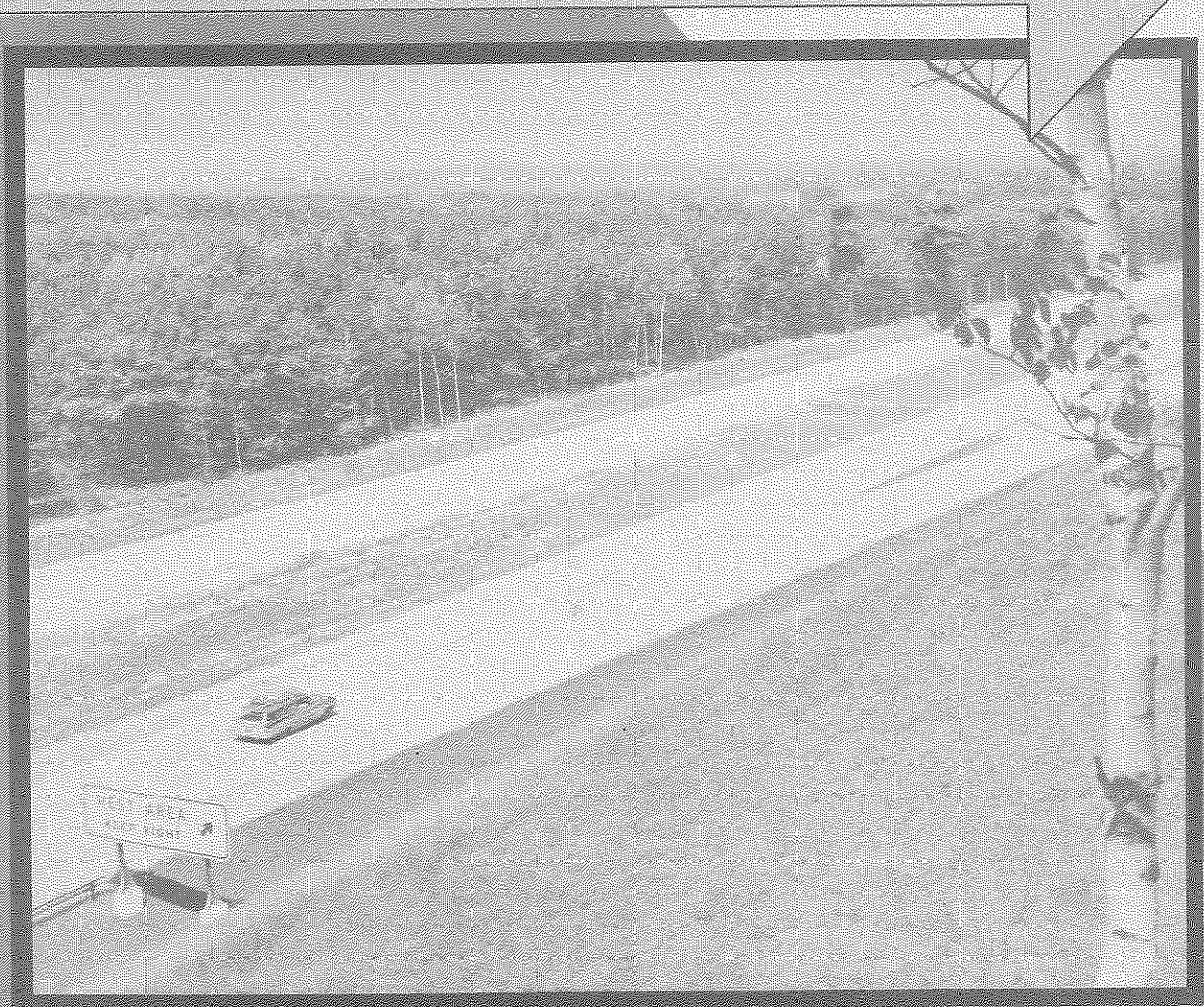


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I-94 REST AREA STUDY

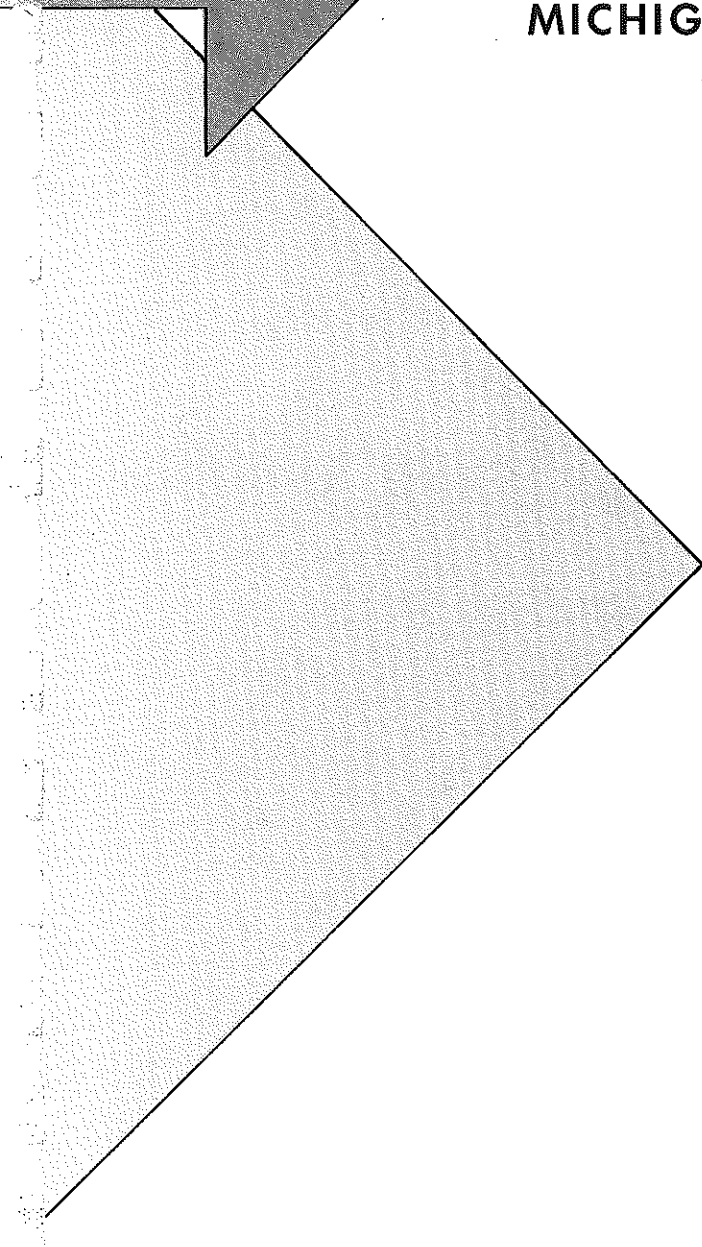


MICHIGAN STATE HIGHWAY DEPARTMENT
JOHN C. MACKIE, COMMISSIONER

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PREPARED BY
TRAFFIC DIVISION
OFFICE OF ENGINEERING
MICHIGAN STATE HIGHWAY DEPARTMENT



IN COOPERATION WITH
THE BUREAU OF PUBLIC ROADS
U. S. DEPARTMENT OF COMMERCE

Foreword

In the fall of 1960 Michigan placed into operation three rest areas on the Interstate System. All the facilities were located on I-94 (Detroit to Stevensville to Chicago route). These areas had additional facilities that motorists in Michigan had not encountered before. Such items as telephone and night lighting had not been used at any of Michigan's roadside parks.

The purpose of this study was to obtain from the motorist himself what he felt should be in the rest area. We were also interested in studying his movements while in the different areas.

The three rest areas studied were: Marshall - westbound I-94, 6 miles east of US-27, Calhoun County; Kalamazoo - eastbound I-94, 6 miles west of US-131, Kalamazoo County and Watervliet - westbound I-94, 4 miles east of M-140, Van Buren County.

This report presents first the composite of the three rest areas, that were open to the public at the time of the study, and then gives the results of each individual rest area.

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	Marshall	Kalamazoo	Watervliet
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Comments on, the Study

The three rest areas studied were:

Marshall on I-94 Westbound 6 miles East of US-27, Calhoun Co.

Kalamazoo on I-94 Eastbound 6 miles West of US-131, Kalamazoo Co.

Watervliet on I-94 Westbound 4 miles east of M-140, Van Buren Co.

The Study periods for the three rest areas were:

Daylight 7AM-7PM Tues. July 25th 1961 at Marshall
Wed. July 26th 1961 at Kalamazoo
Thurs. July 27th 1961 at Watervliet

Nighttime 7PM-7AM Mon. Sept. 11th 1961 at Marshall
Tues. Sept. 12th 1961 at Kalamazoo
Wed. Sept. 13th 1961 at Watervliet

The combined 1961 Average Daily Traffic for the three areas was 26300. As the directional traffic is about 50% of the total, 13150 vehicles per day have access to the three rest areas - about 3800 of these are trucks. During the study periods 15216 vehicles were counted on the freeway lanes that had access to the rest area. The study consisted of both a driver interview and an observation of facilities used. The interview was obtained in the rest area as soon as possible after the vehicles had parked. Thus it was possible to find out what facilities the driver expected to or would like to have in the rest area. The interviewers tried to avoid biased and leading questions and gave the motorist the opportunity to fully express himself if he desired.

An observer recorded the facility first used by the driver and the total use of facilities by the passengers.

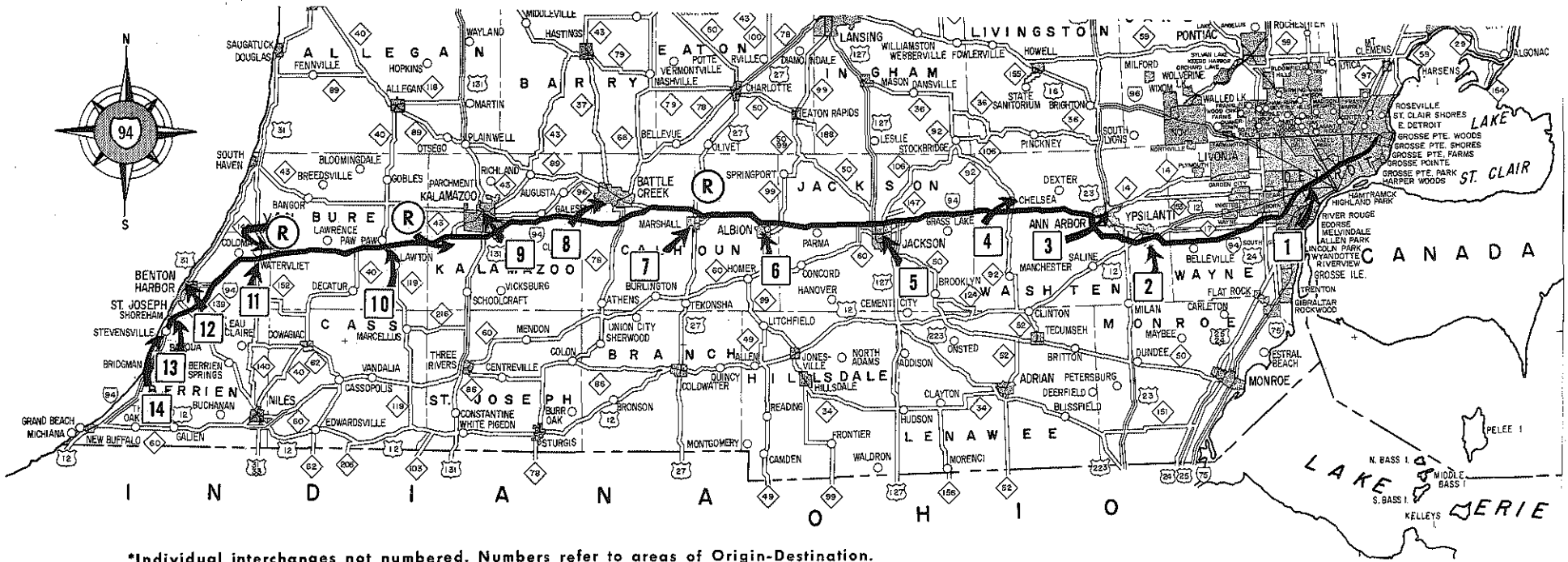
The lighting facilities in the three areas ranged from nine fixtures at Kalamazoo to one at Marshall and Watervliet. Each fixture is capable of producing 10000 lumens. Even in the daytime the motorist made an attempt to answer as to the adequacy of the lighting after observing what fixtures were located in the area.

I-94 FREEWAY INDICATING REST AREAS STUDIED

———— COMPLETED SECTION OF I-94

(R) REST AREA

[1] INTERCHANGE AREA NUMBERS*



*Individual interchanges not numbered. Numbers refer to areas of Origin-Destination.

Mileage Table

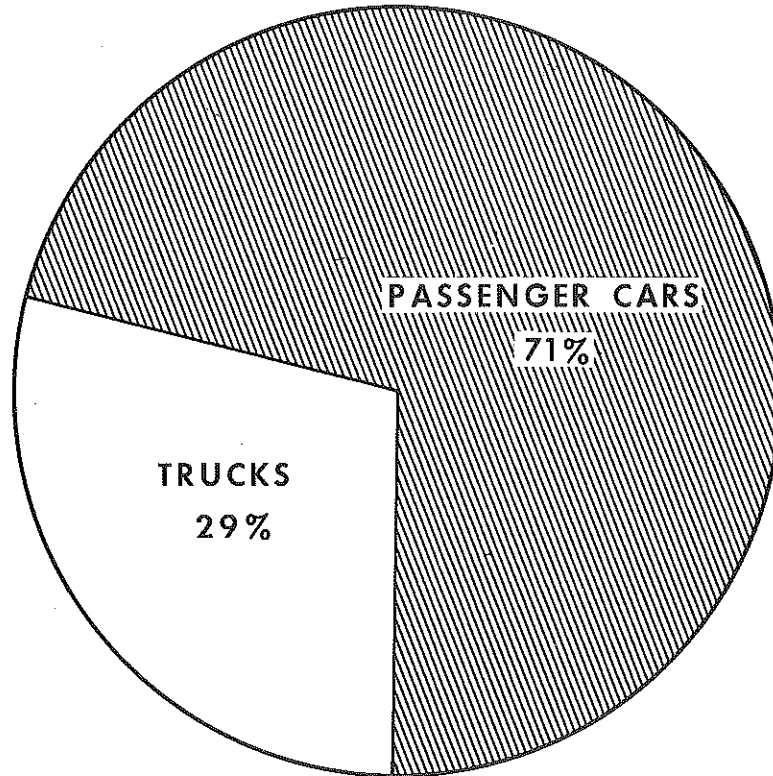
Interchange Area	No	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Detroit	1	x	38	39	59	79	98	107	121	143	163	178	189	191	198
Ypsilanti	2	38	x	1	21	41	60	69	83	105	125	140	151	153	160
Ann Arbor	3	39	1	x	20	40	59	68	82	104	124	139	150	152	159
Chelsea	4	59	21	20	x	20	39	48	62	84	104	119	130	132	139
Jackson	5	79	41	40	20	x	19	28	42	64	84	99	110	112	119
Albion	6	98	60	59	39	19	x	9	23	45	65	80	91	93	100
Marshall	7	107	69	68	48	48	9	x	14	36	56	71	82	84	91
Battle Creek	8	121	83	82	62	42	23	14	x	22	42	57	68	70	77
Kalamazoo	9	143	105	104	84	64	45	36	22	x	20	35	46	48	55
Paw Paw	10	163	125	124	104	84	65	56	42	20	x	15	26	28	35
Watervliet	11	178	140	139	119	99	80	71	57	35	15	x	11	13	20
Benton Harbor	12	189	151	150	130	110	91	82	68	46	26	11	x	2	9
St. Joseph	13	191	153	152	132	112	93	84	70	48	28	13	2	x	7
Stevensville	14	198	160	159	139	119	100	91	77	55	35	20	9	7	x

Mileage - not necessarily the shortest route.

Vehicle Classification on I-94 in the vicinity of the rest areas indicate 71% of the vehicles are passenger cars and 29% are trucks. During the daytime period the ratio was 72.5% passenger cars 27.5% trucks. At night the ratio of trucks exceeds the passenger cars by 7%. 53.5% trucks 46.5% passenger cars.

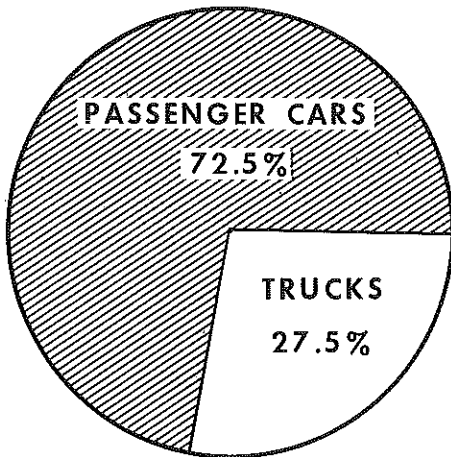
1961 REST AREA STUDY I-94

CLASSIFICATION OF VEHICLES ON FREEWAY

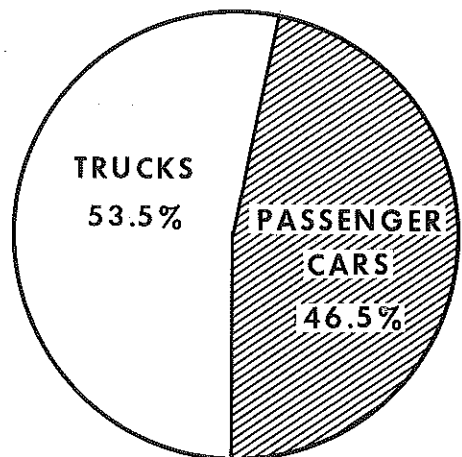


24 HOURS

DAYTIME
7 AM - 7 PM



NIGHTTIME
7 PM - 7 AM

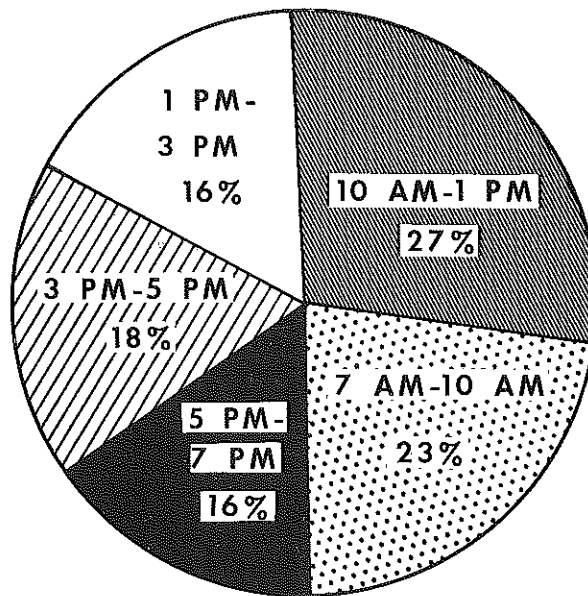


Traffic Volumes

Time Period	Daytime					Day Time		Night Time		24 Hours	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 AM to 7 PM		7 PM to 7 AM			
	No.	No.	No.	No.	No.	No.	%	No.	%	No.	%
Freeway Volumes											
All Vehicles	2355	2776	1653	1832	1611	10227	67	4989	33	15216	100
Vehicles Entering Park											
Passenger	184	279	163	135	109	870	70	118	30	988	61
Commercial	75	76	47	82	85	365	30	279	70	644	39
All Vehicles	259	355	210	217	194	1235	100	397	100	1632	100

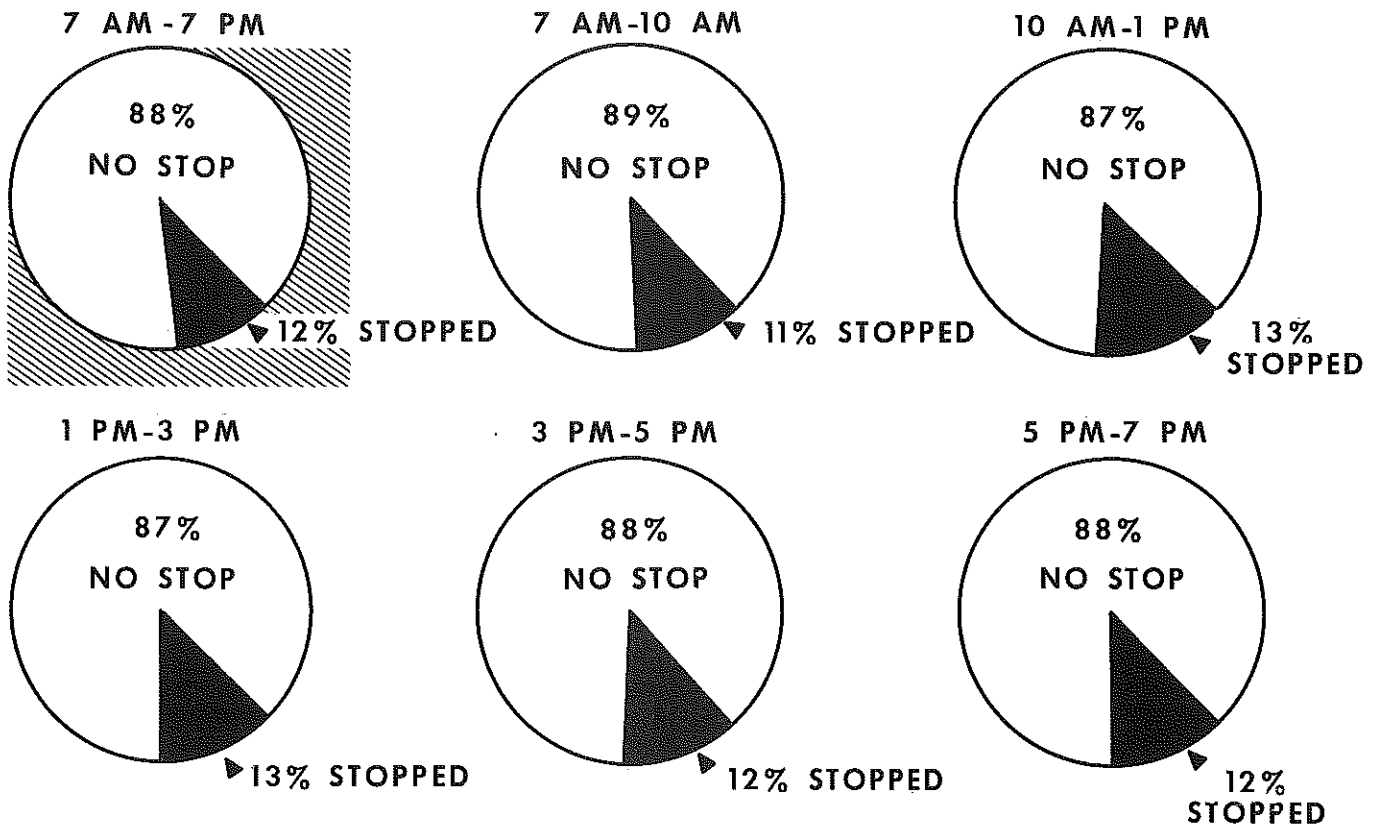
During the study period 15216 vehicles were counted on the freeway with access to the Rest Areas. 10,227 or 67% were counted during day time hours between 7AM-7PM and 4989 or 33% during Night Hours between 7PM - 7 AM.

DISTRIBUTION OF FREEWAY TRAFFIC VOLUMES "DAYTIME" BY TIME PERIODS



7 AM-7 PM
DAYTIME

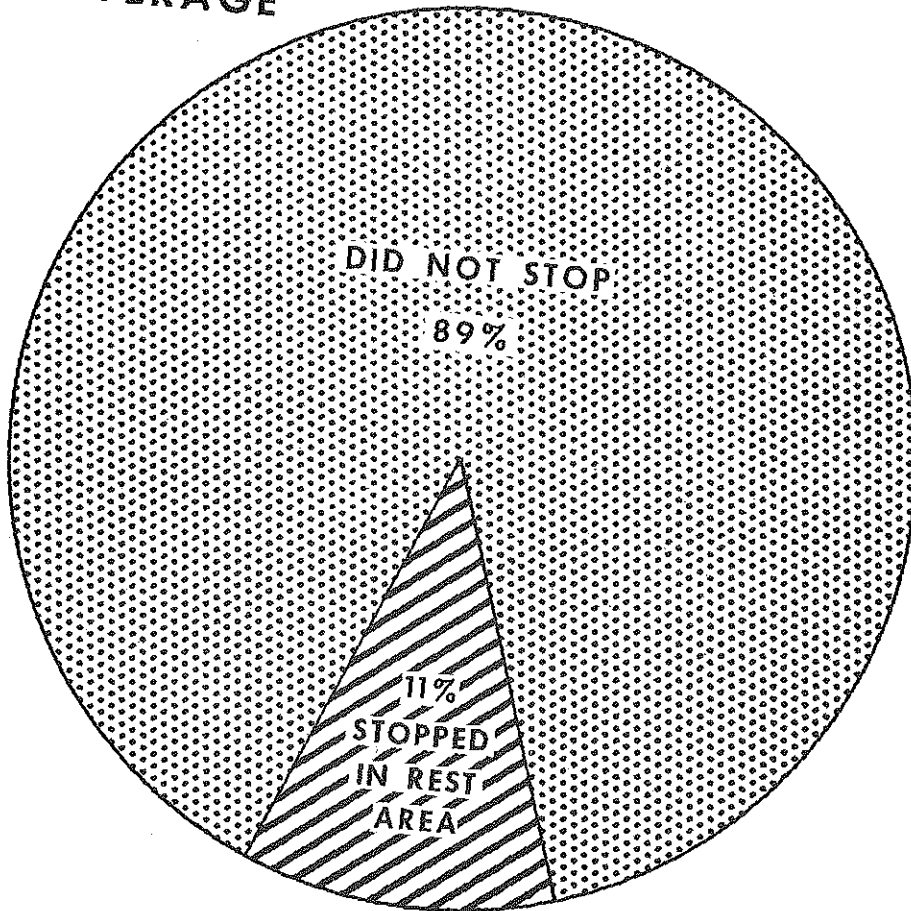
PERCENT OF FREEWAY VEHICLES STOPPING IN REST AREAS



It was found that 12% of the freeway drivers stop at the rest area during the daytime and 8% during the nighttime. Over the entire 24 hours 11% of the passing traffic stopped.

FREEWAY TRAFFIC PASSING REST AREA

24-HOUR AVERAGE



DAYLIGHT HOURS
7 AM-7 PM



NIGHTTIME HOURS
7 PM-7 AM

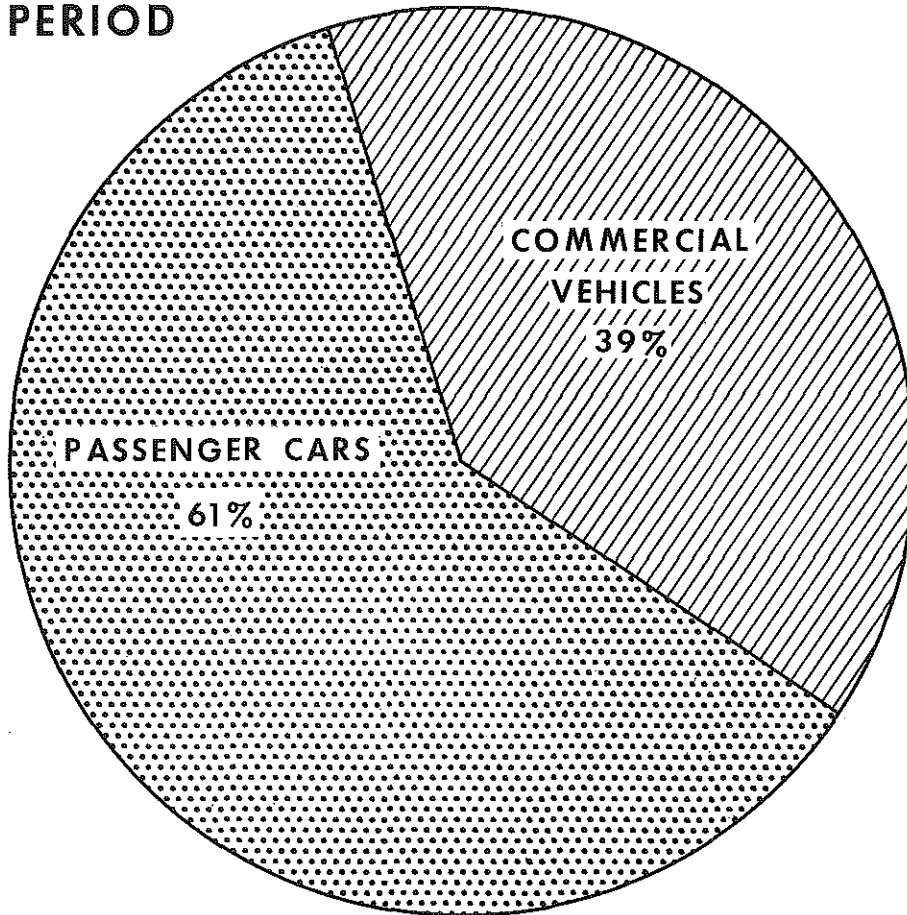


STOPPED IN REST AREA

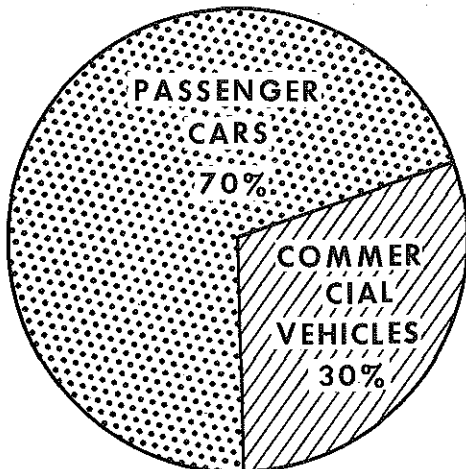
Of the vehicles entering the rest areas during the daylight hours 70% were passenger cars and 30% were trucks. This percentage was reversed for the nighttime however with 30% passenger cars and 70% trucks.

REST AREA USAGE BY VEHICLE TYPE

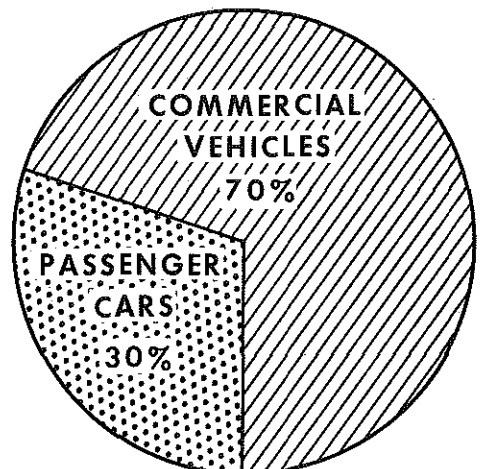
24-HOUR PERIOD



DAYLIGHT HOURS
(7 AM-7 PM)



NIGHTTIME HOURS
(7 PM-7 AM)





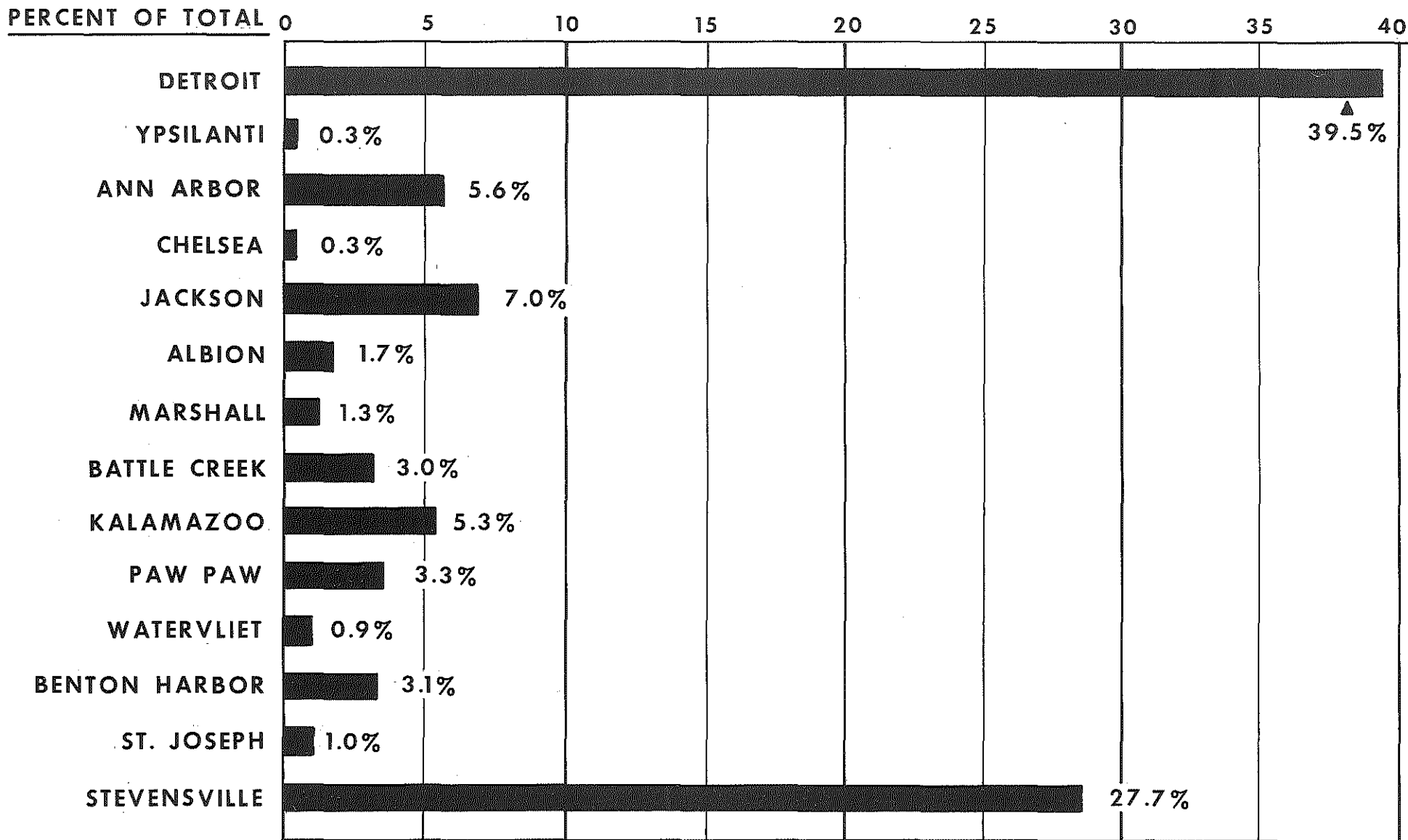
FACILITIES

All Vehicles																
Location Vehicles Entered or Left Freeway																
Entered		Total Entered	Exit													
Interchange	No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Detroit	1	454	X				1		7	21	43	7	7	34	2	332
Ypsilanti	2	3		X										2		1
Ann Arbor	3	64			X				1	2	6		2	10	3	40
Chelsea	4	4				X			1	1	1					1
Jackson	5	80					X		3	18	8	3	1	9		38
Albion	6	20						X	4	5	6	1		2		2
Marshall	7	15							X	2				1		12
Battle Creek	8	35								X			1	6	2	26
Kalamazoo	9	61			1		1		2	5	X		3	13	3	33
Paw Paw	10	38	1		1		2		2	3	15	X	7	1		6
Watervliet	11	10	3				3			1	2		X		1	
Benton Harbor	12	36	8		2		6	2	7	4	6	1		X		
St. Joseph	13	12	8					1		1					X	
Stevensville	14	318	200	7	17	2	22	2	28	20	20					X
Total		1150	220	7	21	2	35	5	55	83	109	12	21	78	11	491

Trips having an Origin-Destination opposite to the Direction of Traffic serviced by Rest Area utilize a Local Interchange to visit the Rest Area.

From the interviews obtained at the three Rest Areas, Marshall, Kalamazoo and Watervliet; it was interesting to note that of the 454 vehicles entering the freeway at Detroit, 332 were traveling the full distance of the freeway (Detroit-Stevensville). Of those 318, who indicated they entered the freeway at Stevensville, 200 were driving the entire distance to Detroit.

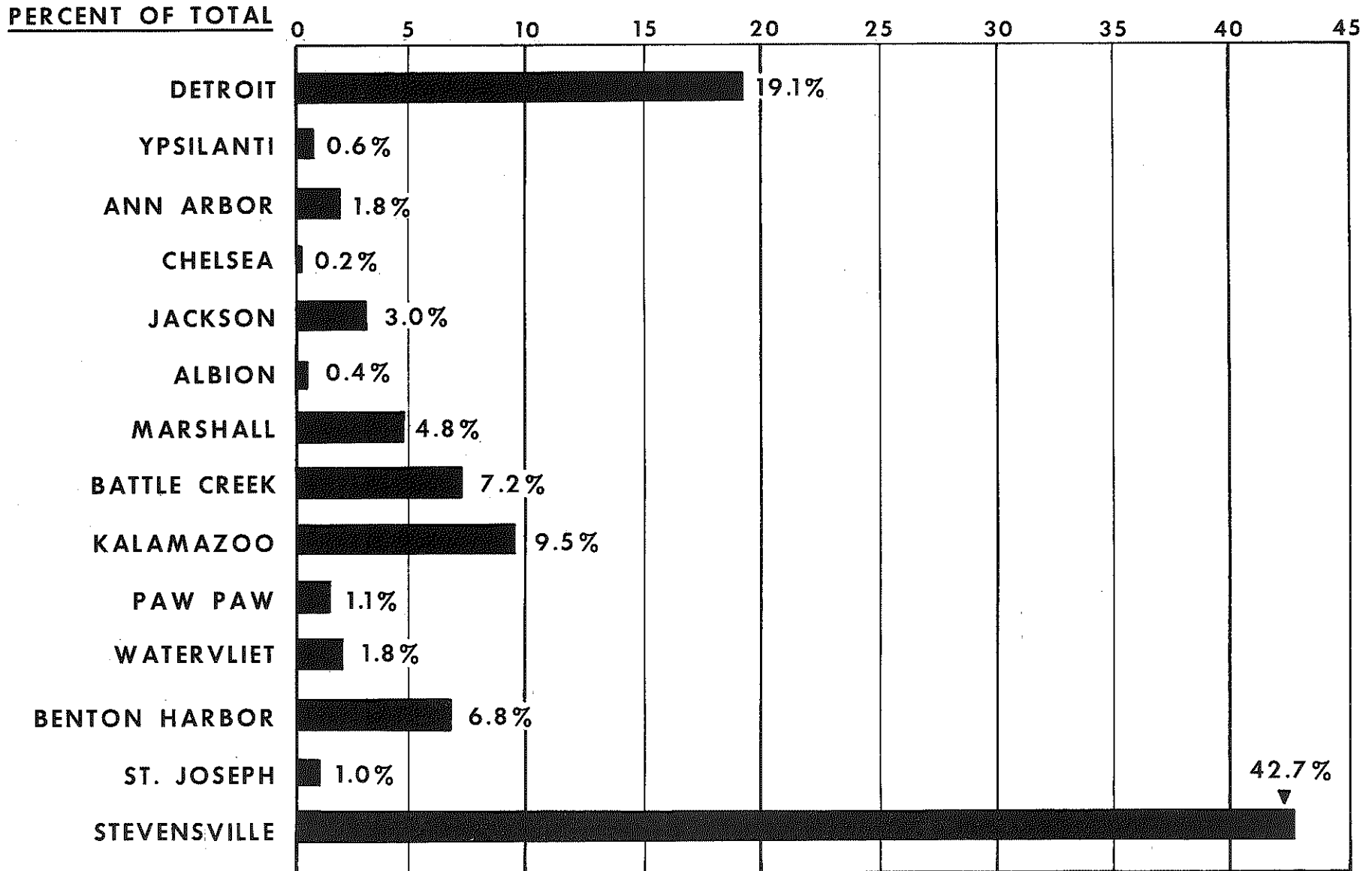
1961 REST AREA STUDY I-94
POINTS OF ENTRY TO I-94 (FREEWAY)
 (AS INDICATED IN INTERVIEW AT REST AREA)



1961 REST AREA STUDY I-94

POINTS OF EXIT FROM I-94 (FREEWAY)

(AS INDICATED IN INTERVIEW AT REST AREA)

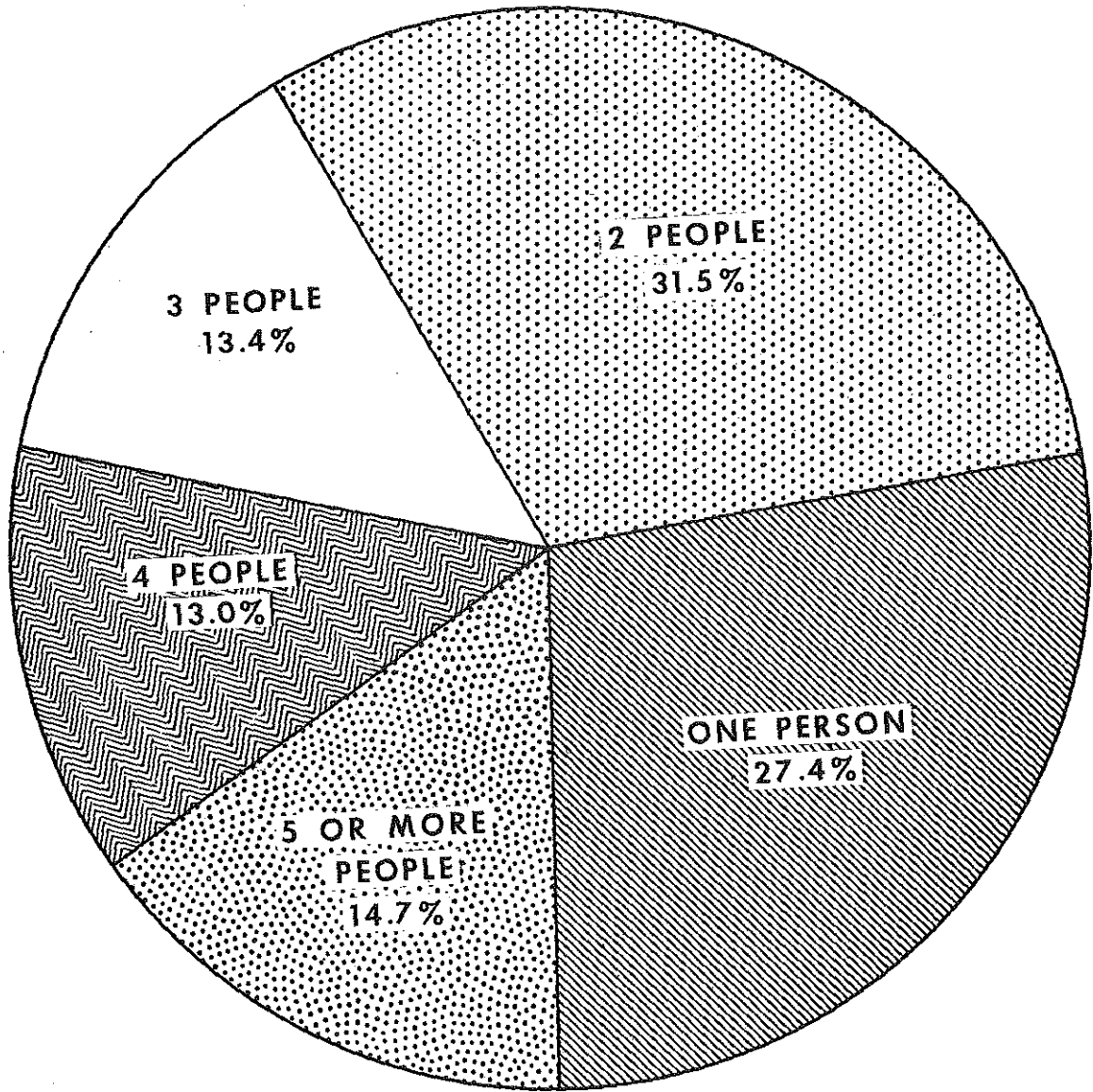


Vehicle Occupancy and Classification												
Occupancy												
Passenger Car by Registration						Commercial Vehicle by Type				All Vehicles		
No. Persons Per Vehicle	Mich. Local	Mich. Out State	Out of State	Total Pass Cars		Single Units	Tractor & Semi Trailer	TK-TR TT-ST TR	Total	Inter- viewed	Not Inter- viewed	Total
	No.	No.	No.	No.	%	No.	No.	No.	No.	No.	No.	No.
1	36	161	74	271	27.4	68	451	72	591	599	263	862
2	13	189	109	311	31.5	19	25	1	45	254	102	356
3	4	70	58	132	13.4	4	1	-	5	97	40	137
4	8	69	52	129	13.0	1	-	1	2	93	38	131
5+	7	63	75	145	14.7	1	-	-	1	107	39	146
Total	68	552	368	988	100	93	477	74	644	1150	482	1632
% of Total	6.9	55.9	37.2									
Avg.No Persons Per Vehicle	2.1	2.4	2.9	2.6		1.4	1.1	1.1	1.1	2.0	1.9	2.0
	2.4											

More than 37% of those stopping at the rest area were from out of the state, about 7% were local people and about 56% were Michigan people from outside the local area.

Nearly 32% of the passenger cars contained 2 persons, over 27% contained only the driver and nearly 15% had 5 or more in each vehicle.

DISTRIBUTION OF PASSENGER CAR OCCUPANCY

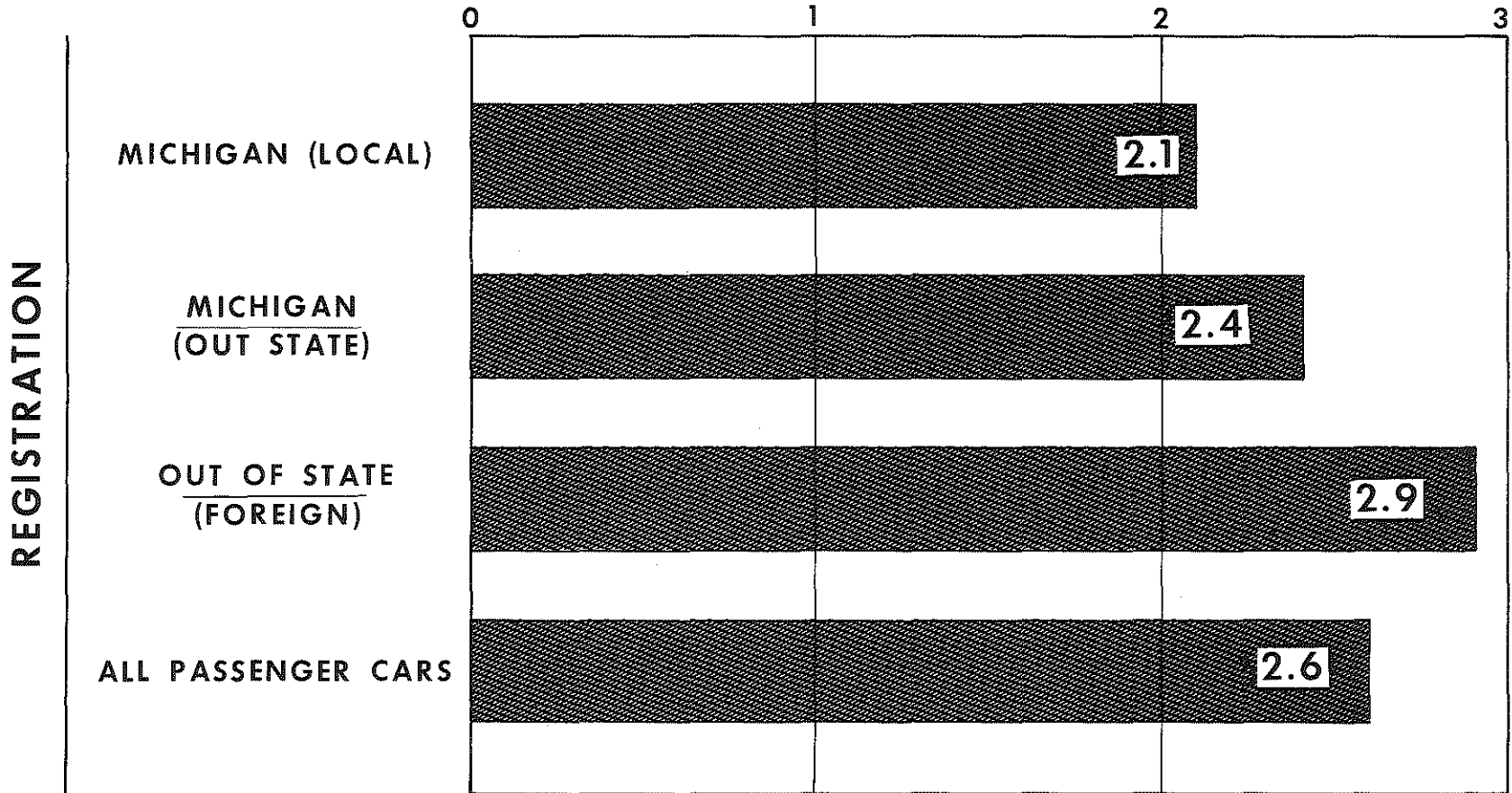


The average number of persons per passenger car was 2.6. It is interesting to note that vehicles from out of state averaged 2.9 persons per passenger car while Michigan vehicles averaged just under 2.4 persons per vehicle.

1961 REST AREA STUDY I-94

VEHICLE OCCUPANCY BY REGISTRATION

(AVERAGE NUMBER OF PERSONS PER CAR)

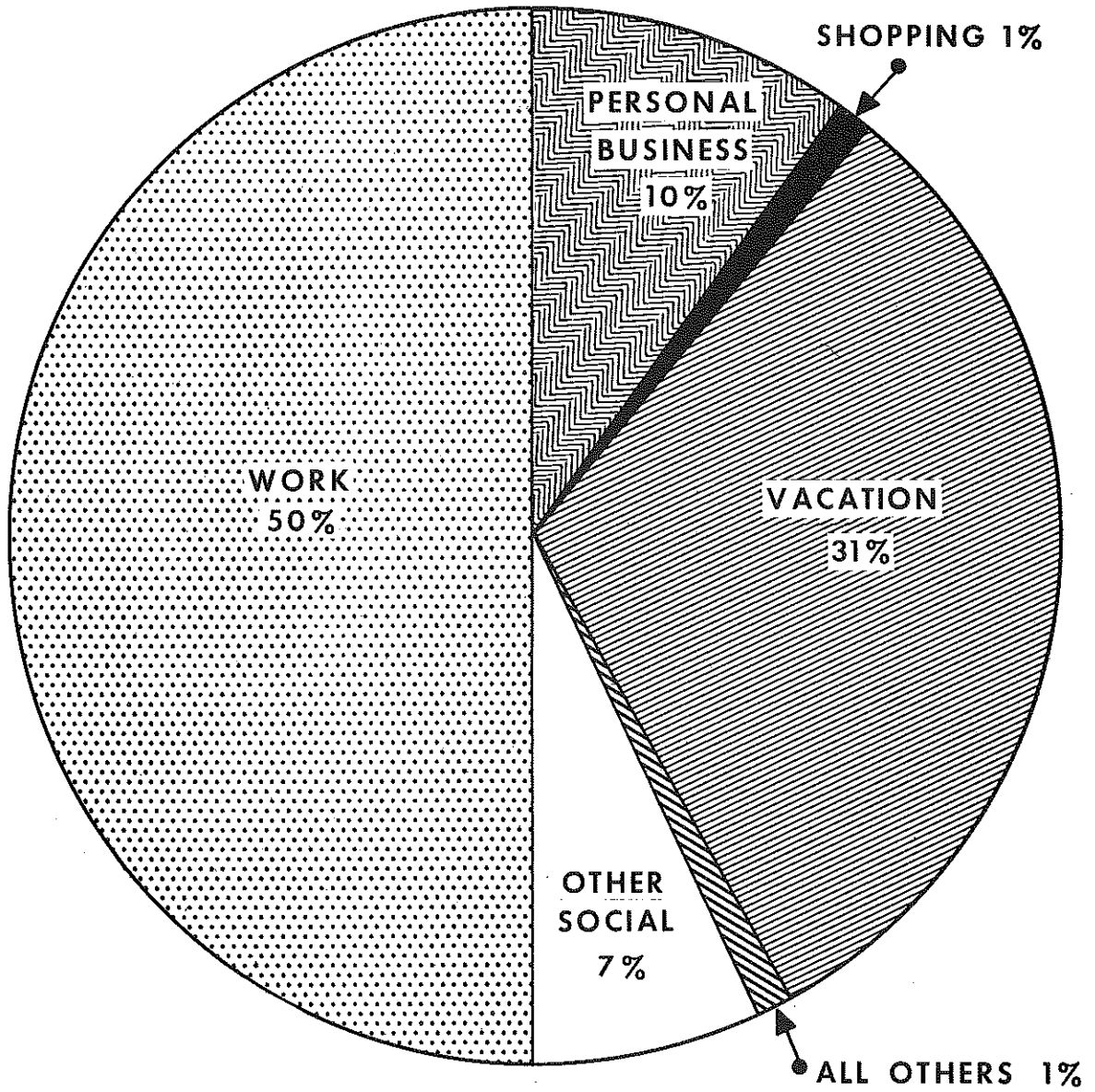


TRIP PURPOSE
All Vehicles

	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
Work	78	81	52	73	69	225	578	50
Personal Business	14	8	14	15	6	61	118	10
Shopping	-	-	6	4	1	1	12	1
Vacation	70	133	49	46	41	17	356	31
Other Social	7	21	15	9	15	9	76	7
All Others	-	1	2	2	-	5	10	1
Total	169	244	138	149	132	318	1150	

TRIP PURPOSE

(ALL VEHICLES)



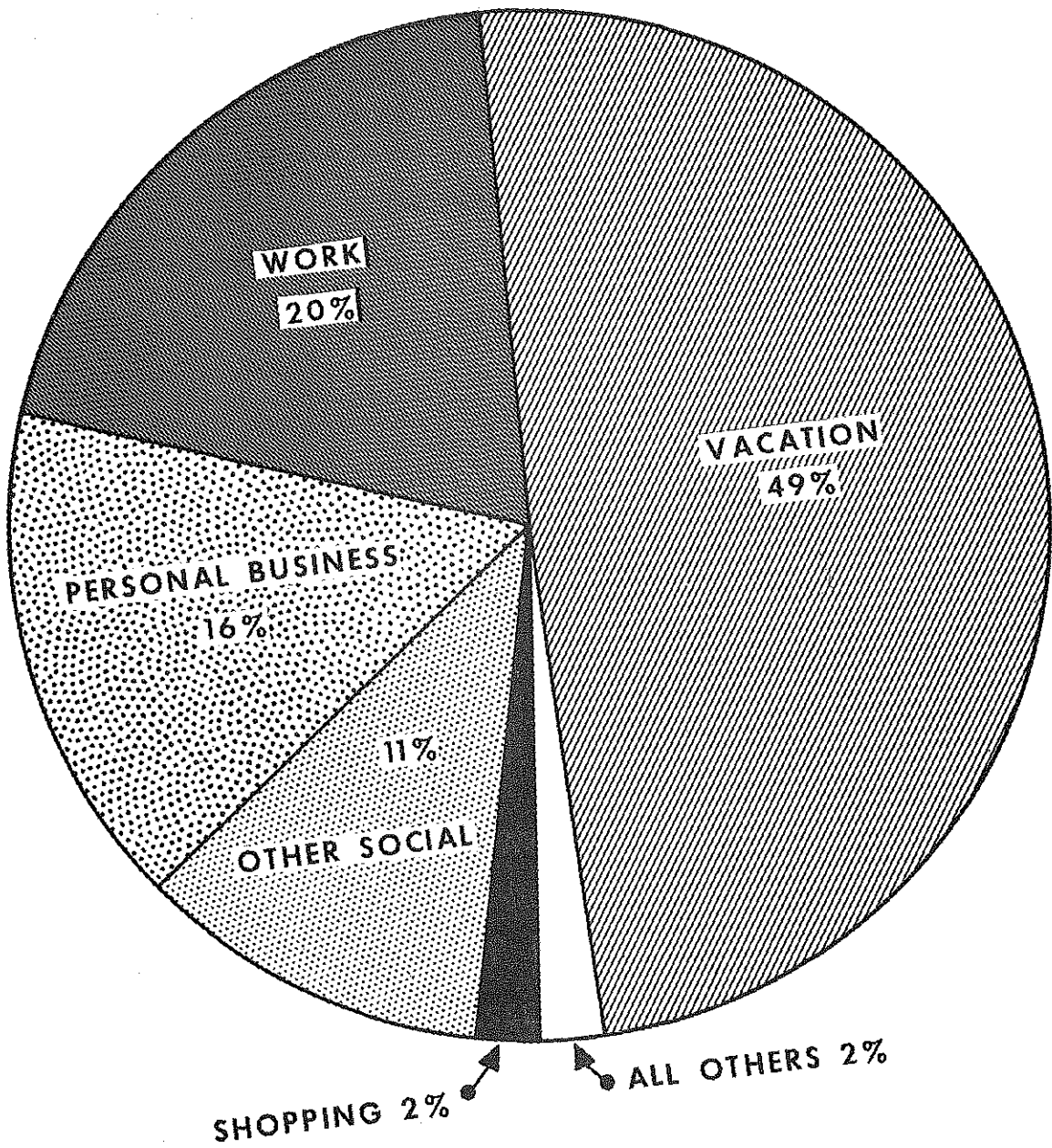
TRIP PURPOSE
Passenger Cars

	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
Work	28	30	23	17	15	29	142	20
Personal Business	14	8	14	15	5	59	115	16
Shopping	-	-	6	4	1	-	11	2
Vacation	70	131	47	44	39	16	347	49
Other Social	7	21	15	9	14	9	75	11
All Others	-	1	2	2	-	4	9	2
Total	119	191	107	91	74	117	699	

That Michigan is a vacation state is well indicated by the fact that almost half (49%) of the passenger car trip purposes were for vacation; 20% were work trips and 16% were on personal business.

1961 REST AREA STUDY I-94

TRIP PURPOSE
(PASSENGER CARS)



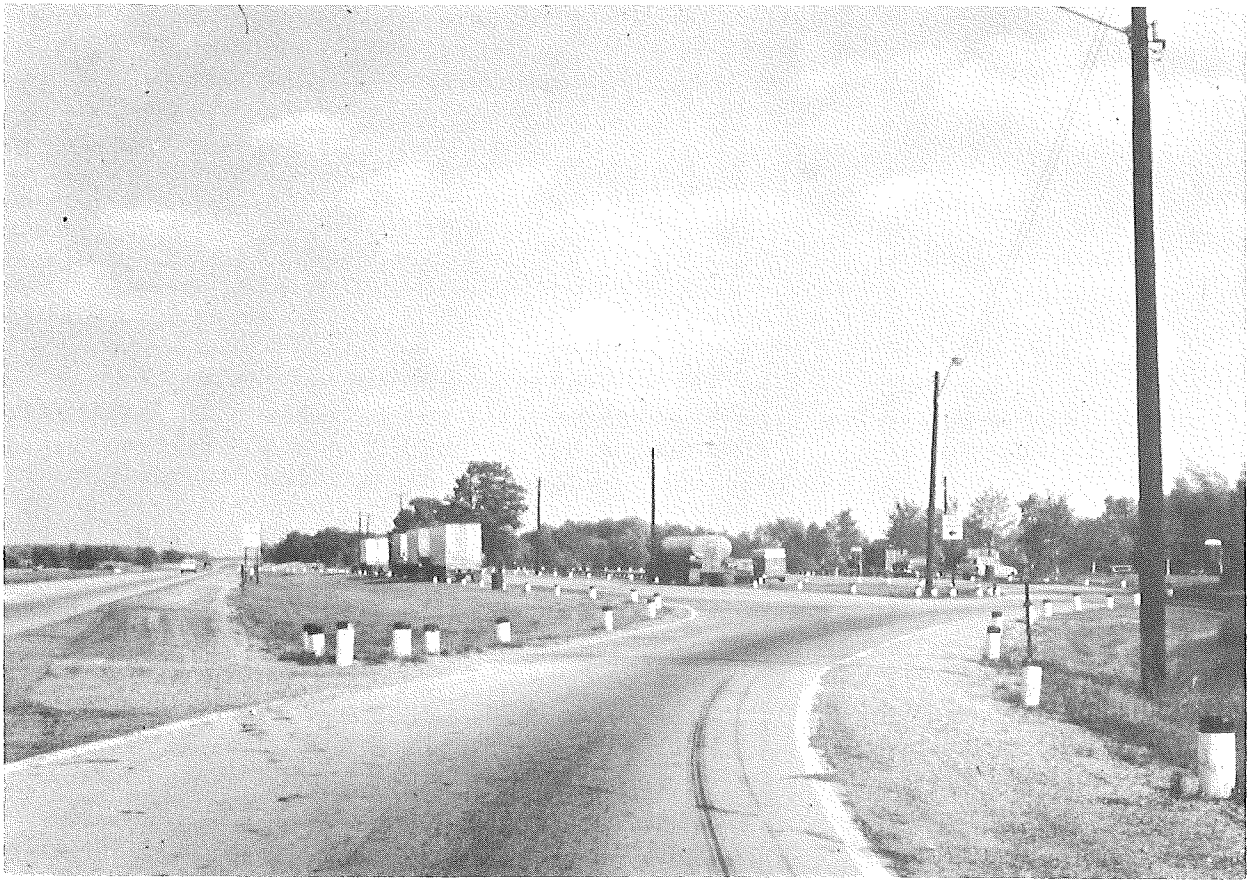
TRIP PURPOSE

Trucks

	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
Work	50	51	29	56	54	196	436	97
Personal Business	-	-	-	-	1	2	3	1
Shopping	-	-	-	-	-	1	1	<1
Vacation	-	2	2	2	2	1	9	2
Other Social	-	-	-	-	1	-	1	<1
All Others	-	-	-	-	-	1	1	<1
Total	50	53	31	58	58	201	451	

<1 Less than one percent

97% of the trucks indicated work as their trip purpose.

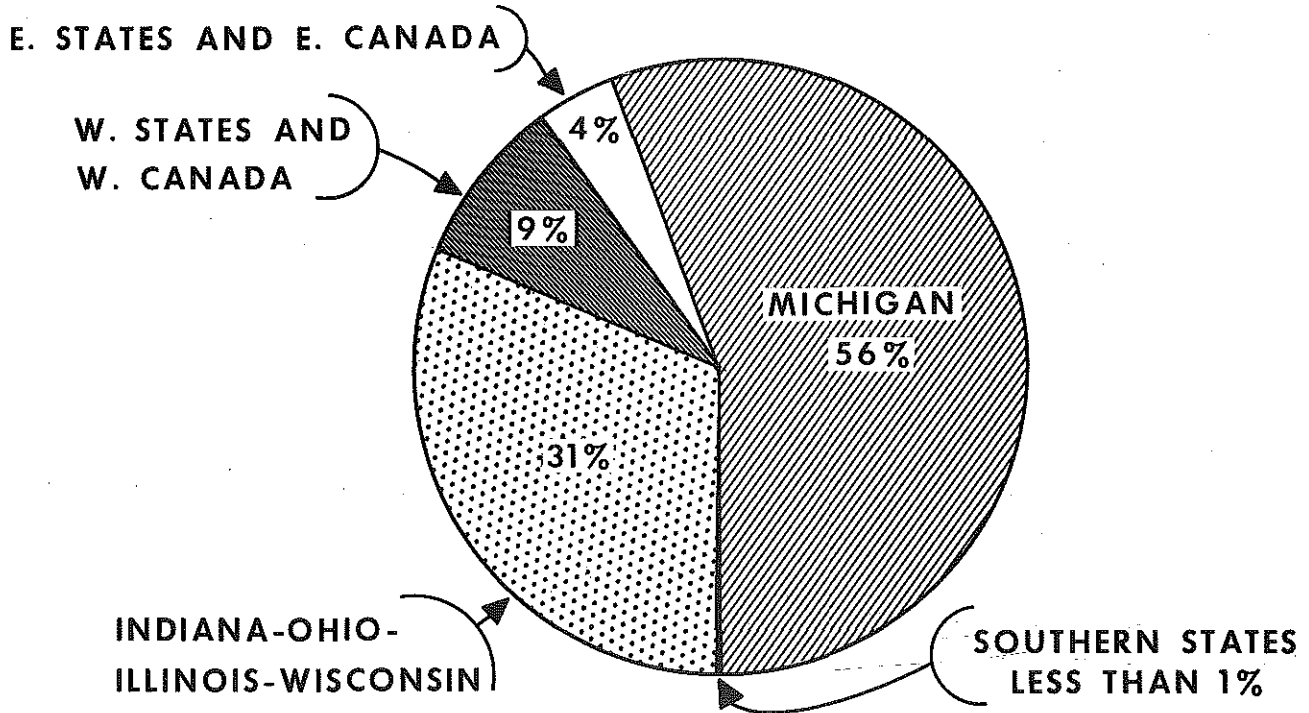


VEHICLE PARKING

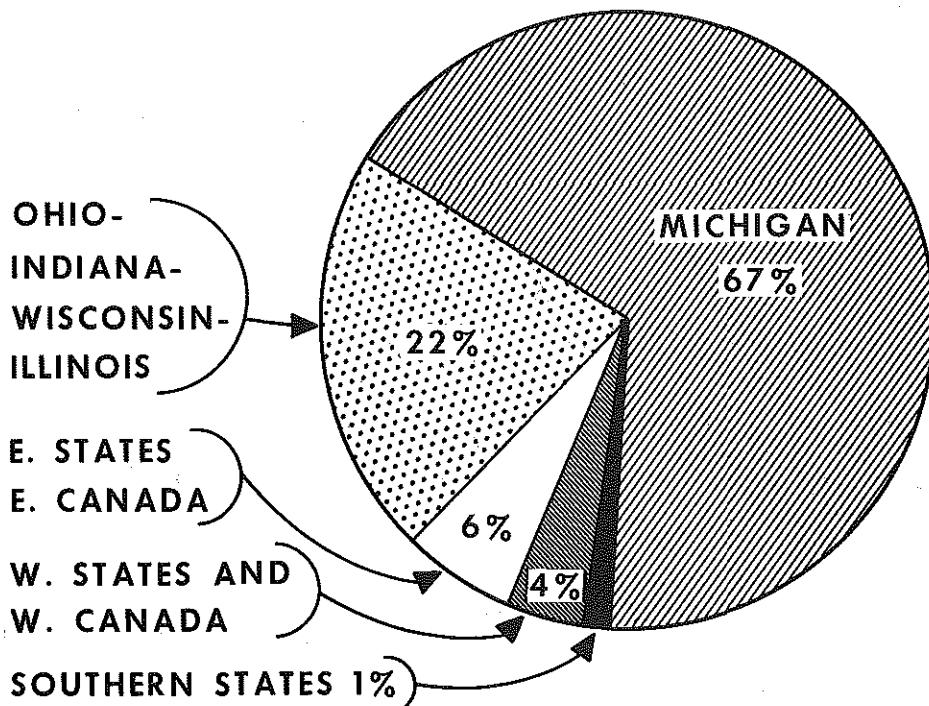
As would be expected the major proportion of passenger cars had either their origin or destination in Michigan. 56% destinations 67% origins. 222 of the 699 passenger cars interviewed or almost 32% had both their origin and destination in Michigan.

Our neighboring states of Ohio, Indiana, Illinois, and Wisconsin had 22% of the origin and 31% of the destination.

DESTINATION OF PASSENGER CARS



ORIGIN OF PASSENGER CARS



TRIP ORIGIN-DESTINATION							
All Vehicles							
Origin	Total Vehicles Interviewed		Destination				
	No.	%	Michigan	Ind., Ohio, Ill. & Wisc.	E. States E. Canada	W. States W. Canada	Southern States
	No.	%	No.	No.	No.	No.	No.
Michigan	740	64	309	365	3	61	2
Ind., Ohio, Ill., Wisc.	297	26	271	4	20	2	-
E. States & E. Canada	60	5	18	25	-	17	-
W. States & W. Canada	43	4	35	-	7	1	-
Southern States	10	1	5	4	1	-	-
Total	1150	100	638	398	31	81	2

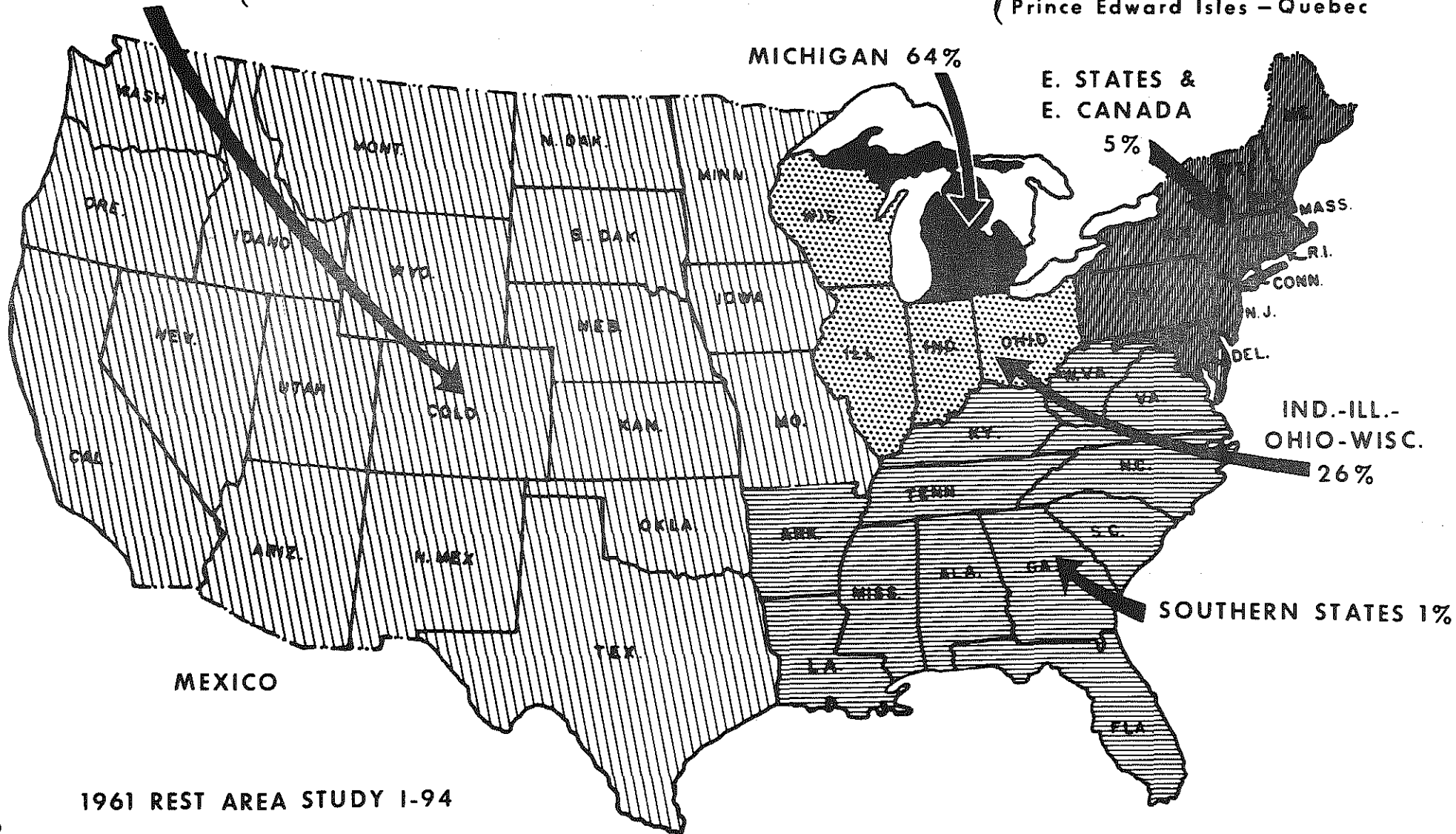
TRIP ORIGIN OF "ALL VEHICLES" UTILIZING REST AREA

ALASKA &
W. STATES &
WEST CANADA }
4%

Alberta - British Columbia
Manitoba - Northwest Territories
Saskatchewan - Yukon

EAST CANADA

Labrador - New Brunswick
Newfoundland - Nova Scotia
Prince Edward Isles - Quebec



1961 REST AREA STUDY I-94

TRIP ORIGIN-DESTINATION							
Passenger Cars							
Origin	Total Vehicles Interviewed		Destination				
	No.	%	Michigan	Ind., Ohio Ill. & Wisc.	E. States E. Canada	W. States W. Canada	Southern States
	No.	%	No.	No.	No.	No.	No.
Michigan	469	67	222	195	1	49	2
Ind., Ohio, Ill., Wisc.	151	22	128	3	18	2	-
E. States & E. Canada	42	6	13	18	-	11	-
W. States & W. Canada	31	4	25	-	6	-	-
Southern States	6	1	4	1	1	-	-
Total	699	100	392	217	26	62	2

TRIP ORIGIN OF "PASSENGER CARS" UTILIZING REST AREA

ALASKA &
W. STATES &
WEST CANADA
4%

Alberta - British Columbia
Manitoba - Northwest Territories
Saskatchewan - Yukon

EAST CANADA

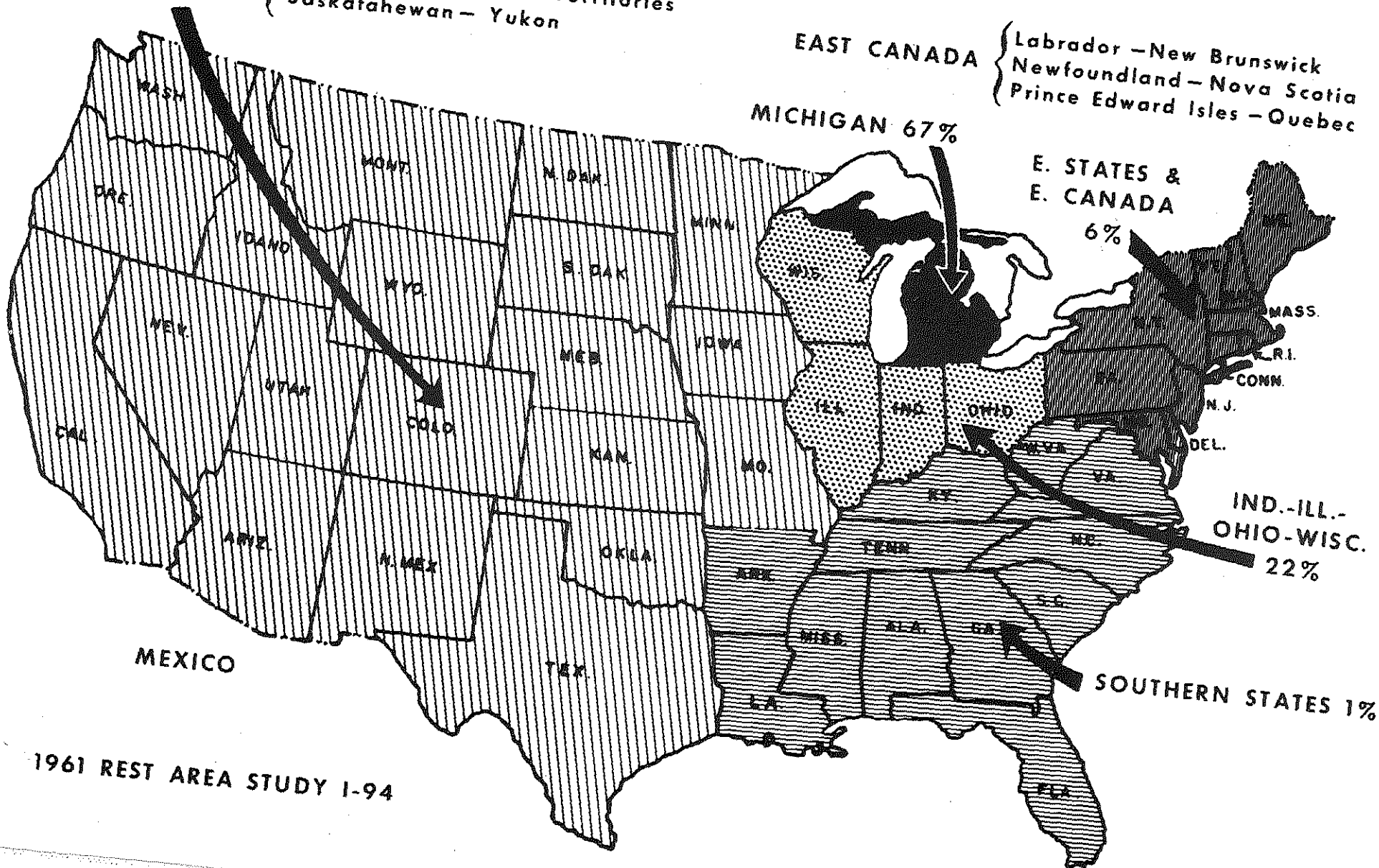
Labrador - New Brunswick
Newfoundland - Nova Scotia
Prince Edward Isles - Quebec

MICHIGAN 67%

E. STATES &
E. CANADA
6%

IND.-ILL.-
OHIO-WISC.
22%

SOUTHERN STATES 1%



TRIP ORIGIN-DESTINATION							
Commercial Vehicles							
Origin	Total Vehicles Interviewed		Destination				
	No.	%	Michigan	Ind., Ohio Ill. & Wisc.	E. States E. Canada	W. States W. Canada	Southern States
	No.	%	No.	No.	No.	No.	No.
Michigan	271	60	87	170	2	12	-
Ind., Ohio, Ill., Wisc.	146	32	143	1	2	-	-
E. States & E. Canada	18	4	5	7	-	6	-
W. States & W. Canada	12	3	10	-	1	1	-
Southern States	4	1	1	3	-	-	-
Total	451	100	246	181	5	19	-

TRIP ORIGIN OF "COMMERCIAL VEHICLES" UTILIZING REST AREAS

ALASKA &
W. STATES &
WEST CANADA
3%

Alberta - British Columbia
Manitoba - Northwest Territories
Saskatchewan - Yukon

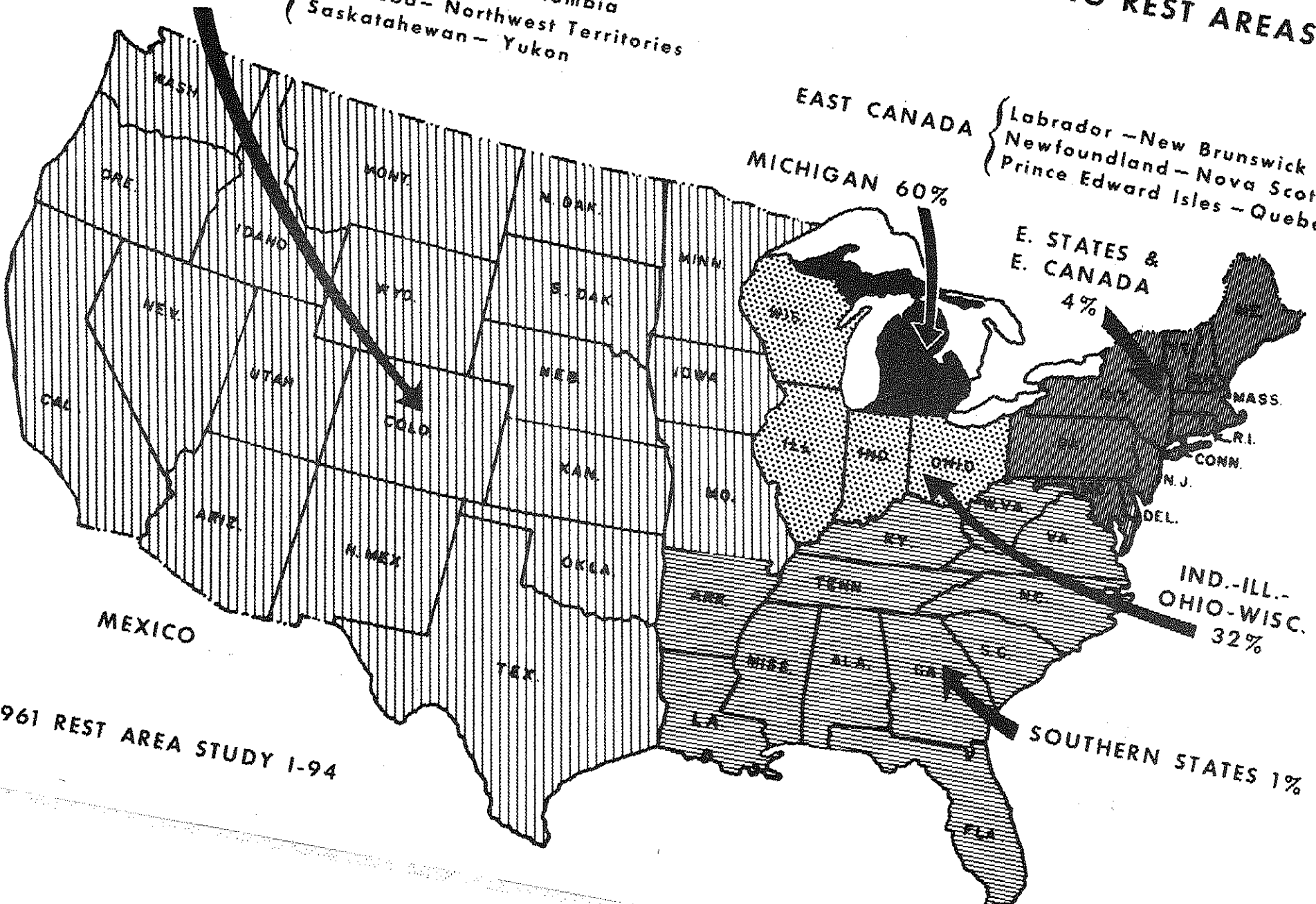
EAST CANADA
MICHIGAN 60%

Labrador - New Brunswick
Newfoundland - Nova Scotia
Prince Edward Isles - Quebec

E. STATES &
E. CANADA
4%

IND.-ILL.-
OHIO-WISC.
32%

SOUTHERN STATES 1%



1961 REST AREA STUDY I-94

All Vehicles								
Overall Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
0 - 250	59	88	33	39	33	125	377	33
251 - 500	65	87	45	42	38	158	435	38
501 - 750	12	22	21	24	24	13	116	10
751 - 1000	7	15	11	12	14	8	67	6
1001 - 1500	10	10	8	10	6	4	48	4
*1501 and Over	16	22	20	22	17	10	107	9
Total Vehicles	169	244	138	149	132	318	1150	
Average Trip	532	520	679	689	660	362	535	
	601							

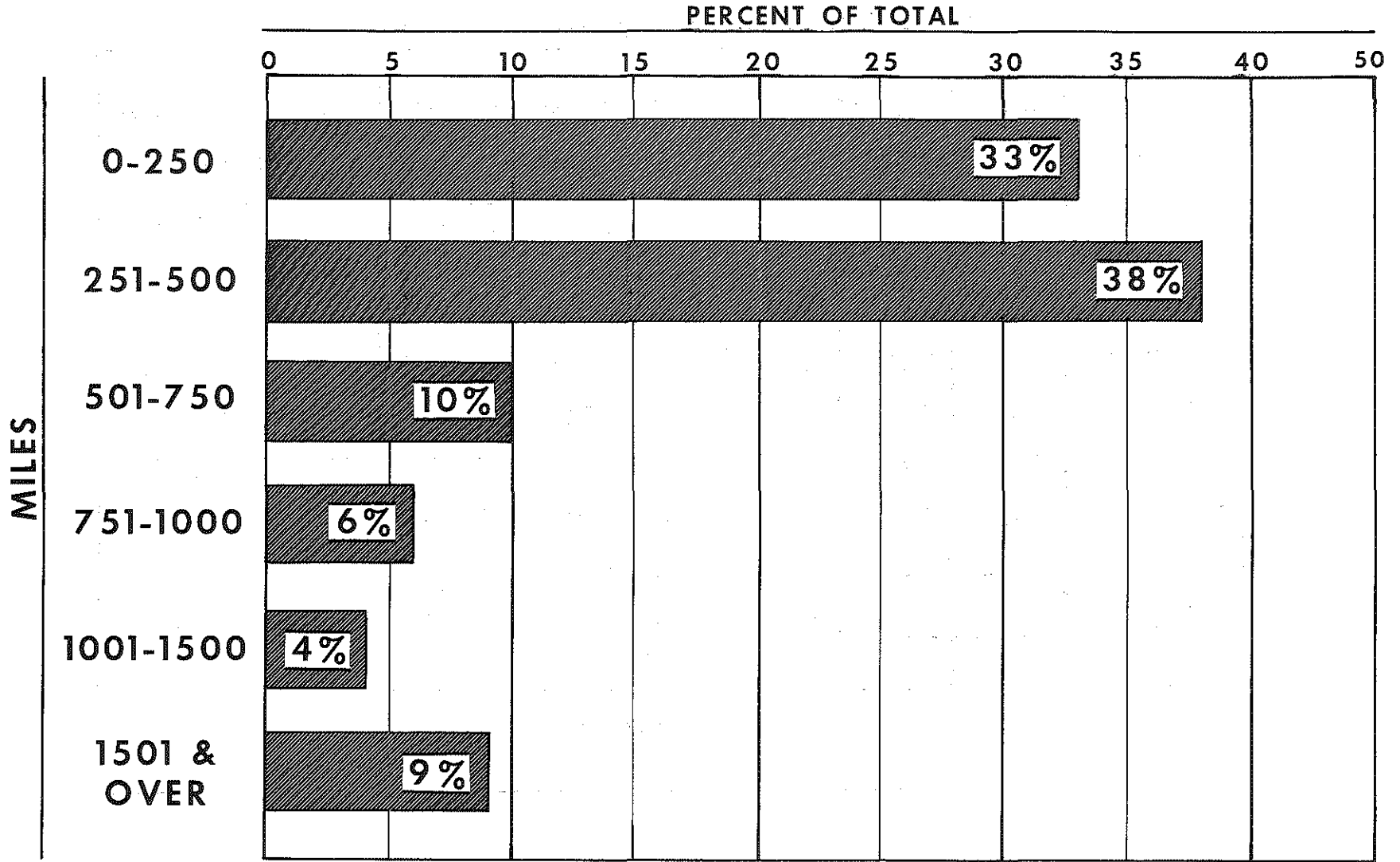
*2000 Miles Used as Average

In comparing the "Daily" trip mileage for all vehicles with the "Overall" trip mileage, we find the average vehicle stopping in rest area was making a driving trip of 2-days (253-Daily-535 Overall)

Passenger cars with a "Daily" trip average of 247 miles and an overall trip mileage of 612 miles were in route approximately $2\frac{1}{2}$ days. Trucks with a "Daily" trip average of 262 and "overall" average of 415 were in route approximately $1\frac{1}{2}$ days.

1961 REST AREA STUDY I-94

LENGTH OF TRIP



Passenger Cars								
Overall Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
0 - 250	40	65	26	20	21	56	228	33
251 - 500	41	67	29	20	15	40	212	30
501 - 750	10	17	17	17	15	9	85	12
751 - 1000	4	13	9	10	6	4	46	7
1001 - 1500	9	8	8	6	6	2	39	5
*1501 and Over	15	21	18	18	11	6	89	13
Total Vehicles	119	191	107	91	74	117	699	
Average Trip	600	562	735	801	708	390	612	
	657							

*2000 Miles Used as Average

The 24 hour study revealed that passenger car trips averaged 612 miles. Motorists interviewed during the daytime averaged 657 miles per trip. Motorists interviewed at night averaged 390 miles per trip.

Trucks								
Overall Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	
0 - 250	19	23	7	19	12	69	149	33
251 - 500	24	20	16	22	23	118	223	49
501 - 750	2	5	4	7	9	4	31	7
751 - 1000	3	2	2	2	8	4	21	5
1001 - 1500	1	2	-	4	-	2	9	2
*1501 and Over	1	1	2	4	6	4	18	4
Total Vehicles	50	53	31	58	58	201	451	
Average Trip	370	373	488	513	599	345	415	
	472							

*2000 Miles Used as Average

Trucks averaged 472 miles during the day and 345 miles at night.

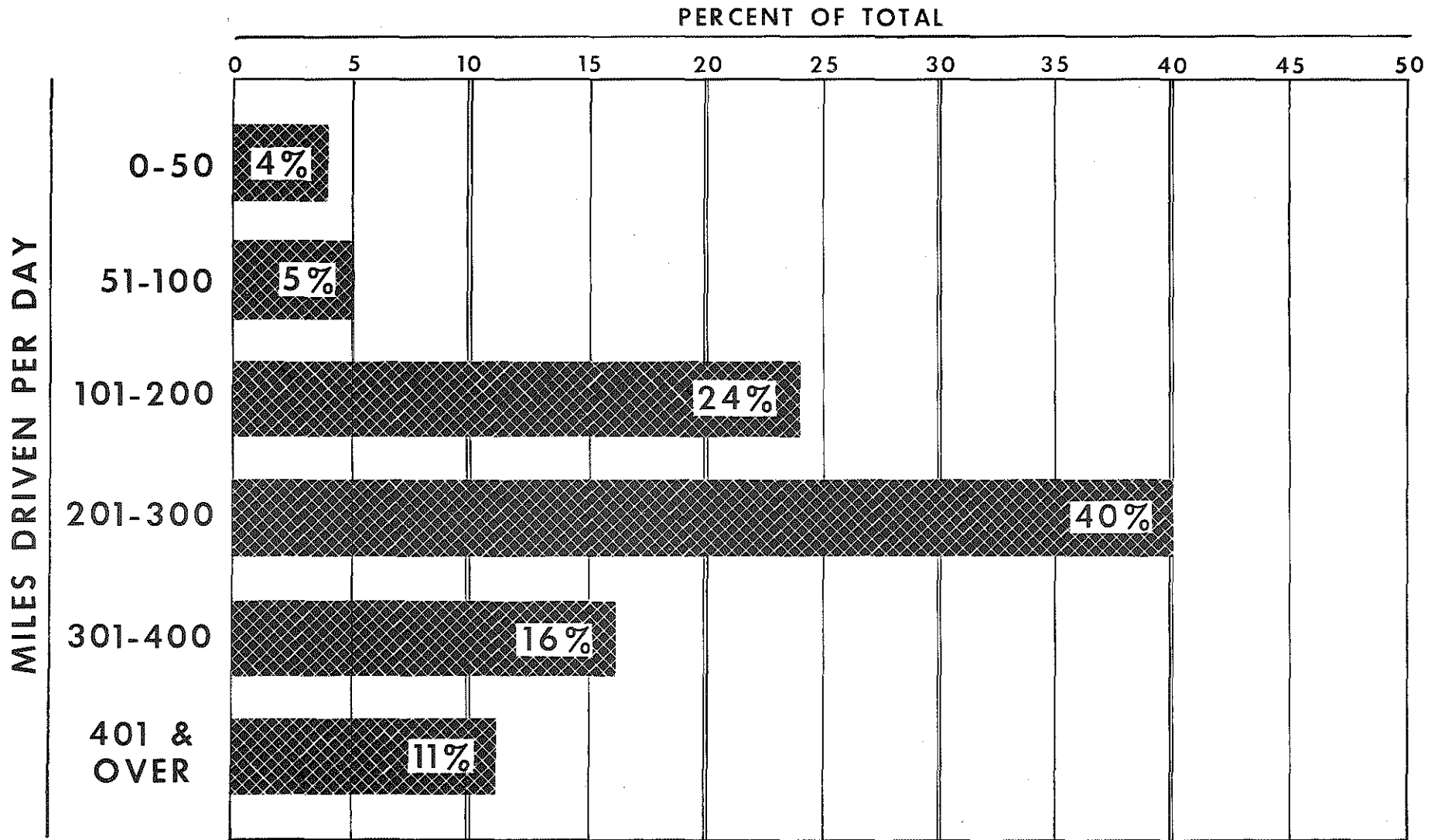
All Vehicles								
Day's Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
0 - 50	3	6	3	-	7	22	41	4
51 - 100	15	20	5	10	5	10	65	5
101 - 200	41	71	37	30	18	70	267	24
201 - 300	64	85	61	60	50	142	462	40
301 - 400	22	42	20	25	27	51	187	16
*401 and Over	24	20	12	24	25	23	128	11
Total Vehicles	169	244	138	149	132	318	1150	
Average Trip	255	239	248	275	286	241	253	
	258							

*500 Miles Used as Average

Trips for both automobiles and trucks averaged 253 miles. For the 12 daytime hours - 7 AM to 7 PM - all vehicles averaged 258 miles, with only a five mile difference between trucks and automobiles.

1961 REST AREA STUDY I-94

DAILY TRIP LENGTH



Passenger Cars								
Day's Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
0 - 50	3	5	2	-	7	22	39	6
51 - 100	11	12	3	6	3	9	44	6
101 - 200	34	55	31	21	11	32	184	26
201 - 300	32	69	48	35	31	27	242	35
301 - 400	15	31	13	12	10	17	98	14
*401 and Over	24	19	10	17	12	10	92	13
Total Vehicles	119	191	107	91	74	117	609	
Average Trip	263	245	247	275	261	203	247	
	256							

*500 Miles Used as Average

The average "Daily" passenger car trip was 247 miles. The "Daily" trips recorded during daylight however were 53 miles longer on the average than of those interviewed at night.

Trucks								
Day's Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
0 - 50	-	1	1	-	-	-	2	1
51 - 100	4	8	2	4	2	1	21	5
101 - 200	7	16	6	9	7	38	83	18
201 - 300	32	16	13	25	19	115	220	49
301 - 400	7	11	7	13	17	34	89	20
*401 and Over	-	1	2	7	13	13	36	8
Total Vehicles	50	53	31	58	58	201	451	
Average Trip	236	215	251	275	317	263	262	
	261							

*500 Miles Used as Average

The "Daily" trip mileage recorded for trucks was 262 miles;
263 miles at night and 261 during the day.

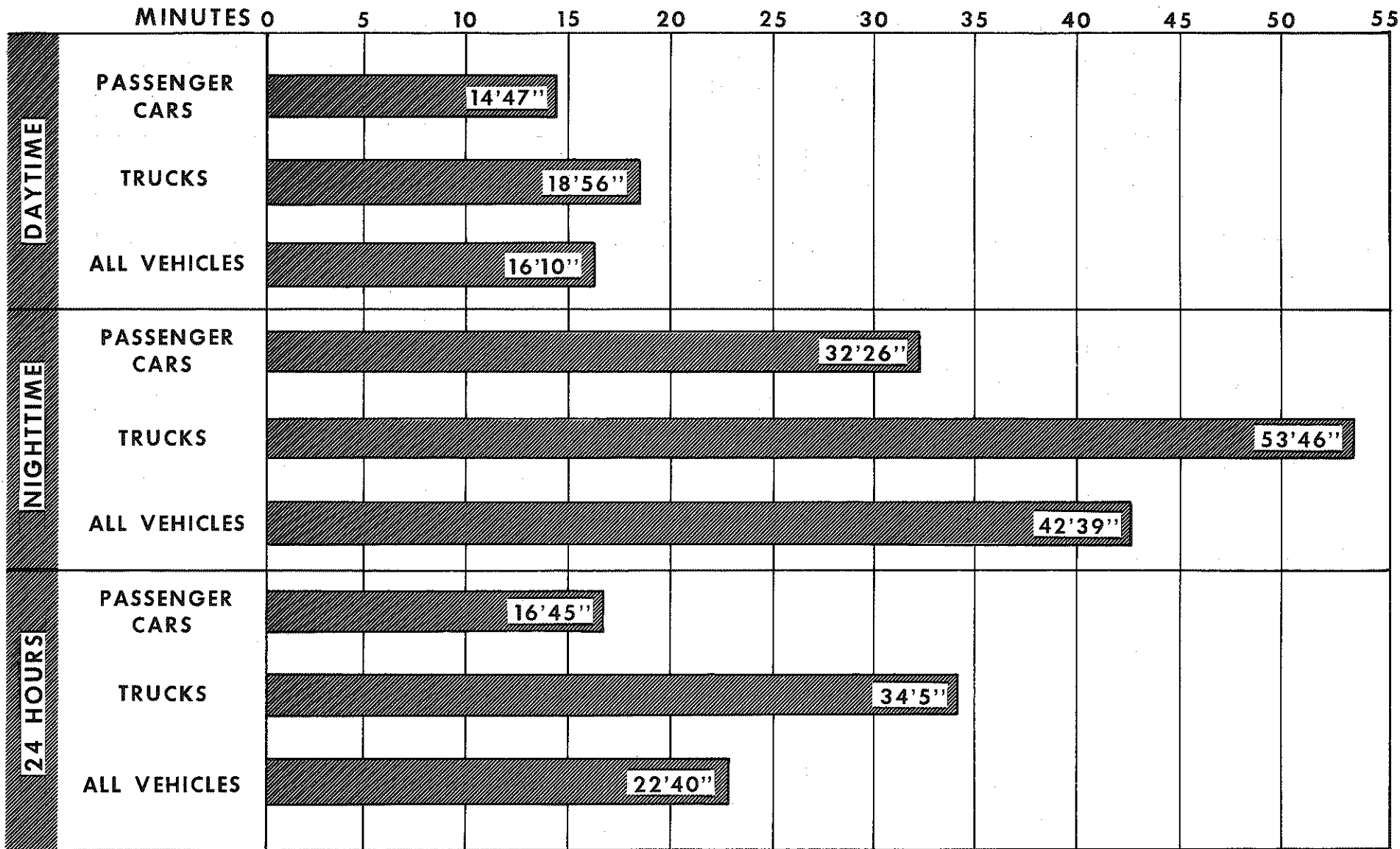
Average Length of Stay
(In Rest Areas)

Daytime	(7AM-7PM)	Passenger Cars	<u>14'47"</u>	Trucks	<u>18'56"</u>	All Veh.	<u>16'10"</u>
Nighttime	(7PM-7AM)	Passenger Cars	<u>32'26"</u>	Trucks	<u>53'46"</u>	All Veh.	<u>42'39"</u>
24 Hours		Passenger Cars	<u>16'45"</u>	Trucks	<u>34'15"</u>	All Veh.	<u>22'40"</u>

The average length of stay for all vehicles in the rest area was 22 minutes and 40 seconds. Trucks however generally stayed for a longer period and at night averaged 53 minutes and 46 seconds. The average passenger spent 16 min 45 seconds in the rest area.

1961 REST AREA STUDY I-94

AVERAGE LENGTH OF STAY



All Vehicles								
Desired Distance Between Rest Areas	Daytime					Night	24 Hour	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	Total	
	No.	No.	No.	No.	No.	No.	No.	%
20-Miles	23	27	6	8	4	6	74	6
40-Miles	74	95	61	54	58	82	424	37
60-Miles	44	74	57	74	51	190	490	43
80-Miles	12	25	11	6	8	30	92	8
* 100-Miles & Over	16	23	3	7	11	10	70	6
Totals	169	244	138	149	132	318	1150	
Average Miles	51	54	52	53	55	57	54	

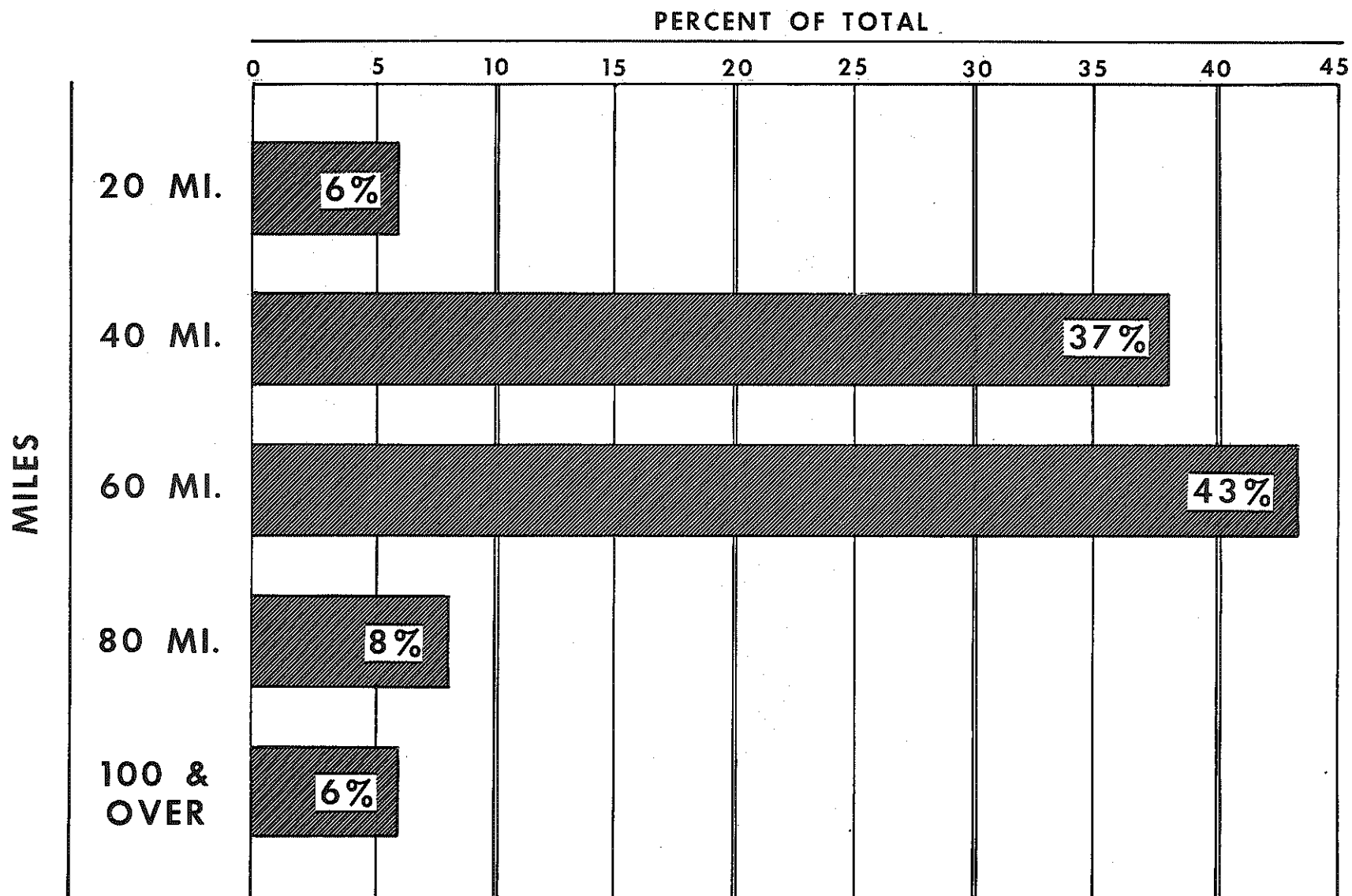
Passenger Cars								
20-Miles	16	21	5	5	2	4	53	8
40-Miles	45	73	47	40	38	34	277	40
60-Miles	35	63	45	39	24	62	268	38
80-Miles	9	18	7	5	4	12	55	8
* 100-Miles & Over	14	16	3	2	6	5	46	6
Totals	119	191	107	91	74	117	699	
Average Miles	53	53	52	51	53	57	53	

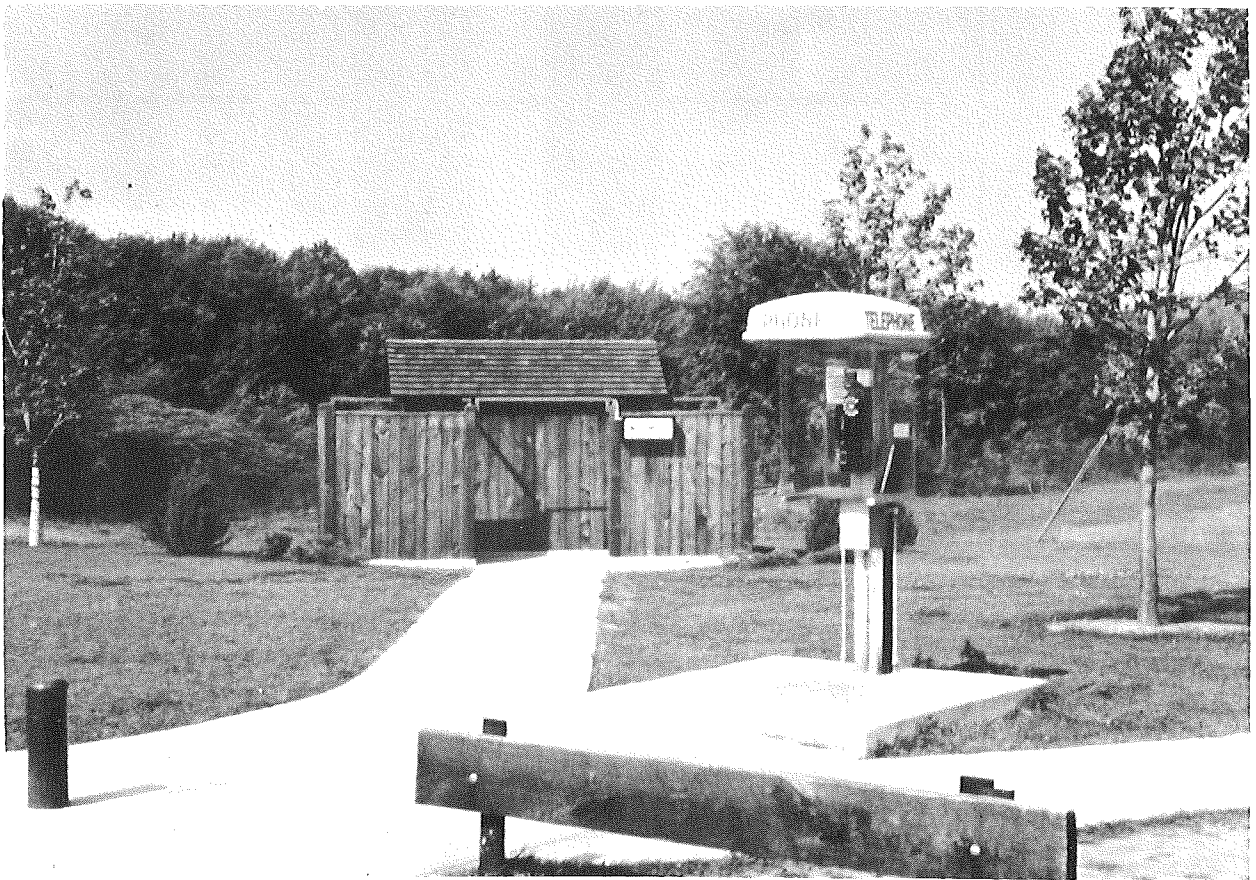
Trucks								
20-Miles	7	6	1	3	2	2	21	5
40-Miles	29	22	14	14	20	48	147	33
60-Miles	9	11	12	35	27	128	222	49
80-Miles	3	7	4	1	4	18	37	8
* 100-Miles & Over	2	7	-	5	5	5	24	5
Totals	50	53	31	58	58	201	451	
Average Miles	46	35	52	57	57	58	55	

* 100 Miles Used as Average

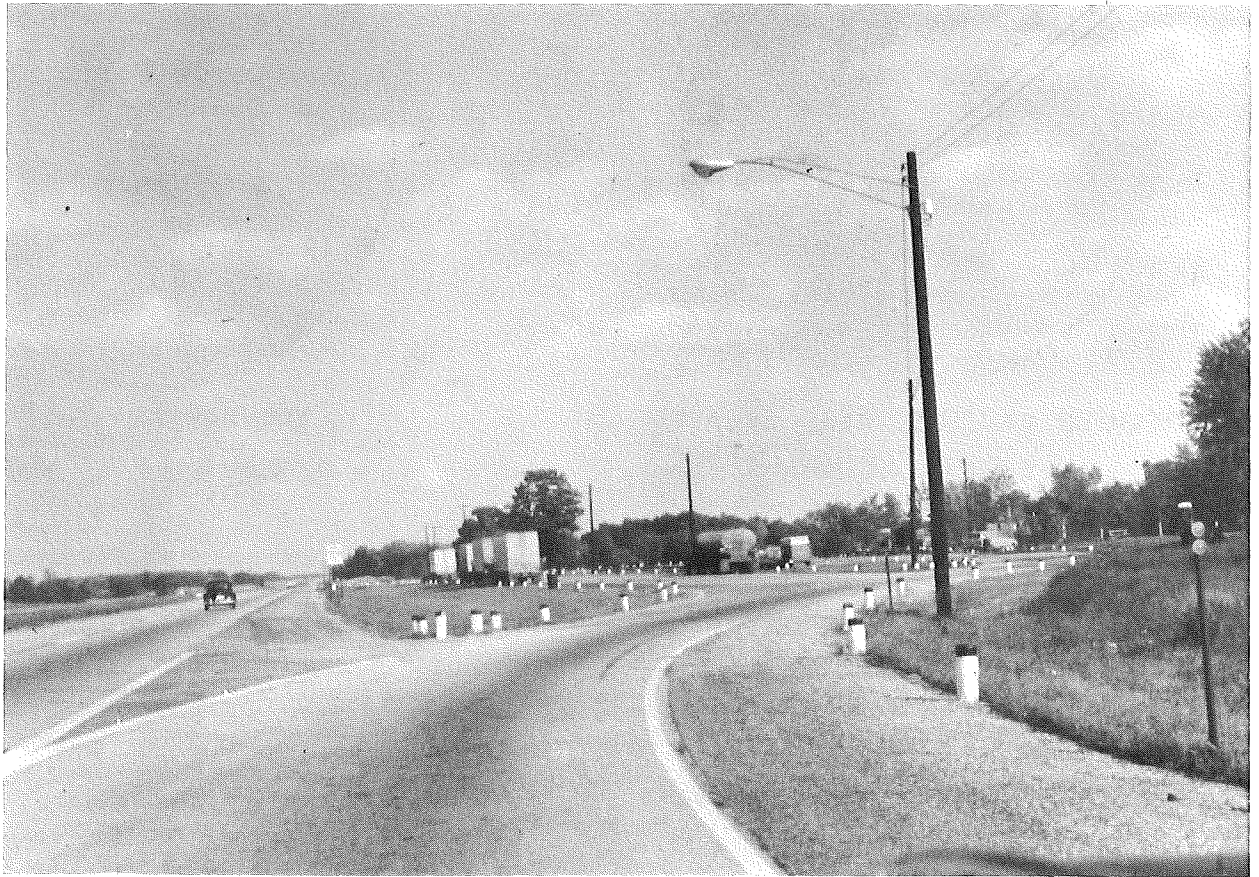
The great majority (80%) of those interviewed indicated that Rest Areas should be located 40-60 miles apart.

1961 REST AREA STUDY I-94
DESIRED DISTANCE BETWEEN REST AREAS





FACILITIES

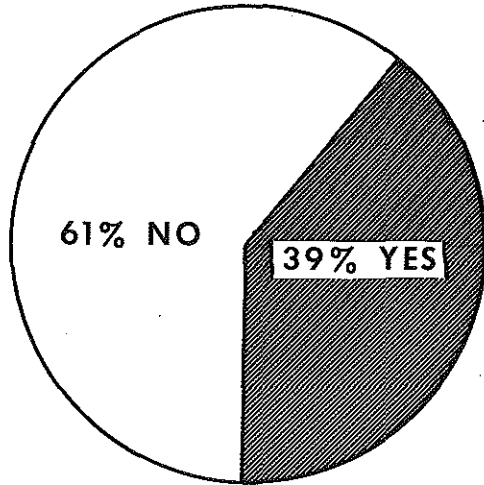


LIGHTING

1961 REST AREA STUDY I-94

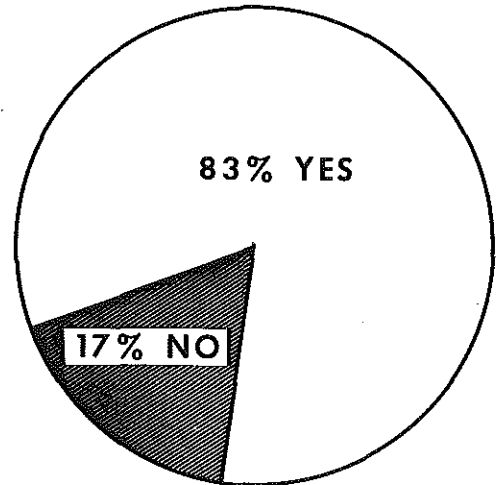
DRIVERS "YES" AND "NO" ANSWERS

LIGHTING THE AREA NIGHTTIME



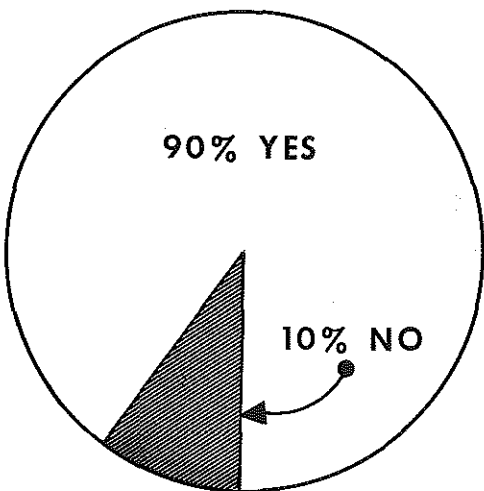
WOULD YOU USE REST AREA IF
"NO LIGHTS AT NIGHT"?

LIGHTING ADEQUACY



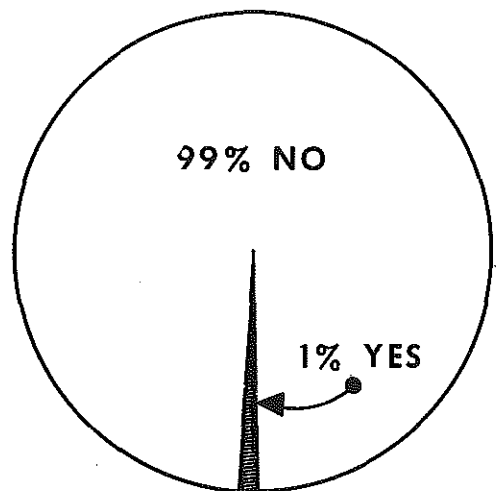
IS THE PRESENT LIGHTING
"ADEQUATE" AT NIGHT?

TOILETS



WOULD YOU USE REST AREA IF
"CHEMICAL TOILETS ONLY"?
(Chemical Toilets in These Rest Areas)

CAR TROUBLE



DID YOU HAVE "CAR TROUBLE"
ON FREEWAY?

(A) Would You Use Rest Area If	No. of Lights (Overhead) Lighting (Overhead) Candle Power						(See Respective Rest Areas for Lighting)	
	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
"No Lights At Night"?	No.	No.	No.	No.	No.	No.	No.	%
Yes	51	73	42	49	51	188	454	39
No	118	171	96	100	81	130	696	61
Total	169	244	138	149	132	318	1150	

(B) Is Present Lighting Adequate At Night?

Yes	128	200	116	137	119	256	956	83
No	41	44	22	12	13	62	194	17
Total	169	244	138	149	132	318	1150	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	166	242	94	116	104	312	1034	90
No	3	2	44	33	28	6	116	10
Total	169	244	138	149	132	318	1150	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	3	2	5	5	1	16	1
No	169	241	136	144	127	317	1134	99
Total	169	244	138	149	132	318	1150	

Passenger Cars		Lighting (Overhead) Candle Power						No. of Lights (See Respective Rest Areas for Lighting)	
		Daytime					Night Time	24 Hour Total	
(A) Would You Use Rest Area If "No Lights At Night"?	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%	
	Yes	29	52	28	18	18	62	207	30
No	90	139	79	73	56	55	492	70	
Total	119	191	107	91	74	117	699		

(B) Is Present Lighting Adequate At Night?

Yes	83	155	89	82	66	94	569	81
No	36	36	18	9	8	23	130	19
Total	119	191	107	91	74	117	699	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	118	189	67	67	55	114	610	87
No	1	2	40	24	19	3	89	13
Total	119	191	107	91	74	117	699	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	2	2	3	5	1	13	2
No	119	189	105	88	69	116	686	98
Total	119	191	107	91	74	117	699	

(A) Would You Use Rest Area If "No Lights At Night"?	Trucks						No. of Lights (See Respective Rest Areas for Lighting) Candle Power		
	Lighting (Overhead)						Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM			
No.	No.	No.	No.	No.	No.	No.	No.	%	
Yes	22	21	14	31	33	126	247	55	
No	28	32	17	27	25	75	204	45	
Total	50	53	31	58	58	201	451		

(B) Is Present Lighting Adequate At Night?

Yes	45	45	27	55	53	162	387	86
No	5	8	4	3	5	39	64	14
Total	50	53	31	58	58	201	451	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	48	53	27	49	49	198	424	94
No	2	-	4	9	9	3	27	6
Total	50	53	31	58	58	201	451	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	1	-	2	-	-	3	1
No	50	52	31	56	58	201	448	99
Total	50	53	31	58	58	201	451	

Observations within the rest area indicated that 43% of the drivers first used toilets, 23% just rested and 20% first used the drinking fountain. Picnic tables were first used by 4%, phone & bulletin board 3% each, 2% stopped for vehicle repair. The remaining 2% stopped to dispose of trash or walk their pets.

During the daytime 2642 vehicle occupants were observed using the rest area facilities 3899 times indicating an average vehicle occupant used one and a half facilities. Drinking water proved to be the most popular facility with 35.6% of the occupants using it. Toilets were the next most popular item used with 29.8%. 12.5% were resting, 10.9% used the picnic tables. The rest in order of popularity were bulletin board 6.3%, trash can 1.9%, phone 1.6% and walking pets and vehicle repair at 0.7% each.

All Vehicles								
Facilities First Used by Driver	Daytime					Night Time	12 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
NO. OF DRIVERS	169	244	138	149	132	318	832	
Vehicle Repair	1	3	2	6	3	D	15	2
Resting	49	58	33	21	34	E	195	23
Drinking Water	12	34	26	56	42	N	170	20
Toilets	93	120	58	50	40	I	361	43
Picnic Tables	5	17	6	5	3	A	36	4
Bulletin Board	3	5	4	6	3	T	21	3
Phone	5	5	5	3	5	B	23	3
Walking Pets	1	1	1	2	1	O	7	1
Trash Can	-	1	1	-	1	N	4	1
Total - Usage	169	244	138	149	132	---	832	

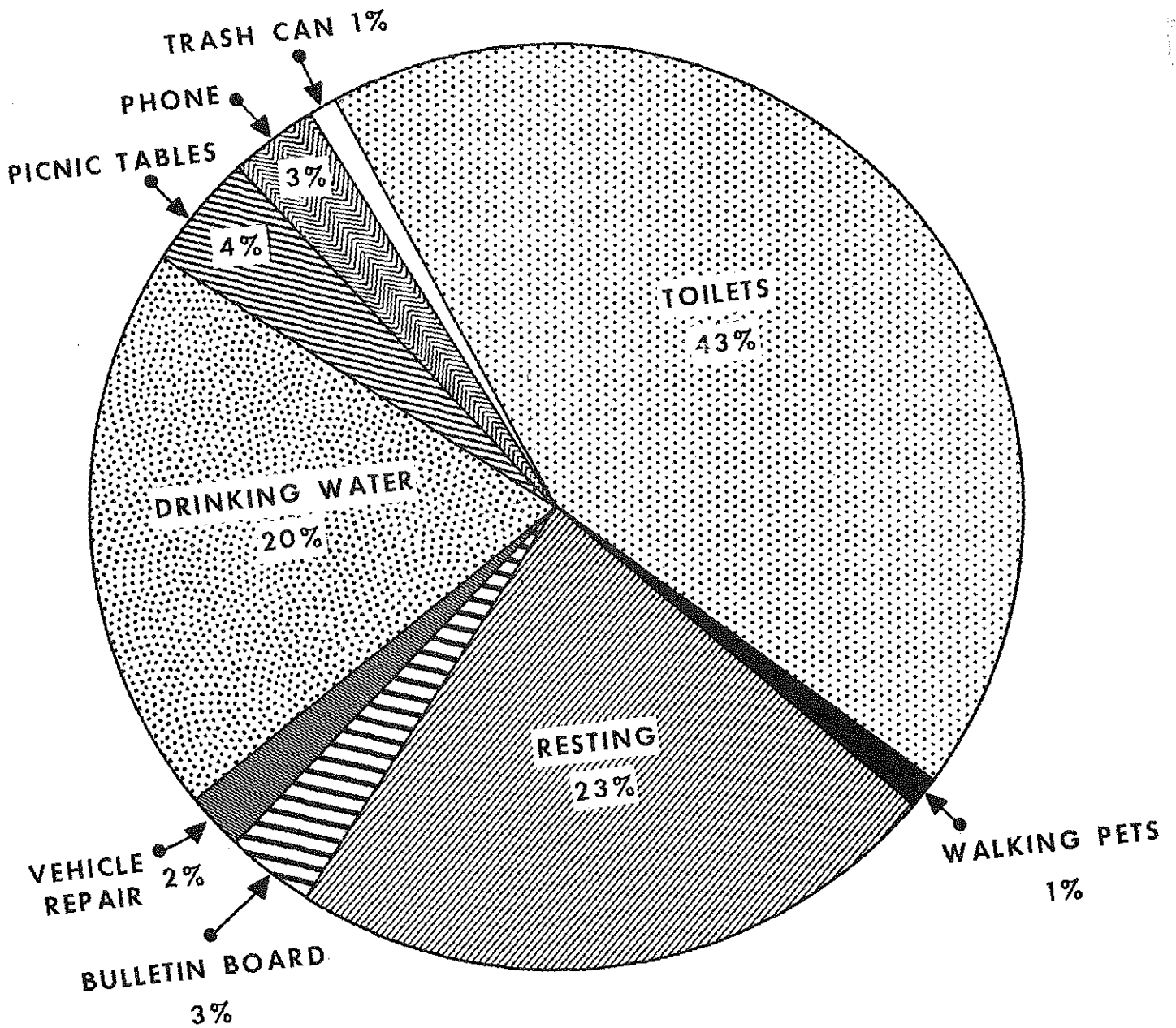
Facilities Used by All Vehicle Occupants Including Driver *

Vehicle Repair	1	8	3	2	15	D	29
Resting	170	202	52	29	34	E	487
Drinking Water	161	456	379	178	213	N	1387
Toilets	257	479	178	121	128	I	1163
Picnic Tables	42	220	80	35	49	A	426
Bulletin board	44	96	51	26	29	T	246
Phone	15	20	13	10	3	B	61
Walking Pets	10	7	4	6	-	O	27
Trash Can	19	27	13	9	5	N	73
Total - Usage	719	1515	773	416	476	N	3899
No. of People Entering Rest Area	557	800	471	438	376		2642

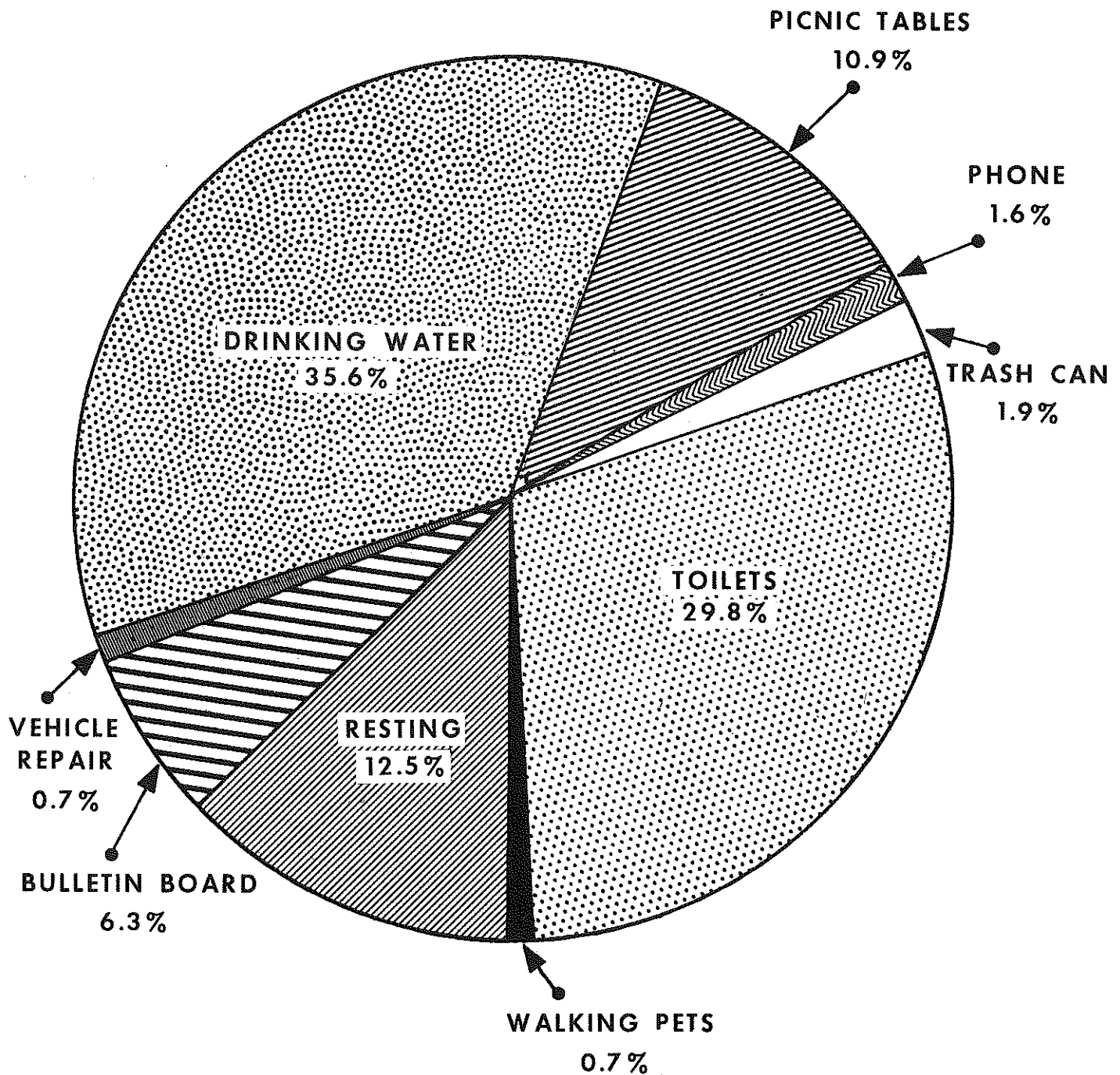
* Occupants & driver could use more than one facility.

1961 REST AREA STUDY I-94

FACILITY FIRST USED BY DRIVER



TOTAL USE OF REST AREA FACILITIES (DAYLIGHT HOURS) 7 A.M.-7 P.M.



Facilities Expected in Rest Area

To the question of "What facilities would you like to see in the rest area?" the drivers indicated a preference for the facilities which were already provided. 21.6% indicated they wanted water and 20.4% a drinking fountain. 14.7% wanted picnic tables and 14.3% wanted a phone and directory. Only 9.1% answered that they wanted shade trees. (Shade trees are present, but maturing.)

16.7% would prefer a snack bar. 12.1% a restaurant. 9.4% a soft drink dispenser and 8.6% a coffee maker. Only 8.4% wanted a gas station and 4.4% would like to see a cooking stove or grill in the area.

It is interesting to note that during the night hours no one requested water or a drinking fountain, tables, shade trees or a phone and directory.

Truck drivers in particular showed a preference for a snack bar and it was their prime request in the late evening and nighttime. They also indicated a preference for water and drinking fountains which are provided.

Passenger car drivers indicated a preference for water and drinking fountain. The next most popular items they asked for were tables, phones and a snack bar, in that order.

Information Expected in Rest Area

The drivers who answered the question "What information do you expect to obtain in the rest areas?" indicated they were most concerned with freeway exits, restaurants, motels and gas stations in that order.

All Vehicles

Facilities Expected in Rest Area by Drivers Interviewed	Daytime					Night Time	12 Hour Total (Daytime)
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	No.
NO. OF DRIVERS (1150)	169	244	138	149	132	318	832
Water	45	70	30	49	54	D	248
Tables	29	45	22	31	42	E	169
Shade Trees	13	12	21	26	33	N	105
Phone & Directory	29	41	24	36	34	I	164
Water Fountain	42	71	32	41	49	A	255
Coffee Maker	18	22	17	10	16	T	83
Pop Machine	16	18	28	17	27	B	106
Snack Bar	24	46	20	33	39	O	162
Gas Station	14	23	14	16	18	T	85
Restaurant	27	33	24	13	27	O	124
Cooking Stove or Grill	10	13	7	6	11	N	47

Information Expected
in Rest Area

Freeway Exits	47	67	13	12	12	D	151
Motels	12	6	14	7	14	N	53
Restaurant	8	4	22	23	14	I	71
Gas Station	8	4	15	15	11	A	53
State Parks	4	3	8	5	8	T	28
Scenic Areas	12	4	4	7	11	O	38
Local Resorts Historical Marker, Etc.	12	5	25	11	10	N	63

Passenger Cars

Facilities Expected in Rest Area by Drivers Interviewed	Daytime					Night Time	12 Hour Total (Daytime)
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	No.
NO. OF DRIVERS (699)	119	191	107	91	74	117	582
Water	32	50	25	28	37	D	172
Tables	21	35	20	24	30	E	130
Shade Trees	9	8	18	18	23	N	76
Phone & Directory	21	30	20	24	23	I	118
Water Fountain	29	50	29	24	33	A	165
Coffee Maker	13	16	11	5	4	F	49
Pop Machine	12	14	20	13	9	B	68
Snack Bar	15	34	13	18	20	O	100
Gas Station	11	22	12	10	15	F	70
Restaurant	19	29	18	6	14	O	86
Cooking Stove or Grill	9	12	6	6	10	N	43

Information Expected
in Rest Area

Freeway Exits	40	51	11	8	9		119
Motels	11	6	12	4	9	D	42
Restaurant	6	3	20	6	8	N	43
Gas Station	7	3	14	10	8	I	42
State Parks	4	1	7	4	6	A	22
Scenic Areas	12	2	3	6	8	O	31
Local Resorts Historical Marker, Etc.	11	3	23	7	9	B	53

Trucks

Facilities Expected in Rest Area by Drivers Interviewed	Daytime					Night Time	12 Hour Total (Daytime)
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	No.
NO. OF DRIVERS (451)	50	53	31	58	58	201	250
Water	13	20	5	21	17	F	76
Tables	8	10	2	7	12	E	39
Shade Trees	4	4	3	8	10	N	29
Phone & Directory	8	11	4	12	11	I	46
Water Fountain	13	21	3	17	16	A	70
Coffee Maker	5	6	6	5	12	T	34
Pop Machine	4	4	8	4	18	B	38
Snack Bar	9	12	7	15	19	O	62
Gas Station	3	1	2	6	3	F	15
Restaurant	8	4	6	7	13	O	38
Cooking Stove or Grill	1	1	1	-	1	N	4

Information Expected
in Rest Area

Freeway Exits	7	16	2	4	3	E	32
Motels	1	-	2	3	5	N	11
Restaurant	2	1	2	17	6	I	28
Gas Station	1	1	1	5	3	A	11
State Parks	-	2	1	1	2	T	6
Scenic Areas	-	2	1	1	3	O	7
Local Resorts Historical Marker, Etc.	1	2	2	4	1	O	10

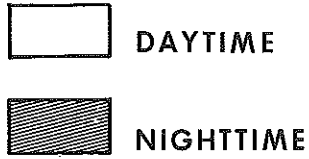
All Vehicles									
Suggested Hours of Operation for Rest Areas		Daytime					Night	24 Hour Total	
		7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
		No.	No.	No.	No.	No.	No.	No.	%
Summer	7 AM-10 PM	17	28	10	11	4	2	72	6
	24-Hours	152	216	128	138	128	316	1078	94
	Total	169	244	138	149	132	318	1150	
Winter	Daylight Hours	24	32	17	16	7	7	103	9
	24-Hours	145	212	121	133	125	311	1047	91
	Total	169	244	138	149	132	318	1150	
Passenger Cars									
Summer	7 AM-10 PM	16	28	8	7	3	1	63	9
	24-Hours	103	163	99	84	71	116	636	91
	Total	119	191	107	91	74	117	699	
Winter	Daylight Hours	23	31	17	9	4	6	90	13
	24-Hours	96	160	90	82	70	111	609	87
	Total	119	191	107	91	74	117	699	
Trucks									
Summer	7 AM-10 PM	1	-	2	4	1	1	9	2
	24-Hours	49	53	29	54	57	200	442	98
	Total	50	53	31	58	58	201	451	
Winter	Daylight Hours	1	1	-	7	3	1	13	3
	24-Hours	49	52	31	51	55	200	438	97
	Total	50	53	31	58	58	201	451	

Drivers indicated their desire that the rest area should be operated around the clock in the summer (94%) and in the winter (91%).

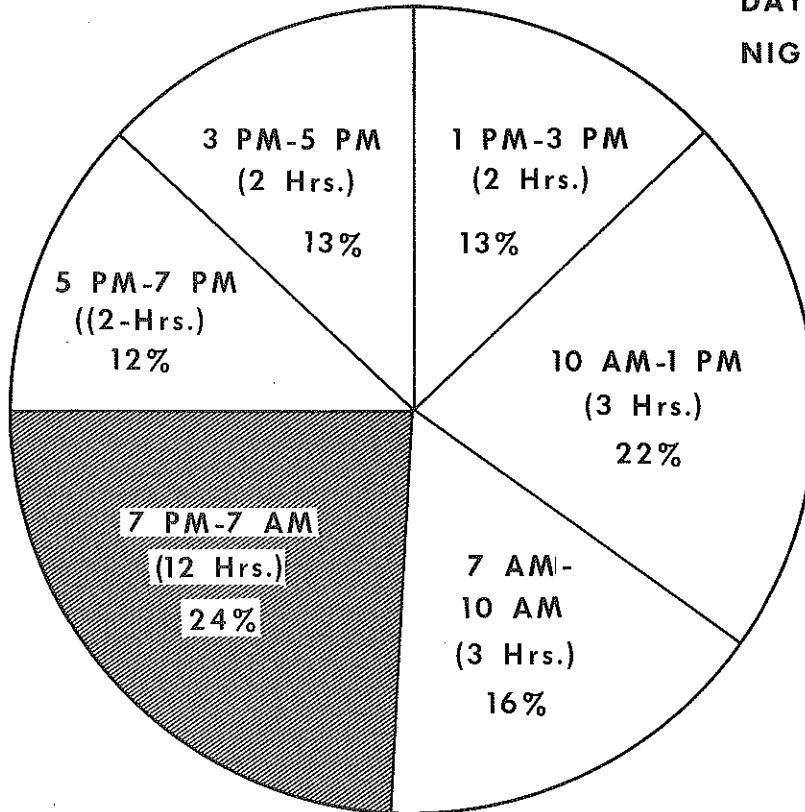
1961 REST AREA STUDY I-94

DISTRIBUTION OF TRAFFIC WITH-IN THE REST AREA BY TIME PERIOD

LEGEND

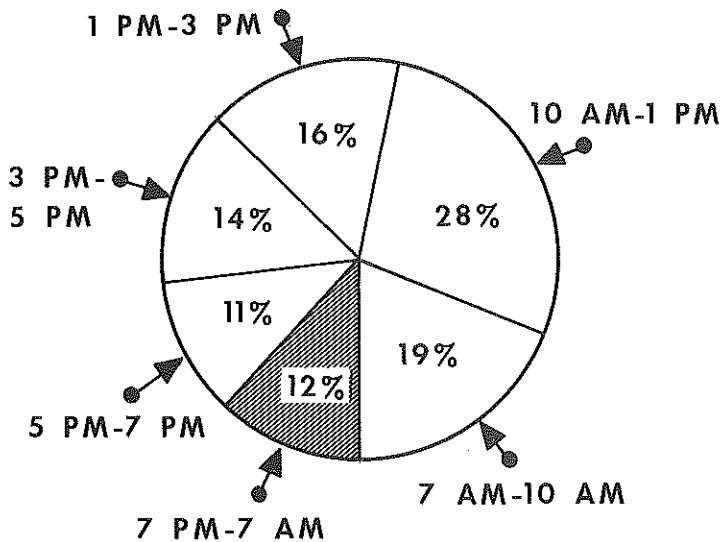


ALL VEHICLES



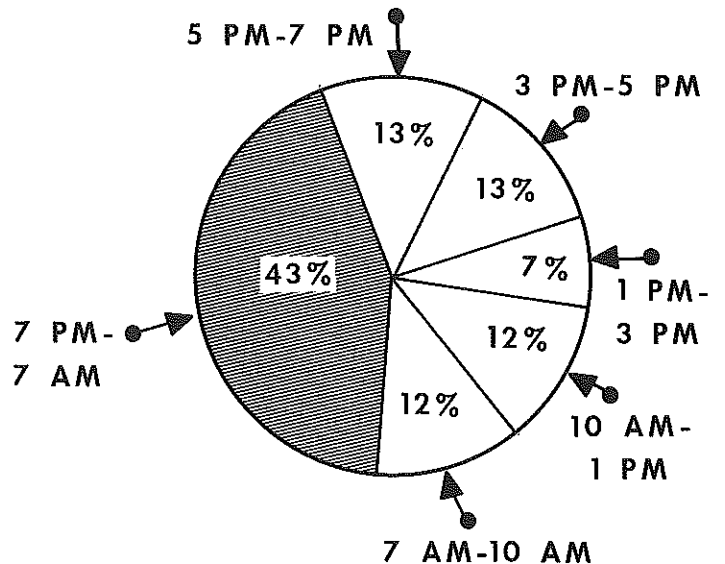
DAYTIME 76%
NIGHTTIME 24%

PASSENGER CARS



DAYTIME 88%
NIGHTTIME 12%

COMMERCIAL VEHICLES



DAYTIME 57%
NIGHTTIME 43%



FACILITIES



MARSHALL

Rest Area

Traffic Volumes

Time Period	Daytime					Night Time	24 Hours
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	
Freeway Volumes							
All Vehicles							
E. Bound							
W. Bound <u>X</u>	856	916	469	549	409	1436	4635
Vehicles Entering Park							
Passenger	82	98	58	35	30	37	340
Commercial	15	23	18	14	20	40	130
All Vehicles	97	121	76	49	50	77	470

Vehicle Occupancy and Classification

Occupancy

Passenger Car by Registration						Commercial Vehicle by Type				All Vehicles		
No. Persons Per Vehicle	Mich. Local	Mich. Out State	Out of State	Total Pass. Cars		Single Units	Tractor & Semi Trailer	TK-TR TT-ST-TR	Total	Inter-viewed	Not Inter-viewed	Total
	No.	No.	No.	No.	%	No.	No.	No.	No.	No.	No.	No.
1	16	55	20	91	27	15	85	9	109	141	59	200
2	4	72	29	105	31	13	6	-	19	77	47	124
3	2	25	22	49	14	1	-	-	1	33	17	50
4	4	31	16	51	15	-	-	-	-	34	17	51
5+	3	17	24	44	13	1	-	-	1	31	14	45
Total	29	200	111	340	100	30	91	9	130	316	154	470
Avg. No. Persons Per Vehicle	2.1	2.4										
	2.4		2.9	2.6		1.6	1.1	1.0	1.2	2.3	2.2	2.2

TRIP ORIGIN-DESTINATION							
Passenger Cars							
Origin	Total Vehicles Interviewed		Destination				
			Michigan	Ind., Ohio Ill.&Wisc.	E. States E. Canada	W. States W. Canada	Southern States
	No.	%	No.	No.	No.	No.	No.
Michigan	174	78	98	58	-	17	1
Ind., Ohio, Ill., Wisc.	19	9	17	-	2	-	-
E. States & E. Canada	18	8	7	7	-	4	-
W. States & W. Canada	9	4	6	-	3	-	-
Southern States	2	1	1	-	1	-	-
Total	222	100	129	65	6	21	1

Commercial Vehicles

Michigan	74	79	44	26	-	4	-
Ind., Ohio, Ill., Wisc.	12	13	12	-	-	-	-
E. States & E. Canada	7	7	1	5	-	1	-
W. States & W. Canada	1	1	1	-	-	-	-
Southern States	-	-	-	-	-	-	-
Total	94	100	58	31	-	5	-

All Vehicles

Michigan	248	78	142	84	-	21	1
Ind., Ohio, Ill., Wisc.	31	10	29	-	2	-	-
E. States & E. Canada	25	8	8	12	-	5	-
W. States & W. Canada	10	3	7	-	3	-	-
Southern States	2	1	1	-	1	-	-
Total	316	100	187	96	6	26	1

Marshall
Rest Area

All Vehicles								
Trip Purpose	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
Work	20	23	18	15	17	42	135	43
Personal Business	8	2	3	4	1	17	35	11
Shopping	-	-	-	-	1	-	1	<1
Vacation	29	46	21	11	7	12	126	40
Other Social	-	4	2	1	5	5	17	5
All Others	-	-	1	-	-	1	2	1
Total	57	75	45	31	31	77	316	

Desired Distance Between Rest Areas

20-Miles	10	6	2	3	1	2	24	8
40-Miles	20	28	22	8	12	22	112	35
60-Miles	18	27	17	17	11	41	131	41
80-Miles	3	7	3	2	4	8	27	9
* 100-Miles & Over	6	7	1	1	3	4	22	7
Totals	57	75	45	31	31	77	316	
Average Miles	51	55	51	54	57	57	54	

Suggested Hours of Operation for Rest Areas

Summer	7 AM-10 PM	13	9	8	4	1	2	37	12
	24-Hours	44	66	37	27	30	75	279	88
	Total	57	75	45	31	31	77	316	
Winter	Daylight Hours	14	12	9	3	1	5	44	14
	24-Hours	43	63	36	28	30	72	272	86
	Total	57	75	45	31	31	77	316	

* 100 Miles Used as Average

<1 Less than One Percent

Marshall

Rest Area

Passenger Cars

Trip Purpose	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
Work	11	11	7	8	5	4	46	21
Personal Business	8	2	3	4	1	15	33	15
Shopping	-	-	-	-	1	-	1	<1
Vacation	29	44	21	10	7	12	123	55
Other Social	-	4	2	1	5	5	17	8
All Others	-	-	1	-	-	1	2	1
Total	48	61	34	23	19	37	222	

Desired Distance Between Rest Areas

20-Miles	9	4	2	2	1	1	19	8
40-Miles	17	22	16	8	8	11	82	37
60-Miles	14	25	13	10	8	19	89	40
80-Miles	2	6	2	2	1	4	17	8
* 100-Miles & Over	6	4	1	1	1	2	15	7
Totals	48	61	34	23	19	37	222	
Average Miles	51	55	51	53	53	57	53	

Suggested Hours of Operation for Rest Areas

Summer	7 AM-10 PM	12	9	6	1	-	1	29	13
	24-Hours	36	52	28	22	19	36	193	87
	Total	48	61	34	23	19	37	222	
Winter	Daylight Hours	13	11	9	1	-	5	39	18
	24-Hours	35	50	25	22	19	32	183	82
	Total	48	61	34	23	19	37	222	

Marshall
Rest Area

Trip Purpose	Trucks							
	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
Work	9	12	11	7	12	38	89	95
Personal Business	-	-	-	-	-	2	2	2
Shopping	-	-	-	-	-	-	-	-
Vacation	-	2	-	1	-	-	3	3
Other Social	-	-	-	-	-	-	-	-
All Others	-	-	-	-	-	-	-	-
Total	9	14	11	8	12	40	94	

Desired Distance Between Rest Areas

20-Miles	1	2	-	1	-	1	5	5
40-Miles	3	6	6	.	4	11	30	32
60-Miles	4	2	4	7	3	22	42	45
80-Miles	1	1	1	-	3	4	10	11
* 100-Miles & Over	-	3	-	-	2	2	7	7
Totals	9	14	11	8	12	40	94	
Average Miles	51	56	51	55	65	58	57	

Suggested Hours of Operation for Rest Areas

Summer	7 AM-10 PM	1	-	2	3	1	1	8	9
	24-Hours	8	14	9	5	11	39	86	91
	Total	9	14	11	8	12	40	94	
Winter	Daylight Hours	1	1	-	2	1	-	5	5
	24-Hours	8	13	11	6	11	40	89	95
	Total	9	14	11	8	12	40	94	

* 100 Miles Used as Average

Marshall

Rest Area

All Vehicles																
Location Vehicles Entered or Left Freeway																
Entered		Total Entered	Exit													
Interchange	No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Detroit	1	215	X				1		7	21	42	7	4	21	1	111
Ypsilanti	2	2		X										2		
Ann Arbor	3	33			X				1	2	6			7	2	15
Chelsea	4	4				X			1	1	1					1
Jackson	5	42					X		3	18	8	2		4		7
Albion	6	16						X	4	5	6	1				
Marshall	7	1							X	1						
Battle Creek	8									X						
Kalamazoo	9	1					1				X					
Paw Paw	10											X				
Watervliet	11												X			
Benton Harbor	12													X		
St. Joseph	13														X	
Stevensville	14	2	2													X
Total		316	2				2		16	48	63	10	4	34	3	134

Trips having an Origin-Destination opposite to the Direction of Traffic serviced by Rest Area utilize a Local Interchange to visit the Rest Area.

Average Length of Stay

Daytime (7AM-7PM)	Passenger Cars	<u>12'59"</u>	Trucks	<u>17'21"</u>	All Veh.	<u>13'17"</u>
Nighttime (7PM-7AM)	Passenger Cars	<u>22'10"</u>	Trucks	<u>37'48"</u>	All Veh.	<u>30'17"</u>
24 Hours	Passenger Cars	<u>13'59"</u>	Trucks	<u>23'38"</u>	All Veh.	<u>16'34"</u>

Mileage Table

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Detroit	1	x	38	39	59	79	98	107	121	143	163	178	189	191	198
Ypsilanti	2	38	x	1	21	41	60	69	83	105	125	140	151	153	160
Ann Arbor	3	39	1	x	20	40	59	68	82	104	124	139	150	152	159
Chelsea	4	59	21	20	x	20	39	48	62	84	104	119	130	132	139
Jackson	5	79	41	40	20	x	19	28	42	64	84	99	110	112	119
Albion	6	98	60	59	39	19	x	9	23	45	65	80	91	93	100
Marshall	7	107	69	68	48	28	9	x	14	36	56	71	82	84	91
Battle Creek	8	121	89	82	62	42	23	14	x	22	42	57	68	70	77
Kalamazoo	9	143	105	104	84	64	45	36	22	x	20	35	46	48	55
Paw Paw	10	163	125	124	104	84	65	56	42	20	x	15	26	28	35
Watervliet	11	178	140	139	119	99	80	71	57	35	15	x	11	13	20
Benton Harbor	12	189	151	150	130	110	91	82	68	46	26	11	x	2	9
St. Joseph	13	191	153	152	132	120	93	84	70	48	28	13	2	x	7
Stevensville	14	198	160	159	139	119	100	91	77	55	35	20	9	7	x

Marshall

Rest Area

All Vehicles								
Day's Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
0 - 50	2	2	1	-	5	8	18	6
51 - 100	8	4	3	2	1	2	20	6
101 - 200	20	29	19	9	7	29	113	36
201 - 300	13	24	15	12	9	19	92	29
301 - 400	6	11	5	4	6	10	42	13
*401 and Over	8	5	2	4	3	9	31	10
Total Vehicles	57	75	45	31	31	77	316	
Average Trip	228	227	213	254	229	227	228	

*500 Miles Used as Average

Overall Trip Mileage

0 - 250	24	30	11	9	14	36	124	39
251 - 500	16	24	16	8	9	26	99	32
501 - 750	4	10	10	4	1	7	36	11
751 - 1000	3	3	3	4	1	4	18	6
1001 - 1500	3	2	1	1	2	-	9	3
*1501 and Over	7	6	4	5	4	4	30	9
Total Vehicles	57	75	45	31	31	77	316	
Average Trip	559	482	567	690	552	391	513	

*2000 Miles Used as Average

Marshall

Rest Area

Passenger Cars

Day's Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
0 - 50	2	1	1	-	5	8	17	8
51 - 100	5	4	2	1	1	2	15	7
101 - 200	18	24	17	6	3	14	82	37
201 - 300	10	19	11	9	5	5	59	26
301 - 400	5	8	2	3	3	4	25	11
*401 and Over	8	5	1	4	2	4	24	11
Total Vehicles	48	61	34	23	19	37	222	
Average Trip	237	229	196	273	208	192	222	

*500 Miles Used as Average

Overall Trip Mileage

0 - 250	19	25	10	5	9	20	88	40
251 - 500	15	20	8	7	4	7	61	27
501 - 750	3	7	8	4	1	5	28	13
751 - 1000	2	3	3	3	-	3	14	6
1001 - 1500	3	1	1	1	2	-	8	4
*1501 and Over	6	5	4	3	3	2	23	10
Total Vehicles	48	61	34	23	19	37	222	
Average Trip	570	473	621	679	618	402	539	

*2000 Miles Used as Average

Marshall

Rest Area

Trucks								
Day's Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
0 - 50	-	1	-	-	-	-	1	1
51 - 100	3	-	1	1	-	-	5	5
101 - 200	2	5	2	3	4	15	31	33
201 - 300	3	5	4	3	4	14	33	35
301 - 400	1	3	3	1	3	6	17	18
*401 and Over	-	-	1	-	1	5	7	8
Total Vehicles	9	14	11	8	12	40	94	
Average Trip	181	220	261	203	263	259	242	

*500 Miles Used as Average

Overall Trip Mileage

0 - 250	5	5	1	4	5	16	36	38
251 - 500	1	4	8	1	5	19	38	40
501 - 750	1	3	2	-	-	2	8	9
751 - 1000	1	-	-	1	1	1	4	4
1001 - 1500	-	1	-	-	-	-	1	1
*1501 and Over	1	1	-	2	1	2	7	8
Total Vehicles	9	14	11	8	12	40	94	
Average Trip	500	518	398	719	448	381	452	

*2000 Miles Used as Average

Marshall
Rest Area

<u>All Vehicles</u>		Lighting (Overhead)						No. of Lights <u>1 @ 10,000 Lumens</u> Candle Power <u>795 each</u>	
(A) Would You Use Rest Area If	"No Lights At Night"?	Daytime					Night Time	24 Hour Total	
		7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
Yes		15	30	13	10	9	47	124	39
No		42	45	32	21	22	30	192	61
Total		57	75	45	31	31	77	316	

(B) Is Present Lighting Adequate At Night?

Yes	26	41	40	28	28	62	225	71
No	31	34	5	3	3	15	91	29
Total	57	75	45	31	31	77	316	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	55	74	31	25	29	76	290	92
No	2	1	14	6	2	1	26	8
Total	57	75	45	31	31	77	316	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	3	-	1	2	-	6	2
No	57	72	45	30	29	77	310	98
Total	57	75	45	31	31	77	316	

Marshall

Rest Area

Passenger Cars _____		Lighting (Overhead)					No. of Lights <u>1 @ 10,000 Lumens</u>		Candle Power <u>795 each</u>	
(A) Would You Use Rest Area If	Daytime					Night Time	24 Hour Total			
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM				
"No Lights At Night"?	No.	No.	No.	No.	No.	No.	No.	%		
Yes	12	22	6	4	3	21	68	31		
No	36	39	28	19	16	16	154	69		
Total	48	61	34	23	19	37	222			

(B) Is Present Lighting Adequate At Night?

Yes	21	34	29	21	16	29	150	68
No	27	27	5	2	3	8	72	32
Total	48	61	34	23	19	37	222	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	47	60	20	17	17	37	198	89
No	1	1	14	6	2	-	24	11
Total	48	61	34	23	19	37	222	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	2	-	1	2	-	5	2
No	48	59	34	22	17	37	217	98
Total	48	61	34	23	19	37	222	

Marshall

Rest Area

Trucks		Lighting (Overhead)						No. of Lights <u>1 @ 10,000 Lumens</u>	
								Candle Power <u>795 each</u>	
(A) Would You Use Rest Area If "No Lights At Night"?	Daytime					Night Time	24 Hour Total		
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%	
Yes	3	8	7	6	6	26	56	60	
No	6	6	4	2	6	14	38	40	
Total	9	14	11	8	12	40	94		

(B) Is Present Lighting Adequate At Night?

Yes	5	7	11	7	12	33	75	80
No	4	7	-	1	-	7	19	20
Total	9	14	11	8	12	40	94	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	8	14	11	8	12	39	92	98
No	1	-	-	-	-	1	2	2
Total	9	14	11	8	12	40	94	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	1	-	-	-	-	1	1
No	9	13	11	8	12	40	93	99
Total	9	14	11	8	12	40	94	

Marshall
Rest Area

All Vehicles								
Facilities First Used by Driver	Daytime					Night Time	12 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
NO. OF DRIVERS	57	75	45	31	31	77	239	
Vehicle Repair	1	2	-	3	1	D	7	3
Resting	10	20	11	7	11	E	59	25
Drinking Water	1	11	6	6	6	N	30	13
Toilets	39	34	22	10	12	I	117	49
Picnic Tables	3	2	3	2	-	A	10	4
Bulletin Board	1	5	1	2	-	T	9	4
Phone	2	1	1	1	1	B	6	2
Walking Pets	-	-	1	-	-	O	1	<1
Trash Can	-	-	-	-	-	N	-	-
Total - Usage	57	75	45	31	31	---	239	

Facilities Used by All Vehicle Occupants Including Driver *

< Less than One Percent

Vehicle Repair	1	6	1	1	2	D	11
Resting	51	58	5	14	5	E	133
Drinking Water	39	124	88	37	41	N	329
Toilets	116	179	79	42	34	I	450
Picnic Tables	16	64	19	7	11	A	117
Bulletin Board	21	32	6	8	-	T	67
Phone	2	2	4	1	3	B	12
Walking Pets	2	2	1	2	-	O	7
Trash Can	1	3	1	-	-	O	5
Total - Usage	249	470	204	112	96	N	1131
No. of People Entering Rest Area	231	282	172	108	102	144	895

* Occupants & driver could use more than one facility.

Marshall
Rest Area

All Vehicles

Facilities Expected in Rest Area by Drivers Interviewed	Daytime					Night Time	12 Hour Total (Daytime)
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	No.
NO. OF DRIVERS (316)	57	75	45	31	31	77	239
Water	10	14	-	-	12	D	36
Tables	10	15	-	-	9	E	34
Shade Trees	7	2	-	-	3	N	12
Phone & Directory	10	13	-	-	5	I	28
Water Fountain	8	18	1	-	13	A	40
Coffee Maker	8	6	1	-	1	F	16
Pop Machine	8	5	2	2	1	B	18
Snack Bar	8	13	2	2	2	O	27
Gas Station	6	8	1	-	-	F	15
Restaurant	9	7	1	-	1	O	18
Cooking Stove or Grill	4	8	-	-	1	N	13

Information Expected
in Rest Area

Freeway Exits	17	25	8	2	5	E D	57
Motels	9	-	5	2	6	N	22
Restaurant	7	-	6	8	5	I	26
Gas Station	6	1	4	5	-	A	16
State Parks	3	-	1	-	-	F B	4
Scenic Areas	8	-	-	-	-	O O	8
Local Resorts Historical Marker, Etc.	5	-	8	2	-	N	15

Marshall
Rest Area

Passenger Cars							
Facilities Expected in Rest Area by Drivers Interviewed	Daytime					Night Time	12 Hour Total (Daytime)
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	No.
NO. OF DRIVERS (222)	48	61	34	23	19	37	185
Water	8	10	-	-	8	A	26
Tables	7	10	-	-	7	E	24
Shade Trees	5	-	-	-	1	N	6
Phone & Directory	9	9	-	-	3	H	21
Water Fountain	5	13	1	-	9	A	28
Coffee Maker	6	3	1	-	-	E	10
Pop Machine	6	5	2	2	1	B	16
Snack Bar	7	11	2	2	1	O	23
Gas Station	6	7	1	-	-	E	14
Restaurant	8	7	1	-	-	O	16
Cooking Stove or Grill	3	7	-	-	1	N	11

Information Expected
in Rest Area

Freeway Exits	15	20	7	1	4	D	47
Motels	9	-	4	-	2	N	15
Restaurant	6	-	5	2	1	A	14
Gas Station	6	1	4	3	-	T	14
State Parks	3	-	1	-	-	E	4
Scenic Areas	-	-	-	-	-	O	-
Local Resorts Historical Marker, Etc.	5	-	8	2	-	N	15

Marshall
Rest Area

Facilities Expected in Rest Area by Drivers Interviewed	Trucks						12 Hour Total (Daytime)
	Daytime					Night Time	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	
NO. OF DRIVERS (94)	9	14	11	8	12	40	54
Water	2	4	-	-	4	D	10
Tables	3	5	-	-	2	E	10
Shade Trees	2	2	-	-	2	N	6
Phone & Directory	1	4	-	-	2	I	7
Water Fountain	3	5	-	-	4	A	12
Coffee Maker	2	3	-	-	1	T	6
Pop Machine	2	-	-	-	-	B	2
Snack Bar	1	2	-	-	1	O	4
Gas Station	-	1	-	-	-	F	1
Restaurant	1	-	-	-	1	O	2
Cooking Stove or Grill	1	1	-	-	-	N	2

Information Expected
in Rest Area

Freeway Exits	2	5	1	1	1	D	10
Motels	-	-	1	2	4	N	7
Restaurant	1	-	1	6	4	I	12
Gas Station	-	-	-	2	-	A	2
State Parks	-	-	-	-	-	F	-
Scenic Areas	-	-	-	-	-	O	-
Local Resorts Historical Marker, Etc.	-	-	-	-	-	O	-

Passenger Cars and Trucks
Parked in Marshall Rest Area
by $\frac{1}{2}$ -hr. Periods
Daytime 7:00AM - 7:00PM

	7:00-7:30	7:30-8:00	8:00-8:30	8:30-9:00	9:00-9:30	9:30-10:00	10:00-10:30	10:30-11:00	11:00-11:30	11:30-12:00	12:00-12:30	12:30-1:00	1:00-1:30	1:30-2:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	4:00-4:30	4:30-5:00	5:00-5:30	5:30-6:00	6:00-6:30	6:30-7:00	12 Hour Total
Trucks	6	5	3	1	0	0	2	3	3	1	4	4	2	1	2	3	1	2	2	3	3	1	1	2	62
Passenger Cars	2	5	4	3	3	4	2	2	7	8	<u>10</u>	5	8	5	6	9	3	1	1	1	3	1	4	2	99
Total	8	10	7	4	3	4	11	5	10	9	<u>14</u>	9	10	6	8	12	4	3	3	4	6	2	5	4	161

Commercial Parking
Length of Time Parked

Time Entered Park	Total Comm.	Average Stay	
		Hr.	Min.
7-8P	6		58
8-9P	3		23
9-10P	4		38
10-11P	1		8
11-12M	-		-
12-1A	7		19
1-2A	6		21
2-3A	4	1	57
3-4A	2		31
4-5A	3		23
5-6A	2		23
6-7A	2		16
7-8A	3		13
8-9A	8		19
9-10A	4		12
10-11A	6		8
11-12N	9		20
12-1P	8		29
1-2P	9		15
2-3P	9		11
3-4P	7		29
4-5P	7		19
5-6P	11		16
6-7P	9		16

4 3/4 - 5 hr.
 4 1/2 - 4 3/4 hr.
 4 1/4 - 4 1/2 hr.
 4 - 4 1/4 hr.
 3 3/4 - 4 hr.
 3 1/2 - 3 3/4 hr.
 3 1/4 - 3 1/2 hr.
 3 - 3 1/4 hr.
 2 3/4 - 3 hr.
 2 1/2 - 2 3/4 hr.
 2 1/4 - 2 1/2 hr.
 2 - 2 1/4 hr.
 1 3/4 - 2 hr.
 1 1/2 - 1 3/4 hr.
 1 1/4 - 1 1/2 hr.
 1 - 1 1/4 hr.
 3/4 - 1 hr.
 1/2 - 3/4 hr.
 1/4 - 1/2 hr.
 0 - 1/4 hr.

Additional Driver Comments to Rest Area Tabulation

Passenger Cars

<u>Michigan: Local</u>	<u>Number of Times Comments Were Made</u>
1. Wash facilities in toilets.	1
2. Flush toilets.	1
 <u>Michigan: Outstate</u>	
1. Children's playground	3
2. Place to wash in restrooms.	1
3. Put lime in toilets.	1
4. Need cleaner restrooms.	1
5. Distance to cities should be posted.	1
6. Toilets smell.	1
7. Doors on restroom.	1
8. Sheltered picnic tables.	1
9. Pay, flush toilets; non-pay flush toilets.	3
10. Fountain rather than pump for water.	1
11. Rest area on other side of road.	1
12. Some areas have no drinking water.	1
13. Presently adequate.	1
 <u>Out of State</u>	
1. Highway maps.	3
2. Distances posted.	1
3. Wash facilities in toilets.	3
4. Location and distance to next rest area.	1
5. Presently very good.	1
6. Facilities smell.	1
7. More lights in parking areas.	2
8. More grass.	1
9. Open these sights for trailers.	1
10. Refreshment stand.	1
11. Location of restaurants off freeway.	1
12. Gas stations are scarce.	1
13. Toilets need improvement.	1

Trucks

Number of Times Comments Were Made

1. Presently very good.	1
2. Flush toilets.	1
3. Highway maps.	1
4. Candy and cigarette machine.	1
5. Sign against obscenities on wall.	1
6. Telephone booths.	1
7. Post detours and construction.	1
8. Patrol more often	1
9. Post distances to cities and rest area locations.	2
10. Playground facilities.	1
11. Heated restrooms.	1
12. Toilets smell.	1
13. More parking room for trucks.	1

All above comments were unsolicited and made by vehicle drivers at time of their entrance to Rest Area while being interviewed by personnel of the Department. Additional remarks and comments were made throughout the day to Highway personnel within the Rest Area of which no tabulations were made.



KALAMAZOO

Traffic Volumes

Time Period	Daytime					Night Time	24 Hours
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	
Freeway Volumes All Vehicles E. Bound <u>X</u> W. Bound _____	817	803	539	631	594	2002	5386
Vehicles Entering Park							
Passenger	45	75	51	50	54	45	320
Commercial	25	31	8	38	30	153	285
All Vehicles	70	106	59	88	84	198	605

Vehicle Occupancy and Classification												
Occupancy												
Passenger Car by Registration						Commercial Vehicle by Type				All Vehicles		
No. Persons Per Vehicle	Mich. Local	Mich. Out State	Out of State	Total Pass. Cars		Single Units	Tractor & Semi Trailer	TK-TR TT-ST-TR	Total	Inter-viewed	NOT Inter-viewed	Total
	No.	No.	No.	No.	%	No.	No.	No.	No.	No.	No.	No.
1	13	52	24	89	28	26	199	45	270	230	129	359
2	4	60	37	101	32	4	7	1	12	82	31	113
3	1	25	15	41	13	-	1	-	1	34	8	42
4	3	17	16	36	11	1	-	1	2	25	13	38
5+	4	28	21	53	16	-	-	-	-	42	11	53
Total	25	182	113	320	100	31	207	47	285	413	192	605
Avg. No. Persons Per Vehicle	2.2	2.5	2.8	2.6	X	1.2	1.1	1.1	1.1	1.9	1.7	1.9

TRIP ORIGIN-DESTINATION

Passenger Cars

Origin	Total Vehicles Interviewed		Destination				
			Michigan	Ind., Ohio Ill. & Wisc.	E. States E. Canada	W. States W. Canada	Southern States
	No.	%	No.	No.	No.	No.	No.
Michigan	72	31	71	-	1	-	-
Ind., Ohio, Ill., Wisc.	129	56	111	1	16	1	-
E. States & E. Canada	6	3	5	-	-	1	-
W. States & W. Canada	22	9	19	-	3	-	-
Southern States	3	1	3	-	-	-	-
Total	232	100	209	1	20	2	-

Commercial Vehicles

Michigan	33	18	28	4	1	-	-
Ind., Ohio, Ill., Wisc.	132	73	129	1	2	-	-
E. States & E. Canada	4	2	4	-	-	-	-
W. States & W. Canada	11	6	9	-	1	1	-
Southern States	1	1	1	-	-	-	-
Total	181	100	171	5	4	1	-

All Vehicles

Michigan	105	25	99	4	2	-	-
Ind., Ohio, Ill., Wisc.	261	63	240	2	18	1	-
E. States & E. Canada	10	3	9	-	-	1	-
W. States & W. Canada	33	8	28	-	4	1	-
Southern States	4	1	4	-	-	-	-
Total	413	100	380	6	24	3	-

Kalamazoo
Rest Area

All Vehicles								
Trip Purpose	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
Work	26	32	16	34	27	92	227	55
Personal Business	2	3	8	3	3	22	41	10
Shopping	-	-	6	1	-	1	8	2
Vacation	17	38	1	20	22	4	102	25
Other Social	3	5	9	4	8	1	30	7
All Others	-	1	-	1	-	3	5	1
Total	48	79	40	63	60	123	413	

Desired Distance Between Rest Areas

20-Miles	8	10	2	3	3	1	27	7
40-Miles	23	27	13	23	29	25	140	34
60-Miles	11	28	22	33	20	81	195	47
80-Miles	2	5	3	2	2	12	26	6
* 100-Miles & Over	4	9	-	2	6	4	25	6
Totals	48	79	40	63	60	123	413	
Average Miles	48	54	53	53	53	59	54	

Suggested Hours of Operation for Rest Areas

Summer	7 AM-10 PM	4	9	-	2	2	-	17	5
	24-Hours	44	70	40	61	58	123	396	95
	Total	48	79	40	63	60	123	413	
Winter	Daylight Hours	7	10	5	7	6	1	36	9
	24-Hours	41	69	35	56	54	122	377	91
	Total	48	79	40	63	60	123	413	

* 100 Miles Used as Average

Kalamazoo

Rest Area

Passenger Cars								
Trip Purpose	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
Work	7	8	10	5	6	15	51	22
Personal Business	2	3	8	3	3	22	41	18
Shopping	-	-	6	1	-	-	7	3
Vacation	17	38	1	19	21	4	100	43
Other Social	3	5	9	4	7	1	29	12
All Others	-	1	-	1	-	2	4	2
Total	29	55	34	33	37	44	232	

Desired Distance Between Rest Areas

20-Miles	4	7	2	2	1	-	16	7
40-Miles	12	19	10	16	20	12	89	38
60-Miles	9	20	20	14	10	26	99	43
80-Miles	1	3	2	1	1	4	12	5
* 100-Miles & Over	3	6	-	-	5	2	16	7
Totals	29	55	34	33	37	44	232	
Average Miles	51	53	53	48	54	58	53	

Suggested Hours of Operation for Rest Areas

Summer	7 AM-10 PM	4	9	-	1	2	-	16	7
	24-Hours	25	46	34	32	35	44	216	93
	Total	29	55	34	33	37	44	232	
Winter	Daylight Hours	7	10	5	2	4	-	28	12
	24-Hours	22	45	29	31	33	44	204	88
	Total	29	55	34	33	37	44	232	

* 100 Miles Used as Average

Trip Purpose	Trucks							
	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
Work	19	24	6	29	21	77	176	96
Personal Business	-	-	-	-	-	1	1	1
Shopping	-	-	-	-	-	-	-	-
Vacation	-	-	-	1	1	-	2	1
Other Social	-	-	-	-	1	-	1	1
All Others	-	-	-	-	-	1	1	1
Total	19	24	6	30	23	79	181	

Desired Distance Between Rest Areas

20-Miles	4	3	-	1	2	1	11	6
40-Miles	11	8	3	7	9	13	51	28
60-Miles	2	8	2	19	10	55	96	53
80-Miles	1	2	1	1	1	8	14	8
* 100-Miles & Over	1	3	-	2	1	2	9	5
Totals	19	24	6	30	23	79	181	
Average Miles	43	55	53	57	51	59	55	

Suggested Hours of Operation for Rest Areas

Summer	7 AM-10 PM	-	-	-	1	-	-	1	1
	24-Hours	19	24	6	29	23	79	180	99
	Total	19	24	6	30	23	79	181	
Winter	Daylight Hours	-	-	-	5	2	1	8	4
	24-Hours	19	24	6	25	21	78	173	96
	Total	19	24	6	30	23	79	181	

* 100 Miles Used as Average

Kalamazoo
Rest Area

All Vehicles																
Location Vehicles Entered or Left Freeway																
Entered		Total Entered	Exit													
Interchange	No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Detroit	1	3	X							1			1		1	
Ypsilanti	2			X												
Ann Arbor	3	1			X									1		
Chelsea	4				X											
Jackson	5	1				X						1				
Albion	6						X									
Marshall	7	1						X	1							
Battle Creek	8								X							
Kalamazoo	9	8			1			2	5	X						
Paw Paw	10	26	1		1		2	2	3	15	X	2				
Watervliet	11	10	3				3		1	2		X		1		
Benton Harbor	12	36	8		2		6	2	7	4	6	1	X			
St. Joseph	13	12	8					1	1	2				X		
Stevensville	14	315	198	7	17	2	22	2	28	20	19				X	
Total		413	218	7	21	2	33	5	39	35	45	2	2	1	2	1

Trips having an Origin-Destination opposite to the Direction of Traffic serviced by Rest Area utilize a Local Interchange to visit the Rest Area.

Average Length of Stay

Daytime (7AM-7PM)	Passenger Cars	<u>17'45"</u>	Trucks	<u>24'36"</u>	All Veh.	<u>20'1"</u>
Nighttime (7PM-7AM)	Passenger Cars	<u>31'45"</u>	Trucks	<u>49'48"</u>	All Veh.	<u>45'43"</u>
24 Hours	Passenger Cars	<u>19'50"</u>	Trucks	<u>38'10"</u>	All Veh.	<u>28'29"</u>

Mileage Table

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Detroit	1	x	38	39	59	79	98	107	121	143	163	178	189	191	198
Ypsilanti	2	38	x	1	21	41	60	69	83	105	125	140	151	153	160
Ann Arbor	3	39	1	x	20	40	59	68	82	104	124	139	150	152	159
Chelsea	4	59	21	20	x	20	39	48	62	84	104	119	130	132	139
Jackson	5	79	41	40	20	x	19	28	42	64	84	99	110	112	119
Albion	6	98	60	59	39	19	x	9	23	45	65	80	91	93	100
Marshall	7	107	69	68	48	28	9	x	14	36	56	71	82	84	91
Battle Creek	8	121	83	82	62	42	23	14	x	22	42	57	68	70	77
Kalamazoo	9	143	105	104	84	64	45	36	22	x	20	35	46	48	55
Paw Paw	10	163	125	124	104	84	65	56	42	20	x	15	26	28	35
Watervliet	11	178	140	139	119	99	80	71	57	35	15	x	11	13	20
Benton Harbor	12	189	151	150	130	110	91	82	68	46	26	11	x	2	9
St. Joseph	13	191	153	152	132	112	93	84	70	48	28	13	2	x	7
Stevensville	14	198	160	159	139	119	100	91	77	55	35	20	9	7	x

Mileage - not necessarily the shortest route.

Kalamazoo

Rest Area

All Vehicles								
Day's Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
0 - 50	1	2	2	-	2	9	16	4
51 - 100	4	5	1	5	2	5	22	5
101 - 200	12	23	8	9	7	24	83	20
201 - 300	23	30	17	23	23	55	171	42
301 - 400	7	15	8	13	13	20	76	18
*401 and Over	1	4	4	13	13	10	45	11
Total Vehicles	48	79	40	63	60	123	413	
Average Trip	226	236	259	294	301	243	258	

*500 Miles Used as Average

Overall Trip Mileage

0 - 250	20	26	9	22	14	53	144	35
251 - 500	18	29	18	20	14	58	157	38
501 - 750	4	6	5	7	13	5	40	10
751 - 1000	3	7	3	2	5	2	22	5
1001 - 1500	-	4	2	3	4	1	14	3
*1501 and Over	3	7	3	9	10	4	36	9
Total Vehicles	48	79	40	63	60	123	413	
Average Trip	424	544	553	605	742	346	510	

*2000 Miles Used as Average

Kalamazoo

Rest Area

Passenger Cars

Day's Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
0 - 50	1	2	1	-	2	9	15	6
51 - 100	4	1	1	2	1	4	13	6
101 - 200	9	16	5	5	6	13	54	23
201 - 300	10	22	16	13	16	7	84	36
301 - 400	4	10	7	4	5	7	37	16
*401 and Over	1	4	4	9	7	4	29	13
Total Vehicles	29	55	34	33	37	44	232	
Average Trip	209	246	274	305	278	197	250	

*500 Miles Used as Average

Overall Trip Mileage

0 - 250	13	14	6	9	10	24	76	33
251 - 500	9	20	16	5	8	14	72	31
501 - 750	3	4	5	6	7	3	28	12
751 - 1000	1	6	2	2	1	1	13	6
1001 - 1500	-	4	2	2	4	-	12	5
*1501 and Over	3	7	3	9	7	2	31	13
Total Vehicles	29	55	34	33	37	44	232	
Average Trip	474	655	592	879	770	341	614	

*2000 Miles Used as Average

Kalamazoo
Rest Area

Day's Trip Mileage	Trucks						24 Hour Total	
	Daytime					Night Time		
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
0 - 50	-	-	1	-	-	-	1	1
51 - 100	-	4	-	3	1	1	9	5
101 - 200	3	7	3	4	1	11	29	16
201 - 300	13	8	1	10	7	48	87	48
301 - 400	3	5	1	9	8	13	39	21
*401 and Over	-	-	-	4	6	6	16	9
Total Vehicles	19	24	6	30	23	79	181	
Average Trip	250	213	179	283	338	269	268	

*500 Miles Used as Average

Overall Trip Mileage

0 - 250	7	12	3	13	4	29	68	37
251 - 500	9	9	2	15	6	44	85	47
501 - 750	1	2	-	1	6	2	12	7
751 - 1000	2	1	1	-	4	1	9	5
1001 - 1500	-	-	-	1	-	1	2	1
*1501 and Over	-	-	-	-	3	2	5	3
Total Vehicles	19	24	6	30	23	79	181	
Average Trip	349	292	333	304	696	348	377	

*2000 Miles Used as Average

Kalamazoo

Rest Area

All Vehicles

No. of Lights 9 @ 10,000 Lumens

Lighting (Overhead)

Candle Power 795 each

(A) Would You Use Rest Area If "No Lights At Night"?	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
Yes	13	29	6	26	25	80	179	43
No	35	50	34	37	35	43	234	57
Total	48	79	40	63	60	123	413	

(B) Is Present Lighting Adequate At Night?

Yes	46	78	29	63	57	115	388	94
No	2	1	11	-	3	8	25	6
Total	48	79	40	63	60	123	413	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	48	78	24	48	39	119	356	86
No	-	1	16	15	21	4	57	14
Total	48	79	40	63	60	123	413	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	-	-	2	2	1	5	1
No	48	79	40	61	58	122	408	99
Total	48	79	40	63	60	123	413	

Kalamazoo

Rest Area

Passenger Cars

No. of Lights 9 @ 10,000 Lumens
Lighting (Overhead) Candle Power 795 each

(A) Would You Use Rest Area If "No Lights At Night"?	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
Yes	6	21	6	5	10	26	74	32
No	23	34	28	28	27	18	158	68
Total	29	55	34	33	37	44	232	

(B) Is Present Lighting Adequate At Night?

Yes	27	54	25	33	34	42	215	93
No	2	1	9	-	3	2	17	7
Total	29	55	34	33	37	44	232	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	29	54	19	25	23	42	192	83
No	-	1	15	8	14	2	40	17
Total	29	55	34	33	37	44	232	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	-	-	1	2	1	4	2
No	29	55	34	32	35	43	228	98
Total	29	55	34	33	37	44	232	

Kalamazoo

Rest Area

Trucks	Lighting (Overhead)	No. of Lights	9 @ 10,000 Lumens					
		Candle Power	795 each					
(A) Would You Use Rest Area If "No Lights At Night"?	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
Yes	7	8	-	21	15	54	105	58
No	12	16	6	9	8	25	76	42
Total	19	24	6	30	23	79	181	

(B) Is Present Lighting Adequate At Night?

Yes	19	24	4	30	23	73	173	96
No	-	-	2	-	-	6	8	4
Total	19	24	6	30	23	79	181	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	19	24	5	23	16	77	164	91
No	-	-	1	7	7	2	17	9
Total	19	24	6	30	23	79	181	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	-	-	1	-	-	1	1
No	19	24	6	29	23	79	180	99
Total	19	24	6	30	23	79	181	

Kalamazoo

Rest Area

All Vehicles								
Facilities First Used by Driver	Daytime					Night Time	12 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
NO. OF DRIVERS	48	79	40	63	60	123	290	
Vehicle Repair	-	1	1	1	2	D	5	2
Resting	25	19	11	6	15	E	76	26
Drinking Water	2	14	11	33	24	N	84	29
Toilets	19	34	14	17	14	I	98	34
Picnic Tables	-	7	-	2	3	A	12	4
Bulletin Board	1	-	1	2	1	T	5	2
Phone	1	3	2	-	1	B	7	2
Walking Pets	-	-	-	2	-	O	2	1
Trash Can	-	1	-	-	-	N	1	<1
Total - Usage	48	79	40	63	60	---	290	

Facilities Used by All Vehicle Occupants Including Driver *

<1 Less than One Percent

Vehicle Repair	-	-	-	1	6	D	7
Resting	79	86	28	7	15	E	215
Drinking Water	52	151	175	61	91	N	530
Toilets	65	127	61	34	54	I	341
Picnic Tables	4	68	28	16	22	A	138
Bulletin Board	14	17	16	2	20	T	69
Phone	6	7	5	5	-	B	23
Walking Pets	-	3	2	2	-	O	7
Trash Can	3	5	12	3	3	O	26
Total - Usage	223	464	327	131	211	N	1356
No. of People Entering Rest Area	145	229	141	172	173		860

* Occupants & driver could use more than one facility.

24 Hr 1145

Kalamazoo
Rest Area

All Vehicles

Facilities Expected in Rest Area by Drivers Interviewed	Daytime					Night Time	12 Hour Total (Daytime)
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	No.
NO. OF DRIVERS (413)	48	79	40	63	60	123	290
Water	16	28	8	23	27	D	102
Tables	11	16	5	11	19	E	62
Shade Trees	3	5	5	11	17	N	41
Phone & Directory	8	15	5	13	16	I	57
Water Fountain	15	26	10	17	22	A	90
Coffee Maker	7	3	7	8	9	T	34
Pop Machine	5	4	9	13	18	B	49
Snack Bar	7	16	7	20	23	O	73
Gas Station	2	9	5	10	10	T	36
Restaurant	6	15	11	7	17	O	56
Cooking Stove or Grill	2	4	2	4	9	N	21

Information Expected
in Rest Area

Freeway Exits	13	22	3	1	5	D	44
Motels	1	2	5	2	6	E	16
Restaurant	-	3	13	12	8	I	36
Gas Station	-	2	7	5	9	A	23
State Parks	-	1	3	2	6	T	12
Scenic Areas	3	2	2	3	8	O	18
Local Resorts Historical Marker, Etc.	7	2	12	3	9	N	33

Kalamazoo
Rest Area

Passenger Cars							
Facilities Expected in Rest Area by Drivers Interviewed	Daytime					Night Time	12 Hour Total (Daytime)
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	No.
NO. OF DRIVERS (232)	29	55	34	33	37	44	188
Water	12	19	7	11	19		68
Tables	8	12	5	10	15		50
Shade Trees	3	4	5	8	14		34
Phone & Directory	5	10	5	9	12		41
Water Fountain	11	17	9	9	16		62
Coffee Maker	4	1	6	4	4		19
Pop Machine	3	2	7	10	7		29
Snack Bar	2	9	6	11	15		43
Gas Station	2	9	4	6	9		30
Restaurant	5	12	10	4	10		41
Cooking Stove or Grill	2	4	2	4	8		20

Information Expected
in Rest Area

Freeway Exits	13	15	3	1	3		35
Motels	1	2	5	2	5		15
Restaurant	-	2	12	2	6		22
Gas Station	-	1	6	3	6		16
State Parks	-	-	3	2	4		9
Scenic Areas	3	1	2	3	5		14
Local Resorts Historical Marker, Etc.	6	2	12	1	8		29

Kalamazoo
Rest Area

Trucks

Facilities Expected in Rest Area by Drivers Interviewed	Daytime					Night Time	12 Hour Total (Daytime)
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	No.
NO. OF DRIVERS (181)	19	24	6	30	23	79	102
Water	4	9	1	12	8	P	34
Tables	3	4	-	1	4	E	12
Shade Trees	-	1	-	3	3	N	7
Phone & Directory	3	5	-	4	4	I	16
Water Fountain	4	9	1	8	6	A	28
Coffee Maker	3	2	1	4	5	T	15
Pop Machine	2	2	2	3	11	B	20
Snack Bar	5	7	1	9	8	O	30
Gas Station	-	-	1	4	1	F	6
Restaurant	1	3	1	3	7	O	15
Cooking Stove or Grill	-	-	-	-	1	N	1

Information Expected
in Rest Area

Freeway Exits	-	7	-	-	2	E	9
Motels	-	-	-	-	1	N	1
Restaurant	-	1	1	10	2	I	14
Gas Station	-	1	1	2	3	F	7
State Parks	-	1	-	-	2	B	3
Scenic Areas	-	1	-	-	3	O	4
Local Resorts Historical Marker, Etc.	1	-	-	2	1	N	4

Passenger Cars and Trucks
 Parked in Kalamazoo Rest Area
 by $\frac{1}{2}$ -hr. Periods
 Daytime 7:00AM - 7:00PM

	7:00-7:30	7:30-8:00	8:00-8:30	8:30-9:00	9:00-9:30	9:30-10:00	10:00-10:30	10:30-11:00	11:00-11:30	11:30-12:00	12:00-12:30	12:30-1:00	1:00-1:30	1:30-2:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	4:00-4:30	4:30-5:00	5:00-5:30	5:30-6:00	6:00-6:30	6:30-7:00	12 Hour Total
Trucks	7	8	8	5	7	5	3	3	4	6	<u>10</u>	7	7	2	2	2	7	7	7	9	5	9	6	8	144
Passenger Cars	5	4	3	3	1	0	4	3	5	8	10	7	4	5	4	3	6	6	3	5	10	<u>14</u>	4	4	121
Total	12	12	11	8	8	5	7	6	9	14	20	14	11	7	6	5	13	13	10	14	15	<u>23</u>	10	12	265

Additional Driver Comments to Rest Area Tabulation

Passenger Cars

Number of Times
Comments Were Made

Michigan: Local

1. Highway maps should be available.

Michigan: Outstate

- | | |
|--|---|
| 1. Put rest area sign farther down road. | 1 |
| 2. Heated toilets in winter. | 1 |
| 3. Wash facilities in toilets. | 1 |
| 4. Telephones on the interchanges. | 1 |
| 5. Park attendant during daylight hours. | 1 |
| 6. Playground facilities. | 2 |
| 7. Up to date highway maps. | 3 |
| 8. Approach to area is too small. | 1 |
| 9. Doors on restroom. | 4 |
| 10. Location and distance to next rest area. | 2 |
| 11. Presently very good. | 4 |
| 12. Toilets smell. | 2 |
| 13. Running water. | 1 |
| 14. More rest areas. | 1 |
| 15. Flush toilets. | 3 |

Out of State

- | | |
|--|---|
| 1. Area on other side of road. | 1 |
| 2. Location of camping areas and if space is available | 1 |
| 3. Location and distance to next rest area. | 1 |
| 4. Coin changers. | 1 |
| 5. Electric outlets. | 1 |
| 6. Post detours and construction. | 1 |
| 7. Wash facilities. | 2 |
| 8. Sheltered toilets. | 1 |
| 9. Presently very good. | 2 |
| 10. Highway maps should be available. | 1 |
| 11. Overhead lights by toilets. | 1 |
| 12. Gas is hard to get. | 1 |
| 13. Should have same type as on Oklahoma and Indiana freeways. | 1 |

Trucks

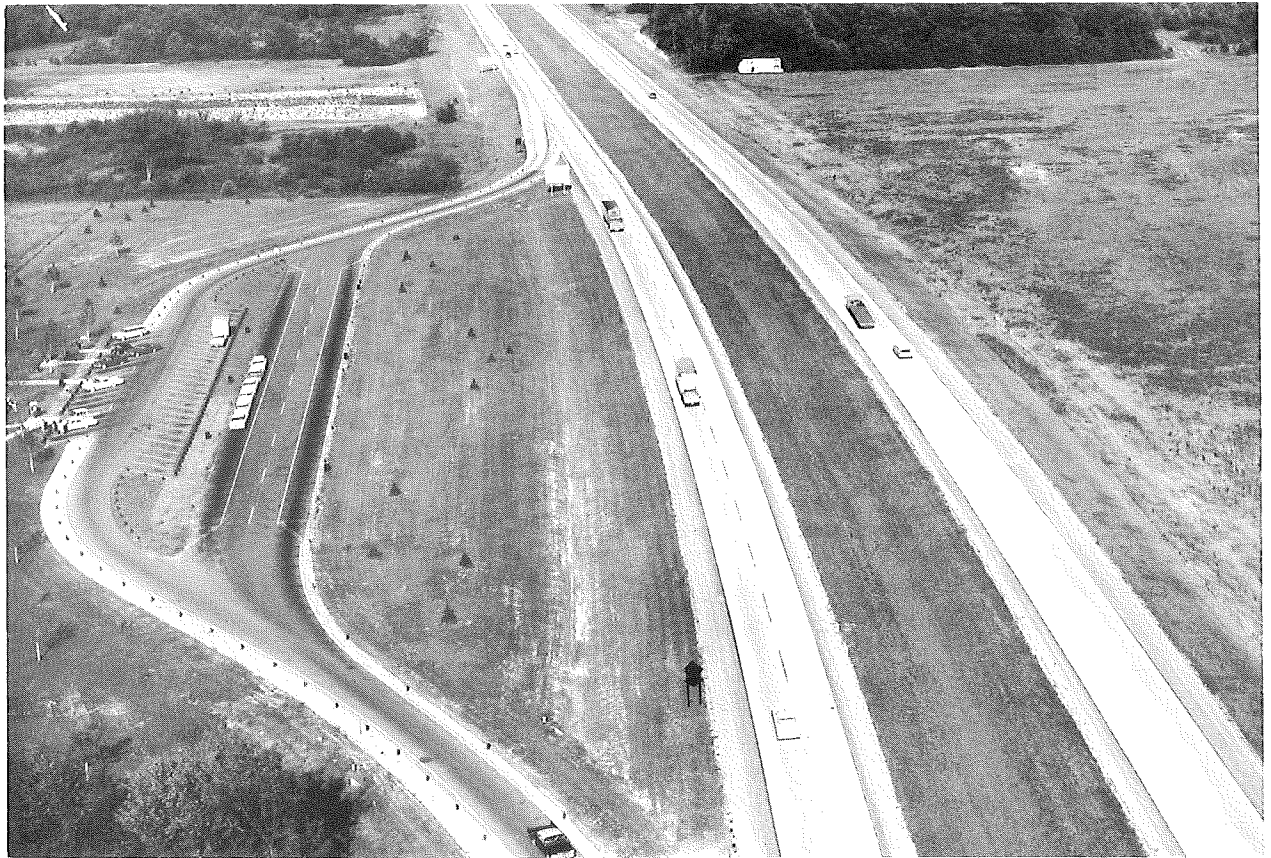
Number of Times Comments Were Made

1. Posted truck speeds.	1
2. More eastbound rest areas.	1
3. Electrical outlets.	1
4. Emergency phone numbers.	1
5. More parking area for trucks.	3
6. Wash facilities.	1
7. Flush toilets.	1
8. Frequented by perverts.	1
9. Presently very good.	1
10. Too much light for trucks.	3
11. Long way between rest area.	1
12. Highway maps should be available.	1
13. Running water rather than pump.	1

Bus

1. Playground facilities for children.	1
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All above comments were unsolicited and made by vehicle drivers at time of their entrance to Rest Area while being interviewed by personnel of the Department. Additional remarks and comments were made throughout the day to Highway personnel within the Rest Area of which no tabulations were made.



WATERVLIET

Traffic Volumes

Time Period	Daytime					Night Time	24 Hours
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	
Freeway Volumes All Vehicles E. Bound W. Bound X	682	1057	645	652	608	1551	5195
Vehicles Entering Park							
Passenger	57	106	54	50	25	36	328
Commercial	35	22	21	30	35	86	229
All Vehicles	92	128	75	80	60	122	557

Vehicle Occupancy and Classification												
Occupancy												
Passenger Car by Registration						Commercial Vehicle by Type				All Vehicles		
No. Persons Per Vehicle	Mich. Local	Mich. Out State	Out of State	Total Pass. Cars		Single Units	Tractor & Semi Trailer	TK-TR TT-ST-TR	Total	Inter-viewed	Not Inter-viewed	Total
	No.	No.	No.	No.	%	No.	No.	No.	No.	No.	No.	No.
1	7	54	30	91	28	27	167	18	212	228	75	303
2	5	57	43	105	32	2	12	-	14	95	24	119
3	1	20	21	42	13	3	-	-	3	30	15	45
4	1	21	20	42	13	-	-	-	-	34	8	42
5+	-	18	30	48	14	-	-	-	-	34	14	48
Total	14	170	144	328	100	32	179	18	229	421	136	557
Avg. No Persons Per Vehicle	1.7	2.4	2.8	2.5	X	1.3	1.1	1.0	1.1	1.9	2.0	1.9
	2.3											

TRIP ORIGIN-DESTINATION

Passenger Cars

Origin	Total Vehicles Interviewed		Destination				
			Michigan	Ind., Ohio Ill. & Wisc.	E. States E. Canada	W. States W. Canada	Southern States
	No.	%	No.	No.	No.	No.	No.
Michigan	223	91	53	137	-	32	1
Ind., Ohio, Ill., Wisc.	3	1	-	2	-	1	-
E. States & E. Canada	18	8	1	11	-	6	-
W. States & W. Canada	-	-	-	-	-	-	-
Southern States	1	< 1	-	1	-	-	-
Total	245	100	54	151	-	39	1

Commercial Vehicles

Michigan	164	93	15	140	1	8	-
Ind., Ohio, Ill., Wisc.	2	1	2	-	-	-	-
E. States & E. Canada	7	4	-	2	-	5	-
W. States & W. Canada	-	-	-	-	-	-	-
Southern States	3	2	-	3	-	-	-
Total	176	100	17	145	1	13	-

All Vehicles

Michigan	387	92	68	277	1	40	1
Ind., Ohio, Ill., Wisc.	5	1	2	2	-	1	-
E. States & E. Canada	25	6	1	13	-	11	-
W. States & W. Canada	-	-	-	-	-	-	-
Southern States	4	1	-	4	-	-	-
Total	421	100	71	296	1	52	1

< 1 Less than One Percent

Watervliet

Rest Area

All Vehicles

Trip Purpose	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
Work	32	26	18	24	25	91	216	51
Personal Business	4	3	3	8	2	22	42	10
Shopping	-	-	-	3	-	-	3	1
Vacation	24	49	27	15	12	1	128	30
Other Social	4	12	4	4	2	3	29	7
All Others	-	-	1	1	-	1	3	1
Total	64	90	53	55	41	118	421	

Desired Distance Between Rest Areas

20-Miles	5	11	2	2	-	3	23	6
40-Miles	31	40	26	23	17	35	172	41
60-Miles	15	19	18	24	20	68	164	38
80-Miles	7	13	5	2	2	10	39	9
* 100-Miles & Over	6	7	2	4	2	2	23	6
Totals	64	90	53	55	41	118	421	
Average Miles	53	52	52	54	55	55		54

Suggested Hours of Operation for Rest Areas

Summer	7 AM-10 PM	-	10	2	5	1	-	18	4
	24-Hours	64	80	51	50	40	118	403	96
	Total.	64	90	53	55	41	118	421	
Winter	Daylight Hours	3	10	3	6	-	1	23	5
	24-Hours	61	80	50	49	41	117	398	95
	Total	64	90	53	55	41	118	421	

* 100 Miles Used as Average

Watervliet
Rest Area

Passenger Cars

Trip Purpose	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.		
Work	10	11	6	4	4	10	45	18
Personal Business	4	3	3	8	1	22	41	17
Shopping	-	-	-	3	-	-	3	1
Vacation	24	49	25	15	11	-	124	51
Other Social	4	12	4	4	2	3	29	12
All Others	-	-	1	1	-	1	3	1
Total	42	75	39	35	18	36	245	

Desired Distance Between Rest Areas

20-Miles	3	10	1	1	-	3	18	7
40-Miles	16	32	21	16	10	11	106	43
60-Miles	12	18	12	15	6	17	80	33
80-Miles	6	9	3	2	2	4	26	11
* 100-Miles & Over	5	6	2	1	-	1	15	6
Totals	42	75	39	35	18	36	245	
Average Miles	57	52	52	52	51	54	53	

Suggested Hours of Operation for Rest Areas

Summer	7 AM-10 PM	-	10	2	5	1	-	18	7
	24-Hours	42	65	37	30	17	36	227	93
	Total	42	75	39	35	18	36	245	
Winter	Daylight Hours	3	10	3	6	-	1	23	9
	24-Hours	39	65	36	29	18	35	222	91
	Total	42	75	39	35	18	36	245	

* 100 Miles Used as Average

Watervliet

Rest Area

Trucks								
Trip Purpose	Daytime					Night	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
Work	22	15	12	20	21	81	171	97
Personal Business	-	-	-	-	1	-	1	1
Shopping	-	-	-	-	-	-	-	-
Vacation	-	-	2	-	1	1	4	2
Other Social	-	-	-	-	-	-	-	-
All Others	-	-	-	-	-	-	-	-
Total	22	15	14	20	23	82	176	

Desired Distance Between Rest Areas

20-Miles	2	1	1	1	-	-	5	3
40-Miles	15	8	5	7	7	24	66	37
60-Miles	3	1	6	9	14	51	84	48
80-Miles	1	4	2	-	-	6	13	7
* 100-Miles & Over	1	1	-	3	2	1	8	5
Totals	22	15	14	20	23	82	176	
Average Miles	45	55	53	57	57	56		55

Suggested Hours of Operation for Rest Areas

Summer	7 AM-10 PM	-	-	-	-	-	-	-
	24-Hours	22	15	14	20	23	82	176 100
	Total	22	15	14	20	23	82	176
Winter	Daylight Hours	-	-	-	-	-	-	-
	24-Hours	22	15	14	20	23	82	176 100
	Total	22	15	14	20	23	82	176

* 100 Miles Used as Average

Watervliet

Rest Area

All Vehicles

Location Vehicles Entered or Left Freeway

Entered		Total Entered	Exit													
Interchange	No.		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Detroit	1	236	X									3	12	1	220	
Ypsilanti	2	1		X											1	
Ann Arbor	3	30			X							2	3		25	
Chelsea	4					X										
Jackson	5	37					X					1	5		31	
Albion	6	4						X					2		2	
Marshall	7	13							X				1		12	
Battle Creek	8	35								X		1	6	2	26	
Kalamazoo	9	52									X	3	13	3	33	
Paw Paw	10	12										X	5	1	6	
Watervliet	11											X				
Benton Harbor	12												X			
St. Joseph	13													X		
Stevensville	14	1									1				X	
Total		421									1	15	43	6	356	

Trips having an Origin-Destination opposite to the Direction of Traffic serviced by Rest Area utilize a Local Interchange to visit the Rest Area.

Average Length of Stay

Daytime (7AM-7PM)	Passenger Cars	<u>13'41"</u>	Trucks	<u>14'43"</u>	All Veh.	<u>13'59"</u>
Nighttime (7PM-7AM)	Passenger Cars	<u>43'00"</u>	Trucks	<u>68'07"</u>	All Veh.	<u>60'20"</u>
24 Hours	Passenger Cars	<u>17'06"</u>	Trucks	<u>34'55"</u>	All Veh.	<u>21'27"</u>

Mileage Table

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Detroit	1	x	38	39	59	79	98	107	121	143	163	178	189	191	198
Ypsilanti	2	38	x	1	21	41	60	69	83	105	125	140	151	153	160
Ann Arbor	3	39	1	x	20	40	59	68	82	104	124	139	150	152	159
Chelsea	4	59	21	20	x	20	39	48	62	84	104	119	130	132	139
Jackson	5	79	41	40	20	x	19	28	42	64	84	99	110	112	119
Albion	6	98	60	59	39	19	x	9	23	45	65	80	91	93	100
Marshall	7	107	69	68	48	28	9	x	14	36	56	71	82	84	91
Battle Creek	8	121	83	82	62	42	23	14	x	22	42	57	68	70	77
Kalamazoo	9	143	105	104	84	64	45	36	22	x	20	35	46	48	55
Paw Paw	10	163	125	124	104	84	65	56	42	20	x	15	26	28	35
Watervliet	11	178	140	139	119	99	80	71	57	35	15	x	11	13	20
Benton Harbor	12	189	151	150	130	110	91	82	68	46	26	11	x	2	9
St. Joseph	13	191	153	152	132	112	93	84	70	48	28	13	2	x	7
Stevensville	14	198	160	159	139	119	100	91	77	55	35	20	9	7	x

Watervliet

Rest Area

All Vehicles								
Day's Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
	No.	No.	No.	No.	No.	No.	No.	%
0 - 50	-	2	-	-	-	5	7	2
51 - 100	3	11	1	3	2	3	23	6
101 - 200	9	19	10	12	4	17	71	17
201 - 300	28	31	29	25	18	68	199	47
301 - 400	9	16	7	8	8	21	69	16
*401 and Over	15	11	6	7	9	4	52	12
Total Vehicles	64	90	53	55	41	118	421	
Average Trip	300	251	269	265	306	248	267	

*500 Miles Used as Average

Overall Trip Mileage

0 - 250	15	32	13	8	5	36	109	26
251 - 500	31	34	11	14	15	74	179	42
501 - 750	4	6	6	13	10	1	40	10
751 - 1000	1	5	5	6	8	2	27	6
1001 - 1500	7	4	5	6	-	3	25	6
*1501 and Over	6	9	13	8	3	2	41	10
Total Vehicles	64	90	53	55	41	118	421	
Average Trip	588	532	870	784	622	359	576	

*2000 Miles Used as Average

Watervliet

Rest Area

Passenger Cars

Day's Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.		
0 - 50	-	2	-	-	-	5	7	3
51 - 100	2	7	-	3	1	3	16	6
101 - 200	7	15	9	10	2	5	48	20
201 - 300	12	28	21	13	10	15	99	40
301 - 400	6	13	4	5	2	6	36	15
*401 and Over	15	10	5	4	3	2	39	16
Total Vehicles	42	75	39	35	18	36	245	
Average Trip	329	258	269	249	282	221	267	

*500 Miles Used as Average

Overall Trip Mileage

0 - 250	8	26	10	6	2	12	64	26
251 - 500	17	27	5	8	3	19	79	32
501 - 750	4	6	4	7	7	1	29	12
751 - 1000	1	4	4	5	5	-	19	8
1001 - 1500	6	3	5	3	-	2	19	8
*1501 and Over	6	9	11	6	1	2	35	14
Total Vehicles	42	75	39	35	18	36	245	
Average Trip	720	565	958	807	674	438	678	

*2000 Miles Used as Average

Watervliet

Rest Area

TRUCKS

Day's Trip Mileage	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
0 - 50	-	-	-	-	-	-	-	-
51 - 100	1	4	1	-	1	-	7	4
101 - 200	2	4	1	2	2	12	23	13
201 - 300	16	3	8	12	8	53	100	57
301 - 400	3	3	3	3	6	15	33	19
*401 and Over	-	1	1	3	6	2	13	7
Total Vehicles	22	15	14	20	23	82	176	
Average Trip	247	213	270	293	325	260	267	

*500 Miles Used as Average

Overall Trip Mileage

0 - 250	7	6	3	2	3	24	45	26
251 - 500	14	7	6	6	12	55	100	57
501 - 750	-	-	2	6	3	-	11	6
751 - 1000	-	1	1	1	3	2	8	5
1001 - 1500	1	1	-	3	-	1	6	3
*1501 and Over	-	-	2	2	2	-	6	3
Total Vehicles	22	15	14	20	23	82	176	
Average Trip	335	367	625	744	582	325	435	

*2000 Miles Used as Average

Watervliet

Rest Area

<u>All Vehicles</u>		Lighting (Overhead)					No. of Lights <u>1 @ 10,000 Lumens</u> Candle Power <u>795 each</u>	
(A) Would You Use Rest Area If	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
"No Lights At Night"?	No.	No.	No.	No.	No.	No.	No.	%
Yes	23	14	23	13	17	61	151	36
No	41	76	30	42	24	57	270	64
Total	64	90	53	55	41	118	421	

(B) Is Present Lighting Adequate At Night?

Yes	56	81	47	46	34	79	343	81
No	8	9	6	9	7	39	78	19
Total	64	90	53	55	41	118	421	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	63	90	39	43	36	117	388	92
No	1	-	14	12	5	1	33	8
Total	64	90	53	55	41	118	421	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	-	2	2	1	-	5	1
No	64	90	51	53	40	118	416	99
Total	64	90	53	55	41	118	421	

Watervliet

Rest Area

Passenger Cars

No. of Lights 1 @ 10,000 Lumens
Lighting (Overhead) Candle Power 795 each

(A) Would You Use Rest Area If "No Lights At Night"?	Daytime					Night Time	24 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
Yes	11	9	16	9	5	15	65	27
No	31	66	23	26	13	21	180	73
Total	42	75	39	35	18	36	245	

(B) Is Present Lighting Adequate At Night?

Yes	35	67	35	28	16	23	204	83
No	7	8	4	7	2	13	41	17
Total	42	75	39	35	18	36	245	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	42	75	28	25	15	35	220	90
No	-	-	11	10	3	1	25	10
Total	42	75	39	35	18	36	245	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	-	2	1	1	-	4	2
No	42	75	37	34	17	36	241	98
Total	42	75	39	35	18	36	245	

Watervliet

Rest Area

Trucks		No. of Lights 1@ 10,000 Lumens							
		Lighting (Overhead)						Candle Power 795 each	
(A) Would You Use Rest Area If	"No Lights At Night"?	Daytime					Night Time	24 Hour Total	
		7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM		
		No.	No.	No.	No.	No.	No.	No.	%
Yes		12	5	7	4	12	46	86	49
No		10	10	7	16	11	36	90	51
Total		22	15	14	20	23	82	176	

(B) Is Present Lighting Adequate At Night?

Yes	21	14	12	18	18	56	139	79
No	1	1	2	2	5	26	37	21
Total	22	15	14	20	23	82	176	

Would You Use Rest Area If

Toilets

"Chemical Toilets Only"?

Yes	21	15	11	18	21	82	168	95
No	1	-	3	2	2	-	8	5
Total	22	15	14	20	23	82	176	

Chemical Toilets in This Rest Area

Did You Have Car Trouble on Freeway?

Car Trouble

Yes	-	-	-	1	-	-	1	1
No	22	15	14	19	23	82	175	99
Total	22	15	14	20	23	82	176	

Watervliet

Rest Area

All Vehicles								
Facilities First Used by Driver	Daytime					Night Time	12 Hour Total	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	No.	%
	No.	No.	No.	No.	No.	No.	No.	%
NO. OF DRIVERS	64	90	53	55	41	118	303	
Vehicle Repair	-	-	1	2	-	D	3	1
Resting	14	19	11	8	8	E	60	20
Drinking Water	9	9	9	17	12	N	56	19
Toilets	35	52	22	23	14	I	146	48
Picnic Tables	2	8	3	1	-	A	14	5
Bulletin Board	1	-	2	2	2	T	7	2
Phone	2	1	2	2	3	F B	10	3
Walking Pets	1	1	1	-	1	O O	4	1
Trash Can	-	-	2	-	1	N	3	1
Total - Usage	64	90	53	55	41	-	303	

Facilities Used by All Vehicle Occupants Including Driver *

Vehicle Repair	-	2	2	-	7	D	11
Resting	40	58	19	8	14	E	139
Drinking Water	70	181	116	80	81	N	528
Toilets	76	173	38	45	40	I	372
Picnic Tables	22	88	33	12	16	A	171
Bulletin Board	9	47	29	16	9	T	110
Phone	7	11	4	4	-	B	26
Walking Pets	8	2	1	2	-	F O	13
Trash Can	15	19	-	6	2	O	42
Total - Usage	247	581	242	173	169	N	1412
No. of People Entering Rest Area	181	289	158	158	101		887

24 Hr 1070

* Occupants & driver could use more than one facility.

Watervliet
Rest Area

All Vehicles

Facilities Expected in Rest Area by Drivers Interviewed	Daytime					Night Time	12 Hour Total (Daytime)
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	
NO. OF DRIVERS (421)	64	90	53	55	41	118	303
Water	19	28	22	26	15	9	110
Tables	8	14	17	20	14	11	73
Shade Trees	3	5	16	15	13	11	52
Phone & Directory	11	13	19	23	13	11	79
Water Fountain	19	27	21	24	14	11	105
Coffee Maker	3	13	9	2	6	11	33
Pop Machine	3	9	17	2	8	11	39
Snack Bar	9	17	11	11	14	11	62
Gas Station	6	6	8	6	8	11	34
Restaurant	12	11	12	6	9	11	50
Cooking Stove or Grill	4	1	5	2	1	11	13

Information Expected
in Rest Area

Freeway Exits	17	20	2	9	2	11	50
Motels	2	4	4	3	2	11	15
Restaurant	1	1	3	3	1	11	9
Gas Station	2	1	4	5	2	11	14
State Parks	1	2	4	3	2	11	12
Scenic Areas	1	2	2	4	3	11	12
Local Resorts Historical Marker, Etc.	-	3	5	6	1	11	15

Watervliet
Rest Area

Passenger Cars							
Facilities Expected in Rest Area by Drivers Interviewed	Daytime					Night Time	12 Hour Total (Daytime)
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	No.
NO. OF DRIVERS (245)	42	75	39	35	18	36	209
Water	12	21	18	17	10	A	78
Tables	6	13	15	14	8	E	56
Shade Trees	1	4	13	10	8	N	36
Phone & Directory	7	11	15	15	8	I	56
Water Fountain	13	20	19	15	8	A	75
Coffee Maker	3	12	4	1	-	E	20
Pop Machine	3	7	11	1	1	B	23
Snack Bar	6	14	5	5	4	O	34
Gas Station	3	6	7	4	6	E	26
Restaurant	6	10	7	2	4	O	29
Cooking Stove or Grill	4	1	4	2	1	N	12

Information Expected
in Rest Area

Freeway Exits	12	16	1	6	2	EED	37
Motels	1	4	3	2	2	INE	12
Restaurant	-	1	3	2	1	A	7
Gas Station	1	1	4	4	2	E	12
State Parks	1	1	3	2	2	E B	9
Scenic Areas	1	1	1	3	3	OO	9
Local Resorts Historical Marker, Etc.	-	1	3	4	1	N	9

Watervliet
Rest Area

Facilities Expected in Rest Area by Drivers Interviewed	Trucks						12 Hour Total (Daytime)
	Daytime					Night Time	
	7 AM to 10 AM	10 AM to 1 PM	1 PM to 3 PM	3 PM to 5 PM	5 PM to 7 PM	7 PM to 7 AM	
	No.	No.	No.	No.	No.	No.	
NO. OF DRIVERS (176)	22	15	14	20	23	82	94
Water	7	7	4	9	5	D	32
Tables	2	1	2	6	6	E	17
Shade Trees	2	1	3	5	5	N	16
Phone & Directory	4	2	4	8	5	I	23
Water Fountain	6	7	2	9	6	A	30
Coffee Maker	-	1	5	1	6	T	13
Pop Machine	-	2	6	1	7	B	16
Snack Bar	3	3	6	6	10	O	28
Gas Station	3	-	1	2	2	F	8
Restaurant	6	1	5	4	5	O	21
Cooking Stove or Grill	-	-	1	-	-	N	1

Information Expected
in Rest Area

Freeway Exits	5	4	1	3	-	E D	13
Motels	1	-	1	1	-	N	3
Restaurant	1	-	-	1	-	I	2
Gas Station	1	-	-	1	-	A	2
State Parks	-	1	1	1	-	T B	3
Scenic Areas	-	1	1	1	-	O O	3
Local Resorts Historical Marker, Etc.	-	2	2	2	-	N	6

Passenger Cars and Trucks
 Parked in Watervliet Rest Area
 by $\frac{1}{2}$ -hr. Periods
 Daytime 7:00AM - 7:00PM

	7:00-7:30	7:30-8:00	8:00-8:30	8:30-9:00	9:00-9:30	9:30-10:00	10:00-10:30	10:30-11:00	11:00-11:30	11:30-12:00	12:00-12:30	12:30-1:00	1:00-1:30	1:30-2:00	2:00-2:30	2:30-3:00	3:00-3:30	3:30-4:00	4:00-4:30	4:30-5:00	5:00-5:30	5:30-6:00	6:00-6:30	6:30-7:00	12 Hour Total
Trucks	5	4	1	5	3	1	3	3	4	2	2	2	1	3	0	5	2	5	6	4	2	4	7	3	84
Passenger Cars	2	2	3	3	4	5	8	4	6	9	<u>10</u>	9	8	6	6	8	5	4	5	3	2	4	5	2	123
Total	7	6	4	8	7	6	11	7	10	11	12	11	9	9	6	13	<u>14</u>	9	11	7	4	8	12	5	207

Additional Driver Comments to Rest Area Tabulation

Passenger Cars

Number of Times
Comments Were Made

Michigan: Local

1. Highway maps should be available.

Michigan: Out State

- | | |
|---|---|
| 1. More shade. | 2 |
| 2. Sheltered area. | 1 |
| 3. Flush toilets. | 4 |
| 4. Wash basin. | 3 |
| 5. Toilets smell. | 3 |
| 6. Candy and cigarette machine. | 1 |
| 7. Closed phone booths. | 1 |
| 8. Keep inside restroom painted to erase obscenities. | 1 |
| 9. Hot water and stimulants. | 1 |
| 10. Cleanliness is prime prerequisite. | 1 |
| 11. Dog walking area. | 1 |
| 12. Location and distance to next rest area. | 1 |
| 13. Post detours and construction. | 1 |

Out of State

- | | |
|---|---|
| 1. Wash basin in toilets | 3 |
| 2. Presently very good | 1 |
| 3. Highway maps should be available | 1 |
| 4. Build rest area where trees already are. | 1 |
| 5. Child size toilet. | 1 |
| 6. Grating in toilet. | 1 |
| 7. Sheltered picnic tables. | 1 |
| 8. Heated toilets in winter. | 1 |
| 9. Distances to major cities. | 1 |

Trucks

	<u>Number of Times Comments Were Made</u>
1. More shade.	1
2. Map of all freeways.	1
3. Washing facilities.	4
4. Flush toilets.	2
5. Doors on restrooms.	1
6. Benches	1
7. Light at exit and entrance.	1
8. Refreshment stand.	1
9. Train comes too near area.	1
10. This place frequented by perverts.	1
11. Place trees between parking area and road.	1
12. Larger area is needed.	2
13. Mailbox	2
14. More rest areas on eastbound.	1
15. Location and distances to other rest areas.	1

All above comments were unsolicited and made by vehicle drivers at time of their entrance to Rest Area while being interviewed by personnel of the Department. Additional remarks and comments were made throughout the day to Highway personnel within the Rest Area of which no tabulations were made.

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