

## MEASURED PAVEMENT ROUGHNESS - RURAL - 1995

### MILES BY FUNCTIONAL SYSTEM

TABLE HM-64  
SHEET 1 OF 4  
OCTOBER 1996

COMPILED FROM REPORTS OF STATE AUTHORITIES

STATE	INTERNATIONAL ROUGHNESS INDEX (IRI) 1/									TOTAL REPORTED
	NOT REPORTED 2/	INTERSTATE								
		< 60	60-94	95-119	120-144	145-170	171-194	195-220	> 220	
Alabama	-	521	63	7	6	-	-	-	4	601
Alaska	-	1	255	297	265	121	18	15	60	1,032
Arizona	-	265	521	113	56	21	7	8	-	991
Arkansas	9	5	48	36	95	84	59	41	23	391
California	124	17	550	229	214	100	57	21	34	1,222
Colorado	-	17	151	132	112	97	87	58	114	768
Connecticut 3/	3	-	43	13	13	16	6	7	-	98
Delaware	-	-	-	-	-	-	-	-	-	-
Dist. of Columbia	-	-	-	-	-	-	-	-	-	-
Florida	-	34	268	298	270	72	2	1	1	946
Georgia	334	151	269	48	5	-	-	-	-	473
Hawaii 3/	-	-	-	-	-	-	-	-	-	-
Idaho	-	8	166	151	118	64	13	9	3	532
Illinois	-	69	380	498	367	163	32	10	9	1,528
Indiana	27	8	437	228	55	83	10	-	4	825
Iowa 3/	16	26	258	192	99	40	3	-	-	618
Kansas	-	44	288	220	98	41	6	1	-	698
Kentucky	-	10	273	61	59	92	39	2	-	536
Louisiana	-	244	305	56	6	-	1	-	-	612
Maine	5	78	203	9	15	-	-	-	-	305
Maryland	-	38	145	36	7	-	1	-	-	227
Massachusetts	-	-	93	46	19	-	2	1	1	162
Michigan	-	89	280	207	97	45	17	5	-	740
Minnesota	-	-	19	52	129	118	107	128	128	681
Mississippi	-	11	201	160	104	38	23	12	9	558
Missouri	-	38	379	300	81	10	1	1	-	810
Montana	1	196	508	164	132	93	26	12	5	1,136
Nebraska	-	11	66	81	139	86	26	16	12	437
Nevada	67	216	151	20	18	8	-	-	-	413
New Hampshire	-	25	148	3	-	-	-	-	-	176
New Jersey	6	-	10	32	39	17	9	3	1	111
New Mexico	-	23	393	207	111	78	47	26	7	892
New York	3	8	421	221	71	34	17	3	18	793
North Carolina	-	5	230	146	79	112	45	6	8	631
North Dakota	-	-	147	188	115	47	33	-	-	530
Ohio	-	265	435	97	30	3	-	-	-	830
Oklahoma	-	-	226	237	154	68	25	11	-	721
Oregon	-	9	150	337	78	8	-	-	-	582
Pennsylvania	-	24	506	224	142	70	46	37	32	1,081
Rhode Island	9	-	1	4	4	2	1	-	-	12
South Carolina	5	164	282	158	59	3	-	-	-	666
South Dakota	-	5	133	159	228	75	29	-	-	629
Tennessee	-	67	399	176	81	15	1	-	-	739
Texas	717	970	150	60	131	39	49	24	63	1,486
Utah	-	364	289	87	30	1	-	-	-	771
Vermont	-	61	148	57	3	10	1	-	-	280
Virginia	-	1	278	294	44	37	6	48	-	708
Washington	-	15	111	216	105	38	6	-	10	501
West Virginia	-	54	133	84	115	38	34	1	-	459
Wisconsin	-	37	173	176	76	19	4	-	5	490
Wyoming	-	144	455	147	60	20	-	-	-	826
Total	1,326	4,338	11,538	6,964	4,334	2,126	896	507	551	31,254
Distribution of Reported IRI	-	13.9	36.8	22.3	13.9	6.8	2.9	1.6	1.8	100.0

**MEASURED PAVEMENT ROUGHNESS - RURAL - 1995**  
**MILES BY FUNCTIONAL SYSTEM**

TABLE HM-64  
 SHEET 2 OF 4  
 OCTOBER 1996

COMPILED FROM REPORTS OF STATE AUTHORITIES

STATE	INTERNATIONAL ROUGHNESS INDEX (IRI) 1/																			
	OTHER PRINCIPAL ARTERIAL										MINOR ARTERIAL									
	NOT REPORTED 2/	< 60	60-94	95-119	120-144	145-170	171-194	195-220	> 220	TOTAL REPORTED	NOT REPORTED 2/	< 60	60-94	95-119	120-144	145-170	171-194	195-220	> 220	TOTAL REPORTED
Alabama	-	633	899	379	81	32	9	1	25	2,059	-	938	1,313	1,089	308	37	-	-	-	3,685
Alaska	456	-	65	85	148	33	16	2	5	354	282	-	38	1	32	52	-	-	37	160
Arizona	-	57	460	318	188	70	43	25	3	1,164	-	57	366	437	146	104	55	89	-	1,254
Arkansas	1,841	8	117	118	46	33	24	2	1	349	787	2	885	689	243	246	72	47	22	2,206
California	568	35	988	914	659	375	89	52	11	3,123	44	174	1,535	1,738	1,717	957	345	172	229	6,867
Colorado	-	19	251	507	468	300	228	149	278	2,200	-	-	276	786	481	889	259	416	570	3,677
Connecticut 3/	2	-	95	75	30	32	21	7	2	262	89	-	-	22	56	84	73	90	84	409
Delaware	-	-	49	62	44	18	15	10	18	216	-	-	46	23	17	7	2	6	4	105
Dist. of Columbia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Florida	-	91	884	946	968	279	169	59	47	3,443	-	61	720	917	607	286	155	89	3	2,838
Georgia	2,371	350	68	1	-	-	-	-	-	419	3,936	1,108	516	-	-	-	-	-	-	1,624
Hawaii 3/	119	-	-	-	1	2	2	1	-	6	333	-	-	-	4	38	-	-	1	43
Idaho	-	-	34	122	432	633	334	114	14	1,683	-	-	19	16	280	407	301	113	64	1,200
Illinois	-	45	538	877	536	300	195	90	53	2,634	77	429	1,188	951	956	621	194	316	167	4,822
Indiana	19	1	520	429	418	180	66	35	32	1,681	9	5	881	526	261	224	64	130	147	2,238
Iowa 3/	258	174	802	500	671	695	244	54	7	3,147	353	152	766	502	689	842	317	275	58	3,601
Kansas	-	179	1,240	938	520	209	50	26	5	3,167	-	118	1,275	800	1,096	782	193	27	10	4,301
Kentucky	-	51	754	517	317	253	45	17	6	2,014	-	-	174	645	436	271	81	-	-	1,607
Louisiana	-	473	435	248	50	7	-	-	-	1,213	-	660	602	271	21	52	15	-	2	1,623
Maine	33	111	379	163	43	26	12	9	6	749	21	67	402	315	109	88	41	23	2	1,047
Maryland	-	43	295	122	38	21	19	5	6	549	-	46	247	404	175	34	24	9	11	950
Massachusetts	209	-	18	44	24	10	7	5	1	109	551	-	5	55	33	6	6	-	8	113
Michigan	14	360	1,160	524	369	236	46	31	13	2,739	26	347	1,619	586	633	358	230	158	42	3,973
Minnesota	-	-	189	585	507	506	576	307	907	3,577	-	-	126	2,087	979	610	563	421	1,377	6,163
Mississippi	2	5	511	568	336	213	62	48	50	1,793	-	-	991	840	1,191	324	276	9	289	3,920
Missouri	13	77	868	1,237	590	202	43	8	5	3,030	-	35	1,142	1,370	407	337	84	24	-	3,399
Montana	-	16	590	813	547	403	159	56	38	2,622	48	-	267	750	743	735	287	154	6	2,942
Nebraska	-	36	627	555	531	419	229	173	175	2,745	-	106	755	844	629	1,016	222	295	314	4,181
Nevada	80	316	418	402	153	23	-	-	-	1,312	23	169	144	286	90	-	-	3	-	692
New Hampshire	-	-	252	140	38	14	3	-	7	454	-	8	245	157	50	20	5	8	-	493
New Jersey	84	-	20	26	206	155	27	10	-	444	31	-	4	11	186	47	73	3	35	359
New Mexico	-	166	600	281	293	173	76	77	138	1,804	-	127	397	481	203	105	197	130	236	1,876
New York	7	18	736	552	314	134	79	76	84	1,993	32	26	799	1,730	898	258	159	227	20	4,117
North Carolina	46	8	520	665	579	210	62	58	67	2,169	150	24	333	657	599	650	369	97	89	2,818
North Dakota	-	56	404	495	846	542	377	143	67	2,930	-	23	373	422	697	494	242	158	104	2,513
Ohio	-	303	1,500	216	124	39	27	6	4	2,219	-	568	1,594	533	59	16	63	-	-	2,833
Oklahoma	-	13	650	614	484	311	113	99	83	2,367	-	-	572	740	876	390	84	79	6	2,747
Oregon	184	233	187	244	205	146	122	115	1,399	2,651	-	-	345	364	615	410	216	57	30	2,037
Pennsylvania	-	8	544	758	623	386	163	74	57	2,613	5,094	-	-	-	-	-	-	-	-	-
Rhode Island	-	-	2	20	10	8	5	1	17	63	-	-	10	16	17	14	5	7	11	80
South Carolina	36	26	769	297	164	128	17	5	4	1,410	-	57	1,589	1,022	705	205	14	61	8	3,661
South Dakota	47	178	355	423	624	536	267	89	22	2,494	34	234	393	409	789	914	357	124	90	3,310
Tennessee	-	84	900	353	248	129	44	16	11	1,785	-	40	1,020	970	863	374	144	4	2	3,417
Texas	2,294	3,118	502	223	155	156	58	55	178	4,445	3,837	4,354	562	123	251	105	84	32	99	5,610
Utah	-	254	618	88	20	17	2	8	1	1,008	-	289	820	350	42	8	2	31	-	1,542
Vermont	-	15	72	87	73	39	15	15	2	318	-	61	143	164	174	138	38	4	12	734
Virginia	-	1	371	567	358	165	34	9	23	1,528	-	1	411	1,315	965	629	41	21	49	3,432
Washington	-	-	261	691	610	326	169	35	2	2,094	24	-	147	220	367	736	327	101	71	1,969
West Virginia	-	75	362	242	205	112	38	10	8	1,052	-	14	486	414	249	223	57	48	74	1,565
Wisconsin	-	342	1,263	914	442	288	105	55	23	3,432	-	266	1,987	719	1,068	491	319	54	115	5,019
Wyoming	-	86	742	440	189	119	55	1	1	1,633	-	-	485	575	220	228	123	35	5	1,671
Total	8,683	8,064	24,884	20,439	15,525	9,643	4,561	2,243	3,906	89,255	15,708	10,566	29,013	28,342	22,228	15,828	6,816	4,147	4,503	121,443
Distribution of Reported IRI	-	9.0	27.9	22.9	17.4	10.8	5.1	2.5	4.4	100.0	-	8.7	23.9	23.3	18.3	13.0	5.6	3.4	3.7	100.0

**MEASURED PAVEMENT ROUGHNESS - URBAN - 1995**  
**MILES BY FUNCTIONAL SYSTEM**

TABLE HM-64  
SHEET 3 OF 4  
OCTOBER 1996

COMPILED FROM REPORTS OF STATE AUTHORITIES

STATE	INTERNATIONAL ROUGHNESS INDEX (IRI) 1/									TOTAL REPORTED
	NOT REPORTED 2/	INTERSTATE								
		< 60	60-94	95-119	120-144	145-170	171-194	195-220	> 220	
Alabama	-	226	67	8	2	-	-	-	-	303
Alaska	-	-	24	11	12	3	4	-	-	54
Arizona	-	67	65	35	10	1	-	-	-	178
Arkansas	4	1	10	31	28	34	18	13	5	140
California	162	11	194	215	221	141	78	45	9	914
Colorado	-	-	34	36	42	41	21	11	-	185
Connecticut 3/	-	-	53	65	56	24	16	24	7	245
Delaware	-	-	10	6	4	8	4	3	5	40
Dist. of Columbia 4/	-	-	-	1	3	-	3	3	2	12
Florida	-	12	121	125	198	60	8	2	-	526
Georgia	270	57	101	7	-	-	-	-	-	165
Hawaii 3/	40	-	-	-	-	2	1	-	-	3
Idaho	-	-	24	31	12	12	2	-	-	81
Illinois	-	38	87	187	140	69	88	18	8	635
Indiana	6	22	93	96	39	19	32	10	2	313
Iowa 3/	14	-	28	37	37	19	12	-	-	133
Kansas	-	2	81	67	22	2	-	-	-	174
Kentucky	-	4	52	51	27	54	20	12	6	226
Louisiana	2	69	157	21	14	3	4	-	2	270
Maine	-	11	42	-	2	-	-	-	-	55
Maryland	-	14	131	58	21	9	10	5	7	255
Massachusetts	-	4	175	143	55	18	4	1	3	403
Michigan	-	29	193	108	93	51	15	9	2	500
Minnesota	-	3	6	56	58	43	21	27	19	233
Mississippi	-	-	26	40	40	11	5	2	3	127
Missouri	-	4	93	153	72	30	10	5	1	368
Montana	1	3	24	11	3	4	5	2	-	52
Nebraska	-	-	5	11	5	10	4	6	2	43
Nevada	4	19	18	32	5	4	1	-	-	79
New Hampshire	-	11	29	8	-	-	-	-	-	48
New Jersey	38	-	21	59	77	72	22	9	5	265
New Mexico	-	7	28	27	18	14	5	5	4	108
New York	21	3	200	170	93	69	45	54	47	681
North Carolina	1	5	76	56	87	51	37	15	11	338
North Dakota	-	-	5	17	11	7	-	-	-	40
Ohio	-	135	359	160	40	29	8	10	1	742
Oklahoma	-	1	26	57	33	25	26	24	17	209
Oregon	-	-	22	52	64	7	1	-	-	146
Pennsylvania	-	2	130	148	100	52	39	21	15	507
Rhode Island	-	-	17	20	9	-	1	-	1	48
South Carolina	10	20	72	30	21	5	-	-	-	148
South Dakota	5	1	-	3	20	11	9	-	-	44
Tennessee	-	14	115	76	52	37	14	10	5	323
Texas	279	528	99	25	24	30	14	10	22	752
Utah	-	39	65	44	15	6	-	-	-	169
Vermont	-	1	25	13	-	1	-	-	-	40
Virginia	-	2	92	124	85	55	21	16	3	398
Washington	-	-	40	88	57	41	25	9	2	262
West Virginia	-	25	13	20	13	10	9	1	-	91
Wisconsin	-	8	13	67	30	15	5	5	6	149
Wyoming	-	4	28	29	14	9	1	2	-	87
Total	857	1,402	3,389	2,935	2,084	1,218	668	389	222	12,307
Distribution of Reported IRI	-	11.4	27.5	23.8	16.9	9.9	5.4	3.2	1.8	100.0

**MEASURED PAVEMENT ROUGHNESS - URBAN - 1995**  
**MILES BY FUNCTIONAL SYSTEM**

TABLE HM-64  
 SHEET 4 OF 4  
 OCTOBER 1996

COMPILED FROM REPORTS OF STATE AUTHORITIES

STATE	INTERNATIONAL ROUGHNESS INDEX (IRI) 1/																			
	OTHER FREEWAYS AND EXPRESSWAYS										OTHER PRINCIPAL ARTERIAL									
	NOT REPORTED 2/	< 60	60-94	95-119	120-144	145-170	171-194	195-220	> 220	TOTAL REPORTED	NOT REPORTED 2/	< 60	60-94	95-119	120-144	145-170	171-194	195-220	> 220	TOTAL REPORTED
Alabama	-	9	6	6	-	-	-	-	-	21	-	329	379	148	75	16	9	6	10	972
Alaska	-	-	-	-	-	-	-	-	-	-	-	1	7	18	9	11	4	3	3	56
Arizona	-	9	31	20	16	5	-	-	-	81	-	192	498	130	120	50	22	4	9	1,025
Arkansas	62	-	8	10	10	6	5	-	1	40	544	-	1	7	6	4	2	7	33	
California	255	45	257	289	213	174	55	28	12	1,073	2,690	319	601	406	709	482	267	163	223	3,170
Colorado	-	6	40	37	58	35	22	14	5	217	2	1	43	197	100	105	60	195	139	840
Connecticut 3/	4	-	31	42	32	33	16	33	5	192	82	-	119	160	60	96	22	66	-	523
Delaware	-	-	1	2	1	-	-	-	7	11	-	-	23	30	27	18	8	8	21	135
Dist. of Columbia 4/	5	-	-	-	-	1	2	3	8	14	53	-	-	1	2	1	9	14	28	-
Florida	-	3	55	118	143	57	4	3	6	389	-	60	545	828	579	315	158	76	94	2,655
Georgia	142	23	5	1	-	-	-	-	29	8	1,635	102	22	-	3	-	-	-	-	127
Hawaii 3/	26	-	-	-	-	3	3	-	8	-	114	-	-	-	2	8	-	-	21	-
Idaho	-	-	-	-	-	-	-	-	-	-	-	9	20	29	32	75	32	25	222	-
Illinois	-	2	13	30	8	12	5	3	9	82	-	30	188	412	425	345	275	496	2,593	-
Indiana	17	8	22	24	8	27	15	8	3	115	508	12	109	196	180	165	123	103	152	1,040
Iowa 3/	-	-	-	-	-	-	-	-	-	-	450	9	41	48	66	48	25	10	-	247
Kansas	7	7	27	44	28	12	5	2	4	129	282	46	41	55	118	25	16	11	39	351
Kentucky	-	3	21	15	20	20	12	-	2	93	-	7	144	150	140	72	51	29	39	632
Louisiana	-	3	26	12	3	1	-	-	-	45	-	146	265	315	79	23	10	3	5	846
Maine	-	-	9	4	3	1	-	-	1	18	34	7	53	31	20	12	7	3	6	139
Maryland	-	4	83	56	35	21	11	7	12	229	-	6	101	125	126	120	77	72	230	857
Massachusetts	105	1	19	47	12	7	2	2	2	92	1,230	2	27	59	79	76	40	17	27	327
Michigan	-	2	58	55	46	36	17	3	1	218	98	9	112	214	241	314	282	223	480	1,875
Minnesota	-	4	8	14	29	28	11	9	29	128	-	-	17	47	59	82	104	74	163	546
Mississippi	-	11	6	17	-	-	1	2	-	41	-	-	109	119	110	119	50	47	75	629
Missouri	28	-	23	77	79	45	16	5	9	254	475	-	40	117	169	127	83	40	58	634
Montana	-	-	-	-	-	-	-	-	-	-	6	-	20	31	38	26	18	13	22	168
Nebraska	-	-	3	8	1	4	-	-	1	17	116	-	10	18	40	44	39	39	111	301
Nevada	2	5	14	1	-	1	-	-	-	21	44	26	82	29	18	22	3	4	3	187
New Hampshire	-	-	37	3	2	-	-	-	-	42	-	5	83	41	13	11	-	11	6	172
New Jersey	104	-	28	56	60	50	10	-	-	204	230	-	11	26	270	451	142	29	5	934
New Mexico	-	-	-	3	-	-	-	-	-	3	-	18	93	231	55	37	21	27	23	505
New York	51	6	164	144	101	118	79	64	103	779	84	2	245	396	315	262	172	138	901	2,431
North Carolina	25	-	61	51	43	35	25	11	16	242	438	2	188	209	193	124	58	34	115	923
North Dakota	-	-	-	-	-	-	-	-	-	-	13	2	9	27	23	25	19	17	29	151
Ohio	-	28	140	82	64	35	8	4	4	365	-	64	475	380	387	386	126	63	104	1,985
Oklahoma	-	-	25	28	32	20	14	9	6	134	1	-	55	111	140	150	122	117	112	807
Oregon	-	-	7	18	23	3	-	-	1	52	29	59	66	51	37	37	37	41	252	580
Pennsylvania	-	-	73	100	115	91	63	37	20	499	-	7	167	333	355	574	294	213	336	2,279
Rhode Island	1	-	17	15	17	5	5	2	6	67	23	-	8	35	48	35	50	80	306	-
South Carolina	9	6	35	10	5	-	-	-	-	56	75	18	192	161	114	64	35	17	21	622
South Dakota	3	-	-	-	-	-	-	-	-	-	43	8	1	6	12	13	8	9	12	69
Tennessee	-	2	40	31	19	14	2	4	2	114	-	32	443	316	213	130	67	42	50	1,293
Texas	316	606	81	46	39	39	12	25	76	924	1,114	2,422	482	168	215	167	81	57	257	3,849
Utah	-	4	4	-	-	-	-	-	-	8	-	39	117	52	37	16	6	3	-	270
Vermont	-	-	11	3	2	2	1	6	2	19	-	7	7	21	17	11	8	4	22	97
Virginia	-	-	30	102	43	32	8	6	2	223	8	1	94	340	239	166	102	65	124	1,131
Washington	4	3	21	65	104	68	28	10	13	312	794	3	17	57	64	59	24	18	28	270
West Virginia	-	-	2	6	-	2	-	-	-	10	-	6	59	50	28	28	14	9	9	203
Wisconsin	-	13	47	42	50	19	11	3	6	191	-	22	171	204	210	206	156	142	210	1,321
Wyoming	-	-	-	-	-	1	-	2	-	3	137	-	1	19	15	11	10	4	4	57
Total	1,166	802	1,594	1,725	1,481	1,063	468	299	372	7,804	11,352	4,022	6,608	7,141	6,624	5,800	3,416	2,681	5,152	41,444
Distribution of Reported IRI	-	10.3	20.4	22.1	19.0	13.6	6.0	3.8	4.8	100.0	-	9.7	15.9	17.3	16.0	14.0	8.2	6.5	12.4	100.0

1/ Data are reported as the International Roughness Index (IRI) in inches per mile. Reference: World Bank Technical Paper Number 46, 1986. Lower IRI represents smoother riding roadways.

2/ Some States did not report for all roughness in the following systems: rural Other Principal Arterial—1 mile in Maine and 12 miles in Michigan; rural Minor Arterial—634 miles in Alaska, 34 miles in Montana;

urban Other Principal Arterial—1 mile in Colorado, 8 miles in Kansas, 2 miles in Louisiana, 6 miles in Michigan, and 1 mile in North Dakota.

3/ 1995 data estimated by FHWA.

4/ 1994 data used (1995 data not available).