

SUMMARIES OF MICHIGAN PAVEMENT SKID RESISTANCE
1967 Test Program

LAST COPY
DO NOT REMOVE FROM LIBRARY



MICHIGAN DEPARTMENT OF STATE HIGHWAYS

SUMMARIES OF MICHIGAN PAVEMENT SKID RESISTANCE
1967 Test Program

Physical Research Unit
Research Laboratory Section
Testing and Research Division
Research Project 54 G-74
Research Report No. 674

State of Michigan
Department of State Highways
Lansing, July 1968

OFFICE MEMORANDUM



MICHIGAN
DEPARTMENT OF STATE HIGHWAYS

August 20, 1968

To: All Recipients of Research Report R-674, "Summaries of Michigan Pavement Skid Resistance, 1967 Test Program."

From: L. T. Oehler

Subject: Errata in subject report (p. 38).

Note the changes in the data in the table below. Please make these changes in your copy, or insert this errata sheet. Dashed box indicates changes.

TESTING AND RESEARCH DIVISION

L. T. Oehler

L. T. Oehler, Director

Research Laboratory Section

LTO:slt

TABLE 17
TEST AREAS FOR ANALYSIS OF EFFECTS OF USING TUNGSTEN CARBIDE
CUTTING EDGES FOR SNOW REMOVAL

Location	Control Section	Surface Type and Construction Year	Type of Snow Removal Blade	Direction and Lane	1967 Coefficient of Wet Sliding Friction		
					Low	High	Avg.
I 196 commencing N of I 94 at Mile Post 1, thence N 1000 ft on NB rdwy	11111	Bituminous Concrete 1963	Conventional	NBOL	0.50	0.53	0.51
				NBIL	0.75	0.76	0.75
I 94 from Roslyn Rd Bridge, E of I 196, W 1000 ft on WB rdwy	11017	Concrete 1960	Conventional	WBOL	0.45	0.48	0.47
				WBIL	0.54	0.57	0.55
US 131, S 1000 ft from 110th Ave on NB rdwy, south of M 118	03111	Concrete 1960	Conventional	SBOL	0.62	0.64	0.63
				SBIL	0.63	0.64	0.63
M 89 from 8th St, SE of Plainwell E 1000 ft on EB rdwy	03024	Bituminous Concrete 1962	Conventional	EB	0.47	0.48	0.47
I 94, W 1000 ft from Empire Ave, on WB rdwy, W of I 196	11016	Concrete 1960	Tungsten Carbide	WBOL	0.48	0.50	0.49
				WBCL	0.57	0.60	0.59
				WBIL	0.58	0.62	0.60
I 196, commencing N of I 94, at Mile Post 11, thence N 1000 ft on NB rdwy	80012	Bituminous Concrete 1963	Tungsten Carbide	NBOL	0.44	0.46	0.45
				NBIL	0.72	0.75	0.74
I 196 commencing N of South Haven at Mile Post 31, thence N 1000 ft on NB rdwy	03033	Concrete 1963	Tungsten Carbide	NBOL	0.55	0.59	0.57
				NBIL	0.64	0.66	0.65
M 89, E 1000 ft from 59th St on EB rdwy, west of Fennville	03021	Bituminous Concrete 1960	Tungsten Carbide	EB	0.35	0.38	0.37

INFORMATION RETRIEVAL DATA

REFERENCE: Schafer, P. M. Summaries of Michigan Pavement Skid Resistance: 1967. Michigan Department of State Highways Research Report No. 674. July 1968. Research Project 54 G-74.

ABSTRACT: Results are summarized for nearly 5600 skid resistance tests performed on Michigan trunkline pavements and bridge decks, during the calendar 1967 test year. The program includes testing of a) all new conventional trunkline projects, b) pavement surfaces incorporating experimental mixtures or unusual construction features for improved skid resistance, c) high accident locations, and d) locations by special request.

KEY WORDS: pavement skidding characteristics, skid resistance testing, skidding, de-slicking treatment.

CONTENTS

Page

INTRODUCTION

SECTION 1.	CONVENTIONAL CONCRETE AND BITUMINOUS PAVEMENTS	3
Table 1:	Concrete Pavements Constructed in 1965, 1966, and 1967	8
Table 2:	Bituminous Concrete Pavement (4.12) Constructed in 1965, 1966, and 1967	12
Table 3:	Bituminous Aggregate Pavement (4.11) Constructed in 1966 and 1967	14
Table 4:	Miscellaneous Bituminous Surfaces Constructed in 1965, 1966, and 1967	17
SECTION 2.	EXPERIMENTAL FEATURES IN PAVEMENT SURFACES	19
Table 5:	Rubberized Sand-Asphalt Resurfacing; US 31: City of Charlevoix	27
Table 6:	Asphalt-Emulsion Hot Mix Surface Courses; US 127: Lansing Intersections (Project Mob 33032C, C6)	27
Table 7:	3BC Sand-Asphalt Resurfacing; US 131 SB: North and South of Alba (Project Mm 4BC-3A; Control Section 05072)	27
Table 8:	Bituminous Concrete Interstate Projects	28
Table 9:	Bridge Deck Surface Coatings	29
Table 10:	Experimental Skid-Resistant Resurfacing.	30
Table 11:	Sand-Asphalt Skid-Resistant Resurfacing at Intersections.	32
Table 12:	31A Slag Aggregate Bituminous Concrete Resurfacing	33
Table 13:	2NS Modified Sand-Asphalt Resurfacing; US 131: Reed City North (Project Mb 67014, C3R)	34
Table 14:	3BC Sand-Asphalt Resurfacing; US 131: Rockford to Cedar Springs (Project Mb 41013C, C12)	35
Table 15:	Wyton Synthetic Binder Surface Course Mixtures.	36
Table 16:	Special Emulsion Projects.	37
Table 17:	Test Areas for Analysis of Effects of Using Tungsten Carbide Cutting Edges for Snow Removal.	38
Table 18:	Skid Tests on Pavement Grooving.	39
Table 19:	Evaluation of a Rubber Pad Railroad Crossing	39

CONTENTS

	<u>Page</u>
SECTION 3. HIGH-ACCIDENT LOCATIONS	41
Table 20: High-Accident Locations (Districts 1 through 10)	44
SECTION 4. SPECIAL REQUEST TESTS	55
Table 21: 1967 "Special Request" Skid Test Results	58

SUMMARIES OF MICHIGAN PAVEMENT SKID RESISTANCE
1967 Test Program

The annual reporting procedure for skid resistance testing as initiated in 1965 is continued with this report, which summarizes the nearly 5600 skid tests conducted during calendar 1967 test year. This report is organized in four sections:

1. Conventional Concrete and Bituminous Pavements
2. Experimental Features in Pavement Surfaces
3. High-Accident Locations
4. Special Request Tests

Explanatory remarks are given at the beginning of each section as a preface to the tabulated data for that category of pavement testing. Of these categories, all Special Request tests and all High-Accident Location tests have previously been reported to interested agencies within the Department.

All skid test values are expressed as 40-mph coefficients of wet sliding friction (wsf) except those referred to as "low velocity" wsf values. Values of this type will only be found in Table 19. They were so named because of necessary alterations in the testing procedures. An explanation of the low velocity wsf values is given later in this report as a part of the evaluation of a Rubber Pad Railroad Crossing. A wsf value of 0.40 is generally considered the dividing point between "satisfactory" and "unsatisfactory" pavement surfaces and it has been arbitrarily defined as the Departmental Safety Standard. Surfaces with coefficient values of 0.35 to 0.40 are in a "transitional" or "questionable" range. Projects below 0.35 could be dangerous under wet conditions, depending on prevailing speeds, road alignment, and geometrics. Surfaces with coefficients of 0.20 or less are as slippery as packed snow or ice.

Reference should be made to Research Report No. R-585 ("Summaries of Michigan Pavement Skid Resistance: 1965 Test Program") for information regarding operation of the skid-test device, selection of test areas, and verification retests.

NOTATION

Direction of Test Vehicle

EB	= eastbound
WB	= westbound
NB	= northbound
SB	= southbound
NWB	= northwestbound
NEB	= northeastbound
SWB	= southwestbound
SEB	= southeastbound

Lane Tested (follows code for direction of test vehicle)

OL	= outer lane
CL	= center lane
IL	= inner lane
#4, #3, #2	= fourth, third, or second lane from centerline or median
RT	= right turn lane
LT	= left turn lane
TL	= turning lane
D	= deceleration lane

Surface Type

CONC	= portland cement concrete
BA	= bituminous aggregate
BC	= bituminous concrete
ST	= surface treatment
NSST	= non-skid surface treatment
SA	= sand-asphalt
BRICK	= brick
BC-CONC	= 1/2 lane width of EC and 1/2 lane width of CONC
K&S	= kerosene and sand
TEMP	= temporary

Section 1
CONVENTIONAL CONCRETE AND BITUMINOUS PAVEMENTS

Table 1 -- Concrete Pavements Constructed in 1965, 1966, and 1967.

Average wsf values were obtained in 1967 on 33.624 lane miles (20 lanes) of 1965 construction projects after two years of service. Coefficients ranged from 0.38 to 0.58 and averaged 0.47.

After one year of service, 180.594 lane miles (85 lanes) of 20,1966 construction projects were tested. Low and high coefficients of 0.27 and 0.69, respectively, were obtained with an average wsf value of 0.45. Nine percent of the lane miles tested yielded average wsf values below the Department's Safety Standard of 0.40. Only one project (F 66033C, C2), representing 0.762 lane miles, had all values below this level. The low coefficient for 1966 concrete pavements (0.27), as tested in 1967, was obtained on the EBOL of I 63022-021 and is representative of 1.700 lane miles of roadway. Range in friction level for this lane, only reached a high of 0.38, producing an average of 0.32. Low wsf values below 0.30 were also obtained on the southbound outside lanes of I 75 on projects BI 82194E, C4 etc. and I 82194A, C12 etc. The two projects represent 15.300 lane miles of roadway.

The 1967 projects exhibited exceptional skid resistance characteristics as wsf values for the 95.324 lane miles (8 projects - 30 lanes) ranged from 0.44 to 0.68 and averaged 0.58.

Table 2 -- Bituminous Concrete Pavement (4.12) Constructed in 1965, 1966, and 1967.

Only one 1965 bituminous concrete project, representing 2.296 lane miles of roadway, was tested this year. All friction values were below the Safety Standard as values ranged from 0.31 to 0.37 and averaged 0.35.

Tests were conducted on 13 projects after a one-year service period. Friction level range for the 83.832 lane miles (32 lanes) tested was 0.29 to 0.57, the average was 0.41. Twenty-five percent of these lane miles yield an average wsf value below 0.40. All lanes tested on project F 59021A, C2 and U 61023A, C6, representing 3.810 and 3.612 lane miles, respectively, were at an average level of 0.37 or lower. The low single lane coefficient of 0.29 was obtained in the 2.067 mile EBOL of M 46 on project F 61023A, C4.

Skid tests were conducted during the initial year of service on 60.010 lane miles (36 lanes) of 13 separate bituminous concrete projects. Wsf values ranged from 0.34 to 0.59 and averaged 0.44. An average friction

level below 0.40 was obtained for 24.539 lane miles (8 lanes) or 41 percent of those tested. All lanes tested within two projects, i.e., Mb 23031-006 and the US 131 portion from Big Rapids north 0.9 mile of Ms 54011-004, were in this category.

Table 3 -- Bituminous Aggregate Pavement (4.11) Constructed in 1966 and 1967.

Nineteen of the projects constructed in 1966 were tested after a one year service period. Average coefficients ranged from 0.25 to 0.64 and averaged 0.46 on the 150.186 lane miles (39 lanes) tested. Thirty percent, or 45.467 lane miles (9 lanes), were below 0.40. Coefficients obtained on two projects, i.e., Mb 32011C, C11 and SS 72071C, C1 (7.820 and 2.540 lane miles, respectively) were outstanding inasmuch as the lanes tested had an average friction level range of 0.60 to 0.62. Contrastingly poor friction levels were determined on projects SS 28042A, C1 and Mm 6 BA-3C, representing a total of 18.540 lane miles, where wsf values averaged 0.29 or lower on the four lanes tested.

Thirty-four lanes from 15 bituminous aggregate projects tested in their initial year of service have an average friction level ranging from 0.15 to 0.60 and averaging 0.37. Of the 156.382 lane-miles tested, only 44 percent had average wsf values equal to or above the Safety Standard; 39 percent were in the 0.30 to 0.39 coefficient range; 16 percent were in the 0.20 to 0.29 range, and one percent (one lane) yielded an average friction level of 0.19. It might be pointed out that skid data from the three projects producing the poorest (lowest) average wsf values, i.e., Mb 31051-013, Mb 35011-003, and F 66022D, C7, were reported out soon after field measurements were completed in order to facilitate proper corrective action at these slippery locations. These data were reported via the Laboratory's Special Request Program (Table 21).

Table 4 -- Miscellaneous Bituminous Surfaces Constructed in 1965, 1966, and 1967.

Two projects, representing 3.448 lane miles and having special sheet asphalt non-skid surfaces, were tested after a two year service period. Wsf values obtained on the eight lanes ranged from 0.36 to 0.47 and averaged 0.43. Average coefficients were at least equal to the Departmental Safety Standard on all lanes.

A bituminous aggregate (4.09) project, Mb 52032-008 and a non-skid surface treatment project Mm 7 SC-8B, representing 32.082 and 26.400 lane miles, respectively, were tested after a one-year service period. Mb 52032-008 exhibited a good skid resistance level with wsf values ranging from 0.56 to 0.62. Project Mm 7 SC-8B yielded an undesirable friction level range of 0.15 to 0.31 in the outside lanes and, as a portion of the 1967 Special Request Program, data were reported out for appropriate corrective treatment. A kerosene and sand treatment was applied to these lanes and improved friction levels are shown as Special Request Number 4A in Table 21.

Six lanes (32.640 lane miles) of stone-filled sand asphalt were tested in their initial year of service. Coefficients ranged from 0.38 to 0.51 and averaged 0.44. Four lanes (48.000 lane miles) of non-skid special treatment were likewise tested in the initial year of service and resulting wsf values ranged from 0.49 to 0.60 and averaged 0.53.

TABLE 1
CONCRETE PAVEMENTS CONSTRUCTED IN 1965, 1966 AND 1967

Project No.	Location	Paving Contractor	Aggregate Sources		Direction and Lane	Coefficient of Wet Sliding Friction		
			Coarse	Fine		Low	High	Avg.
BI 33034A, C21 F 33035B, C1	US 127 relocation from S of Holt Rd to I 96	Sargent Construction Co.	Pit 47-3	Pit 33-79	US 127, NBOL US 127, NBIL US 127, SBOL US 127, SBIL	0.52 0.57 0.50 0.53	0.54 0.58 0.53 0.57	0.53 0.57 0.51 0.55
U 70012B, C2	M 21 - US 31 BR from Fairbanks Ave E and NE to Clover St.	Neil and Al Construction Co.	Pit 70-9	Pit 70-9	M 21 - US 31 BR, EBOL M 21 - US 31 BR, EBIL M 21 - US 31 BR, WBOL M 21 - US 31 BR, WBIL	0.38 0.42 0.41 0.44	0.38 0.43 0.47 0.48	0.38 0.42 0.45 0.45
BI 82191E, C17 I 82191F, C18	I 75 (Seaway Freeway) from N of Pennsylvania Rd NE to W of Allen Rd	Denton Construction Co.	Pit 63-4 & E. C. Levy 63-4, 63-7, & 82-10	Pits 47-3, 63-4, 63-7, & 82-10	I 75, NBOL I 75, NBCL I 75, NBIL I 75, SBOL I 75, SBCL I 75, SBIL	0.41 0.47 0.48 0.39 0.48 0.49	0.47 0.50 0.50 0.44 0.50 0.49	0.44 0.49 0.49 0.42 0.49 0.49
I 82191C, C20 I 82191H, C21	I 75 (Seaway Freeway) from W of Allen Rd to a point S of N city limits of Southgate	Denton Construction Co.	Pit 63-64 & E. C. Levy 63-4, 63-7 & 82-10	Pits 47-3, 63-4, 63-7 & 82-10	I 75, NBOL I 75, NBCL I 75, NBIL I 75, SBOL I 75, SBCL I 75, SBIL	0.42 0.47 0.47 0.41 0.47 0.47	0.47 0.50 0.48 0.44 0.50 0.49	0.44 0.48 0.47 0.42 0.49 0.48
F 02041B, C5	M 28 from County Rd 801 E to intersection of M 28 and Hickory St.	Bacco Construction Co.	Pit 75-5	Pit 70-9	M 28, NBOL M 28, NBIL M 28, SBOL M 28, SBIL	0.43 0.43 0.42 0.38	0.44 0.45 0.46 0.39	0.44 0.44 0.44 0.38
EBBF 09091A, C4 EBBF 73075A, C4	SB M 47 from 2268-ft S of Buck Rd N to 3044-ft N of Salisbury Rd	Sargent Construction Co.	Pits 67-2 & 75-5	Pits 67-2 & 79-21	M 47, SBOL M 47, SBIL	0.49 0.48	0.52 0.53	0.50 0.50
I 12033A, C9	I 69 from N of Copeland Rd to N of Maxon Rd, S of Coldwater	Rieth-Riley Construction Co., Inc.	Pits 12-31 & 12-43	Pit 12-43	I 69, NBOL I 69, NBIL I 69, SBOL I 69, SBIL	0.62 0.64 0.62 0.61	0.69 0.67 0.65 0.67	0.64 0.66 0.63 0.63
BI 13033D, C10 I 13033E, C11	I 194 from Golden Ave, S of Battle Creek, N to intersection of Division and Jackson Sts. in Battle Creek	Carl Goodwin & Sons, Inc.	Pit 08-80	Pit 08-05	I 194, NBOL I 194, NBIL I 194, SBOL I 194, SBIL	0.43 0.46 0.45 0.44	0.49 0.53 0.47 0.49	0.46 0.50 0.46 0.47
SS 25101C, C8 SS 73021C, C11	M 57 (Peet Rd.) commencing 378 ft W of Stuart Rd thence E to 211 ft W of village limits of Momrose	Sargent Construction Co.	Pit 71-47	Pit 76-1	M 57, EB M 57, WB	0.46 0.44	0.53 0.55	0.50 0.50

1965

1966

TABLE 1 (Cont.)
 CONCRETE PAVEMENTS CONSTRUCTED IN 1965, 1966 AND 1967

Project No.	Location	Paving Contractor	Aggregate Sources		Direction and Lane	Coefficient of Wet Sliding Friction		
			Coarse	Fine		Low	High	Avg.
F 32011A, C6	M 25 (Conboro Rd) from N limits of Sebewaing NE on relocation to Lange Rd, thence E along Dutcher Rd to Unionville Rd	Sargent Construction Co.	Pit 32-4	Pit 79-63	M 25, NB M 25, SB	0.45 0.54	0.53 0.55	0.49 0.54
F 33035A, C6	US 127 from 2000 ft N of Columbia Rd N to 2000 ft S of Holt Rd	Sargent Construction Co.	Pit 47-3	Pit 33-79	US 127, NBOL US 127, NBIL US 127, SBOL US 127, SBIL	0.51 0.48 0.44 0.53	0.55 0.55 0.48 0.57	0.53 0.52 0.47 0.55
I 63022-021	I 96 from the Livingston-Oakland County Line E 1.70 miles	Sargent Construction Co.	Pit 47-3	Pit 47-3	I 96, EBOL I 96, EBCL I 96, EBIL I 96, WBOL I 96, WBCL I 96, WBIL	0.27 0.35 0.48 0.38 0.45 0.45	0.38 0.46 0.51 0.45 0.52 0.53	0.32 0.38 0.49 0.42 0.49 0.49
F 66033C, C2	US 45 (River St.) from M 64 (Ontonagon St.) SE to Steel St. in the village of Ontonagon	Fox Valley Construction Co.	Pit 27-66	Pit 27-55	US 45, EB US 45, WB	0.36 0.36	0.38 0.39	0.37 0.37
F 73073D, C6	M 47 from Sarle Rd SE to M 81, W of Saginaw	Denton Construction Co.	Pits 17-40 & 71-47	Pits 67-2 & 79-21	M 47, NBOL M 47, NBIL M 47, SBOL M 47, SBIL	0.49 0.52 0.47 0.49	0.51 0.53 0.47 0.51	0.50 0.52 0.47 0.50
F 74061A, C2	M 46 from the W Sanilac County Line E to M 53	L. W. Edison Company	Pit 32-4	Pits 79-21 & 79-29	M 46, EB M 46, WB	0.45 0.48	0.46 0.53	0.46 0.51
F 79042A, C3	M 46 from M 24 to the village limits of Kingston	L. W. Edison Company	Pit 32-4	Pits 79-21 & 79-29	M 46, EB M 46, WB	0.51 0.55	0.54 0.57	0.53 0.56
F 79042A, C4	M 46 from E village limits of Kingston E to County Line	L. W. Edison Company	Pit 32-4	Pits 79-21 & 79-29	M 46, EB M 46, WB	0.52 0.53	0.54 0.54	0.53 0.53
U 82052E, C31	US 24 from Hayes St. N to Cypress St.	The Kutchins Company	E. C. Levy (Trenton)	Pit 47-15	US 24, NB* US 24, NBOL US 24, NBCL US 24, NBIL US 24, SB* US 24, SBOL US 24, SBCL US 24, SBIL	0.38 0.39 0.41 0.44 0.39 0.37 0.41 0.38	0.40 0.43 0.44 0.45 0.41 0.39 0.43 0.42	0.39 0.41 0.43 0.45 0.40 0.38 0.42 0.41

* Deceleration Lane

TABLE 1 (Cont.)
 CONCRETE PAVEMENTS CONSTRUCTED IN 1965, 1966 AND 1967

Project No.	Location	Paving Contractor	Aggregate Sources		Direction and Lane	Coefficient of Wet Sliding Friction		
			Coarse	Fine		Low	High	Avg.
U 82052E, C36	US 24 from Cypress St. N to Van Born St.	Cooke Contracting Co.	E. C. Levy, (Dix)	Pit 82-10	US 24, NBOL US 24, NBCL US 24, NBIL US 24, SBOL US 24, SB #3 US 24, SB #2 US 24, SBIL	0.40 0.38 0.39 0.34 0.36 0.44 0.39	0.47 0.44 0.45 0.36 0.37 0.44 0.44	0.43 0.42 0.43 0.35 0.36 0.44 0.41
I 82191H, C26 I 82191I, C27 I 82191J, C28	I 75 (Seaway Freeway) from Sta. 703+00 in the city of Southgate to S of US 25 in Lincoln Park	The Kutchins Company	E. C. Levy, (Dix & Trenton)	Pits 63-7, 63-55 & 82-10	I 75, NBOL I 75, NBCL I 75, NBIL I 75, SBOL I 75, SBCL I 75, SBIL	0.36 0.47 0.47 0.38 0.44 0.42	0.39 0.48 0.49 0.46 0.50 0.50	0.37 0.47 0.48 0.42 0.46 0.47
I 82191K, C29 I 82191L, C35	I 75 (Seaway Freeway) from N of Dix-Toledo Rd to N of Southfield Rd	The Kutchins Company	E. C. Levy, (Dix & Trenton)	Pits 47-3 & 47-15	I 75, NBOL I 75, NBCL I 75, NBIL I 75, SBOL I 75, SBCL I 75, SBIL	0.38 0.41 0.44 0.32 0.42 0.47	0.41 0.44 0.47 0.39 0.44 0.50	0.39 0.43 0.46 0.37 0.44 0.48
I 82191J, C44	I 75 (Seaway Freeway) from S of US 25 to N of US 25	Cooke Contracting Co.	E. C. Levy, (Dix)	Pits 63-7, 63-55 & 82-10	I 75, NBOL I 75, NBCL I 75, NBIL I 75, SBOL I 75, SBCL I 75, SBIL	0.38 0.44 0.48 0.36 0.42 0.50	0.41 0.46 0.50 0.40 0.43 0.50	0.40 0.45 0.49 0.38 0.43 0.50
BI 82194E, C4 BI 82194F, C5	I 75 (Fisher Freeway) from S of Schaefer to Leonard Ave.	The Kutchins Company	E. C. Levy, (Dix)	Pits 47-15, 82-5 & 82-10	I 75, NBOL I 75, NBCL I 75, NBIL I 75, SBOL I 75, SBCL I 75, SBIL	0.38 0.36 0.36 0.29 0.40 0.42	0.48 0.44 0.47 0.41 0.47 0.50	0.43 0.41 0.43 0.35 0.43 0.46
I 82194A, C12 I 82194B, C13 I 82194D, C14	I 75 (Seaway Freeway) from N of Southfield to S of Schoolcraft	L. A. Davidson Company	E. C. Levy, (Dix & Trenton)	Pits 63-55 & 82-10	I 75, NBOL I 75, NBCL I 75, NBIL I 75, SBOL I 75, SBCL I 75, SBIL	0.38 0.36 0.36 0.29 0.39 0.42	0.48 0.46 0.47 0.36 0.44 0.47	0.42 0.42 0.43 0.32 0.41 0.45

1966 (CONT)

TABLE 1 (Cont.)
 CONCRETE PAVEMENTS CONSTRUCTED IN 1965, 1966 AND 1967

Project No.	Location	Paving Contractor	Aggregate Sources		Direction and Lane	Coefficient of Wet Sliding Friction		
			Coarse	Fine		Low	High	Avg.
U 12022F, C6	I 69 BL - US 12 from 500 ft NW of E limits of Coldwater SW 0.804 mile (omitting 0.341 mile at I 69 interchange)	L. W. Edison Company	Pits 12-31, 12-44 & 30-35	Pits 12-43 & 12-44	I 96 BL - US 12, EBOL I 96 BL - US 12, EBHL I 96 BL - US 12, WBOL I 96 BL - US 12, WBIL	0.44 0.47 0.49 0.50	0.48 0.52 0.50 0.51	0.46 0.49 0.50 0.50
F 12031A, C8	I 69 BL (Penn Rd.) from 1890 ft E of existing US 27 W on Penn Rd. to US 27, thence N on US 27 2675 ft	L. W. Edison Company	Pits 12-31, 12-44 & 30-35	Pits 12-43 & 12-44	I 69 BL, EB I 69 BL, WB	0.56 0.56	0.59 0.58	0.58 0.57
I 12033D, C5	I 69 from 2882 ft N of Fenn Rd N to 1540 ft N of US 12	L. W. Edison Company	Pits 12-31, 12-43 & 30-35	Pits 12-43 & 12-44	I 69, NBOL I 69, NBIL I 69, SBOL I 69, SBIL	0.55 0.54 0.59 0.58	0.62 0.61 0.61 0.60	0.59 0.58 0.60 0.59
I 12033E, C7 I 12033A, C8	I 69 from 111 ft N of Maxon Rd N to 2882 ft N of Fenn Rd	L. W. Edison Company	Pits 12-31, 12-43, 12-44 & 30-35	Pits 12-43 & 12-44	I 69, NBOL I 69, NBIL I 69, SBOL I 69, SBIL	0.56 0.56 0.55 0.53	0.60 0.62 0.63 0.57	0.59 0.58 0.60 0.56
I 12033A, C10	I 69 from Michigan-Indiana State Line N to N of Copeland Rd	L. A. Davidson Company	Pits 12-31, 12-43 & 12-44	Pit 12-43 & State Line Sand and Gravel	I 69, NBOL I 69, NBIL I 69, SBOL I 69, SBIL	0.55 0.61 0.51 0.60	0.57 0.67 0.58 0.64	0.56 0.64 0.54 0.61
I 12034B, C1	I 69 from 1047 ft N of Newton Rd N to Wagner Rd	Rieth-Riley Construction Co., Inc.	Pit 12-43	Pit 12-43	I 69, NBOL I 69, NBIL I 69, SBOL I 69, SBIL	0.59 0.52 0.50 0.55	0.63 0.60 0.61 0.64	0.61 0.56 0.57 0.60
I 12034A, C4	I 69 from 1540 ft N of US 12 N to 1047 ft N of Newton Rd	A. Lindberg & Sons, Inc.	Pit 30-35	Pit 12-44	I 69, NBOL I 69, NBIL I 69, SBOL I 69, SBIL	0.56 0.54 0.58 0.60	0.62 0.57 0.62 0.64	0.60 0.56 0.60 0.63
I 12073A, C65-1748	I 69 from Branch-Calhoun County Line N to N of M 60 near the village of Tekonsha	Carl Goodwin & Sons, Inc.	Pit 12-43	Pit 12-43	I 69, NBOL I 69, NBIL I 69, SBOL I 69, SBIL	0.56 0.56 0.61 0.65	0.59 0.62 0.67 0.68	0.57 0.60 0.64 0.67

1967

TABLE 2
BITUMINOUS CONCRETE PAVEMENT (4.12) CONSTRUCTED IN 1965, 1966 AND 1967

Project No.	Location	Paving Contractor	Aggregate Sources		Direction and Lane	Coefficient of Wet Sliding Friction			
			Coarse	Fine		Low	High	Avg.	
1965	Mb 41062C, C7	M 11 from Clyde Park E to Division St., omitting from SE US 131 off-ramp to Buchanan Ave., City of Wyoming	Grand Rapids Asphalt Paving Co.	Pit 41-16	Pit 41-38	M 11, EBOL M 11, EBIL M 11, WBOL M 11, WBIL	0.31 0.32 0.34 0.36	0.34 0.36 0.36 0.37	0.33 0.34 0.35 0.37
	Mb 10012C, C1	M 22 in Frankfort from M 115 (Forest Ave) W & N to 400-ft N of South Shore Rd.	Hodgkiss & Douma, Inc.	Pit 67-2	Pit 10-25 & Local Pit	M 22, NB M 22, SB	0.48 0.41	0.50 0.45	0.49 0.43
	Mb 13061-009	I 94 BL (Van Buren) at Penn. St. thence W & NW to M 78 (Capital Ave.) omitting at Division St., City of Battle Creek	Rieth-Riley Construction Co.	Pit 47-3	Pit 13-30	I 94 BL, WBTL I 94 BL, WBOL	0.40 0.42	0.41 0.43	0.41 0.43
	Mb 25021C, C2	US 23 BR from US 23 SE on US 23 BR (Silver Lake Rd.) to Beach St. in Fenton	Film Asphalt and Paving Co.	Pit 63-4	Pit 63-54	US 23 BR, EB US 23 BR, WB	0.34 0.31	0.39 0.34	0.36 0.33
1966	Mb 29031C, C3	US 27 BR from 2610-ft S of N city limits of Alma, N to M 46	The Hicks Company	Pit 37-26	Pit 37-26	US 27 BR, NB US 27 BR, SB	0.36 0.45	0.39 0.48	0.37 0.47
	F 35031C, C2 F 35032C, C6	US 23 from S limits of Tawas City at M 55 (Hemlock St.) thence NE to E city limits	Central Paving Company	Pit 65-7	Pit 71-15	US 23, NBOL US 23, NBIL US 23, SBOL US 23, SBIL	0.36 0.43 0.36 0.38	0.42 0.45 0.38 0.44	0.39 0.44 0.37 0.41
	SS 38011A, C2	M 99 from E village limits of Springport E & N to Crawford Rd	Workman Richardson Asphalt Co.	Pit 38-46	Pit 38-46	M 99, NB M 99, SB	0.54 0.55	0.57 0.57	0.55 0.56
	F 41122A, C1	M 57 from Ramsdell Dr E to Kent-Montcalm County Line	Rieth-Riley Construction Co.	Pit 41-38	Pit 41-101	M 57, EB M 57, WB	0.43 0.46	0.46 0.49	0.44 0.48
	F 41122D, C4	M 57 from Teft Ave. E to Ramsdell Dr	Rieth-Riley Construction Co.	Pit 41-38	Pit 41-101	M 57, EB M 57, WB	0.44 0.43	0.48 0.47	0.47 0.45
	F 59021A, C2	M 57 from Kent-Montcalm County Line E to Greenville	Rieth-Riley Construction Co.	Pit 41-38	Pit 41-101	M 57, EB M 57, WB	0.30 0.31	0.34 0.33	0.31 0.32
	F 61023A, C4	M 46 from Sheridan Dr E to Brooks Rd.	Rieth-Riley Construction Co.	Pit 75-5	Pit 70-9	M 46, EBOL M 46, EBIL M 46, WBOL M 46, WBIL	0.29 0.44 0.36 0.39	0.33 0.47 0.39 0.44	0.31 0.45 0.38 0.42
	U 61023A, C6	M 46 from Shonast St. to Sheridan Dr	Rieth-Riley Construction Co.	Pit 75-5	Pit 70-9	M 46, EBOL M 46, EBIL M 46, WBOL M 46, WBIL	0.30 0.37 0.32 0.36	0.34 0.38 0.34 0.36	0.33 0.37 0.33 0.36
	Mb 61073C, C5	US 31 BR from 90-ft N of Water St. in Montague N on US 31 BR - US 31 to the Muskegon-Oceana County Line	Paul C. Miller	Pits 17-40 & 41-38	Pit 70-9	US 31 BR - US 31 NB US 31 BR - US 31 SB	0.42 0.45	0.47 0.51	0.44 0.48
	Mb 70081C, C7	M 104 from 300-ft W of Savidge Rd., in Spring Lake, E to I 96, omitting from Cutler St. to Fruitport St., in Spring Lake	Muskegon Asphalt Paving Co.	Pit 70-38	Pit 70-9	M 104, EB M 104, WB	0.42 0.38	0.46 0.45	0.45 0.42

TABLE 2 (Cont.)
 BITUMINOUS CONCRETE PAVEMENT (4.12) CONSTRUCTED IN 1965, 1966 AND 1967

Project No.	Location	Paving Contractor	Aggregate Sources		Direction and Lane	Coefficient of Wet Sliding Friction		
			Coarse	Fine		Low	High	Avg.
Mn 06071-002 (Part)	US 23 from N of Sagatoo Rd to S of Duquette Rd	Central Paving Co.	Pit 79-21	Pit 65-7	US 23, NBOL US 23, NBIL US 23, SBOL US 23, SBIL	0.39 0.48 0.38 0.45	0.41 0.51 0.39 0.45	0.40 0.49 0.38 0.45
Ms 06071-002 (Part)	US 23 - I 75 from Groove St. N. 1.014 miles in Bay County	Central Paving Co.	Pit 79-21	Pit 65-7	US 23 - I 75 NBOL US 23 - I 75 NBIL US 23 - I 75 SBOL US 23 - I 75 SBIL	0.47 0.49 0.46 0.49	0.49 0.52 0.46 0.51	0.48 0.51 0.46 0.50
Mn 06071-002 (Part)	M 13 from White Ave N in Bay County	Central Paving Co.	Pit 79-21	Pit 65-7	M 13, NBOL M 13, NBIL M 13, SBOL M 13, SBIL	0.43 0.44 0.47 0.41	0.45 0.48 0.47 0.44	0.44 0.46 0.47 0.43
Ms 13032-010	M 66 from 3.5 miles N of Battle Creek & 0.11 mile S & W of Huntington Rd NE to the Wanodoger Creek Bridge	Rieth-Riley Construction Co.	Pit 39-01	Pit 13-38	M 66, NB M 66, SB	0.42 0.42	0.45 0.43	0.43 0.42
I 13073A, C65-1748	M 60 at I 69 interchange	Rieth-Riley Construction Co.	Pit 39-01	Pit 12-31	M 60, EB M 60, WB	0.51 0.56	0.53 0.59	0.52 0.57
Mb 23031-006	US 27 from S limits of Olivet NE to US 27 BR	Rieth-Riley Construction Co.	Pit 47-3	Pit 12-31	US 27, NB US 27, SB	0.38 0.37	0.39 0.40	0.39 0.39
SS 25101C, C7	M 57 from E limits of Montrose E to I 75	Ann Arbor Construction Co.	Pit 47-3	Pit 65-54	M 57, EB M 57, WB	0.38 0.39	0.43 0.40	0.41 0.39
Ms 54011-004 (Part)	US 131 from Big Rapids N 0.9 mile	Rieth-Riley Construction Co.	Pit 54-42	Pit 54-42	US 131, NB US 131, SB	0.34 0.34	0.36 0.37	0.35 0.36
Ms 54011-004 (Part)	US 131 at Fillmore Rd	Rieth-Riley Construction Co.	Pit 54-42	Pit 54-42	US 131, NB US 131, SB	0.39 0.40	0.45 0.42	0.42 0.41
Ms 54011-004 (Part)	US 131 at Four Mile Rd	Rieth-Riley Construction Co.	Pit 54-42	Pit 54-42	US 131, NB US 131, SB	0.41 0.43	0.42 0.44	0.41 0.44
Ms 61076-001	M 20 from Muskegon River Bridge NW to 275-ft SE of M 213	Rieth-Riley Construction Co.	Pit 70-09	Pit 70-09	M 20, NBOL M 20, NBIL M 20, SBOL M 20, SBIL	0.37 0.41 0.37 0.41	0.40 0.44 0.39 0.41	0.38 0.43 0.38 0.41
Mb 77031-004	US 25 BR from W limits of Marysville NE to 360-ft SE of M 29	Blue Water Asphalt Co., Inc.	Pit 17-40	Pit 74-04	US 25 BR, NB US 25 BR, SB	0.46 0.49	0.49 0.51	0.48 0.50
Mb 82071-012	US 25 - M 17 (Oakwood Ave.) from Outer Drive NE to Schaefer Hwy	Ajax Asphalt Paving, Inc.	E. C. Levy (slag)	E. C. Levy (slag)	US 25 - M 17 NBOL US 25 - M 17 NBIL US 25 - M 17 SBOL US 25 - M 17 SBIL	0.44 0.46 0.45 0.45	0.47 0.49 0.46 0.48	0.48 0.45 0.46 0.48

1967

TABLE 3
BITUMINOUS AGGREGATE PAVEMENT (4.11) CONSTRUCTED IN 1966 AND 1967

Project No.	Location	Paving Contractor	Aggregate Sources		Direction and Lane	Coefficient of Wet Sliding Friction		
			Coarse	Fine		Low	High	Avg.
F 01052A, C2 F 04031C, C1	US 23 from a point 0.947 mi SE of the Alcona-Alpena County Line thence NW 8.878 miles	Saginaw Asphalt Paving Co.	Pit 04-47	Pit 04-47	US 23, NB US 23, SB	0.38 0.41	0.48 0.49	0.42 0.46
Mb 05011A, C8 Mb 28013E, C3	US 31 from M 72 thence N to a point 0.92 mi N of the Antrim-Grand Traverse County Line	Peninsula Asphalt & Constr. Co.	Pit 45-13	Pit 45-13	US 31, NB US 31, SB	0.36 0.36	0.38 0.38	0.37 0.37
F 10041-2 (Part)	M 115 (Forest Ave.) from M 22 (Lake St.) in the city of Frankfort E 4400-ft	Hodgkiss & Douma Inc.	Pit 10-21	None	M 115, EB M 115, WB	0.34 0.40	0.37 0.43	0.35 0.42
F 10041-2 (Part)	M 115 from 3480-ft NW of the village limits of Beulah SE to US 31 (Mich. Ave.) in the village of Benzonia	Hodgkiss & Douma Inc.	Pit 10-21	None	M 115, EB M 115, WB	0.37 0.35	0.38 0.36	0.38 0.36
SS 21032B, C3	M 35 from W of Gladstone W and N to County Road G-16	Payne & Dolan of Wisconsin, Inc.	Pit 21-62	None	M 35, NB M 35, SB	0.51 0.50	0.58 0.58	0.54 0.53
USS 21032A, C4	M 35 from US 2 - US 41 in the city of Gladstone W to the W city limits of Gladstone	Payne & Dolan of Wisconsin, Inc.	Pit 21-62	None	M 35, NBOL M 35, NBIL M 35, SBOL M 35, SBIL	0.48 0.43 0.55 0.41	0.52 0.47 0.56 0.43	0.50 0.44 0.55 0.42
Mb 28012C, C2	US 31 - M 37 from 2824-ft S of Silver Pines Rd N a distance of 1.04 mi	Peninsula Asphalt & Constr. Co.	Pit 45-13	Pit 45-13	US 31 - M 37 SBOL	0.38	0.41	0.40
SS 28042A, C1	M 72 from US 31 E on M 72 and M 72 relocation to the Grand Traverse-Kalkaska County Line	Peninsula Asphalt & Constr. Co.	Pit 45-13	Pit 45-13	M 72, EB M 72, WB	0.29 0.25	0.30 0.33	0.29 0.28
Mb 28042C, C3	M 72 from a point near the village of Williamsburg E intermittently to a point near village of Mabel	Peninsula Asphalt & Constr. Co.	Pit 45-13	Pit 45-13	M 72, EB M 72, WB	0.53 0.52	0.55 0.59	0.54 0.55
F 32011A, C6	M 25 relocation from the N city limits of Sebawaing NE to intersection of Lange Rd thence E along Dutcher to Unionville Rd	Saginaw Asphalt Paving Co.	Pit 32-4	None	M 25, NB M 25, SB	0.45 0.54	0.53 0.55	0.49 0.54
Mb 32011C, C11	Old M 25 (Canboro Rd) from E city limits of Sebawaing E to Gettel Rd, thence N along Gettel Rd to Dutcher Rd	Saginaw Asphalt Paving Co.	Pit 32-4	None	M 25, EB M 25, WB	0.59 0.59	0.62 0.62	0.60 0.61
Mb 41122C, C2	M 57 from 653-ft W of Lincoln Lake Rd E to 1243-ft E of Mills Ave	Reith-Riley Construction Co.	Pit 41-100	None	M 57, EB M 57, WB	0.50 0.51	0.52 0.51	0.51 0.51

TABLE 3 (Cont.)
 BITUMINOUS AGGREGATE PAVEMENT (4.11) CONSTRUCTED IN 1966 AND 1967

Project No.	Location	Paving Contractor	Aggregate Sources		Direction and Lane	Coefficient of Wet Sliding Friction		
			Coarse	Fine		Low	High	Avg.
Mb 45072C, C2	M 22 from Race St in village of Suttons Bay N to State Rd	Hodgkiss & Douma, Inc.	Pit 45-31	None	M 22, NB M 22, SB	0.42 0.47	0.48 0.48	0.46 0.48
Mb 61072C, C16	Old US 31 (Harvey St.) from Oak Ave N and W to Getty St., omitting from Leonard Ave. to Stebbins	Rieth-Riley Construction Co.	Pits 62-10 & 75-5	Pit 70-9	US 31, EB US 31, WB	0.49 0.48	0.50 0.54	0.49 0.50
F 66023A, C3	M 28 from US 45 E a distance of 0.184 mile	George Hocking Construction Co.	Pit 66-5	None	M 28, EB M 28, WB	0.44 0.47	0.48 0.48	0.46 0.48
F 72023C, C2	M 55 from 550-ft E of M 18 E to M 76	Lake & Howell Construction Co.	Pit 72-40	None	M 55, EB M 55, WB	0.50 0.52	0.58 0.58	0.53 0.54
SS 72071C, C1	M 157 from M 18 S to M 55	Lake & Howell Construction Co.	Pit 72-40	None	M 157, NB M 157, SB	0.59 0.60	0.64 0.63	0.61 0.62
Mm 68A - 3C	US 131 from a point S of Reed City N intermittently a distance of 1.19 miles	Rieth-Riley Construction Co.	Pit 54-21	None	US 131, NB US 131, SB	0.29 0.26	0.30 0.30	0.29 0.29
F 02041D, C4	M 28 from Alger-Marquette County Line E to 900-ft E of Laughing Whitefish River	Payne & Dolan of Wisconsin, Inc.	Pit 52-7	None	M 28, EB M 28, WB	0.43 0.34	0.47 0.40	0.45 0.36
Mb 02041C, C6	M 28 commencing S of N city limits of Munising N & W to relocated M 28	Payne & Dolan of Wisconsin, Inc.	Pit 52-7	None	M 28, EB M 28, WB	0.60 0.59	0.60 0.60	0.60 0.60
Mb 05012-004 F 05012-005	US 31 from 2.08 miles S of the Charlevoix-Antrim Co. Line N to a point 1.71 miles N of the County Line	Hodgkiss & Douma, Inc.	Pit 15-32	Pit 15-32	US 31, NB US 31, SB	0.27 0.27	0.34 0.30	0.31 0.29
Mb 10012-002	M 22 from 400-ft N of North Shore Rd N to Benzle-Leelanau County Line	Rieth-Riley Construction Co.	Pit 10-21	None	M 22, NB M 22, SB	0.29 0.35	0.50 0.48	0.40 0.40
F 15011-003	US 31 from 706-ft SW of State St NE to Carpenter St., City of Charlevoix	Hodgkiss & Douma, Inc.	Pit 15-32	None	US 31, NBOL US 31, NBIL US 31, SBOL US 31, SBIL	0.36 0.28 0.30 0.27	0.37 0.30 0.31 0.29	0.37 0.29 0.31 0.28
SS 15031-002	M 66 from US 31 E in City of Charlevoix	Hodgkiss & Douma, Inc.	Pit 15-32	None	M 66, EB M 66, WB	0.37 0.41	0.38 0.43	0.38 0.42
SS 17012-005 SS 17012-006	M 123 from Chippewa-Mackinac County Line NW to 1600-ft NW of Trout Lake Cemetery	Hodgkiss & Douma, Inc.	Pit 17-6	None	M 123, NB M 123, SB	0.46 0.48	0.52 0.51	0.50 0.50

1966 (CONT)

1967

TABLE 3 (Cont.)
 BITUMINOUS AGGREGATE PAVEMENT (4.11) CONSTRUCTED IN 1966 AND 1967

Project No.	Location	Paving Contractor	Aggregate Sources		Direction and Lane	Coefficient of Wet Sliding Friction		
			Coarse	Fine		Low	High	Ave.
Mb 21023-001	US 2 - US 41 from 1020-ft S of N Gladstone city limits N to County Rd I 24	Payne & Dolan of Wisconsin, Inc.	Pit 21-17	None	US 2 - US 41 EB US 2 - US 41 WB	0.31 0.23	0.34 0.25	0.33 0.24
Mob 24051-001	M 131 from US 31 N to Beach Rd, omitting from 430-ft N of US 31 to 2100-ft S of Powell Rd	Hodgkiss & Douma, Inc.	Pit 15-32	None	M 131, NB M 131, SB	0.27 0.27	0.30 0.30	0.29 0.28
M 26022-003	M 61 intermittently from Bay-Gladwin County Line W 7 miles	Central Paving Co.	Pit 65-7	None	M 61, EB M 61, WB	0.37 0.34	0.39 0.37	0.38 0.36
Mb 31051-013	US 41 from S limits of Chassel N to 800-ft S of Pilgrim River Bridge, omitting 1.4 miles of existing concrete pavement	George Hocking Construction Co.	Pit 31-45	None	US 41, NB US 41, SB	0.18 0.15	0.25 0.32	0.22 0.22
Mb 35011-003	M 65 from 60-ft S of Iosco-Arenac County Line N to S limits of Whittemore	Saginaw Asphalt Paving Co.	Pit 01-56	None	M 65, NB M 65, SB	0.23 0.32	0.25 0.34	0.24 0.33
Mb 36022-4	US 2 intermittently from 3 miles E of Iron River E to Fortune Lake Park entrance	Payne & Dolan of Wisconsin, Inc.	Pit 36-22	None	US 2, EB US 2, EB* US 2, WB US 2, WB*	0.51 0.57 0.51 0.49	0.57 0.59 0.59 0.59	0.54 0.58 0.55 0.54
Mb 41091-001	M 91 from 196 N & E to M 21 in Lowell, omitting from 1710-ft N of Emery Dr to 534-ft S of Bowes St.	Michigan Colprovia Co.	Pit 70-24	None	M 91, NB M 91, SB	0.39 0.32	0.43 0.38	0.41 0.35
Mb 59022-004	M 91 from 204-ft N of Colby Rd N to 757-ft S of M 46	Rieth-Riley Construction Co.	Pit 59-55	None	M 91, NB M 91, SB	0.30 0.31	0.34 0.33	0.31 0.32
F 66022D, C7	M 28 from 3400-ft W of Baltimore River E to US 45 in Village of Bruce Crossing	George Hocking Construction Co.	Pit 66-33	None	M 28, EB M 28, WB	0.16 0.18	0.23 0.22	0.19 0.20

* Special lane on hill for slow moving vehicles.

1967 (CONT)

TABLE 4
MISCELLANEOUS BITUMINOUS SURFACES CONSTRUCTED IN 1965, 1966 AND 1967

Project No.	Location	Paving Contractor	Aggregate Sources		Direction and Lane	Coefficient of Wet Sliding Friction			
			Coarse	Fine		Low	High	Avg.	
1965	<u>Special Sheet Asphalt Non-Skid Surfacing</u>								
	Mns 33011C, C6	M 99 (Logan St.) at W. Mt. Hope Ave., City of Lansing	Spartan Asphalt Paving Co.	Pit 47-3	Pit 33-6	M 99, NBOL M 99, NBIL M 99, SBOL M 99, SBIL	0.41 0.40 0.43 0.44	0.45 0.47 0.47 0.46	0.43 0.43 0.45 0.45
	Mns 33082C, C17	M 43 (Grand River Ave) from University Dr. SE to Hillside Ave, City of East Lansing	Spartan Asphalt Paving Co.	Pit 47-3	Pit 33-6	M 43, EBOL M 43, EBIL M 43, WBOL M 43, WBIL	0.44 0.40 0.36 0.41	0.45 0.44 0.42 0.43	0.44 0.42 0.40 0.42
1966	<u>Bituminous Aggregate (4.09)</u>								
	Mbs 52032-008	M 35 from end of dual roadway in village of Gwinn W to S limits of Palmer, omitting thru the village of Austin	Payne & Dolan of Wisconsin, Inc.	Pit 52-70	None	M 35, NB M 35, SB	0.56 0.57	0.62 0.60	0.59 0.58
	<u>Non-Skid Surface Treatment</u>								
	Mms 75C - 8B (Part)	1 96 BL from M 59 E 2.65 miles to Chestnut St. in Howell	Ann Arbor Construction Co.	Pit 47-3	None	1 96 BL, EBOL 1 96 BL, EBIL 1 96 BL, WBOL 1 96 BL, WBIL	0.19 0.45 0.23 0.35	0.24 0.51 0.31 0.42	0.22 0.49 0.27 0.38
	Mms 75C - 8B (Part)	1 96 BL from Barnard St. in Howell E 3.95 miles	Ann Arbor Construction Co.	Pit 47-3	None	1 96 BL, EBOL 1 96 BL, EBIL 1 96 BL, WBOL 1 96 BL, WBIL	0.19 0.30 0.15 0.35	0.22 0.34 0.16 0.38	0.21 0.32 0.15 0.36
1967	<u>Stone-Filled Sand Asphalt</u>								
	M 32021-004	M 142 from M 25 E to Pigeon	Saginaw Asphalt Paving Co.	Pit 32-4	Pit 79-73	M 142, EB M 142, WB	0.43 0.44	0.49 0.49	0.45 0.47
	M 76041-005	M 71 from Corunna SE	Spartan Asphalt Paving Co.	Pit 63-54	Pit 63-54	M 71, NB M 71, SB	0.38 0.41	0.40 0.41	0.39 0.41
	Mb 79051-007	M 24 from M 46 N to Frank St. in village of Caro	Spartan Asphalt Paving Co.	Pit 17-40	Pit 79-73	M 24, NB M 24, SB	0.46 0.41	0.51 0.47	0.48 0.43
<u>Non-Skid Surface Treatment</u>									
	Mms 75C - 7B	M 86 from S Three Rivers city limits to W Centerville village limit in St. Joseph County	Klett Construction Co.	Pit 12-31	None	M 86, EB M 86, WB	0.49 0.49	0.55 0.53	0.51 0.50
	Mms 85C - 6A	M 19 from M 46 N to the Sanilac-Huron County Line	Ward & VanNuck, Inc.	Pit 79-21	None	M 19, NB M 19, SB	0.53 0.54	0.57 0.60	0.55 0.57

Section 2
EXPERIMENTAL FEATURES IN PAVEMENT SURFACES

Table 5 -- Rubberized Sand-Asphalt Resurfacing; US 31, City of Charlevoix

Skid tests were conducted August 14 at air and pavement temperatures of 64 and 60 F, respectively. Wsf values obtained this year ranged from 0.37 to 0.43 and averaged 0.40, thus duplicating friction levels obtained in 1966 and momentarily leveling off some 13 percent below the initial values which were obtained in 1963.

Table 6 -- Asphalt-Emulsion Hot Mix Surface Courses; US 127, Lansing Intersections (Project Mob 33032C, C6).

Average of individual lane coefficients on the sand emulsified asphalt hot mix surface course (Cedar St at Holmes Rd) have increased by 0.02 to 0.07 or by 5 to 24 percent over the 1966 results. The 1967 wsf values range from 0.34 to 0.39 and average 0.36. Coefficients obtained on the bituminous concrete emulsified hot mix surface course at their Cedar St-Baker St location ranged from 0.34 to 0.37 and averaged 0.35 thereby maintaining the 1966 friction level. Most recent tests were conducted August 24 at a 77 F air temperature and a 86 F pavement temperature.

Table 7 -- 3BC Sand Asphalt Resurfacing; US 131 SB, North and South of Alba (Project Mm 4 BC-3A; Control Section 05072).

All coefficients are up from last year. Average wsf values for both inside and outside lanes have increased their respective friction level by 0.09 thereby exhibiting no significant effect of traffic wear since the 1966 tests. Both penetration grades continue to produce good skid resistance qualities after this, the fifth year of service. Skid tests were conducted August 14 at air and pavement temperatures of 74 and 84 F, respectively.

Table 8 -- Bituminous Concrete Interstate Projects.

As reported last year, tests were continued on six of the Interstate bituminous projects. Skidding was completed between August 13 and 25 at air and pavement temperatures ranging from 64 to 72 F and from 57 to 84 F, respectively. Average wsf values obtained this year show an improvement of as much as 0.10 since last year. An effect of traffic wear may be seen again this year even though the friction level has risen since the 1966 tests. Outside (traffic) lane coefficients showed an average increase of 0.03 whereas inside (passing) lane values average increase was 0.07.

Table 9 -- Bridge Deck Surface Coatings.

Skid tests were continued on five bridges during the 1967 test year. Coatings on 10 bridges were added to the study this year. Because traffic wear has almost completely removed a 1961 coal-tar application to the west-bound lanes of the I 96 over the Grand River structure (B01 of 34044), skid tests will no longer be conducted. Skid test results are summarized below, categorized by type of coating.

(a) Coal-Tar Epoxy

Skid tests on coal-tar epoxy coatings were conducted in August and September at air and pavement temperatures ranging from 67 to 74 and 70 to 79 F, respectively. B04 of 06073, after a two year service period, has an average wsf value of 0.38. This friction level is similar to that determined last year and some 38 percent below the initial level found in 1965. The remaining three structures in this category, X01 of 11016, B01 of 45041, and B01 of 35032, exhibit average wsf values ranging from 0.42 to 0.56. The friction level on these structures has increased 19 percent since last year.

(b) 31A Bituminous Concrete - Rubberized Sand Asphalt.

Tests have been conducted on the north five spans (31A bituminous concrete) and compared with the south four spans (rubberized sand asphalt) of structure X01 of 11031 since 1965. Average wsf values, as determined in 1967 on the rubberized sand asphalt surface, show a friction level increase of 16 percent since the 1965 tests. Contrasting this is a two percent friction level reduction found in the same time period on the bituminous concrete surface.

(c) Rubberized Mixtures

All seven structures in this category were coated in 1967. Five structures were coated with a rubberized bituminous concrete and average coefficients determined on initial tests ranged from 0.43 to 0.60 and averaged 0.53. One structure, coated with a rubberized mixture of asbestos and bituminous concrete, yielded an average friction level of 0.46. The remaining structure in this category, X01 of 81075, used a rubberized combination of bituminous concrete and sand asphalt on the southbound lanes and a mixture of asbestos and sand asphalt on the northbound lanes. Respectively, initial average wsf values were 0.59 and 0.58 for these two coating types.

(d) Euco Coatings.

Friction levels in 1967 on Euco coatings were determined on three structures. Five lanes, coated with clear Euco, had an average wsf value of 0.40, while the average wsf value of 0.38 was determined on seven lanes coated with white Euco. Two lanes coated with a mixture of linseed oil and naphtha yielded an average friction level of 0.38 while an average value of 0.41 was found on three lanes coated strictly with white membrane curing compound. Two structures with 1967 coatings were not tested this year but will be in 1968. These were S14 and S16 of 50111.

Table 10 -- Experimental Skid-Resistant Resurfacing

Skid tests were continued this year on skid-resistant resurfacings applied at 18 locations in 1965. Six lanes were resurfaced during 1967. Four of these were the northwest and southeast lanes of M 54 and M 54 BR, located south of Flint in control section 25072. Tests on these areas have been deleted from the study. The remaining two lanes resurfaced were the southbound lanes of US 23 at Grove Street, located in control section 09033, north of Bay City. A 1967 project (Ms 06071-002), abutting to the US 23 - Grove Street intersection, placed a bituminous concrete surface over part of the 1965 experimental resurfacing. Future skid tests will be taken at this location to compare the experimental surface with a conventional bituminous concrete surface. Currently, the new bituminous concrete exhibits a friction level 34 percent lower than the two-year old experimental surface.

In this, the second year of service, average wsf values at all 18 experimental surface locations range from 0.36 to 0.62 and average 0.48. Coefficients, on an average, were 12 percent higher than those determined in the fall of 1966 but are still 23 percent lower than those values determined from fall of 1965. Only six of the 97 lanes currently yield average wsf values at or below the Departmental Safety Standard of 0.40. All six of these lanes were of mixture type consisting of 50-lb 3BC plus asbestos fiber and asphalt which, as a whole, yielded an average wsf value of 0.42. Excluding all lanes of the aforementioned surface type, the remaining experimental surfaces continue to exhibit good skid resistance qualities with an average friction level of 0.49.

Table 11 -- Sand-Asphalt Skid-Resistant Resurfacing at Intersections

Skid tests were continued again this year at nine of the 30 locations resurfaced with a skid-resistant sand asphalt in 1965. Tests were discontinued at the intersection of M 21 and Graham Rd (Control Section 25081).

This area was resurfaced with bituminous concrete in 1967 as a part of Project Ms 25081-006. A 15-percent improvement in average wsf values was determined with the 1967 test of the projects shown in Table 11. This improvement indicates good skid resistance qualities as the average wsf value determined in this, the second year of service, was 0.47. This friction level, although improved since 1966, remains approximately 18-percent below the 1965 average wsf of 0.57.

Table 12 -- 31A Slag Aggregate in Bituminous Concrete Resurfacing

The 1961 construction project using open hearth and blast furnace slag continues to exhibit good skid resistance qualities as average wsf values range from 0.48 to 0.53 after a six-year service period. The remaining two projects using slag aggregate continue to bear average friction levels at or below 0.40. The bituminous concrete using 31A crushed gravel yielded average wsf values of 0.40 and 0.41.

Table 13 -- 2NS Modified Sand-Asphalt Resurfacing; US 31, Reed City North (Project Mb 67014C, C12)

Skid tests were conducted August 21, 1967 on only part of this 1961 modified sand-asphalt project. Because of construction operations already underway, Section one could not be tested and only a portion of Section two was available for skid tests. Complete testing was accomplished on the remaining portion of this surface. Skid tests indicated a desirable friction level on all parts tested with average wsf values ranging from 0.50 to 0.56. However, a 1967 bituminous aggregate surface course constructed under Project Mb 67014-005 has now completely resurfaced this test area.

Table 14 -- 3BC Sand-Asphalt Resurfacing; US 131, Rockford to Cedar Springs (Project Mb 41013C, C12).

Skid tests are summarized in Table 14 for a special 3BC sand-asphalt surface. This surface was applied in 1963 to correct a slippery condition on US 131 between Rockford and Cedar Springs. The entire surface, except for a portion of 1962 Kent County resurfacing, bears average wsf values ranging from 0.44 to 0.48 thus exhibiting good skid resistance qualities in its fifth year of service. Different percent bitumen and dust combinations used here in the mix design are not readily distinguishable through the four-year skid coefficient history of this project. The 1962 Kent County surface, conventional construction, yields an average friction level below the safety standard of 0.40.

Table 15 -- Wyton Synthetic Binder Surface Course Mixtures

Skid tests on the Wyton surfaces were conducted at three locations during 1967. The Wyton surface at the John Lodge - Wyoming location (Project 82112C, C28) has been deleted by a 1966 special emulsion skid resistant surface (Table 16). Projects 25-75, C1 and 82121C, C8 yielded average 1967 wet sliding friction values of 0.38 and 0.41, respectively. Although these values are not considered to be dangerously low, the average wsf values have deteriorated by 17 and 28 percent, respectively, since the initial tests. No further tests will be conducted on the Wyton surface placed in October 1964 at the I 96 BS - US 24 intersection (Project 82121C, C8) due to a resurfacing contract scheduled for 1968. US 131 at M 43 had a Wyton surface applied in September 1963 as authorization Number 2006 and 2007 to Project 39014B, C6. This surface has performed well since 1963. The average wsf value obtained this year was 0.56, which is 27 percent higher than the value determined in 1963.

Table 16 -- Special Emulsion Projects in District 10.

These four areas were surfaced during the fall of 1966 by Thompson-McCulley Asphalt Co. Skid tests were conducted in fall 1967, after a one-year service period. Average coefficients of wet sliding friction ranged from 0.35 to 0.43 and averaged 0.38.

Table 17 -- Test Areas for Analysis of Effects of Using Tungsten Carbide Cutting Edges for Snow Removal.

Skid tests were conducted at eight locations on October 21, 1967 as a part of Research Project 66 G-151, "Evaluation of Grader Blades for Snow Removal." These tests were conducted on portland cement and bituminous concrete surfaces whose construction years ranged from 1960 to 1965. Skid tests are to be followed to check effects of different blade types and their respective rates of application on a pavement's wet sliding friction value.

Table 18 -- Skid Tests on Pavement Grooving

In late October, 1967, transverse and longitudinal grooves were cut in the westbound outside lane of M 43, west of Bon Air Rd. This lane is portland cement concrete and was constructed in 1953 as Project 33-52, C1. Skid tests were conducted in 1963 and again in 1966 in this area as a part of the Department's High-Accident Area Testing. Additional tests were made prior to, and soon after, the grooving operation. Results of these tests show an increase of only 0.04 in average friction level after pavement grooving.

Table 19 -- Evaluation of a Rubber Pad Railroad Crossing

As a part of Research Project 64 G-134, "Evaluation of Rubber Pads for Railroad Crossings," skid tests have been conducted on an annual basis at the M 46 - C&ORR crossing (wood ties) since 1964 and at the M 81 - C&ORR crossing (rubber pads) since 1965. Normal test procedures could not be followed because of the short lengths available. All friction values at the crossings were obtained by dragging locked wheels over the wetted surface between rails at a speed estimated to be less than one mph. At speeds in this range, slight variations in speed could cause considerable fluctuations in friction coefficients. Figure 1 shows results of speed variations encountered on portland cement concrete and asphalt pavements as reported in Part II of the First International Skid Prevention Conference (August 1959). Similar fluctuations would be expected on the surfaces tested in Saginaw, i.e., wood and rubber. With this in mind, the friction values shown in Table 19 should not be confused with, or considered to equate with, standard 40 mile-per-hour wsf values. Friction values shown in Table 19 are "low velocity" wsf values.

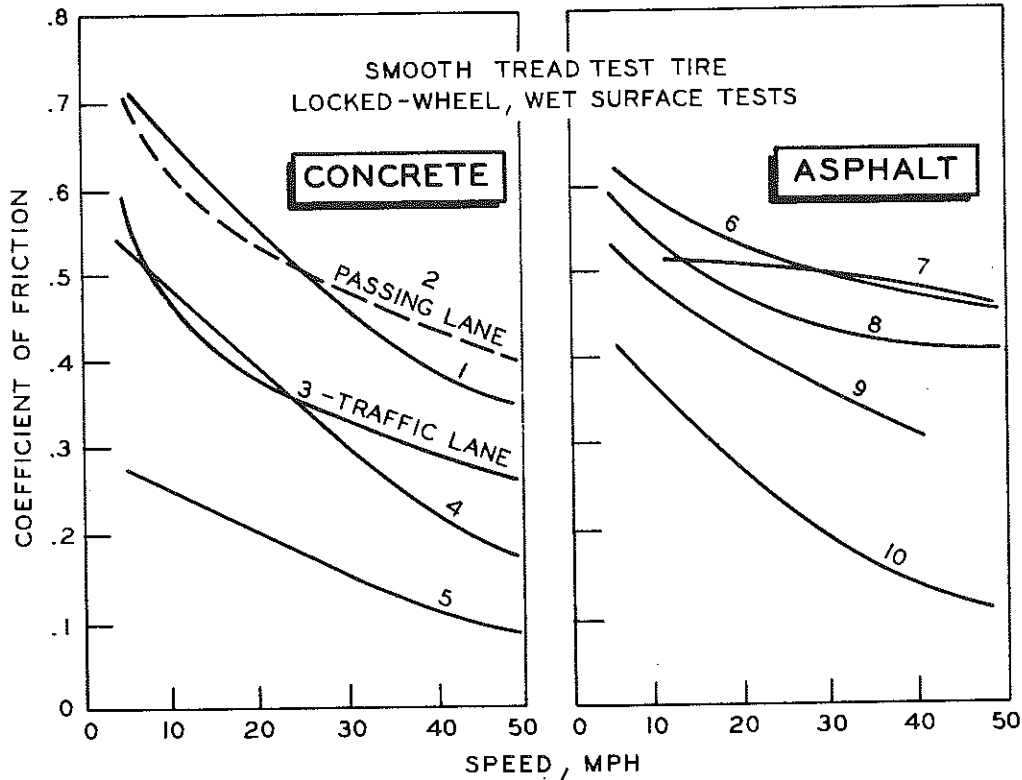


Figure 1. Skid resistance test results on selected pavements. (Moyer, 1959).

TABLE 5
RUBBERIZED SAND-ASPHALT
US 31: City of Charlevoix

Test Year	Average Coefficient of Wet Sliding Friction	
	Firestone Tire	General Tire
1958*	0.19	--
1959**	0.48	--
1960	0.52	--
1961	0.40	--
1963	0.38	--
1964	--	0.46
1965	--	0.44
1966	--	0.40
1967	--	0.40

*Initial tests on polished portland cement surface.

**Tests conducted on temporary seal coat applied in summer 1959, with surfacing in October 1960.

TABLE 6
ASPHALT-EMULSION HOT-MIX SURFACE COURSES
US 127: Lansing Intersections (Project Mob 33032C, C6)

Intersection	Surface Type	Route	Direction and Lane	Average Coefficient of Wet Sliding Friction		
				1964*	1964**	1966
Cedar Street (US 127) at Holmes Road	Sand emulsified asphalt hot mix surface course	US 127	NBOL	0.19	0.49	0.34
				0.20	0.47	0.33
				0.23	0.45	0.29
				0.22	0.47	0.32
			Avg.	0.21	0.47	0.32
Cedar Street (US 127) at Baker Street	Bituminous concrete emulsified hot mix surface course	US 127	NBOL	0.24	0.48	0.34
				0.31	0.56	0.37
				0.33	0.47	0.35
				0.32	0.55	0.35
			Avg.	0.30	0.52	0.35

* Tests conducted prior to resurfacing.
** Initial tests after resurfacing.

TABLE 7
3 BC SAND-ASPHALT RESURFACING
US 131 SB: North and South of Alba
(Project Mm 4BC-3A, Control Section 05072)

Test Area Locations	Asphalt Cement	Aggregate	Mineral Filler	Direction and Lane	Average Coefficient of Wet Sliding Friction			
					July 1964	Oct. 1964	June 1965	Sept. 1966
Mancelona to S of Alba	85/100 penetration (6.9-percent bitumen)	1:1 mixture from Polous and Gerstenberger Pits	fly ash (Detroit Edison)	SBOL	0.51	0.54	0.56	0.50
					SBIL	0.68	0.66	0.68
N of Alba to M 32	150/175 penetration (6.4-percent bitumen)			SBOL	0.50	0.60	0.56	0.52
					SBIL	0.63	0.68	0.68
							Aug 1967	0.54
								0.65
								0.55
								0.67

TABLE 8
BITUMINOUS CONCRETE INTERSTATE PROJECTS

Project No.	Length, mi.	Location	Date Paved (Wearing Course)	Paving Contractor	Source of Coarse Aggregate	Average Coefficient of Wet Sliding Friction																																									
						1961						1962						1963						1964						1965						1966						1967					
						IL*	OL*	IL	OL	IL	OL	IL	OL	IL	OL	IL	OL	IL	OL	IL	OL	IL	OL	IL	OL	IL	OL	IL	OL	IL	OL																
18034, C3	6.758	M 61 to Arnold Rd.	May-June 1962	Rieth-Ruley	Wallace Stone Co. (Pit 32-4)	0.52**	0.51**	--	--	--	--	--	--	0.58	0.47	0.64	0.48	0.56	0.41	0.59	0.42																										
72014, C4 20016, C1	6.273	0.6 mi. S of Rosemont-Crawford Co. Line to M 18-M 78	May-June 1962	Thornton Const.	Pickitt, Schreux (Merritt Pit)	--	0.51	0.48	--	--	0.58	0.53	0.68	0.59	0.63	0.53	0.56	0.49	0.64	0.54																											
20015, C3	4.847	Co. Rd. 612 to N Crawford Co. Line	Sept. 1961	Thornton Const.	McCready Pit (Pit 60-18)	0.60	0.56	0.60	0.52	0.61	0.56	0.59	0.51	0.73	0.63	0.66	0.59	0.59	0.62	0.66	0.54																										
69013, C1	7.665	Osego Co. Line N Mariette Rd. to Charles Brink Rd.	Oct. 1961 June 1962	Sagshaw Asphalt	Afon Quarry (Pit 20-35)	--	--	--	--	0.57	0.49	0.59	0.54	0.70	0.54	0.60	0.44	0.49	0.36	0.56	0.40																										
69013, C3, C5	5.385	Charles Brink Rd. N to M 32 (Gaylord)	June 1962	Spartan Asphalt	Lewiston Pit	--	--	--	--	0.59	0.54	0.63	0.57	0.71	0.62	0.66	0.57	0.60	0.50	0.70	0.56																										
16091, C9	2.029	0.5 mi. S of M 68 N to MC RR	Aug.-Sept. 1962	East Shore Asphalt	Big Cut Pit (Pit 71-15)	--	0.62	0.58	--	--	0.63	0.56	0.75	0.58	0.75	0.60	0.70	0.52	0.70	0.52	***																										

* IL and OL denote passing and traffic lanes.

** Tested on leveling course mix.

*** Avg. of 2 series of tests in 1967 for both IL and OL.

TABLE 9
BRIDGE DECK SURFACE COATINGS

Bridge No.	Location	Year Coated	Type of Coating	Direction and Lane	Average Coefficient of Wet Sliding Friction			
					1964	1965	1966	1967
X01 of 11016	I 94 over NYCRR	1963	Coal tar epoxy plus crushed quartz	EBOL	----	6.50	0.41	0.46
				EBCL	----	*	6.45	0.53
				EBIL	----	----	----	0.55
				WBOL	----	0.44	0.35	0.42
				WBCL	----	*	0.44	0.55
				WBIL	----	----	----	0.56
D01 of 45041	M 204 over Lake Leelanau Narrows	1964	Coal tar epoxy plus quartz	EB	----	0.59	0.45	0.45
				WB	----	0.60	0.45	0.48
B01 of 35032	US 23 over Au Sahle River, Oscoda	1965	Coal tar epoxy membrane and rubberized sand asphalt surface	NB	----	0.51	0.41	0.47
				SB	----	0.48	0.39	0.48
B04 of 06073	US 23 over Whitney Drain	1965	Coal tar epoxy plus quartz	NB	----	0.59	0.36	0.38
				SB	----	0.63	0.39	0.38
X01 of 11031	M 139 over NYCRR	1964	North 5 spans of deck only 31A bituminous concrete	NBOL	----	0.40	0.32	0.44
				NBIL	----	0.42	0.34	0.40
				SBOL	----	0.47	0.35	0.42
			South 4 spans of deck only Rubberized sand asphalt	SBIL	----	0.43	0.35	0.42
				NBOL	----	0.41	0.36	0.51
				NBIL	----	0.45	0.38	0.51
B01 of 09042	I 75 BL over Saginaw River in Bay City	1967	Rubberized bituminous concrete	SBOL	----	----	----	0.48
				SBIL	----	----	----	0.51
B02 of 11052	US 31 - US 33 over St. Joseph River in Berrien Springs	1967	Rubberized bituminous concrete	NB	----	----	----	*
X01 of 19032	US 27 over GTWRR in St. Johns	1967	Rubberized bituminous concrete	SB	----	----	----	0.43
				NBOL	----	----	----	0.53
X01 of 38101	I 94 over Grand River and NYCRR, Jackson	1967	Rubberized bituminous concrete	NBIL	----	----	----	0.56
				SBOL	----	----	----	0.58
B05 of 56152	I 75 under Newport Rd, Newport	1967	Rubberized asbestos and bituminous concrete	SBIL	----	----	----	0.60
				EBOL	----	----	----	0.52
B01 of 79051	M 24 over Cass River in Caro	1967	Rubberized bituminous concrete	EBIL	----	----	----	0.59
				WBOL	----	----	----	0.54
X01 of 81075	US 23 BR over Huron River, North of Ann Arbor	1967	Asbestos mix plus sand asphalt	WBIL	----	----	----	0.55
				EB	----	----	----	0.46
S24 of 63174	John R. over I 75	1967	Linseed oil and naptha	WB	----	----	----	0.47
				NB	----	----	----	0.53
S27 of 63174	Nine Mile Rd over I 75	1967	Asbestos mix plus sand asphalt	SB	----	----	----	0.50
				NBOL	----	----	----	0.57
S10 of 82252	M 102 over I 75 Spans 1-8 (EB Deck)	1966	White membrane curling compound	NBCL	----	----	----	0.58
				NBIL	----	----	----	0.80
S24 of 63174	John R. over I 75	1967	Rubberized bituminous concrete plus sand asphalt	SBOL	----	----	----	0.61
				SBCL	----	----	----	0.59
S27 of 63174	Nine Mile Rd over I 75	1967	White Euco	SBIL	----	----	----	0.58
				NBOL	----	----	----	0.41
S27 of 63174	Nine Mile Rd over I 75	1967	White Euco	NBIL	----	----	----	0.39
				SBOL	----	----	----	0.38
S27 of 63174	Nine Mile Rd over I 75	1967	White Euco	SBIL	----	----	----	0.37
				EBOL	----	----	----	0.36
S27 of 63174	Nine Mile Rd over I 75	1967	White Euco	EBIL	----	----	----	0.37
				WBOL	----	----	----	0.38
S27 of 63174	Nine Mile Rd over I 75	1967	White Euco	WBIL	----	----	----	0.36
				EBOL	----	----	----	0.41
S10 of 82252	M 102 over I 75 Spans 1-8 (EB Deck)	1966	White membrane curling compound	EBCL	----	----	----	0.43
				EBIL	----	----	----	0.39
S10 of 82252	M 102 over I 75 Spans 9-11 (EB Deck)	1966	White membrane curling compound	EBOL	----	----	----	0.38
				EBCL	----	----	----	0.40
S10 of 82252	M 102 over I 75 Spans 9-11 (EB Deck)	1966	White membrane curling compound	EBIL	----	----	----	0.40
				WBOL	----	----	----	0.41
S10 of 82252	M 102 over I 75 Spans 9-11 (EB Deck)	1966	White membrane curling compound	WBCL	----	----	----	0.42
				WBIL	----	----	----	0.41

* Due to construction in the area, it was impractical to test this year.

TABLE 10
EXPERIMENTAL SKID-RESISTANT RESURFACING

Control Section	Location	1966 Construction Months	Mixture Type	Route	Direction and Lane	Average Coefficient of Wet Sliding Friction			
						1965	1966		1967
							Spring	Fall	
09033	US 23 at Linwood Rd., N of Bay City	Oct.	80-lb Sandstone + asphalt	US 23	NBOL	0.71	0.49	0.43	0.50
				US 23	NBIL	0.72	0.52	0.46	0.57
				US 23	SBOL	0.73	0.49	0.45	0.54
				US 23	SBIL	0.74	0.58	0.49	0.62
09033	US 23 at Grove St., N of Bay City	Sept.-Oct.	80-lb Sandstone + asphalt	US 23	NBOL	0.73	0.53	0.49	0.59
				US 23	NBIL	0.76	0.61	0.56	0.66
				US 23	SBOL	0.75	0.51	0.44	0.40*
				US 23	SBIL	0.76	0.55	0.51	0.42*
09042	M 25 at Wagner Rd., E of Bay City	Sept.	80-lb Sandstone + asphalt	M 25	EB	0.77	0.53	0.47	0.51
				M 25	WB	0.74	0.54	0.47	0.53
25072	M 54 at Carpenter Rd., N of Flint	Oct.	50-lb Quartzite + asphalt	M 54	NBOL	0.74	0.51	0.53	0.56
				M 54	NBIL	0.78	0.55	0.54	0.59
				M 54	SBOL	0.73	0.50	0.53	0.55
				M 54	SBIL	0.76	0.56	0.54	0.62
25072	M 54 at Coldwater Rd., N of Flint	Oct.	50-lb Quartzite + asphalt	M 54	NBOL	0.67	0.50	0.51	0.55
				M 54	NBIL	0.77	0.54	0.52	0.61
				M 54	SBOL	0.70	0.51	0.51	0.55
				M 54	SBIL	0.76	0.53	0.53	0.60
25073	M 54 at M 57 N of Flint	Sept.	50-lb Quartzite + asphalt + additive	M 54BR	NBOL	0.70	0.48	0.43	0.53
				M 54BR	NBIL	0.71	0.53	0.47	0.55
				M 54BR	SBOL	0.65	0.50	0.44	0.52
				M 54BR	SBIL	0.71	0.52	0.49	0.58
				M 57	EB	0.70	0.51	0.45	0.55
				M 57	WB	0.72	0.53	0.48	0.55
25072	M 54 at M 54BR (S Jct.), S of Flint	Oct.	50-lb crushed beach pebbles + asphalt	M 54	NBOL	0.60	0.49	0.43	0.42
				M 54	NBIL	0.66	0.47	0.41	0.44
				M 54BR	SBOL	0.62	0.47	0.46	0.40
				M 54BR	SBIL	0.66	0.47	0.41	0.41
				M 54 (Dort)	WBOL	0.62	0.45	0.45	0.46
				M 54 (Dort)	WBIL	0.62	0.45	0.47	0.48
25061	M 121 at Fenton Rd., S of Flint	Oct.	50-lb trap rock + asphalt	M 121	EBOL	0.66	0.53	0.42	Not Tested*
				M 121	EBIL	0.66	0.52	0.40	0.54
				M 121	WBOL	0.68	0.49	0.44	0.52
				M 121	WBIL	0.69	0.50	0.41	0.50
81031	US 12, W from Nehlo Rd., NW of Clinton	Sept.	50-lb 3BC + hot asphalt emulsion	US 12	EB	0.60	0.49	0.49	0.49
				US 12	WB	0.62	0.47	0.45	0.49
81031	US 12, E from Lima Center Rd., NW of Clinton	Sept.	50-lb 2MS + hot asphalt emulsion	US 12	EB	0.58	0.48	0.44	0.55
				US 12	WB	0.60	0.49	0.47	0.54
82052	US 24 at Fenkell Rd. (Five Mile Rd.), Detroit	Sept.	50-lb 3BC + asbestos fiber + asphalt	US 24	NBOL	0.56	0.36	0.34	0.37
				US 24	NB#3	0.53	0.36	0.34	0.41
				US 24	NB#2	0.57	0.36	0.34	0.40
				US 24	NBIL	0.60	Not Tested	Not Tested	Not Tested
				US 24	SBOL	0.52	0.38	0.37	0.41
				US 24	SBCL	0.60	0.37	0.35	0.42
				US 24	SBIL	0.59	0.35	0.34	0.44
				Five Mile Rd.	EBOL	0.51	0.37	0.31	0.36
				Five Mile Rd.	EBIL	0.55	0.39	0.33	0.41
				Five Mile Rd.	WBOL	0.55	0.37	0.33	0.39
Five Mile Rd.	WBIL	0.60	0.39	0.33	0.43				

* Resurfaced with bituminous concrete by mistake in 1967 as an overlap from Project Ms 06071-002

TABLE 10 (Cont.)
EXPERIMENTAL SKID-RESISTANT RESURFACING

Control Section	Location	1965 Construction Months	Mixture Type	Route	Direction and Lane	Average Coefficient of Wet Sliding Friction							
						1965	1966		1967				
							Spring	Fall					
82053	US 24 at Schoolcraft Rd., Detroit	Sept.	50-lb 3BC + asbestos fiber + asphalt	US 24	NBOL	0.54	0.38	0.33	0.39				
				US 24	NBCL	0.53	0.40	0.35	0.41				
				US 24	NBIL	0.55	0.37	0.34	0.42				
				US 24	SBOL	0.48	0.34	0.33	0.41				
				US 24	SBCL	0.51	0.37	0.33	0.40				
				US 24	SBIL	0.52	0.37	0.33	0.41				
				Schoolcraft Rd.	EB RT	0.55	0.41	0.35	0.44				
				Schoolcraft Rd.	EB #3	0.52	0.38	0.36	0.44				
				Schoolcraft Rd.	EB #2	0.54	0.38	0.34	0.45				
				Schoolcraft Rd.	EBIL	0.56	0.43	0.39	0.49				
				Schoolcraft Rd.	WB RT	0.55	Not Tested	0.37	Not Tested				
				Schoolcraft Rd.	WB #3	0.55	0.43	0.34	0.45				
				Schoolcraft Rd.	WB #2	0.51	0.39	0.34	0.43				
				Schoolcraft Rd.	WBIL	0.55	0.46	0.36	0.47				
82053	US 24 at Plymouth Rd., Detroit	Sept.-Oct.	50-lb 2MS + asbestos fiber + asphalt	US 24	NBOL	0.59	0.36	0.35	0.42				
				US 24	NB#3	0.59	0.37	0.36	0.41				
				US 24	NB#2	0.62	0.40	0.36	0.44				
				US 24	NBIL	0.62	0.40	0.38	0.45				
				US 24	SBOL	0.60	0.37	0.35	0.42				
				US 24	SB#3	0.62	0.39	0.35	0.43				
				US 24	SB#2	0.61	0.39	0.36	0.45				
				US 24	SBIL	0.64	0.42	0.37	0.50				
				Plymouth Rd.	EBOL	0.62	0.40	0.36	0.41				
				Plymouth Rd.	EBCL	0.63	0.39	0.36	0.41				
				Plymouth Rd.	EBIL	0.64	0.39	0.37	0.41				
				Plymouth Rd.	WBOL	0.63	0.40	0.38	0.46				
				Plymouth Rd.	WBCL	0.61	0.41	0.37	0.44				
				Plymouth Rd.	WBIL	0.60	0.40	0.38	0.46				
82053	US 24 at W. Chicago Rd., Detroit	Oct.	80-lb 2MS + 31AA + asphalt	US 24	NBOL	0.57	0.38	0.37	0.43				
				US 24	NB #3	0.58	0.40	0.37	0.43				
				US 24	NB #2	0.61	0.41	0.36	0.43				
				US 24	NBIL	0.62	0.40	0.37	0.42				
				US 24	NB LT	0.62	Not Tested	Not Tested	Not Tested				
				US 24	SBOL	0.56	0.42	0.41	0.44				
				US 24	SBCL	0.57	0.41	0.40	0.43				
				US 24	SBIL	0.59	0.41	0.40	0.43				
				W. Chicago Rd.	EB RT	0.63	0.45	0.44	0.48				
				W. Chicago Rd.	EBIL	0.63	0.44	0.40	0.42				
				W. Chicago Rd.	WB RT	0.63	0.43	0.41	0.47				
				W. Chicago Rd.	WBIL	0.63	0.41	0.37	0.47				
				82071	US 24 at Sibley Rd., Detroit	Oct.	80-lb 3NS + 31AA + asphalt	US 24	NBOL	0.50	0.41	0.34	0.44
								US 24	NBIL	0.52	0.42	0.38	0.47
US 24	SBOL	0.51	0.43					0.39	0.46				
US 24	SBIL	0.51	0.42					0.38	0.46				
Sibley Rd.	EB	0.54	0.39					0.36	0.42				
Sibley Rd.	WB	0.52	0.41					0.39	0.45				
11031	M 139 at Napier Rd., Benton Harbor	Oct.	80-lb 3NS (P-4) + Trinidad sheet asphalt	M 139	NBOL	0.51	0.46	0.37	0.48				
				M 139	NBIL	0.44	0.36	0.35	0.47				
				M 139	SBOL	0.47	0.37	0.36	0.45				
				M 139	SBIL	0.40	0.37	0.34	0.42				
				Napier Rd.	EBOL	0.43	0.39	0.38	0.47				
				Napier Rd.	EBIL	0.47	0.43	0.38	0.49				
				Napier Rd.	WBOL	0.45	0.41	0.38	0.47				
				Napier Rd.	WBIL	0.48	0.42	0.38	0.47				
11031	M 139 NB at Empire Rd., Benton Harbor	Oct.	80-lb 3NS (P-4) + Synopal + asphalt	M 139	NBOL	0.44	0.40	0.39	0.56				
				M 139	NBIL	0.50	0.42	0.38	0.51				
11031	M 139 SB at Empire Rd., Benton Harbor	Oct.	80-lb 3NS (P-4) + asphalt	M 139	SBOL	0.45	0.38	0.40	0.51				
				M 139	SBIL	0.48	0.44	0.41	0.52				

TABLE 11
SAND-ASPHALT SKID-RESISTANT RESURFACING AT INTERSECTIONS

Control Section	Location	Route	Direction and Lane	Average Coefficient of Wet Sliding Friction		
				1965	1966	1967
13061	M 96 at Hussey Ave.	M 96	EB	0.49	0.44	0.47
		M 96	WB	0.50	0.42	0.44
25041	M 78 from I 75 to Ballenger Rd.	M 78	EBOL	0.58	0.41	0.41
		M 78	EBIL	0.61	0.44	0.47
		M 78	WBOL	0.58	0.39	0.47
		M 78	WBIL	0.63	0.44	0.47
25072	M 54 at Mt. Morris Rd.	M 54	NBOL	0.63	0.40	0.47
		M 54	NBIL	0.70	0.42	0.53
		M 54	SB RT	0.72	0.43	0.47
		M 54	SBIL	0.71	0.47	0.56
25091	M 15 at Lapeer Rd.	M 15	NB	0.56	0.40	0.41
		M 15	SB	0.59	0.41	0.40
33042	M 43 WB (Grand River Ave.) at Foster St.	M 43	WBOL	0.50	0.37	0.42
		M 43	WB#3	0.52	0.40	0.42
		M 43	WB#2	0.49	0.40	0.42
		M 43	WBIL	0.53	0.39	0.43
39042	M 96 at River St.	M 96	EBOL	0.50	0.46	0.47
		M 96	EBIL	0.50	0.44	0.48
		M 96	WBOL	0.48	0.50	0.47
		M 96	WBIL	0.50	0.38	0.48
41051	M 44 at Cascade Rd.	M 44	NBOL	0.44	0.37	0.41
		M 44	NBIL	0.48	0.41	0.45
		M 44	NBLT	Not Tested	0.41	0.53
		M 44	SBOL	0.45	0.42	0.43
		M 44	SBIL	0.45	0.42	0.45
		M 44	SBLT	Not Tested	0.44	0.49
		Cascade Rd.	EBOL	0.49	0.43	0.47
		Cascade Rd.	EBIL	0.54	0.45	0.52
		Cascade Rd.	WBOL	0.52	0.38	0.46
		Cascade Rd.	WBIL	0.55	0.42	0.50
47082	M 59 at Old US 23	M 59	EB	0.72	0.41	0.52
		M 59	WB	0.72	0.42	0.48
81081	M 17 at Carpenter Rd.	M 17	EBOL	0.53	0.39	0.52
		M 17	EBIL	0.50	0.36	0.54
		M 17	WBOL	0.52	0.34	0.52
		M 17	WBIL	Not Tested	0.38	0.56
		Carpenter Rd.	NBOL	Not Tested	Not Tested	0.58
		Carpenter Rd.	NBIL	0.53	0.36	0.59

TABLE 12
BITUMINOUS CONCRETE SURFACES WITH 31A SLAG AGGREGATE

Project No.	Location	Year Paved	Type of Material	Direction and Lane	Average Coefficient of Wet Sliding Friction					
					Firestone Tire					
					1960	1961	1962	1964	1965	1967
82062, C4	US 12 (Michigan Ave.) from Washington St. to Brady St. in Dearborn	1960	31A slag coarse 3BCS slag sand 60/70 pen. AC	EBOL	0.51	0.41	0.31	0.36	0.40	0.37
				EBIL	0.51	0.42	0.32	0.34	0.34	0.37
				WBOL	0.48	0.43	0.32	0.34	0.38	0.38
				WBIL	0.50	0.41	0.31	0.35	0.30	0.36
82121, C1	Grand River (old US 16) from 6 Mile Rd. to Berg Rd.	1960	31A slag coarse 3BCS slag sand 60/70 pen. AC	EBOL	0.44	0.40	0.38	0.34	0.36	0.36
				EBCL	0.46	0.45	0.38	0.36	0.38	0.36
				EBIL	0.47	0.43	0.40	0.39	0.37	0.40
				WBOL	0.49	0.44	0.39	0.36	0.38	0.36
				WBCL	0.46	0.44	0.39	0.39	0.40	0.39
				WBIL	0.52	0.45	0.40	0.35	0.44	0.37
82131, C5	US 10 (Woodward Ave.) from Clairmont St. to city limits of Highland Park	1960	31A crushed gravel 3BC sand 3MF fly ash 60/70 pen. AC	NBOL	0.52	0.45	--	0.35	0.40	0.41
				NBIL	0.52	0.43	--	0.37	0.41	0.41
				SBOL	0.52	0.42	--	0.36	0.37	0.40
				SBIL	0.54	0.43	--	0.35	0.36	0.40
82091C, C5	Schaefer Rd. from Gate 4 (Ford Motor Co.) to Mellon Rd., Dearborn	1961	31A open hearth slag 3BCS open hearth slag open hearth slag	NBOL	--	0.59	0.41	0.30	0.51	0.52
				NBCL	--	0.65	0.45	0.38	0.48	0.51
				NBIL	--	0.64	0.49	0.48	0.53	0.53
				SBOL	--	0.62	0.51	0.45	0.42	0.48
				SBCL	--	0.66	0.49	0.46	0.46	0.48
SBIL	--	0.64	0.53	0.51	0.50	0.49				

TABLE 13
 2NS MODIFIED SAND-ASPHALT RESURFACING
 US 131: Reed City North (Project Mb 67014, C3R)

Test Area Locations	Treatment(1)	Average Coefficient of Wet Sliding Friction						
		Firestone Tire			General Tire			
		1961*	Jan. 1962	Nov. 1962	1963	1964	1965	1967
Section 1 2.3-2.9 mi. N of Ashton Rd.	.035 gal kerosene per sq yd plus sand	0.45	0.49	0.52	0.48	0.56	0.52	Resurfaced
Section 2 1.4-2.3 mi. N of Ashton Rd.	.050 gal kerosene per sq yd plus sand	0.37	0.46	0.52	0.47	0.55	0.50	0.52 partial
Section 3 0.9-1.4 mi. N of Ashton Rd.	.040 gal kerosene per sq yd plus sand	0.34	0.47	0.52	0.47	0.53	0.48	0.50
Remainder of Project US 10 to 0.9 mi. N of Ashton Rd.	none	0.44	0.41	0.49	--	0.56	0.50	0.56

(1) Areas 0.9 to 2.9 mi N of Ashton Rd. treated as indicated on November 20, 1961. Original sand asphalt surfacing was placed July 5 through August 9, 1961.

* Initial skid tests run in northbound lanes only. All subsequent skid tests represent an average of northbound and southbound lanes.

TABLE 14
SHEET ASPHALT RESURFACING
US 131: Rockford to Cedar Springs (Project Mb 41013C, C12)

Section Designation(1)	Location		Materials			Average Coefficient of Wet Sliding Friction							
	Stationing	Lane	Percent Bitumen	Dust	Firestone Tire		Avg. of Both Tires	Firestone Tire		General Tire			
					Sept. 20 1963	Sept. 25 1963		Oct. 24 1963	Dec. 5 1963	May 12 1964	May 12 1964	Sept. 4 1964	May 25 1965
A	323+90 to 299+25	SB	7.5	3.5	.35	.33	.31	.38	.45	.43	.40	.39	.42
	323+79 to 314+94	NB	7.5	3.5	.35	.32	.36	.38	.45	.46	.42	.39	.45
	Average				.35	.33	.33	.38	.45	.44	.41	.39	.44
B	314+94 to 297+20	NB	6.5	3.5	.38	.37	.38	.42	.47	.46	.46	.39	.48
	299+25 to 281+80	SB	6.5	4.5	.41	.40	.36	.42	.45	.45	.45	.38	.45
	297+20 to 281+94	NB	6.5	4.5	.38	.38	.36	.45	.45	.45	.46	.41	.48
Average				.40	.38	.36	.36	.44	.45	.45	.46	.39	.46
D	281+80 to 264+97	SB	5.5	4.5	.44	.44	.42	.49	.49	.47	.47	.38	.47
	281+94 to 268+93	NB	5.5	4.5	.44	.45	.44	.46	.51	.49	.49	.43	.49
	Average				.44	.44	.43	.48	.48	.50	.46	.40	.48
Kent County Resurfacing (1962)	138+88 to 156+92	SB	31A, Grand Rapids		.35	.34	.35	.44	.37	.36	.36	.36	.36
	138+88 to 156+92	NB	Gravel Co. No. 8 (Pit 41-16)		.38	.35	.35	.44	.40	.39	.39	.39	.39
	Average				.36	.34	.35	.44	.38	.38	.38	.38	.37
Balance of Project	90+00 South	SB	6.5	4.5	.46	.40	.39	.47	.50	.47	.47	.40	.45
	90+00 South	NB	6.5	4.5	.47	.40	.43	.46	.49	.47	.47	.41	.48
	Average				.46	.40	.41	.46	.50	.47	.47	.40	.46

(1) Test areas designated in P. J. Serafin's letter to E. A. Finney, September 16, 1963. Sheet asphalt surfacing placed September 9-13, 1963.

TABLE 15
WYTON SYNTHETIC BINDER SURFACE COURSE MIXTURES

Project No.	Route	Location	Surface Applied	Aggregate	Percent Wyton	Mineral Filler	Direction and Lane	Average Coefficient of Wet Sliding Friction			
								General Tire			
								1963	1964	1965	1967
25-75, C1	Bristol Rd. From M 15 West		Sept. 1963	(2NS) Local Pit - (31A) Wallace	6.0	Fly Ash	EB WB	0.47	0.48**	0.46	0.38
								0.46	0.47**	0.44	0.39
39014B, C6*	US 131	US 131 at M 43	Sept. 1963	(2NS) American Aggregate, Kalamazoo (Pit 39-1)	6.3	Limestone Dust - Material Service, Thornton, Illinois	NBOL NBIL	0.41	0.58**	0.62	0.55
								0.46	0.62**	0.66	0.56
82121C, C8	I 96BS Grand River Avenue (I 96BS) at Telegraph Rd. (US 24)		Oct. 1964	(2NS) Manning - Lockin (Pit 82-4)	6.6	Limestone Dust - Ohio Lime Co., Woodville, Ohio	EBOL EB #3 EB #2 EBIL WBOL WB #3 WB #2 WBIL NBOL NB #3 NB #2 SBOL SB #3 SB #2 SBIL	--	0.47	0.34	0.43
								--	0.54	0.36	0.40
								--	0.52	0.33	0.41
								--	0.66	0.35	0.47
								--	0.57	0.36	0.42
								--	0.55	0.35	0.42
								--	0.57	0.33	0.41
								--	0.54	0.36	0.46
								--	0.60	0.41	0.40
								--	0.51	0.38	0.35
								--	0.55	0.35	0.41
								--	0.60	0.38	0.39
--	0.62	0.45	0.36								
--	0.59	0.37	0.40								
--	0.54	0.37	0.44								
--	0.66	0.40	0.44								

* See Authorization No. R2006 and S2007.

** Average of two 1964 test series.

TABLE 16
SPECIAL EMULSION PROJECTS

Route	Location	Surface Applied	Aggregate	Direction and Lane	1967 Average Coefficient of Wet Sliding Friction
I 696 BR	John Lodge at Wyoming	Fall 1966	(3NS) Berlin Pit Pit No. 81-82	NBOL	0.38
				NBCL	0.36
				NBIL	0.38
				SBOL	0.37
				SBCL	0.39
				SBIL	0.43
M 85	Fort St at Sibley Rd	Fall 1966	(3NS) Berlin Pit Pit No. 81-82	NBOL	0.42
				NBIL	0.39
				SBOL	0.38
				SBIL	0.40
M 153	Ford Rd at Middlebelt St	Fall 1966	(3NS) Berlin Pit Pit No. 81-82	EBOL	0.36
				EBIL	0.37
				WBOL	0.35
				WBIL	0.38
US 12	Michigan Ave at Miller	Fall 1966	(3NS) Berlin Pit Pit No. 81-82	EBOL	0.35
				EBCL	0.36
				EBIL	0.36
				WBRT	0.38
				WBOL	0.35
				WBCL	0.37
				WBIL	0.36

TABLE 17
 TEST AREAS FOR ANALYSIS OF EFFECTS OF USING TUNGSTEN CARBIDE
 CUTTING EDGES FOR SNOW REMOVAL
 Research Project 66 G-151

Location	Control Section	Surface Type and Construction Year	Type of Snow Removal Blade	Direction and Lane	1967 Coefficient of Wet Sliding Friction		
					Low	High	Avg.
I 196 commencing N of I 94 at Mile Post 1, thence N 1000 ft on NB rdwy	11111	Bituminous Concrete 1963	Conventional	NBOL	0.50	0.53	0.51
				NBIL	0.75	0.76	0.75
I 94 from Roslyn Rd Bridge, E of I 196, W 1000 ft on WB rdwy	11017	Concrete 1960	Conventional	WBOL	0.45	0.48	0.47
				WBIL	0.54	0.57	0.55
US 131, S 1000 ft from 110th Ave on NB rdwy, south of M 118	03111	Concrete 1960	Conventional	NBOL	0.44	0.46	0.45
				NBIL	0.72	0.75	0.74
M 89 from 8th St, SE of Plainwell E 1000 ft on EB rdwy	03024	Bituminous Concrete 1962	Conventional	EB	0.47	0.48	0.47
I 94, W 1000 ft from Empire Ave, on WB rdwy, W of I 196	11016	Concrete 1960	Tungsten Carbide	WBOL	0.48	0.50	0.49
				WBCL	0.57	0.60	0.59
				WBIL	0.58	0.62	0.60
I 196, commencing N of I 94, at Mile Post 11, thence N 1000 ft on NB rdwy	80012	Bituminous Concrete 1963	Tungsten Carbide	NBOL	0.44	0.46	0.45
				NBIL	0.72	0.75	0.74
I 196 commencing N of South Haven at Mile Post 31, thence N 1000 ft on NB rdwy	03033	Concrete 1963	Tungsten Carbide	NBOL	0.55	0.59	0.57
				NBIL	0.64	0.66	0.65
M 89, E 1000 ft from 59th St on EB rdwy, west of Fennville	03021	Bituminous Concrete 1960	Tungsten Carbide	EB	0.35	0.38	0.37

TABLE 18
SKID TESTS ON PAVEMENT GROOVING
Research Project 67 G-154

Test Date	Average Coefficient of Wet Sliding Friction	Remarks
10-22-63	0.28	Tested as a high accident area
5-22-66	0.31	Tested as a high accident area
10-23-67	0.31	Tests prior to grooving
11-10-67	0.35	Transverse grooves
11-10-67	0.34	Longitudinal grooves

TABLE 19
EVALUATION OF A RUBBER PAD RAILROAD CROSSING
Research Project 64 G-134

Location	Direction and Lane	Average Low Velocity Wsf Values*				
		8-31-64	10-1-65	10-20-65	9-21-66	9-15-67
M 46 at C&O RR (wood ties)	NBOL	0.52	0.74	----	0.58	0.75
	NB#3	0.52	0.78	----	0.63	0.81
	NB#2	0.55	0.78	----	0.64	0.99
	NBIL	0.55	0.78	----	0.60	0.94
M 81 at C&O RR (rubber pads)	WBOL	----	----	0.77	0.91	0.95
	WBCL	----	----	0.77	0.84	0.81
	WBIL	----	----	0.76	0.93	0.88

* See Text

Section 3
HIGH-ACCIDENT LOCATIONS

This section reports the Department's continuing program to reduce skidding accidents on wet pavement at critical locations. High-Accident locations selected are skid-tested to indicate priorities for resurfacing. In some cases, these locations are used for testing of experimental skid-resistant resurfacing mixtures.

Selection of this year's high-accident locations is based on 1966 accident data, furnished by the Traffic Division. Skid tests yielded average wsf values below 0.40 at 79 percent of the 847 lanes tested. Friction levels for 28 percent of these lanes averaged below 0.30 and twelve lanes had average coefficients lower than 0.20.

During 1967, tests were conducted on 48 different major highway routes. Testing was dispersed throughout 10 Districts, 42 Counties, and 220 separate locations. Table 20 summarizes the high-accident skid tests.

TABLE 20
HIGH-ACCIDENT LOCATIONS

High Accident Location	1966 Accidents			Lane	Surface Type	Average Coefficient	
	Total	Wet Surface					
		No.	Percent				
DISTRICT 1							
<u>Baraga County</u>							
US 41, Control Section 07012, Mile Post 13.630 to 15.870	17	6	35	US 41 US 41	NB SB	CONC CONC	0.35 0.36
<u>Houghton County</u>							
US 41, Control Section 31052, Mile Post 0.080 to 0.600	41	9	22	US 41 US 41 US 41	EBOL EBIL WBOL WBIL	BA BA BC BC	0.40 0.44 0.40 0.41
<u>Iron County</u>							
M 69, Control Section 36023, Mile Post 0.075 to 0.240	10	5	50	M 69 M 69 M 69	EBOL EBIL WBOL WBIL	BC BC BC BC	0.38 0.28 0.35 0.41
M 69, Control Section 36023, Mile Post 1.395 to 10.800	14	4	29	M 69 M 69	EB WB	BA BA	0.45 0.33
<u>Marquette County</u>							
M 28-US 41, Control Section 52042, Mile Post 0.200 to 2.510	28	10	36	M 28-US 41 M 28-US 41	NB SB	CONC CONC	0.38 0.38
M 28-US 41, Control Section 52042, Mile Post 3.810 to 3.980	11	8	73	M 28-US 41 M 28-US 41 M 28-US 41 M 28-US 41	NBOL NBIL SBOL SBIL	CONC BC CONC BC	0.34 0.25 0.39 0.27
M 28-US 41, Control Section 52042, Mile Post 6.013 to 6.460	12	4	33	M 28-US 41 M 28-US 41 M 28-US 41 M 28-US 41	EBOL EBIL WBOL WBIL	CONC CONC BC BC	0.39 0.49 0.44 0.49
M 28-US 41, Control Section 52042, Mile Post 7.660 to 8.730	13	6	46	M 28-US 41 M 28-US 41 M 28-US 41 M 28-US 41	EBOL EBIL WBOL WBIL	CONC CONC CONC CONC	0.40 0.53 0.43 0.54
<u>Menominee County</u>							
US 41, Control Section 55011, Mile Post 0.480 to 0.780	35	15	43	US 41 US 41	EB WB	BC BC	0.26 0.25
US 41, Control Section 55011, Mile Post 0.860 to 2.560	43	10	23	US 41 US 41 US 41	NBOL NBIL SBOL SBIL	CONC CONC CONC CONC	0.31 0.33 0.32 0.32
<u>Ontonagon County</u>							
US 45, Control Section 66033, Mile Post 7.490	3	3	100	US 45 US 45	NB SB	BA BA	0.50 0.46
DISTRICT 2							
<u>Delta County</u>							
US 2, Control Section 21022, Mile Post 0.000 to 0.070	22	5	23	US 2 US 2 US 2	NBOL NBIL SBOL SBIL	BC BC BC BC	0.27 0.29 0.29 0.26
US 2, Control Section 21022, Mile Post 0.230 to 0.250	5	2	40	US 2 US 2 US 2	NBOL NBIL SBOL SBIL	CONC CONC CONC CONC	0.33 0.38 0.40 0.42
US 2, Control Section 21022, Mile Post 0.460 to 1.000	16	8	50	US 2 US 2 US 2 US 2	NBOL NBIL SBOL SBIL	CONC BC CONC BC	0.39 0.35 0.41 0.34
US 2, Control Section 21022, Mile Post 3.530 to 3.970	7	2	29	US 2 US 2 US 2 US 2	NBOL NBIL SBOL SBIL	CONC CONC CONC CONC	0.42 0.51 0.47 0.51
<u>Mackinac County</u>							
US 2, Control Section 49022, Mile Post 5.230 to 6.103	3	0	0	US 2 US 2	EB WB	BC BC	0.21 0.26
US 2, Control Section 49022, Mile Post 6.103 to 6.230	2	1	50	US 2 US 2	EB WB	BC BC	0.30 0.28
US 2, Control Section 49023, Mile Post 24.150 to 26.465	16	10	62	US 2 US 2	EB WB	BC BC	0.20 0.21
I 75 BL, Control Section 49026, Mile Post 0.550 to 0.760	3	3	100	I 75 BL I 75 BL I 75 BL I 75 BL	NBOL NBIL SBOL SBIL	BC BC BC BC	0.23 0.20 0.34 0.22
I 75 BL, Control Section 49026, Mile Post 0.920 to 1.230	4	3	75	I 75 BL I 75 BL	NB SB	BC BC	0.26 0.23
I 75 BL, Control Section 49026, Mile Post 1.500 to 1.710	9	5	56	I 75 BL I 75 BL	NB SB	BC BC	0.24 0.23
DISTRICT 3							
<u>Benzie County</u>							
US 31, Control Section 10031, Mile Post 6.740 to 6.900	7	5	71	US 31 US 31 US 31	NBOL NBIL SB	CONC BC BC	0.37 0.32 0.23
US 31, Control Section 10032, Mile Post 5.700 to 6.460	12	6	50	US 31 US 31	EB WB	BC BC	0.20 0.22
<u>Grand Traverse County</u>							
US 31, Control Section 28012, Mile Post 5.570	8	4	50	US 31 US 31	NB SB	CONC CONC	0.40 0.34

TABLE 20 (Cont.)
HIGH-ACCIDENT LOCATIONS

High Accident Location	1966 Accidents			Route	Lane	Surface Type	Average Coefficient
	Total	Wet Surface					
		No.	Percent				
DISTRICT 3 (CONT)							
<u>Grand Traverse County Cont.</u>							
US 31, Control Section	38	10	26	US 31	NBOL	CONC	0.40
28012, Mile Post 6.140 to 6.784				US 31	NBIL	CONC	0.36
				US 31	SBOL	CONC	0.32
				US 31	SBIL	CONC	0.33
US 31, Control Section	35	12	34	US 31	EBOL	CONC	0.33
28013, Mile Post 0.315 to 1.280				US 31	EBIL	CONC	0.34
				US 31	WBOL	CONC	0.34
				US 31	WBIL	CONC	0.37
US 31, Control Section	66	21	32	US 31	EBOL	CONC	0.35
28013, Mile Post 1.360 to 3.170				US 31	EBIL	CONC	0.36
				US 31	WBOL	CONC	0.33
				US 31	WBIL	CONC	0.32
M 37, Control Section	10	5	50	M 37	NB	BA	0.30
28051, Mile Post 0.100 to 3.970				M 37	SB	BA	0.35
M 37, Control Section	13	5	38	M 37	NB	BC	0.37
28051, Mile Post 0.000 to 12.099				M 37	SB	BC	0.39
<u>Kalkaska County</u>							
US 131, Control Section	7	4	57	US 131	NBOL	BC	0.38
40012, Mile Post 0.040 to 0.130				US 131	NBIL	BC	0.35
				US 131	SBOL	BC	0.31
				US 131	SBIL	BC	0.32
<u>Mason County</u>							
US 10, Control Section	41	16	39	US 10	EB	BC	0.22
53032, Mile Post 1.000 to 5.346				US 10	WB	BC	0.22
US 10, Control Section	5	2	40	US 10	EB	BC	0.21
53032, Mile Post 5.346 to 6.280				US 10	WB	BC	0.21
<u>Westford County</u>							
US 131, Control Section	11	4	36	US 131	NBOL	BC	0.36
83031, Mile Post 5.660 to 5.800				US 131	NBIL	BC	0.37
				US 131	SBOL	BC	0.34
				US 131	SBIL	BC	0.36
US 131, Control Section	15	7	47	US 131	NBOL	BC	0.26
83031, Mile Post 5.840 to 5.996				US 131	NBIL	BC	0.23
				US 131	SBOL	BC	0.25
				US 131	SBIL	BC	0.22
US 131, Control Section	67	19	28	US 131	NBOL	BC	0.23
83032, Mile Post 0.000 to 0.590				US 131	NBIL	BC	0.23
				US 131	SBOL	BC	0.24
				US 131	SBIL	BC	0.23
US 131, Control Section	35	10	29	US 131	NBOL	BC	0.38
83032, Mile Post 0.600 to 1.280				US 131	NBIL	BC	0.41
				US 131	SBOL	BC	0.39
				US 131	SBIL	BC	0.37
DISTRICT 3 (CONT)							
DISTRICT 4							
<u>Iosco County</u>							
US 23, Control Section	22	9	41	US 23	NB	CONC	0.29
35032, Mile Post 15.480 to 15.770				US 23	SB	CONC	0.29
<u>Oscego County</u>							
M 32, Control Section	5	3	60	M 32	EB	BA	0.26
68022, Mile Post 0.250 to 0.370				M 32	WB	BA	0.23
<u>Presque Isle County</u>							
M 68, Control Section	7	5	71	M 68	EB	BA	0.41
71021, Mile Post 0.660 to 0.772				M 68	WB	BA	0.36
M 68, Control Section	8	3	38	M 68	EB	BA	0.29
71021, Mile Post 1.128 to 1.321				M 68	WB	BA	0.31
<u>Roscommon County</u>							
M 55, Control Section	29	9	31	M 55	EBOL	BC	0.28
72022, Mile Post 1.500 to 5.210				M 55	EBIL	BC	0.28
				M 55	WBOL	BC	0.27
				M 55	WBIL	BC	0.28
M 55, Control Section	2	2	100	M 55	EBOL	BC	0.28
72022, Mile Post 5.770 to 5.816				M 55	EBIL	BC	0.29
				M 55	WBOL	BC	0.30
				M 55	WBIL	BC	0.30
DISTRICT 5							
<u>GrandLot County</u>							
M 46, Control Section	21	13	62	M 46	EB	BC	0.26
28042, Mile Post 0.750 to 5.868				M 46	WB	BC	0.26

TABLE 20 (Cont.)
HIGH-ACCIDENT LOCATIONS

High Accident Location	1966 Accidents			Route	Lane	Surface Type	Average Coefficient
	Total	Wet Surface					
		No.	Percent				
<u>Kent County</u>							
M 11, Control Section 41061, Mile Post 3.129 to 3.189	5	5	100	M 11	NB	BC	0.34
				M 11	SB	BC	0.35
M 11, Control Section 41061, Mile Post 3.239 to 3.272	1	1	100	M 11	NB	BC	0.31
				M 11	SB	BC	0.33
M 11, Control Section 41061, Mile Post 7.522 to 7.600	13	3	23	M 11	EBOL	CONC	0.33
				M 11	EBIL	CONC	0.36
				M 11	WBOL	CONC	0.32
				M 11	WBIL	CONC	0.36
M 11, Control Section 41062, Mile Post 0.190 to 0.690	14	5	36	M 11	EBOL	CONC	0.37
				M 11	EBIL	CONC	0.41
				M 11	WBOL	CONC	0.37
				M 11	WBIL	NSST	0.30
M 11, Control Section 41062, Mile Post 0.750 to 3.025	176	70	40	M 11	EBOL	CONC	0.40
				M 11	EBIL	CONC	0.40
				M 11	WBOL	CONC	0.35
				M 11	WBIL	NSST	0.31
M 11, Control Section 41062, Mile Post 3.060 to 3.400	92	34	37	M 11	EBOL	BC	0.39
				M 11	EBIL	BC	0.39
				M 11	WBOL	BC	0.39
				M 11	WBIL	BC	0.40
M 11, Control Section 41062, Mile Post 3.420 to 3.500	32	13	41	M 11	EBOL	BC	0.34
				M 11	EBIL	BC	0.34
				M 11	WBOL	BC	0.35
				M 11	WBIL	BC	0.35
M 11, Control Section 41062, Mile Post 3.540 to 3.573	47	19	40	M 11	EBOL	CONC	0.32
				M 11	EBIL	CONC	0.34
				M 11	WBOL	CONC	0.36
				M 11	WBIL	CONC	0.38
M 11, Control Section 41062, Mile Post 3.860 to 3.920	46	17	37	M 11	EBOL	BC	0.34
				M 11	EBIL	BC	0.35
				M 11	WBOL	BC	0.36
				M 11	WBIL	BC	0.35
M 11, Control Section 41062, Mile Post 3.965 to 4.165	56	21	38	M 11	EBOL	BC	0.33
				M 11	EBIL	BC	0.34
				M 11	WBOL	BC	0.35
				M 11	WBIL	BC	0.37
M 11, Control Section 41063, Mile Post 1.820 to 4.081	16	5	31	M 11	EBOL	BC	0.41
				M 11	EBIL	BC	0.43
				M 11	WBOL	BC	0.39
				M 11	WBIL	BC	0.43
US 131, Control Section 41131, Mile Post 9.740 to 10.050	11	6	55	US 131	NBOL	CONC	0.37
				US 131	NBIL	CONC	0.43
				US 131	SBOL	CONC	0.38
				US 131	SBIL	CONC	0.44

DISTRICT 3 (CONT)

High Accident Location	1966 Accidents			Route	Lane	Surface Type	Average Coefficient
	Total	Wet Surface					
		No.	Percent				
<u>Kent County Cont.</u>							
US 131, Control Section 41131, Mile Post 10.171 to 10.551	26	9	35	US 131	NBOL	CONC	0.38
				US 131	NBCL	CONC	0.42
				US 131	NBIL	CONC	0.47
				US 131	SBOL	CONC	0.39
				US 131	SBCL	CONC	0.40
				US 131	SBIL	CONC	0.43
US 131, Control Section 41131, Mile Post 10.651 to 11.100	19	5	26	US 131	NBOL	CONC	0.33
				US 131	NBCL	CONC	0.38
				US 131	NBIL	CONC	0.43
				US 131	SBOL	CONC	0.38
				US 131	SBCL	CONC	0.39
				US 131	SBIL	CONC	0.42
US 131, Control Section 41131, Mile Post 11.160 to 12.690	69	33	48	US 131	NBOL	CONC	0.46
				US 131	NBCL	CONC	0.36
				US 131	NBIL	CONC	0.44
				US 131	SBOL	CONC	0.35
				US 131	SBCL	CONC	0.39
				US 131	SBIL	CONC	0.48
US 131, Control Section 41131, Mile Post 12.702 to 13.220	18	8	44	US 131	NBOL	CONC	0.37
				US 131	NBCL	CONC	0.38
				US 131	NBIL	CONC	0.36
				US 131	SBOL	CONC	0.39
				US 131	SBCL	CONC	0.35
				US 131	SBIL	CONC	0.42
<u>Mecosta County</u>							
US 131, Control Section 54011, Mile Post 0.650 to 15.335	91	37	41	US 131	NB	BC	0.29-
				US 131	SB	BC	0.31
US 131, Control Section 54012, Mile Post 0.010 to 0.430	29	12	41	US 131	NBOL	BC	0.30
				US 131	NBIL	BC	0.30
				US 131	SBOL	BC	0.29
				US 131	SBIL	BC	0.31
US 131, Control Section 54012, Mile Post 0.442 to 0.854	12	6	50	US 131	NB	ST	0.24
				US 131	SB	ST	0.21
US 131, Control Section 54012, Mile Post 0.951 to 0.991	15	5	33	US 131	NBOL	CONC	0.29
				US 131	NBOL	SA	0.29
				US 131	NBIL	CONC	0.28
				US 131	NBIL	SA	0.25
				US 131	SBOL	CONC	0.31
				US 131	SBOL	SA	0.25
				US 131	SBIL	CONC	0.30
				US 131	SBIL	SA	0.25
US 131, Control Section 54012, Mile Post 1.175 to 1.660	27	12	44	US 131	NBOL	CONC	0.38
				US 131	NBIL	CONC	0.33
				US 131	SBOL	CONC	0.35
				US 131	SBIL	CONC	0.34
<u>Montcalm County</u>							
US 131, Control Section 59011, Mile Post 6.340 to 12.480	30	14	47	US 131	NB	BC	0.33
				US 131	SB	BC	0.35

DISTRICT 3 (CONT)

TABLE 20 (Cont.)
HIGH-ACCIDENT LOCATIONS

High Accident Location	1966 Accidents			Route	Lane	Surface Type	Average Coefficient
	Total	Wet Surface					
		No.	Percent				
<u>Muskegon County</u>							
M 46, Control Section 61022, Mile Post 0.166 to 0.465	22	13	59	M 46	EBOL	BC	0.23
				M 46	EBIL	BC	0.25
				M 46	WBOL	BC	0.23
				M 46	WBIL	BC	0.22
M 46, Control Section 61022, Mile Post 0.779 to 1.246	15	9	60	M 46	EBOL	BC	0.26
				M 46	EBIL	BC	0.26
				M 46	WBOL	BC	0.24
				M 46	WBIL	BC	0.28
M 46, Control Section 61022, Mile Post 1.286 to 2.000	24	8	33	M 46	EBOL	CONC	0.38
				M 46	EBIL	CONC	0.41
				M 46	WBOL	CONC	0.37
				M 46	WBIL	CONC	0.40
M 46, Control Section 61022, Mile Post 2.110 to 2.245	13	5	38	M 46	EBOL	CONC	0.34
				M 46	EBIL	CONC	0.37
				M 46	WBOL	CONC	0.38
				M 46	WBIL	CONC	0.38
I 96 BS - US 31 BR, Control Section 61151, Mile Post 0.540 to 0.880	36	18	50	I 96 BS - US 31 BR	NBOL	CONC	0.36
				I 96 BS - NBIL	CONC	0.39	
				US 31 BR	SBOL	CONC	0.36
				US 31 BR	SBIL	CONC	0.37
				US 31 BR	CONC	0.34	
I 96 BS - US 31 BR, Control Section 61151, Mile Post 0.910 to 1.385	23	9	39	I 96 BS - NBOL	CONC	0.34	
				I 96 BS - NBIL	CONC	0.39	
				US 31 BR	CONC	0.33	
				US 31 BR	SBIL	CONC	0.39
<u>Newaygo County</u>							
M 37, Control Section 62032, Mile Post 5.150 to 11.710	10	9	90	M 37	NB	NSST	0.36
				M 37	SB	NSST	0.35
<u>Oshtawa County</u>							
US 31, Control Section 70016, Mile Post 0.010 to 0.300	18	6	33	US 31	NBOL	CONC	0.37
				US 31	NBIL	CONC	0.44
				US 31	SBOL	CONC	0.41
				US 31	SBIL	CONC	0.44
US 31, Control Section 70016, Mile Post 0.390 to 2.929	21	10	48	US 31	NBOL	BC	0.28
				US 31	NBIL	BC	0.44
				US 31	SBOL	BC	0.36
				US 31	SBIL	BC	0.64
<u>Bay County</u>							
M 54, Control Section 09011, Mile Post 0.490 to 2.559	14	4	29	M 54	NB	BC	0.22
				M 54	SB	BC	0.21

DISTRICT 5 (CONT)

High Accident Location	1966 Accidents			Route	Lane	Surface Type	Average Coefficient
	Total	Wet Surface					
		No.	Percent				
<u>Bay County Cont.</u>							
M 64, Control Section 09011, Mile Post 2.700 to 3.070	20	8	40	M 64	NB	CONC	0.30
				M 64	SB	CONC	0.31
M 64, Control Section 09011, Mile Post 3.470 to 5.146	25	14	56	M 64	EB	BC	0.27
				M 64	WB	BC	0.26
M 247, Control Section 09012, Mile Post 0.240 to 0.250	7	5	71	M 247	NB	BC	0.21
				M 247	SB	BC	0.24
US 23, Control Section 09033, Mile Post 15.590 to 16.263	11	8	73	US 23	NBOL	BC	0.33
				US 23	NBIL	BC	0.38
				US 23	SBOL	CONC	0.37
				US 23	SBIL	BC-CONC	Not Tested
I 75 - US 10, Control Section 09034, Mile Post 4.723 to 4.824 and Control Section 09035, Mile Post 0.050 to 0.400	25	14	56	I 75 - US 10	NBOL	CONC	0.44
				I 75 - US 10	NBIL	CONC	0.51
				I 75 - US 10	SBOL	CONC	0.45
				I 75 - US 10	SBIL	CONC	0.50
I 75 - US 10, Control Section 09101, Mile Post 10.970 to 11.638	39	16	41	I 75 - US 10	EBOL	CONC	0.42
				I 75 - US 10	EBIL	CONC	0.48
				I 75 - US 10	WBOL	CONC	0.39
				I 75 - US 10	WBIL	CONC	0.49
<u>Genessee County</u>							
US 23, Control Section 25031, Mile Post 12.850 to 12.900	12	8	67	US 23	NBOL	CONC	0.33
				US 23	NBCL	CONC	0.40
				US 23	NBIL	CONC	0.44
				US 23	SBOL	CONC	0.33
				US 23	SBCL	CONC	0.41
				US 23	SBIL	CONC	0.46
M 78, Control Section 25041, Mile Post 0.482 to 1.187	35	12	34	M 78	EBOL	CONC	0.30
				M 78	EBIL	BC	0.34
				M 78	WBOL	CONC	0.28
				M 78	WBIL	BC	0.34
M 78, Control Section 25041, Mile Post 1.280 to 1.397	14	7	50	M 78	EBOL	BC	0.28
				M 78	EBIL	BC	0.35
				M 78	WBOL	BC	0.28
				M 78	WBIL	BC	0.34
M 54 BR, Control Section 25051, Mile Post 2.766 to 3.652	48	19	40	M 54 BR	NBOL	BC	0.35
				M 54 BR	NBIL	BC	0.34
				M 54 BR	SBOL	BC	0.34
				M 54 BR	SBIL	BC	0.38
M 54 BR, Control Section 25051, Mile Post 4.388 to 4.465	5	4	80	M 54 BR	NBOL	BC	0.39
				M 54 BR	NBIL	BC	0.41
				M 54 BR	SBOL	BC	0.37
				M 54 BR	SBIL	BC	0.42
M 54 BR, Control Section 25051, Mile Post 4.490 to 5.010	19	8	42	M 54 BR	NBOL	BC	0.28
				M 54 BR	NBIL	BC	0.31
				M 54 BR	SBOL	BC	0.31
				M 54 BR	SBIL	BC	0.30

DISTRICT 6 (CONT)

TABLE 20 (Cont.)
HIGH-ACCIDENT LOCATIONS

High Accident Location	1966 Accidents			Surface Type	Average Coefficient
	Total	Wet Surface			
		No.	Percent		
<u>Genesee County Cont.</u>					
M 54 BR, Control Section 25052, Mile Post 0.000 to 0.360	78	41	53	BRICK	0.16
M 54 BR, Control Section 25052, Mile Post 0.690 to 1.000	32	18	56	BRICK	0.30
M 54 BR, Control Section 25052, Mile Post 1.220 to 1.540	32	12	38	BRICK	0.27
M 54 BR, Control Section 25052, Mile Post 1.640 to 2.090	45	21	47	BRICK	0.29
M 54 BR, Control Section 25052, Mile Post 2.200 to 3.150	70	17	24	BRICK	0.37
M 54 BR, Control Section 25052, Mile Post 3.230 to 4.437	56	11	20	BRICK	0.36
M 54 BR, Control Section 25052, Mile Post 4.470 to 6.560	138	46	33	BRICK	0.27
M 54 BR, Control Section 25052, Mile Post 7.460 to 9.250	3	2	67	BRICK	0.24
M 54 BR, Control Section 25071, Mile Post 1.320 to 4.000	29	13	45	BRICK	0.33
M 54, Control Section 25071, Mile Post 4.230 to 4.480	20	10	50	BRICK	0.27
M 54, Control Section 25071, Mile Post 4.682 to 4.960	10	6	60	BRICK	0.35
<u>Lapeer County</u>					
M 46, Control Section 73061, Mile Post 1.320 to 1.990	6	4	67	BRICK	0.19
M 46, Control Section 73061, Mile Post 2.580 to 11.523	63	28	44	BRICK	0.17
M 46, Control Section 73112, Mile Post 0.000 to 0.150	9	6	67	BRICK	0.25
M 46, Control Section 73112, Mile Post 0.150 to 0.375	9	5	56	BRICK	0.28
M 46, Control Section 73112, Mile Post 0.415 to 0.495	15	4	27	BRICK	0.27
M 46, Control Section 73112, Mile Post 5.170 to 5.385	25	14	56	BRICK	0.26
<u>Saginaw County</u>					
M 46, Control Section 73061, Mile Post 1.320 to 1.990	6	4	67	BRICK	0.19
M 46, Control Section 73061, Mile Post 2.580 to 11.523	63	28	44	BRICK	0.17
M 46, Control Section 73112, Mile Post 0.000 to 0.150	9	6	67	BRICK	0.25
M 46, Control Section 73112, Mile Post 0.150 to 0.375	9	5	56	BRICK	0.28
M 46, Control Section 73112, Mile Post 0.415 to 0.495	15	4	27	BRICK	0.27
M 46, Control Section 73112, Mile Post 5.170 to 5.385	25	14	56	BRICK	0.26
<u>Harrison County</u>					
M 54 BR, Control Section 25071, Mile Post 1.320 to 4.000	29	13	45	BRICK	0.33
M 54, Control Section 25071, Mile Post 4.230 to 4.480	20	10	50	BRICK	0.27
M 54, Control Section 25071, Mile Post 4.682 to 4.960	10	6	60	BRICK	0.35

DISTRICT 6 (CONT)

* 1/2 Brick & 1/2 BC

High Accident Location	1966 Accidents			Surface Type	Average Coefficient
	Total	Wet Surface			
		No.	Percent		
<u>Genesee County Cont.</u>					
M 21, Control Section 25081, Mile Post 11.500 to 11.710	8	5	62	BRICK	0.24
M 21, Control Section 25081, Mile Post 11.960 to 12.417	26	15	58	BRICK	0.22
<u>Lapeer County</u>					
M 21, Control Section 44041, Mile Post 7.350 to 7.362	9	6	67	BRICK	0.25
<u>Saginaw County</u>					
M 46, Control Section 73061, Mile Post 1.320 to 1.990	6	4	67	BRICK	0.19
M 46, Control Section 73061, Mile Post 2.580 to 11.523	63	28	44	BRICK	0.17
M 46, Control Section 73112, Mile Post 0.000 to 0.150	9	6	67	BRICK	0.25
M 46, Control Section 73112, Mile Post 0.150 to 0.375	9	5	56	BRICK	0.28
M 46, Control Section 73112, Mile Post 0.415 to 0.495	15	4	27	BRICK	0.27
M 46, Control Section 73112, Mile Post 5.170 to 5.385	25	14	56	BRICK	0.26
<u>Harrison County</u>					
M 54 BR, Control Section 25071, Mile Post 1.320 to 4.000	29	13	45	BRICK	0.33
M 54, Control Section 25071, Mile Post 4.230 to 4.480	20	10	50	BRICK	0.27
M 54, Control Section 25071, Mile Post 4.682 to 4.960	10	6	60	BRICK	0.35

DISTRICT 6 (CONT)

DISTRICT 7

TABLE 20 (Cont.)
HIGH-ACCIDENT LOCATIONS

High Accident Location	1966 Accidents		Route	Lane	Surface Type	Average Coefficient
	Total	Wet Surface				
		No.				
<u>Cass County Cont.</u>						
M 62, Control Section 14031, Mile Post 0.360 to 2.180	8	6	75	M 62 NB	BC	0.27
				M 62 SB	BC	0.27
M 62, Control Section 14031, Mile Post 4.600 to 9.760	13	6	46	M 62 NB	BC	0.30
				M 62 SB	BC	0.30
M 62, Control Section 14032, Mile Post 0.620 to 7.420	15	7	47	M 62 NB	ST	0.43
				M 62 SB	ST	0.38
M 62, Control Section 14032, Mile Post 7.630 to 8.190	8	3	38	M 62 EB	BC	0.37
				M 62 WB	BC	0.38
<u>Kalamazoo County</u>						
I 94, Control Section 39022, Mile Post 0.000 to 0.550	13	7	54	I 94 EBOL	CONC	0.42
				I 94 ERIL	CONC	0.50
				I 94 WBOL	CONC	0.42
				I 94 WBIL	CONC	0.52
I 94, Control Section 39022, Mile Post 0.600 to 1.790	21	10	48	I 94 EBOL	CONC	0.48
				I 94 EBIL	CONC	0.56
				I 94 WBOL	CONC	0.44
				I 94 WBIL	CONC	0.55
I 94 BL, Control Section 39042, Mile Post 0.920 to 0.960	14	9	64	I 94 BL EBOL	BC	0.38
				I 94 BL ERCL	BC	0.38
				I 94 BL ERIL	BC	0.39
				I 94 BL WBOL	BC	0.39
				I 94 BL WBIL	BC	0.40
I 94 BL, Control Section 39042, Mile Post 1.240 to 1.400	22	11	50	I 94 BL EBOL	SA	0.40
				I 94 BL ERIL	SA	0.39
				I 94 BL WBOL	SA	0.37
				I 94 BL WBIL	SA	0.41
I 94 BL, Control Section 39042, Mile Post 1.630 to 1.690	14	9	64	I 94 BL EBOL	BC	0.24
				I 94 BL ERIL	BC	0.25
				I 94 BL WBOL	BC	0.26
				I 94 BL WBIL	BC	0.25
I 94 BL, Control Section 39042, Mile Post 1.630 to 1.760	13	4	31	I 94 BL EBOL	CONC	0.36
				I 94 BL ERIL	CONC	0.34
				I 94 BL WBOL	CONC	0.33
				I 94 BL WBIL	CONC	0.38
I 94 BL-M 96, Control Section 39042, Mile Post 1.940 to 1.990	4	3	75	I 94 BL-M 96	BC	0.29
				I 94 BL-M 96	BC	0.28
				I 94 BL-M 96	BC	0.28
				I 94 BL-M 96	BC	0.30

DISTRICT 7 (CONT)

High Accident Location	1966 Accidents		Route	Lane	Surface Type	Average Coefficient
	Total	Wet Surface				
		No.				
<u>Berrien County Cont.</u>						
I 94 (SE Off-Ramp to Laporte Rd), Control Section 11014, Mile Post 1.310 to 1.482	19	10	53	I 94 Off-Ramp SBOL	BC	0.32
				I 94 Off-Ramp SBIL	BC	0.32
US 12, Control Section 11021, Mile Post 17.180 to 21.820	17	9	53	US 12 EB	BC	0.41
				US 12 WB	BC	0.37
M 40, Control Section 11091, Mile Post 0.430 to 0.450	8	3	38	M 40 NB	CONC	0.32
				M 40 SB	CONC	0.30
<u>Calhoun County</u>						
I 94 BL, Control Section 13043, Mile Post 0.497 to 0.660	5	4	80	I 94 BL NBOL	BC	0.40
				I 94 BL NBIL	BC	0.44
				I 94 BL SBOL	BC	0.42
				I 94 BL SBIL	BC	0.44
I 94 BL, Control Section 13043, Mile Post 0.740 to 0.980	10	5	50	I 94 BL NBOL	BC	0.26
				I 94 BL NBIL	BC	0.24
				I 94 BL SBOL	BC	0.26
				I 94 BL SBIL	BC	0.23
I 94 BL, Control Section 13043, Mile Post 0.995 to 1.165	24	9	38	I 94 BL EBOL	BC	0.23
				I 94 BL EBIL	BC	0.26
				I 94 BL WBOL	BC	0.23
				I 94 BL WBIL	BC	0.25
I 94 BL, Control Section 13043, Mile Post 1.390 to 1.443	3	1	33	I 94 BL NBOL	BRICK	0.26
				I 94 BL NBIL	BRICK	0.25
				I 94 BL SBOL	BRICK	0.24
				I 94 BL SBIL	BRICK	0.23
I 94 BL, Control Section 13043, Mile Post 1.443 to 2.280	28	14	50	I 94 BL EB	BC	0.30
				I 94 BL WB	BC	0.31
US 27, Control Section 13071, Mile Post 9.340 to 11.890	24	8	33	US 27 NB	BC	0.39
				US 27 SB	BC	0.36
US 27, Control Section 13071, Mile Post 13.300 to 14.098	16	11	69	US 27 NB	BC	0.33
				US 27 SB	BC	0.33
<u>Cass County</u>						
M 40 - M 62, Control Section 14011, Mile Post 9.290 to 9.360	6	4	67	M 40-M 62 EB	BC	0.23
				M 40-M 62 WB	BC	0.27
M 40 - M 62, Control Section 14011, Mile Post 9.560 to 9.790	9	5	56	M 40-M 62 EB	BRICK	0.27
				M 40-M 62 WB	BRICK	0.25
M 40 - M 62, Control Section 14011, Mile Post 9.920 to 10.080	15	6	40	M 40-M 62 NB	BC	0.38
				M 40-M 62 SB	BC	0.37

DISTRICT 7 (CONT)

TABLE 20 (Cont.)
HIGH-ACCIDENT LOCATIONS

High Accident Location	1966 Accidents		Route	Lane	Surface Type	Average Coefficient
	Total	Wet Surface				
	No.	Percent				
<u>Kalamazoo County, Cont.</u>						
M 96, Control Section 39042, Mile Post 3.620 to 4.380	14	57	M 96 M 96	EB WB	BC BC	0.31 0.30
M 96, Control Section 39042, Mile Post 5.560 to 8.331	14	36	M 96 M 96	EB WB	BC BC	0.42 0.41
M 43, Control Section 39082, Mile Post 0.030 to 0.110	4	75	M 43	EBOL	BC	0.38
M 43, Control Section 39082, Mile Post 0.360 to 0.520	12	6	M 43 M 43 M 43 M 43	EBOL NEIL SBOL SBIL	CONC CONC CONC CONC	0.37 0.35 0.37 0.38
M 43, Control Section 39082, Mile Post 1.210 to 2.540	11	9	M 43 M 43	NB SB	BC BC	0.37 0.37
<u>St. Joseph County</u>						
US 12, Control Section 78022, Mile Post 10.700 to 12.110	29	17	US 12 US 12	EB WB	BC BC	0.25 0.24
<u>Ingham County</u>						
I 96 BL, Control Section 33032, Mile Post 11.010 to 11.340	17	6	I 96 BL I 96 BL I 96 BL I 96 BL	NBOL NBIL SBOL SBIL	BC BC BC BC	0.24 0.25 0.25 0.26
I 96 BL, Control Section 33032, Mile Post 11.450 to 12.030	41	17	I 96 BL I 96 BL I 96 BL I 96 BL	NBOL NBIL SBOL SBIL	BC BC BC BC	0.24 0.26 0.25 0.25
I 96 BL, Control Section 33032, Mile Post 12.160 to 12.205	11	10	I 96 BL I 96 BL I 96 BL	NBOL NBIL SBOL	CONC CONC CONC	0.33 0.33 0.30
US 27, Control Section 33033, Mile Post 0.580 to 0.820	12	4	US 27 US 27 US 27 US 27	NBOL NBIL SBOL SBIL	BC BC BC BC	0.31 0.33 0.32 0.34
US 27, Control Section 33033, Mile Post 0.840 to 1.062	11	9	US 27 US 27 US 27 US 27	NBOL NBIL SBOL SBIL	BC BC BC BC	0.19 0.21 0.21 0.35

DISTRICT 7 (CONT)

High Accident Location	1966 Accidents		Route	Lane	Surface Type	Average Coefficient
	Total	Wet Surface				
	No.	Percent				
<u>Ingham County, Cont.</u>						
M 143, Control Section 33082, Mile Post 1.700 to 2.740	114	49	M 143 M 143 M 143 M 143 M 143	EBOL EBOL EBIL WBOL WBOL WBIL	BC BC BC BC BC BC	0.37 0.35 0.36 0.30 0.27 0.33
M 143, Control Section 33082, Mile Post 2.830 to 3.086	14	7	M 143 M 143 M 143 M 143	EBOL EBIL WBOL WBIL	BC BC BC BC	0.27 0.28 0.23 0.28
M 43, Control Section 33082, Mile Post 0.088 to 0.300	7	4	M 43 M 43 M 43 M 43	EBOL EBIL WBOL WBIL	BC BC BC BC	0.22 0.25 0.30 0.23
M 43, Control Section 33082, Mile Post 0.380 to 1.030	32	14	M 43 M 43 M 43 M 43	EBOL EBIL WBOL WBIL	BC BC BC BC	0.20 0.19 0.20 0.22
M 43, Control Section 33082, Mile Post 1.042 to 1.275	50	25	M 43 M 43 M 43 M 43 M 43 M 43	EBOL EBOL EBIL WBOL WBOL WBIL	BC BC BC BC BC BC	0.29 0.21 0.27 0.32 0.32 0.34
M 43, Control Section 33082, Mile Post 1.340 to 1.820	33	17	M 43 M 43 M 43 M 43 M 43	EBOL EBOL EBIL WBOL WBIL	BC BC BC BC BC	0.27 0.21 0.21 0.24 0.31
M 43, Control Section 33082, Mile Post 1.890 to 1.975	17	5	M 43 M 43 M 43 M 43	EBOL EBOL EBIL WBOL	BC BC BC BC	0.31 0.27 0.34 0.28
M 43, Control Section 33082, Mile Post 2.050 to 2.400	27	9	M 43 M 43 M 43 M 43 M 43	EBOL EBIL WBOL WBOL WBIL	BC BC BC BC BC	0.33 0.33 0.34 0.23 0.29
<u>Jackson County</u>						
M 50, Control Section 38071, Mile Post 13.460 to 14.842	16	11	M 50 M 50 M 50	NB SE SE	BC BC BC	0.29 0.33 0.33
US 127 BR - M 50, Control Section 38072, Mile Post 0.720 to 0.880	3	3	US 127 BR - M 50 US 127 BR - M 50 US 127 BR - M 50 US 127 BR - M 50	NBOL NBIL SBOL SBIL	BC BC BC BC	0.34 0.35 0.34 0.37

DISTRICT 8 (CONT)

TABLE 20 (Cont.)
HIGH-ACCIDENT LOCATIONS

High Accident Location	1966 Accidents			Surface Type	Average Coefficient	
	Total	Wet Surface				
		No.	Percent			
Jackson County Cont.						
US 127 BR - M 50 Control Section 38072, Mile Post 0.922 to 1.216	31	11	35	US 127 BR - NB M 50 US 127 BR - SB M 50	ST ST	0.34 0.33
US 127 BR - M 50, Control Section 38072, Mile Post 1.220 to 1.510	17	10	59	US 127 BR - NB M 50 US 127 BR - SB M 50	ST ST	0.31 0.29
US 127 BR - M 50 Control Section 38072, Mile Post 1.550 to 1.731	10	4	40	US 127 BR - NB M 50 US 127 BR - SB M 50	BC BC	0.30 0.31
Lenawee County						
US 223 BR, Control Section 46061, Mile Post 18.512 to 18.620	9	6	67	US 223 BR EB US 223 BR WB	BC BC	0.27 0.30
US 223 BR, Control Section 46061, Mile Post 18.720 to 19.050	10	4	40	US 223 BR EBOL US 223 BR EBIL US 223 BR WBOL US 223 BR WBIL	CONC CONC CONC BC	0.41 0.26 0.44 0.28
US 223 BR, Control Section 46061, Mile Post 19.310 to 19.350	10	5	50	US 223 BR EBOL US 223 BR EBIL US 223 BR WBOL US 223 BR WBIL	BC BC BC BC	0.36 0.35 0.41 0.36
US 223 BR, Control Section 46061, Mile Post 19.450 to 20.070	65	24	37	US 223 BR EB US 223 BR WB	BC BC	0.24 0.25
Washtenaw County						
US 12 BR, Control Section 81032, Mile Post 4.190 to 4.800	135	54	40	US 12 BR EBOL US 12 BR EBIL US 12 BR WBOL US 12 BR WBIL	BC BC BC BC	0.60 0.60 0.60 0.61
US 12 BR, Control Section 81032, Mile Post 4.900 to 4.970	8	5	62	US 12 BR EBOL US 12 BR EBIL US 12 BR WBOL US 12 BR WBIL	BC BC BC BC	0.61 0.62 0.63 0.64
US 12 BR, Control Section 81032, Mile Post 4.990 to 5.190	16	7	44	US 12 BR EBOL US 12 BR EBIL US 12 BR WBOL US 12 BR WBIL	BC BC BC BC	0.43 0.42 0.44 0.44
US 23 BR, Control Section 81073, Mile Post 0.000 to 0.140	16	7	44	US 23 BR NBOL US 23 BR NBIL US 23 BR SBOL US 23 BR SBIL	SA SA SA SA	0.54 0.52 0.51 0.52
US 23 BR, Control Section 81073, Mile Post 0.230 to 0.240	3	3	100	US 23 BR NB US 23 BR SB	BC BC	0.44 0.45

DISTRICT 8 (CONT)

High Accident Location	1966 Accidents			Surface Type	Average Coefficient	
	Total	Wet Surface				
		No.	Percent			
Washtenaw County Cont.						
US 23 BR, Control Section 81073 at Mile Post 0.500	7	3	43	US 23 BR NBOL US 23 BR NBIL US 23 BR SBOL US 23 BR SBIL	BC BC BC BC	0.42 0.42 0.46 0.42
US 23 BR, Control Section 81073, Mile Post 1.230 to 1.417	8	4	50	US 23 BR NBOL US 23 BR NBIL US 23 BR SBOL US 23 BR SBIL	CONC CONC CONC CONC	0.44 0.43 0.45 0.43
M 17, Control Section 81062, Mile Post 0.010 to 0.640	36	17	47	M 17 EB M 17 WB	BC BC	0.48 0.47
Macomb County						
M 59, Control Section 50021, Mile Post 0.000 to 0.500 and 1.090 to 1.960	50	24	48	M 59 EB M 59 WB	BC BC	0.30 0.29
M 97, Control Section 50031, Mile Post 9.420 to 9.500	48	22	46	M 97 NBOL M 97 NBIL M 97 SBOL M 97 SBIL	NSST NSST NSST NSST	0.49 0.46 0.47 0.45
US 25, Control Section 50031, Mile Post 3.150 to 4.150	152	55	36	US 25 NBOL US 25 NBCL US 25 NBIL US 25 SBOL US 25 SBCL US 25 SBIL	BC BC CONC CONC CONC CONC	0.37 0.37 0.37 0.36 0.38 0.38
Oakland County						
I 96 BL, Control Section 63021, Mile Post 2.810 to 3.600	54	21	39	I 96 BL EBOL I 96 BL EBIL I 96 BL WBOL I 96 BL WBIL	BC BC BC BC	0.42 0.38 0.41 0.43
US 24, Control Section 63031, Mile Post 5.105 to 5.904	54	20	37	US 24 NBOL US 24 NBIL US 24 SBOL US 24 SBIL	CONC BC CONC BC	0.33 0.41 0.34 0.41
M 59, Control Section 63042, Mile Post 8.030 to 8.050	20	7	35	M 59 EBOL M 59 EBIL M 59 WBOL M 59 WBIL	BC BC BC BC	0.42 0.37 0.42 0.40
M 59, Control Section 63042, Mile Post 8.150 to 9.670	36	18	50	M 59 EB M 59 WB	BC BC	0.34 0.35

DISTRICT 9

DISTRICT 8 (CONT)

TABLE 20 (Cont.)
HIGH-ACCIDENT LOCATIONS

High Accident Location	1966 Accidents		Route	Lane	Surface Type	Average Coefficient
	Total	Wet Surface				
	No.	Percent				
<u>Oakland County Cont.</u>						
US 10, Control Section 63051, Mile Post 1.700 to 1.910	49	12	24	US 10	NBOL	0.38
				US 10	NB #3	0.34
				US 10	NB #2	0.39
				US 10	NBIL	0.34
				US 10	SBOL	0.35
				US 10	SB #3	0.34
				US 10	SB #2	0.34
				US 10	SBIL	0.36
				US 10	NBOL	0.31
				US 10	NB #3	0.34
US 10, Control Section 63051, Mile Post 10.780 to 10.940	63	33	52	US 10	NB #2	0.34
				US 10	NBIL	0.36
				US 10	SBOL	0.28
				US 10	SB #3	0.35
				US 10	SB #2	0.26
				US 10	SBIL	0.25
				US 10	NBOL	0.31
				US 10	NB #3	0.36
				US 10	NB #2	0.34
				US 10	NBIL	0.35
US 10, Control Section 63051, Mile Post 11.190 to 11.730	78	37	47	US 10	NB #2	0.34
				US 10	NBIL	0.35
				US 10	SBOL	0.24
				US 10	SB #3	0.24
				US 10	SB #2	0.26
				US 10	SBIL	0.25
				US 10	NBOL	0.33
				US 10	NB #3	0.35
				US 10	NB #2	0.34
				US 10	NBIL	0.32
US 10, Control Section 63051, Mile Post 11.780 to 11.856	10	8	80	US 10	NBOL	0.33
				US 10	NB #3	0.35
				US 10	NB #2	0.34
				US 10	NBIL	0.32
				US 10	SBOL	0.22
				US 10	SB #3	0.22
				US 10	SB #2	0.26
				US 10	SBIL	0.25
				US 10	NBOL	0.33
				US 10	NB #3	0.35
US 10, Control Section 63051, Mile Post 11.920 to 12.765	68	30	44	US 10	NBOL	0.32
				US 10	NB #3	0.32
				US 10	NB #2	0.33
				US 10	NBIL	0.30
				US 10	SBOL	0.31
				US 10	SB #3	0.31
				US 10	SB #2	0.32
				US 10	SBIL	0.31
				US 10	NBOL	0.34
				US 10	NBIL	0.35
US 10, Control Section 63051, Mile Post 0.020 to 1.430	99	50	50	US 10	NBOL	0.34
				US 10	NBIL	0.35
				US 10	SBOL	0.37
				US 10	SBIL	0.37
				US 10	NBOL	0.35
				US 10	NBIL	0.34
				US 10	SBOL	0.36
				US 10	SB #2	0.36
				US 10	SBIL	0.36
				US 10	NBOL	0.37
US 25 BR, Control Section 77031, Mile Post 2.690 to 2.704	5	4	80	US 25 BR	NB	0.48
				US 25 BR	SB	0.50
				US 25 BR	NB	0.48
				US 25 BR	SB	0.50
				US 25 BR	NB	0.48
				US 25 BR	SB	0.50
				US 25 BR	NB	0.48
				US 25 BR	SB	0.50
				US 25 BR	NB	0.48
				US 25 BR	SB	0.50

DISTRICT 9 (CONT)

High Accident Location	1966 Accidents		Route	Lane	Surface Type	Average Coefficient
	Total	Wet Surface				
	No.	Percent				
<u>Oakland County Cont.</u>						
US 10, Control Section 63051, Mile Post 2.251 to 2.580	28	11	39	US 10	NBOL	0.35
				US 10	NB #3	0.36
				US 10	NB #2	0.37
				US 10	NBIL	0.37
				US 10	SBOL	0.36
				US 10	SB #3	0.35
				US 10	SB #2	0.36
				US 10	SBIL	0.35
				US 10	NBOL	0.40
				US 10	NB #3	0.41
US 10, Control Section 63051, Mile Post 2.732 to 3.490	34	12	35	US 10	NB #2	0.41
				US 10	NBIL	0.42
				US 10	SBOL	0.34
				US 10	SB #3	0.34
				US 10	SB #2	0.34
				US 10	SBIL	0.34
				US 10	NBOL	0.37
				US 10	NB #3	0.37
				US 10	NB #2	0.38
				US 10	NBIL	0.36
US 10, Control Section 63051, Mile Post 3.621 to 3.685	40	14	35	US 10	SBOL	0.30
				US 10	SB #3	0.30
				US 10	SB #2	0.29
				US 10	SBIL	0.29
				US 10	NBOL	0.32
				US 10	NB #3	0.34
				US 10	NB #2	0.35
				US 10	NBIL	0.34
				US 10	SBOL	0.30
				US 10	SB #3	0.33
US 10, Control Section 63051, Mile Post 9.840 to 10.740	98	37	38	US 10	SB #2	0.29
				US 10	SBIL	0.34
				US 10	NBOL	0.32
				US 10	NB #3	0.34
				US 10	NB #2	0.35
				US 10	NBIL	0.34
				US 10	SBOL	0.30
				US 10	SB #3	0.33
				US 10	SB #2	0.29
				US 10	SBIL	0.34
US 10, Control Section 63051, Mile Post 0.000 to 0.264	29	10	34	US 10	NBOL	0.36
				US 10	NB #3	0.35
				US 10	NB #2	0.34
				US 10	NBIL	0.38
				US 10	SBOL	0.33
				US 10	SB #3	0.34
				US 10	SB #2	0.34
				US 10	SBIL	0.36
				US 10	NBOL	0.38
				US 10	NB #3	0.35
US 10, Control Section 63051, Mile Post 0.521 to 0.672	9	5	56	US 10	NB #2	0.37
				US 10	NBIL	0.37
				US 10	SBOL	0.34
				US 10	SB #3	0.34
				US 10	SB #2	0.36
				US 10	SBIL	0.36
				US 10	NBOL	0.37
				US 10	NB #3	0.34
				US 10	NB #2	0.35
				US 10	NBIL	0.39
US 10, Control Section 63051, Mile Post 1.250 to 1.530	34	11	32	US 10	SBOL	0.39
				US 10	SB #3	0.35
				US 10	SB #2	0.35
				US 10	SBIL	0.36
				US 10	NBOL	0.37
				US 10	NB #3	0.34
				US 10	NB #2	0.35
				US 10	NBIL	0.39
				US 10	SBOL	0.39
				US 10	SB #3	0.35

DISTRICT 9 (CONT)

TABLE 20 (Cont.)
HIGH-ACCIDENT LOCATIONS

High Accident Location	1966		Accidents Wet Surface	Route	Lane	Surface Type	Average Coefficient
	Total	Percent					
<u>Wayne County Cont.</u>							
US 24, Control Section 82052, Mile Post 4.060 to 4.180	40	16	40	US 24	NBOL	BC	0.37
				US 24	NBOL	BC	0.41
				US 24	NBOL	BC	0.41
				US 24	SBOL	CONC	0.37
				US 24	SBOL	CONC	0.38
				US 24	SBIL	CONC	0.40
US 24, Control Section 82052, Mile Post 7.620 to 7.870	24	9	33	US 24	NBOL	BC	0.43
				US 24	NB #3	BC	0.37
				US 24	NB #2	BC	0.41
				US 24	NBIL	BC	0.44
				US 24	SBOL	CONC	0.37
				US 24	SBOL	CONC	0.37
				US 24	SBIL	CONC	0.37
US 24, Control Section 82052, Mile Post 7.950 to 8.280	47	21	45	US 24	NBD	CONC	0.39
				US 24	NBOL	CONC	0.41
				US 24	NBOL	CONC	0.43
				US 24	NBIL	CONC	0.45
				US 24	SRD	CONC	0.40
				US 24	SBOL	CONC	0.36
				US 24	SECL	CONC	0.42
				US 24	SBIL	CONC	0.41
US 24, Control Section 82053, Mile Post 4.080 to 4.350	37	18	49	US 24	NBOL	BC	0.25
				US 24	NB #3	BC	0.26
				US 24	NB #2	BC	0.26
				US 24	NBIL	BC	0.25
				US 24	SBOL	CONC	0.37
				US 24	SBOL	CONC	0.38
				US 24	SBIL	CONC	0.37
US 24, Control Section 82053, Mile Post 4.360 to 4.770	62	18	29	US 24	NBOL	BC	0.40
				US 24	NB #3	BC	0.42
				US 24	NB #2	BC	0.43
				US 24	NBIL	BC	0.44
				US 24	SBOL	CONC	0.35
				US 24	SBOL	CONC	0.37
				US 24	SBIL	CONC	0.38
US 25** Control Section 82071, Mile Post 5.730 to 6.260	22	9	41	US 25**	NBOL	BC	0.34
				US 25**	NBIL	BC	0.36
				US 25**	SBOL	BC	0.38
				US 25**	SBIL	BC	0.35
US 25** Control Section 82071, Mile Post 6.340 to 6.990	64	21	33	US 25**	NBOL	BC	0.34
				US 25**	NBIL	BC	0.33
				US 25**	SBOL	BC	0.34
				US 25**	SBIL	BC	0.34
US 25** Control Section 82071, Mile Post 7.052 to 10.511	542	182	34	US 25**	NBOL	BC	0.34
				US 25**	NBIL	BC	0.33
				US 25**	SBOL	BC	0.34
				US 25**	SBIL	BC	0.35

**This roadway was abandoned from the trunkline system on February 9, 1967, but prior to that time carried US 25 traffic.

DISTRICT 10 (CONT)

High Accident Location	1966		Accidents Wet Surface	Route	Lane	Surface Type	Average Coefficient
	Total	Percent					
<u>St. Clair County Cont.</u>							
US 25 BR, Control Section 77032, Mile Post 0.548 to 1.175	21	9	43	US 25 BR	NBOL	BC	0.30
				US 25 BR	NBIL	BC	0.36
				US 25 BR	SBOL	BC	0.24
				US 25 BR	SBIL	BC	0.29
US 25 BR, Control Section 77032, Mile Post 1.200 to 2.000	25	9	36	US 25 BR	NBOL	BC	0.29
				US 25 BR	NBIL	BC	0.27
				US 25 BR	SBOL	SA	0.49
				US 25 BR	SBIL	SA	0.49
<u>Monroe County</u>							
US 24, Control Section 58052, Mile Post 8.730 to 8.800	19	12	63	US 24	NBOL	BC	0.17
				US 24	NBIL	BC	0.19
				US 24	SBOL	BC	0.23
				US 24	SBIL	BC	0.20
US 25, Control Section 58071, Mile Post 14.908 to 16.000	98	49	50	US 25	NBOL	BC	0.22
				US 25	NBIL	BC	0.23
				US 25	SBOL	BC	0.23
				US 25	SBIL	BC	0.22
<u>Wayne County</u>							
I 94, Control Section 82022, Mile Post 0.100 to 0.510	20	9	45	I 94	EBOL	CONC	0.40
				I 94	EBIL	CONC	0.35
				I 94	WBOL	BC	0.38
				I 94	WBIL	BC	0.40
I 94, Control Section 82022, Mile Post 0.700 to 0.720	12	8	67	I 94	EBOL	BC	0.37
				I 94	EBIL	BC	0.41
				I 94	WBOL	BC	0.38
				I 94	WBIL	BC	0.39
I 94, Control Section 82022, Mile Post 15.170 to 16.890	113	44	39	I 94	EBOL	BC	0.33
				I 94	EBOL	BC	0.34
				I 94	EBIL	BC	0.39
				I 94	WBOL	BC	0.36
				I 94	WBOL	BC	0.36
				I 94	WBIL	BC	0.37
I 94, Control Section 82022, Mile Post 16.902 to 17.050	24	11	46	I 94	EBOL	CONC	0.32
				I 94	EBOL	CONC	0.33
				I 94	EBIL	CONC	0.33
				I 94	WBOL	BC	0.34
				I 94	WBOL	BC	0.35
				I 94	WBIL	BC	0.37
US 24 - US 25, Control Section 82051, Mile Post 0.070 to 0.739	42	21	50	US 24-US 25	NBOL	BC	0.22
				US 24-US 25	NBIL	BC	0.22
				US 24-US 25	SBOL	BC	0.20
				US 24-US 25	SBIL	BC	0.24
US 24 - US 25, Control Section 82051, Mile Post 0.750 to 1.160	14	6	43	US 24-US 25	NBOL	BC	0.22
				US 24-US 25	NBIL	BC	0.24
				US 24-US 25	SBOL	BC	0.23
				US 24-US 25	SBIL	BC	0.26

DISTRICT 9 (CON)

DISTRICT 10

TABLE 20 (Cont.)
HIGH-ACCIDENT LOCATIONS

High Accident Location	1966 Accidents		Route	Lane	Surface Type	Average Coefficient	
	Total	Wet Surface					
		No.					Percent
Wayne County Cont.							
US 25** Control Section 82071, Mile Post 10.560 to 10.890	30	16	53	US 25** US 25** US 25** US 25**	NBOL NBIL SBOL SBIL	BC BC BC BC	0.45 0.48 0.45 0.45
M 14, Control Section 82101, Mile Post 7.000 to 7.030	11	4	36	M 14 M 14 M 14 M 14	EBOL EBIL WBOL WBIL	BC BC BC BC	0.38 0.32 0.37 0.34
M 14, Control Section 82101, Mile Post 7.270 to 7.540	16	7	44	M 14 M 14	EB WB	BC BC	0.35 0.34
M 14, Control Section 82101, Mile Post 7.600 to 10.640	434	153	35	M 14 M 14 M 14 M 14	EBOL EBIL WBOL WBIL	BC BC BC BC	0.38 0.36 0.41 0.37
M 14, Control Section 82101, Mile Post 11.090 to 11.420	82	26	32	M 14 M 14 M 14 M 14 M 14 M 14	EBOL EBCL EBIL WBOL WBCL WBIL	BC BC BC BC BC BC	0.32 0.31 0.30 0.34 0.32 0.31
M 14, Control Section 82101, Mile Post 11.440 to 12.370 and 12.460 to 13.550	235	94	40	M 14 M 14 M 14 M 14	EBOL EBIL WBOL WBIL	BC BC BC BC	0.32 0.32 0.34 0.32
M 102, Control Section 82142, Mile Post 0.680 to 1.680	52	26	50	M 102 M 102 M 102 M 102 M 102	EBOL EBCL EBIL WBOL WECL WBIL	BC BC BC BC BC BC	0.30 0.33 0.33 0.32 0.31 0.33
M 102, Control Section 82142, Mile Post 1.670 to 2.210	45	21	47	M 102 M 102 M 102 M 102 M 102	EBOL EBCL EBIL WBOL WECL WBIL	BC BC BC BC BC BC	0.31 0.32 0.33 0.33 0.33 0.32

DISTRICT 10 (CONT)

**This roadway was abandoned from the trunkline system on February 9, 1967, but prior to that time carried US 25 traffic.

Section 4
SPECIAL REQUEST TESTS

Table 21 -- Special Requests

During the course of the year, requests for skid tests are received from field personnel or through the Design, Maintenance, Traffic, or Testing and Research Divisions. These requests receive priority considerations during scheduling of skid tests, and friction levels are forwarded to the person or agency initiating the request as soon as possible after completion of field measurements. Table 21 contains skid test data resulting from the special requests received during 1967.

TABLE 21
1967 "SPECIAL REQUEST" SKID TEST RESULTS

Special Request No. *	Project No.	Location	Surface Type	Route	Direction and Lane	Coefficient of Wet Sliding Friction
1	Mb 66033C, C3	US 45, Rockland to Ontonagon	1965 BA	US 45	NB	0.53
			1965 BA	US 45	SB	0.48
			1965 K&S Treatment	US 45	NB	0.29
			1965 K&S Treatment	US 45	SB	0.26
			Old BA	US 45	NB	0.60
			Old BA	US 45	SB	0.60
1	Mb 31051-013	US 41 from the South Village Limits of Chassell north to 800 ft south of the Pilgrim River Bridge	BA	US 41	NB	0.22
			BA	US 41	SB	0.22
1	F 66022D, C7	M 28 from Bruce Crossing west	BA	M 28	EB	0.19
			BA	M 28	WB	0.20
2	----	US 223 from the Ohio State Line north 5.5 miles	K&S Treatment	US 223	NB	0.44
			K&S Treatment	US 223	SB	0.38
3	Mb 35011-003	M 65 from Whittemore City Limits south 4.48 miles to the Arenac-Iosco County Line	BA	M 65	NB	0.24
			BA	M 65	SB	0.33
3A	Mb 35011-003	M 65 from Whittemore City Limits south 4.48 miles to the Arenac-Iosco County Line	BA	M 65	NB	0.30
			BA	M 65	SB	0.32
4	Mm 75C-8B	I 96 BR from M 59 east 2.65 miles to Howell	NSST	I 96 BR	EBOL	0.22
			NSST	I 96 BR	EBIL	0.49
			NSST	I 96 BR	WBOL	0.27
			NSST	I 96 BR	WBIL	0.38
4	Mm 75C-8B	I 96 BR from Barnard St., in Howell, east 3.95 miles	NSST	I 96 BR	EBOL	0.21
			NSST	I 96 BR	EBIL	0.31
			NSST	I 96 BR	WBOL	0.15
			NSST	I 96 BR	WBIL	0.36
4A	----	I 96 BR from M 59 east 2.65 miles to Howell	K&S Treatment	I 96 BR	EBOL	0.45
			K&S Treatment	I 96 BR	EBIL	Not Tested
			K&S Treatment	I 96 BR	WBOL	0.48
			K&S Treatment	I 96 BR	WBIL	Not Tested
4A	----	I 96 BR from Barnard St., in Howell, east 3.95 miles	K&S Treatment	I 96 BR	EBOL	0.43
			K&S Treatment	I 96 BR	EBIL	Not Tested
			K&S Treatment	I 96 BR	WBOL	0.43
			K&S Treatment	I 96 BR	WBIL	Not Tested
5	----	US 23, Huron River Bridge, north of Ann Arbor	NSST	US 23	NBOL	0.57
			NSST	US 23	NBCL	0.58
			NSST	US 23	NBIL	0.60
			NSST	US 23	SBOL	0.61
			NSST	US 23	SBCL	0.59
			NSST	US 23	SBIL	0.58
5	Mb 58042-008	M 50, City of Monroe, between US 24 and US 25	SA	M 50	EB	0.52
			SA	M 50	WB	0.53
6	----	I 94 at Monroe Blvd	Temp CONC	I 94	EBOL	0.34
			Temp CONC	I 94	EBCL	0.40
			Temp CONC	I 94	EBIL	0.45
6	----	I 94 at Outer Drive	Temp CONC	I 94	WBOL	0.37
			Temp CONC	I 94	WBCL	0.44
			Temp CONC	I 94	WBIL	0.43
6A	----	I 94 at Monroe Blvd	Temp BC	I 94	EBOL	0.52
			Temp BC	I 94	EBCL	0.54
			Temp BC	I 94	EBIL	0.58
6A	----	I 94 at Outer Drive	Temp BC	I 94	WBOL	0.46
			Temp BC	I 94	WBCL	0.54
			Temp BC	I 94	WBIL	0.57

* Numbered in order requests received from Traffic Division and other sources.