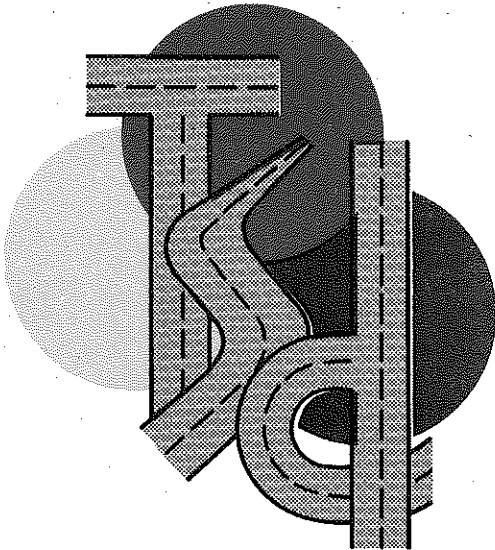


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1973 ACCIDENT PROFILES
FOR THE STATE HIGHWAY SYSTEM

T.S.D. 256-74



**TRAFFIC and
SAFETY
DIVISION**

**TRANSPORTATION LIBRARY
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TRANSPORTATION LANSING, MICH.**

**MICHIGAN DEPARTMENT OF STATE HIGHWAYS
AND TRANSPORTATION**

MICHIGAN DEPARTMENT
OF
STATE HIGHWAYS AND TRANSPORTATION

1973 ACCIDENT PROFILES
FOR THE STATE HIGHWAY SYSTEM

T.S.D. 256-74

By

Stanley D. Lingeman
Supervising Engineer
Accident Analysis Unit

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TRANSPORTATION LANSING, MICH.

STATE HIGHWAY COMMISSION

E. V. Erickson
Chairman

Peter B. Fletcher

Charles H. Hewitt
Vice Chairman

Carl V. Pellonpaa

March, 1975

Prepared By the

Traffic Research and Development Section
Traffic and Safety Division
Michigan Department of State Highways and Transportation

in cooperation with

The U.S. Department of Transportation
Federal Highway Administration

"The opinions, findings and conclusions expressed in this publication are those of the author and not necessarily those of the State or U.S. Department of Transportation, Federal Highway Administration."

1973 ACCIDENT PROFILES

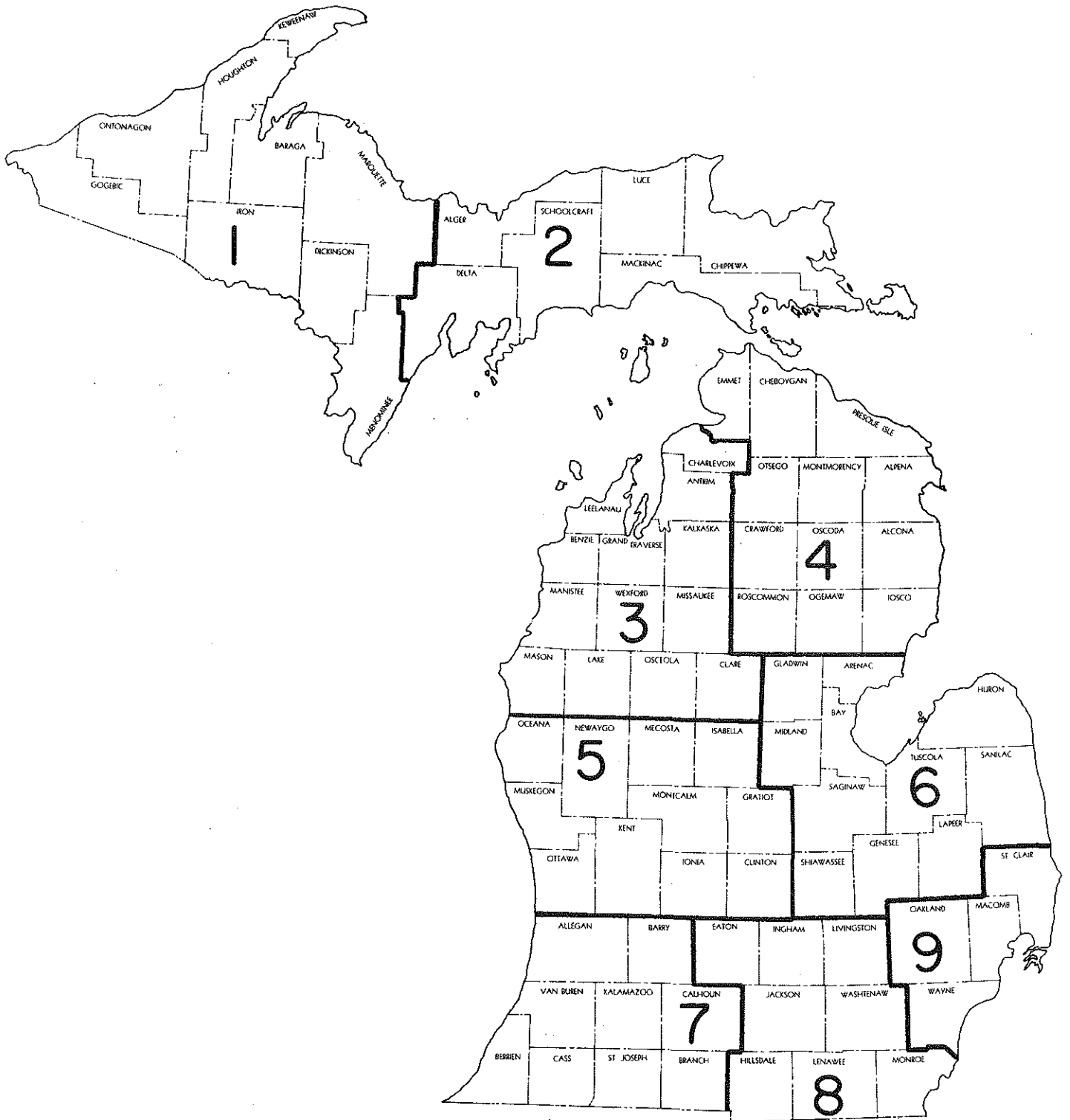
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HIGHWAY DISTRICTS

MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION



INTRODUCTION

The purpose of this report is to provide Department Traffic and Safety Engineers with individual District accident profiles. The profiles can be used as guides when analyzing accident data for specific roadway sections.

Accident Profiles for Highway Districts

A seven parameter profile has been drawn for each of the nine Highway Districts from the accident tabulations program. Subsequent research indicates that the profiles are relatively consistent from year to year within Highway Districts, and that the parameter values illustrated can be used for comparison purposes. These parameters include highway type, time of occurrence, road surface condition, weather, road defect, road condition and accident type. In general the profiles of districts in the Northern part of the State vary considerably from those in the Southern part because of differences in travel, weather, and the degree of urbanization. These differences are reflected more noticeably in the highway type, time of day, day of week, month of year, weather, surface condition and accident type parameters.

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Accident Severity

State highways in Metro and District 6 have a greater proportion of injury and fatal accidents than other districts of the state. Column 5 of Table I, page 4 gives the percentages which range between 25.6 to 35.6 of injury and fatal accidents for each highway district. An average of fatals and injuries for the State Highway System is 30.8 percent.

A second scale for ranking the severity of accident experiences utilizes the ratio of total to fatal accidents as shown in Table II, page 5. This method indicates that Districts 1, 2 and 6 have greater proportions of fatal accidents than other areas of the state.

Both methods of severity analysis have been used for levels of service.

1973 ACCIDENT PROFILE

Table I - Severity Analysis

(1) District	(2) Fatal	(3) Personal Injury	(4) Total	(5) $\frac{2+3}{4}$ %
1	35	898	3,358	27.8
2	20	506	1,887	27.9
3	39	1,254	4,674	27.7
4	39	957	3,896	25.6
5	99	3,553	13,155	27.8
6	150	4,389	14,255	31.8
7	93	3,319	12,906	26.4
8	121	5,113	17,763	29.5
Metro	261	11,160	32,040	35.6
Statewide Trunkline System	857	31,149	103,935	30.8

Table II - Severity Ratio

<u>District</u>	<u>Fatal</u>	<u>Injury</u>	<u>Total</u>
1	1	26	96
2	1	25	94
3	1	32	120
4	1	25	100
5	1	36	133
6	1	29	95
7	1	36	139
8	1	42	147
Metro	1	43	123
Statewide Trunkline System	1	36	121

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ACCIDENT PROFILES

HIGHWAY TYPE

INTERCHANGE
MID-BLOCK

HOUR:

12 M	1 A.M.
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12 N
12 M	1 P.M.
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12 M

DAY

SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY

MONTH

JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

WEATHER

FOG
RAIN
SNOW

SURFACE CONDITION

WET
SNOW/ICE

ROAD DEFECT

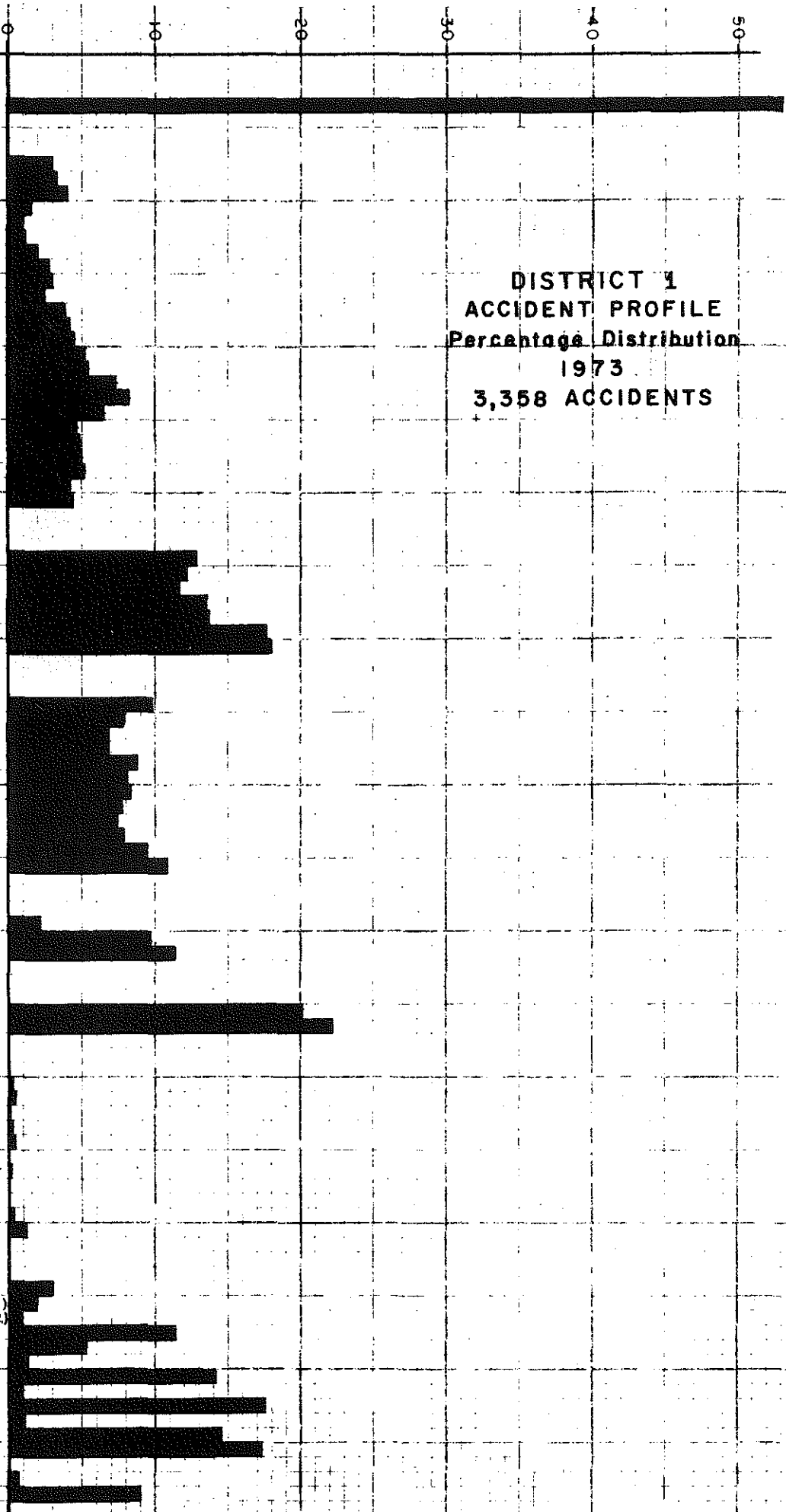
OBSTRUCTION
LOOSE MATERIAL
HOLE/RUT
LOW SHOULDER
DRIFTING SNOW
FROSTY BRIDGE
SLIPPERY WHEN WET

ROAD CONDITION
ENGINEERING
CONSTRUCTION ZONE

ACCIDENT TYPE

HEAD-ON
SIDE SWIPE (SAME D.)
" " (OPP. DIR.)
ANGLE
LEFT TURN
RIGHT TURN
REAR END
BACKING
PARKING
PEDESTRIAN
ANIMAL
FIXED OBJECT
TRAIN
BIKE
OTHER

DISTRICT 1
ACCIDENT PROFILE
Percentage Distribution
1973
3,358 ACCIDENTS



HIGHWAY TYPE

INTERCHANGE
MID BLOCK

HOUR

12 M	1 A.M.
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12 N	12 N
1	1 P.M.
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12 M	12 M

DAY

SUNDAY
 MONDAY
 TUESDAY
 WEDNESDAY
 THURSDAY
 FRIDAY
 SATURDAY

MONTH

JANUARY
 FEBRUARY
 MARCH
 APRIL
 MAY
 JUNE
 JULY
 AUGUST
 SEPTEMBER
 OCTOBER
 NOVEMBER
 DECEMBER

WEATHER

FOG
 RAIN
 SNOW

SURFACE CONDITION

WET
 SNOW/ICE

ROAD DEFECT

OBSTRUCTION
 LOOSE MATERIAL
 HOLE/RUT
 LOW SHOULDER
 DRIFTING SNOW
 FROSTY BRIDGE
 SLIPPERY WHEN WET

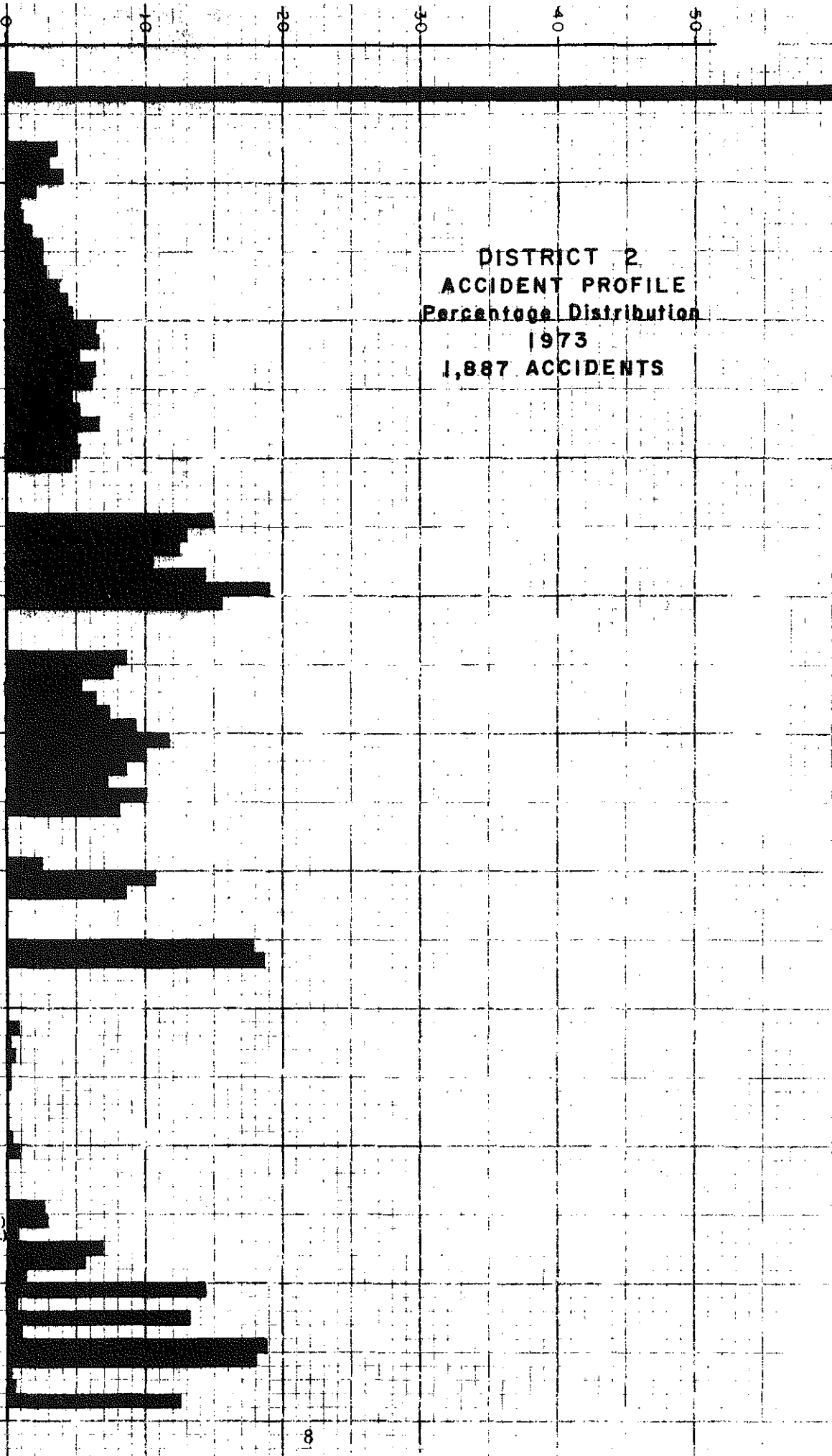
ROAD CONDITION

ENGINEERING
 CONSTRUCTION ZONE

ACCIDENT TYPE

HEAD-ON
 SIDE SWIPE (SAME DIR.)
 " " (OPP. DIR.)
 ANGLE
 LEFT TURN
 RIGHT TURN
 REAR END
 BACKING
 PARKING
 PEDESTRIAN
 ANIMAL
 FIXED OBJECT
 TRAIN
 BIKE
 OTHER

DISTRICT 2
 ACCIDENT PROFILE
 Percentage Distribution
 1973
 1,887 ACCIDENTS



HIGHWAY TYPE

INTERCHANGE
MID BLOCK

HOUR:

12 M	1 A.M.
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12 N
12 N	1 P.M.
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12 M

DAY

SUNDAY
 MONDAY
 TUESDAY
 WEDNESDAY
 THURSDAY
 FRIDAY
 SATURDAY

MONTH

JANUARY
 FEBRUARY
 MARCH
 APRIL
 MAY
 JUNE
 JULY
 AUGUST
 SEPTEMBER
 OCTOBER
 NOVEMBER
 DECEMBER

WEATHER

FOG
 RAIN
 SNOW

SURFACE CONDITION

WET
 SNOW/ICE

ROAD DEFECT

OBSTRUCTION
 LOOSE MATERIAL
 HOLE/RUT
 LOW SHOULDER
 DRIFTING SNOW
 FROSTY BRIDGE
 SLIPPERY WHEN WET

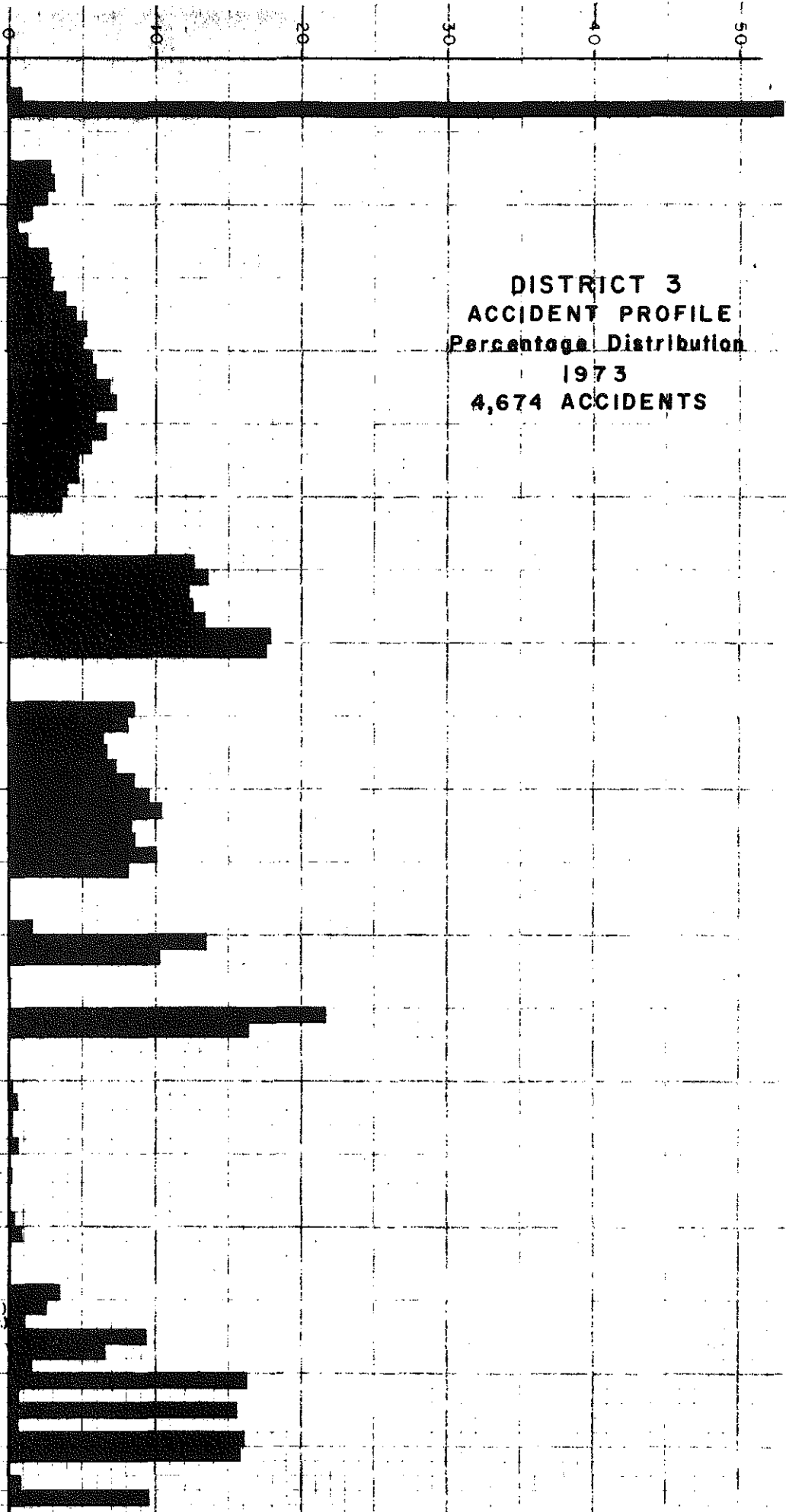
ROAD CONDITION

ENGINEERING
 CONSTRUCTION ZONE

ACCIDENT TYPE

HEAD ON
 SIDE SWIPE (SAME D.)
 " (OPP. DIR.)
 ANGLE
 LEFT TURN
 RIGHT TURN
 REAR END
 BACKING
 PARKING
 PEDESTRIAN
 ANIMAL
 FIXED OBJECT
 TRAIN
 BIKE
 OTHER

DISTRICT 3
 ACCIDENT PROFILE
 Percentage Distribution
 1973
 4,674 ACCIDENTS



HIGHWAY TYPE

INTERCHANGE
MID-BLOCK

HOUR:

12 M 1 A.M.
 1 2
 2 3
 3 4
 4 5
 5 6
 6 7
 7 8
 8 9
 9 10
 10 11
 11 12 N
 12 N 1 P.M.
 1 2
 2 3
 3 4
 4 5
 5 6
 6 7
 7 8
 8 9
 9 10
 10 11
 11 12 M

DAY

SUNDAY
 MONDAY
 TUESDAY
 WEDNESDAY
 THURSDAY
 FRIDAY
 SATURDAY

MONTH

JANUARY
 FEBRUARY
 MARCH
 APRIL
 MAY
 JUNE
 JULY
 AUGUST
 SEPTEMBER
 OCTOBER
 NOVEMBER
 DECEMBER

WEATHER

FOG
 RAIN
 SNOW

SURFACE CONDITION

WET
 SNOW/ICE

ROAD DEFECT

OBSTRUCTION
 LOOSE MATERIAL
 HOLE/RUT
 LOW SHOULDER
 DRIFTING SNOW
 FROSTY BRIDGE
 SLIPPERY WHEN WET

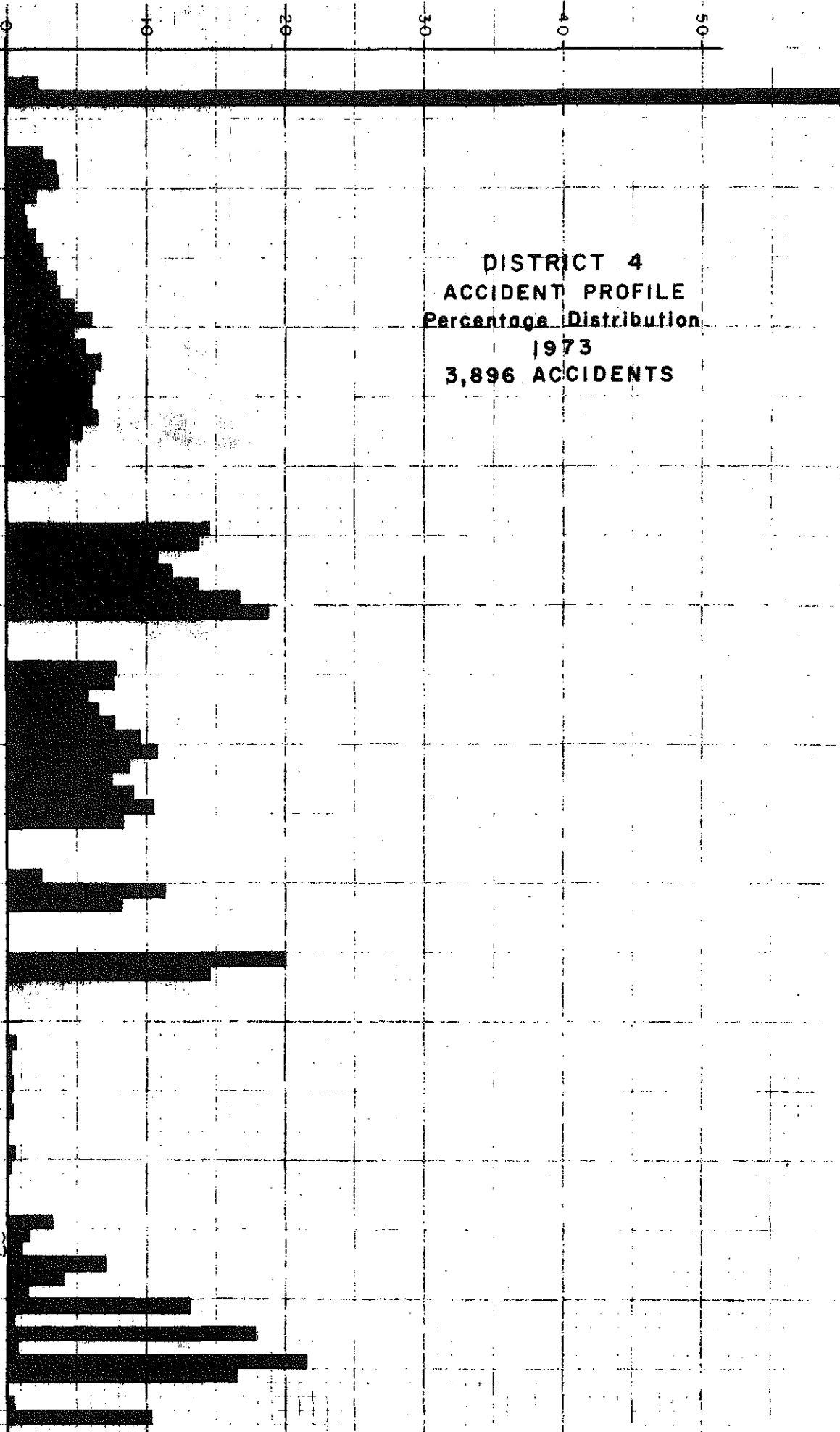
ROAD CONDITION

ENGINEERING
 CONSTRUCTION ZONE

ACCIDENT TYPE

HEAD-ON
 SIDE SWIPE (SAME D.)
 " " (OPP. DIR.)
 ANGLE
 LEFT TURN
 RIGHT TURN
 REAR END
 BACKING
 PARKING
 PEDESTRIAN
 ANIMAL
 FIXED OBJECT
 TRAIN
 BIKE
 OTHER

DISTRICT 4
 ACCIDENT PROFILE
 Percentage Distribution
 1973
 3,896 ACCIDENTS



HIGHWAY TYPE

INTERCHANGE
MID. BLOCK

HOUR

12 M	1 A.M.
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12 N
12 N	1 P.M.
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12 M

DAY

SUNDAY
 MONDAY
 TUESDAY
 WEDNESDAY
 THURSDAY
 FRIDAY
 SATURDAY

MONTH

JANUARY
 FEBRUARY
 MARCH
 APRIL
 MAY
 JUNE
 JULY
 AUGUST
 SEPTEMBER
 OCTOBER
 NOVEMBER
 DECEMBER

WEATHER

FOG
 RAIN
 SNOW

SURFACE CONDITION

WET
 SNOW/ICE

ROAD DEFECT

OBSTRUCTION
 LOOSE MATERIAL
 HOLE/RUT
 LOW SHOULDER
 DRIFTING SNOW
 FROSTY BRIDGE
 SLIPPERY WHEN WET

ROAD CONDITION
ENGINEERING
CONSTRUCTION ZONE

ACCIDENT TYPE

HEAD-ON
 SIDE SWIPE (SAME D.)
 " " (OPP. DIR.)
 ANGLE
 LEFT TURN
 RIGHT TURN
 REAR ENDR.
 BACKING
 PARKING
 PEDESTRIAN
 ANIMAL
 FIXED OBJECT
 TRAIN
 BIKE
 OTHER

DISTRICT 5
 ACCIDENT PROFILE
 Percentage Distribution
 1973
 13,155 ACCIDENTS

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HIGHWAY TYPE

INTERCHANGE
MID BLOCK

HOUR

12 M	1 A.M.
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12 N
12 N	1 P.M.
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12 M

DAY

SUNDAY
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 WEDNESDAY
 THURSDAY
 FRIDAY
 SATURDAY

MONTH

JANUARY
 FEBRUARY
 MARCH
 APRIL
 MAY
 JUNE
 JULY
 AUGUST
 SEPTEMBER
 OCTOBER
 NOVEMBER
 DECEMBER

WEATHER

FOG
 RAIN
 SNOW

SURFACE CONDITION

WET
 SNOW/ICE

ROAD DEFECT

OBSTRUCTION
 LOOSE MATERIAL
 HOLE/RUT
 LOW SHOULDER
 DRIFTING SNOW
 FROSTY BRIDGE
 SLIPPERY WHEN WET

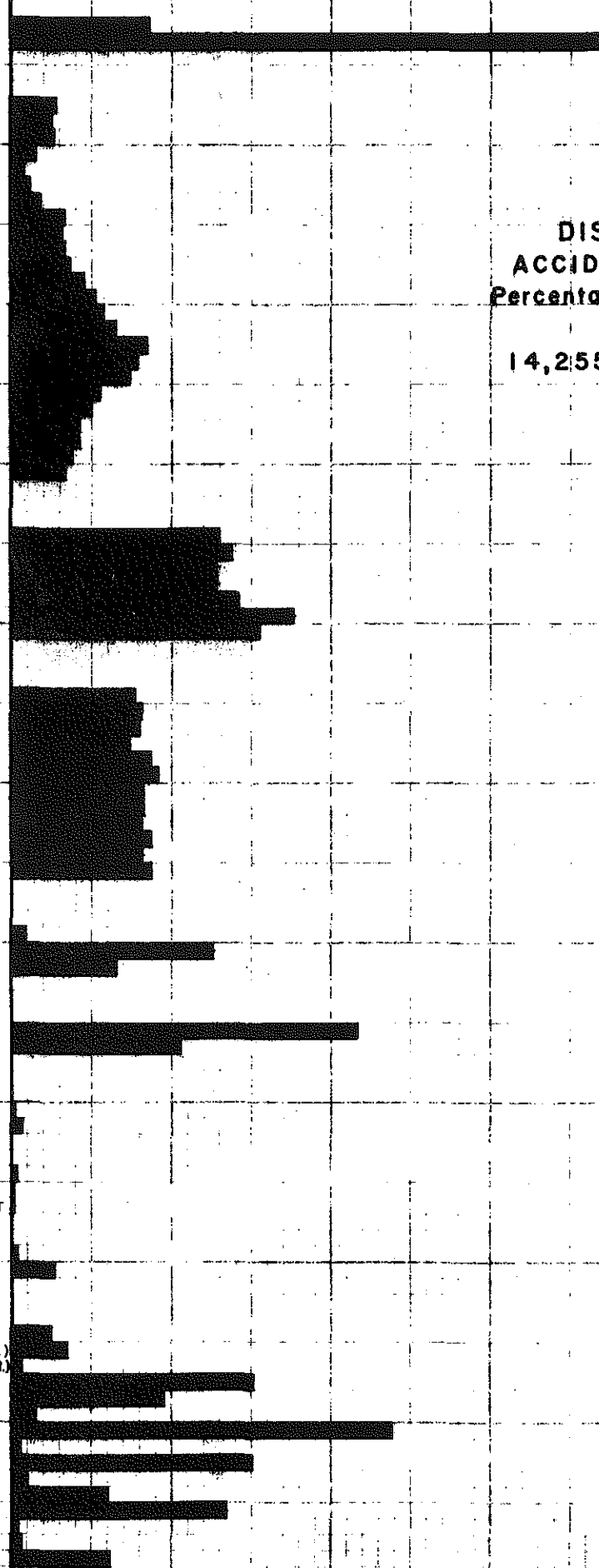
ROAD CONDITION

ENGINEERING
 CONSTRUCTION ZONE

ACCIDENT TYPE

HEAD ON
 SIDE SWIPE (SAME DIR.)
 " " (OPP. DIR.)
 ANGLE
 LEFT TURN
 RIGHT TURN
 REAR END
 BACKING
 PARKING
 PEDESTRIAN
 ANIMAL
 FIXED OBJECT
 TRAIN
 BIKE
 OTHER

DISTRICT 6
 ACCIDENT PROFILE
 Percentage Distribution
 1973
 14,255 ACCIDENTS



HIGHWAY TYPE

INTERCHANGE
MID BLOCK

HOUR

12 M 1 A.M.
 1 2
 2 3
 3 4
 4 5
 5 6
 6 7
 7 8
 8 9
 9 10
 10 11
 11 12 N
 12 N J.P.M.
 1 2
 2 3
 3 4
 4 5
 5 6
 6 7
 7 8
 8 9
 9 10
 10 11
 11 12 M

DAY

SUNDAY
 MONDAY
 TUESDAY
 WEDNESDAY
 THURSDAY
 FRIDAY
 SATURDAY

MONTH

JANUARY
 FEBRUARY
 MARCH
 APRIL
 MAY
 JUNE
 JULY
 AUGUST
 SEPTEMBER
 OCTOBER
 NOVEMBER
 DECEMBER

WEATHER

FOG
 RAIN
 SNOW

SURFACE CONDITION

WET
 SNOW/ICE

ROAD DEFECT

OBSTRUCTION
 LOOSE MATERIAL
 HOLE/RUT
 LOW SHOULDER
 DRIFTING SNOW
 FROSTY BRIDGE
 SLIPPERY WHEN WET

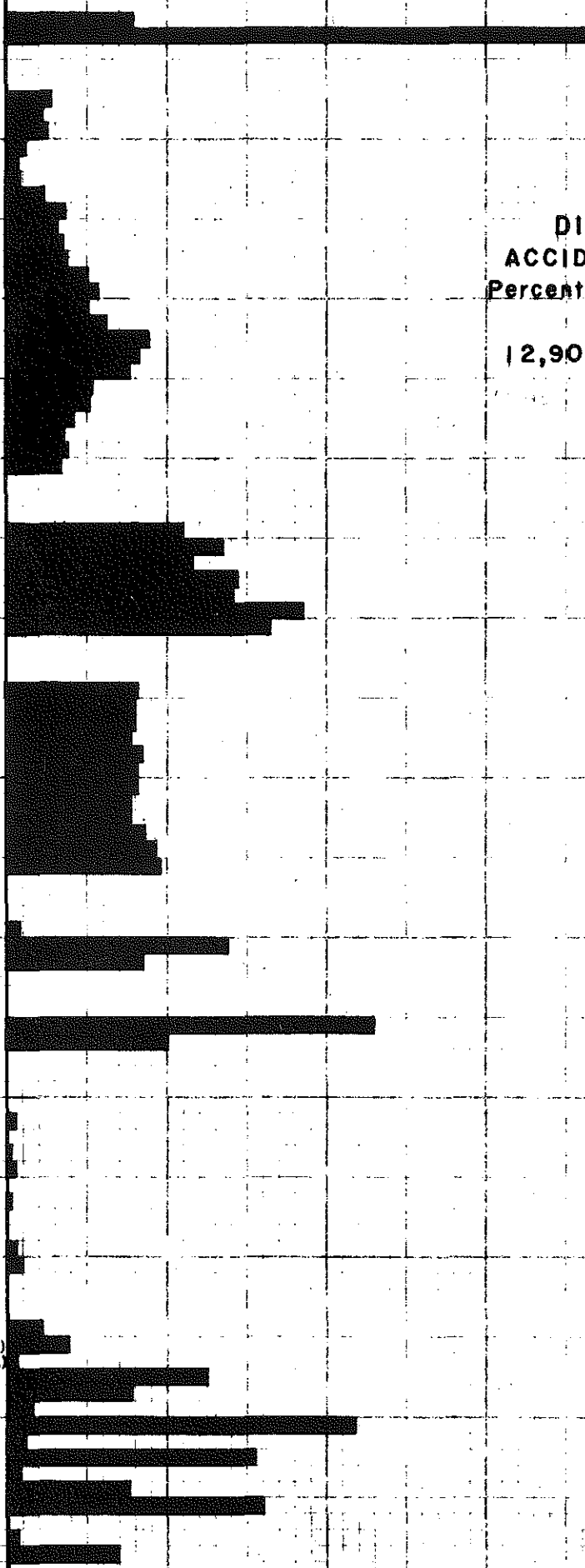
ROAD CONDITION

ENGINEERING
 CONSTRUCTION ZONE

ACCIDENT TYPE

HEAD ON
 SIDE SWIPE (SAME D.)
 " " (OPP. DIR.)
 ANGLE
 LEFT TURN
 RIGHT TURN
 REAR END
 BACKING
 PARKING
 PEDESTRIAN
 ANIMAL
 FIXED OBJECT
 TRAIN
 BIKE
 OTHER

DISTRICT 7
 ACCIDENT PROFILE
 Percentage Distribution
 1973
 12,906 ACCIDENTS



0 10 20 30 40 50

HIGHWAY TYPE

INTERCHANGE
MID BLOCK

HOUR

12 M 1 A.M.
 1 2
 2 3
 3 4
 4 5
 5 6
 6 7
 7 8
 8 9
 9 10
 10 11
 11 12 N
 12 N 1 P.M.
 1 2
 2 3
 3 4
 4 5
 5 6
 6 7
 7 8
 8 9
 9 10
 10 11
 11 12 M

DAY

SUNDAY
MONDAY
TUESDAY
WEDNESDAY
THURSDAY
FRIDAY
SATURDAY

MONTH

JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER

WEATHER

FOG
RAIN
SNOW

SURFACE CONDITION

WET
SNOW/ICE

ROAD DEFECT

OBSTRUCTION
LOOSE MATERIAL
HOLE/RUT
LOW SHOULDER
DRIFTING SNOW
FROSTY BRIDGE
SLIPPERY WHEN WET

ROAD CONDITION

ENGINEERING
CONSTRUCTION ZONE

ACCIDENT TYPE

HEAD-ON
SIDE SWIPE (SAME DIR.)
" (OPP. DIR.)
ANGLE
LEFT TURN
RIGHT TURN
REAR END
BACKING
PARKING
PEDESTRIAN
ANIMAL
FIXED OBJECT
TRAIN
BIKE
OTHER

DISTRICT 8
ACCIDENT PROFILE
Percentage Distribution
1973
17,763 ACCIDENTS



HIGHWAY TYPE

INTERCHANGE
MID BLOCK

HOURLY

12 M.	1 A.M.
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12 N.
12 N.	1 P.M.
1	2
2	3
3	4
4	5
5	6
6	7
7	8
8	9
9	10
10	11
11	12 M.

DAY

SUNDAY
 MONDAY
 TUESDAY
 WEDNESDAY
 THURSDAY
 FRIDAY
 SATURDAY

MONTH

JANUARY
 FEBRUARY
 MARCH
 APRIL
 MAY
 JUNE
 JULY
 AUGUST
 SEPTEMBER
 OCTOBER
 NOVEMBER
 DECEMBER

WEATHER

FOG
 RAIN
 SNOW

SURFACE CONDITION

WET
 SNOW/ICE

ROAD DEFECT

OBSTRUCTION
 LOOSE MATERIAL
 HOLE/RUT
 LOW SHOULDER
 DRIFTING SNOW
 FROSTY BRIDGE
 SLIPPERY WHEN WET

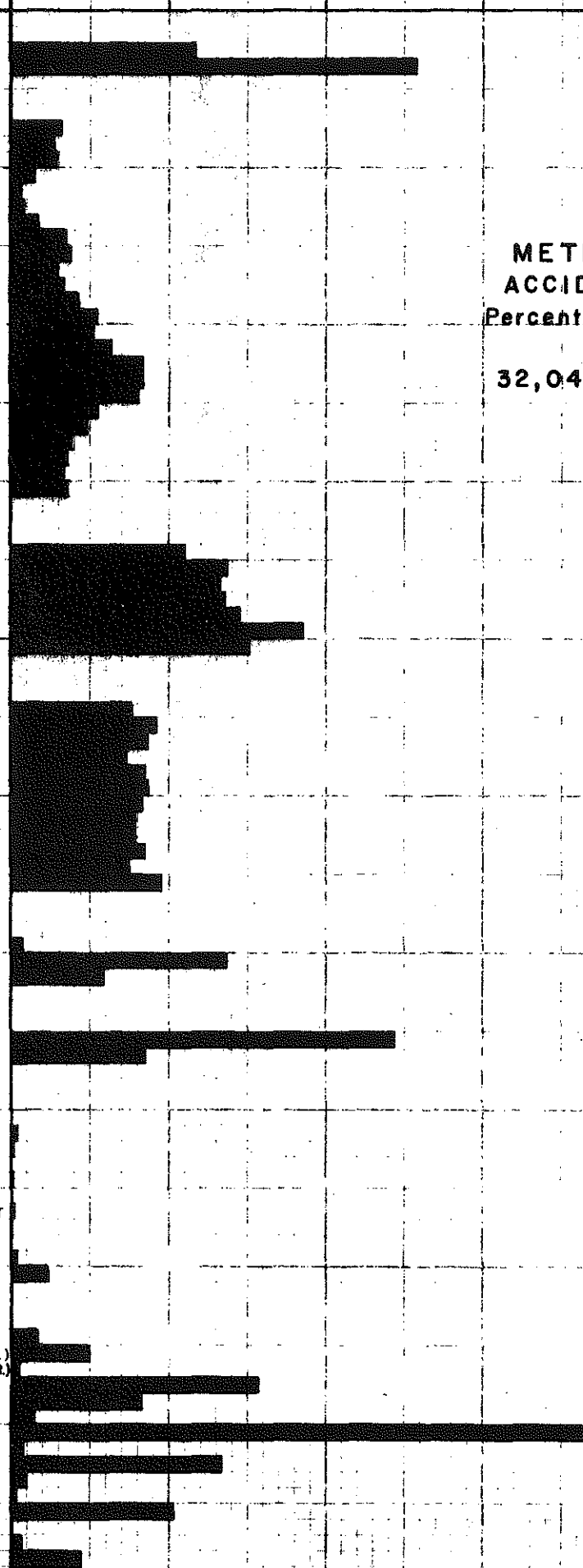
ROAD CONDITION

ENGINEERING
 CONSTRUCTION ZONE

ACCIDENT TYPE

HEAD-ON
 SIDE SWIPE (SAME DIR.)
 " " (OPP. DIR.)
 ANGLE
 LEFT TURN
 RIGHT TURN
 REAR END
 BACKING
 PARKING
 PEDESTRIAN
 ANIMAL
 FIXED OBJECT
 TRAIN
 BIKE
 OTHER

METRO DISTRICT
 ACCIDENT PROFILE
 Percentage Distribution
 1973
 32,040 ACCIDENTS



HIGHWAY TYPE

INTERCHANGE
MID BLOCK

HOURL

12 M. 1 A.M.
 2 2
 3 3
 4 4
 5 5
 6 6
 7 7
 8 8
 9 9
 10 10
 11 11
 12 N. 12 P.M.
 1 2
 2 3
 3 4
 4 5
 5 6
 6 7
 7 8
 8 9
 9 10
 10 11
 11 12 M.

DAY

SUNDAY
 MONDAY
 TUESDAY
 WEDNESDAY
 THURSDAY
 FRIDAY
 SATURDAY

MONTH

JANUARY
 FEBRUARY
 MARCH
 APRIL
 MAY
 JUNE
 JULY
 AUGUST
 SEPTEMBER
 OCTOBER
 NOVEMBER
 DECEMBER

WEATHER

FOG
 RAIN
 SNOW

SURFACE CONDITION

WET
 SNOW/ICE

ROAD OBTECT

OBSTRUCTION
 LOOSE MATERIAL
 HOLE/RUT
 LOW SHOULDER
 DRIFTING SNOW
 FROSTY BRIDGE
 SLIPPERY WHEN WET

ROAD CONDITION

ENGINEERING
 CONSTRUCTION ZONE

ACCIDENT TYPE

HEAD-ON
 SIDE SWIPE (SAME DIR.)
 " (OPP. DIR.)
 ANGLE
 LEFT TURN
 RIGHT TURN
 REAR END
 BACKING
 PARKING
 PEDESTRIAN
 ANIMAL
 FIXED OBJECT
 TRAIN
 BIKE
 OTHER

ACCIDENT PROFILE
 Percentage Distribution
 3,815 VEHICLE
 DEFECT ACCIDENTS
 1973

