

**SUMMARY REPORT ON SKID-CORRECTION PROGRAM
FOR HIGH-ACCIDENT INTERSECTIONS**

Objective No. 2 - Pavement Skid Resistance Investigation

**Investigation made in cooperation with the
Traffic and Design Divisions
with assistance of the
District Construction, Maintenance, and Traffic Engineers**

**Research Laboratory Division
Office of Testing and Research
Research Project 54 G-74
Report No. 362**

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**Michigan State Highway Department
John C. Mackie, Commissioner
July, 1961**

INTRODUCTION

This report presents a listing of 58 high accident trunkline intersections and locations by Districts where pavement slipperiness was considered a significant factor contributing to these accidents. Included is a description of width and type of existing surface, the type and amount of proposed surface treatment, drainage structures needing adjustment, and estimate of cost. In addition, a priority listing is presented for use in case the work is spread over a 2 year period. Fourteen of the projects will necessitate participation by a local unit of government.

In 1957, the Department authorized an extensive investigation concerning slippery pavements on the trunkline system. In November 1958, mission No. 2 of the main investigation was undertaken which consisted of a Statewide survey to determine the number and severity of critical accident sites, and considering only those cases where skid resistance of the pavement surface is determined to be a major factor, establish a surface correction program to include type of surface treatment, estimate of cost, and work priority.

To complete this assignment, first the Traffic Division determined at least ten of the highest accident areas in each District, based on 1959 accident records. Then friction level of the pavement at each critical accident area was determined by the Research Laboratory Division Skidometer. Armed with this information, a survey team field inspected each site to determine the extent and type of a recommended betterment program with the following basic rules:

1. A coefficient of friction of 0.4 separated an adequate surface from a deficient one with a coefficient of less than 0.4.
2. Those intersections with all lanes rated at 0.4 or higher were eliminated from further consideration.
3. Those intersections scheduled for operational betterment were also eliminated from further consideration.
4. No new construction was contemplated other than replacing in kind what already existed.
5. The entire pavement width at an intersection was to be resurfaced even though only one or two entering lanes registered deficient. This eliminated a grade differential at the centerline of the pavement when a bituminous overlay was proposed.

The survey included all Districts and covered a total of 165 high accident areas. In general, each location recommended for resurfacing includes the entire intersection area plus the approach lanes back from the intersection to a distance of approximately 200-500 feet. Further, the selection of locations to be treated has been correlated closely with the respective district construction program to avoid a duplication of work at any one intersection.

The survey team consisted of Mr. A. Phillipich of the Design Division and Mr. R. H. Merrill of the Research Laboratory Division, assisted in the field by District Traffic, Construction or Maintenance Engineers representing the respective Districts under study. The survey team was guided throughout its work by policies and criteria contained in Plan for Completion of Objective No. 2, dated October 13, 1960, minutes of the October 20, 1960 meeting of the Engi-

neering Advisory Committee for Bituminous Pavements, and Mr. John E. Meyer's letter dated October 31, 1960 to all Senior District Engineers.

A summary including type of treatment and estimate cost, prepared by Mr. A. Phillipich, was reviewed by the Engineering Advisory Committee for Bituminous Pavements and others on June 14 and subsequently on July 24, 1961, with the following recommendations:

1. That the sand sheet asphalt mix consist of 2NS Modified or 3BCS.
2. That 31A Leveling Course be used when leveling and wedging are necessary to correct for rutting, etc., to be covered by appropriate surface treatments as specified in Table 3.
3. That four selected locations in the Lansing area be treated with special treatments as follows:
 - a. The addition of a rubber additive to a slag sand (3BCS) asphalt treatment.
 - b. The addition of a rubber additive to a 2NS (Modified) sand asphalt treatment.
 - c. The addition of asbestos fibers to a 2NS (Modified) sand asphalt treatment.
 - d. The application of an epoxy resin coating with sharp aggregate cover.

Priority for Performing Work

A priority listing was prepared by the Traffic Division for use in case it was deemed necessary to complete the resurfacing program over a two-year period.

In establishing project priority, points were arbitrarily assigned to four factors, as indicated below, based on the 1959-1960 accident record and lowest coefficient of friction values. Location number one with 195 points (US 24 at Joy Road, Wayne County) is used as an example.

Location	Points
1 point per accident	81
2 points per accident on wet surface	43
1 point for each percent on wet surface	53
2 points for each .01 below .40 coefficient of friction value	18
Total Points	195

First and second priority listings, presented in Tables 4 and 5, are appended to the report.

TABLE 1
DETERMINATION OF PROJECTS REQUIRING TREATMENT

District	1	2	3	4	5	6	7	8	9	10	Total
Number of intersections skid tested	4	4	4	7	17	8	9	24	41	47	165
Number of intersections with all coefficients 0.4 or higher	4	0	3	4	14	0	0	10	18	10	63
Remaining intersections	0	4	1	3	3	8	9	14	23	37	102
Number of intersections deleted for various reasons*	0	1	0	1	1	4	2	1	15	21	46
Number of intersections to be surface treated	0	3	1	2	2	4	7	13	8	16	56
Short projects requested by local authorities and District Engineer	0	0	0	0	0	0	2	0	0	0	2
Total number of projects requiring surface treatment	0	3	1	2	2	4	9	13	8	16	58

* Reasons for deletions: (1) An operational betterment is proposed or was constructed within the past two years.
(2) A bituminous resurfacing project will be done thru the intersection this year.
(3) Only one lane is slightly deficient (i. e. , 0.39 or 0.38).

TABLE 2
SUMMARY OF ESTIMATED COST BY DISTRICTS

District	1	2	3	4	5	6	7	8	9	10	Total
Tons of Bituminous Material	0	456	188	296	363	671	2,028	1,516	1,131	4,276	10,925
S. Y. of Epoxy Resin Treatment	0	0	0	0	0	0	0	1,172	0	0	1,172
Total Cost of Projects	0	\$9,300	\$3,250	\$5,310	\$6,900	\$12,900	\$36,800	\$56,100	\$24,600	\$79,000	\$233,190

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 1

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
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No Projects Necessary

Notes:

1. The resurfacing treatment shall be, unless otherwise specified in Table 3, a sand sheet asphalt mix using 2NS Modified or 3BCS sand material.
2. 31A Leveling Course material will be used where specified in Table 3 to condition old surface prior to application of the sand-sheet asphalt mixture.

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 2

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
48042 48032	M 28 at M 117 (E. Jct.)	M 28 M 117	22' + 10' flares - Bit. ; 22' Bit. on gravel	Sand-asphalt mix at 70#/syd.	Yes 1 Mon. box	\$ 2,760
49021 49022 49031	US 2 at M 117	US 2 M 117	22' + 10' flares - Bit. ; 20' Bit. on gravel	Sand-asphalt mix at 70#/syd.	Yes 1 Mon. box	\$ 2,730
49023	US 2 at Martin Rd.	US 2	24' + 10' flares; Bit. over Conc. and gravel	Sand-asphalt mix at 70#/syd.	No	\$ 2,810
				TOTAL 456 Tons		\$ 8,300

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 3

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
51011	US 31 at M 55	US 31	22' + 8' flares - Bit. over Conc. ;	Sand-asphalt mix at 70#/syd.	No	\$ 3,280
51012		M 55	22' Bit. on gravel			
51021						
				TOTAL 188 Tons		\$ 3,280

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 4

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
*24011	US 31 at Division Road (Petoskey)	US 31	36' Bit. over conc. Div. Rd. - 16', 26' Bit. over gravel	Sand-asphalt mix at 70#/syd.	No	\$ 2,830
72023 72091	M 55 at M 76 (W Jct.)	M 55 M 76	22' Bit. on gravel; 22' Bit. on gravel	Sand-asphalt mix at 70#/syd.	No	\$ 2,480
				TOTAL 296 Tons		\$ 5,310

* Requires participation by Emmet Co.

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 5

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
33034	US 27 at Sheridan Road North Lansing	US 27	US 27 - 46' bit. on conc. Sheridan Rd. 20' bit. on Gr. West - 20' Gr. east	Sand-asphalt mix at 70#/syd.	No	\$ 3,440
61032 61072	US 31 at US 31 BR Muskegon	US 31 US 31 BR	22', 54' Bit. on Conc. ; 40' 54' Bit. on Conc.	Sand-asphalt mix at 70#/syd.	Yes 2 Ea.	\$ 3,460
TOTAL 363 Tons						\$ 6,900

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 6

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
*09033	US 23 at Linwood Road	US 23	2 @ 24' + 10' decel. lane; Bit. on Conc. ; Linwood Rd. - 22' Bit.	Sand-asphalt mix at 70#/syd. over 31A Leveling Course at 100#/syd.	Yes 1 Ea.	\$ 4,800
**09032	M 13 at North St. (E) Wilder Rd. (W)	M 13	M 13 2 @ 22' Conc. North St. - 22' Conc. Wilder Rd - 22' Sealon gravel	Sand-asphalt mix at 70#/syd.	Yes 1 Ea.	\$ 2,000
09042 09032	M 13 at Jenny St. (WB)	M 13	M 13; 60' Bit. on Conc. Jenny St. - 36' Conc.	Sand-asphalt mix at 70#/syd.	Yes 5 Ea.	\$ 3,200
09042 09032	M 13 at Thomas St. (EB)	M 13	M 13; 60' Bit. on Conc. Thomas St. - 36' Conc.	Sand-asphalt mix at 70#/syd.	Yes 10 Ea.	\$ 2,900
TOTAL 671 Tons						\$12,900

* Traffic Div. to place an oversize signal here in 1961 and delay proposed Operational Betterment.

** Accidents have decreased here from 38 in 1959 to 16 in 1960 as a result of different signal. Could delay this job.

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 7

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
*11012	US 12 BR (Loop I 94) at Glenlord Ave. S of Shoreham	US 12 BR	US 12 BR - 40' Bit. on Conc. Glenlord - 20', 22' Bit.	Sand-asphalt mix at 70#/syd.	Yes 1 Ea.	\$ 3,870
11051	US 31, US 33 at Fulkerson Road S of Niles	US 31 US 33	US 31 & 33 - 40' Conc. Fulkerson - 30', 36' Bit. on Conc.	Sand-asphalt mix at 70#/syd.	Yes 6 Ea.	\$ 3,340
**13031	US 12 BR, M 78 at Columbia Rd. S of Battle Creek	US 12 BR M 78	US 12 BR, M 78 - 40', 44', Bit. on Conc. Columbia Rd. - 22' Bit.	Sand-asphalt mix at 70#/syd. over 31A Leveling Course at 100#/syd.	Yes 2 Ea.	\$ 6,540
**13031	US 31 BR, M 78 at Territorial Rd. S of Battle Creek	US 12 BR M 78	US 12 BR, M 78 - 42' Bit. on Conc. Territorial - 34', 38' Bit.	Sand-asphalt mix at 70#/syd. over 31A Leveling Course at 100#/syd.	Yes 11 Ea.	\$ 7,300
78021 78022 78012 78031	US 112 at US 131 W of White Pigeon	US 112 US 131	20', 22' + flares, Bit. over Conc. 20', 24' + flares, Bit. over Conc.	Sand-asphalt mix at 70#/syd.	No	\$ 4,380
78042	US 131 at M 60 (N Jct.) W of Three Rivers	US 131 M 60	2 @ 22' Conc., 22' Conc.	Sand-asphalt mix at 70#/syd.	No	\$ 770
80011 ⁽¹⁾	US 31 at Co. Rd. #388 E of S Haven	US 31	US 31 - 2 @ 22' Conc., Co. Rd. 388 - 34' Conc. E., 30' Bit. W	Sand-asphalt mix at 70#/syd.	Yes 2 Ea.	\$ 2,070
***39082	M 43 (Gull Rd.) at Humphrey St. in Kalamazoo (460')	M 43	48' Curbed, Bit.	Sand-asphalt mix at 70#/syd.	Yes 6 Ea.	\$ 1,930
***39082	M 43 (West Main) near cemetery in Kalamazoo (2160')	M 43	40' Curbed, Bit.	Sand-asphalt mix at 70#/syd.	Yes 12 Ea.	\$ 6,600
TOTAL 2,028 Tons						\$36,800

* Requires participation by Berrien County

** Requires participation by Calhoun County

*** Requested by L. J. Doyle of Traffic Div. on recommendation of Kalamazoo Police Dept.

(1) Requires participation by Van Buren Co. and South Haven

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 8

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
33062	M 43 at Clippert St. , Lansing	M 43	M 43 - EB 30' Bit. , WB 32' Bit. Clippert - 36', 40' Bit.	Base correction plus sand-asphalt mix at 70#/syd.	Yes 12 Ea.	\$10,000
33062	M 43 at Homer St. , Lansing	M 43	M 43 - EB 30' Bit. , WB 32' Bit. Homer - 30' Bit.	Sand-asphalt mix at 70#/syd.	Yes 2 Ea.	\$ 1,500
33062 ⁽¹⁾	M 43 at Harrison Road, East	M 43	M 43 - EB 30' Bit. , WB 32' Bit. Harrison - 40', 41' Bit.	Sand-asphalt mix at 70#/syd.	Yes 16 Ea.	\$ 5,800
**33082	US 16 at Abbott Road, East Lansing	US 16	US 16 - EB 28', 39' Bit. , WB 34', 36' Bit. ; Abbott - 41' Bit. 2 at 24' Bit.	EB - Spec. Mix No. 3; WB - Sand-asphalt mix; both at 70#/syd	Yes 13 Ea.	\$ 6,100
**33082	US 16 at MAC Ave. , East Lansing	US 16	US 16 EB - 29' Bit. WB - 28' Bit. MAC 46' Bit.	EB - Sand-asphalt mix; WB - Spec. Mix No. 2; both at 70#/syd.	Yes 7 Ea.	\$ 4,300
**33082	US 16 at Haslett St. , East Lansing	US 16	US 16 EB - 29' Bit. , WB - 28' Bit. , Haslett - 27', 36' Bit.	EB - Spec. Mix No. 4; WB - Sand-asphalt mix; both at 70#/syd.	Yes 5 Ea.	\$ 6,600
*						
**33082	US 16 at Hagadorn Rd. , East Lansing	US 16	US 16 - 42' Bit. , Hagadorn 27', 33' Bit.	EB - Sand-asphalt mix, WB - Spec. Mix No. 1, both at 70#/syd. ; plus 31A LC at 100#/syd.	Yes 3 Ea.	\$ 6,700
33043 33082	US 16 at M 78, East Lansing	US 16 M 78	26' Bit. , 29' Bit.	Sand-asphalt mix at 70#/syd.	Yes 4 Ea.	\$ 1,800
33081	US 16, M 78 (WB) at Clippert St. , Lansing	US 16 M 78	42' Bit.	Sand-asphalt mix at 70#/syd.	Yes 5 Ea.	\$ 1,800
33081	US 16, M 78 (WB) at Foster St. , Lansing	US 16 M 78	42' Bit.	Sand-asphalt mix at 70#/syd.	No	\$ 1,700
33042	US 16, M 78 (EB) at Clippert St. , Lansing	US 16 M 78	44' Bit.	Sand-asphalt mix at 70#/syd.	Yes 6 Ea.	\$ 2,600
33061	M 43 at Waverly Road	M 43	M 43 - 44' Conc. + 11' Bit. R.T. lane E. , Waverly - 44' Bit.	Sand-asphalt mix at 70#/syd.	Yes 5 Ea.	\$ 2,300

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 8 (con't)

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
33032	US 127 at Miller Rd.	US 127	US 127 - 48' Bit. + 12' accel. lane; Miller Rd. - 22' Bit.	Sand-asphalt mix at 70#/syd.	Yes 1 Ea.	\$ 4,900
TOTAL 1,516 Tons						\$56,100

- * Pavement scored with tennant machine March, April 1961.
- ** Experimental mixes.
- (1) Require participation by local units.

Special Research Mixtures:

Special Mix No. 1 - Slag sand (3BCS) sheet asphalt plus addition of a rubber compound at 70#/syd.

Special Mix No. 2 - Sand (2NS Mod.) sheet asphalt plus addition of a rubber compound at 70#/syd.

Special Mix No. 3 - Sand sheet asphalt mix plus addition of asbestos fiber at 70#/syd. Either 2NS Mod. or 3BCS depending on control mix.

Special Mix No. 4 - Epoxy resin binder plus grit.

Control Mix:

This will consist of sand (2NS or 3BCS) sheet asphalt mix used by the Contractor on balance of resurfacing work.

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 9

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
50051	US 25 at M 59 (Hall Rd.)	US 25 M 59	Div'd. NB 20' Conc. , SB 24' Bit. 44' Bit.	Sand-asphalt mix at 70#/syd.	Yes 1 Ea.	\$ 1,600
50051	US 25 at M 29 (S. Jct.)	US 25 M 29	Div'd. NB 20' Conc. , SB 36' Bit. 24' Conc.	Sand-asphalt mix at 70#/syd.	Yes 3 Ea.	\$ 3,100
50052 50091	US 25 at M 19	US 25 M 19	30', 42' Bit. , 22' + 11' Flares Bit.	Sand-asphalt mix at 70#/syd.	Yes 10 Ea.	\$ 3,700
*63041	M 59 at Elizabeth Lake Rd.	M 59	M 59 - 44', 46' Bit. Eliz. Lk. Rd. - 22' + 12' flares Conc.	Sand-asphalt mix at 70#/syd.	Yes 7 Ea.	\$ 3,700
63053	US 10 at Sashabaw Rd.	US 10	44' Bit.	Sand-asphalt mix at 70#/syd.	Yes 5 Ea.	\$ 3,300
*63052	M 58, M 24 at Franklin Rd.	M 58 M 24	M 58, M 24 - 36' Conc. , Franklin - 22' Bit.	Sand-asphalt mix at 70#/syd.	Yes 1 Ea.	\$ 2,500
*63031	US 24 at Franklin Road	US 24	US 24 - 40', 44' Bit. , Franklin - 22' Bit.	Sand-asphalt mix at 70#/syd.	No	\$ 3,100
63052	M 58 at Miracle Mile Shopping Center	M 58	44' + 11' decel. lane Bit.	Sand-asphalt mix at 70#/syd.	No	\$ 3,600
TOTAL 1,131 Tons						\$24,600

* Require participation by county, city, or village.

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 10

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
58053	US 24 at US 25 (S Jct.)	US 24 US 25	US 24 - 42' Bit.; US 25 - 40' Bit.; US 24 & US 25 - 40' Bit.	31A Leveling Course at 100#/syd. + sand- asphalt mix at 70#/syd.	No	\$11,000
82053	US 24 (NB) at 5 Mi. Rd.	US 24	US 24 (NB) 40' Bit.; 5 Mi. Rd. - 40' Bit. Conc.	31A Leveling Course at 100#/syd. + sand- asphalt mix at 70#/syd.	Yes 1 Ea.	\$ 3,300
82053	US 24 (NB) at W Chicago Blvd.	US 24	US 24 (NB) - 53' Old 43' Bit. + new. 10' Bit. turning lane	31A Leveling Course at 100#/syd. + sand- asphalt mix at 70#/syd.	Yes 1 Ea.	\$ 4,700
82053	US 24 (NB) at Joy Road	US 24	US 24 (NB) 44' Bit.	31A Leveling Course at 100#/syd. + sand- asphalt mix at 70#/syd.	Yes 2 Ea.	\$ 4,800
82052	US 24 (SB) at M 17 (N. Jct.) (Ames Rd.)	US 24	US 24 (SB) 24' Bit.	31A Leveling Course at 100#/syd. + sand- asphalt mix at 70#/syd.	No	\$ 1,200
82052	US 24 at Cypress St.	US 24	US 24 (NB) 24' + 11' flare Bit.; (SB) 24' + 11' flare Bit.	31A Leveling Course at 100#/syd. + sand- asphalt mix at 70#/syd.	Yes 1 Ea.	\$ 5,700
82052	US 24 at Wick Road	US 24	US 24 - 40' Bit.	31A Leveling Course at 100#/syd. + sand- asphalt mix at 70#/syd.	Yes 1 Sec. Cor.	\$ 5,700
82052	US 24 at Goddard Road	US 24	US 24 - 40' Bit.	31A Leveling Course at 100#/syd. + sand- asphalt mix at 70#/syd.	Yes 1 Sec. Cor.	\$ 6,300
82052	US 24 at Northline Road	US 24	US 24 - 40' Bit.	31A Leveling Course at 100#/syd. + sand- asphalt mix at 70#/syd.	Yes 1 Sec. Cor.	\$ 7,000
82053	US 24 (NB) at Richardson St.	US 24	US 24 (NB) 40' Bit.	Sand-asphalt mix at 70#/ syd.	Yes 2 Ea.	\$ 2,000
*82121	US 16 at Inkster Road	US 16	US 16 (WB) 40' Bit., (EB) 40' Bit.; Inkster - 40', 42', 21' Bit.	31A Leveling Course at 100#/syd. + sand- asphalt mix at 70#/syd.	Yes 4 Ea.	\$10,200

TABLE 3
INTERSECTIONS RECOMMENDED FOR TREATMENT

DISTRICT 10 (con't)

Control Section	Intersection	Trunk-line	Width and Type of Surfacing	Proposed Treatment	Adjust. Drainage Structures	Estimated Cost
82121	US 16 at Poinciana St.	US 16	US 16 (WB) 40' Bit. , (EB) 40' Bit.	Sand-asphalt mix at 70#/syd.	Yes 4 Ea.	\$ 3,300
82121	US 16 at Beech-Daly Road	US 16	US 16 (WB) 40' Bit. , (EB) 40' Bit. ; Beech-Daly - 40' Conc. (S), 22' Bit. (N)	31A Leveling Course at 100#/syd. + sand-asphalt mix at 70#/syd.	Yes 5 Ea.	\$ 7,200
*82141	M 102 at Inkster Rd.	M 102	M 102 (WB) 48' Bit. , (EB) 48' Bit. ; Inkster - 20', 21' Bit.	Sand-asphalt mix at 70#/syd.	No	\$ 1,200
*82141	M 102 at Beech-Daly Rd.	M 102	M 102 (WB) 48' Bit. , (EB) 52' Bit. ; B-D Rd. - 21' + 11', 23' tapers Bit.	Sand-asphalt mix at 70#/syd.	Yes 4 Ea.	\$ 2,300
*82041	M 17 at Pelham Rd.	M 17	M 17 - 40' Bit. , Pelham N - 48' Bit. & Conc. ; Pelham S - 20' + 10' flares Bit.	Sand-asphalt mix at 70#/syd.	Yes 5 Ea.	\$ 3,100
TOTAL 4,276 Tons						\$79,000

* Require participation by local units.

TABLE 4
FIRST PRIORITY LIST

Rank	District	Location	1959 & 1960 Accident Record	Lowest Average Coefficient T. L. Lanes	Rank by Total Points
1	10	US 24 at Joy Road, Wayne County	81	.31	195
2	8	US 16 at Abbott Road, East Lansing, Ingham County	59	.20	183
3	10	US 24 at M 17 (N. Jct. Ames), Wayne County	63	.26	158
4	5	US 31 at US 31 BR (N. Jct.) Muskegon County	64	.28	155
5	10	US 24 at US 25 (S. Jct.), Monroe County	23	.25	155
6	6	US 23 at Linwood Road, Bay County	39	.23	148
7	7	M 43 (Gull Road) at Humphrey Street, Kalamazoo, Kalamazoo County	20	.21	148
8	8	M 43 at Harrison Road, East Lansing, Ingham County	47	.25	146
9	6	M 13 at North Street (Wilder Road), Bay County	54	.33	145
10	10	US 24 at Cypress Street, Wayne County	48	.27	142
11	8	US 16 at Haslett Street, East Lansing, Ingham County	32	.20	142
12	10	US 16 at Beech Dailey, Wayne County	57	.33	129
13	8	US 16 at MAC Avenue, East Lansing, Ingham County	33	.27	124
14	7	M 43 (W. Main) at Grand Street, Kalamazoo, Kalamazoo County	20	.24	124
15	8	US 16 & M 78 at Foster Street (W.B.) Lansing, Ingham County	19	.22	124
16	10	US 24 at 5 Mile Road (Fenkell), Wayne County	60	.33	122
17	8	US 16 at Hagadorn Road, East Lansing, Ingham County	49	.30	121
18	6	M 13 at M 15, M 25 (W. B.) Jenny Street, Bay County	24	.25	121
19	10	US 16 at Inkster Road, Wayne County	35	.27	119
20	9	M 58, M 24 at Franklin Road, Oakland County	37	.38	115
21	10	US 24 at W. Chicago Boulevard, Wayne Co.	48	.30	114
22	6	M 13 at M 15, M 25 (Thomas Street), Bay County	39	.27	106
23	8	M 43 at Clippert Street, Lansing, Ingham County	40	.32	105
24	10	US 24 at Northline Road, Wayne County	36	.28	105
25	9	US 25 at M 59 (Hall), Macomb County	43	.26	104
26	7	US 12 BR, M 78 at Columbia Road, Battle Creek, Calhoun County	19	.26	103
27	8	US 16, M 78 (E. B.) at Clippert Street, Lansing, Ingham County	24	.38	100
28	7	US 12 BR, M 78 at Territorial Road, Battle Creek, Calhoun County	14	.22	99
29	10	US 16 at Poinciana Street, Wayne County	8	.35	99

TABLE 5
SECOND PRIORITY LIST

Rank	District	Location	1959 & 1960 Accident Record	Lowest Average Coefficient T. L. Lanes	Rank by Total Points
30	9	US 25 at M 19 & Vicinity, Macomb County	29	.26	97
31	9	M 59 at Elizabeth Lake Road, Oakland County	39	.39	95
32	10	M 17 at Pelham Road, Wayne County	40	.38	94
33	9	US 25 at M 29 (S. Jct.), Macomb County	25	.26	93
34	9	US 10 at Sashabaw Road, Oakland County	20	.34	92
35	7	US 12 BR (Loop I 94) at Glenlord St. south of Shoreham, Berrien County	14	.22	91
36	10	US 24 at Goddard Road, Wayne County	43	.37	89
37	10	US 24 at Richardson Street, Wayne County	12	.34	89
38	7	US 112 at US 131 west of White Pigeon, St. Joseph County	18	.25	87
39	9	M 58 at Miracle Mile Shopping Center, Oakland County, Entrances & Exits	37	.38	85
40	2	US 2 at M 117, Mackinaw County	3	.34	84
41	10	US 24 at Wick Road, Wayne County	34	.37	83
42	10	M 102 at Inkster Road, Wayne County	11	.40	82
43	8	M 43 at Waverly Road, Ingham County	39	.35	74
44	3	US 31 at M 55, Manistee County	10	.37	71
45	10	M 102 at Beech Daly Road, Wayne County	36	.36	70
46	8	US 127 at Miller Road, Ingham County	15	.38	65
47	8	M 43 at Homer Street, Lansing, Ingham County	2	.34	65
48	7	US 31, US 33 at Fulkerson Road south of Niles, Berrien County	24	.35	60
49	9	US 24 at Franklin Road, Oakland County	27	.36	59
50	7	US 131 at M 60 (N. Jct.) west of Three Rivers, St. Joseph County	29	.39	58
51	7	US 31 at Co. Rd. #388 E. of South Haven, Van Buren County	34	.39	56
52	5	US 27 at Sheridan Road, Clinton County	18	.38	53
53	8	US 16 at M 78, Lansing, Ingham County	14	.39	49
54	4	M 55 at M 76 (W. Jct.) east of Prudenville, Roscommon County	12	.36	48
55	8	US 16 & M 78 (W.B.) at Clippert Street, Lansing, Ingham County	17	.39	40
56	2	M 28 at M 117 (W. Jct.), Luce County	7	.28	31
57	4	US 31, M 131 at Division Road east of Petoskey, Emmet County	9	.34	21
58	2	US 2 at Martin Road	0	.37	6