> ) 1940641 830495.3 100700.7	25.0Hz           4.72           11.3           21.0	Phase angle           10.0Hz           5.59           12.8           22.8	Master (degrees) 1.0Hz 8.28 17.0 2.00	0.1Hz 11.7 21.4 20.6				
Analyze Last Run Data < Help < edback @ gout ©	color. Make sure the upper Temp/Freq 14.0 F 70.0 F 130.0	to save u right corr 25.0 42 2995631 1994293 873400.5 7844844	Using th ner 10.0 2840894 1793233 1712951.0 55429.70	Image: Point of the second s	I         O II           E*I (psi)         0.1           0.1         1940641           1940643         190396.7           190396.7         190396.7	Zeference Tem           Zurve (F)           25.0Hz           4.72           11.3           21.0           33.0	Phase angle           10.0Hz           5.59           12.8           22.8           33.5	Master           a (degrees)           a (10-12)           a (20, 20, 20, 20, 20, 20, 20, 20, 20, 20,	70.0           0.1Hz           11.7           21.4           30.6           32.2		•••		

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<b>MEAPA</b> meminkutay	≡ Pi	ROJECT : 1131_	_Sta122-149 ~				PAVEMEN	NT PROFIL	.E						
Project Detail		Identifie	er	AC (4E3	3 PG64-22)		Poisson's Ra	tio		0.25					
		Layer T	hickness (in)		4.0		Heat Capaci	t <b>y (C)</b> (btu/(lb*)	F))	0.23					
		Unit We	ight (lb/ft3)		150.0		Thermal Con (btu/(br*ft*F)	ductivity (K)		0.67					
venicle Class Distributions		Air Void	s (%)		7.0		Indirect Tens	íle Strength @	14F						
Axie Loads <	F*	is extens	sively us	ed thro	ughout	the	(-10C) (psi)	mnarature for	15*1	461.7					
Advanced Coefficients	algori	ithms (st	ructural	analysi	is etc.)	the	Master Curve	e (F)	15.1	70.0					
네 Analyze	01801	(00		anaryo											
📥 Last Run Data 🛛 <	Phase	e angle is	s onlv us	ed (alo	ng with										
E Help <	E* )	to com	, oute (via	interco	onversio	n)					:				
Feedback 😯	relaxa	ation mo	dulus (E	(t)) ma	ster cur	ve,		Phase angle	(degrees)						
Logout 🕩	which	<mark>i is need</mark>	ed only	in the t	hermal		25.0Hz	10.0Hz	1.0Hz	0.1Hz					
	crack	ing mod	el				4.7	5.6	8.3	11.7					
		40.0 F	1994293.0	1793233.0	1287706.0	830495.0	11.3	12.8	17.0	21.4					
		70.0 F	873401.0	712951.0	391832.0	190399.0	21.0	22.8	27.0	30.6					
		130.0 F	78448.0	55430.0	22865.0	9721.0	33.0	33.5	33.7	32.2					
								1							
	Mechani	stic Empirical As	phalt Pavem <u>ent</u> .	Analysis							_				ļ

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MEAPA ≡ meminkutay	PROJECT : 1131_S	ita122-149 ~				PAVEMEN	NT PROFILE			
Project Datail	Identifier		AC (4E3	PG64-22)		Poisson's Ra	tio	0.25		
	Layer Thi	ckness (in)		4.0		Heat Capaci	<b>ty (C)</b> (btu/(lb*F))	0.23		
	Unit Weig	<b>jht</b> (lb/ft3)		150.0		Thermal Con (btu/(hr*ft*F)	ductivity (K)	0.67		
Venicle Class Distributions	Air Voids	(%)		7.0		Indirect Tens	sile Strength @ 14F			
Axle Loads <	Effective	Binder Content	by Volume			<b>(-10C)</b> (psi)	-	461.7		
Advanced Coefficients	(%)			10.0		Reference Te Master Curve	emperature for  E*  e (F)	70.0		
Analyze										
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Help <	Mixture	dynamic mo	dulus ( E* ) a	and phase an	gle		Copy entire tal	ole	-	
			Dyna	mic Modulus IE*						
edback 🕜			Dyna		(psi)		Paste entire ta	ble		
edback 🕜 gout 🕩	Temp/Freq	25.0	10.0	1.0	0.1	25.0Hz	Paste entire ta Enter  E*  mas	ble ter curve coeffi	cients	6
eedback 🥑 ogout 🕩	Temp/Freq 14.0	25.0 Hz 2985631.0	10.0 Hz 2840894.0	1.0 Hz 2422625.0	0.1 Hz 1940641.0	25.0Hz	Paste entire ta Enter  E*  mas Select  E*  fror	ble ter curve coeffi m the database	cients	5
eedback 🤪 ogout C†	Temp/Freq 14.0 F 40.0	25.0 Hz 2985631.0 1994293.0	10.0 Hz 2840894.0 1793233.0	1.0 Hz 2422625.0 1287706.0	0.1 Hz 1940641.0 830495.0	25.0Hz 4.7 11.3	Paste entire ta Enter  E*  mas Select  E*  fror Edit frequencie	ble ter curve coeffi n the database es & temperatu	cients res	5
eedback 🥑 bgout G•	Temp/Freq 14.0 F 40.0 F 70.0	25.0 Hz 2985631.0 1994293.0 873401.0	10.0         Hz           2840894.0         1793233.0           712951.0         179323.0	1.0         HZ           2422625.0         1287706.0           391832.0         1287206.0	l (psi) 0.1 Hz 1940641.0 830495.0 190399.0	25.0Hz 4.7 11.3 21.0	Paste entire ta Enter  E*  mas Select  E*  fror Edit frequencie	ble ter curve coeffi n the database es & temperatu o 30.6	cients	5
eedback 🥥 ogout C†	Temp/Freq 14.0 F 40.0 F 70.0 F 130.0	25.0 Hz 2985631.0 1994293.0 873401.0 78448.0	10.0         Hz           2840894.0         1793233.0           712951.0         55430.0	1.0         Hz           2422625.0         1287706.0           391832.0         22865.0	I (psi)           0.1 Hz           1940641.0           830495.0           190399.0           9721.0	25.0Hz 4.7 11.3 21.0 33.0	Paste entire ta Enter  E*  mas Select  E*  from Edit frequencie 22.8 27. 33.5 33	ble ter curve coeffi n the database es & temperatu o 30.6 7 32.2	cients	5

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MEAPA =	PROJECT : I131_S	ta122-149 🗸											
meminkutay		Edit freque	ncies/tempe	ratures		×	_	_					
- Draiget Datail	Identifie								0.25				
Project Detain	Layer Th	Enter the ur	nique frequen duplicate fre	cies, separate	d by comma. I	Make sure	<b>C)</b> (btu/(lb*l	=))	0.23				
Pavement Profile	Unit Wei			quencies.			ctivity (K)						
Vehicle Class Distributions		25,10,1, 0.	1						0.67				
Axle Loads	Air Void:	Enter the ur	nique tempera	atures, separat	ed by comma	. Make sure	Strength @	14F	461.7				
	Effective	there are no	o duplicate ter	nperatures.			voraturo for	15*1					
Advanced Coefficients	(70)	14, 40,70,	130				)	1- 1	70.0				
🕮 Analyze													
🛎 Last Run Data 🛛 <					Save	Cancel							
										:			
Help <	Mixture	dynamic mo	dulus ( E* )	and phase an	qle								
Feedback 3			Dyna	amic Modulus  E <sup>4</sup>	'  (psi)		Phase angle	(degrees)					
Logout 🕩	Temp/Freq	25.0	10.0	1.0	0.1	25.0Hz	10.0Hz	1.0Hz	0.1Hz				
	14.0	Hz	Hz	Hz	Hz	47	5.6	8.3	11.7				
	F	2965651.0	2840894.0	2422025.0	1940041.0	4.7	5.0	0.5	11.7				
	40.0 F	1994293.0	1793233.0	1287706.0	830495.0	11.3	12.8	17.0	21.4				
	70.0 F	873401.0	712951.0	391832.0	190399.0	21.0	22.8	27.0	30.6				
	130.0	78448.0	55430.0	22865.0	9721.0	33.0	33.5	33.7	32.2				
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* Project Detail	C Mixture d	oata is clea enter or loa	red to remine ad values from	d the user <mark>h the data</mark>	r to abase			:	
Pavement Profile		D	ynamic Modulus  E*  <i>(psi)</i>		Phase angle (	degrees)			
Vehicle Class Distributions	Temp/Freq 25.	0 10.0	1.0 0.1	25.0Hz	10.0Hz	1.0Hz	0.1Hz		
Axle Loads <	Hz Hz	Hz 0.0	Hz Hz 0.0 0.0	0.0	0.0	0.0	0.0		
Advanced Coefficients	F 0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0		
Analyze	F 0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0		
Last Run Data	F 130.0 0.0	0.0	0.0 0.0	0.0	0.0	0.0	0.0		
	F								
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eedback 😯						:			
ogout 🕒		Binder d	lynamic shear modulus	& phase angle					
		Temp	G*  (Pa) at 10 rad,	s Phase angle (d	degrees) at 10 rad/s				
		40.0 F	1.641803E7	56.0					
		70.0 F	2377859.0	58.7					
		100.0 F	207206.0	60.9					
		130.0 F	19922.0	62.6					
		168.0 F	2503.0	63.9					
	Mechanistic Empirical Asphalt P	avement Analysis							


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<b>MEAPA</b> meminkutav	≡ PRC	)JECT : 1131_9	Sta122-149 ~				PAVEME		Ξ	
ŕ				Dyna	mic Modulus  E*	(psi)		Phase angle (d	legrees)	
T Project Detail		Temp/Freq	25.0	10.0	1.0	0.1	25.0Hz	10.0Hz	1.0Hz	0.1Hz
📚 Pavement Profile		14.0	Hz	Hz	Hz	Hz	4.0	5.0	0.7	12.4
		F	2841067.0	2714442.0	2336971.0	1664137.0	4.0	5.6	0.7	12.4
Venicle Class Distributions		40.0 F	1958536.0	1766414.0	1271775.0	814106.0	11.8	13.4	17.7	22.1
🛕 Axle Loads 🛛 <		70.0	875239.0	711895.0	384531.0	182089.0	21.5	23.1	26.9	29.4
Advanced Coefficients		130.0	75592.0	53152.0	22018.0	9688.0	30.4	30.3	28.8	25.8
IN Assess		F								
Analyze Analyze										
📥 Last Run Data 🛛 <								1	-	
									- <b>:</b> )	
E Help <				Binder dyna	amic shear m	odulus & ph	ase angle		Cop	v Entire Table
Feedback 😯			Те	mp	IG*I (Pa) :	at 10 rad/s	Phase angle (de	orrees) at 10 rad/s	Pas	te Entire Table
			40	0.0	1.641803	7	56.0	.grees, at to taa,s	Sole	ct IG*I from the datab
Logout 🕩			F	0.0	2377859 (	n	58.7		Jek	
			F	5.0	2077000.		00.7			
			10 F	0.0	207206.0		60.9			
			13	30.0	19922.0		62.6			
			16	58.0	2503.0		63.9			
			F							
				E	0*1	1				
			used in	n Global Aging S	/stem (GAS) mode	el. GAS model w	ill be turned off	nd phase angle are when  G*  = 0.	e only	
	Mechanisti									
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$\leftarrow$ $\rightarrow$ C $\textcircled{a}$ paveapps.c	om/meapaapp2/layers.jsp?pos=0					⊕ ☆	M (	0	* 🤅	:
MEAPA		Sta122-149 ~								
meminkutay		Laboratory-measured  G*  database	×	_						
Project Detail				hase angle (e	degrees)					
Project Detail	Temp/Freq	Select PG		10.0Hz	1.0Hz	0.1Hz				
Pavement Profile	14.0	PG58-22		5.8	8.7	12.4				
Vehicle Class Distributions	40.0	PG58-28 PG58-34		13.4	17.7	22.1				
🔺 Axle Loads 🛛 🔍	F 70.0	PG64-22 PG64-28		23.1	26.9	29.4				
Advanced Coefficients	F 130.0	PG64-34P		30.3	28.8	25.8				
	F	PG70-28P								
🖿 Analyze										
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Help K										
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			Cancel Load	hase angle ar	e only					
	Mechanistic Empirical As	phalt Pavement Analysis								



The equation above represents the  $|E^*|$  master curve of the EAC layer in its undamaged state. Effect of damage on the  $|E^*|$  master curve is modeled through the following relationship:

$$|E^*|_{\text{damaged}} = 10^{c_1} + \frac{|E^*|_{\text{undamaged}} - 10^{c_1}}{1 + e^{-0.3 + 5\log(D_{bu}^{EAC}(t))}}$$
[153]

where;

 $|E^*|_{\text{damaged}} = D_{hu}^{EAC}(t) =$ 







Typical CSM layer modulus is initially quite high. However, as fatigue damage grows within the CSM layer, this modulus decreases with time. Reduction of modulus of CSM layer is modeled using the following relationship:

$$E(t) = E_{min} + \frac{E_{max} - E_{min}}{1 + e^{-4 + 14D_{csm}^{cum}(t)}}$$
[146]









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MEAPA E meminkutay	■ PROJECT :	1131_Sta122-7	149 ~				V	EHICI	E DIST	ribut	IONS			
T Project Detail	Veh	icle Class	Distrib	ution									:	
Pavement Profile	Class													
Vehicle Class Distributions	Name	Class %	Gr	rowth %	Grov	wth Type	# of Single A	xles #	of Tandem Ax	les # of T	ridem Axles	# of Quad A	xles	
	Class 4 Class 5	27.37	3.	.0	con	npound 🗸	2.0	0.	36	0.0		0.0		
Axle Loads <	Class 6	5.01	3.	.0	con	npound 🗸	1.0	1.0	)	0.0		0.0		
Advanced Coefficients	Class 7	0.77	3.	.0	line	ar 🗸	1.06	0.	06	0.59		0.35		
	Class 8	4.42	3.	.0	con	npound 🗸	2.28	0.	74	0.0		0.0		
🔟 Analyze	Class 9	45.44	3.	.0	con	npound ¥	1.29	1.4	35	0.0		0.0		
A Last Run Data	Class 11	1.07	3.	0	line	ar V	1.54	1.0	n	0.31		0.56		
				-					-					
	Class 12	0.22	3.	.0	line	ar 🗸	3.85	0.	96	0.0		0.0		
E Help <	Class 12 Class 13 Total =	0.22 6.82 100.0 %	3.	0	line	ar 💙	3.85 2.03	0. 1.4	96	0.0 0.36		0.0 0.61		
E Help <	Class 12 Class 13 Total =	0.22 6.82 100.0 %	3.	0	line	ar 🗸	3.85 2.03	0. 1.4	96 1	0.0		0.0		
E Help < Feedback O Logout O	Class 12 Class 13 Total =	0.22 6.82 100.0 % Monta	3. 3. hly Dist	o o tribution	line line	ar V ar V	3.85	0.	96	0.0		0.0 0.61		
<b>Help &lt;</b> Feedback <b>@</b> Logout <b>@</b>	Class 12 Class 13 Total =	0.22 6.82 100 0 %	3. 3. hly Dist s Class 4	0 0 tribution Class 5	line line	aar V aar V	3.85 2.03 Class 8	0. 1.4 Class 9	96 1 Class 10	0.0 0.36 Class 11	Class 12	0.0 0.61		
<b>E Help 〈</b> Feedback <b>♀</b> Logout ि	Class 12 Class 13 Total =	0.22 6.82 Monta Month JANUARY	3. 3. hly Dist s Class 4 0.8	0 0 tribution Class 5 0.8	Class 6 0.8	ar v ar v Class 7 0.8	3.85 2.03 Class 8 0.9	0. 1.4 Class 9 0.9	eee Class 10 0.9	0.0 0.36 Class 11 0.87	Class 12 0.87	0.0 0.61 Class 13 0.87		
<b>Help (</b> Feedback <b>@</b> Logout <b>G</b>	Class 12 Class 13 Total =	0.22 6.82 Monta Month/Clas JANUARY FEBRUARY	3. 3. hly Dist is Class 4 0.8 0.89	0 0 tribution Class 5 0.8 0.89	line line	ar	3.85 2.03 Class 8 0.9 0.95	0. 1.4 Class 9 0.9 0.95	296 1 Class 10 0.99 0.95	0.0 0.36 Class 11 0.87 0.89	Class 12 0.87 0.89	0.0 0.61 Class 13 0.87 0.89		
<b>E Help 〈</b> Feedback <b>@</b> Logout <b>P</b>	Class 12 Class 13 Total =	0.22 6.82 Monta Month\Class JANUARY FEBRUARY MARCH APRIL	3. 3. hly Dist is Class 4 0.8 0.89 0.88 0.93	0 0 tribution 0.8 0.8 0.88 0.93	(line line D Factors Class 6 0.8 0.89 0.88 0.93	ar	3.85 2.03 Class 8 0.9 0.95 0.98 1.01	0. 1.4 Class 9 0.9 0.95 0.95 0.98	Class 10 0.95 0.95 101	0.0 0.36 0.38 0.87 0.89 0.88 0.96	Class 12 0 0.87 0.89 0.88 0.96	0.0 0.61 Class 13 0.87 0.88 0.88		
<b>⊟ Help 〈</b> Feedback <b>♀</b> Logout <b>₽</b>	Class 12 Class 13 Total =	0.22 6.82 Montal Month(Class JANUARY FEBRUARY FEBRUARY MARCH APRIL MAY	3. 3. hly Dist s Class 4 0.8 0.89 0.88 0.93 1.02	0 0 tribution 0.8 0.8 0.88 0.9 0.88 0.93 1.02	(line (line) (li	ar	3.85 2.03 2.03 2.03 2.03 2.03 2.03 2.03 2.03	Class 9 0.9 0.95 0.98 1.01 1.06	Class 10 0.9 0.95 0.98 1.01 1.06	0.0 0.36 0.38 0.87 0.89 0.88 0.96 0.96	Class 12 4 0.87 0.89 0.88 0.96 0.96 1.05	0.0 0.61 Class 13 0.87 0.89 0.88 0.89 0.86 0.96 0.96		
<b>⊟ Help 〈</b> Feedback	Class 12 Class 13 Total =	0.22 6.82 CG 0.5 S Month Class JANUARY FEBRUARY MARCH APRIL APRIL MAY	3. 3. hly Dist s Class 4 0.8 0.89 0.88 0.93 1.02 1.14	0 0 tribution 0.8 0.89 0.88 0.93 1.02 1.14	(line line b Factors Class 6 0.8 0.89 0.88 0.93 1.02 1.14	ar	3.85 2.03 2.103 2.105 2.	Class 9 0.9 0.95 0.98 1.01 1.06 1.13	Class 10 0.9 0.95 0.95 0.95 1.01 1.06 1.13	0.0 0.36 0.36 0.85 0.87 0.89 0.88 0.96 1.05 1.17	Class 12 0 0.87 0 0.89 0 0.88 0 0.96 0 1.05 1	0.0 0.61 ** Class 13 0.87 0.89 0.88 0.88 0.86 0.05 1.05		
E Help < Feedback ♀ Logout C+	Class 12 Class 13 Total =	0.22 6.82 CGD 5. MonthClass JANUARY FEBRUARY MARCH APRIL APRIL JUNE JUNE	3. 3. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	0 0 0 0 0 0 0 0 0 8 0 0 8 0 0 9 0 0 8 0 9 0 0 8 0 0 9 0 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0	Eline	ar	3.85 2.03 2.03 2.03 2.03 2.05 0.95 0.95 0.95 0.95 0.95 1.01 1.01 1.03 2.03 2.03 2.03 2.03 2.03 2.03 2.03 2	Class 9 0.9 0.95 0.98 1.01 1.06 1.13 0.98	Class 10 0.9 0.95 0.95 0.95 1.01 1.01 1.06 1.13 0.98	0.0 0.36 0.36 0.8 0.8 0.9 0.8 0.9 0.8 0.9 0.8 0.9 0.9 0.1 0.1 0.1 1.0 1.0 1.0 1.0 1.0	Class 12 0 0.87 0 0.89 0 0.88 0 0.96 0 1.05 0 1.17 1 0.7 0	0.0 0.61 Class 13 0.87 0.89 0.88 0.98 0.98 0.98 1.17 1.17		
<b>Help ∢</b> Feedback <b>@</b> .ogout <b>G</b>	Class 12 Class 13 Total =	0.22 6.82 CROPX MonthClass JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY ALGUST	3. 3. 3. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	0 0 tribution Class 5 0.8 0.89 0.89 0.89 0.89 0.83 1.02 1.14 1.18 1.19 1.12	Elass 6 0.8 0.89 0.88 0.93 1.02 1.14 1.18 1.19	ar	3.85 2.03 2.03 2.03 2.03 2.03 2.03 2.03 2.03	Class 9 0.9 0.95 0.95 1.01 1.06 1.13 0.98 1.08	Class 10 0.9 0.95 0.95 1.01 1.01 1.04 1.13 0.98 1.08	0.0 0.36 0.36 0.87 0.87 0.89 0.88 0.96 0.88 0.96 0.10 1.05 1.07	Class 12 0 0.87 0 0.88 0 0.96 0 1.05 1 1.17 1 0.07 1.1	0.0 0.61 ** Class 13 0.87 0.89 0.88 0.96 0.88 1.17 1.1 1.07 1.1		
∎ Help K Feedback I I I Logout I I I I I I I I I I I I I I I I I I I	Class 12 Class 13 Total =	0.22 6.82 CROPX MonthClass JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER	3. 3. 3. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	0 0 tribution Class 5 0.8 0.89 0.88 0.93 1.02 1.14 1.18 1.19 1.13 1.06	line line Class 6 0.8 0.89 0.88 0.93 1.02 1.14 1.18 1.19 1.13 1.06	ar	3.85 2.03 2.03 2.03 2.03 2.03 2.03 2.03 2.03	Class 9 0.9 0.95 0.95 1.01 1.06 1.13 0.98 1.08 1.08 1.03	Class 10 0.9 0.95 0.98 1.01 1.03 1.03 1.03 1.08 1.08	0.0 0.36 0.36 0.87 0.89 0.88 0.96 0.88 0.96 0.10 1.05 1.17 1.07 1.1 1.07	Class 12 0 0.87 0 0.88 0 0.96 1 1.05 1 1.17 1 1.07 1 1.1 1.07 1 1.1	0.0 0.61 Class 13 0.87 0.89 0.88 0.96 0.88 0.96 0.105 1.05 1.07 1.17 1.07 1.1		
■ Help 〈 Feedback	Class 12 Class 13 Total =	0.22 6.82 CROP X Month Class JANUARY FEBRUARY MARCH APRIL MAY JUNE JULY AUGUST SEPTEMBER OCTOBER NOVEMBER	3. 3. 3. 3. 3. 3. 3. 3. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Elass 6 0.8 0.83 0.83 0.93 1.02 1.14 1.18 1.19 1.13 1.06 0.96	ar	3.85 2.03 2.03 2.03 2.03 2.04 2.04 2.04 2.04 2.04 2.04 2.04 2.04	Class 9 0.9 0.95 1.01 1.06 1.13 0.98 1.01 1.06 1.03 1.08 1.08 1.03 1.03	Class 10 0.9 0.95 0.95 0.95 1.01 1.06 1.03 1.03 1.08 1.05 0.98	0.0 0.36 0.36 0.87 0.87 0.89 0.80 0.96 0.10 1.05 1.07 1.1 1.07 1.1 1.07 1.11 1.07	Class 12 0 0.87 1 0.89 0.98 0 0.88 0 0.96 1 1.05 1 1.07 1 1.17 1 1.07 1 1.11 1 1.01	0.0 0.61 Class 13 0.87 0.89 0.88 0.96 0.88 0.96 0.88 1.05 1.07 1.17 1.07 1.11 1.07 1.11 1.07		

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MEAPA =	PROJEC	: I131_Sta122-149 ~ AXLE LOADS	- SINGLE				
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Devenue and Dev file	Month Class Total	%) 3kip 4kip 5kip 6kip 7kip 8kip 9kip 10kip 11kip 12kip 13kip 14kip 15kip 16kip 17kip 18kip 19kip 20kip 21kip 22ki	ip 23kip 24kip 25kip 26kip 27kip 28kip	29kip 30kip 3	1kip 32kip	33kip 34	ikip
Pavement Profile	JANU/ 4 100.0	0.19 0.22 0.48 1.65 3.15 7.91 8.88 12.58 11.91 13.73 10.92 7.02 6.56 3.91 3.33 1.97 1.69 1.09 0.92 0.53	3 0.41 0.28 0.15 0.11 0.06 0.04	0.03 0.03 0	.02 0.02	0.01 0.	14
Valiala Olana Distributiona	JANU) 5 100.0	2.62 15.7 17.11 15.0 8.65 9.15 5.92 5.89 4.38 4.09 3.0 1.86 1.75 1.09 1.03 0.63 0.6 0.37 0.34 0.19	0.15 0.1 0.05 0.04 0.02 0.02	0.01 0.01 0	.01 0.0	0.0 0.	0
e Venicle Class Distributions	JANU) 6 100.0	0.35 0.88 1.22 1.81 2.18 5.14 7.38 13.84 16.11 16.5 10.85 6.3 5.55 3.18 2.71 1.62 1.47 0.94 0.82 0.44	4 0.3 0.19 0.09 0.05 0.04 0.02	0.01 0.01 0	.01 0.01	0.0 0.	0
Axio Loado	JANU) 7 100.0	2.19 1.74 1.77 2.23 1.91 2.65 2.87 4.35 5.04 7.72 8.58 7.88 10.34 8.1 8.62 6.23 6.04 3.96 3.0 1.61	1.26 0.74 0.4 0.27 0.17 0.12	0.06 0.05 0	.03 0.02	0.01 0.	01
- Alice Estados	JANU/ 8 100.0	1.56 2.15 3.32 5.07 6.18 10.6 11.5 14.11 9.46 8.24 6.43 4.31 4.58 3.05 3.05 1.91 1.65 0.89 0.69 0.36	3 0.27 0.16 0.09 0.07 0.04 0.04	0.02 0.02 0	.01 0.01	0.01 0.	01
Single	JANU) 9 100.0	1.42 2.7E 2.4E 2.8E 2.47 4.72 7.33 16.74 20.7: 18.7E 8.21 2.89 2.04 1.3 1.55 1.12 1.06 0.57 0.41 0.2	0.15 0.08 0.04 0.03 0.02 0.01	0.01 0.01 0	.0 0.0	0.0 0.	0
	JANU/ 10 100.0	0.44 0.52 0.5€ 0.9€ 1.24 2.76 4.3€ 9.98 13.74 17.48 13.12 7.45 7.1 4.59 4.67 3.05 2.89 1.65 1.35 0.68	3 0.52 0.31 0.16 0.13 0.08 0.06	0.03 0.03 0	.02 0.02	0.01 0.	01
Tandom	JANU/ 11 100.0	1.23 1.14 2.6€ 6.12 5.0E 7.28 8.0E 12.82 10.0E 9.6 8.0 5.85 6.43 4.31 4.01 2.38 2.06 1.11 0.81 0.38	3 0.26 0.14 0.07 0.05 0.03 0.02	0.01 0.01 0	.01 0.01	0.01 0.	.0
Tandem	JANU) 12 100.0	0.9: 1.57 3.14 6.75 6.25 8.68 9.41 12.65 10.05 10.07 8.35 5.11 4.82 3.01 2.81 1.76 1.51 1.03 0.75 0.46	3 0.27 0.15 0.12 0.11 0.03 0.02	0.02 0.01 0	.01 0.02	0.01 0.	0
Tridom	JANU) 13 100.0	3.65 2.81 2.5 2.82 2.41 2.86 2.73 6.0 9.2 12.8 10.91 7.23 7.55 5.21 5.54 3.78 3.66 2.24 1.91 1.06	i 0.88 0.59 0.33 0.31 0.18 0.17	0.1 0.09 0	.06 0.06	0.04 0.	.04
	FEBRL 4 100.0	0.19 0.22 0.48 1.65 3.15 7.91 8.88 12.58 11.91 13.73 10.92 7.02 6.56 3.91 3.33 1.97 1.69 1.09 0.92 0.53	3 0.41 0.28 0.15 0.11 0.06 0.04	0.03 0.03 0	.02 0.02	0.01 0.	.14
a	FEBRL 5 100.0	2.62 15.7 17.11 15.0 8.6E 9.15 5.92 5.89 4.38 4.09 3.0 1.86 1.75 1.09 1.03 0.63 0.6 0.37 0.34 0.19	0.15 0.1 0.05 0.04 0.02 0.02	0.01 0.01 0	.01 0.0	0.0 0.	.0
Quad	FEBRL 6 100.0	0.35 0.88 1.22 1.81 2.18 5.14 7.38 13.84 16.11 16.5 10.85 6.3 5.55 3.18 2.71 1.62 1.47 0.94 0.82 0.44	4 0.3 0.19 0.09 0.05 0.04 0.02	0.01 0.01 0	.01 0.01	0.0 0.	0
	FEBRL 7 100.0	2.19 1.74 1.77 2.23 1.91 2.65 2.87 4.35 5.04 7.72 8.58 7.88 10.34 8.1 8.62 6.23 6.04 3.96 3.0 1.61	1.26 0.74 0.4 0.27 0.17 0.12	0.06 0.05 0	.03 0.02	0.01 0.	.01
Advanced Coefficients	FEBRL 8 100.0	1.56 2.15 3.32 5.07 6.18 10.6 11.5 14.11 9.46 8.24 6.43 4.31 4.58 3.05 3.05 1.91 1.65 0.89 0.69 0.36	5 0.27 0.16 0.09 0.07 0.04 0.04	0.02 0.02 0	.01 0.01	0.01 0.	.01
M Apolyzo	FEBRL 9 100.0	1.42 2.7€ 2.4€ 2.8€ 2.47 4.72 7.33 16.74 20.7: 18.78 8.21 2.89 2.04 1.3 1.55 1.12 1.06 0.57 0.41 0.2	0.15 0.08 0.04 0.03 0.02 0.01	0.01 0.01 0	.0 0.0	0.0 0.	.0
Analyze	FEBRL 10 100.0	0.44 0.52 0.56 0.96 1.24 2.76 4.36 9.98 13.74 17.48 13.12 7.45 7.1 4.59 4.67 3.05 2.89 1.65 1.35 0.68	3 0.52 0.31 0.16 0.13 0.08 0.06	0.03 0.03 0	.02 0.02	0.01 0.	.01
Lact Run Data (	FEBRL 11 100.0	1.23 1.14 2.6€ 6.12 5.0Ε 7.28 8.0Ε 12.82 10.05 9.6 8.0 5.85 6.43 4.31 4.01 2.38 2.06 1.11 0.81 0.38	3 0.26 0.14 0.07 0.05 0.03 0.02	0.01 0.01 0	.01 0.01	0.01 0.	.0
	FEBRL 12 100.0	0.9: 1.57 3.14 6.7: 6.2: 8.6E 9.41 12.6: 10.0: 10.07 8.35 5.11 4.82 3.01 2.81 1.76 1.51 1.03 0.75 0.46	6 0.27 0.15 0.12 0.11 0.03 0.02	0.02 0.01 0	.01 0.02	0.01 0.	.0
	FEBRL 13 100.0	3.65 2.81 2.5 2.82 2.41 2.86 2.73 6.0 9.2 12.8 10.91 7.23 7.55 5.21 5.54 3.78 3.66 2.24 1.91 1.06	5 0.88 0.59 0.33 0.31 0.18 0.17	0.1 0.09 0	.06 0.06	0.04 0.	.04
Help <	MARC 4 100.0	0.19 0.22 0.48 1.65 3.15 7.91 8.88 12.59 11.91 13.73 10.92 7.02 6.56 3.91 3.33 1.97 1.69 1.09 0.92 0.53	3 0.41 0.28 0.15 0.11 0.06 0.04	0.03 0.03 0	.02 0.02	0.01 0.	14
	MARC 5 100.0	2.62 15.7 17.14 15.0 8.65 9.15 5.92 5.89 4.38 4.09 3.0 1.86 1.75 1.09 1.03 0.63 0.6 0.37 0.34 0.19	0.15 0.1 0.05 0.04 0.02 0.02	0.01 0.01 0	.01 0.0	0.0 0.	.0
eedback 🕜	MARC 6 100.0	0.32 0.86 1.22 1.81 2.18 5.14 7.38 13.84 16.11 16.5 10.85 6.3 5.55 3.18 2.71 1.62 1.47 0.94 0.82 0.44	4 0.3 0.19 0.09 0.05 0.04 0.02	0.01 0.01 (	.01 0.01	0.0 0.	.0
	MARC 7 100.0	2.19 1.74 1.77 2.23 1.91 2.65 2.87 4.35 5.04 7.72 8.58 7.88 10.34 8.1 8.62 6.23 6.04 3.96 3.0 1.61	1.26 0.74 0.4 0.27 0.17 0.12	0.06 0.05 (	.03 0.02	0.01 0.	.01
ogout 🕩	MARC 8 100.0	1.56 2.15 3.32 5.07 6.18 10.6 11.5 14.11 9.46 8.24 6.43 4.31 4.58 3.05 3.05 1.91 1.65 0.89 0.69 0.36	3 0.27 0.16 0.09 0.07 0.04 0.04	0.02 0.02 (	.01 0.01	0.01 0.	.01
	MARC 9 100.0	1.42 2.76 2.48 2.88 2.47 4.72 7.33 16.74 20.7: 18.78 8.21 2.89 2.04 1.3 1.55 1.12 1.06 0.57 0.41 0.2	0.15 0.08 0.04 0.03 0.02 0.01	0.01 0.01 (	.0 0.0	0.0 0.	.0
	MARC 10 100.0	0.44 0.52 0.56 0.96 1.24 2.76 4.36 9.98 13.74 17.48 13.12 7.45 7.1 4.59 4.67 3.05 2.89 1.65 1.35 0.68	3 0.52 0.31 0.16 0.13 0.08 0.06	0.03 0.03 (	.02 0.02	0.01 0.	.01
	MARC 11 100.0	1.23 1.14 2.6€ 6.12 5.0E 7.28 8.0E 12.82 10.05 9.6 8.0 5.85 6.43 4.31 4.01 2.38 2.06 1.11 0.81 0.38	3 0.26 0.14 0.07 0.05 0.03 0.02	0.01 0.01 (	.01 0.01	0.01 0.	.0
	MARC 12 100.0	0.93 1.57 3.14 6.75 6.25 8.68 9.41 12.65 10.05 10.07 8.35 5.11 4.82 3.01 2.81 1.76 1.51 1.03 0.75 0.46	5 0.27 0.15 0.12 0.11 0.03 0.02	0.02 0.01 (	.01 0.02	0.01 0.	.0
	MARC 13 100.0	3.65 2.81 2.5 2.82 2.41 2.86 2.73 6.0 9.2 12.8 10.91 7.23 7.55 5.21 5.54 3.78 3.66 2.24 1.91 1.06	3 0.88 0.59 0.33 0.31 0.18 0.17	0.1 0.09 (	.06 0.06	0.04 0.	.04
	APRIL 4 100.0	0.19 0.22 0.48 1.65 3.15 7.91 8.88 12.59 11.91 13.73 10.92 7.02 6.56 3.91 3.33 1.97 1.69 1.09 0.92 0.53	3 0.41 0.28 0.15 0.11 0.06 0.04	0.03 0.03 (	.02 0.02	0.01 0.	.14
	APRIL 5 100.0	2.62 15.7 17.1( 15.0 8.65 9.15 5.92 5.89 4.38 4.09 3.0 1.86 1.75 1.09 1.03 0.63 0.6 0.37 0.34 0.19	0.15 0.1 0.05 0.04 0.02 0.02	0.01 0.01 (	.01 0.0	0.0 0.	.0
	APRIL 6 100.0	0.3; 0.8; 1.22 1.81 2.18 5.14 7.38 13.84 16.11 16.5 10.8; 6.3 5.55 3.18 2.71 1.62 1.47 0.94 0.82 0.44	4 0.3 0.19 0.09 0.05 0.04 0.02	0.01 0.01 (	.01 0.01	0.0 0.	.0
	APRIL 7 100.0	2.19 1.74 1.77 2.2; 1.91 2.65 2.87 4.35 5.04 7.72 8.58 7.88 10.34 8.1 8.62 6.23 6.04 3.96 3.0 1.61	1.26 0.74 0.4 0.27 0.17 0.12	0.06 0.05 (	0.03 0.02	0.01 0	.01
	4000				01 0.01		



## Single Axle Load Distribution:

Tandem Axle Load Distribution:









 $NA_{i,t,w_k}^{tridem} = Number of tridem axles, for each month$ *i*(*i*= 1 ... 12), for year*t*(*t*= 1 ...*t<sub>a</sub>*, where*t<sub>a</sub>*is analysis duration), corresponding to axle weight*w<sub>k</sub>*, where*k*= 1 ... 31 and*w<sub>k</sub>*= 12000, 15000, ... 102000 (lb).

 $NA_{i,t,w_k}^{quad}$  = Number of quad axles i, for each month i ( $i = 1 \dots 12$ ), for year t ( $t = 1 \dots t_a$ , where  $t_a$  is analysis duration), corresponding to axle weight  $w_k$  Where  $k = 1 \dots 31$  and  $w_k = 12000, 15000, \dots 102000$  (lb).



Example sub-layering of a three-layer structure and analysis points for the single axle dual tire configuration



Example structural response computed by MatLEA sub algorithm in MEAPA

meminkutay	PROJECT : 1131_Sta122-149	~			ADVANCED COEFF	CIENTS				
Troject Detail	Axle Configuration				Misc Configuration					
📚 Pavement Profile	Tandem axle spacing (in)	51.6			Wheel Wander Std.	Dev. (in)	10.0			
Vehicle Class Distributions	Tridem axle spacing (in)	49.2			Initial IRI	in/mile)	63.0			
🛕 Axle Loads 🛛 🖌	Quad axle spacing (in)	49.2			Clima	te Type	NARR			
Advanced Coefficients	Dual tire spacing (in)	12.0			Climat	e Model	Original			
🗠 Analyze	Tire pressure (psi)	120.0								
陆 Last Run Data 🛛 <		120.0								
	FATIGUE CRACKING CALIBRATION		TS							
Feedback 😧 Logout Թ	FATIGUE CRACKING CALIBRATION Bottom-Up fatigue	I COEFFICIEN	TS	•••••••••••••••••••••••••••••••••••••••	Top-Down fatigue					e
Feedback 🚱 Logout 🕞	FATIGUE CRACKING CALIBRATION Bottom-Up fatigue $\beta_{f1},\beta_{f2}, \text{and } \beta_{f3}$	0.0205	1.38	0.88	Top-Down fatigue β <sub>11</sub> , β <sub>12</sub> ,	and β <sub>f3</sub>	0.0205	1.38	0.8	<b>6</b> 38
Feedback <section-header></section-header>	FATIGUE CRACKING CALIBRATION Bottom-Up fatigue $\beta_{f1}, \beta_{f2}, \text{and } \beta_{f3}$ $k_{f1}, k_{f2}, \text{and } k_{f3}$	0.0205 3.75	TS 1.38 2.87	0.88	Top-Down fatigue β <sub>f1</sub> , β <sub>f2</sub> , k <sub>f1</sub> , k <sub>f2</sub> ,	and β <sub>f3</sub> and k <sub>f3</sub>	0.0205 3.75	1.38	0.8	<b>6</b>
Feedback	FATIGUE CRACKING CALIBRATION Bottom-Up fatigue β <sub>f1</sub> , β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> C <sub>1-bu</sub> , C <sub>2-bu</sub> , and C <sub>4-bu</sub>	0.0205 3.75 1.31	TS 1.38 2.87 2.16	0.88 0.88 1.46 6000.0	<i>Τορ-Down fatigue</i> β <sub>11</sub> , β <sub>12</sub> , k <sub>11</sub> , k <sub>12</sub> , C <sub>1-td</sub> , C <sub>2-td</sub> , an	and β <sub>f3</sub> and k <sub>f3</sub> d C4-td	0.0205 3.75 7.0	1.38 2.87 3.5	0.8	6 00.0
Feedback <section-header></section-header>	FATIGUE CRACKING CALIBRATION Bottom-Up fatigue β <sub>11</sub> , β <sub>12</sub> , and β <sub>13</sub> k <sub>11</sub> , k <sub>12</sub> , and k <sub>13</sub> C <sub>1-bu</sub> , C <sub>2-bu</sub> , and C <sub>4-bu</sub> Bottom-Up Fatigue Standard Deviation	0.0205 3.75 1.31 1.13 + 13/(1+ex	75 1.38 2.87 2.16 p(7.57-15.5*L0010	0.88 0.88 1.46 6000.0	Top-Down fatigue         βr1, βr2,         kr1, kr2,         C1-td, C2-td, and         Top-Down Fatigue St         De	and $\beta_{f3}$ and $k_{f3}$ d $C_{4-td}$ andard viation	0.0205 3.75 7.0 10 + 130/(1+exp	1.38 2.87 3.5 9(1.072-2.1654*LC	0.8 1.40 100	88 66 00.0
Feedback	FATIGUE CRACKING CALIBRATION Bottom-Up fatigue β <sub>f1</sub> , β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> C <sub>1-bu</sub> , C <sub>2-bu</sub> , and C <sub>4-bu</sub> Bottom-Up Fatigue Standard Deviation	0.0205 3.75 1.31 1.13 + 13/(1+ex	1.38 1.38 2.87 2.16 p(7.57-16.5*LOG()	0.88 0.88 1.46 6000.0	Top-Down fatigue β <sub>11</sub> , β <sub>12</sub> , k <sub>11</sub> , k <sub>12</sub> , C <sub>1-1d</sub> , C <sub>2-1d</sub> , an Top-Down Fatigue St De	and $\beta_{f3}$ and $k_{f3}$ d $C_{4-td}$ andard viation	0.0205 3.75 7.0 10 + 130/(1+exp	1.38 2.87 3.5 3(1072-2.1654*LC	0.8 1.40 100	6 00.0



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MEAPA meminkutay	■ PROJECT : I131_Sta122-149 ·	~			A	DVANCED	COEFFICIENT	S			
Project Detail	Axle Configuration					Misc Configu	ration				
Pavement Profile						Wheel Wa	nder Std. Dev. (in)	10.0			
Vehicle Class Distributio	<pre>tevised' = An impro</pre>	oved cl	imati	c model,			Initial IRI (in/mile)	63.0			
Axle Loads CC	orrected for the ef	fects o	f clou	d cover or	n 1	the	Climate Type	NARR			~
Advanced Coefficients	ongwave radiation.	See do	ocum	entation f	or	·	Climate Model	Original			~
ast Run Data	ore details.						✓ Original Revised				
lelp < back 🕜	FATIGUE CRACKING CALIBRATION	COEFFICIENT	S								
ut 🕩	Bottom-Up fatigue			0		Top-Down fa	tigue				0
ut 🕩	Bottom-Up fatigue $\beta_{f1},\beta_{f2},\text{and }\beta_{f3}$	0.0205	1.38	0.88		Top-Down fa	tigue $\beta_{f1},\beta_{f2},\text{and }\beta_{f3}$	0.0205	1.38	0.88	0
ut G	Bottom-Up fatigue $\beta_{f1},\beta_{f2},\text{ and }\beta_{f3}$ $k_{f1},k_{f2},\text{ and }k_{f3}$	0.0205	1.38 2.87	0.88           1.46		Top-Down fa	tigue $\beta_{f1}, \beta_{f2}, \text{and } \beta_{f3}$ $k_{f1}, k_{f2}, \text{and } k_{f3}$	0.0205	1.38 2.87	0.88	8
ut 6	Bottom-Up fatigue β <sub>f11</sub> β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> C <sub>1-bu</sub> , C <sub>2-bu</sub> , and C <sub>4-bu</sub>	0.0205 3.75 1.31	1.38 2.87 2.16	0.88           1.46           6000.0		Top-Down fa	tigue β <sub>f1</sub> , β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> d, C <sub>2-td</sub> , and C <sub>4-td</sub>	0.0205 3.75 7.0	1.38 2.87 3.5	0.88	
ut 🕪	Bottom-Up fatigue β <sub>f11</sub> β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> C <sub>1-bu</sub> , C <sub>2-bu</sub> , and C <sub>4-bu</sub> Bottom-Up Fatigue Standard Deviation	0.0205 3.75 1.31 1.13 + 13/(1+exp)	1.38 2.87 2.16 (7.57-15.5*L0G10	0.88           1.46           6000.0		Top-Down fa	tigue β <sub>f1</sub> , β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> d, C <sub>2-td</sub> , and C <sub>4-td</sub> Fatigue Standard Deviation	0.0205 3.75 7.0 10 + 130/(1+ex	1.38 2.87 3.5 p(1.072-2.1654*LO	0.88 1.46 1000.0 G10(ToP+0.0001)))	
ut GP	Bottom-Up fatigue β <sub>f1</sub> , β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> C <sub>1-bu</sub> , C <sub>2-bu</sub> , and C <sub>4-bu</sub> Bottom-Up Fatigue Standard Deviation	0.0205 3.75 1.31 1.13 + 13/(1+exp)	1.38 2.87 2.16 (7.57-15.5*L0010	0.88       1.46       6000.0		Top-Down fa C <sub>1-1</sub> Top-Down	tigue β <sub>f1</sub> , β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> d, C <sub>2</sub> -td, and C <sub>4</sub> -td Fatigue Standard Deviation	0.0205 3.75 7.0 10 + 130/(1+ex)	1.38 2.87 3.5 9(1.072-2.1654*LO	0.88 1.46 1000.0	
ut	Bottom-Up fatigue β <sub>f11</sub> , β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> C <sub>1-bu</sub> , C <sub>2-bu</sub> , and C <sub>4-bu</sub> Bottom-Up Fatigue Standard Deviation LAYER RUTTING CALIBRATION COM	0.0205 3.75 1.31 1.13 + 13/(1+exp)	1.38 2.87 2.16 (757-15.5+L0010	<ul> <li>0.88</li> <li>1.46</li> <li>6000.0</li> <li>BOTTOM+0.0001)))</li> </ul>		Top-Down fa	tigue β <sub>f1</sub> , β <sub>f2</sub> , and β <sub>f3</sub> k <sub>f1</sub> , k <sub>f2</sub> , and k <sub>f3</sub> d, C <sub>2-td</sub> , and C <sub>4-td</sub> Fatigue Standard Deviation	0.0205 3.75 7.0 10 + 130/(1+ex	1.38 2.87 3.5 pt1.072-2.1654*L0	0.88 1.46 1000.0	?

## Distresses computed by MEAPA

	Pavement type:	AC-GB	AC-CSM	AC- EAC- GB	AC- EAC- CSM	AC- GB-	AC- GB-
Distress output				00	CSIVI	-GB	CSM
AC top-down fatigue cracking (ft/mile)		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
AC bottom-up fatigue cracking (%)		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
AC thermal cracking (ft/mile)		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Rutting – AC, base subbase and subgrade (in)		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Reflective cracking (% lane area)		-	$\checkmark$	$\checkmark$	<b>√</b> (1)	-	-
Chemically stabilized layer - fatigue fracture da	amage (% lane area)	-	$\checkmark$	-	$\checkmark$	-	-
Existing AC layer - fatigue fracture damage (%	lane area)	-	-	$\checkmark$	$\checkmark$	-	-
International Roughness Index (IRI) (in/mile)	-	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$

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$\leftarrow$ $\rightarrow$ C $\bullet$ paveapps	.com/meapaapp2/Analyze.jsp		☆	M	٢	0 1	þ
MEAPA meminkutay	■ PROJECT : II31_Sta122-149 ~           Run Analysis         Optimize Thickness	ANALYZE					
<ul> <li>Project Detail</li> <li>Pavement Profile</li> </ul>	Analysis run settings						
Vehicle Class Distributions	Distress save period (months):						
Axle Loads <	Structural response 240.0						
🕍 Analyze	Download JSON						
Help <							
Feedback 😨 Logout 🕩							
	ankali Davomont Analysia						
4:	sphart Pavement Analysis						









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<b>MEAPA</b> meminkutay	≡ PRO.	JECT :	1131_Sta	a122-149	~				RESU	LTS			
oject Detail		Re	liability	and Te	rminal L	Distresse	5						
vement Profile		Distres	s			Threshold	F	eliability	Distr	ess Comput	ted @ 20.0 v	vear(s) P	Pass/Fail
		IRI (in/m	nile)			172.0	g	0	142.5			P	ASS
hicle Class Distributions		AC Top-	-Down Fatig	ue Crackino	(ft/mile)	2000.0	8	30	1930.	9		Р	ASS
		AC Bott	om-up Fatig	que Crackin	g (%)	25.0	8	30	1.0			P	PASS
e Loads <		AC The	rmal Crackir	ng (ft/mile)		1000.0	5	30	141.4			P	ASS
		Total Ru	utting (in)			0.75	ç	90	0.34			P	ASS
vanced Coefficients		AC Rutt	ing (in)			0.25	ç	90	0.2			P	ASS
		AC Refle	ective Crack	(ing (%)		25.0		20	0.0			P	PASS
			couve oraci			20.0	:	0	0.0				
alyze				(ing (70)		20.0	5		0.0				
alyze st Run Data <				ung (70)		20.0			0.0				
st Run Data <		Dis	stresse	S		20.0			0.0				:
alyze st Run Data < lip < ick Ø		Dis	IRI (in/mile) (@ 50% reliability)	Rutting Total (in) (@ 50% reliability)	Rutting AC only(in) (@ 50% reliability)	Bottom-up Fatigue Cracking(%) (@ 50% reliability)	Top-down Fatigue Cracking(ft/mile (@ 50% reliability)	Thermal 9) Cracking(ft/mile) (@ 50% reliability)	IRI (in/mile) (@ 90% reliability)	Rutting Total (in) (@ 90% reliability)	Rutting AC only(in) (@ 90% reliability)	Bottom-up Fatigue Cracking(% (@ 80% reliability)	Top-dowr Fatigue ) Cracking( (@ 80% reliability
Run Data <		Dis Month	IRI (in/mile) (@ 50% reliability) 63.0	Rutting Total (in) (@ 50% reliability) 0.081	Rutting AC only(in) (@ 50% reliability) 0.018	Bottom-up Fatigue Cracking(%) (@ 50% reliability) 0.0	Top-down Fatigue Cracking(ft/mile (@ 50% reliability) 0.4	Thermal 9) Cracking(ft/mile) (@ 50% reliability) 0.0	IRI (in/mile) (@ 90% reliability) 71.1	Rutting Total (in) (@ 90% reliability) 0.121	Rutting AC only(in) (@ 90% reliability) 0.031	Bottom-up Fatigue Cracking(% (@ 80% reliability) 1.0	Top-dowr Fatigue ) Cracking( (@ 80% reliability 22.7
ze vun Data < < ?		Dis Month 1 2	IRI ((m/mile) ((@ 50% reliability) 63.0 66.5	Rutting Total (in) (@ 50% reliability) 0.081 0.087	Rutting AC only(in) (@ 50% reliability) 0.018 0.018	Bottom-up Fatigue Cracking(%) (@ 50% reliability) 0.0	Top-down Fatigue Cracking(ft/mile (@ 50% reliability) 0.4 0.6	Thermal e) Cracking(ft/mile) (@ 50% reliability) 0.0 0.0	IRI (in/mile) (@ 90% reliability) 71.1 88.9	Rutting Total (in) (@ 90% reliability) 0.121 0.128	Rutting           AC           only(in)           (@ 90%           reliability)           0.031	Bottom-up Fatigue Cracking(% (@ 80% reliability) 1.0 1.0	Top-dowr Fatigue ) Cracking( @ 80% reliability 22.7 29.3
n Data < <		Dis Month 1 2 3	IRI ((m/mile) ((m 50%) reliability) 63.0 66.5 66.6	Rutting Total (in) (@ 50% reliability) 0.081 0.087 0.089	Rutting           AC           only(in)           (@ 50%)           reliability)           0.018           0.018           0.018	Bottom-up Fatigue Cracking(%) (@ 50% reliability) 0.0 0.0 0.0 0.0	Top-down Fatigue Cracking(ft/mila (@ 50% reliability) 0.4 0.6 0.8	Thermal c) Cracking(ft/mile) (@ 50% reliability) 0.0 0.0 0.0 0.0	IRI (in/mile) (@ 90% reliability) 71.1 88.9 89.0	Rutting Total (in) (@ 90% reliability) 0.121 0.128 0.131	Rutting           AC           only(in)           (@ 90%)           reliability)           0.031           0.032	Bottom-up Fatigue Cracking(% (@ 80% reliability) 1.0 1.0 1.0	Top-dowr Fatigue ) Cracking( @ 80% reliability 22.7 29.3 32.5
Data < <		<b>Dis</b> Month 1 2 3 4	IRI (in/mile) (@ 50% reliability) 63.0 66.5 66.6 66.7	Rutting Total (in) (@ 50% reliability) 0.081 0.087 0.089 0.091	Rutting AC only(in) (@ 50% reliability) 0.018 0.018 0.018 0.018	Bottom-up Fatigue Cracking(%) (@ 50% reliability) 0.0 0.0 0.0 0.0	Top-down Fatigue Cracking(ft/mile (@ 50% reliability) 0.4 0.6 0.8 0.9	Thermal ) Cracking(ft/mile) (@ 50% reliability) 0.0 0.0 0.0 0.0	IRI (in/mile) (@ 90% reliability) 71.1 88.9 89.0 89.0 89.2	Rutting Total (in) (@ 90% reliability) 0.121 0.128 0.131 0.133	Rutting           AC           only(in)           (@ 90%)           reliability)           0.031           0.032           0.032	Bottom-up Fatigue Cracking(% (@ 80% reliability) 1.0 1.0 1.0 1.0	Top-dowr Fatigue ) Cracking( (@ 80% reliability 22.7 29.3 32.5 35.1
Data < <		Dis Month 1 2 3 4 5	IRI (in/mile) (@ 50% reliability) 63.0 66.5 66.6 66.7 66.8 66.7	Rutting Total (in) (@ 50% reliability) 0.081 0.087 0.089 0.091 0.092	Rutting           AC           only(in)           (@ 50%           reliability)           0.018           0.018           0.018           0.018	Bottom-up Patigue Cracking(%) (@ 50% reliability) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Top-down Fatigue Cracking(ft/mili (@ 50% reliability) 0.4 0.6 0.6 0.8 0.9 1.0	Thermal e) Cracking(ft/mile) (@ 50% reliability) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	IRI (in/mile) (@ 90% reliability) 71.1 88.9 89.0 89.2 89.3 89.3	Rutting Total (in) (@ 90% reliability) 0.121 0.128 0.131 0.133 0.135	Rutting           AC           only(in)           (@ 90%)           reliability)           0.031           0.032           0.032           0.032	Bottom-up Fatigue Cracking(%) (@ 80% reliability) 1.0 1.0 1.0 1.0 1.0	Top-dowr Fatigue ) Crackingi (@ 80% reliability 22.7 29.3 32.5 35.1 37.8
Data < <		<b>Dis</b> Month 1 2 3 4 5 6 6 7	IRI (in/mile) (@ 50% reliability) 66.5 66.6 66.6 66.7 66.8 66.9 67.0	Rutting Total (in) (@ 50% reliability) 0.081 0.087 0.089 0.091 0.092 0.094	Rutting AC only(in) (@ 50% reliability) 0.018 0.018 0.018 0.018 0.018	Bottom-up Fatigue Cracking(%) (@ 50% reliability) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Top-down Fatigue Cracking(ft/mile (@ 50% reliability) 0.4 0.6 0.8 0.9 1.0 1.2 1.2	Thermal e) Cracking(ft/mile) (@ 50% reliability) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	IRI (in/mile) (@ 90% reliability) 71.1 88.9 89.0 89.2 89.3 89.4 89.4	Rutting Total (in) (@ 90% reliability) 0.121 0.128 0.131 0.133 0.135 0.137	Rutting           AC           only(in)           (@ 90%)           reliability)           0.031           0.032           0.032           0.032           0.032           0.032	Bottom-up Fatigue Cracking(%) (@ 80% reliability) 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Top-down Fatigue () Cracking() (20.3 29.3 32.5 35.1 37.8 40.6 43.4
un Data < < ?		<b>Dis</b> <b>Month</b> 1 2 3 4 5 6 7 7 8	RI ((in/mile) (@ 50% reliability) 63.0 66.5 66.6 66.7 66.8 66.9 67.0 67.0	Rutting Total (in) (@ 50% reliability) 0.081 0.089 0.091 0.092 0.094 0.095 0.098	Rutting           AC           only(in)           (@ 50%)           reliability)           0.018           0.018           0.018           0.018           0.018           0.018           0.018           0.018           0.018           0.018           0.018           0.018           0.018           0.018	Bottom-up Fatigue Cracking(%) (@ 50% reliability) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Top-down Fatigue Cracking(ft/mild (@ 50% reliability) 0.4 0.6 0.8 0.9 1.0 1.2 1.3 1.6	Thermal           e)         Cracking(ft/mile)           (@ 50%           reliability)           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0	IRI (in/mile) (@ 90% reliability) 71.1 88.90 89.0 89.2 89.3 89.4 89.6 89.8	Rutting Total (in) (@ 90% reliability) 0.121 0.138 0.131 0.133 0.135 0.137 0.139 0.139	Rutting           AC           only(in)           (@ 90%)           reliability)           0.031           0.032           0.032           0.032           0.032           0.032           0.032           0.032           0.032           0.032	Bottom-up Fatigue Cracking(% (@ 80% reliability) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Top-down Fatigue () Cracking() (@ 80% reliability 22.7 29.3 32.5 35.1 37.8 40.6 43.4 48.5

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e paveapps.com/me	apaapp2/ResultsAt	Rel.jsp?re	lcalcd=1									Ð	☆ _^
<b>EAPA</b> eminkutay			: 1131_St	a122-149	~	621/0	The di	RES	SULTS	sirod	l rolia	bility	, sailt k
Detail	calcul	ated	l in fe	evels ew se	cond	s (no	need to	o re-run	the a	inaly	sis)	aonity	VVIII K
nent Profile		Distre	ss			Threshold		Reliability	Distr	ess Compu	ted @ 20.0	year(s) F	ass/Fail
		IRI (in	/mile)			172.0	9	90	142.5			F	ASS
ass Distributions		AC To	p-Down Fati	gue Crackin	g (ft/mile)	2000.0	7	80	1930	.9		F	ASS
		AC Bo	ttom-up Fati	igue Crackin	g (%)	25.0		75	1.0			F	ASS
ds <		AC Th	ermal Crack	ing (ft/mile)		1000.0		80	141.4			F	ASS
		Total F	Rutting (in)			0.75		90	0.34			F	ASS
ed Coefficients		AC Ru	tting (in)			0.25		90	0.2			F	ASS
		AC Re	flective Crac	kina (%)		25.0		90	0.0			F	ASS
Data <													
,		D	Istresse	is.									:
9 *		Montl	IRI (in/mile) (@ 50% n reliability)	Rutting Total (in) (@ 50% ) reliability)	Rutting AC only(in) (@ 50% reliability)	Bottom-up Fatigue Cracking(%) (@ 50% reliability)	Top-down Fatigue Cracking(ft/mil (@ 50% reliability)	Thermal e) Cracking(ft/mile) (@ 50% reliability)	IRI (in/mile) (@ 90% reliability)	Rutting Total (in) (@ 90% reliability)	Rutting AC only(in) (@ 90% reliability)	Bottom-up Fatigue Cracking(% (@ 80% reliability)	Top-down Fatigue ) Cracking(fi (@ 80% reliability)
		1	63.0	0.081	0.018	0.0	0.4	0.0	71.1	0.121	0.031	1.0	22.7
		2	66.5	0.087	0.018	0.0	0.6	0.0	88.9	0.128	0.032	1.0	29.3
		3	66.6	0.089	0.018	0.0	0.8	0.0	89.0	0.131	0.032	1.0	32.5
		4	66.7	0.091	0.018	0.0	0.9	0.0	89.2	0.133	0.032	1.0	35.1
		5	66.8	0.092	0.018	0.0	1.0	0.0	89.3	0.135	0.032	1.0	37.8
		6	66.9	0.094	0.018	0.0	1.2	0.0	89.4	0.137	0.032	1.0	40.6
		7	67.0	0.095	0.018	0.0	1.3	0.0	89.6	0.139	0.032	1.0	43.4
		8	67.1	0.098	0.019	0.0	1.6	0.0	89.8	0.142	0.032	1.0	48.5
		0	1.7.0	0.104	0.024	0.0		0.0	un 2	0.15	0.04	10	62.2

• ° ° °        • • • ° ° °        • • • • • • • • • • • • • • • • • • •															
MEAPA memolouluy         E         ROJECT: H31SH72:49 ×         RESULTS         Results         Participation           Project Detail         Project	$\leftarrow$ $\rightarrow$ C $($ <b>a</b> paveapps.com/meapaapp2/Resu	ultsAtRel.	.jsp?relcalc	:d=1									(	Ð 🕁 🚾 (	0
Policic Detail         Provinit	MEAPA ≡ PRO meminkutay	JECT :	1131_Sta1	22-149 ~					RE	SULTS					Save
Perment Profile         Intrast         Trasthold         Relability         Distress Computed Q 2.0 year()         Pear(A)           Variable Class Distributions         Alse Leads         Alse Le	🔚 Project Detail	F	eliabilit}	/ and Te	rminal I	Distresse	15								
• Vehicle Class Distributions         Image: 100 minimized processing (formine)         172 0         0 minimized processing (formine)         1930 0         1930 0         1930 0         1935 0           • Add Loads         • Add anced Coefficients         4 Composition (formine)         100 0         80         1930 0         0.34         1935 0           • Add anced Coefficients         • Composition (formine)         100 0         80         101 0         0.34         1935 0           • Add anced Coefficients         • Composition (formine)         102 0         80         0.34         1935 0           • Composition (formine)         102 0         100         0.24         1935 0         1935 0           • Composition (formine)         102 0         103         0.02         104         1935 0           • Composition (formine)         1030 0         104         102 0         0.04         0.02         104 0           • Composition (formine)         102 0         103 0         104 0	Pavement Profile	Distr	ess			Tł	reshold	Reliability	v	D	istress Con	puted @ 20.0	) vear(s)	Pass/Fail	
• Vehicle Class Distributions         A.C Top-Down Fatigue Cracking (11/mle)         2000         80         1930.9         PAS           • A to Loads         • A to Loads         • A to Loads         • A to Loads         • A to Second         90.         141.4         PAS           • A to Loads         • A to main Class Distributions         • A to main Class Distributions         90.         141.4         PAS           • A to Loads         • A to main Class Distributions         0.28         90         0.2         PAS           • A to block         • A to the main Class Distributions         0.28         90         0.0         PAS           • A to block         • A to the main Class Distributions         0.0         PAS         PAS           • A to block         • A to the main Class Distributions         0.0         0.0         PAS           • A to block         • B to the main Class Distributions         0.0         0.0         PAS           • Download PDF Roport         • B to the main Class Distributions         Fatigue Class Distributions         Fatigue Class Distributions         Terminal Class Distributions         Terminal Class Distributions           • Download (JO Date         • Download (JO Date         • Download (JO Date         • P To Down N to To Class Distributions         Pas         P To Class Distributio		IRI (ir	ı/mile)			17	2.0	90		1.	42.5		,	PASS	
Arde Loads       A de Bettom-up Fatigue Cracking (%)       25.0       75       10       P       PASS         A dvanced Coefficients       A dvanced Coefficients       0.0       80       14.4       PASS         A nalyze       0.2       0.2       0.2       PASS       PASS         A nalyze       0.2       0.2       PASS       PASS         View Distresses       Download (%)       0.2       0.2       PASS         I full multing (%)       Cracking (%)       25.0       90       0.2       PASS         Download (%) Data       Internet Cracking (%)       25.0       90       0.2       PASS         Download (%) Data       Internet Cracking (%)       25.0       90       0.2       PASS         Download (%) Data       Internet Cracking (%)       Pass       Pass       Pass         Download (%) Data       Internet Cracking (%)       Pass       Pass       Pass       Pass       Pass       Pass       Pass       Pass	Vehicle Class Distributions	AC To	op-Down Fati	gue Crackin	g (ft/mile)	21	0.000	80		1	930.9			PASS	
A Charmed Coefficients       A Charmed Coefficients       A Charmed Cracking (frimin)       00000       80       141.4       PASS         A Analyze       0.78       00       0.34       PASS         A Charmed Coefficients       0.78       00       0.24       PASS         A Charmed Cracking (frimin)       0.78       00       0.24       PASS         A Charmed Cracking (frimin)       0.78       00       0.24       PASS         A Charmed Cracking (frimin)       0.78       00       0.2       PASS         A Charmed Cracking (frimin)       0.78       0.0       0.0       PASS         B Citic Relability       Distresses       Distresses       Distresses       Pass       Pass         Download I/O Data       Riting       Riting       Constant (frimin)       Constant (frimin)       Riting       Constant (frimin)       Riting       Constant (frimin)       Riting       Riting<	Aula Laarla	AC B	ottom-up Fat	igue Crackir	ıg (%)	2!	5.0	75		1.	0			PASS	
Advanced Coefficients	Axie Loads <	AC T	nermal Crack	ing (ft/mile)		10	0000	80		1-	41.4			PASS	
A raty ze       A c Rutting (m)       0.25       90       0.2       PASS         A raty ze       A c Rutting (m)       25.0       90       0.0       PASS         A raty ze       A c Rutting (m)       25.0       90       0.0       PASS         A raty ze       A c Rutting (m)       25.0       90       0.0       PASS         A raty ze       A c Rutting (m)       Reflective Cracking (S)       25.0       90       0.0       PASS         B c Rutting (m)	Advanced Coefficients	Total	Rutting (in)			0.	75	90		0	.34			PASS	
▲ Analyze       Analyze       A C Reflective Cracking (%)       25.0       90       0.0       PAS         ▲ View Distresses       Edit Reliability       Edi		AC R	utting (in)			0.	25	90		0	.2			PASS	
Last Run Data             View Distresses              Edit Reliability	🖞 Analyze	AC R	aflective Crac	king (%)		2	5.0	90		0	.0			PASS	
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Help edback or good in the same state	Download PDF Report Download I/O Data	Mont	IRI (in/mile) (@ 50% ch reliability'	Rutting Total (in) (@ 50% reliability	AC only(in) (@ 50% reliability	Fatigue Cracking(% (@ 50% ) reliability)	Fatigue 5) Cracking(ft/mile (@ 50% reliability)	Thermal ) Cracking(ft/mile) (@ 50% reliability)	IRI (in/mile) (@ 90% reliability)	Rutting Total (in) (@ 90% reliability)	AC only(in) (@ 90% reliability)	Fatigue Cracking(%) (@ 80% reliability)	Fatigue Cracking(ft/mile) (@ 80% reliability)	Thermal Cracking(ft/mile) (@ 80% reliability)	
Help       0.0       88.9       0.128       0.032       1.0       29.3       141.4         ecdback       0       89.0       0.131       0.032       1.0       32.5       141.4         ogout       0       89.0       0.131       0.032       1.0       32.5       141.4         0.0       69.2       0.133       0.032       1.0       32.5       141.4         0.0       69.2       0.133       0.032       1.0       37.8       141.4         0.0       69.3       0.135       0.032       1.0       37.8       141.4         0.0       69.3       0.135       0.032       1.0       40.6       141.4         0.0       69.3       0.135       0.032       1.0       40.6       141.4         0.0       69.3       0.135       0.032       1.0       48.5       141.4         1.1       67.7       0.095       0.018       0.0       1.3       0.0       89.8       0.132       0.032       1.0       48.5       141.4         10       68.5       0.131       0.046       0.0       2.7       0.0       90.2       1.0       48.5       141.4		1	63.0	0.081	0.018	0.0	0.4	0.0	71.1	0.121	0.031	1.0	22.7	141.4	
Hep       0.0       89.0       0.131       0.032       1.0       32.5       141.4         bedback       0.0       89.2       0.133       0.032       1.0       35.1       141.4         bggout       0       69.3       0.135       0.032       1.0       35.1       141.4         10       65.9       0.094       0.016       0.0       1.2       0.0       89.2       0.133       0.032       1.0       35.1       141.4         10       67.0       0.094       0.016       0.0       1.2       0.0       89.4       0.137       0.032       1.0       35.1       141.4         8       67.1       0.099       0.018       0.0       1.2       0.0       89.4       0.137       0.032       1.0       43.4       141.4         8       67.1       0.099       0.01       1.6       0.0       89.8       0.142       0.032       1.0       43.4       141.4         10       68.5       0.118       0.02       2.7       0.0       90.2       0.15       0.04       1.0       62.2       141.4         10       68.5       0.131       0.046       0.0       10.1       0.0					1	ad th	0	0.0	88.9	0.128	0.032	1.0	20.2		
becaback       0       0.03       0.04       0.032       1.0       0.032       1.0       38.1       141.4         becaback       0       0.03       0.135       0.032       1.0       0.032       1.0       141.4         becaback       0       0.09       0.135       0.032       1.0       0.032       1.0       141.4         becaback       7       67.0       0.095       0.018       0.0       1.2       0.0       89.4       0.137       0.032       1.0       40.6       141.4         7       67.0       0.095       0.018       0.0       1.3       0.0       89.8       0.142       0.032       1.0       43.4       141.4         8       67.1       0.098       0.019       0.0       1.6       0.0       89.8       0.142       0.032       1.0       48.5       141.4         9       67.4       0.104       0.024       0.0       2.7       0.0       90.2       0.15       0.04       1.0       62.2       141.4         10       68.0       0.138       0.0       1.01       0.0       91.9       0.182       0.073       1.0       100.8       141.4         1		k he	re to	dov	vnio	auu	e	0.0	00.0	0.101	0.000	1.0	20.5	141.4	
c       06       06.9       0.094       0.018       0.0       1.2       0.0       89.4       0.137       0.032       1.0       40.6       141.4         7       67.0       0.095       0.018       0.0       1.3       0.0       89.6       0.139       0.032       1.0       43.4       141.4         8       67.1       0.098       0.019       0.0       1.6       0.0       89.8       0.142       0.032       1.0       48.5       141.4         9       67.4       0.104       0.024       0.0       2.7       0.0       90.2       0.15       0.04       1.0       62.2       141.4         10       68.0       0.118       0.036       0.0       5.8       0.0       91.9       0.058       1.0       84.5       141.4         11       68.5       0.131       0.046       0.0       10.1       0.0       91.9       0.182       0.073       1.0       100.8       141.4         12       68.8       0.137       0.05       1.0       16.8       0.0       92.5       0.192       0.08       1.0       116.6       141.4         13       69.0       0.139       0.051		k he	re to	dov	vnio	auti	le	0.0	89.0 89.2	0.131	0.032	1.0	32.5	141.4 141.4 141.4	
Opport         P         670         0.095         0.018         0.0         1.3         0.0         896         0.199         0.032         1.0         43.4         141.4           8         67.1         0.098         0.019         0.0         1.6         0.0         89.8         0.142         0.032         1.0         48.5         141.4           9         67.4         0.04         0.02         2.7         0.0         90.2         0.15         0.04         1.0         62.2         141.4           10         68.0         0.118         0.02         5.8         0.0         91.1         0.167         0.058         1.0         84.5         141.4           11         68.0         0.118         0.02         10.1         0.0         91.9         0.182         0.073         1.0         10.4         14.4           12         68.8         0.137         0.05         0.0         14.6         0.0         92.3         0.19         0.08         1.0         114.4           12         68.8         0.137         0.0         16.8         0.0         92.5         0.192         0.08         1.0         114.0           12	Help <	k he repo	re to <mark>ort</mark>	dov	vnio	au ti	le	0.0 0.0 0.0	89.0 89.2 89.3	0.131 0.133 0.135	0.032 0.032 0.032	1.0 1.0 1.0	32.5 35.1 37.8	141.4 141.4 141.4 141.4	
867.10.0980.090.01.60.089.80.1420.0321.048.5141.4967.40.040.020.02.70.090.20.150.041.062.2141.41068.00.1180.0360.05.80.091.10.1670.0581.084.5141.41168.00.1310.0460.010.10.091.90.1820.0731.010.4141.41268.80.3370.050.014.60.092.30.190.071.0111.6141.41369.00.390.0510.017.60.092.60.1930.081.010.6141.41469.00.190.160.092.60.1930.081.0116.0141.4	Help < Clicl	k he repo	re to ort	0.094	vnio			0.0 0.0 0.0 0.0	89.0 89.2 89.3 89.4	0.131 0.133 0.135 0.137	0.032 0.032 0.032 0.032	1.0 1.0 1.0 1.0	32.5 35.1 37.8 40.6	141.4 141.4 141.4 141.4 141.4	
9       67.4       0.04       0.024       0.0       2.7       0.0       90.2       0.15       0.04       1.0       62.2       141.4         10       68.0       0.118       0.036       0.0       5.8       0.00       91.1       0.167       0.058       1.0       84.5       141.4         11       68.5       0.131       0.046       0.0       10.1       0.0       91.9       0.182       0.073       1.0       84.5       141.4         12       68.8       0.137       0.05       0.0       14.6       0.0       92.3       0.19       0.073       1.0       111.6       141.4         13       69.0       0.139       0.051       0.0       16.8       0.0       92.5       0.192       0.08       1.0       141.4         14       69.0       0.13       0.051       0.0       17.6       0.0       92.6       0.193       0.08       1.0       114.4	Help < Clicl eedback @ pdf	k he repo <sup>7</sup>	ore to	0.094 0.095	0.018 0.018	0.0 0.0	1.2 1.3	0.0 0.0 0.0 0.0 0.0 0.0	89.0 89.2 89.3 89.4 89.6	0.131 0.133 0.135 0.137 0.139	0.032 0.032 0.032 0.032 0.032	1.0 1.0 1.0 1.0 1.0	32.5 35.1 37.8 40.6 43.4	141.4 141.4 141.4 141.4 141.4 141.4 141.4	
10       68.0       0.118       0.036       0.0       5.8       0.0       91.1       0.167       0.058       1.0       84.5       141.4         11       68.5       0.131       0.046       0.0       10.1       0.0       91.9       0.182       0.073       1.0       100.8       141.4         12       68.8       0.137       0.05       0.0       14.6       0.0       92.3       0.19       0.079       1.0       111.6       141.4         13       69.0       0.139       0.051       0.0       16.8       0.0       92.5       0.192       0.08       1.0       116.0       141.4         14       69.0       0.139       0.051       0.0       16.8       0.0       92.5       0.192       0.08       1.0       116.0       141.4         14       69.0       0.139       0.051       17.6       0.0       92.6       0.193       0.08       1.0       116.0       141.4	Help < eedback @ ogout @	k he repo	re to	0.094 0.095 0.098	0.018 0.019	0.0 0.0	1.2 1.3 1.6	0.0 0.0 0.0 0.0 0.0 0.0 0.0	89.0 89.2 89.3 89.4 89.6 89.8	0.131 0.133 0.135 0.137 0.139 0.142	0.032 0.032 0.032 0.032 0.032 0.032	1.0 1.0 1.0 1.0 1.0 1.0	32.5 35.1 37.8 40.6 43.4 48.5	141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4	
11       68.5       0.131       0.046       0.0       10.1       0.0       91.9       0.182       0.073       1.0       100.8       141.4         12       68.8       0.137       0.05       0.0       14.6       0.0       92.3       0.19       0.079       1.0       111.6       141.4         13       69.0       0.139       0.051       0.0       16.8       0.0       92.5       0.192       0.08       1.0       116.0       141.4         14       69.0       0.14       0.051       0.0       17.6       0.0       92.6       0.193       0.08       1.0       116.0       141.4	I Help < Clicl eedback	k he repo	re to ort 67.0 67.1 67.4	0.094 0.095 0.098 0.104	0.018 0.018 0.019 0.024	0.0 0.0 0.0	1.2 1.3 1.6 2.7	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	89.0 89.2 89.3 89.4 89.6 89.8 90.2	0.131 0.133 0.135 0.137 0.139 0.142 0.15	0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	22.5 32.5 35.1 37.8 40.6 43.4 48.5 62.2	141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4	
12       05.6       0.157       0.05       0.0       14.6       0.0       92.5       0.19       0.079       1.0       111.6       141.4         13       69.0       0.139       0.051       0.0       16.8       0.0       92.5       0.192       0.08       1.0       116.0       141.4         14       69.0       0.14       0.051       0.0       17.6       0.0       92.6       0.193       0.08       1.0       117.5       141.4	I Help < Clicl eedback @ pdf	k he repo 7 8 9 10	re to ort 67.0 67.1 67.4 68.0	0.094 0.095 0.098 0.104 0.118	0.018 0.019 0.024 0.036	0.0 0.0 0.0 0.0 0.0	1.2 1.3 1.6 2.7 5.8	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	89.0 89.2 89.3 89.4 89.6 89.8 90.2 91.1	0.131 0.133 0.135 0.137 0.139 0.142 0.15 0.167	0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.04 0.058	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	23.5 32.5 35.1 37.8 40.6 43.4 48.5 62.2 84.5	141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4	
10         0.00         0.00         0.00         0.00         0.00         0.00         100         100         141.4           14         69.0         0.14         0.051         0.0         17.6         0.0         92.6         0.193         0.08         1.0         117.5         141.4	∎ Help 、 Clicl Feedback @ pdf	k he repo 7 8 9 10 11	67.0 67.1 67.4 68.0 68.5	0.094 0.095 0.098 0.104 0.118 0.131	0.018 0.018 0.019 0.024 0.036 0.046	0.0 0.0 0.0 0.0 0.0 0.0	1.2 1.3 1.6 2.7 5.8 10.1	0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	89.0 89.2 89.3 89.4 89.6 89.8 90.2 91.1 91.9	0.131 0.133 0.135 0.137 0.139 0.142 0.15 0.167 0.182	0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.04 0.058 0.073	1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	22.5 32.5 35.1 37.8 40.6 43.4 48.5 62.2 84.5 100.8	141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4 141.4	
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		Distress S	ummarv		
			Target	Distance @ 20.0	Pass
	Distress	Threshold	Reliability	year(s)	/Fail
	IRI (in/mile)	172.0	90.0%	142.5	PASS
	AC Top-Down Fatigue Cracking (ft/mile)	2000.0	80.0%	1930.9	PASS
	AC Bottom-up Fatigue Cracking (%)	25.0	80.0%	1.0	PASS
4	AC Thermal Cracking (ft/mile)	1000.0	80.0%	141.4	PASS
	Total Rutting (in)	0.75	90.0%	0.34	PASS
	AC Rutting (in)	0.25	90.0%	0.2	PASS
	AC Reflective Cracking (%)	25.0	90.0%	0.0	N/A
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_	Nahicla Class Distributions	IRI (i	n/mile)			1	72.0	90			142.5			PASS	
		AC 1	op-Down Fa	tigue Crackin	g (ft/mile)	2	2000.0	80			1930.9			PASS	
	🛕 Axle Loads 🛛 🔍	AC E	bermal Cra	stigue Crackin sking (ft/mile)	ig (76)	2	15.0	80			1.0			PASS	
_		Tota	Rutting (in)	, and the second		0	0.75	90			0.34			PASS	
_	Advanced Coefficients	AC F	lutting (in)			0	0.25	90			0.2			PASS	
	🐸 Analyze	AC F	teflective Cr	acking (%)		2	15.0	90			0.0			PASS	
	In Last Due Date														
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	Download PDF Report		IRI (in/mile)	Rutting Total (in)	Rutting AC	Fatigue Cracking(%)	Top-down Fatigue	Thermal	IRI (in/mile)	Rutting Total (in)	Rutting AC	Fatigue	Fatigue Cracking(ft/mile)	Thermal Cracking(ft/mile	
			(@ 50%	(@ 50%	50%	(@ 50%	(@ 50%	(@ 50%	(@ 90%	(@ 90%	90%	(@ 80%	(@ 80%	(@ 80%	
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		2	66.5	0.087	0.018	0.0	0.6	0.0	88.9	0.128	0.032	1.0	29.3	141.4	
	E Help <	3	66.6	0.089	0.018	0.0	0.8	0.0	89.0	0.131	0.032	1.0	32.5	141.4	
		4	66.7	0.091	0.018	0.0	0.9	0.0	89.2	0.133	0.032	1.0	35.1	141.4	
	Feedback 🚱	6	66.9	0.092	0.018	0.0	1.2	0.0	89.4	0.135	0.032	1.0	40.6	141.4	
		7	67.0	0.095	0.018	0.0	1.3	0.0	89.6	0.139	0.032	1.0	43.4	141.4	
ra ta viavu tha d	istrass	8	67.1	0.098	0.019	0.0	1.6	0.0	89.8	0.142	0.032	1.0	48.5	141.4	
re to view the d	istress	9	67.4	0.104	0.024	0.0	5.8	0.0	90.2	0.167	0.058	1.0	62.2 84.5	141.4	
		11	68.5	0.131	0.046	0.0	10.1	0.0	91.9	0.182	0.073	1.0	100.8	141.4	
		12	68.8	0.137	0.05	0.0	14.6	0.0	92.3	0.19	0.079	1.0	111.6	141.4	
		13	69.0	0.139	0.051	0.0	16.8	0.0	92.5	0.192	0.08	1.0	116.0	141.4	
		15	69.1	0.14	0.051	0.0	18.1	0.0	92.7	0.193	0.08	1.0	118.2	141.4	
		16	69.2	0.14	0.051	0.0	18.4	0.0	92.8	0.194	0.08	1.0	118.8	141.4	
		17	69.2	0.141	0.051	0.0	18.8	0.0	92.9	0.194	0.08	1.0	119.5	141.4	
_		18	69.3	0.141	0.051	0.0	19.5	0.0	93.0	0.194	0.08	1.0	120.1	141.4	
		20	69.4	0.142	0.051	0.0	20.3	0.0	93.2	0.195	0.08	1.0	122.1	141.4	
		21	69.6	0.144	0.052	0.0	22.9	0.0	93.4	0.198	0.082	1.0	126.1	141.4	
		22	69.8	0.148	0.055	0.0	29.0	0.0	93.7	0.203	0.086	1.0	134.9	141.4	
		23	70.3	0.154	0.062	0.0	43.6	0.0	94.5	0.211	0.095	1.0	152.9	141.4	
		25	70.4	0.159	0.062	0.0	46.9	0.0	94.6	0.216	0.097	1.0	156.8	141.4	
		26	70.5	0.159	0.062	0.0	48.1	0.0	94.7	0.217	0.097	1.0	158.2	141.4	
		27	70.6	0.159	0.062	0.0	48.8	0.0	94.9	0.217	0.097	1.0	158.9	141.4	
		20	70.0	0.10	0.002	0.0	49.8	0.0	95.1	0.217	0.097	1.0	160.1	141.4	
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Pavement Profile	Dist	ress			ті	nreshold	Reliabilit	у	[	Distress Cor	nputed @ 20.	D year(s)	Pass/Fail
	IRI (	in/mile)			15	72.0	90		1	42.5			PASS
Vehicle Class Distributions	AC 1	fop-Down Fa	tigue Crackir	ng (ft/mile)	2	000.0	80		1	1930.9			PASS
	AC I	3ottom-up F	atigue Cracki	ng (%)	2	5.0	75		1	1.0			PASS
Axie Loads <	AC 1	fhermal Cra	king (ft/mile)		10	0.000	80		1	141.4			PASS
Advanced Coefficients	Tota	I Rutting (in)			0	.75	90		(	0.34			PASS
	AC I	Rutting (in)			0	.25	90		C	0.2			PASS
🔟 Analyze	AC I	Reflective Cr	acking (%)		2	5.0	90		(	0.0			PASS
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<ul> <li>View Distresses</li> <li>Edit Reliability</li> </ul>		Distress	es										•
				Rutting	Rottom-up	The second second							
<ul> <li>Download PDF Report</li> <li>Download I/O Data</li> </ul>	Mor	IRI (in/mile) (@ 50% 1th reliabilit	Rutting Total (in) (@ 50% y) reliability	AC only(in) (@ 50% ) reliability	Fatigue Cracking(% (@ 50% r) reliability)	Fatigue Fatigue 6) Cracking(ft/mile) (@ 50% reliability)	Thermal Cracking(ft/mile) (@ 50% reliability)	IRI ) (in/mile) (@ 90% reliability	Rutting Total (in) (@ 90% reliability	AC only(in) (@ 90% ) reliability)	Bottom-up Fatigue Cracking(%) (@ 80% reliability)	Top-down Fatigue Cracking(ft/mile) (@ 80% reliability)	Thermal Cracking(ft/mile) (@ 80% reliability)
<ul> <li>Download PDF Report</li> <li>Download I/O Data</li> </ul>	Mor 1	IRI (in/mile) (@ 50% Ith reliabilit	Rutting Total (in) (@ 50% y) reliability 0.081	AC only(in) (@ 50% ) reliability 0.018	Fatigue Cracking(% (@ 50% reliability) 0.0	Fatigue 6) Cracking(ft/mile) (@ 50% reliability) 0.4	Thermal Cracking(ft/mile) (@ 50% reliability) 0.0	IRI ) (in/mile) (@ 90% reliability 71.1	Rutting Total (in) (@ 90% ) reliability 0.121	AC only(in) (@ 90% ) reliability) 0.031	Bottom-up Fatigue Cracking(%) (@ 80% reliability) 1.0	Top-down Fatigue Cracking(ft/mile) (@ 80% reliability) 22.7	Thermal Cracking(ft/mile) (@ 80% reliability) 141.4
<ul> <li>Download PDF Report</li> <li>Download I/O Data</li> </ul>	Mor 1 2	IRI (in/mile) (@ 50% tth reliabilit 63.0 66.5	Rutting Total (in) (@ 50% y) reliability 0.081 0.087	AC only(in) (@ 50% ) reliability 0.018 0.018	Fatigue Cracking(% (@ 50% r) reliability) 0.0 0.0	Fatigue 6) Cracking(ft/mile) (@ 50% reliability) 0.4 0.6	Thermal Cracking(ft/mile) (@ 50% reliability) 0.0 0.0	IRI (in/mile) (@ 90% reliability 71.1 88.9	Rutting Total (in) (@ 90% reliability 0.121 0.128	AC only(in) (@ 90%) ) reliability) 0.031 0.032	Bottom-up Fatigue Cracking(%) (@ 80% reliability) 1.0 1.0	Top-down Fatigue Cracking(ft/mile) (@ 80% reliability) 22.7 29.3	Thermal Cracking(ft/mile) (@ 80% reliability) 141.4 141.4
<ul> <li>Download PDF Report</li> <li>Download I/O Data</li> <li>Help</li> </ul>	Mor 1 2 3	IRI (in/mile) (@ 50% reliabilit 63.0 66.5 66.6	Rutting Total (in) (@ 50% y) reliability 0.081 0.087 0.089	AC only(in) (@ 50%) ) reliability 0.018 0.018 0.018	Fatigue Cracking(% (@ 50% reliability) 0.0 0.0 0.0	Fatigue 6 Cracking(ft/mile) (@ 50% reliability) 0.4 0.6 0.8	Thermal Cracking(ft/mile) (@ 50% reliability) 0.0 0.0 0.0	IRI (in/mile) (@ 90% reliability 71.1 88.9 89.0	Rutting Total (in) (@ 90%) reliability 0.121 0.128 0.131	AC only(in) (@ 90% ) reliability) 0.031 0.032 0.032	Bottom-up Fatigue Cracking(%) (@ 80% reliability) 1.0 1.0 1.0	Top-down Fatigue Cracking(ft/mile) (@ 80% reliability) 22.7 29.3 32.5 35.1	Thermal           Cracking(ft/mile)           (@ 80%           reliability)           141.4           141.4           141.4           141.4
Download PDF Report  Download I/O Data Help	lick here	IRI (in/mile; (@ 50%) the reliabiliti 63.0 66.5 66.6	Rutting Total (in) (© 50% y) reliability 0.081 0.087 0.089	AC only(in) (@ 50% ) reliability 0.018 0.018 0.018	Fatigue Cracking(% (@ 50% r) reliability) 0.0 0.0 0.0 0.0	Fatigue Cracking(ft/mile) (© 50% reliability) 0.4 0.6 0.8	Thermal           0 Cracking(ft/mile)           (@ 50%           reliability)           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0	RI (@ 90% reliability 71.1 88.9 89.0 89.2 89.3	Rutting Total (in) (@ 90%) reliability 0.121 0.128 0.131 0.133 0.135	AC only(in) (@ 90% ) reliability) 0.031 0.032 0.032 0.032	Bottom-up Fatigue Cracking(%) (@ 80% reliability) 1.0 1.0 1.0 1.0	Top-down Fatigue Cracking(ft/mile) (@ 80% reliability) 22.7 29.3 32.5 35.1 37.8	Thermal           Cracking(ft/mile)           (@ 80%           reliability)           141.4           141.4           141.4           141.4           141.4           141.4
Download PDF Report  Download I/O Data Help	lick here	IRI (in/mile, (@ 50%) reliabilit 63.0 66.5 66.6 2 <b>to</b> (	Rutting Total (in) (@ 50%) y) reliability 0.081 0.087 0.089	AC only(in) (@ 50% ) reliability 0.018 0.018 0.018	Cracking(% (@ 50% )) reliability) 0.0 0.0 0.0 d the	Fatigue 5) Cracking(ft/mile) (@ 50% reliability) 0.4 0.6 0.8	Thermal Cracking(ft/mile) (@ 50% reliability) 0.0 0.0 0.0 0.0 0.0 0.0	RI (@ 90%) reliability 71.1 88.9 89.0 89.2 89.3 89.4	Rutting Total (in) (@ 90%) reliability 0.121 0.128 0.131 0.133 0.135 0.137	AC only(in) (@ 90% ) reliability) 0.031 0.032 0.032 0.032 0.032 0.032	Bottom-up           Fatigue           Cracking(%)           (@ 80%           reliability)           1.0           1.0           1.0           1.0           1.0           1.0           1.0           1.0           1.0           1.0           1.0           1.0	Top-down Fatigue Cracking(ft/mile) (@ 80% reliability) 22.7 29.3 32.5 35.1 37.8 40.6	Thermal           Cracking(ft/mile)           (@ 80%           reliability)           141.4           141.4           141.4           141.4           141.4           141.4           141.4
Download PDF Report  Download I/O Data Help edback	lick here	IRI (in/mile (@ 50%) reliabilit 66.5 66.6 2 to ( t/ou	Rutting Total (in) (@ 50%) y) reliability 0.081 0.087 0.089 0.089	AC only(in) (@ 50% ) reliability 0.018 0.018 0.018	Cracking(% Cracking(% (@ 50% )) reliability) 0.0 0.0 0.0 0.0 0.0	Fatigue Satigue (@ 50% reliability) 0.4 0.6 0.8	Thermal           Cracking(ft/mile)           (@ 50%)           reliability)           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0	IRI           (in/mile)           (@ 90%)           reliability           71.1           88.9           89.0           89.2           89.3           89.4           89.6	Rutting Total (in) (@ 90%) 0.121 0.128 0.131 0.133 0.135 0.137 0.139	AC only(in) (@ 90%) ) reliability) 0.031 0.032 0.032 0.032 0.032 0.032 0.032	Bottom-up Fatigue Cracking(%) (@ 80% reliability) 1.0 1.0 1.0 1.0 1.0 1.0	Top-down           Fatigue           Cracking(ft/mile)           (@ 80%           reliability)           22.7           29.3           25.5           35.1           37.8           40.6           43.4	Thermal           Cracking(ft/mile)           (@ 80%           reliability)           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4
Download PDF Report	lick here	IRI (in/mile (@ 50%) th reliabilit 63.0 66.5 66.6 2 to ( t/ou	Rutting Total (in) (@ 50%) preliability 0.081 0.087 0.089 0.089	AC only(in) (© 50% ) reliability 0.018 0.018 0.018 0.018 0.018	Cracking(% (@ 50% () reliability) 0.0 0.0 0.0 0.0 d the	103-20041           Fatigue           6) Cracking(ft/mile)           (@ 50%           reflability)           0.4           0.6           0.8	Thermal           Cracking(ft/mile)           (@ 50%           reliability)           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0	IRI           (m/mile)           (@ 90%)           reliability           71.1           88.9           89.0           89.2           89.3           89.4           89.6           89.8	Rutting           Total (in)           (ie) 90%           ollability           0.121           0.128           0.131           0.133           0.135           0.137           0.139           0.142	AC only(in) (@ 90%) ) reliability) 0.031 0.032 0.032 0.032 0.032 0.032 0.032 0.032	Bottom-up Fatigue Cracking(%) (@ 80% reliability) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Top-down           Fatigue           Fatigue           Cracking(ft/mile)           Cracking(ft/mile)           (@ 80%           reliability           22.7           29.3           35.1           37.8           40.6           43.4           48.5	Hermal           Cracking(ft/mile)           (@ 80%)           reliability)           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4
Download PDF Report	lick here	IRI (in/mile (© 50%) 66.5 66.6 2 to ( t/our) 67.4	Rutting Total (in) (@ 50% y) reliability 0.081 0.087 0.089 0.0990 0.099 0.0990 0.0990 0.00	AC only(in) (@ 50% ) reliability 0.018 0.018 0.018 0.018 0.018 0.018 0.018 0.018	Bitigue           Fatigue           Cracking(%           (@ 50%           () reliability)           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0	2.7	Thermal           Cracking(ft/mile)           (@ 50%           reliability)           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0           0.0	RI (in/mile) (@ 90%) reliability 71.1 88.9 89.0 89.2 89.3 89.4 89.4 89.6 89.6 89.8 89.8 89.8 89.8 89.8	Rutting           Total (in)           (@ 90%)           reliability           0.121           0.128           0.131           0.133           0.135           0.137           0.139           0.139           0.142           0.139           0.139           0.139           0.142	AC only (in) (@ 90%) ) reliability) 0.031 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032 0.032	Bottom-up Fatigue Cracking(%) (@ 80% reliability) 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Top-down Fatigue Cracking(ft/mile) (@ 80% 22.7 29.3 22.5 35.1 37.8 40.6 43.4 43.5 62.2	Thermal           Cracking(ft/mile)           (@ 80%           reliability)           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4           141.4
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## A web-based pavement design app