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Traffic Accident Rates in Kentucky  
(1981)

Kenneth R. Agent  
University of Kentucky, [ken.agent@uky.edu](mailto:ken.agent@uky.edu)

Research Report  
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TRAFFIC ACCIDENT RATES IN KENTUCKY (1981)

by

Kenneth R. Agent  
Research Engineer

Kentucky Transportation Research Program  
College of Engineering  
University of Kentucky

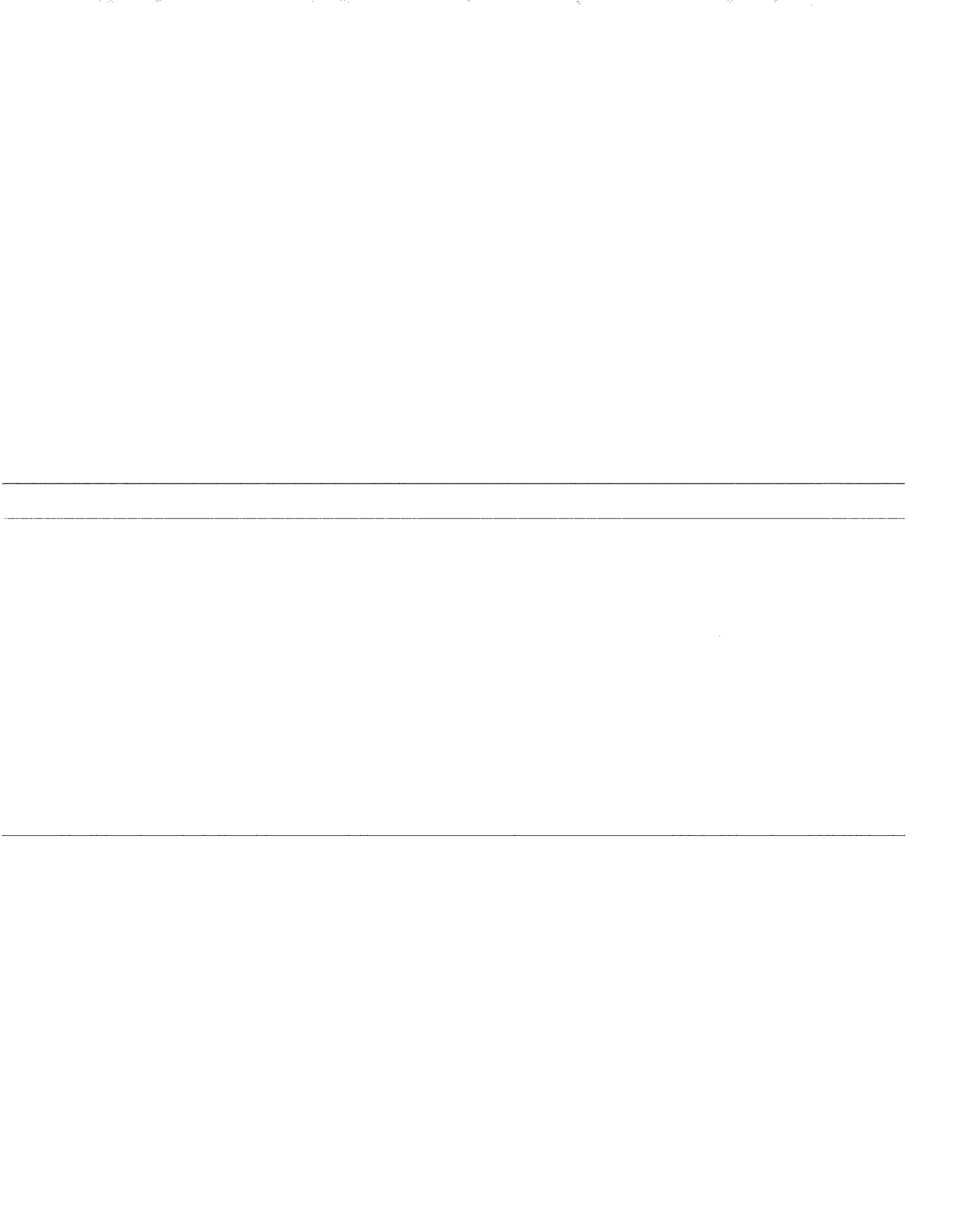
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Commonwealth of Kentucky

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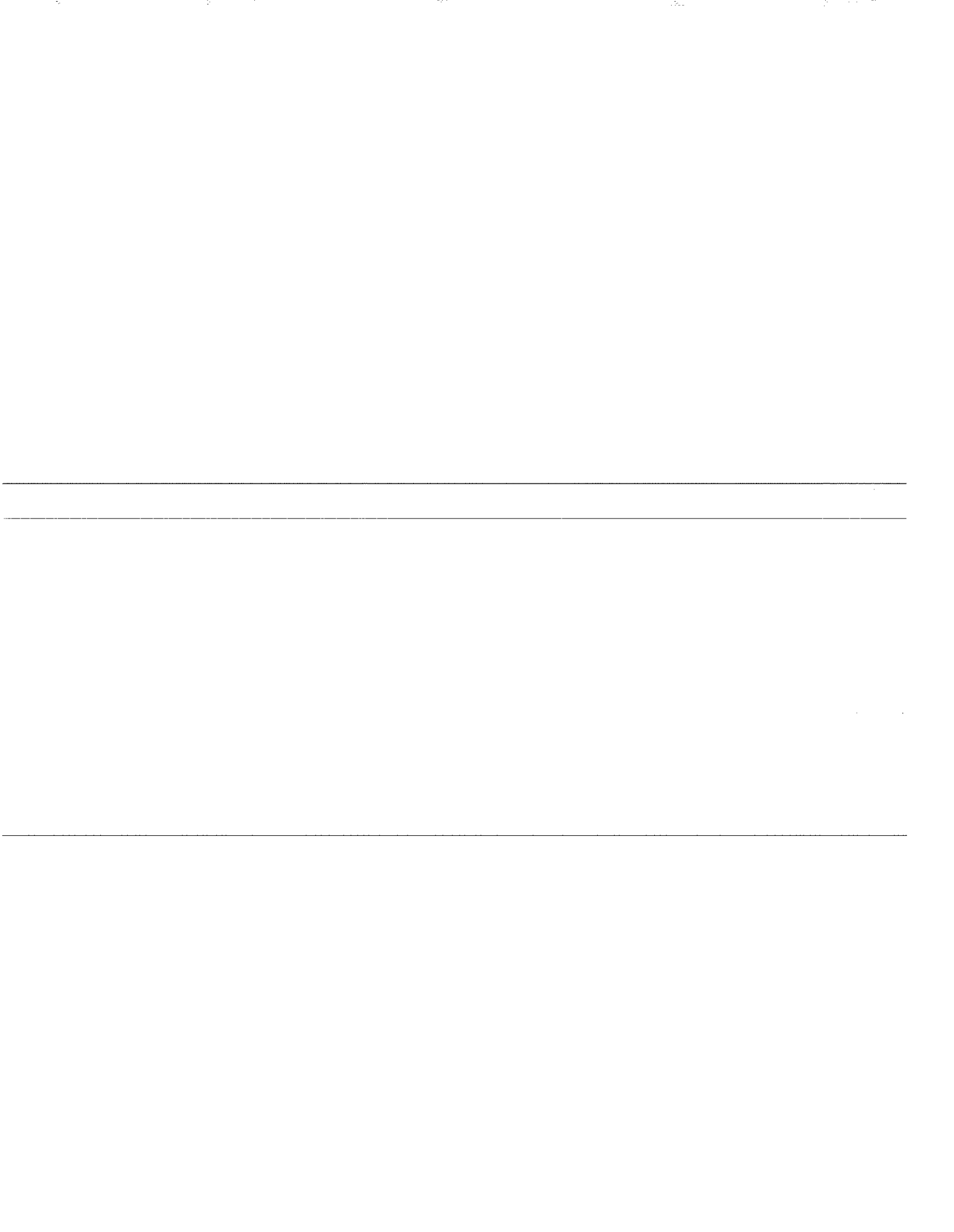
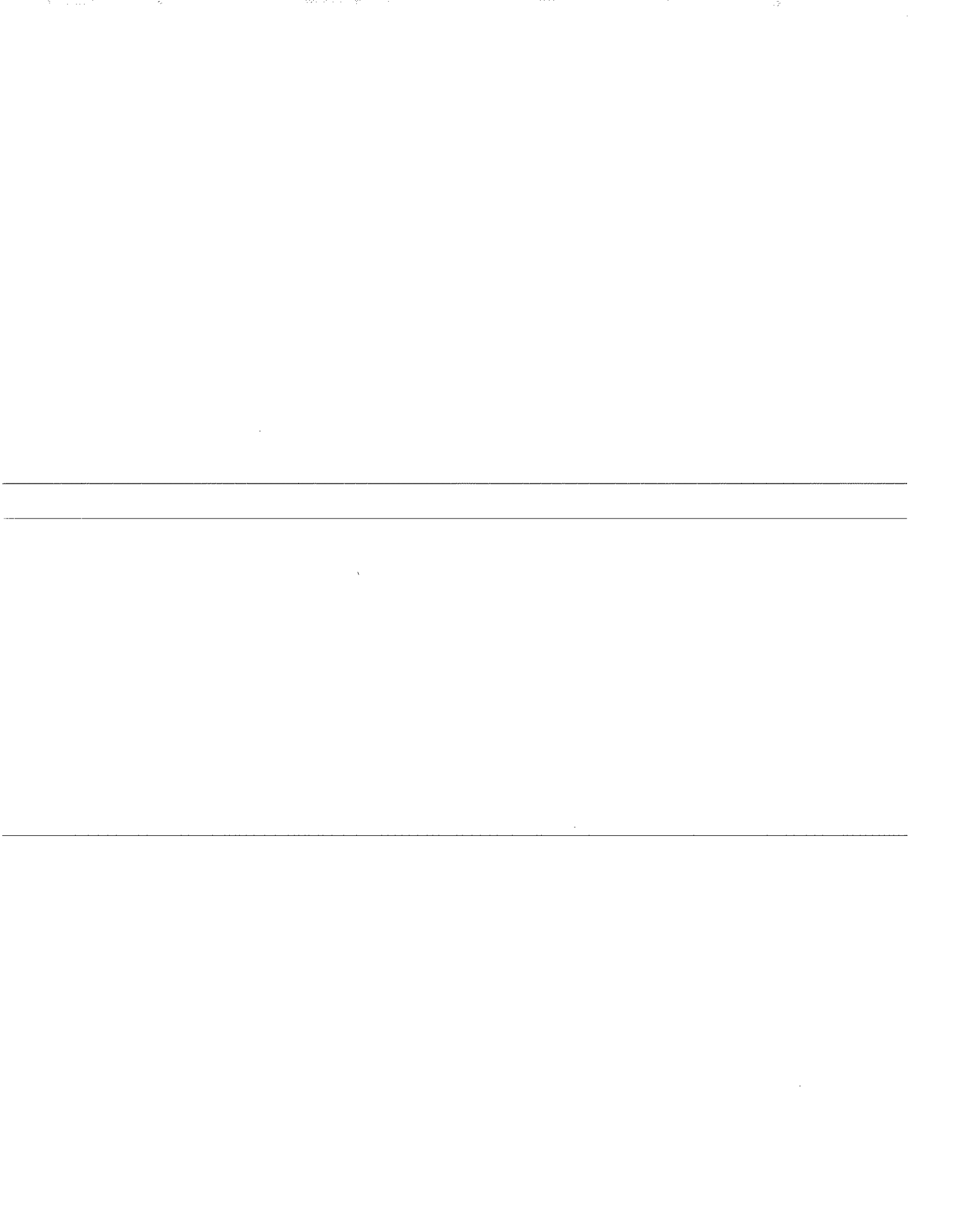


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## INTRODUCTION

Kentucky has a systematic procedure to identify locations that have abnormal rates or numbers of accidents. However, before this procedure can be utilized, average accident rates and numbers must be known. Those average rates and numbers must be classified into appropriate highway categories and divided into rural and urban areas. The primary objective of this study was to determine average accident statistics in Kentucky for 1981. Those statistics could then be used in the high-accident location identification program. Statewide accident statistics have previously been determined for 1978 (1) and 1980 (2). Determining accident rates on an annual basis enables the most recently available data to be used in the high-accident location identification program. Also, that allows the combination of several years of data when a long-term rate is desired, and accident trends may be analyzed.

Statewide rural and urban accident rates were calculated by the highway classification, based primarily on number of lanes, used in the high-accident location program. Rates using other classification methods were also determined. These involved classifying roads by functional classification, federal-aid system, and administrative system.

The statistics given apply only to streets and highways having route numbers, mileposts, and traffic volumes. Those requirements limited available data, particularly in cities. Rates for counties and cities used both 1980 and 1981 data to increase the available data base.

The available information was also used to compute accident rates as a function of other variables such as access control. Accidents were also classified by directional analysis codes.

## PROCEDURE

Two data bases were used to obtain the statistics presented in this report.

Those were the 1981 accident tape and the 1981 statewide mileage tape. The necessary accident information was obtained from the accident tape, while traffic volumes and roadway classifications were obtained from the statewide mileage tape.

The same program used in the previous analysis was used with minor modifications to allow some additional summaries. In this program, a record is first read from the statewide mileage tape and checked to determine whether a traffic volume, route, and mileposts are present. Where those are not all present, the record is omitted from the analysis since this information is necessary to locate accidents and determine rates. When that information is present, the accident information for the roadway sections is obtained from the accident tape. The program is written so that each data base is read only once.

General accident statistics for 1981 were compared to those for 1980. The rates given, except for those for cities and counties, are for 1981 only. The rates given for cities and counties apply to combined 1980 and 1981 statistics, providing a larger data base.

In addition to average rates, critical rates and numbers of accidents are needed in the high-accident location program. Both types of rates are given. The following formula is used to calculate critical accident rates:

$$Ac = Aa + K(\sqrt{Aa/M}) + 1/(2M) \quad (1)$$

in which  $Ac$  = critical accident rate,  
 $Aa$  = average accident rate,  
 $K$  = constant related to level of statistical significance selected (a  $P$  of 0.995 was used giving a  $K$  of 2.576), and  
 $M$  = exposure (for sections,  $M$  was in terms of 100 million vehicle-miles; for spots,  $M$  was in terms of million vehicles).

To determine the critical number of accidents, the following formula was used:



$$N_c = N_a + K(\sqrt{N_a}) + 0.5 \quad (2)$$

in which  $N_c$  = critical number of accidents, and  
 $N_a$  = average number of accidents.

## RESULTS

The accident statistics are for 1981 and apply to streets and highways having known traffic volumes, route numbers, and mileposts. There was a total of 24,763 miles of streets and highways included in this analysis out of approximately 69,200 miles of streets and highways in the state. There were 21,476 million vehicle-miles of travel on those roads, which gave an average annual daily traffic volume (AADT) of 2,375. There were 68,389 accidents on those roads, yielding an overall accident rate of 318 accidents per 100 million vehicle-miles (MVM).

A comparison of 1980 and 1981 accident summaries is given in Table 1. Accident rates increased slightly in 1981 compared to 1980. The largest increase was for the injury accident rate. There was a slight decrease in traffic volumes and vehicle-miles travelled.

The estimated total vehicle-miles travelled in Kentucky in 1981 was 25,194 million. There were 125,111 accidents reported on the state police accident tape in 1981; this yields a statewide accident rate of 497 accidents per 100 MVM. This compares to 509 accidents per 100 MVM in 1980. Subtracting the totals given in Table 1 from these totals results in assigning 56,722 accidents and 3,718 million vehicle-miles to roads with unknown volumes and no route numbers. This yields an accident rate of 1,526 accidents per 100 MVM for those local roads as well as an estimated AADT of 229. As mentioned in the previous report, that rate appears high and could result from a low estimation of total statewide vehicle-miles (2).

### HIGHWAY TYPE

The accident rates needed to implement

the high-accident spot-improvement program in Kentucky are average rural and urban rates by highway type. The current classification is basically by number of lanes, except that four-lane highways are separated into divided and undivided highways. Also, interstates and parkways are classified separately. Rates for rural highways are given in Table 2, and Table 3 gives rates for urban highways. Highways were placed into either the rural or urban category based on the rural-urban designation denoted on the statewide mileage file. For sections having a volume, route, and milepost cited in the statewide mileage file, the "rural or urban" and highway type classifications were determined. The number of accidents for each section was then located on the accident tape. The total accident rate per 100 million vehicle-miles as well as injury and fatal accident rates were calculated.

On rural highways, the small sample of three-lane highways had the highest rate, considering all accidents or only fatal or injury accidents (Table 2). One-lane highways also had high rates. Interstates had the lowest rates followed closely by parkways. Accident rates on four- and six-lane interstates were almost identical. The accident rate on two-lane parkways (86 accidents per 100 MVM) was higher than that for four-lane parkways (65 accidents per 100 MVM), although the average volume on the four-lane sections (ADT = 3,757) was higher than on the two-lane sections (ADT = 2,717). This illustrates the reduction in accident rates obtained when constructing four, rather than two, lanes. The advantage of providing a median is shown when comparing rates for four-lane divided (no access control) and four-lane undivided highways. The overall accident rate for the divided highway was about one-half that of the undivided highway.

On urban highways, the highest overall accident rate was on four-lane undivided highways followed closely by two-lane highways (Table 3). Those two highway types also had the highest injury and fatal accident rates. The lowest rates were on interstates and parkways. The

rate on six-lane interstates (124 accidents per 100 MVM) was slightly less than on four-lane interstates (143 accidents per 100 MVM), although the traffic volumes on the six-lane sections were substantially greater.

Comparing the overall rates in Tables 2 and 3 shows that total accident rates on urban highways were over twice that on rural highways. Also, the injury rate on urban highways was 45 percent greater than on rural highways. However, the fatal accident rate on urban highways was only one-half that on rural highways.

A comparison of 1980 and 1981 accident rates by rural and urban highway type classifications is given in Table 4. Many of the rates were very similar. The rates varied more for urban locations. Overall rates increased slightly, with the largest percent increase occurring for urban four-lane divided (no access control) highways. The largest percentage decrease occurred on urban interstates.

Average rates listed in Tables 2 and 3 may be used to determine critical accident rates for sections of highway of various lengths. In addition to highway sections, Kentucky's high-accident location procedure uses highway spots. Spots are defined as having a length of 0.3 mile and represent a specific identifiable point on a highway. Statewide accident rates for "spots" by highway type classification are given in Table 5.

Kentucky's procedure for identifying high-accident locations first involves identifying spots and sections that have more than the critical numbers of accidents. Then, the accident rates for those locations meeting the accident number criteria are compared to critical accident rates. Statewide average and critical number of accidents for "spots" and 1-mile sections by highway-type classification are presented in Table 6. The critical numbers of accidents listed in Table 6 are used to establish the "number of accidents" criteria for determining the initial list of locations. Critical numbers of accidents for various section lengths were determined for each highway type using Equation 2. The results are presented in tables in

APPENDIX A. Section lengths up to 20 miles for rural roads and up to 10 miles for urban roads were included.

After the initial list of locations meeting the critical number criteria is compiled, comparisons between accident rates for those locations and critical accident rates are made. Critical accident rate tables for highway sections are presented in APPENDIX B. Critical accident rates for the various rural and urban highways were determined as a function of section length and traffic volume (AADT). The rates are given in units of accidents per 100 MVM and were calculated using Equation 1. Critical accident rate tables for "spots" are contained in APPENDIX C. Those rates are presented in units of accidents per million vehicles and were also determined using Equation 1.

DIRECTIONAL ANALYSIS

Descriptions of the accidents that have occurred are beneficial when analysing potential high-accident sites. Directional analysis codes have been developed for this purpose (3). A summary of accidents by the major directional analysis categories is given in Table 7 for the various highway types. A detailed description of the accidents may be obtained by analysis of the detailed directional analysis codes.

Accidents are divided into intersection and "section or midblock" categories in Table 7. The percentages vary significantly by location and highway type. Almost one-half of urban accidents occurred at an intersection compared to slightly less than 20 percent of rural accidents. The percentage of intersection accidents was highest for four-lane divided (no access control) and four-lane undivided highways and lowest for interstates and parkways. Those percentages may be used to indicate when accidents at intersections or "section or midblocks" were primarily responsible for a section of highway being identified as a high-accident location.

HIGHWAY SYSTEM CLASSIFICATION

Highways are grouped into various

system classifications. Three common types of grouping include: 1) functional classification, 2) federal-aid system, and 3) administrative classification. Statewide accident rates were determined for each of those groupings. Following is a summary of the findings.

Average statewide rates by functional classification are listed in Table 8. Highways were grouped into a rural or urban category and then into systems such as arterial, collector, and local. Rates were determined considering all accidents, injury accidents only, and fatal accidents only. The highest overall accident rate was for urban minor arterials followed by urban principal arterials (non-interstate or freeway) and urban collectors. The lowest overall rates were for rural principal arterials (interstate) and urban principal arterials (interstate and other freeway). Injury accident rates for the various categories were ordered similar to overall accident rates. However, fatal accident rates were different. The highest fatal accident rates were for rural collectors and minor arterials. The lowest fatal accident rates were for urban and rural principal arterials (interstate).

Statewide accident rates by federal-aid system are shown in Table 9. The highest rate was on the federal-aid urban system and the lowest rate was on the interstate system. The federal-aid primary, federal-aid secondary, and non-federal aid systems had similar rates.

Statewide accident rates by administrative classification are given in Table 10. The rate for the primary system was lowest, and rates for the secondary, rural secondary, and unclassified systems were similar.

#### COUNTY AND CITY

Accident rates for counties and incorporated cities having populations over 1,000 are given in Tables 11 and 12, respectively. As noted before, those rates are for roads having known volumes, route numbers, and mileposts. Similar rates are used in the problem identification section of the Kentucky

Highway Safety Plan (4). However, in that report, rates for cities were calculated using population rather than vehicle-miles as the exposure measure, and rates for counties were calculated using an estimate of the total miles driven in each county. Use of vehicle-miles travelled would be the optimum exposure measure, but there is only a limited mileage available having that information, especially for individual cities. For this reason, 1980 and 1981 data were combined in Tables 11 and 12 to provide a larger and more reliable data base.

Counties and cities were divided into categories based on population. Average rates for the various categories were calculated, and the counties and cities having the highest accident rates in their population category were listed (Tables 13 and 14).

Marion County had the highest accident rate followed by Mason and Campbell Counties. Lyon County had the lowest accident rate followed by Wolfe County. Counties having the highest rate in their population category included Spencer, Marion, Perry, Campbell, and Kenton. Average accident rates for population categories increased as population increased.

There are a total of 160 cities included in Table 12. The list of incorporated cities having populations over 1,000 was obtained from the problem identification report and included 186 cities (4). However, cities having less than one mile of highway with known volumes, route numbers, and mileposts were excluded from this analysis because of the limited data available. Those were basically the smaller cities. Cities having the highest accident rate in their population category included Lexington, Owensboro, Newport, Florence, Shelbyville, Grayson, and Falmouth. With the exception of Lexington, these were the same cities identified when only 1980 data were considered (2). This indicates consistency in the data. For cities, a relationship between population category and average accident rate was not apparent.

## OTHER VARIABLES

Information available from the statewide mileage tape would allow rates to be calculated as a function of numerous variables. A few of those variables were selected for analysis.

The benefits of providing a median and access control are shown in Tables 15 and 16, respectively. Increasing the median width to over 30 feet provides an additional accident rate reduction as shown in Table 15.

An analysis of accident rates for rural highways by federal-aid system and terrain is given in Table 17. Each county has been given a terrain classification used to classify the roads into either flat, rolling, or mountainous terrain, since a classification was not available for each road segment. Considering the entire system, the lowest rate was for flat terrain and the highest rate was for mountainous terrain. Also, for each system, the lowest rate was for flat terrain. However, when individual systems were considered, the highest rate varied between rolling and mountainous terrain.

Rates by rural-urban designation are given in Table 18. The lowest rate was for rural areas. The highest rate was for small urban areas rather than urbanized areas, although the average traffic volume was much higher in urbanized areas. The presence of more freeway-type highways in the urbanized areas may account for this finding.

The summary of accident rates by route signing identifier shows that US-signed routes have a slightly higher rate than state-marked routes, with interstates having a much lower rate (Table 19). The US-signed routes have a higher average volume than state-marked routes that may account for the higher accident rate.

## SUMMARY

Average accident rates, using 1981 accident data, were calculated for Kentucky highways. Several methods of

classifying highways were used when determining average rates. Those average rates may be used in the high-accident location identification program. Average and critical numbers of accidents were also determined for use in the high-accident location program.

A series of tables is presented in the Appendices to give the critical number of accidents and critical rates for highway sections and spots as a function of highway type, traffic volume, and section length. Those tables provide a convenient method for determining whether specific locations have accident problems.

Rates were calculated as a function of several other variables, and a general description of the types of accidents occurring on specific types of highways was given using the directional analysis code. Rates, using combined 1980 and 1981 data, were calculated for individual counties and for incorporated cities having a population over 1,000. Counties and cities having the highest rates for their population category were identified.

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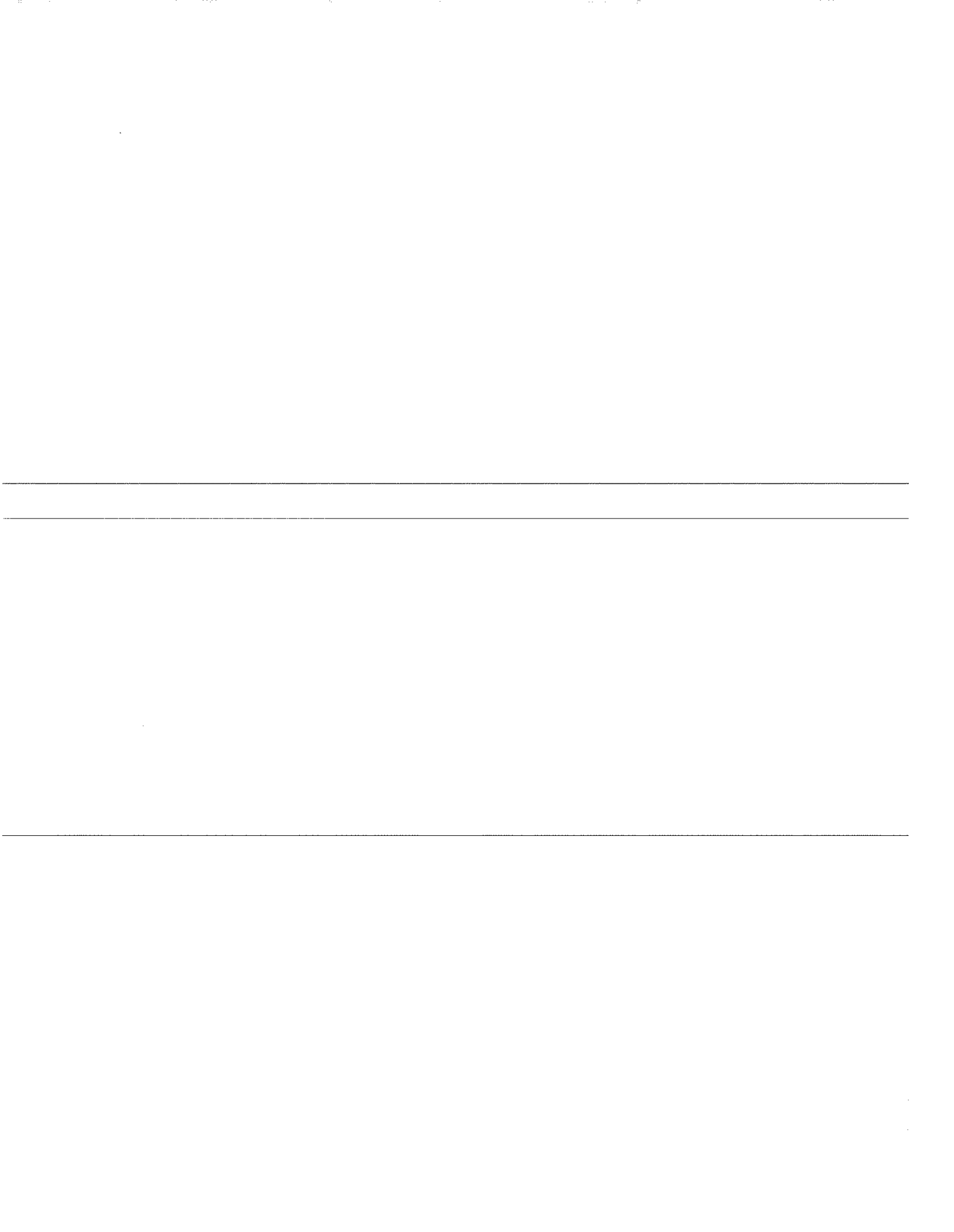


TABLE 1. COMPARISON OF 1980 and 1981 ACCIDENT STATISTICS\*

STATISTIC	1980	1981	PERCENT CHANGE
Accidents	67,262	68,389	+1.7
Mileage	24,723	24,763	+0.2
Accidents Per Mile	2.72	2.76	+1.5
Vehicle Miles	21.683 Billion	21.476 Billion	-1.0
AADT	2,402	2,375	-1.1
Accident Rate**	310	318	+2.6
Fatal Accident Rate**	2.77	2.85	+2.9
Injury Accident Rate**	84	89	+6.0

\*Data apply to streets and highways having known traffic volumes, route numbers, and mileposts.

\*\*Accident rates are given in terms of accidents per 100 million vehicle miles (ACC/100 MVM).

TABLE 2. STATEWIDE RURAL ACCIDENT RATES BY HIGHWAY TYPE CLASSIFICATION

HIGHWAY TYPE	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATES (ACCIDENTS PER 100 MVM)		
			ALL	INJURY	FATAL
One-Lane	338	182	544	156	4.5
Two-Lane	21,431	1,111	328	111	4.8
Three-Lane	14	2,089	799	266	9.2
Four-Lane Divided (No Access Control)	196	8,163	180	62	2.7
Four-Lane Undivided	61	9,185	380	108	2.9
Interstate	597	16,849	51	16	1.0
Parkway	616	3,600	68	23	1.5
All	23,264	1,692	230	77	3.4

TABLE 3. STATEWIDE URBAN ACCIDENT RATES BY HIGHWAY TYPE CLASSIFICATION

HIGHWAY TYPE	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATES (ACCIDENTS PER 100 MVM)		
			ALL	INJURY	FATAL
Two-Lane	952	6,476	711	160	2.2
Four-Lane Divided (No Access Control)	183	18,753	539	132	1.9
Four-Lane Undivided	180	17,962	760	158	2.1
Interstate	141	44,786	133	29	0.7
Parkway	30	5,251	102	33	5.3
All	1,499	12,973	499	112	1.7

TABLE 4. COMPARISON OF 1980 AND 1981 ACCIDENT RATES BY RURAL AND URBAN HIGHWAY TYPE CLASSIFICATION

LOCATION	HIGHWAY TYPE	ACCIDENT RATE (ACC/100 MVM)		PERCENT CHANGE	
		1980	1981		
Rural	One-Lane	574	544	-5	
	Two-Lane	306	328	+7	
	Three-Lane	775	799	+3	
	Four-Lane Divided (No Access Control)	159	180	+13	
	Four-Lane Undivided	367	380	+4	
	Interstate	50	51	+2	
	Parkway	66	68	+3	
	All	225	230	+2	
	Urban	Two-Lane	723	711	-2
		Four-Lane Divided (No Access Control)	413	539	+31
Four-Lane Undivided		692	760	+10	
Interstate		150	133	-11	
Parkway		95	102	+7	
All		483	499	+3	

TABLE 5. STATEWIDE ACCIDENT RATES FOR "SPOTS" BY HIGHWAY TYPE CLASSIFICATION

RURAL OR URBAN	HIGHWAY TYPE	NUMBER OF ACCIDENTS	NUMBER OF SPOTS*	MILLION VEHICLES PER SPOT PER YEAR	ACCIDENTS PER MILLION VEHICLES PER SPOT
Rural	One-Lane	122	1,126	.066	1.64
	Two-Lane	28,535	71,438	.406	0.98
	Three-Lane	87	48	.762	2.38
	Four-Lane Divided (No Access Control)	1,048	653	2.98	0.54
	Four-Lane Undivided	775	203	3.35	1.14
	Interstate	1,855	1,990	6.15	0.15
	Parkway	547	2,055	1.31	0.20
	All Rural	33,001	77,546	.618	0.69
Urban	Two-Lane	16,011	3,173	2.36	2.14
	Four-Lane Divided (No Access Control)	6,752	610	6.84	1.62
	Four-Lane Undivided	8,951	599	6.56	2.28
	Interstate	3,077	470	16.35	0.40
	Parkway	58	99	1.92	0.31
	All Urban	35,388	4,997	4.74	1.49

\*The length of a spot is defined to be 0.3 mile.



TABLE 6. STATEWIDE AVERAGE AND CRITICAL NUMBER OF ACCIDENTS FOR "SPOTS"  
AND ONE-MILE SECTIONS BY HIGHWAY TYPE CLASSIFICATION\*

RURAL OR URBAN	HIGHWAY TYPE	ACCIDENTS PER SPOT		ACCIDENTS PER ONE-MILE (1.6-KM) SECTION	
		AVERAGE	CRITICAL NUMBER	AVERAGE	CRITICAL NUMBER
Rural	One-Lane	0.11	2	0.36	3
	Two-Lane	0.40	3	1.33	5
	Three-Lane	1.81	6	6.09	13
	Four-Lane Divided (No Access Control)	1.60	6	5.35	12
	Four-Lane Undivided	3.82	10	12.73	23
	Interstate	0.93	4	3.11	9
	Parkway	0.27	3	0.89	4
	All Rural	0.43	3	1.39	5
Urban	Two-Lane	5.05	12	16.82	28
	Four-Lane Divided (No Access Control)	11.07	21	36.91	54
	Four-Lane Undivided	14.94	26	49.82	69
	Interstate	6.55	14	21.82	35
	Parkway	0.59	4	1.96	7
	All Urban	7.08	15	23.61	37

\*The length of a spot is defined to be 0.3 mile.

TABLE 7. SUMMARY OF ACCIDENTS BY DIRECTIONAL ANALYSIS FOR VARIOUS HIGHWAY TYPES

PERCENT OF TOTAL

DIRECTIONAL ANALYSIS CATEGORY

LOCATION	HIGHWAY TYPE	DIRECTIONAL ANALYSIS CATEGORY				
		INTERSECTION	SECTION OR MIDBLOCK	BRIDGE	INTER-CHANGE RAMP	OTHER
Rural	One-Lane	5.7	94.3	0	0	0
	Two-Lane	18.1	81.1	0.4	0.1	0.3
	Three-Lane	20.7	78.2	0	0	1.1
	Four-Lane Divided (No Access Control)	31.1	67.1	0.7	0.5	0.6
	Four-Lane Undivided	38.0	61.5	0.1	0.3	0.1
	Interstate	1.5	96.5	0.7	1.2	0.1
	Parkway	3.1	93.8	0.7	1.5	0.9
	All Rural	17.8	81.3	0.4	0.2	0.3
Urban	Two-Lane	49.1	49.8	0.5	0.3	0.3
	Four-Lane Divided (No Access Control)	52.6	45.9	0.1	1.2	0.2
	Four-Lane Undivided	51.7	47.7	0.1	0.4	0.1
	Interstate	14.1	69.2	1.4	15.3	0
	Parkway	20.7	72.4	0	6.9	0
	All Urban	47.2	50.3	0.4	1.9	0.2

TABLE 8. STATEWIDE ACCIDENT RATES BY FUNCTIONAL CLASSIFICATION

RURAL OR URBAN	FUNCTIONAL CLASSIFICATION	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATES (ACCIDENTS PER 100 MVM)		
				ALL	INJURY	FATAL
Rural	Principal Arterial, Interstate	595	16,849	51	16	1.0
	Principal Arterial, Other	1,511	4,820	166	56	2.6
	Minor Arterial	1,822	3,872	309	99	5.0
	Major Collector	7,266	1,381	368	126	5.2
	Minor Collector	9,230	473	365	130	5.3
	Local System	2,834	479	296	87	3.2
Urban	Principal Arterial, Interstate	140	44,932	133	29	0.7
	Principal Arterial, Other Freeway	59	13,695	134	32	2.1
	Principal Arterial, Other	320	14,638	700	159	1.0
	Minor Arterial	681	8,313	731	167	2.6
	Collector	180	3,459	669	164	3.1
	Local System	69	2,590	411	96	1.5

TABLE 9. STATEWIDE ACCIDENT RATES BY FEDERAL-AID SYSTEM

FEDERAL-AID SYSTEM	ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/100 MVM)
Interstate	4,938	747	23,272	78
Federal-Aid Primary (other than Interstate)	21,702	3,693	4,782	337
Federal-Aid Urban	20,608	918	8,481	725
Federal-Aid Secondary (Rural Only)	13,494	7,266	1,381	368
Non-Federal Aid	7,647	12,143	489	353

TABLE 10. STATEWIDE ACCIDENT RATES BY ADMINISTRATIVE CLASSIFICATION

ADMINISTRATIVE CLASSIFICATION	ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/100 MVM)
Primary	31,461	4,654	7,970	232
Secondary	24,478	7,624	1,857	474
Rural Secondary	9,894	9,811	607	455
Unclassified	2,556	2,681	603	433

TABLE 11. COMBINED 1980 AND 1981 ACCIDENT RATES BY COUNTY\*

COUNTY	NUMBER OF ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/100 MVM)
Adair	460	253	880	283
Allen	416	178	1,050	304
Anderson	427	131	1,700	261
Ballard	327	149	1,220	245
Barren	1,321	310	2,390	245
Bath	199	145	1,260	149
Bell	1,179	213	2,400	316
Boone	2,971	214	6,240	305
Bourbon	852	151	1,940	398
Boyd	2,046	145	5,210	370
Boyle	872	137	2,560	341
Bracken	69	131	690	104
Breathitt	469	253	1,230	207
Breckinridge	518	312	780	292
Bullitt	1,312	167	5,230	206
Butler	330	226	950	210
Caldwell	508	221	1,440	218
Calloway	1,005	236	1,540	381
Campbell	3,454	161	5,430	541
Carlisle	158	138	870	180
Carroll	562	125	2,300	268
Carter	673	266	1,730	201
Casey	110	222	830	205
Christian	2,275	436	2,600	275
Clark	1,155	170	3,410	273
Clay	657	241	1,190	315
Clinton	222	146	880	236
Crittenden	341	169	1,280	216
Cumberland	124	153	790	141
Daviess	3,385	308	4,610	327
Edmonson	259	142	1,240	203
Elliott	172	141	490	315
Estill	410	139	1,090	369
Fayette	6,572	273	11,320	292
Fleming	457	224	720	386
Floyd	1,706	262	2,280	390
Franklin	1,761	176	3,720	367
Fulton	282	177	940	232
Gallatin	299	102	2,790	144
Garrard	382	127	1,310	314

\*Combined 1980 and 1981 accident statistics.

TABLE 11. COMBINED 1980 AND 1981 ACCIDENT RATES BY COUNTY\*  
(continued)

COUNTY	NUMBER OF ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/100 MVM)
Grant	606	173	3,720	129
Graves	1,166	432	1,260	293
Grayson	739	300	1,100	305
Green	330	171	880	300
Greenup	932	191	2,380	282
Hancock	213	121	930	259
Hardin	3,032	396	3,970	264
Harlan	1,595	290	1,910	408
Harrison	457	156	1,050	382
Hart	475	276	2,080	113
Henderson	1,952	279	3,060	313
Henry	455	207	1,560	192
Hickman	115	196	680	200
Hopkins	1,834	372	2,420	279
Jackson	246	167	740	273
Jefferson	28,423	421	19,840	466
Jessamine	913	107	2,770	421
Johnson	920	205	1,590	387
Kenton	6,315	201	9,120	472
Knott	510	177	1,200	330
Knox	794	207	1,980	265
Larue	422	162	1,560	229
Laurel	1,483	301	3,140	215
Lawrence	370	217	1,290	181
Lee	112	109	660	213
Leslie	421	166	1,150	301
Letcher	656	236	1,500	253
Lewis	377	193	710	377
Lincoln	505	217	1,480	215
Livingston	316	194	1,010	220
Logan	826	333	1,120	304
Lyon	164	133	1,980	87
McCracken	3,119	269	3,440	462
McCreary	340	187	940	265
McLean	282	197	770	256
Madison	2,169	262	4,570	248
Magoffin	407	189	840	350
Marion	747	177	990	582
Marshall	910	282	2,390	179
Martin	240	120	830	329

\*Combined 1980 and 1981 accident statistics.

TABLE 11. COMBINED 1980 AND 1981 ACCIDENT RATES BY COUNTY\*  
(continued)

COUNTY	NUMBER OF ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/100 MVM)
Mason	1,112	161	1,700	557
Meade	736	224	1,400	321
Menifee	136	104	610	305
Mercer	595	148	1,820	302
Metcalfe	210	175	730	225
Monroe	251	180	780	244
Montgomery	761	144	2,150	338
Morgan	350	223	620	346
Muhlenberg	1,202	281	1,880	312
Nelson	1,114	281	1,600	341
Nicholas	80	114	820	118
Ohio	685	311	1,400	215
Oldham	796	147	2,750	269
Owen	248	222	470	327
Owsley	121	103	490	329
Pendleton	296	154	750	349
Perry	1,498	217	2,190	432
Pike	3,019	410	2,360	427
Powell	237	148	1,490	147
Pulaski	1,548	364	2,050	284
Robertson	26	74	370	129
Rockcastle	512	207	3,100	109
Rowan	804	155	2,040	347
Russell	319	173	980	256
Scott	952	204	4,160	154
Shelby	1,116	245	2,590	241
Simpson	579	170	2,590	180
Spencer	180	117	620	342
Taylor	731	186	1,320	408
Todd	281	185	1,000	209
Trigg	403	212	1,230	211
Trimble	170	94	1,010	246
Union	628	264	1,040	313
Warren	3,715	340	4,400	340
Washington	368	192	940	279
Wayne	444	199	840	364
Webster	577	241	1,180	277
Whitley	1,038	255	4,800	116
Wolfe	205	158	1,982	90
Woodford	777	140	3,410	225

\*Combined 1980 and 1981 accident statistics.

TABLE 12. COMBINED 1980 AND 1981 ACCIDENT RATES FOR INCORPORATED CITIES HAVING POPULATIONS OVER 1,000\*

CITY	POPULATION	NUMBER OF ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/100 MVM)
Adairville	1,105	6	2.1	1,420	279
Albany	2,083	59	4.7	3,650	469
Alexandria	4,735	63	2.3	6,350	603
Ashland	27,064	1,135	15.0	16,240	657
Auburn	1,467	37	3.7	2,260	612
Augusta	1,455	6	1.3	800	795
Barbourville	3,233	183	7.2	4,120	847
Bardstown	6,155	303	4.4	9,000	1,050
Beattyville	1,068	22	3.5	2,940	292
Beaver Dam	3,185	74	2.5	3,500	1,147
Benton	3,700	217	12.2	3,290	773
Berea	8,226	209	8.1	6,560	540
Bowling Green	40,450	1,298	16.2	11,860	926
Brandenburg	1,831	38	3.2	2,380	677
Burgin	1,008	7	2.7	2,320	154
Burkesville	2,051	24	3.7	3,430	260
Cadiz	1,661	91	2.9	5,890	723
Calhoun	1,080	26	1.5	1,220	1,959
Calvert City	2,388	14	4.9	2,860	138
Campbellsville	8,715	218	6.8	5,490	805
Carlisle	1,757	7	1.7	3,490	162
Carrollton	3,967	95	2.9	4,240	1,057
Catlettsburg	3,005	160	6.2	12,820	276
Cave City	2,098	26	2.8	5,360	237
Central City	5,214	210	5.2	6,060	919
Clay	1,356	32	2.7	2,420	676
Clay City	1,276	6	5.0	2,060	79
Clinton	1,720	33	4.8	2,170	431
Cloverport	1,585	27	2.7	2,500	553
Cold Springs	2,117	134	1.2	18,280	837
Columbia	3,710	119	6.5	2,950	850
Corbin	8,075	309	13.2	7,590	422
Govington	49,013	2,901	25.2	27,490	578
Cumberland	3,712	2	3.6	4,150	22
Cynthiana	5,881	122	4.4	4,050	948
Danville	12,942	342	7.0	9,190	732
Dawson Springs	3,275	67	6.4	3,260	444
Dry Ridge	1,250	50	2.0	4,950	680
Earlington	2,011	24	2.3	3,430	426
Eddyville	1,949	2	2.0	1,270	110

\*Cities with a total mileage under one mile were not included. When mileages for 1980 and 1981 were different, the higher mileage is given, and the average mileage was used when calculating average AADT.



TABLE 12. COMBINED 1980 AND 1981 ACCIDENT RATES FOR INCORPORATED  
CITIES HAVING POPULATIONS OVER 1,000\* (continued)

CITY	POPULATION	NUMBER OF ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/ 100 MVM)
Edmonton	1,401	34	2.5	4,110	452
Elizabethtown	15,380	819	27.7	7,620	532
Elkhorn City	1,416	24	2.5	3,080	424
Elkton	1,815	76	3.6	3,380	864
Eminence	2,260	29	2.2	4,240	424
Erlanger	14,433	597	4.1	17,570	1,122
Evarts	1,234	27	1.4	2,060	1,257
Falmouth	2,482	72	2.2	1,940	2,342
Fleming-Neon	1,195	10	1.5	3,320	280
Flemingsburg	2,835	126	5.7	3,840	790
Florence	15,586	872	6.4	9,530	1,945
Fort Thomas	16,012	92	6.6	6,390	301
Frankfort	25,973	882	16.0	12,780	589
Franklin	7,738	238	7.4	4,700	932
Fulton	3,137	97	5.1	8,430	306
Georgetown	10,972	283	4.7	8,500	973
Glasgow	12,958	446	18.1	7,050	480
Grayson	3,423	83	2.2	2,580	1,987
Greensburg	2,377	36	1.8	3,700	748
Greenville	4,631	109	4.1	7,160	572
Hardinsburg	2,211	47	2.6	3,230	762
Harlan	3,024	195	5.5	8,730	768
Harrodsburg	7,265	306	14.5	3,540	817
Hartford	2,512	5	2.3	5,060	58
Hawesville	1,036	17	2.6	1,410	830
Hazard	5,429	400	8.8	8,430	741
Henderson	24,834	479	6.2	13,010	808
Hickman	2,894	35	6.4	1,250	594
Highland Heights	4,435	283	3.2	15,090	812
Hodgenville	2,459	86	3.6	6,700	492
Hopkinsville	27,318	1,166	75.3	4,090	518
Horse Cave	2,045	9	3.9	3,480	92
Independence	7,998	35	1.1	3,020	1,446
Irvine	2,889	119	5.1	3,850	823
Irvington	1,409	13	1.0	1,680	1,098
Jackson	2,651	14	3.5	2,020	269
Jamestown	1,441	16	1.8	2,630	476
Jenkins	3,271	39	6.3	3,670	230
Junction City	2,045	16	1.7	2,890	451
LaCenter	1,044	28	1.3	2,100	1,621

\*Cities with a total mileage under one mile were not included.  
When mileages for 1980 and 1981 were different, the higher mileage  
is given, and the average mileage was used when calculating  
average AADT.

TABLE 12. COMBINED 1980 AND 1981 ACCIDENT RATES FOR INCORPORATED  
CITIES HAVING POPULATIONS OVER 1,000\* (continued)

CITY	POPULATION	NUMBER OF ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/ 100 MVM)
LaGrange	2,971	55	2.2	3,980	852
Lakeside Park	3,026	129	1.4	12,580	971
Lancaster	3,365	89	3.0	4,130	1,000
Lawrenceburg	5,167	77	3.0	6,970	497
Lebanon	6,590	262	5.9	6,390	950
Lebanon Junction	1,581	5	1.9	2,670	133
Leitchfield	4,533	229	6.2	4,200	1,200
Lewisport	1,832	3	1.2	3,320	107
Lexington	204,165	3,324	35.9	21,500	586
Liberty	2,206	48	9.3	2,700	262
Livermore	1,672	16	1.6	3,220	424
London	4,002	276	6.4	6,600	900
Louisa	1,832	61	2.0	5,990	647
Louisville	490,095	14,945	101.8	30,600	413
Loyall	1,210	24	1.3	1,720	1,487
Madisonville	16,979	510	40.1	2,260	770
Manchester	1,838	85	3.7	2,900	1,086
Marion	3,392	119	3.8	6,150	698
Mayfield	10,705	429	7.2	7,660	1,086
Maysville	7,982	486	7.3	7,460	1,222
Middlesboro	12,251	361	21.7	4,680	488
Monticello	5,677	231	10.2	2,510	1,230
Morehead	7,789	209	2.4	11,820	1,012
Morganfield	3,781	131	3.9	4,490	1,038
Morgantown	2,000	20	3.1	2,260	391
Mortons Gap	1,201	8	2.2	3,800	131
Mount Sterling	5,820	210	4.6	7,470	834
Mount Vernon	2,334	54	4.4	3,722	452
Mount Washington	3,997	44	1.8	2,710	1,234
Muldraugh	1,752	8	1.0	2,200	497
Munfordville	1,783	54	2.9	2,720	942
Murray	14,248	479	9.8	8,460	794
Newport	21,587	1,949	19.7	13,400	1,029
Nicholasville	10,400	265	4.3	7,930	1,059
Nortonville	1,336	9	2.6	5,260	92
Olive Hill	2,539	30	3.7	3,040	365
Owensboro	54,450	1,453	14.2	10,540	1,329
Owenton	1,341	50	3.3	3,570	573
Owingsville	1,419	16	2.2	2,520	388
Paducah	29,758	1,435	47.2	6,030	691

\*Cities with a total mileage under one mile were not included.  
When mileages for 1980 and 1981 were different, the higher mileage  
is given, and the average mileage was used when calculating  
average AADT.

TABLE 12. COMBINED 1980 AND 1981 ACCIDENT RATES FOR INCORPORATED  
CITIES HAVING POPULATIONS OVER 1,000\* (continued)

CITY	POPULATION	NUMBER OF ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/ 100 MVM)
Paintsville	3,815	161	4.4	5,980	840
Paris	7,935	245	4.4	8,840	855
Phelps	1,126	25	2.5	2,604	534
Pikeville	4,756	348	7.7	7,610	811
Pineville	2,599	165	3.8	6,430	934
Prestonsburg	4,011	225	4.1	9,547	820
Princeton	7,073	212	6.4	5,510	819
Providence	4,434	56	4.9	3,530	443
Radcliff	14,579	527	11.3	9,920	629
Richmond	21,705	528	5.5	13,120	1,004
Russell	3,824	14	1.8	4,330	246
Russell Springs	1,831	53	5.7	3,300	387
Russellville	7,520	287	44.1	1,830	488
Salyersville	1,352	72	2.9	3,660	924
Scottsville	4,278	104	5.6	3,620	709
Sebree	1,516	19	2.5	3,860	266
Shelbyville	5,308	333	2.3	7,120	2,789
Sheperdsville	4,454	133	3.0	4,910	1,242
Somerset	10,649	566	12.1	8,930	719
South Shore	1,525	361	19.4	8,830	289
Springfield	3,179	107	4.4	3,840	857
Stanford	2,764	116	7.4	3,930	543
Stanton	2,691	18	2.9	2,220	388
Sturgis	2,293	43	2.4	2,290	534
Tomkinsville	4,366	96	5.5	3,010	790
Uniontown	1,169	11	2.2	1,750	392
Vanceburg	1,939	56	3.6	2,560	842
Versailles	6,427	286	7.5	7,230	718
Vine Grove	3,583	92	4.6	3,590	765
Walton	1,651	53	2.0	4,590	787
Warsaw	1,328	32	2.5	1,730	1,018
West Liberty	1,381	55	2.3	3,210	1,009
West Point	1,339	7	1.0	3,190	294
Whitesburg	1,525	50	2.5	6,210	436
Wickliffe	1,044	68	2.2	6,810	611
Williamsburg	5,560	85	6.0	4,070	480
Williamstown	2,509	25	2.5	3,910	356
Wilmore	3,787	15	2.2	1,530	620
Winchester	15,216	422	8.8	10,110	652
Worthington	1,948	7	1.3	2,640	274

\* Cities with a total mileage under one mile were not included.  
When mileages for 1980 and 1981 were different, the higher  
mileage is given, and the average mileage was used when  
calculating average AADT.

TABLE 13. COUNTIES HAVING HIGHEST ACCIDENT RATES  
(BY POPULATION CATEGORY)

POPULATION CATEGORY	NUMBER OF COUNTIES	AVERAGE RATE (ACC PER 100 MVM)	COUNTY	NUMBER OF ACCIDENTS (1980 AND 1981)	AVERAGE RATE (ACC/ 100 MVM)
Under 10,000	26	192	Spencer	180	342
10,000-20,000	46	255	Marion	747	582
			Mason	1,112	557
20,000-50,000	36	279	Perry	1,498	432
			Jessamine	913	421
50,000-100,000	9	347	Campbell	3,454	541
Over 100,000	3	426	Kenton	6,315	472

TABLE 14. CITIES HAVING HIGHEST ACCIDENT RATES (BY POPULATION CATEGORY)

POPULATION CATEGORY	NUMBER OF CITIES	AVERAGE RATE (ACC PER 100 MVM)	CITY	NUMBER OF ACCIDENTS (1980-1981)	AVERAGE RATE (ACC/ 100 MVM)
Over 100,000	2	437	Lexington	3,324	586
30,000-100,000	3	752	Owensboro	1,453	1,329
20,000-29,999	7	717	Newport	1,949	1,029
			Richmond	528	1,004
10,000-19,999	15	743	Florence	872	1,945
			Erlanger	597	1,122
			Mayfield	429	1,086
			Nicholasville	265	1,059
5,000-9,999	22	807	Shelbyville	333	2,789
			Independence	35	1,446
			Monticello	231	1,230
			Maysville	486	1,222
			Bardstown	303	1,050
			Morehead	209	1,012
2,500-4,999	44	695	Grayson	83	1,987
			Mount Washington	44	1,234
			Shepherdsville	133	1,242
			Leitchfield	229	1,200
			Beaver Dam	74	1,147
			Carrollton	95	1,057
			Morganfield	131	1,038
			Lancaster	89	1,000
1,000-2,499	67	483	Falmouth	86	2,342
			Calhoun	26	1,959
			Loyall	24	1,487
			LaCenter	28	1,379
			Evarts	27	1,257
			Irvington	13	1,098
			Manchester	85	1,086
			Morganfield	131	1,038
			Warsaw	32	1,018
			West Liberty	55	1,009

TABLE 15. STATEWIDE ACCIDENT RATES BY MEDIAN TYPE (RURAL ROADS WITH FOUR OR MORE LANES)

MEDIAN TYPE	ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/100 MVM)
Undivided, No Median	806	81	9,540	285
Divided, Median Less than 30 Feet, No Barrier	984	208	10,050	129
Divided, Median Greater than 30 Feet, No Barrier	2,280	1,084	10,332	56

TABLE 16. STATEWIDE ACCIDENT RATES BY ACCESS CONTROL

ACCESS CONTROL	ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/100 MVM)
Full Control	5,858	1,419	14,369	79
Partial Control	315	26	13,295	246
No Control	62,216	23,313	1,633	448

TABLE 17. ACCIDENT RATES FOR RURAL HIGHWAYS BY FEDERAL-AID SYSTEM AND TERRAIN

FEDERAL-AID SYSTEM	ACCIDENT RATE (ACC/100 MVM)		
	TERRAIN CLASSIFICATION		
	FLAT	ROLLING	MOUNTAINOUS
Interstate	40	59	48
Federal-Aid Primary	211	234	234
Federal-Aid Secondary	250	398	368
Non-Federal Aid	282	343	352
All	216	253	266

TABLE 18. STATEWIDE ACCIDENT RATES BY RURAL-URBAN DESIGNATION

RURAL-URBAN DESIGNATION	ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/100 MVM)
Rural	33,001	23,263	1,692	230
Small Urban Area	11,175	782	7,400	529
Urbanized Area	24,213	717	19,052	486

TABLE 19. STATEWIDE ACCIDENT RATES BY ROUTE SIGNING IDENTIFIER

ROUTE SIGNING IDENTIFIER	ACCIDENTS	TOTAL MILEAGE	AVERAGE AADT	ACCIDENT RATE (ACC/100 MVM)
Interstate	4,932	738	22,187	83
US	29,300	3,514	5,423	421
State	34,156	20,507	1,140	400

APPENDIX A

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CRITICAL "NUMBER OF ACCIDENTS" TABLES

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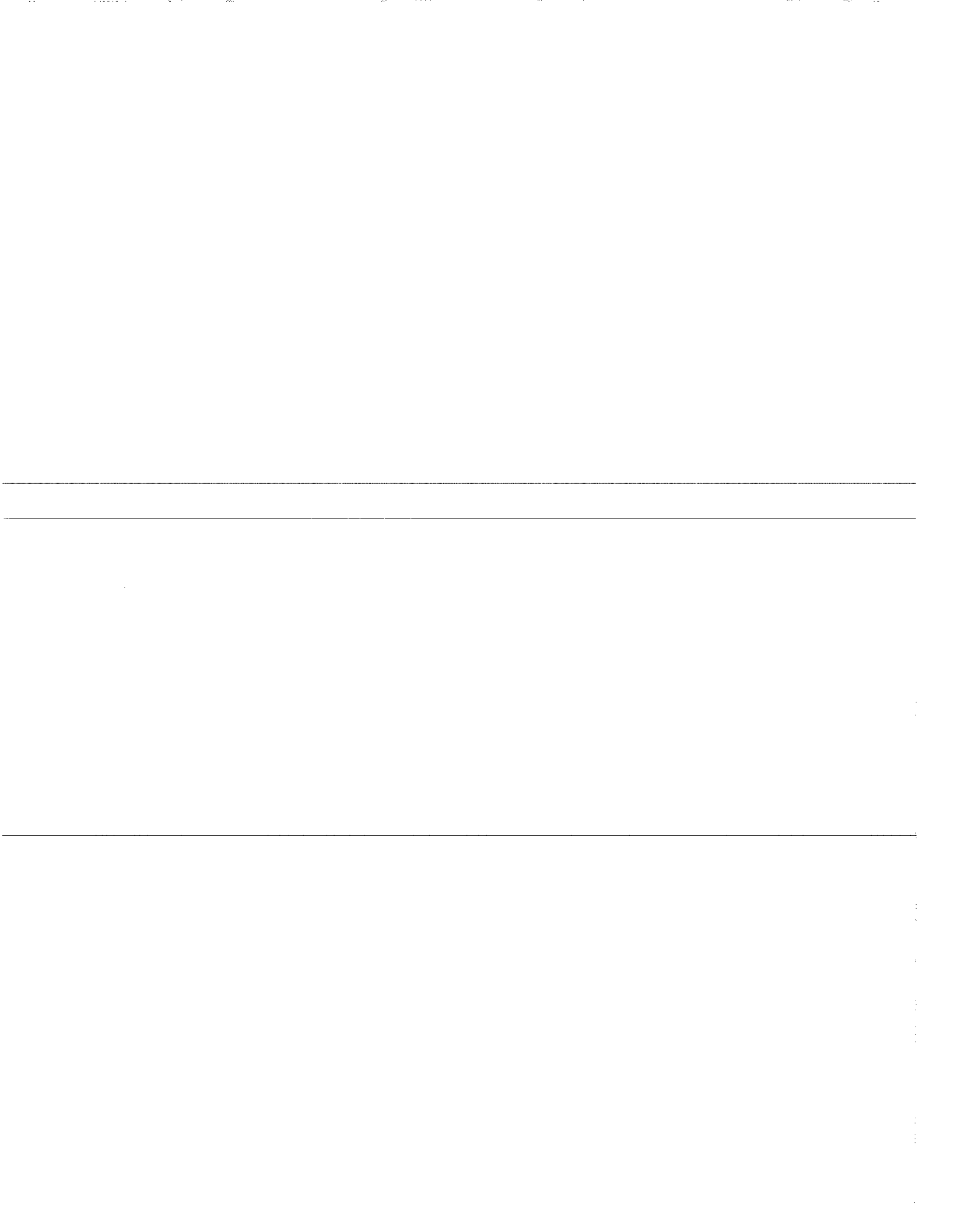
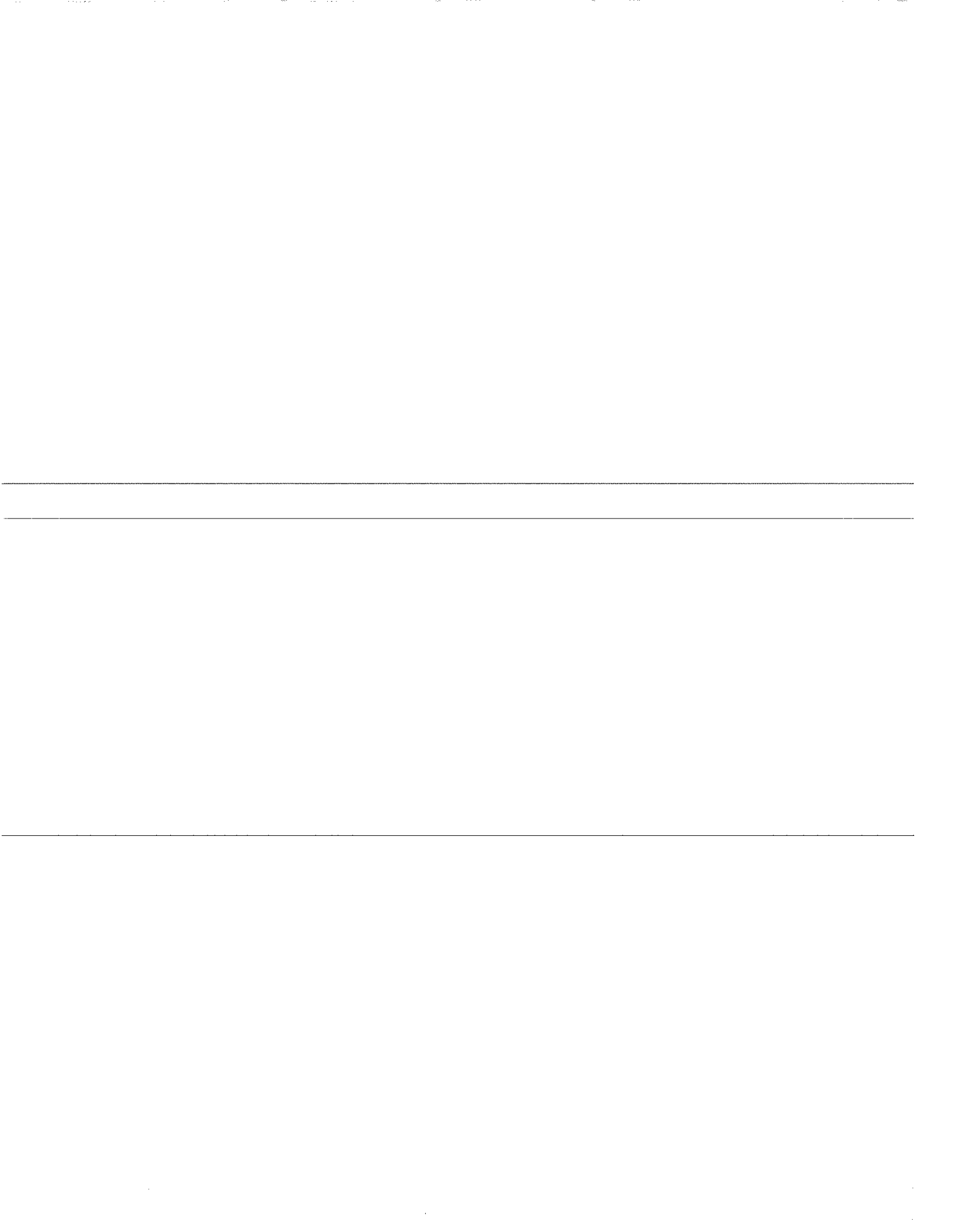


TABLE A-1. CRITICAL NUMBER OF ACCIDENTS ON RURAL HIGHWAYS BY HIGHWAY TYPE AND SECTION LENGTH

HIGHWAY TYPE	SECTION LENGTH (MILES)						
	0.4	1	2	5	10	15	20
One-Lane	2	3	4	6	10	12	15
Two-Lane	3	5	8	14	24	32	41
Three-Lane	8	14	23	46	83	119	154
Four-Lane Divided (No Access Control)	7	12	20	41	73	104	135
Four-Lane Undivided	12	23	39	85	157	227	296
Interstate	5	9	14	27	46	65	83
Parkway	3	4	6	11	18	24	30

TABLE A-2. CRITICAL NUMBER OF ACCIDENTS ON URBAN HIGHWAYS BY HIGHWAY TYPE AND SECTION LENGTH

HIGHWAY TYPE	SECTION LENGTH (MILES)					
	0.4	1	2	5	8	10
Two-Lane	14	28	50	109	165	203
Four-Lane, Divided (No Access Control)	26	54	97	220	340	419
Four-Lane, Undivided	32	69	126	290	450	556
Interstate	17	35	62	137	210	257
Parkway	4	7	10	19	27	32



APPENDIX B

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CRITICAL ACCIDENT RATE TABLES  
FOR HIGHWAY SECTIONS

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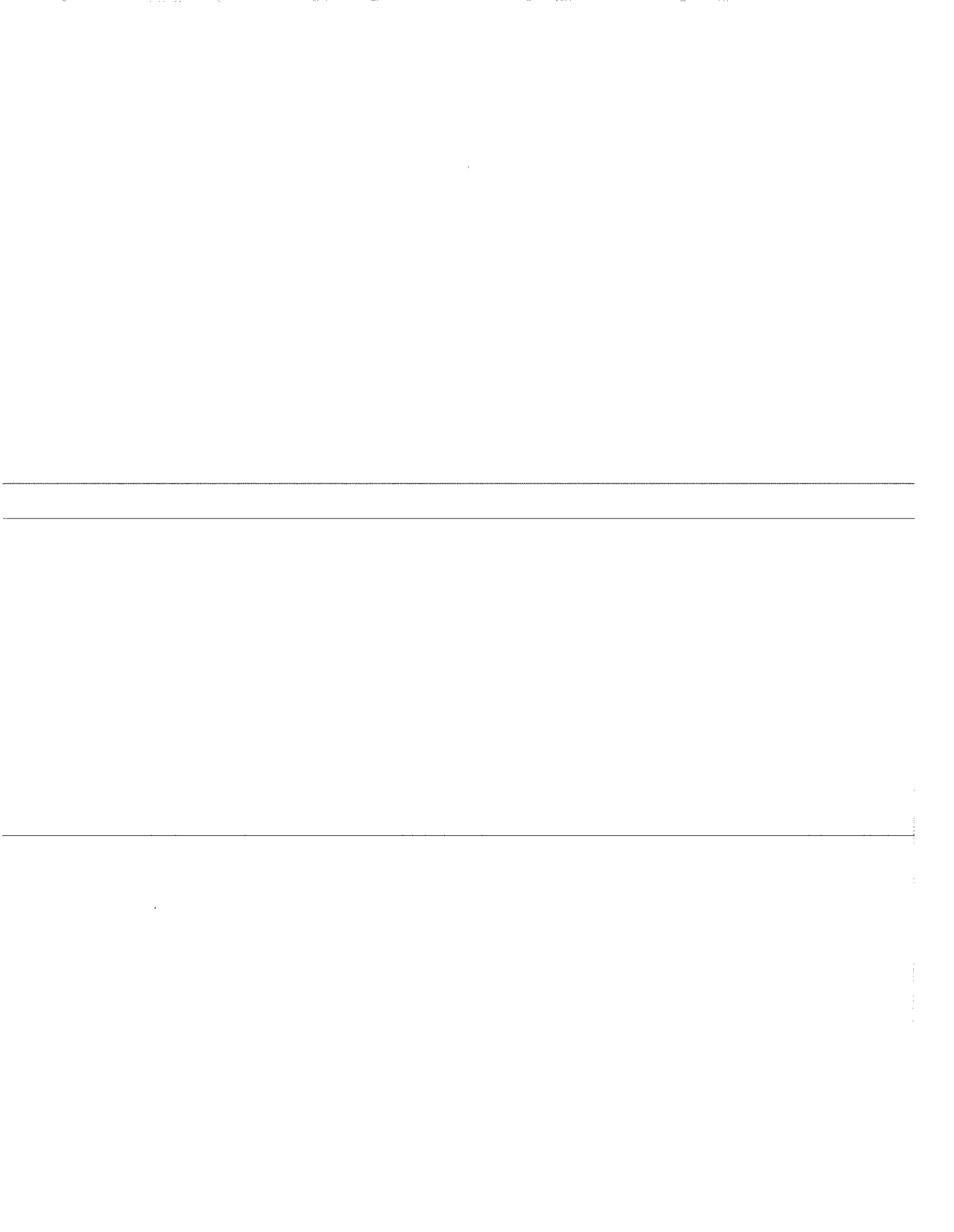


TABLE B-1. CRITICAL ACCIDENT RATES FOR RURAL ONE-LANE SECTIONS

CRITICAL ACCIDENT RATE (ACC/100 MVM)						
SECTION LENGTH (MILES)						
AADT	0.5	1	2	5	10	
100	7,731	5,059	3,453	2,224	1,675	
200	5,059	3,453	2,459	1,675	1,316	
300	4,025	2,816	2,056	1,447	1,164	
400	3,453	2,459	1,827	1,316	1,075	
500	3,081	2,224	1,675	1,228	1,016	
700	2,616	1,928	1,482	1,115	939	
1,000	2,224	1,675	1,316	1,016	872	
1,500	1,875	1,447	1,164	925	810	
2,000	1,675	1,316	1,075	872	773	
2,500	1,543	1,228	1,016	836	748	
3,000	1,447	1,164	973	810	730	

TABLE B-2. CRITICAL ACCIDENT RATES FOR RURAL TWO-LANE SECTIONS

CRITICAL ACCIDENT RATE (ACC/100 MVM)						
SECTION LENGTH (MILES)						
AADT	0.5	1	2	5	10	20
100	6,521	4,140	2,740	1,694	1,237	943
300	3,235	2,194	1,553	1,050	819	666
500	2,420	1,694	1,237	871	701	586
1,000	1,694	1,237	943	701	586	508
1,500	1,402	1,050	819	628	537	474
2,000	1,237	943	748	586	508	454
3,000	1,050	819	666	537	474	430
4,000	943	748	618	508	454	416
5,000	871	701	586	488	440	407
6,000	819	666	562	474	430	400
7,000	780	639	544	462	422	394
8,000	748	618	530	454	416	390
9,000	722	601	518	446	411	386
10,000	701	586	508	440	407	383

TABLE B-3. CRITICAL ACCIDENT RATES FOR RURAL THREE-LANE SECTIONS

AADT	CRITICAL ACCIDENT RATE (ACC/100 MVM)				
	SECTION LENGTH (MILES)				
	0.5	1	2	3	5
100	8,929	5,980	4,179	3,456	2,777
300	4,824	3,456	2,583	2,222	1,874
500	3,757	2,777	2,141	1,874	1,616
1,000	2,777	2,141	1,720	1,541	1,365
1,500	2,373	1,874	1,541	1,398	1,257
2,000	2,141	1,720	1,436	1,314	1,194
3,000	1,874	1,541	1,314	1,216	1,119
4,000	1,720	1,436	1,242	1,158	1,075
5,000	1,616	1,365	1,194	1,119	1,046
6,000	1,541	1,314	1,158	1,091	1,024
7,000	1,482	1,274	1,131	1,069	1,007
8,000	1,436	1,242	1,109	1,051	993
9,000	1,398	1,216	1,091	1,036	982
10,000	1,365	1,194	1,075	1,024	972

TABLE B-4. CRITICAL ACCIDENT RATES FOR RURAL FOUR-LANE DIVIDED (NO ACCESS CONTROL) SECTIONS

AADT	CRITICAL ACCIDENT RATE (ACC/100 MVM)				
	SECTION LENGTH (MILES)				
	0.5	1	2	5	10
500	1,872	1,263	889	597	463
1,000	1,263	889	653	463	375
2,500	801	597	463	353	300
5,000	597	463	375	300	264
7,500	512	407	337	277	248
10,000	463	375	315	264	239
15,000	407	337	289	248	228
20,000	375	315	274	239	221
30,000	337	289	256	228	213
40,000	315	274	246	221	209
50,000	300	264	239	217	206

TABLE B-5. CRITICAL ACCIDENT RATES FOR RURAL FOUR-LANE UNDIVIDED SECTIONS

AADT	CRITICAL ACCIDENT RATE (ACC/100 MVM)				
	SECTION LENGTH (MILES)				
	0.5	1	2	5	10
500	2,590	1,829	1,348	960	779
1,000	1,829	1,348	1,036	779	657
2,500	1,233	960	779	626	552
5,000	960	779	657	552	500
7,500	846	702	604	519	478
10,000	779	657	573	500	464
20,000	657	573	515	464	439
30,000	604	536	490	449	428
40,000	573	515	475	439	422
50,000	552	500	464	433	417

TABLE B-6. CRITICAL ACCIDENT RATES FOR RURAL INTERSTATE SECTIONS

AADT	CRITICAL ACCIDENT RATE (ACC/100 MVM)					
	SECTION LENGTH (MILES)					
	0.5	1	2	5	10	20
500	1,208	756	492	298	215	161
1,000	756	492	335	215	161	126
2,500	433	298	315	148	117	97
5,000	298	215	161	117	97	83
7,500	245	180	139	104	88	77
10,000	215	161	126	97	83	73
20,000	161	126	103	83	73	67
30,000	139	111	93	77	69	64
40,000	126	103	87	73	67	62
50,000	117	97	83	71	65	61



TABLE B-7. CRITICAL ACCIDENT RATES FOR RURAL PARKWAY SECTIONS

AADT	CRITICAL ACCIDENT RATE (ACC/100 MVM)					
	SECTION LENGTH (MILES)					
	0.5	1	2	5	10	20
400	1,539	966	632	385	278	209
700	1,054	684	463	295	220	172
1,000	839	557	385	253	193	153
1,500	657	446	317	215	168	138
2,000	557	385	278	193	153	127
3,000	446	317	234	168	138	116
4,000	385	278	209	153	127	109
5,000	345	253	193	144	120	105
7,000	295	220	172	131	112	97
10,000	253	193	153	120	105	94
20,000	193	153	127	105	94	86
40,000	153	127	109	94	86	81

TABLE B-8. CRITICAL ACCIDENT RATES FOR URBAN TWO-LANE SECTIONS

AADT	CRITICAL ACCIDENT RATE (ACC/100 MVM)				
	SECTION LENGTH (MILES)				
	0.5	1	2	5	10
500	3,533	2,593	1,985	1,485	1,247
1,000	2,593	1,985	1,583	1,247	1,084
2,500	1,837	1,485	1,247	1,044	944
5,000	1,485	1,247	1,084	944	875
7,500	1,335	1,144	1,014	900	844
10,000	1,247	1,084	972	875	826
15,000	1,144	1,014	923	844	805
20,000	1,084	972	894	826	792
30,000	1,014	923	860	805	777
40,000	972	894	840	792	768
50,000	944	875	826	783	762

TABLE B-9. CRITICAL ACCIDENT RATES FOR URBAN FOUR-LANE DIVIDED (NO ACCESS CONTROL) SECTIONS

CRITICAL ACCIDENT RATE (ACC/100 MVM)

SECTION LENGTH (MILES)

AADT	0.5	1	2	5	10
1,000	2,213	1,666	1,307	1,009	866
2,500	1,534	1,220	1,009	830	742
5,000	1,220	1,009	866	742	682
10,000	1,009	866	767	682	639
15,000	919	804	724	655	621
20,000	866	767	699	639	610
25,000	830	742	682	629	602
30,000	804	724	669	621	597
40,000	767	699	651	610	589
50,000	742	682	639	602	584
60,000	724	669	631	597	580

TABLE B-10. CRITICAL ACCIDENT RATES FOR URBAN FOUR-LANE UNDIVIDED SECTIONS

CRITICAL ACCIDENT RATE (ACC/100 MVM)

SECTION LENGTH (MILES)

AADT	0.5	1	2	5	10
1,000	2,696	2,072	1,660	1,313	1,145
2,500	1,921	1,558	1,313	1,103	1,001
5,000	1,558	1,313	1,145	1,001	929
10,000	1,313	1,145	1,030	929	879
15,000	1,207	1,073	979	898	857
20,000	1,145	1,030	949	879	844
25,000	1,103	1,001	929	866	835
30,000	1,073	979	914	857	828
40,000	1,030	949	893	844	819
50,000	1,001	929	879	835	813
60,000	979	914	868	828	808

TABLE B-11. CRITICAL ACCIDENT RATES FOR URBAN INTERSTATE SECTIONS

AADT	CRITICAL ACCIDENT RATE (ACC/100 MVM)				
	SECTION LENGTH (MILES)				
	0.5	1	2	5	10
1,000	1,102	761	549	380	302
5,000	499	380	302	237	205
10,000	380	302	250	205	184
20,000	302	250	214	184	168
30,000	269	227	199	174	162
40,000	250	214	190	168	158
50,000	237	205	184	165	155
60,000	227	199	179	162	153
70,000	220	194	176	160	152
80,000	214	190	173	158	151
90,000	209	186	170	156	150
100,000	205	184	168	155	149

TABLE B-12. CRITICAL ACCIDENT RATES FOR URBAN PARKWAY SECTIONS

AADT	CRITICAL ACCIDENT RATE (ACC/100 MVM)				
	SECTION LENGTH (MILES)				
	0.5	1	2	5	10
500	1,511	985	670	429	322
1,000	985	670	475	322	252
2,500	597	429	322	235	194
5,000	429	322	252	194	166
7,500	361	278	222	176	154
10,000	322	252	205	166	146
15,000	278	222	185	154	138
20,000	252	205	174	146	133
30,000	222	185	160	138	127
40,000	205	174	152	133	124
50,000	194	166	146	130	122

APPENDIX C

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CRITICAL ACCIDENT RATE TABLES FOR "SPOTS"

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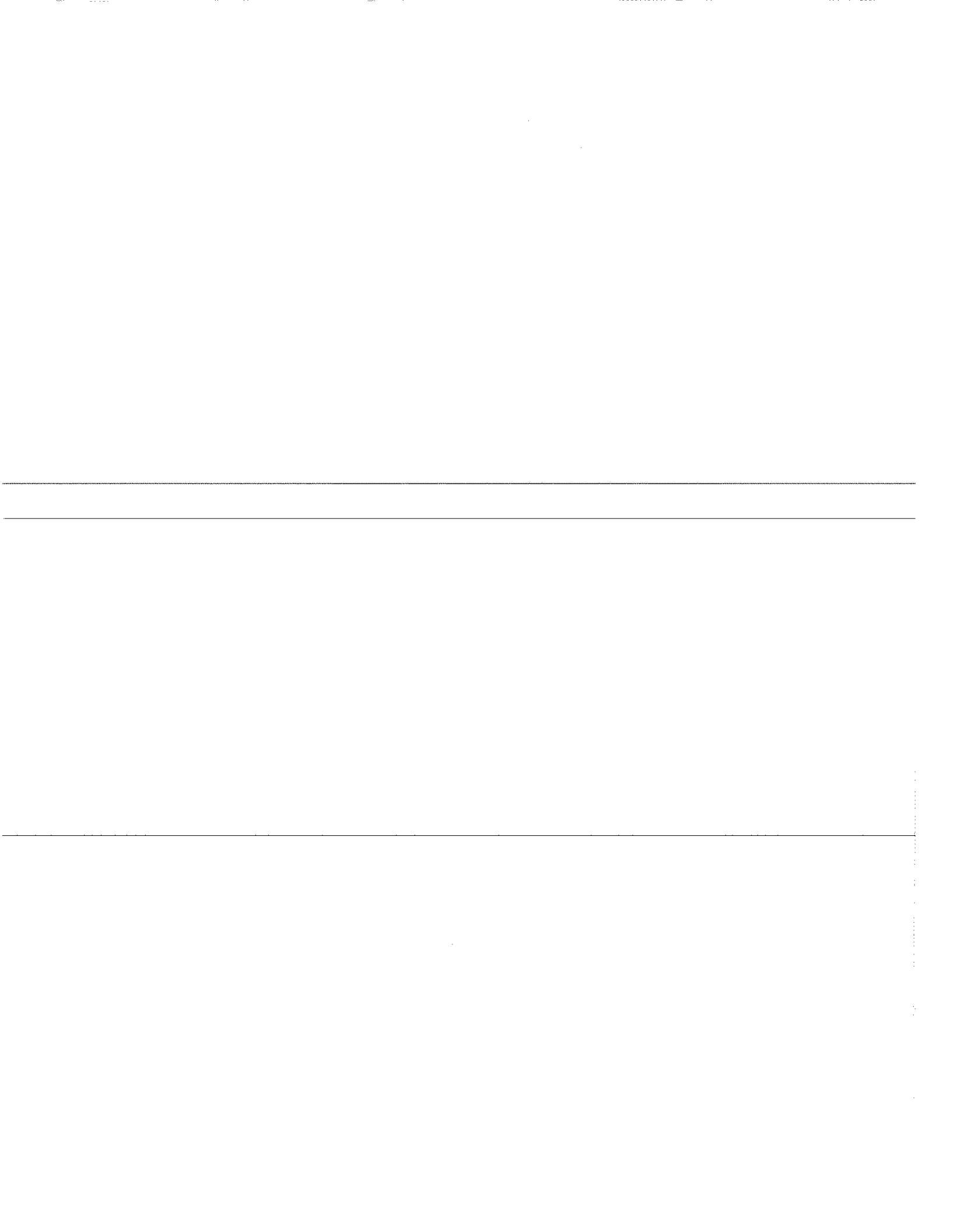


TABLE C-1. CRITICAL ACCIDENT RATES FOR "SPOTS" ON RURAL ONE-LANE, TWO-LANE, AND THREE-LANE HIGHWAYS

CRITICAL ACCIDENT RATE (ACC/MVM)

HIGHWAY TYPE

AADT	ONE-LANE	TWO-LANE	THREE-LANE
100	32.6	28.0	36.9
500	12.1	9.69	14.4
1,000	8.47	6.57	10.3
2,500	5.64	4.20	7.09
5,000	4.36	3.14	5.60
7,500	3.82	2.70	4.96
10,000	3.50	2.45	4.60
15,000	3.14	2.16	4.17
20,000	2.93	1.99	3.92

TABLE C-2. CRITICAL ACCIDENT RATES FOR "SPOTS" ON RURAL FOUR-LANE HIGHWAYS, INTERSTATES, AND PARKWAYS

CRITICAL ACCIDENT RATE (ACC/MVM)

HIGHWAY TYPE

AADT	FOUR-LANE UNDIVIDED	FOUR-LANE DIVIDED (NO ACCESS CONTROL)	INTERSTATE	PARKWAY
500	10.3	7.71	5.23	5.64
1,000	7.06	5.04	3.17	3.48
2,500	4.57	3.07	1.74	1.95
5,000	3.45	2.22	1.17	1.33
10,000	2.72	1.67	0.81	0.94
15,000	2.41	1.44	0.67	0.78
20,000	2.23	1.31	0.59	0.69
30,000	2.02	1.16	0.50	0.59
40,000	1.89	1.07	0.45	0.54
50,000	1.81	1.01	0.41	0.50

TABLE C-3. CRITICAL ACCIDENT RATES FOR "SPOTS" ON URBAN  
TWO-LANE HIGHWAYS AND PARKWAYS

AADT	CRITICAL ACCIDENT RATE (ACC/MVM)	
	HIGHWAY TYPE	
	TWO-LANE	PARKWAY
500	13.7	6.41
1,000	9.75	4.05
2,500	6.63	2.36
5,000	5.20	1.65
7,500	4.60	1.36
10,000	4.25	1.20
15,000	3.84	1.01
20,000	3.60	0.91
30,000	3.32	0.79
40,000	3.16	0.72

TABLE C-4. CRITICAL ACCIDENT RATES FOR "SPOTS" ON URBAN  
FOUR-LANE HIGHWAYS AND INTERSTATES

AADT	CRITICAL ACCIDENT RATE (ACC/MVM)		
	HIGHWAY TYPE		
	FOUR-LANE UNDIVIDED	FOUR-LANE, DIVIDED (NO ACCESS CONTROL)	INTERSTATE
1,000	10.1	8.42	4.47
5,000	5.43	4.32	1.88
10,000	4.45	3.47	1.39
15,000	4.03	3.11	1.19
20,000	3.79	2.90	1.07
30,000	3.50	2.66	0.94
40,000	3.33	2.51	0.86
50,000	3.22	2.41	0.81
60,000	3.13	2.34	0.77
70,000	3.07	2.29	0.74
80,000	3.02	2.24	0.72
90,000	2.97	2.21	0.70
100,000	2.94	2.18	0.68