Figure 1 - Verification of the Proposed Stress Prediction Models
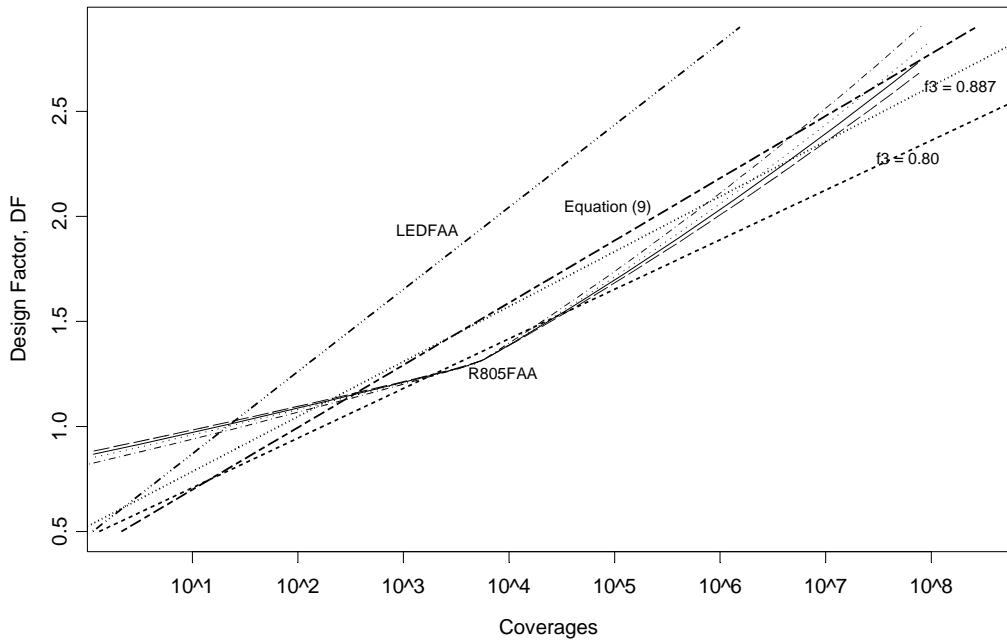

Figure 2 – Comparison of Fatigue Relationships for Rigid Airfield Pavement Design

Table 1 – Reanalysis of the Corps of Engineers Accelerated Traffic Test Data

item	quality	CO	CF	CI	DF	a (cm)	Wt (cm)	P/C	f3
A1.60	A	13	59	45	0.855	36.16	57.17	3.31	0.808
B2.66L	B			187	0.948	28.06	44.37	4.11	0.826
B1.66L	A	3	96	35	0.679	36.16	57.17	3.31	0.796
C2.66S	A	48	636	200	0.934	28.06	44.37	4.11	0.826
C1.66S	A	13	92	44	0.667	36.16	57.17	3.31	0.795
D1.66	A	6	104	33	0.679	36.16	57.17	3.31	0.796
E2.66M	B			430	1.081	28.06	44.37	4.11	0.835
E1.66M	A	50	212	77	0.779	36.16	57.17	3.31	0.806
F1.80	B			111	0.967	36.16	57.17	3.31	0.835
K2.100	B			72	1.004	36.16	57.17	3.31	0.859
N1.86	A	105	285	150	1.096	36.16	57.17	3.31	0.840
N2.86	A	6	32	9	0.782	46.46	73.45	2.58	0.809
O1.106	A	347	1605	573	1.367	36.16	57.17	3.31	0.862
O2.106	A	41	155	72	0.959	46.46	73.45	2.58	0.830
P1.812	A	244	1148	262	1.078	36.16	57.17	3.31	0.835
P2.812	B			6	0.782	46.46	73.45	2.58	0.806
Q1.102	B			1390	1.484	36.16	57.17	3.31	0.865
Q2.102	A	36	237	57	1.055	46.46	73.45	2.58	0.833
U1.60	A	85	529	88	0.951	36.16	57.17	3.31	0.819
E-6	A	1343	13083	2204	1.383	54.65	86.40	2.25	0.872
M-1	A	68	379	134	1.005	23.52	37.19	2.98	0.873
M-2	A	1693	6781	2204	1.330	23.52	37.19	2.98	0.892
-	B			18	0.596	26.13	41.32	2.82	0.810
59	B			7600	1.246	23.42	37.02	3.17	0.887
60	B			1674	1.114	23.42	37.02	3.17	0.856
61	B			3867	1.355	23.42	37.02	3.17	0.873
62	B			10082	1.705	23.42	37.02	3.17	0.888
72	B			9680	1.714	23.41	37.01	2.99	0.912
73	A	662	7078	2115	1.365	23.41	37.01	2.99	0.901
1-C5	A	150	939	221	0.880	24.09	38.08	2.98	0.833
2-DT	A	128	477	95	0.896	20.63	32.61	3.86	0.873
3-DT	A	177	959	205	1.033	20.63	32.61	3.86	0.883
2-C5	A	292	783	344	1.133	24.09	38.08	2.98	0.834
4-DT	A	227	1092	320	1.208	20.63	32.61	3.86	0.865
3-200	A	939	4269	3215	1.443	23.42	37.02	3.40	0.892
4-200	A	1188	5741	4660	1.474	23.42	37.02	3.40	0.891

Note: Item name is the same item designation used by Gucbilmez and Yuce (1995). If the test item is suitable for use in the analysis of CO, CF, and CI, that item is referred to as "quality" class A. Class B is suitable for use in the analysis of CI only. Assuming $1.273(\pi a^2) = 1.6 (W_t)^2$.

P$_t$

Centerline Location of the Wheel Load Lateral Placement, L$_c$
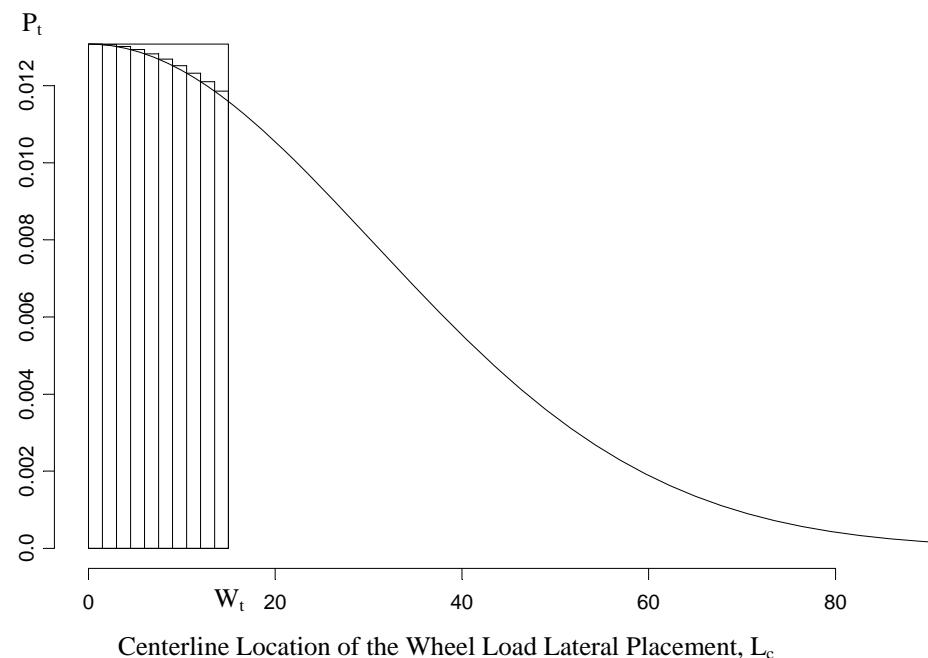
Figure 3 – Lateral Placement of the Centerline Location of the Wheel Load

Table2 – Alternative Structural Deterioration Relationships

Model No.	Tentative Fatigue Equations	SSE	R^2	N
#1	DF = 0.4561 + 0.2928*log(CO)	0.108	0.822	24
#2	DF = 0.3470 + 0.3013*log(CI)	0.125	0.818	36
#3	DF = 0.1760 + 0.3119*log(CF)	0.122	0.775	24
#4	DF = 0.3171 + 0.2894*log(PO)	0.114	0.804	24
#5	DF = 0.2124 + 0.2953*log(PI)	0.131	0.800	36
#6	DF = 0.0338 + 0.3074*log(PF)	0.127	0.755	24
#7	EDF = 0.6421 + 0.2920*log(CO)	0.119	0.793	24
#8	EDF = 0.5266 + 0.3037*log(CI)	0.136	0.792	36
#9	EDF = 0.3697 + 0.3086*log(CF)	0.134	0.735	24
#10	EDF = 0.5056 + 0.2879*log(PO)	0.125	0.771	24
#11	EDF = 0.3911 + 0.2976*log(PI)	0.142	0.774	36
#12	EDF = 0.2319 + 0.3032*log(PF)	0.140	0.712	24