A CONTINUING SKID RESISTANCE INVENTORY

1972

Research Project 69

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Idaho Department of Highways
Boise, Idaho

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by

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Skid Test Program 1972

Introduction

During the summer and fall of 1971, skid resistance measurements were made on highways of the State Highway System. Testing was done with the locked wheel trailer purchased in 1970 using Highway Department and National Highway Traffic Safety Commission funds as part of a Highway Safety Project. One requirement of the safety project was that the Highway Department continue to maintain an inventory of skid resistance measurements on the highway system.

Objectives

In keeping with the terms of the safety project agreement, the Department tested nearly all highway sections receiving new surfaces since the original skid test inventory was made in 1971.

The objectives of this year's testing were to:

1. Up date the skid resistance inventory of all State highways by testing those sections receiving a new surface, either by maintenance or construction since the 1971 inventory.
2. Test specific locations requested by the Districts to recheck previous tests at high frequency accident locations and special test sections such as where Reclamite had been applied.

Procedure

The District Engineers were asked to furnish a listing of highway sections which had received a new surface since the 1971 skid test inventory,

or areas the District desired skid test information for other reasons, i.e. accidents or fog sealed surfaces.

The testing was done in the same manner as during the initial inventory. In most instances tests were made at each milepost with additional tests in areas requiring better definition, such as bleeding pavements or seal coats having lost chips and fog sealed pavements.

Late in the 1972 construction season the Districts submitted a list of projects or sections which had been resurfaced or completed during this past season. The skid test unit completed all but District Two and very short sections in other Districts. A mishap which damaged the brakes on the trailer prevented District Two pavements being tested before cold weather made it impossible to conduct skid tests.

During 1972, there were approximately 2,340 skid tests made on nearly 1,200 miles of the Idaho highway system. Except for sections which were visibly of low skid resistance, tests were made at mileposts.

The results were entered into computer disk storage for availability. All data was tabulated in a printout in the same form as the data for the 1971 inventory, including a frequency-distribution table,by District, for each highway route, i.e. I-15, US-93, etc.

A new computer program was developed which plots all skid resistance values made on twelve-mile highway sections on one sheet, distinguishing each test series by a numerical plot, i.e. the plotted point is a number representing the date of test in chronological order. This program also tabulates the date of each test series making it possible to follow the

skid resistance change of the surface over a period of time. Only those sections having a skid test value less than 35 were plotted. It is possible to select a value other than 35 for selection of sections to be plotted. This plot furnishes the District Engineers a quick, simple visual comparison of the skid resistance values at a given section for different test runs. The Appendix contains a sample plot showing two test runs, and the computer printout sheets containing the test data of the plotted graph. It is noted by arrows that at one location the skid number was improved by the new surface, while at another location the skid number was reduced.

Test results indicate that in most instances a seal coat over a slippery pavement provides the correction desired. However, there were several seal coat projects where the skid number after sealing was less than during the 1971 inventory due to bleeding or the loss of chips.

The skid test data was furnished the District and to Traffic Accident Records.

Conclusions and Recommendations

A regular inventory of skid resistance every two or three years is desirable. A skid resistance testing program should include the testing of new surfaces soon after they are completed. This will establish a base from which to monitor any deterioration of skid resistance with time. The inventory will be of value to the District Engineer and/or the District Maintenance Engineer in developing corrective programs as the skid resistance approaches the slippery stage.

Skid test data should be made available to the Districts soon after the tests have been completed to give them an opportunity to take corrective action during the same season if necessary.

The computer plot of the test data is effective in comparing before and after resurfacing skid numbers.

APPENDIX

DISTRICT 4 — DISK LIST SKID DATA — 12/ 1/71

DIST	DATE TEST	SURF TYPE	TEST SEC.	HWY	BEG. M.P.	END M.P.	SPEED	TEMP	ROUTE CODE	CONST DATE	LANE	ODO-METER	M.P. TEST	SKID NO.	REMARKS.
4	71471	5	1	SH03	312.300	315.500	40	70	310A	069	5	941	313.000	51	CURVE
4	71471	5	1	SH03	312.300	315.500	40	70	310A	069	5	951	314.000	43	CURVE
4	71471	5	1	SH03	312.300	315.500	40	70	310A	069	4	503	314.000	44	CURVE
4	71471	5	1	SH03	312.300	315.500	40	70	310A	069	4	493	315.000	39	CURVE
4	71471	5	1	SH03	312.300	315.500	40	70	310A	069	5	960	315.000	63	CURVE
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	482	316.000	57	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	272	316.000	64	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	282	317.000	63	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	472	317.000	55	CURVE
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	461	318.000	59	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	293	318.000	66	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	451	319.000	53	CURVE
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	303	319.000	53	CURVE
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	441	320.000	57	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	14	320.000	59	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	431	321.000	58	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	24	321.000	58	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	420	322.000	61	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	35	322.000	59	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	410	323.000	56	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	45	323.000	65	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	399	324.000	44	
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	5	66	325.000	67	CURVE
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	4	389	325.000	42	CURVE
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	4	381	326.000	57	
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	5	77	326.000	63	
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	5	87	327.000	42	CURVE
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	4	359	327.000	30	
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	364	328.000	28	
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	352	329.000	44	CURVE
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	345	334.000	43	CURVE
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	335	335.000	59	
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	325	336.000	60	CURVE
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	315	337.000	69	CURVE
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	5	152	338.000	63	
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	305	338.000	62	CURVE
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	295	339.000	62	
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	5	162	339.000	68	
4	71471	5	5	SH03	339.800	342.200	40	70	310A	053	5	172	340.000	72	
4	71471	5	5	SH03	339.800	342.200	40	70	310A	053	4	275	341.000	70	
4	71471	5	5	SH03	339.800	342.200	40	70	310A	053	5	182	342.000	73	
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	5	202	342.000	53	CURVE
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	4	256	343.000	63	
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	4	244	344.000	52	
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	5	212	344.000	61	CURVE
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	5	223	345.000	67	CURVE
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	4	234	345.000	54	CURVE
4	71471	5	7	SH03	345.400	348.900	40	70	310A	058	5	233	346.000	72	CURVE
4	71471	5	7	SH03	345.400	348.900	40	70	310A	058	4	214	347.000	61	PLTMXCURVE
4	71471	5	7	SH03	345.400	348.900	40	70	310A	058	5	243	347.000	64	
4	71471	5	7	SH03	345.400	348.900	40	70	310A	058	4	204	348.000	59	PLTMX
4	71471	5	7	SH03	345.400	348.900	40	70	310A	058	5	253	348.000	65	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	4	672	382.000	63	CURVE
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	5	390	383.000	71	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	5	400	384.000	71	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	5	431	385.000	61	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	4	642	385.000	65	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	5	462	388.000	67	

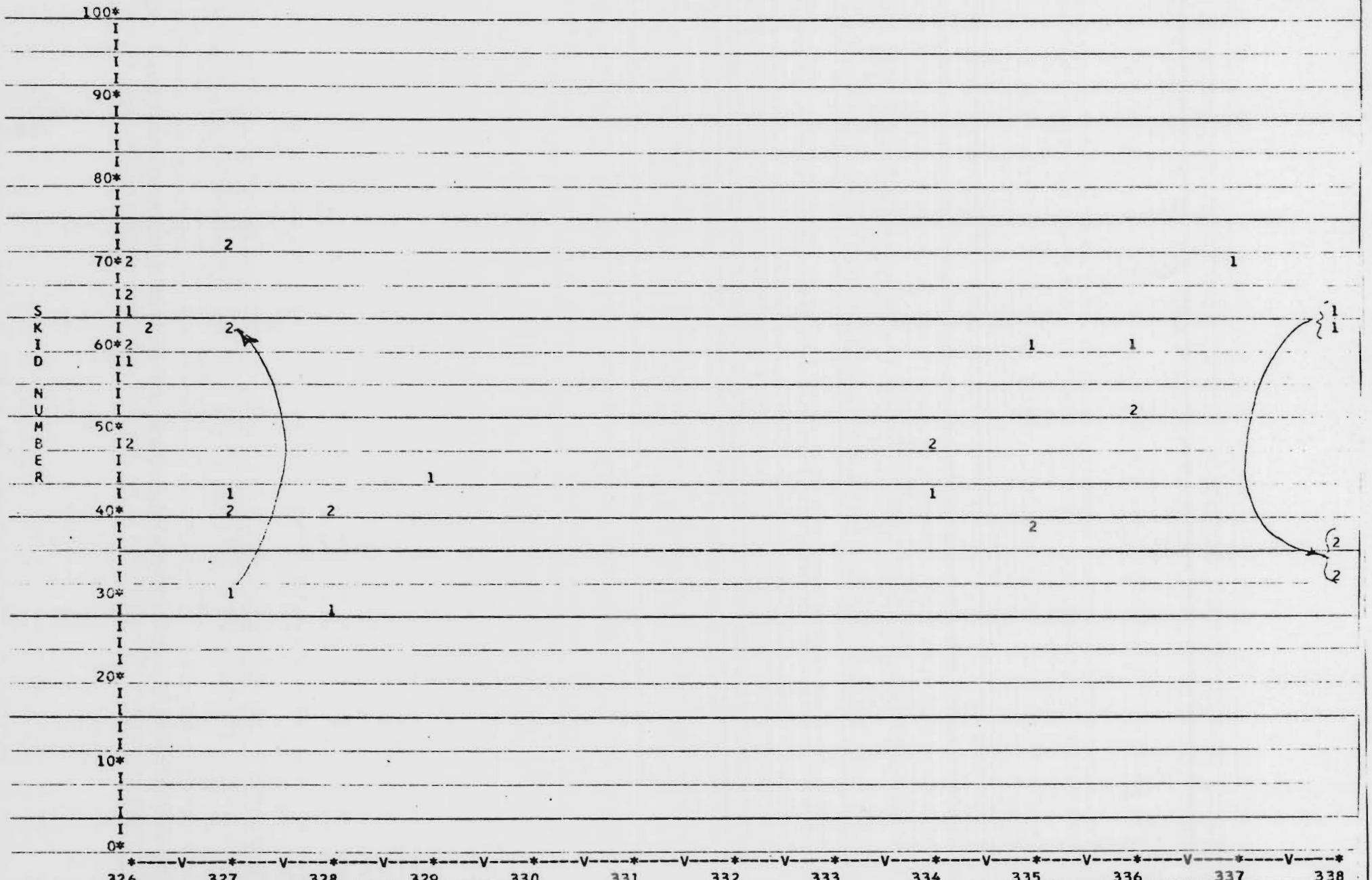
Figure 1

DISTRICT 4 — DISK LIST SKID DATA — 12/ 1/71

DIST	DATE TEST	SURF TYPE	TEST SEC.	HWY	BEG. M.P.	END M.P.	SPEED	TEMP	ROUTE CODE	CONST DATE	LANE	000-METER	M.P. TEST	SKID NO.	REMARKS.
4	71471	5	1	SH03	312.300	315.500	40	70	310A	069	5	941	313.000	51	CURVE
4	71471	5	1	SH03	312.200	315.500	40	70	310A	069	5	951	314.000	43	CURVE
4	71471	5	1	SH03	312.300	315.500	40	70	310A	069	4	503	314.000	44	CURVE
4	71471	5	1	SH03	312.300	315.500	40	70	310A	069	4	493	315.000	39	CURVE
4	71471	5	1	SH03	312.300	315.500	40	70	310A	069	5	950	315.000	63	CURVE
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	482	316.000	57	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	272	316.000	64	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	292	317.000	63	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	472	317.000	55	CURVE
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	461	318.000	59	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	233	318.000	64	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	451	319.000	53	CURVE
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	303	319.000	53	CURVE
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	441	320.000	57	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	14	320.000	59	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	431	321.000	59	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	24	321.000	58	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	420	322.000	61	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	35	322.000	59	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	410	323.000	56	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	5	45	323.000	65	
4	71471	5	2	SH03	315.500	324.200	40	70	310A	056	4	399	324.000	44	
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	5	66	325.000	67	CURVE
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	4	389	325.000	42	CURVE
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	4	381	326.000	57	
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	5	77	326.000	63	
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	5	87	327.000	42	CURVE
4	71471	5	3	SH03	324.200	327.100	40	70	310A	063	4	352	327.000	30	
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	364	328.000	28	
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	352	329.000	44	CURVE
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	345	334.000	43	CURVE
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	335	335.000	59	
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	325	336.000	60	CURVE
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	315	337.000	69	CURVE
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	5	152	338.000	63	
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	305	338.000	62	CURVE
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	4	295	339.000	62	
4	71471	5	4	SH03	327.100	339.800	40	70	310A	055	5	142	339.000	68	
4	71471	5	5	SH03	339.800	342.200	40	70	310A	053	5	172	340.000	72	
4	71471	5	5	SH03	339.800	342.200	40	70	310A	053	4	275	341.000	70	
4	71471	5	5	SH03	339.800	342.200	40	70	310A	053	5	182	342.000	73	
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	5	202	343.000	53	CURVE
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	4	256	343.000	63	
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	4	244	344.000	52	
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	5	212	344.000	61	CURVE
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	5	223	345.000	67	CURVE
4	71471	5	6	SH03	342.200	345.400	40	70	310A	055	4	234	345.000	54	CURVE
4	71471	5	7	SH03	345.400	348.900	40	70	310A	058	5	233	346.000	72	CURVE
4	71471	5	7	SH03	345.400	348.900	40	70	310A	058	4	214	347.000	61	PLTMX CURVE
4	71471	5	7	SH03	345.400	348.900	40	70	310A	058	5	243	347.000	64	
4	71471	5	7	SH03	345.400	348.900	40	70	310A	058	4	204	348.000	59	PLTMX
4	71471	5	7	SH03	345.400	348.900	40	70	310A	058	5	253	348.000	65	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	4	672	382.000	63	CURVE
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	5	390	383.000	71	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	5	400	384.000	71	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	5	431	385.000	61	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	4	642	385.000	65	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	5	462	388.000	67	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	4	611	389.000	61	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	4	608	389.000	31	
4	71471	5	1	SH03	380.000	395.000	40	70	310B	058	5	475	390.000	55	CURVE

Figure 2

DISTRICT 4 ROUTE 0310



NOTE: FIGURES IN BODY OF GRAPH INDICATE WHICH TEST RUN VALUES REPRESENT