MEMO_____State of Wisconsin

Date: May 19, 1998

To: District Directors
Transportation District 1 - 8
Attn.: District Construction/Development/Support Chiefs

From: Steve Shober, P.E. PAA.
Chief Pavements and Research Engineer

Subject: 1998 New Construction Ride Quality Measurement

Attached for your information are several copies of the 1997 New Construction Ride Quality Measurement Report. The data presented in this report is in International Roughness Index (IRI) which measures roughness in meters per kilometer.

The testing procedure is the same as in previous years. In 1997 the new construction ride quality measurement were performed on all projects that were completed during the year. We tested 99 projects out of 119 projects that were submitted. The 20 projects that were not tested were not completed at the time of testing. Out of the 99 projects tested, 26 were Portland Cement Concrete (PCC) and 73 were Asphaltic Concrete (AC) pavements. We tested a total of 1170 lane miles of newly construction pavements. Despite the increase in the number of projects tested, the total lane mileage is slightly lower than the preceding year.

The five-year average ride measurements indicate the 1997 pavements had a slight decrease in ride quality for PCC pavements. AC pavements evaluated during the same period shows no change in the initial ride quality.

The roughness data for new construction projects is shown in the attached summary. The data is summarized in lane miles, mean IRI, and the standard deviation for each project.

Please distribute this report to all interested parties. Your comments concerning the data shown in this report are appreciated, and we will be pleased to answer any questions concerning this report or roughness measurements in general. Contact Peter A. Amakobe at (608) 246-5308 or at pamakobe@mail.state.wi.us if you have any questions.

PROFILER ROAD MEASUREMENTS

1997 CONSTRUCTION PROJECTS

FIVE YEAR AVERAGES

Portland Cement Concrete Pavements

CONSTRUCTION Year	Average IRI
1993	1.22
1994	1.43
1995	1.45
1996	1.45
1997	1.67
5-Year Average	1.44

Hot Mix Asphaltic Concrete Pavements

CONSTRUCTION Year	Average IRI
1993	0.88
1994	0.96
1995	1.03
1996	1.04
1997	1.00
5-Year Average	0.98

* IRI is reported in m/km

PROFILER ROAD MEASUREMENTS

1997 CONSTRUCTION PROJECTS

AVERAGE BY SURFACE TYPE

Portland Cement Concrete Pavements

Type	Lane Miles	No. of Projects	Average IRI
PCC Pavements	273.24	26	1.67

(All PCC New Construction Projects used Slip-Form)

Hot Mix Asphaltic Concrete Pavements

Type	Lane Miles	No. of Projects	Average IRI
Recycle	31.19	1	1.03
SMA	28.25	1	0.87
High Volume	239.46	13	0.93
Medium Volume	455.33	42	1.00
Low Volume	143.59	16	1.11
	897.81	73	1.00

* IRI is reported in m/km

PROFILER ROAD MEASUREMENTS

1997 CONSTRUCTION PROJECTS

AVERAGE BY DISTRICT

Portland Cement Concrete Pavements

District	Lane Miles	No. of Projects	Average IRI
1	46.24	6	1.71
2	13.43	4	2.85
3	27.39	6	1.88
4	95.08	6	1.50
5	4.75	1	1.85
6	41.70	2	1.56
8	44.66	1	1.57
TOTAL	273.24	26.00	1.67

Hot Mix Asphaltic Concrete Pavements

District	Lane Miles	No. of Projects	Average IRI
1	57.58	7	1.05
2	124.54	7	0.91
3	159.39	18	1.06
4	47.67	4	1.12
5	91.17	7	0.80
6	136.01	9	0.99
7	114.40	9	1.06
8	167.04	12	1.01
TOTAL	897.81	73	1.00

* IRI is reported in m/km

PROFILER ROAD MEASUREMENTS

1997 CONSTRUCTION PROJECTS

AVERAGE BY CONTRACTOR

Portland Cement Concrete Pavement

Contractor	Lane Miles	No. of Projects	Average IRI
Trierweiler	73.34	4	1.50
Streu Const Co.	113.66	5	1.59
James Cape & Sons	39.40	5	1.59
Zignego	7.55	2	1.80
Vinton	24.66	5	1.83
Ptaschinski	6.97	3	3.18
Milwaukee General	2.40	1	3.78
Mann Bros.	5.26	1	2.32
TOTAL	273.24	26	1.67

Hot Mix Asphaltic Concrete Pavement

Contractor	Lane Miles	No. of Projects	Average IRI
Northeast Asphalt	170.99	21	0.95
Monarch Paving	93.60	8	0.98
Mathy Construction	303.78	17	0.93
B.R. Amon & Sons	79.28	7	1.24
American Asphalt	13.79	2	1.34
Rock Road of Wisc	21.27	1	0.80
Payne & Dolan	96.48	5	0.97
Murphy Construction Co	13.39	1	0.93
Clark County	13.85	2	1.04
D.L. Gasser	63.30	4	1.09
Dolson Inc.	2.07	1	1.43
Northwoods Paving	23.39	3	1.09
Wasburn County	2.64	1	1.45
TOTAL	897.81	73	1.00

* IRI is reported in m/km

PROFILER ROAD MEASUREMENTS

1997 CONSTRUCTION PROJECTS

AVERAGE BY CONSTRUCTION TECHNIQUE

Portland Cement Concrete Pavements

Type of Technique		No. of Proj.	Mileage	AVG IRI
Doweling:				
	Basket	15	114.70	1.63
	Inserter	7	145.11	1.59
	Unknown	4	13.43	2.85
Surface Depth:				
	8.0"	1	2.73	2.31
	9.0"	11	77.62	1.83
	10.0"	7	72.68	1.74
	11".0	6	69.40	1.58
	12".0	1	50.81	1.42
Base:				
	OGBC	7	106.13	1.59
	DGBC	20	148.92	1.62
	Unknown	4	18.18	2.59
Joint Spacing:				
	Random	11	205.73	1.55
	20	8	25.59	2.22
	18	3	28.49	1.46
	Unknown	4	13.43	2.85

* IRI is reported in m/km

PROFILER ROAD MEASUREMENTS

1997 CONSTRUCTION PROJECTS

AVERAGE BY CONSTRUCTION TECHNIQUE

Hot Mix Asphaltic Concrete Pavements

Type of Technique		No. of Proj.	Mileage	AVG IRI
Depth:				
	5.50"	2	19.97	1.17
	5.00"	5	30.33	1.10
	4.50"	10	84.21	1.01
	4.00"	11	170.65	0.99
	3.50"	9	97.66	0.97
	3.25"	2	34.91	0.82
	3.00"	16	233.63	0.96
	2.75"	1	28.25	0.87
	2.50"	4	84.12	0.97
	2.25"	4	38.06	0.93
	2.00"	4	22.49	1.11
	1.75"	3	42.37	1.31
	1.50"	3	11.18	1.18
Paved Over:				
	New Base	22	138.67	1.08
	Old AC	24	368.75	0.95
	Milled	7	56.56	1.12
	Old PCC	10	183.87	1.01
	Rubbleize	1	16.22	0.70
	Pulverize	9	133.74	1.00

* IRI is reported in m/km

WISCONSIN DEPARTMENT OF TRANSPORTATION
DIVISION OF TRANSPORTATION INFRASTURCTURE DEVELOPMENT
BUREAU OF HIGHWAY CONSTRUCTION

PORTLAND CEMENT CONCRETE PAVEMENT
ROAD PROFILER MEASUREMENTS
NEW CONSTRUCTION - 1997

District	County	Project	Highway	Name of Road	Paving Contractor	Length Lane-Miles	IRI		Transverse Joint		Longitudinal Joint	Pavment Thickness	Doweled B - Basket I - Inserted	Base Course		
							Std Dev	Proj.	Skewed or Other	Joint Spacing	Sawed or Parting Strip			OGBC	DGBC	Other
1	Dodge	1111-08-79	USH 151	Beaver Dam - Waupun	James Cape & Sons	19.39	0.26	1.49	Normal	Random	Sawed	10.00"	I	4"	6"	
1	Dodge	1111-08-80	USH 151	Beaver Dam - Waupun	Streu Construction	16.88	0.35	1.72	Skewed	Random	Sawed	10.00"	I	4"	6"	
1	Jefferson	3300-02-71	STH 89	North Main St. City of Lake Mills	Trierweiler	1.22	0.00	2.16	Normal	Random	Sawed	9.00"	B		100mm	
1	Green	1700-01-74	STH 11	West County Line - Monroe	Zignego	5.38	0.26	1.42	Skewed	Random	Sawed	9.00"	B		6"	
1	Dodge	6083-00-71	STH 33	Park Ave. City of Beaver Dam	Ptaschinski	0.76	0.00	3.77	Normal	20'	Sawed	9.00"	B		8"	
1	Dodge	1411-01-72	STH 33	Beaver Dam - Horicon	Ptaschinski	2.62	0.07	3.13	Normal	20'	Sawed	10.00"	B	4"	6"	
2	Milwaukee	2025-01-71	STH 190	North 2nd St. - Humbolt Ave	Milwaukee General	2.40	0.00	3.78	Normal	?	?	9.00"	?	?	?	
2	Washington	2310-00-70	STH 60	STH 83 - Sell Dr.	Ptaschinski	3.59	0.01	3.08	Normal	?	?	10.00"	?	?	?	
2	Waukesha	2360-00-70	STH 164	Moorland - Waukesha N. City Limits	Zignego	2.17	0.03	2.74	Normal	?	?	10.00"	?	?	?	
2	Walworth	3575-02-70	USH 12	West Main Street	Mann Bros.	5.26	0.14	2.32	Normal	?	?	9.00"	?	?	?	
3	Outagamie	4659-03-71	STH 55	Crooks Ave. City of Kaukauna	Vinton	1.88	0.00	2.16	Normal	20'	Sawed	9.00"	B	4"	6"	
3	Outagamie	4984-00-79	CTH OO	STH 47 - Meade St.	Vinton	3.20	0.02	2.01	Skewed	Random	Sawed	9.00"	B		6"	
3	Brown	9210-05-71	STH 54	Pleasant Lane - Country Club Rd.	Vinton	5.01	0.01	1.75	Normal	20'	Sawed	9.00"	B		DGBC	
3	Brown	4985-00-22	CTH H	STH 32 - North County Line	James Cape & Sons	2.73	0.00	2.31	Normal	6M	Sawed	8.00"	B		DGBC	
3	Winnebago	1517-03-76	USH 10	USH 45 - USH 41	Vinton	12.07	0.26	1.72	Skewed	Random	Parting Strip	10.00"	I	4"	6"	
3	Winnebago	4068-03-71	STH 114	Winneconne Ave.	Vinton	2.50	0.00	2.12	Normal	20'	Sawed	9.00"	B	4"	6"	
4	Marathon	6410-09-74	Bus 51	Grand Ave.	Trierweiler	5.35	0.01	2.38	Normal	6M	Sawed	9.00"	B		DGBC	
4	Juneau	1017-00-77	IH - 90/94	Tomah - Lake Delton	Trierweiler	50.81	0.31	1.42	Normal	Random	Sawed	12.00"	B	200mm		
4	Waupaca	1510-08-73	USH 10	Waupaca - Fremont	Trierweiler	15.96	0.41	1.43	Skewed	18	Sawed	10.00"	B		150mm	
4	Marathon	1059-16-72	STH 29	CTH Y - CTH D	Strue Construction	10.43	0.15	1.59	Skewed	Random	Sawed	11.00"	I		DGBC	
4	Marathon	1059-16-73	STH 29	CTH Y - CTH D	James Cape & Sons	2.63	0.00	1.45	Normal	18	Sawed	11.00"	B		DGBC	
4	Marathon	1059-16-74	STH 29	CTH D - CTH OO	James Cape & Sons	9.90	0.47	1.51	Normal	18	Sawed	11.00"	B		DGBC	
5	Jackson	7510-06-71	STH 54	East Main St. Black River Falls	James Cape & Sons	4.75	0.32	1.85	Normal	20'	Sawed	11.00"	B	?		
6	Clark	1052-08-77	STH 29	CTH DD - CTH P	Strue Construction	17.18	0.35	1.63	Skewed	Random	Parting Strip	11.00"	I		DGBC	
6	Clark	1052-08-79	STH 29	CTH P - Dill Creek	Strue Construction	24.52	0.22	1.51	Skewed	Random	Parting Strip	11.00"	I		DGBC	
6	Washburn / Douglas	1198-01-82	USH 53	Wayside - Gordon	Streu Construction	44.66	0.23	1.57	Skewed	Random	Sawed	9.00"	I		DGBC	

WISCONSIN DEPARTMENT OF TRANSPORTATION
DIVISION OF TRANSPORTATION INFRASTRUCTURE DEVELOPMENT
BUREAU OF HIGHWAY CONSTRUCTION

HOT MIX ASPHALTIC CONCRETE PAVEMENT
ROAD PROFILER MEASUREMENTS
NEW CONSTRUCTION - 1997

District	County	Project	Highway Number	Name of Road	Paving Contractor	Lane-Miles	IRI		Wearing Surface				Total AC Thick (Inches)	New Base OGBC or DGBC	Paved Over 1-Old PCC 2 - Old A C 3 - Pulverize 4-Rubblize 5 - Crack & Seat 6 - Milled
							Std Dev	Proj	Recy-cled	SMA	1-HV 2-MV 3-LV	Spec Mix			
1	Sauk	5880-00-61	USH 12	I - 90 - Wisconsin Dells	D. L. Gasser	4.26	0.26	1.28			2		4.00"		1
1	Sauk	5795-03-71	CTH A	Baraboo - Wisconsin Dells	D. L. Gasser	21.18	0.44	1.05			2		4.00"		3
1	Columbia	6195-01-73	CTH CS	Poynette - STH 22	Northeast Asphalt	7.38	0.47	0.98			3		4.00"	DGBC	
1	Dane	5280-00-60	STH 113	Waunakee - Dane	Payne & Dolan	9.74	0.21	1.12			2		1.50"		3
1	Grant	5135-04-71	STH 80	Wisconsin St Village of Muscoda	Mathy Construction	1.97	0.00	1.20			2		5.00"	DGBC	
1	Jefferson	3991-02-31	STH 89	North Main St. Fort Atkinson	B.R. Amon & Sons	1.80	0.00	1.48			2		4.50"	DGBC	
1	Dodge	3421-00-71	STH 109	Lebanon - Hustisford	Northeast Asphalt	11.26	0.19	0.84			2		4.00"	DGBC	
2	Milwaukee	1061-09-70	IH 94	WB 76th St. - 13th St.	Payne & Dolan	11.02	0.52	1.46			1		3.00"		1
2	Milwaukee	1061-09-71	IH 94	WB Milwaukee County Line - 76th St.	Payne & Dolan	9.75	0.31	1.18			1		3.00"		1
2	Waukesha	1065-08-75	IH 94	WB Goerke's Corner - East County Line	Payne & Dolan	26.29	0.28	0.88			1		3.00"		1
2	Fond Du Lac	1114-05-70	STH 26	USH 151 - Rosendale Village Limits	Rock Road of Wisc.	21.27	0.41	0.80			1		3.00"		2
2	Fond Du Lac	1114-06-70	STH 26	Rosendale Village Limits - North County Line	Northeast Asphalt	14.46	0.38	0.75			1		3.25"		2
2	Ozaukee	1229-01-72	IH-43	Milwaukee County Line - STH 32	Payne & Dolan	39.68	0.50	0.81			1		3.00"		2
2	Racine	2340-01-70	STH 20	STH 36 - CTH D	Dolson Inc./ Zenith Tech	2.07	0.00	1.43			1		5.50"	DGBC	

WISCONSIN DEPARTMENT OF TRANSPORTATION
DIVISION OF TRANSPORTATION INFRASTRUCTURE DEVELOPMENT
BUREAU OF HIGHWAY CONSTRUCTION

HOT MIX ASPHALTIC CONCRETE PAVEMENT
ROAD PROFILER MEASUREMENTS
NEW CONSTRUCTION - 1997

District	County	Project	Highway Number	Name of Road	Paving Contractor	Lane-Miles	IRI		Wearing Surface				Total AC Thick (Inches)	New Base OGBC or DGBC	Paved Over 1-Old PCC 2 - Old A C 3 - Pulverize 4-Rubblize 5 - Crack & Seat 6 - Milled
							Std Dev	Proj	Recy-cled	SMA	1-HV 2-MV 3-LV	Spec Mix			
3	Door	4140-08-71	STH 42	Fish Creek - Sister Bay	Northeast Asphalt	17.06	0.26	1.38			2		3.00"		6
3	Kewaunee	4130-04-72	STH 54	Stump Rd - Luxemburg	Northeast Asphalt	8.81	0.18	0.89			2		3.00"		6
3	Manitowoc	4100-14-60	USH 151	Valders - STH 42	Northeast Asphalt	15.79	0.11	0.78			2		2.25"		2
3	Manitowoc	4085-06-71	STH 32	East Junction STH 57 - STH 67	Northeast Asphalt	15.33	0.29	1.00			2		3.00"	DGBC	
3	Calumet	4050-02-71	STH 55	Sherwood - North County Line	Northeast Asphalt	9.80	0.23	0.80			2		3.50"		6
3	Calumet	4658-06-71	STH 55	South County Line - Morningside Drive	Northeast Asphalt	1.40	0.01	0.83			2		3.00"		6
3	Sheboygan	4540-03-71	STH 32	Howards Grove - CTH M	Northeast Asphalt	7.06	0.34	0.85			2		4.50"	DGBC	
3	Sheboygan	4540-03-72	STH 32	CTH M - STH 57	Northeast Asphalt	7.60	0.32	0.83			2		4.50"	DGBC	
3	Sheboygan	4532-07-60	STH 67	Elkhart Lake - STH 57	Northeast Asphalt	8.43	0.20	1.05			3		2.125"		2
3	Sheboygan	4532-04-71	STH 67	Mill St. - Suhrke Road	Northeast Asphalt	0.78	0.00	2.22			2		2.50"		1
3	Sheboygan	4532-05-71	STH 67	Prospect - Mill St.	Northeast Asphalt	1.44	0.00	1.61			2		1.50"	DGBC	
3	Calumet	4670-03-71	STH 114	East Junction USH 10 - STH 55	Northeast Asphalt	4.71	0.42	0.64			2		4.50"		2
3	Marinette	9670-05-60	STH 180	STH 64 - CTH G	Northeast Asphalt	14.14	0.45	1.11			3		1.75"		2
3	Winnebago	4992-00-33	Local	STH 47 - East County Line	Northeast Asphalt	1.45	0.00	1.39			2		4.50"		3
3	Brown	4085-11-71	STH 32/57	South County Line - STH 96	Murphy Construction	13.39	0.30	0.93			2		4.00"	DGBC	
3	Menominee	9650-06-60	STH 47	CTH G - West County Line	B.R. Amon & Sons	14.47	0.34	1.37			3		1.75"		2
3	Menominee	9660-00-60	STH 55	STH 47 - North County Line	B.R. Amon & Sons	13.76	0.42	1.44			3		1.75"		2
3	Shawano	9316-03-71	CTH H	STH 47/55 - CTH HHH	Northeast Asphalt	3.97	0.05	0.82			3		3.50"	DGBC	

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BUREAU OF HIGHWAY CONSTRUCTION

HOT MIX ASPHALTIC CONCRETE PAVEMENT
ROAD PROFILER MEASUREMENTS
NEW CONSTRUCTION - 1997

District	County	Project	Highway Number	Name of Road	Paving Contractor	Lane-Miles	IRI		Wearing Surface				Total AC Thick (Inches)	New Base OGBC or DGBC	Paved Over 1-Old PCC 2 - Old A C 3 - Pulverize 4-Rubblize 5 - Crack & Seat 6 - Milled
							Std Dev	Proj	Recy-cled	SMA	1-HV 2-MV 3-LV	Spec Mix			
4	Waupaca	6898-03-71	Local	Tower Road	Northeast Asphalt	0.99	0.00	2.00			1		4.50"	DGBC	
4	Adams	6143-05-71	STH 13	Plainville - CTH E	D. L. Gasser	30.04	0.34	1.03			2		4.00"		2
4	Juneau	5013-02-71	STH 80	Union Center - Elroy	D. L. Gasser	7.83	0.56	1.28			2		5.00"		2
4	Marathon	1059-16-73	STH 29	CTH Y - CTH OO	American Asphalt	8.82	0.11	1.19			1		5.00"	DGBC	2
5	LaCrosse	1071-07-71	IH - 90	STH 16 - West Salem	Mathy Construction	26.55	0.55	0.82			1		4.00"		1
5	LaCrosse	1644-01-71	USH 14/61	STH 35 - CTH M	Mathy Construction	8.27	0.36	0.70			1		5.00"		6
5	LaCrosse	5991-09-16	CTH MH	Briggs Rd - CTH HD	Mathy Construction	3.45	0.07	1.36			2		5.00"	DGBC	
5	LaCrosse	5991-05-85	Local	STH 33 - Madison St	Mathy Construction	2.69	0.01	1.45			1		2.50"		1
5	Monroe	7605-07-71	STH 21	Sparta - Angelo	Mathy Construction	4.90	0.20	1.12			2		4.50"	DGBC	3
5	Monroe	7605-06-71	STH 21	Angelo - Tomah	Mathy Construction	29.10	0.30	0.70			2		3.00"		3
5	Monroe	5881-06-71	USH 12	Tomah - East County Line	Mathy Construction	16.22	0.36	0.70			2		3.00"		4
6	Clark	7847-03-71	CTH Y	Chili - STH 98	Clark County	6.00	0.01	1.09			3		2.25"		2
6	Clark	7852-05-70	CTH B	Humbird - USH 10	Clark County	7.85	0.72	1.00			3		2.25"		2
6	St. Croix	8949-03-74	USH 12	Hudson - Baldwin	Monarch Paving	31.19	0.15	1.03	X		2		4.50"		3
6	Eau Claire	7826-03-71	CTH Z	West County Line - STH 37	Mathy Construction	4.46	0.10	1.10			2		3.00"	DGBC	
6	Eau Claire	1028-05-77	IH - 94	Otter Creek Structure - CTH V	Mathy Construction	28.25	0.42	0.87		X	1		2.75"		2
6	Pierce	7210-07-71	USH 63	USH 10 - STH 29	Monarch Paving	20.45	0.36	0.87			2		3.125"		2
6	Pierce	7182-03-72	STH 35	Big River - Coulee Creek	Monarch Paving	6.58	0.29	1.07			2		4.00"	DGBC	
6	Pepin	1531-06-71	USH 10	West County Line - Chippewa River	Mathy Construction	17.90	0.20	1.14			2		5.50"		1
6	Dunn	8631-01-71	STH 170	CTH Q - CTH K	Mathy Construction	13.34	0.23	1.03			2		4.00"	DGBC	3

WISCONSIN DEPARTMENT OF TRANSPORTATION
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BUREAU OF HIGHWAY CONSTRUCTION

HOT MIX ASPHALTIC CONCRETE PAVEMENT
ROAD PROFILER MEASUREMENTS
NEW CONSTRUCTION - 1997

District	County	Project	Highway Number	Name of Road	Paving Contractor	Lane-Miles	IRI		Wearing Surface				Total AC Thick (Inches)	New Base OGBC or DGBC	Paved Over 1-Old PCC 2 - Old A C 3 - Pulverize 4-Rubblize 5 - Crack & Seat 6 - Milled
							Std Dev	Proj	Recy-cled	SMA	1-HV 2-MV 3-LV	Spec Mix			
7	Marinette	1498-01-71	USH 141	USH 8 - Niagara South Corp Limit	B.R. Amon & Sons	3.29	0.16	1.19			2		3.00"		6
7	Marinette	1498-01-72	USH 141	Niagara South Corp Limit - Michigan State Line	B.R. Amon & Sons	7.94	0.28	1.66			2		3.00"		6
7	Iron	9231-02-60	STH 47	Powell Marsh - USH 51	Northeast Asphalt	13.05	0.25	0.85			3		2.50"		2
7	Florence	9304-07-60	STH 101	Patton Lake Rd. - Jack Pine Dr.	Northeast Asphalt	6.09	0.34	0.93			3		2.00"		2
7	Iron	9250-09-70	STH 77	Montreal - 6th Ave.	Mathy Construction	7.85	0.57	1.57			2		3.5"	DGBC	2
7	Lincoln	1176-01-75	USH 51	Larson Lake Wayside - Donovan Rd.	American Asphalt	4.97	0.35	1.59			3		3.00"		3
7	Price	1580-11-70	USH 8	West County Line - Hay Creek Structure	Mathy Construction	35.82	0.19	0.95			2		3.50"		2
7	Price	1581-12-70	USH 8	Hay Creek Structure - Douglas Creek Structure	Mathy Construction	13.08	0.23	1.07			2		4.50"		3
7	Rusk	1580-15-71	USH 8	Glen Flora - East County Line	Mathy Construction	22.34	0.45	0.87			2		3.50"		2
8	Ashland	8307-04-71	CTH M	West County Line - STH 77	Monarch Paving	2.91	0.00	1.17			3		3.50"	DGBC	
8	Barron	1190-28-71	USH 53	South County Line - USH 8	Mathy Construction	67.60	0.21	0.96			1		2.50"		1
8	Bayfield	8737-04-71	CTH H	Scenic Drive - Knabe Rd.	Northwoods Paving	10.26	0.35	1.28			3		4.00"	DGBC	
8	Burnett	8010-20-71	STH 35	St. Croix River - North County Line	Monarch Paving	11.44	0.42	0.96			3		4.50"		3
8	Burnett	8819-01-71	CTH H	Oak Lake Rd. - CTH A	Monarch Paving	1.83	0.00	1.01			3		3.50"	DGBC	
8	Washburn	1190-34-71	Old 53	Village of Minong	Monarch Paving	2.16	0.01	1.20			2		2.00"		2
8	Douglas	1191-13-71	USH 53	CTH E - Kent Rd.	Monarch Paving	17.05	0.24	0.93			3		3.00"		1
8	Douglas	1180-20-71	USH 2	USH 53 - CTH U	Northwoods Paving	5.67	0.28	1.03			2		3.50"		2
8	Douglas	1180-18-71	USH 2	CTH U - Poplar	Northwoods Paving	7.46	0.40	0.87			2		3.50"		2
8	Sawyer	8140-11-71	STH 27	Couderay - STH 70 West	B.R. Amon & Sons	26.41	0.35	0.99			2		4.00"		2
8	Sawyer	8170-13-60	STH 70	Winter - CTH B	B.R. Amon & Sons	11.60	0.14	1.12			2		2.00"		3
8	Washburn	1199-05-60	STH 253	Woodcraft Rd. - Lone Ranch Rd.	Washburn County	2.64	0.00	1.45			2		2.00"		2

PROFILER ROAD MEASUREMENTS

CONSTRUCTION DATA

5 YEAR AVERAGE BY CONTRACTOR

Portland Cement Concrete Pavements - IRI

Contractor	1993		1994		1995		1996		1997			
	Lane Miles Tested	Avg IRI	Lane Miles Tested	Avg IRI	Lane Miles Tested	Avg IRI	Lane Miles Tested	Avg IRI	Lane Miles Tested	Avg IRI	Lane Miles Tested	Avg IRI
James Cape & Sons	42.35	1.45	56.34	1.44	33.42	1.24	33.40	1.46	39.40	1.59	204.90	1.44
Mashuda Contractors Inc.					9.12	1.62					9.12	1.62
Mann Bros.									5.26	2.32	5.26	2.32
Milwaukee General									2.40	3.78	2.40	3.78
Streu Construction	38.76	1.49	78.56	1.43	10.55	1.56	35.04	1.34	113.66	1.59	276.57	1.50
Ptaschinski									6.97	3.18	6.97	3.18
Trierweiler	9.39	1.41	48.77	1.32	11.27	1.85	45.92	1.43	73.34	1.50	188.70	1.45
Vinton	54.18	1.44	24.74	1.54			29.49	1.41	24.66	1.83	133.08	1.52
Zignego	4.41	1.98	38.43	1.51			22.54	1.69	7.55	1.80	72.93	1.62
TOTAL	149.09	1.47	246.84	1.43	64.36	1.45	166.39	1.45	273.24	1.67	899.92	1.49

* IRI is reported in m/km

PROFILER ROAD MEASUREMENTS

CONSTRUCTION DATA

5 YEAR AVERAGE BY CONTRACTOR

Hot Mix Asphaltic Concrete Pavement - IRI

Contractor	1993 Lane Miles Tested	1993 Avg IRI	1994 Lane Miles Tested	1994 Avg IRI	1995 Lane Miles Tested	1995 Avg IRI	1996 Lane Miles Tested	1996 Avg IRI	1997 Lane Miles Tested	1997 Avg IRI	Lane Miles Tested	Avg IRI
American Asphalt	30.87	1.05	72.10	1.00	28.05	1.31	9.70	1.00	13.79	1.34	154.51	1.10
Bacco			19.41	1.04							19.41	1.04
Barron County					7.88	1.34					7.88	1.34
B.R. Amon & Sons	46.91	0.99	105.01	0.98	37.27	1.05	124.76	1.05	79.28	1.24	393.23	1.06
Clark County	5.98	1.02			10.47	1.19	11.93	1.22	13.85	1.04	42.23	1.12
Fox Valley Const	5.06	0.95									5.06	0.95
D.L. Gasser	11.24	1.07	4.89	1.65	18.64	0.87	1.11	1.87	63.30	1.09	99.17	1.08
Dolson Inc./Zenith Tech									2.07	1.43	2.07	1.43
Langlade County			1.69	1.10							1.69	1.10
Mathy Construction	427.09	1.00	450.96	0.96	233.62	1.09	442.14	1.05	303.78	0.93	1857.59	1.00
Milwaukee General	1.33	2.35									1.33	2.35
Monarch Paving	54.28	1.03	47.23	0.92	22.87	0.99	7.73	1.13	93.60	0.98	225.71	0.99
Munson Bros. Inc.	1.29	2.10									1.29	2.10
Murphy Construction Co	7.60	1.13					34.09		13.39	0.93	55.08	0.38
Northeast Asphalt	218.86	1.03	217.64	0.78	128.52	0.89	97.61	1.06	170.99	0.95	833.61	0.93
Northwoods Paving									23.39	1.09	23.39	1.09
Payne & Dolan	92.85	1.03	212.94	1.09	39.19	0.94	59.35	0.93	96.48	0.97	500.81	1.03
Pitlick & Wick Inc.	13.70	0.94	4.31	0.84							18.01	0.92
Ptaschinski Const.,Inc.					1.47	1.75					1.47	1.75
Rodrigues	4.67	1.49									4.67	1.49
Rock Road of Wisc	46.53	1.03	9.29	1.00	8.95	0.96	30.47	1.04	21.27	0.80	116.52	0.98
Tower Asphalt	10.12	1.55									10.12	1.55
Washburn County									2.64	1.45	2.64	1.45
WM. Beaudoin & Son	42.83	1.05									42.83	1.05
No Contractor	2.76	1.07									2.76	1.07
TOTAL	1023.97	1.03	1145.47	0.96	536.93	1.03	818.88	1.00	897.81	1.00	4423.06	1.00

* IRI is reported in m/km

PROFILER ROAD MEASUREMENTS

CONSTRUCTION DATA

5 YEAR AVERAGE BY DISTRICT

Portland Cement Concrete Pavements

IRI

District	1993 Lane Miles Tested	1993 Avg IRI	1994 Lane Miles Tested	1994 Avg IRI	1995 Lane Miles Tested	1995 Avg IRI	1996 Lane Miles Tested	1996 Avg IRI	1997 Lane Miles Tested	1997 Avg IRI	Lane Miles Tested	Avg IRI
1	30.16	1.51	30.94	1.40	2.76	2.56	49.04	1.51	46.24	1.71	159.14	1.57
2	5.52	1.93	19.63	1.58	9.12	1.62			13.43	2.85	47.70	1.99
3	90.52	1.44	33.91	1.55	11.60	1.31			27.39	1.88	163.42	1.53
4	2.55	1.41	63.00	1.47	21.82	1.20	47.80	1.46	95.08	1.50	230.25	1.46
5			17.13	1.13			18.19	1.32	4.75	1.85	40.07	1.30
6	20.34	1.43	80.17	1.40			5.01	1.62	41.70	1.56	147.22	1.46
7			2.06	1.58			46.35	1.39			48.41	1.40
8					19.06	1.59			44.66	1.57	63.72	1.57
TOTAL	149.09	1.47	246.84	1.44	64.36	1.45	166.39	1.45	273.24	1.67	899.92	1.52

Hot Mix Ashpaltic Concrete Pavements

IRI

District	1993 Lane Miles Tested	1993 Avg IRI	1994 Lane Miles Tested	1994 Avg IRI	1995 Lane Miles Tested	1995 Avg IRI	1996 Lane Miles Tested	1996 Avg IRI	1997 Lane Miles Tested	1997 Avg IRI	Lane Miles Tested	Avg IRI
1	94.46	1.54	163.57	0.98	98.05	0.97	62.11	1.04	57.58	1.05	475.78	1.11
2	170.09	1.53	209.30	1.12	36.62	0.94	97.57	1.01	124.54	0.91	638.12	1.16
3	86.59	1.43	139.30	0.81	47.84	1.02	118.16	1.03	159.39	1.06	551.28	1.05
4	103.45	1.49	128.55	0.82	89.09	1.04	44.03	1.00	47.67	1.12	412.79	1.09
5	137.40	1.44	129.59	1.16	85.10	1.02	220.69	1.12	91.17	0.80	663.95	1.14
6	111.40	1.54	100.52	0.94	61.39	1.17	187.28	1.01	136.01	0.99	596.59	1.11
7	121.86	1.54	132.15	0.85	74.69	0.97	26.92	0.95	114.40	1.06	470.02	1.10
8	198.72	1.48	142.49	0.90	44.13	1.18	62.13	1.02	167.04	1.01	614.51	1.15
TOTAL	1023.97	1.50	1145.47	0.96	536.91	1.03	818.88	1.04	897.81	1.00	4423.04	1.12

* IRI is reported in m/km

PROFILER ROAD MEASUREMENTS

CONSTRUCTION DATA

5 YEAR AVERAGE BY SURFACE TYPE

IRI

Pavement Type	1993 Lane Miles Tested	1993 Avg IRI	1994 Lane Miles Tested	1994 Avg IRI	1995 Lane Miles Tested	1995 Avg IRI	1996 Lane Miles Tested	1996 Avg IRI	1997 Lane Miles Tested	1997 Avg IRI	Lane Miles Tested	Avg IRI
PCC PAVEMENTS												
Slipform - Jointed	134.91	1.48	246.85	1.43	64.36	1.45	166.39	1.45	273.24	1.67	885.75	1.52

IRI

Pavement Type	1993 Lane Miles Tested	1993 Avg IRI	1994 Lane Miles Tested	1994 Avg IRI	1995 Lane Miles Tested	1995 Avg IRI	1996 Lane Miles Tested	1996 Avg IRI	1997 Lane Miles Tested	1997 Avg IRI	Lane Miles Tested	Avg IRI
Standard Plant Mix - Asphaltic Concrete												
Single Aggregate Recycled	57.47	1.04	48.34	0.98	8.57	1.05			31.19	1.03	145.57	1.02
Rut Resistant Stone Matrix - Asphaltic Concrete	96.41	1.08	74.40	1.37	43.18	0.87	87.75	1.09	28.25	0.87	329.99	1.10
High Volume	191.73	1.00	233.96	0.88	83.24	0.92	243.40	0.99	239.46	0.93	991.78	0.94
Medium Volume	498.69	1.04	623.49	0.92	319.60	1.03	348.06	0.99	455.33	1.00	2245.16	0.99
Low Volume	115.88	1.04	165.28	1.03	82.33	1.22	126.28	1.30	143.59	1.11	633.37	1.13
Special Mix	63.79	1.12					13.40	0.87			77.19	1.08
Total	1023.97	1.04	1145.47	0.96	536.92	1.03	818.88	1.04	897.81	1.00	4423.05	1.04

* IRI is reported in k/km

PROFILER ROAD MEASUREMENTS

CONSTRUCTION PROJECT DATA

5 YEAR AVERAGE BY CONSTRUCTION TECHNIQUE

Portland Cement Concrete Pavements

Type of Technique	1993 Lane Miles Tested	1993 Avg IRI	1994 Lane Miles Tested	1994 Avg IRI	1995 Lane Miles Tested	1995 Avg IRI	1996 Lane Miles Tested	1996 Avg IRI	1997 Lane Miles Tested	1997 Avg IRI	Lane Miles Tested	Avg IRI
Jointed:												
8.0"									2.73	2.31		
9.0"	56.78	1.48	72.44	1.46	21.82	1.71	34.71	1.31	77.62	1.83	263.37	1.57
10.0"	92.31	1.48	33.29	1.40			84.02	1.57	72.68	1.74	282.29	1.56
11.0"			109.34	1.37	9.12	1.62	47.67	1.33	69.40	1.58	235.53	1.43
12.0"			31.77	1.66	33.42	1.24			50.81	1.42	116.00	1.43
Joint Repair & Patching												
Doweling:												
Basket	50.77	1.44	109.59	1.44	11.27	1.85	77.39	1.56	114.70	1.63	363.72	1.54
Inserted	98.32	1.48	137.25	1.43	53.09	1.37	89.00	1.35	145.11	1.59	522.78	1.46
Unkown									13.43	2.85		
Doweled												
8.0"									2.73	2.31		
9.0"	56.78	1.44	72.44	1.46	21.82	1.71	34.71	1.31	77.62	1.83	263.37	1.56
10.0"	92.31	1.48	33.29	1.40			84.02	1.57	72.68	1.74	282.29	1.56
11.0"			109.34	1.37	9.12	1.62			69.40	1.58	169.27	1.40
12.0"			31.77	1.66	33.42	1.24	47.67	1.33	50.81	1.42	163.67	1.40
Base:												
OGBC	126.20	1.48	154.44	1.49	23.48	1.58	138.05	1.41	106.13	1.59	548.30	1.49
DGBC	22.89	1.41	92.40	1.35	40.88	1.38	28.35	1.64	148.92	1.62	333.44	1.50
CABC												
Other									18.18	2.59		
Patch &Grind												
Joint Repair & Patching												
Joint Spacing:												
Random	120.68	1.44	239.40	1.42	52.48	1.36	139.61	1.40	205.73	1.55	757.90	1.45
18									28.49	1.46		
20	28.41	1.51	7.44	1.97	11.88	1.84	26.78	1.71	25.59	2.22	100.10	1.82
Unknown									13.43	2.85	13.43	2.85
Total Jointed	149.09	1.48	246.84	1.44	64.36	1.45	166.39	1.45	273.24	1.67	899.92	1.52
Total Doweled	149.09	1.46	246.84	1.44	64.36	1.45	166.39	1.45	273.24	1.67	899.92	1.52

* IRI is reported in m/km

PROFILER ROAD MEASUREMENTS

CONSTRUCTION PROJECT DATA

5 YEAR AVERAGE BY CONSTRUCTION TECHNIQUE

Hot Mix Asphaltic Concrete Pavements

Type of Technique	1993 Lane Miles Tested	1993 Avg IRI	1994 Lane Miles Tested	1994 Avg IRI	1995 Lane Miles Tested	1995 Avg IRI	1996 Lane Miles Tested	1996 Avg IRI	1997 Lane Miles Tested	1997 Avg IRI	Lane Miles Tested	Avg IRI
Depth:												
7.00"			19.14	0.80			43.59	0.93			62.73	0.89
6.00"	22.30	1.26	7.96	1.00	4.62	0.89	75.61	1.03			110.49	1.07
5.50"	37.65	1.21	76.67	1.01	10.03	1.15	15.79	1.17	19.97	1.17	160.11	1.10
5.00"	159.58	1.00	129.40	0.91	140.97	0.87	106.56	0.92	30.33	1.10	566.84	0.94
4.50"	196.53	0.96	74.37	0.84	12.33	0.82	51.28	0.99	84.21	1.01	418.72	0.95
4.00"	54.60	1.08	81.23	0.88	36.49	1.27	30.47	1.04	170.65	0.99	373.44	1.01
3.75"			27.08	1.04	15.92	0.87	12.17	0.99			55.17	0.98
3.50"	112.11	0.96	106.77	0.86	32.32	1.17	71.55	1.03	97.66	0.97	420.40	0.96
3.25"					18.56	0.92			34.91	0.82	53.47	0.86
3.00"	277.29	1.12	283.72	0.93	143.06	1.01	216.91	1.06	233.63	0.96	1154.61	1.02
2.75"			8.43	0.97			5.91	1.44	28.25	0.87	42.59	0.97
2.50"	17.53	1.12	46.68	1.01	28.65	1.17	62.69	1.26	84.12	0.97	239.66	1.09
2.25"			14.47	1.09			14.42	0.91	38.06	0.93	66.96	0.96
2.00"	89.80	1.16	187.38	1.20	54.36	1.13			22.49	1.11	354.03	1.17
1.75"			41.77	0.72			12.20	1.51	42.37	1.31	96.34	1.08
1.50"	56.58	1.12	28.57	0.89	39.61	1.27	99.72	1.04	11.18	1.18	235.66	1.09
0.75"			11.83	0.92							11.83	0.92
Paved Over:												
OGBC	6.35	1.40	17.48	0.93			51.01	0.94			74.84	0.98
DGBC	115.11	1.00	92.74	0.96	44.13	1.18			138.67	1.08	390.65	1.04
Pulverized									133.74	1.00	133.74	1.00
Rubblized			41.67	0.71			47.52	1.04	16.22	0.70	105.42	0.85
New Base	245.98	1.16	212.12	0.88	99.00	0.96	67.11	1.14			624.21	1.03
Old AC	211.28	1.00	292.32	0.95	142.94	1.14	103.82	1.05	368.75	0.95	1119.11	0.99
Old PCC	259.78	1.12	130.72	1.16	99.83	0.88	183.82	1.05	183.87	1.01	858.03	1.06
Milled	324.46	1.04	354.94	0.97	151.01	1.03	365.60	1.05	56.56	1.12	1252.57	1.02
Other			3.48	1.01							3.48	1.01
Total	1023.97	1.06	1145.47	0.96	536.92	1.03	818.88	1.04	897.81	1.00	4423.05	1.01

* IRI is reported in m/km

PROFILER ROAD MEASUREMENTS

1997 CONSTRUCTION PROJECTS

PROJECTS NOT TESTED

District	County	Project	Lane Miles	Highway Number	Reason Unable To Measure
1	Grant	5205-03-71	7.4	STH 133	Not Done Til 1998
1	Grant	5330-02-71	1.3	STH 80	Not Done Til 1998
1	Grant	5330-02-72	1.3	STH 11	Not Done Til 1998
1	Grant	1700-04-75	20	STH 11	Not Done Til 1998
2	Waukesha	2777-00-72	3.57	Local	Not Done Yet
2	Fond Du Lac	1107-03-72	1.99	Cth B	Not Done Ramps
2	Washington	1383-00-70	1.80	STH 167	Not Done This Year
2	Fond Du Lac	1430-05-70	0.88	STH 23	Not Done This Year
2	Milwaukee	2240-07-72	5.50	STH 36	Not Done This Year
2	Washington	2302-04-70	3.80	STH 167	Not Done Binder Only
2	Waukesha	2723-00-70	1.36	Cth O	Not Done Yet
2	Waukesha	2723-00-80	1.36	Cth O	Not Done Yet
2	Waukesha	2752-00-71	1.87	Cth W	Not Done This Year
2	Waukesha	2773-03-72	3.21	STH 59	Not Done This Year
2	Waukesha	2773-06-70	0.50	STH 59	Not Done This Year
3	Sheboygan	4650-01-71	2.25	STH 23	Not Done Yet
7	Oneida	9050-09-70	0.96	USH 51	Not Done Yet
7	Oneida	9050-09-71	0.96	STH 47	Not Done Yet
8	Polk	8840-10-71	4.48	STH 87	Not Done Binder Only
8	Sawyer	8772-03-75	4.219	Cth B	Not Done Yet