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An Evaluation of the Michigan 70 MPH Speed Limit

by

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INTRODUCTION:

In the summer of 1996, the Michigan Legislature passed a bill which permitted the Governor to raise the speed limit on selected sections of rural Michigan freeways from 65 miles per hour to 70 miles per hour. This legislation also required that a study be conducted to determine the effects of the increase in the speed limits on safety and capacity. Subsequently the Michigan Department of Transportation requested that the Department of Civil and Environmental Engineering at Michigan State University undertake this study.

MDOT determined which freeway segments were to be included in the evaluation. Their selection was based on the orientation of the freeways (North-South vs. East-West), function (intercity vs. recreational), level of service and sufficiency rating. Freeway segments which had their speed limits raised to 70 mph are referred to as the Test Sites. Freeway segments which were also evaluated but did not have their speed limits raised are referred to as the Control Sites. Also included in the study are two urban freeways and three rural highways (non-freeways). These latter locations were used to determine if there is a "spill-over" effect on the speeds on other routes in proximity to the test sites.

The objective of the study is to determine if the increase in the speed limit had an impact on speeds and safety. An understanding of the relationship of the change in speeds (if any) as a function of the level of congestion is also desired.

SPEEDS:

Data Collection:

Speed data were collected from data generated by MDOT's permanent traffic recorders and by MSU's portable traffic recorders. The vast majority of the data were provided by MDOT. The MDOT data was converted into a format suitable for visual and statistical inspection via a spread sheet.

The speed data were collected for time periods before and after the speed limits were changed from 65 to 70 mph on August 1, 1996. The resulting database consists of the recorded speeds of more than forty two million vehicles; of which, more than six million vehicles were recorded during the before period. Data from seventeen days in July were used to represent the before period and data from the months of August, September, and October constitute the after period.

The MDOT permanent traffic recorders were reprogrammed to provide speed data in a format suitable for the analytic requirements of this project. These recorders place the observed speeds into one of thirty bins. The range of speeds for each bin are: 0.0 to 55.0 for Bin 1, 55.1 to 56.0

for Bin 2, similar 1 mph steps for the next 27 bins with Bin 30 reserved for speeds in excess of 83 mph.

Occasionally the MDOT permanent traffic recorders produce bad data. Only those days with valid data for all 24 hours were used in the analyses.

Historical Speed Trend:

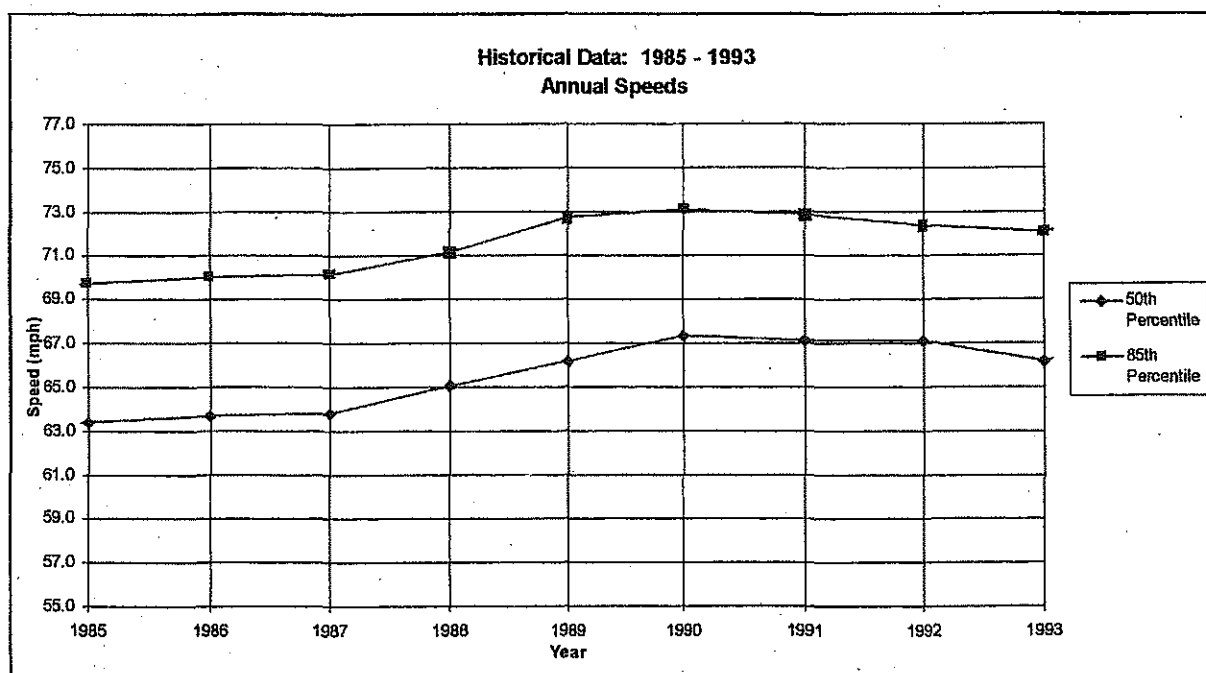


Figure 1: Annual Rural Freeway Speeds

Figure 1 is an illustration of the annual 50th and 85th percentile speeds submitted by MDOT to the Federal Highway Administration (FHWA) from 1985 to 1993. These data are not available after 1993 because the submittal was not required by the FHWA. The national 55 mph speed limit was in effect for all highways for the years of 1985 through 1987. A national 65 mph speed was allowed for rural interstate routes and subsequently all other rural freeways for the years 1988 through 1993. Both the 50th and 85th percentile speeds increased by approximately 3 mph shortly after the speed limit was raised from 55 to 65. From 1990 through 1993 the 50th and 85th percentile speeds stabilized and eventually decreased by 1 mph in 1993.

A direct comparison of these federally reported 50th and 85th percentile speeds can not be made with the 50th and 85th percentile speeds contained in this report. There are numerous segments of freeway that were included in the previous reports that are not in this study, and the stratification of the data into speed bins was different in those years.

Before and After Results:

The average 50th and 85th percentile speeds were calculated for nine segments of highways where the speed limits have not changed. Of the nine control sites, 5 have 55 mph speed limits and the other 4 have 65 mph speed limits. These results are provided in Table 1. The before period results were generated from the recorded speeds of 3.5 million vehicles and the after period from 21.5 million vehicles. There is no indication that any of the control sites had a meaningful change in the observed speeds. An examination of the 85th percentile speeds of the nine control sites reveal that; 3 experienced a small increase, 3 had no change, and the other 3 had a small decrease. There was no spill over effect of increased speeds for those sites located in proximity to freeways which had an increase in the speed limit from 65 to 70 mph.

Table 1: Control Sites Before and After - 50th and 85th Percentile Speeds

		Speed Limit		Volume		50th Percentile Speeds			85th Percentile Speeds		
		Before	After	Before	After	Before	After	Change	Before	After	Change
Urban Freeway											
I-75	Detroit	55	55	589,280	4,472,082	63.9	63.6	-0.3	71.4	71.2	-0.2
I-96	Grand Rapids	55	55	1,936,720	8,826,265	59.7	60.0	0.3	66.8	66.5	-0.3
Intercity Freeway											
I-96	Fowlerville	65	65	475,618	3,449,061	70.0	70.4	0.4	75.6	76.0	0.4
Recreational Freeway											
US-31	Pentwater	65	65	118,898	677,745	68.7	68.5	-0.2	73.8	73.6	-0.2
US-27	Houghton Lake	65	65	104,544	935,912	69.0	69.1	0.1	73.9	74.2	0.3
US-131	Wyoming	65	65	149,044	2,255,927	64.2	64.2	0.0	70.1	70.1	0.0
Rural Highway											
M-60	Homer	55	55	53,875	302,427	57.5	57.5	0.0	62.5	62.5	0.0
US-2	Brevort	55	55	96,138	433,427	60.1	60.7	0.6	65.0	65.5	0.5
US-28	Raco	55	55	29,778	187,190	60.0	60.8	0.8	64.9	64.9	0.0

The results of the analysis of the 50th and 85th percentile speeds of the rural freeways which constitute the test sites are provided in Table 2. The before period had 2.6 million vehicles and the after period had 14.5 million vehicles. The test sites had an increase in 50th and 85th percentile speeds. The intercity routes had a 1.2 mph increase in the 50th percentile and a 0.5 mph increase in the 85th percentile speeds. The recreational routes also had an increase. The recreational routes' 50th percentile speeds increased by 1.1 mph, and the 85th percentile speeds increased by 0.7 mph.

The speeds for both the intercity and recreational routes in the test sites are greater than the speeds for the intercity and recreational routes in the control sites. MDOT intentionally chose locations with the best geometry and higher design speed as subjects for the experimental increase in the speed limit. This selection process has resulted in the test sites having higher initial speeds than those of the control sites.

Table 2: Test Sites Before and After - 50th and 85th Percentile Speeds

	Speed Limit	Volume		50th Percentile Speeds			85th Percentile Speeds				
		Before	After	Before	After	Change	Before	After	Change		
Intercity											
I-96	Cascades	65	70	428,940	2,355,659	70.0	70.7	0.7	75.0	75.6	0.6
I-94	Port Huron	65	70	54,378	1,354,147	65.4	68.4	3.0	73.3	74.9	1.6
I-69	Looking Glass River	65	70	431,714	2,447,888	71.2	72.3	1.1	76.9	76.7	-0.2
I-69	Capac	65	70	204,253	973,371	68.5	69.7	1.2	74.4	75.5	1.1
I-69	Swartz Creek	65	70	543,475	3,015,242	70.1	71.1	1.0	76.5	76.9	0.4
Recreational											
US-131	Morley	65	70	210,643	1,313,529	68.4	69.6	1.2	73.7	74.2	0.5
I-75	Prudenville	65	70	313,398	1,399,936	70.7	71.9	1.2	76.1	77.0	0.9
I-75	St. Ignace	65	70	135,403	291,718	70.1	70.2	0.1	76.5	76.7	0.2
I-75	Vanderbilt	65	70	284,448	1,387,627	67.0	68.2	1.2	72.8	73.6	0.8

Day versus Night Speeds:

Four sites were selected as a typical subset of the database for the following more in-depth analyses. The 50th and 85th percentile speeds for daytime versus nighttime conditions were initially investigated. A 6 hour time frame from 10:00 a.m. to 4:00 p.m. was used for daytime conditions, and the 6 hour time period from 10:00 p.m. to 4:00 a.m. was used for nighttime conditions. Table 3 contains the results of this investigation.

The intercity routes had nighttime speeds slower than the daytime speeds. During the before period the nighttime 50th percentile speeds were 1.6 mph slower and the 85th percentile speeds 1.5 mph slower than daytime speeds. The after period was similar with the 50th and 85th percentile nighttime speeds being 1.9 and 1.4 mph, respectively, slower than those during the daytime.

The recreational routes appear to be different. During the before period, the 50th percentile nighttime speed was 0.2 mph faster and the 85th percentile speed was 0.9 mph faster. During the after period the nighttime 50th and 85th percentile speeds were 0.1 mph slower and 0.9 mph faster than the daytime speeds, respectively.

While there is an inconsistent difference between daytime and nighttime speeds, there is no evidence that these differences were affected by the change in the speed limit.

Table 3: Daytime versus Nighttime Speeds

	Speed Limit	Volume		50 th Percentile Speeds			85 th Percentile Speeds		
		Day	Night	Day	Night	Difference	Day	Night	Difference
Before - Intercity									
I-96 - Cascades	65	152,164	45,857	69.6	67.8	-1.8	74.7	73.4	-1.3
I-96 - Fowlerville	65	167,574	37,634	69.3	67.9	-1.4	75.1	73.4	-1.7
After - Intercity									
I-96 - Cascades	70	860,555	187,694	70.7	68.7	-2.0	75.5	74.5	-1.0
I-96 - Fowlerville	65	1,210,098	268,648	70.1	68.2	-1.9	75.6	73.9	-1.7
Before - Recreational									
I-75 - St. Ignace	65	62,010	7,738	69.9	70.3	0.4	76.0	77.7	1.7
US-31 - Pentwater	65	49,510	7,165	68.2	68.1	-0.1	73.3	73.3	0.0
After - Recreational									
I-75 - St. Ignace	70	121,165	15,232	70.3	70.8	0.5	76.6	78.0	1.4
US-31 - Pentwater	65	283,060	39,943	68.2	67.9	-0.3	73.4	73.3	-0.1

Weekend Versus Weekday Speeds:

The same subset of the database was used to investigate the difference in speeds (if any) between weekdays and weekends. The 50th percentile speed for intercity routes was 0.5 mph faster on weekends during the before period and 0.7 mph faster during the after period. This difference is even smaller for the 85th percentile speed. The 85th percentile speed for the intercity routes was 0.3 mph faster for weekends during the before period and 0.2 mph faster for the after period.

The recreational routes had the same difference. The weekday 50th and 85th percentile speeds are slower than the weekend 50th and 85th percentile speeds by approximately 0.5 and 0.2 mph, respectively. There is no evidence that the change in the speed limit had any impact of the difference between weekend and weekday speeds.

Table 4: Weekend verses Weekday Speeds

	Speed Limit	Volume		50 th Percentile Speeds			85 th Percentile Speeds		
		Week-end	Week-day	Week-end	Week-day	Difference	Week-end	Week-day	Difference
Before - Intercity									
I-96 - Cascades	65	67,243	361,697	70.6	69.9	-0.7	75.5	74.9	-0.6
I-96 - Fowlerville	65	76,347	399,271	70.3	70.0	-0.3	75.6	75.6	0.0
After - Intercity									
I-96 - Cascades	70	652,958	1,459,710	71.4	70.4	-1.0	76.0	75.4	-0.6
I-96 - Fowlerville	65	1,064,731	2,384,330	70.6	70.3	-0.3	75.9	75.9	0.0
Before - Recreational									
I-75 - St. Ignace	65	24,098	111,305	70.5	70.1	-0.4	76.4	76.5	0.1
US-31 - Pentwater	65	28,109	90,789	69.7	68.4	-1.3	74.6	73.5	-1.1
After - Recreational									
I-75 - St. Ignace	70	132,280	157,928	70.5	69.8	-0.7	76.8	76.4	-0.4
US-31 - Pentwater	65	229,556	448,189	68.7	68.3	-0.4	73.6	73.6	0.0

Speeds by Lane and Type of Vehicle:

The subset of the database was examined for the 50th and 85th percentile speeds with respect to lane and length of vehicle. The outside lane is referred to as the shoulder lane and the inside (or high speed) lane is referred to as the median lane. In addition to recording the speeds of the vehicles, their lengths were also recorded. Vehicle lengths were segregated into three categories. Vehicle Type 1 are all vehicles less than or equal to 25 feet long. Vehicle Type 3 are all vehicles greater than 54 feet long. Vehicle Type 2 are all others.

Table 5 and Table 6 contain the results of this analysis for an intercity test site and an intercity control site, respectively. The Type 3 large trucks were driven much slower than the smaller Type 1 passenger cars for both of the locations. The large trucks are being driven approximately 8 mph slower than passenger cars. This difference is similar for the shoulder lane and the median lane. There is a consistent difference in the speeds as a function of the lane. The shoulder lane had 50th and 85th percentile speeds which were approximately 3 to 4 mph slower than the median lane. These differences are evident during the before and after periods for both the test and control sites.

There is no evidence that the change in the speed limit had an impact upon the speeds of the various types of vehicles for the intercity routes.

Table 5: I-96 at Cascades - Intercity Test Site

	Speed Limit		Volume		50 th Percentile Speeds			85 th Percentile Speeds		
	Before	After	Before	After	Before	After	Change	Before	After	Change
Vehicle Type 1										
Shoulder Lane	65	70	268,573	1,380,524	69.0	69.1	0.1	73.7	73.7	0.0
Median Lane	65	70	174,098	885,338	72.7	72.7	0.0	77.0	76.8	-0.2
Vehicle Type 2										
Shoulder Lane	65	70	32,685	141,705	62.0	61.2	-0.8	66.3	66.0	-0.3
Median Lane	65	70	3000	9885	66.9	66.4	-0.5	71.8	71.7	-0.1
Vehicle Type 3										
Shoulder Lane	65	70	13,954	48,849	62.2	61.1	-1.1	66.2	65.4	-0.8
Median Lane	65	70	732	1638	65.4	64.0	-1.4	69.8	68.9	-0.9

Table 6: I-96 at Fowlerville - Intercity Control Site

	Speed Limit		Volume		50 th Percentile Speeds			85 th Percentile Speed		
	Before	After	Before	After	Before	After	Change	Before	After	Change
Vehicle Type 1										
Shoulder Lane	65	65	251,663	1,741,512	67.7	67.7	0.0	72.5	72.6	0.1
Median Lane	65	65	210,126	1,506,481	72.0	72.2	0.2	76.7	76.8	0.1
Vehicle Type 2										
Shoulder Lane	65	65	18,561	105,888	60.1	60.0	-0.1	65.7	65.8	0.1
Median Lane	65	65	2194	13,490	66.1	66.5	0.4	71.9	72.2	0.3
Vehicle Type 3										
Shoulder Lane	65	65	11,216	65,909	60.3	59.9	-0.4	64.6	64.5	-0.1
Median Lane	65	65	715	4545	63.7	62.9	-0.8	69.4	68.7	-0.7

Table 7 and Table 8 show the results of the analyses of the 50th and 85th percentile speeds for two recreational routes. The first table (Table 7) is a test site and the second (Table 8) is a control site. The results of the recreational control site are very similar to that of both intercity sites.

Table 7 contains some unexpected values. The difference in the 50th and 85th percentile speeds between the shoulder lane and the median lane is very small. However there is a major difference between the speeds of the large trucks (Type 3) and all other vehicles. For example during the before period, the 50th percentile speed of the large trucks was 77 mph (shoulder lane) while the 50th percentile speed of the passenger cars was 68.8 mph. The large trucks were traveling 8.2 mph faster than the passenger vehicles in the shoulder lane during the before period. The 85th percentile speeds of the large trucks were over 80 mph for both the before and after periods. It is important to note that the difference in the 50th percentile speed was only 3.6 mph in the shoulder lane in the before period and 0.7 mph during the after period. The difference in the 85th percentile speeds between large trucks and passenger cars was also reduced during the after period. A preliminary examination of the data on large trucks was conducted for the month of August. The data set was examined by hour of the day. The 85th percentile speeds of the large trucks do not appear to vary greatly over the 24 hours of the day. The 85th percentile values for the median lane are somewhat misleading, because the average truck volume was 3.3 trucks per hour.

Table 7: I-75 at St. Ignace - Recreational Test Site

	Speed Limit		Volume		50 th Percentile Speeds			85 th Percentile Speed		
	Before	After	Before	After	Before	After	Change	Before	After	Change
Vehicle Type 1										
Shoulder Lane	65	65	106,101	283,781	68.8	69.7	0.9	75.1	76.2	1.1
Median Lane	65	65	24,581	111,728	71.4	70.0	-1.4	76.3	75.9	-0.4
Vehicle Type 2										
Shoulder Lane	65	65	9765	14,414	67.0	67.3	0.3	75.1	75.4	0.3
Median Lane	65	65	651	4026	69.7	65.4	-4.3	75.2	72.9	-2.3
Vehicle Type 3										
Shoulder Lane	65	65	3645	3222	77.0	73.3	-3.7	83.8	81.4	-2.4
Median Lane	65	65	90	739	75.4	66.1	-9.3	78.8	73.5	-5.3

Table 8: US-31 at Pentwater - Recreational Control Site

	Speed Limit		Volume		50 th Percentile Speeds			85 th Percentile Speed		
	Before	After	Before	After	Before	After	Change	Before	After	Change
Vehicle Type 1										
Shoulder Lane	65	65	94,084	513,068	67.7	67.6	-0.1	72.4	72.3	-0.1
Median Lane	65	65	19,925	90,163	71.3	71.0	-0.3	76.0	75.8	-0.2
Vehicle Type 2										
Shoulder Lane	65	65	8066	43,317	62.6	62.5	-0.1	67.8	67.8	0.0
Median Lane	65	65	518	2570	67.5	67.4	-0.1	71.2	71.3	0.1
Vehicle Type 3										
Shoulder Lane	65	65	6675	36,664	61.3	61.1	-0.2	65.3	65.1	-0.2
Median Lane	65	65	195	921	63.5	64.1	0.6	66.4	67.4	1.0

Pace Speed:

The pace speed is a 10 mph speed band in which the highest percentage of vehicles is found. It is widely accepted that the posted speed limit should reside in this band. It is also widely accepted that it is desirable to have the highest number of drivers as possible within the pace.

There was no impact on the pace speed as a result of the change in the speed limit. Similarly the percentage of vehicles found in the pace had a very small change with one site demonstrating a small increase and three sites demonstrating a small decrease.

Table 9: Pace Speed

Site	Speed Limit	Total Volume	Pace Speed	Volume in Pace	% Volume in Pace
Before - Intercity					
I-96 Cascades	65	497,154	66.1-76.0	317,397	64.8%
I-96 Fowlerville	65	510,197	67.1-77.0	297,106	58.2%
After - Intercity					
I-96 Cascades	70	2,494,087	66.1-76.0	1,579,649	63.3%
I-96 Fowlerville	65	3,549,588	67.1-77.0	2,116,776	59.6%
Before - Recreational					
I-75 St. Ignace	65	147,511	66.1-76.0	84,587	57.0%
US-31 Pentwater	65	130,831	64.1-74.0	86,511	66.1%
After - Recreational					
I-75 St. Ignace	70	196,818	67.1-77.0	110,659	56.2%
US-31 Pentwater	65	688,561	64.1-74.0	453,504	65.9%

Congestion:

The following charts are the result of an examination of speeds as a function of hourly volumes per lane. The charts illustrate the 50th and 85th percentile hourly speeds as a function of congestion (hourly volumes). Figure 2 is an illustration of the before period on a recreational route. Figure 3 is an illustration of the after period for the same location. It is apparent that the level of congestion had little impact on the recorded speeds during both the before and after periods.

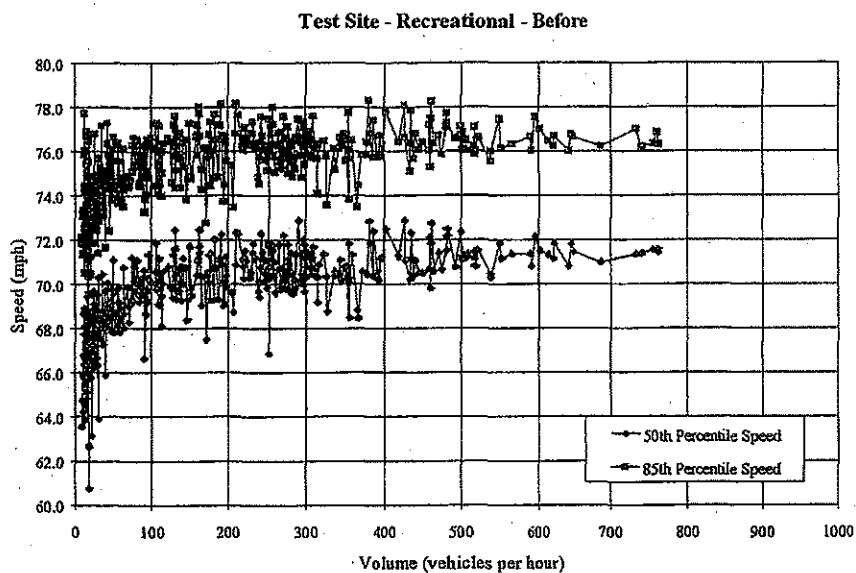


Figure 2: Hourly Lane Volumes versus 50th and 85th Percentile Speeds
Test Site - Recreational - Before

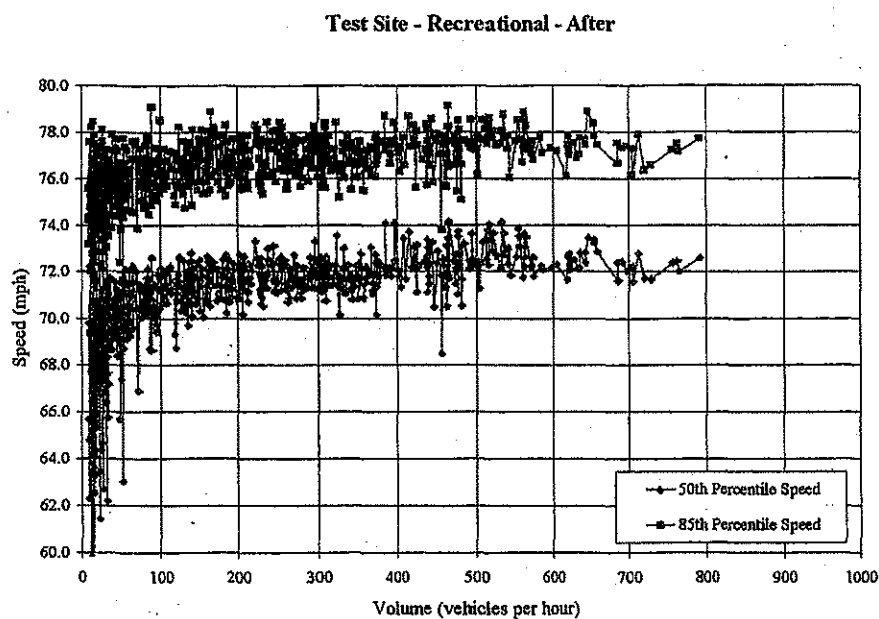


Figure 3: Hourly Lane Volumes versus 50th and 85th Percentile Speeds
Test Site - Recreational - After

Test Site - Intercity - Before

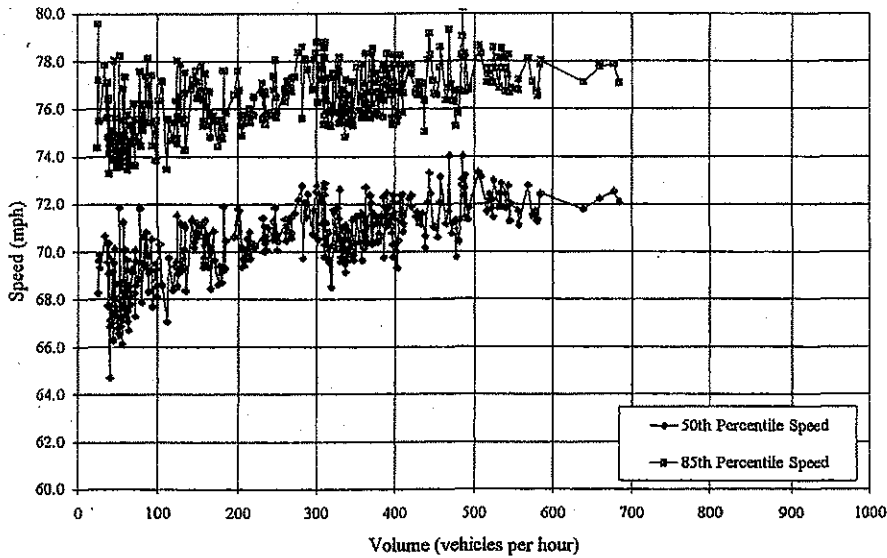


Figure 4: Hourly lane Volumes verses 50th and 85th Percentile Speeds
Test Site - Intercity - Before

Test Site - Intercity - After

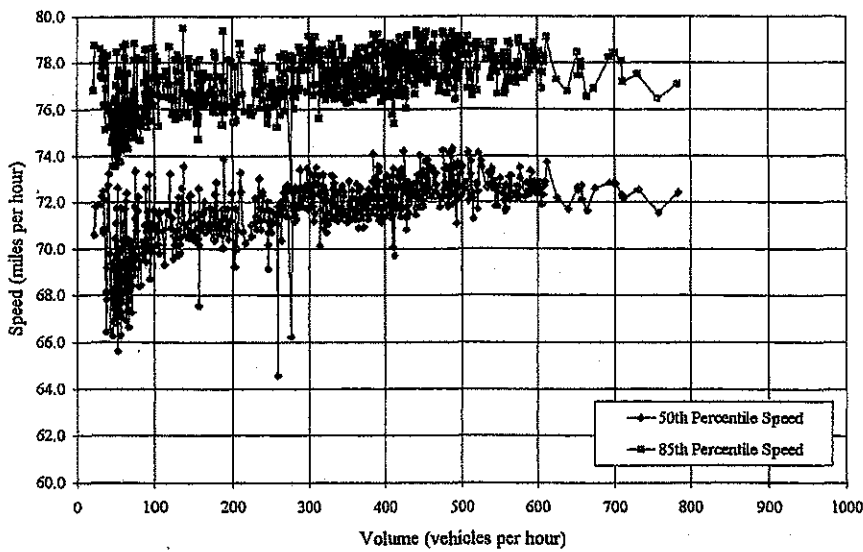


Figure 5: Hourly lane Volumes verses 50th and 85th Percentile Speeds
Test Site - Intercity - After

M-39 Before Period

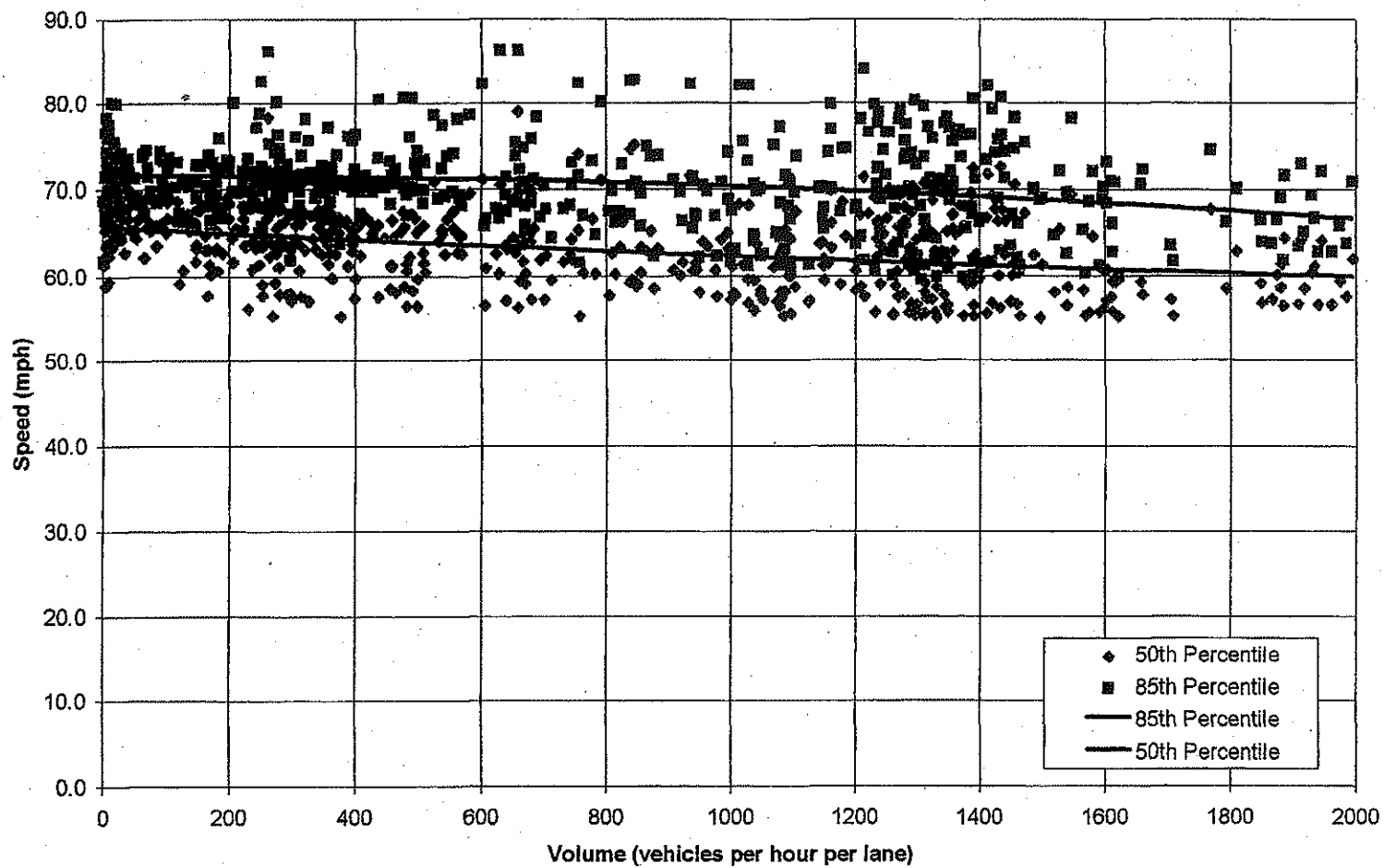


Figure 6: Hourly lane Volumes versus 50th and 85th Percentile Speeds
Urban Freeway - Before

M-39 After Period

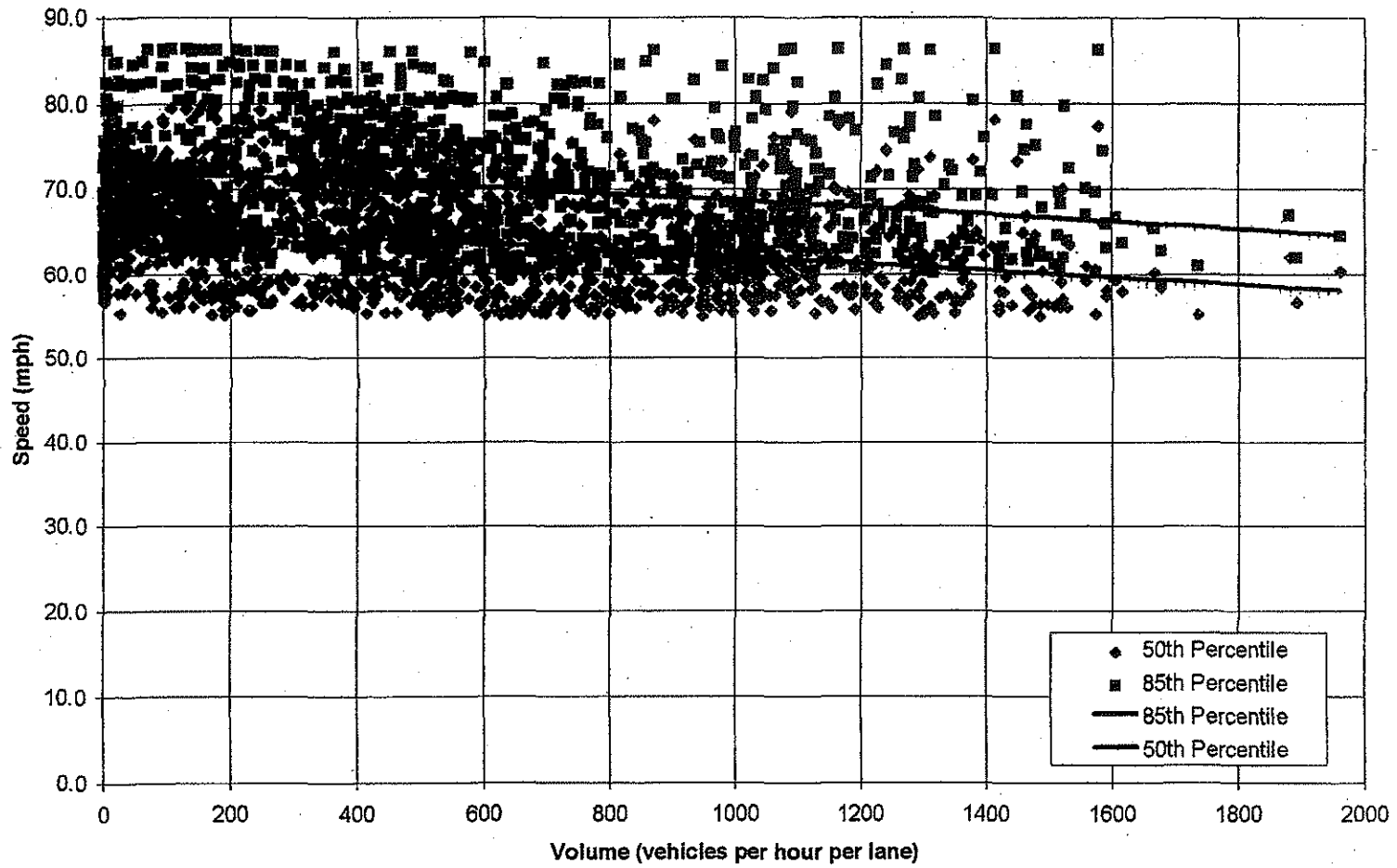


Figure 7: Hourly lane Volumes versus 50th and 85th Percentile Speeds
Urban Freeway - After

The 50th and 85th percentile speeds for an intercity route for both the before and after periods are shown in Figure 4 and Figure 5, respectively. The magnitude of the speeds appear to have little sensitivity to the hourly volumes.

It is difficult to draw conclusions from the previous exhibits because the hourly volumes are relatively low. These low lane volumes are not unexpected because the study sites are rural freeways. Figures 6 and 7 illustrate the relationship for much higher volumes with respect to the 50th and 85th percentile speeds. These figures are for M-39 in Wayne County and show that the speeds do decrease slightly as the traffic volumes approach capacity.

TRAFFIC CRASHES:

The traffic crash analysis included in this report must be considered preliminary because of the very limited data available at this time. The process of recording crash data at the site, collecting the crash reports from all enforcement agencies, converting the report to the standard computer readable format and processing the data, results in an unavoidable delay between the occurrence of a crash and the availability of the data. For this report, the only reliable data available for the post-70 mph period is for the month of August 1996.

Data Collection:

The number of traffic crashes occurring in August 1993, 1994 and 1995 on the freeway segments designated as test and control sections were retrieved from the Michigan Department of Transportation data files. The average number of crashes per year, and the range of values for the three year period were used to estimate the number of crashes that would be expected in August 1996 if the speed limit had remained at 65 mph.

The number of crashes reported in 1996 were obtained from the Office of Highway Safety Planning of the Michigan Department of State Police. Since these crashes have not been assigned to a specific MALI mile point, the analysis was conducted on a route and county basis (i.e., I-75 in Mackinac County). Table 10 lists the routes and counties included in the analysis. The designation of recreational and intercity routes used in the speed analysis was maintained.

Table 10: Test Locations Used in the Crash Analysis

Designation	Route Number	County	
Intercity	I-69	Branch	Shiawassee
		Calhoun	Lapeer
		Eaton	St. Clair
		Clinton	
Intercity	I-96	Ottawa	Clinton
		Ionia	
Recreational	I-75	Mackinac	Crawford
		Chippewa	Roscommon
		Cheboygan	Ogemaw
		Otsego	Arenac
Recreational	US-131	Montcalm	Osceola
		Mecosta	

Test Site Results:

The number of crashes in the three years prior to raising the speed limit and the number of crashes reported in 1996 are shown in Table 11.

Table 11: Crashes on the Test Routes for August

Designation	1993-1995		1996
	Average	Range	
Intercity	79	73-83	80
Recreational	92	82-99	119
Total	171	162-181	199

For the Intercity routes, the number of crashes in 1996 was within the range of values experienced from 1993 to 1995, and only 1.3% higher than the average of those three years.

For the Recreational routes, the number of crashes in 1996 was greater than any of the three previous years. Crashes in 1996 were 29.3% higher than the average for those years, and 20.2% higher than the highest number of annual crashes in that three year period.

The total for all test routes was greater than any of the three previous years, and 16.4% higher than the average for those years. In 1996 there were 9.9% more crashes than the highest of the three previous years.

The interpretation of these results is limited by two factors:

- 1) The data represents only one month of crash data and thus the sample size is too small to instill confidence in the results. The increases noted in Table 11 could be partially or totally the result of random variation. In fact, this variability was observed among the test sites, where crashes increased on some segments and decreased on other segments.
- 2) The data is based on all crashes and not the subset of crashes related to speed. Speed is generally a contributing factor in crashes that result in injury or death. In these test sites there were three fatal crashes in 1995 and only one in 1996. The number of crashes resulting in injuries was also lower in 1996 (56) than in 1995 (60). This outcome is consistent with the results of the speed studies which showed only a minor increase in speed after the speed limit was increased to 70 mph.

Control Site Results:

A group of freeway segments where the speed limit was not raised to 70 mph were analyzed to determine if the crash frequency in 1996 was different than that in the three previous years. Once again, only data from the month of August were used in these analyses. Table 12 lists the routes used in this study, stratified as recreational and intercity.

Table 12: Comparison Locations Used in the Crash Analysis

Designation	Route Number	County
Intercity	I-275	Monroe
Intercity	I-94	Jackson Calhoun Kalamazoo Van Buren Berrien
Recreational	US-131	Allegan
Recreational	US-31	Oceana
Recreational	US-27	Clare Roscommon Crawford

The results of the comparison of the crashes in 1993 through 1995 with the crashes in 1996 for the comparison routes is shown in Table 13.

Table 13: Crashes on the Comparison Routes for August

Designation	1993-1995		1996
	Average	Range	
Intercity	206	193-224	134
Recreational	40	35-43	47
Total	246	234-259	181

For the comparison sections as a whole, the number of crashes in 1996 was 26.4% lower than the average of the three prior years, and 22.6% lower than the lowest year in this time period. This decrease was the result of a large decrease in the number of crashes on the intercity routes, where the reductions were 35.0% and 30.6% respectively.

For the recreational routes, the number of crashes in 1996 was 17.5% higher than the average over the preceding three years, and 9.3% higher than the highest number of annual crashes in this time.

As with the test site data, these results must be considered as preliminary.

CONCLUSIONS:

- There is no indication that any of the control sites (which did not have a change in their speed limit) had a meaningful change in their recorded speeds.
- There was no "spill over" effect of increased speeds for those sites located in proximity to freeways which had an increase in their speed limit from 65 to 70 mph.
- Those freeways which had their speed limit increased from 65 to 70 mph, did have an increase in speeds. The increase in the 50th and 85th percentile speed were approximately 1 mph and 0.5 mph respectively.
- For the most part, nighttime speeds were slower than daytime speeds by approximately 1.5 mph for intercity routes. Recreational routes had nighttime speeds slightly faster than daytime speeds. There is no evidence that the change in the speed limit affected the difference between day and nighttime speeds.
- The 50th percentile speeds for weekend traffic were approximately 0.5 faster than weekday traffic. The 85th percentile speeds for weekend traffic were approximately 0.2 mph higher than weekday traffic. There was no evidence that the change in the speed limit had an impact on weekend vs. weekday speeds.
- For the most part large truck speeds were approximately 8 mph slower than passenger cars. However one location had large truck 85th percentile speeds in excess of 80 mph, which were approximately 8 mph faster than those of passenger cars. The change in the speed limit did not increase the difference in speeds between small and large vehicles and may have resulted in a reduction in the difference.
- The pace speed was not affected by the change in the speed limit.
- Congestion had little impact on the recorded speeds during either the before or after periods.
- In the one month after period, the number of traffic crashes increased by 16.4 percent on road segment where the speed limit was raised. The results of the safety impact analyses are preliminary and inconclusive because of insufficient data.

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APPENDIX

Michigan State University 70mph Speed Limit Study

Total Volumes

Control Sites

Site	Location	July	August	Sept	October	Before	After
Urban Freeway							
05spd	I-96	589,280	1,400,723	1,529,464	1,541,895	589,280	4,472,082
IRD	I-75	1,936,720	2,702,174	2,816,036	3,308,055	1,936,720	8,826,265
Intercity							
52spd	I-96	475,618	1,210,563	1,208,956	1,029,542	475,618	3,449,061
Recreational							
24spd	US-31	118,898	311,641	208,261	157,843	118,898	677,745
40spd	US-27	104,544	388,442	292,952	254,518	104,544	935,912
77spd	US-131	149,044	269,403	1,580,763	405,761	149,044	2,255,927
Rural Highway							
53spd	M-60	53,875	34,405	154,563	113,459	53,875	302,427
69spd	US-2	96,138	145,515	151,381	136,531	96,138	433,427
87spd	US-28	29,778	67,461	77,527	42,202	29,778	187,190

Test Sites

Site	Location	July	August	Sept	October	Before	After
Intercity							
18spd	I-96	428,940	542,114	844,864	968,681	428,940	2,355,659
19spd	I-69	431,714	910,245	767,337	770,306	431,714	2,447,888
31spd	I-94	54,378	194,932	611,468	547,747	54,378	1,354,147
43spd	I-69	204,253	232,958	386,805	353,608	204,253	973,371
74spd	I-69	543,475	841,748	1,176,472	997,022	543,475	3,015,242
Recreational							
26spd	I-75	313,398	633,777	349,861	416,298	313,398	1,399,936
70spd	I-75	135,403	106,738	131,349	53,631	135,403	291,718
PAT-305	US-131	210,643	318,318	499,106	496,105	210,643	1,313,529
PAT-028	I-75	284,448	600,621	411,443	375,563	284,448	1,387,627

Michigan State University 70mph Speed Limit Study

85th Percentile Speeds

Control Sites

Site	Location	July	Aug	Sep	Oct	Before	After	Change
Urban Freeway								
05spd	I-96	66.8	66.5	65.8	67.1	66.8	66.5	-0.3
IRD	I-75	71.4	71.4	71.2	71.1	71.4	71.2	-0.2
Intercity								
52spd	I-96	75.6	75.9	75.6	76.6	75.6	76.0	0.4
Recreational								
24spd	US-31	73.8	73.6	73.3	74.2	73.8	73.6	-0.3
40spd	US-27	73.9	74.2	73.7	74.9	73.9	74.2	0.3
77spd	US-131	70.1	70.4	69.8	70.8	70.1	70.1	0.0
Rural Highway								
53spd	M-60	62.5	62.5	62.5	62.4	62.5	62.5	0.0
69spd	US-2	65.0	65.0	65.2	66.5	65.0	65.5	0.5
87spd	US-28	64.9	65.2	64.9	64.3	64.9	64.9	0.0

Test Sites

Site	Location	July	Aug	Sep	Oct	Before	After	Change
Intercity								
18spd	I-96	75.0	75.9	75.4	75.7	75.0	75.6	0.6
19spd	I-69	76.9	75.1	77.5	77.9	76.9	76.7	-0.2
31spd	I-94	73.3	74.9	74.7	75.2	73.3	74.9	1.6
43spd	I-69	74.4	75.8	75.2	75.6	74.4	75.5	1.1
74spd	I-69	76.5	77.0	76.8	77.0	76.5	76.9	0.4
Recreational								
26spd	I-75	76.1	77.1	76.2	77.4	76.1	77.0	0.9
70spd	I-75	76.5	75.3	77.0	78.9	76.5	76.7	0.2
PAT-305	US-131	73.7	74.2	74.2	74.2	73.7	74.2	0.5
PAT-028	I-75	72.8	73.8	73.3	73.5	72.8	73.6	0.8

Michigan State University 70mph Speed Limit Study

50th Percentile Speeds

Control Sites

Site	Location	July	Aug	Sep	Oct	Before	After	Change
Urban Freeway								
05spd	I-96	59.7	59.8	59.6	60.6	59.7	60.0	0.3
IRD	I-75	63.9	63.9	63.6	63.3	63.9	63.6	-0.3
Intercity								
52spd	I-96	70.0	70.5	70.2	70.6	70.0	70.4	0.4
Recreational								
24spd	US-31	68.7	68.5	68.2	68.8	68.7	68.5	-0.2
40spd	US-27	69.0	69.2	68.7	69.4	69.0	69.1	0.1
77spd	US-131	64.2	64.3	63.8	65.5	64.2	64.2	0.0
Rural Highway								
53spd	M-60	57.5	57.4	57.5	57.6	57.5	57.5	0.0
69spd	US-2	60.1	60.2	60.4	61.4	60.1	60.7	0.6
87spd	US-28	60.0	60.4	60.2	62.4	60.0	60.8	0.8

Test Sites

Site	Location	July	Aug	Sep	Oct	Before	After	Change
Intercity								
18spd	I-96	70.0	70.8	70.6	70.8	70.0	70.7	0.8
19spd	I-69	71.2	72.1	72.1	72.6	71.2	72.3	1.1
31spd	I-94	65.4	68.5	68.3	68.6	65.4	68.4	3.0
43spd	I-69	68.5	70.1	69.4	69.8	68.5	69.7	1.2
74spd	I-69	70.1	71.1	70.9	71.2	70.1	71.1	1.0
Recreational								
26spd	I-75	70.7	72.0	71.4	72.1	70.7	71.9	1.2
70spd	I-75	70.1	68.3	70.8	72.6	70.1	70.2	0.1
PAT-305	US-131	68.4	69.7	69.7	69.4	68.4	69.6	1.2
PAT-028	I-75	67.0	68.5	67.7	68.1	67.0	68.2	1.2

Michigan State University 70mph Speed Limit Study

Pace Speed

Site	Location	Month	Speed Limit	Total Volume	Pace Speed	Volume in Pace	% Volume in Pace
Intercity - Test Site							
18spd	I-96	July	65	497,154	66.1-76.0	317,397	63.8%
18spd	I-96	August	70	635,615	67.1-77.0	410,600	64.6%
18spd	I-96	September	70	861,292	66.1-76.0	549,489	63.8%
18spd	I-96	October	70	997,180	66.1-76.0	626,128	62.8%
Intercity - Control Site							
52spd	I-96	July	65	510,197	67.1-77.0	297,106	58.2%
52spd	I-96	August	65	1,163,067	67.1-77.0	692,372	59.5%
52spd	I-96	September	65	1,256,452	66.1-76.0	758,196	60.3%
52spd	I-96	October	65	1,130,069	66.1-76.0	668,847	59.2%
Recreational - Test Site							
70spd	I-75	July	65	147,511	66.1-76.0	84,587	57.3%
70spd	I-75	August	70	142,098	67.1-77.0	56,721	39.9% **
70spd	I-75	September	70	139,137	66.1-76.0	76,820	55.2%
70spd	I-75	October	70	57,681	69.1-79.0	33,839	58.7%
Recreational - Control Site							
24spd	US-31	July	65	130,831	64.1-74.0	86,511	66.1%
24spd	US-31	August	65	311,641	64.1-74.0	206,113	66.1%
24spd	US-31	September	65	208,542	63.1-73.0	138,077	66.2%
24spd	US-31	October	65	168,378	63.1-73.0	110,162	65.4%

** Problems may exist with this data, therefore this month was not included in the calculation for pace speed.

Michigan State University 70mph Speed Limit Study

Weekend versus Weekday Speeds Before Time Period

July			Volume		50th Percentile			85th Percentile		
Site	Location	Type	Weekend	Weekday	Weekend	Weekday	Change	Weekend	Weekday	Change
18spd	I-96	Intercity	67,243	361,697	70.6	69.9	-0.7	75.5	74.9	-0.6
19spd	I-69	Intercity	98,165	333,549	71.4	71.1	-0.3	77.0	76.8	-0.2
24spd	US-31	Recreational	28,109	90,789	69.7	68.4	-1.3	74.6	73.5	-1.1
26spd	I-75	Recreational	107,438	205,960	71.0	70.6	-0.4	76.3	76.1	-0.2
31spd	I-94	Intercity	54,378	-	65.4	-	-	73.3	-	-
40spd	US-27	Recreational	34,260	70,284	69.5	68.8	-0.7	74.2	73.8	-0.4
43spd	I-69	Intercity	45,812	158,441	69.2	68.4	-0.8	75.0	74.2	-0.8
52spd	I-96	Intercity	76,347	399,271	70.3	70.0	-0.3	75.6	75.6	0.0
70spd	I-75	Recreational	24,098	111,305	70.5	70.1	-0.4	76.4	76.5	0.1
74spd	I-69	Intercity	98,196	445,279	71.1	69.9	-1.2	76.9	76.5	-0.4
77spd	US-131	Recreational	149,044	-	64.2	-	-	70.1	-	-
PAT-028	I-75	Recreational	87,442	197,006	67.2	66.9	-0.3	72.9	72.8	-0.1
PAT-305	US-131	Recreational	56,511	154,132	68.7	68.3	-0.4	73.8	73.6	-0.2

Michigan State University 70mph Speed Limit Study

Weekend versus Weekday Speeds After Time Period

Site	Location	Type	Volume		50th Percentile			85th Percentile		
			Weekday	Weekend	Weekday	Weekend	Change	Weekday	Weekend	Change
18spd	I-96	Intercity	652,958	1,459,720	71.4	70.4	-1.0	76.0	75.4	-0.6
19spd	I-69	Intercity	675,792	1,256,274	72.7	72.0	-0.7	78.0	77.5	-0.5
24spd	US-31	Recreational	229,556	448,189	68.7	68.3	-0.4	73.6	73.6	0.0
26spd	I-75	Recreational	531,326	868,610	72.4	71.6	-0.9	77.4	76.7	-0.7
31spd	I-94	Intercity	351,929	1,002,218	68.6	68.4	-0.2	74.7	75.0	0.3
40spd	US-27	Recreational	354,347	581,565	69.3	68.9	-0.4	74.3	74.1	-0.2
43spd	I-69	Intercity	291,148	682,223	70.5	69.3	-1.2	75.9	75.3	-0.6
52spd	I-96	Intercity	1,064,731	2,384,330	70.6	70.3	-0.3	75.9	75.9	0.0
70spd	I-75	Recreational	132,280	157,928	70.5	69.8	-0.7	76.8	76.4	-0.4
74spd	I-69	Intercity	883,760	1,877,546	71.1	71.0	-0.1	76.8	76.9	0.1
77spd	US-131	Recreational	496,612	1,759,315	65.1	64.0	-1.1	70.6	69.9	-0.7
PAT-028	I-75	Recreational	475,645	911,982	68.7	67.9	-0.8	73.8	73.4	-0.4
PAT-305	US-131	Recreational	443,195	864,861	70.3	69.2	-1.1	74.5	74.1	-0.4

Michigan State University 70mph Speed Limit Study

Weekend versus Weekday Speeds

August			Volume		50th Percentile			85th Percentile		
Site	Location	Type	Weekend	Weekday	Weekend	Weekday	Change	Weekend	Weekday	Change
18spd	I-96	Intercity	147,022	395,092	71.4	70.6	-0.8	76.3	75.7	-0.6
19spd	I-69	Intercity	253,249	656,996	72.5	71.9	-0.6	77.9	77.5	-0.4
24spd	US-31	Recreational	109,432	202,209	68.8	68.3	-0.5	73.8	73.6	-0.2
26spd	I-75	Recreational	247,472	386,305	72.3	71.8	-0.5	77.3	76.9	-0.4
31spd	I-94	Intercity	41,753	153,179	68.8	68.4	-0.4	74.7	74.9	0.2
40spd	US-27	Recreational	159,532	228,910	69.4	68.9	-0.5	74.4	74.0	-0.4
43spd	I-69	Intercity	87,106	145,852	70.7	69.7	-1.0	76.2	75.5	-0.7
52spd	I-96	Intercity	353,933	856,630	70.7	70.4	-0.3	76.0	75.8	-0.2
70spd	I-75	Recreational	66,315	40,423	69.3	66.8	-2.5	76.1	74.0	-2.1
74spd	I-69	Intercity	293,456	548,292	71.2	71.0	-0.2	76.9	77.0	0.1
77spd	US-131	Recreational	51,193	218,210	64.9	64.3	-0.6	70.7	70.3	-0.4
PAT-028	I-75	Recreational	209,675	390,946	68.9	68.3	-0.5	73.9	73.7	-0.2
PAT-305	US-131	Recreational	120,357	192,488	70.0	69.4	-0.6	74.3	74.2	-0.1

Michigan State University 70mph Speed Limit Study

Weekend versus Weekday Speeds

September			Volume		50th Percentile			85th Percentile		
Site	Location	Type	Weekend	Weekday	Weekend	Weekday	Change	Weekend	Weekday	Change
18spd	I-96	Intercity	249,832	352,051	71.1	70.0	-1.1	75.6	74.9	-0.7
19spd	I-69	Intercity	208,348	302,778	72.4	71.9	-0.5	77.7	77.3	-0.4
24spd	US-31	Recreational	75,614	132,647	68.7	68.0	-0.7	73.4	73.2	-0.2
26spd	I-75	Recreational	137,860	212,001	72.0	71.1	-0.9	76.6	76.0	-0.6
31spd	I-94	Intercity	176,696	434,772	68.2	68.3	0.1	74.3	74.9	0.6
40spd	US-27	Recreational	103,277	189,675	68.9	68.5	-0.4	73.9	73.6	-0.3
43spd	I-69	Intercity	101,465	285,340	70.1	69.2	-0.9	75.5	75.0	-0.5
52spd	I-96	Intercity	364,977	843,979	70.4	70.1	-0.3	75.7	75.6	-0.1
70spd	I-75	Recreational	47,588	83,761	71.3	70.5	-0.8	77.2	76.9	-0.3
74spd	I-69	Intercity	309,666	866,806	70.8	70.9	0.1	76.5	76.9	0.4
77spd	US-131	Recreational	374,536	1,206,227	64.7	63.6	-1.1	70.3	69.6	-0.7
PAT-028	I-75	Recreational	138,505	272,938	68.2	67.5	-0.7	73.5	73.1	-0.4
PAT-305	US-131	Recreational	164,670	334,436	70.3	69.4	-0.9	74.4	74.1	-0.3

Michigan State University 70mph Speed Limit Study

Weekend versus Weekday Speeds

October			Volume		50th Percentile			85th Percentile		
Site	Location	Type	Weekend	Weekday	Weekend	Weekday	Change	Weekend	Weekday	Change
	I-96	Intercity	256,104	712,577	71.7	70.5	-1.2	76.3	75.5	-0.8
19spd	I-69	Intercity	214,195	296500	73.5	72.2	-1.3	78.3	77.6	-0.7
24spd	US-31	Recreational	44,510	113,333	68.7	68.6	-0.1	73.4	74.1	0.7
26spd	I-75	Recreational	145,994	270,304	73.1	71.6	-1.5	78.4	76.9	-1.5
31spd	I-94	Intercity	133,480	414,267	68.9	68.5	-0.4	75.1	75.2	0.1
40spd	US-27	Recreational	91,538	162,980	69.5	69.1	-0.4	74.4	74.7	0.3
43spd	I-69	Intercity	102,577	251,031	70.8	69.3	-1.5	76.1	75.3	-0.8
52spd	I-96	Intercity	345,821	683,721	70.7	70.4	-0.3	76.1	76.5	0.4
70spd	I-75	Recreational	18,377	33,744	72.6	71.6	-1.0	78.2	77.8	-0.4
74spd	I-69	Intercity	280,638	462,448	71.4	70.9	-0.5	77.1	76.8	-0.3
77spd	US-131	Recreational	70,883	334,878	67.6	65.1	-2.5	72.4	70.5	-1.9
PAT-028	I-75	Recreational	127,465	248098	68.9	67.6	-1.3	73.9	73.2	-0.7
PAT-305	US-131	Recreational	158,168	337,937	70.6	68.8	-1.8	74.6	74.0	-0.6

Michigan State University 70mph Speed Limit Study

Day versus Night Speeds Before Time Period

July			Volume		50th Percentile			85th Percentile		
Site	Location	Type	Day	Night	Day	Night	Change	Day	Night	Change
05spd	I-96	Urban Freeway	209164	45857	59.6	58.0	-1.6	66.8	64.6	-2.2
18spd	I-96	Intercity	152606	35965	69.6	67.8	-1.8	74.7	73.4	-1.3
19spd	I-69	Intercity	148294	38790	70.8	69.3	-1.5	76.4	75.4	-1.0
24spd	US-31	Recreational	49510	7165	68.2	68.1	-0.1	73.3	73.3	0.0
26spd	I-75	Recreational	153354	18736	70.7	69.4	-1.3	76.1	75.2	-0.9
31spd	I-94	Intercity	17915	4671	64.7	64.2	-0.5	72.6	71.4	-1.2
40spd	US-27	Recreational	46455	6626	68.8	68.0	-0.8	73.6	73.3	-0.3
43spd	I-69	Intercity	77239	21520	68.3	67.5	-0.8	74.0	73.4	-0.6
52spd	I-96	Intercity	167574	37634	69.3	67.9	-1.4	75.1	73.4	-1.7
53spd	M-60	Rural Highway	19981	4426	57.4	57.1	-0.3	62.5	62.1	-0.4
69spd	US-2	Rural Highway	48011	5435	59.7	60.1	0.4	64.6	65.0	0.4
70spd	I-75	Recreational	62010	7738	69.9	70.3	0.4	76.0	77.7	1.7
74spd	I-69	Intercity	182707	52760	69.7	69.6	-0.1	76.3	76.0	-0.3
77spd	US-131	Recreational	47877	12288	63.9	63.0	-0.9	70.0	69.4	-0.6
87spd	US-28	Rural Highway	13086	1910	59.6	59.7	0.1	64.5	65.4	0.9
IRD	SB I-75	Urban Freeway	291301	94102	63.1	63.7	0.6	72.2	71.6	-0.6
IRD	NB I-75	Urban Freeway	363330	135098	63.5	63.1	-0.4	69.8	69.6	-0.2
PAT-028	I-75	Recreational	138438	16450	67.1	65.8	-1.3	72.8	72.2	-0.6
PAT-305	US-131	Recreational	79710	15279	68.0	66.7	-1.4	73.5	72.6	-0.8

Michigan State University 70mph Speed Limit Study

Day versus Night Speeds After Time Period

Site	Location	Type	Volume		50th Percentile			85th Percentile		
			Day	Night	Day	Night	Change	Day	Night	Change
05spd	I-96	Urban Freeway	1,724,398	355,013	60.3	58.4	-1.9	66.9	64.6	-2.3
18spd	I-96	Intercity	860,555	187,694	70.7	68.7	-2.0	75.5	74.5	-1.0
19spd	I-69	Intercity	820,782	209,031	72.2	70.4	-1.8	77.6	76.3	-1.3
24spd	US-31	Recreational	283,060	39,943	68.2	67.9	-0.3	73.4	73.3	-0.1
26spd	I-75	Recreational	659,049	87,236	71.9	70.7	-1.2	77.0	76.4	-0.6
31spd	I-94	Intercity	486,107	109,715	68.1	66.7	-1.4	74.7	73.1	-1.6
40spd	US-27	Recreational	407,377	55,849	68.9	68.1	-0.8	73.9	73.6	-0.3
43spd	I-69	Intercity	383,650	92,224	69.8	67.2	-2.6	75.3	74.2	-1.1
52spd	I-96	Intercity	1,210,098	268,648	70.1	68.2	-1.9	75.6	73.9	-1.7
53spd	M-60	Rural Highway	123,600	24,849	57.7	57.3	-0.4	62.7	62.2	-0.5
69spd	US-2	Rural Highway	209,018	28,012	60.4	60.5	0.1	65.0	65.3	0.3
70spd	I-75	Recreational	121,165	15,232	70.3	70.8	0.5	76.6	78.0	1.4
74spd	I-69	Intercity	1,019,769	274,148	71.3	70.0	-1.3	77.2	73.3	-3.9
77spd	US-131	Recreational	864,618	165,531	64.6	63.3	-1.3	70.2	69.4	-0.8
87spd	US-28	Rural Highway	77,299	11,397	60.7	60.9	0.2	64.7	65.5	0.8
IRD	I-75	Urban Freeway	3,071,046	1,051,004	63.4	63.6	0.2	71.1	70.8	-0.3
PAT-028	I-75	Recreational	657,549	87,233	68.3	67.4	-0.9	73.6	73.4	-0.2
PAT-305	US-131	Recreational	505,333	88,875	69.3	68.3	-1.0	74.1	73.8	-0.3

Michigan State University 70mph Speed Limit Study

Day versus Night Speeds

August			Volume		50th Percentile			85th Percentile		
Site	Location	Type	Day	Night	Day	Night	Change	Day	Night	Change
05spd	I-96	Urban Freeway	616710	121682	59.8	57.8	-2.0	66.6	64.3	-2.3
18spd	I-96	Intercity	223383	47716	70.8	69.2	-1.6	75.8	75.0	-0.8
19spd	I-69	Intercity	304634	79319	72.0	70.4	-1.6	77.4	76.3	-1.1
24spd	US-31	Recreational	128177	19008	68.2	68.0	-0.2	73.4	73.4	0.0
26spd	I-75	Recreational	299332	40436	72.0	71.0	-1.0	77.0	76.6	-0.4
31spd	I-94	Intercity	68409	14880	68.1	65.5	-2.6	74.7	71.8	-2.9
40spd	US-27	Recreational	164680	22934	69.0	68.3	-0.7	74.0	73.8	-0.2
43spd	I-69	Intercity	106533	26407	70.1	67.8	-2.3	75.6	74.8	-0.8
52spd	I-96	Intercity	418874	95809	70.2	68.3	-1.9	75.6	73.9	-1.7
53spd	M-60	Rural Highway	23039	4604	57.4	57.2	-0.2	62.6	62.2	-0.4
69spd	US-2	Rural Highway	67405	9183	60.0	60.2	0.2	64.7	65.2	0.5
70spd	I-75	Recreational	40556	8685	68.6	70.4	1.8	75.5	77.8	2.3
74spd	I-69	Intercity	282326	77402	71.3	69.8	-1.5	77.1	76.1	-1.0
77spd	US-131	Recreational	164581	36423	64.4	62.8	-1.6	70.3	69.0	-1.3
87spd	US-28	Rural Highway	26853	3782	60.2	60.3	0.1	64.8	65.6	0.8
IRD	SB I-75	Urban Freeway	395799	140886	62.7	63.6	0.9	71.9	71.7	-0.2
IRD	NB I-75	Urban Freeway	528050	209243	64.1	63.3	-0.8	70.4	69.9	-0.5
PAT-028	I-75	Recreational	287033	38923	68.6	68.0	-0.6	73.8	73.7	-0.1
PAT-305	US-131	Recreational	121962	22301	69.6	68.8	-0.8	74.2	74.0	-0.2

Michigan State University 70mph Speed Limit Study

Day versus Night Speeds

September			Volume		50th Percentile			85th Percentile		
Site	Location	Type	Day	Night	Day	Night	Change	Day	Night	Change
05spd	I-96	Urban Freeway	553516	115729	60.0	58.4	-1.6	66.3	64.2	-2.1
18spd	I-96	Intercity	296474	67061	70.4	68.6	-1.8	75.2	74.3	-0.9
19spd	I-69	Intercity	258850	65653	72.0	70.2	-1.8	77.5	76.0	-1.5
24spd	US-31	Recreational	88101	12111	68.0	67.5	-0.5	73.1	72.7	-0.4
26spd	I-75	Recreational	164720	21352	71.6	70.2	-1.4	76.3	75.7	-0.6
31spd	I-94	Intercity	225361	48811	67.9	66.9	-1.0	74.5	73.0	-1.5
40spd	US-27	Recreational	129952	17789	68.6	67.9	-0.7	73.5	73.5	0.0
43spd	I-69	Intercity	145293	34323	69.5	66.8	-2.7	75.0	74.0	-1.0
52spd	I-96	Intercity	428229	93394	70.2	68.0	-2.2	75.6	73.8	-1.8
53spd	M-60	Rural Highway	58143	11405	57.6	57.3	-0.3	62.6	62.3	-0.3
69spd	US-2	Rural Highway	74581	9342	60.3	60.4	0.1	64.8	65.4	0.6
70spd	I-75	Recreational	55327	4658	70.8	71.0	0.2	76.8	77.8	1.0
74spd	I-69	Intercity	400105	106669	71.2	69.9	-1.3	77.2	76.3	-0.9
77spd	US-131	Recreational	564538	99919	64.3	62.9	-1.4	70.0	69.1	-0.9
87spd	US-28	Rural Highway	33105	4942	60.1	60.4	0.3	64.7	65.8	1.1
IRD	SB I-75	Urban Freeway	447217	159957	63.6	63.8	0.2	72.3	71.7	-0.6
IRD	NB I-75	Urban Freeway	544764	177270	63.6	63.2	-0.4	70.2	69.8	-0.4
PAT-028	I-75	Recreational	195961	24517	67.8	66.6	-1.2	73.3	72.9	-0.4
PAT-305	US-131	Recreational	192827	33652	69.5	68.3	-1.2	74.1	73.9	-0.2

Michigan State University 70mph Speed Limit Study

Day versus Night Speeds

October			Volume		50th Percentile			85th Percentile		
Site	Location	Type	Day	Night	Day	Night	Change	Day	Night	Change
05spd	I-96	Urban Freeway	554172	117602	61.3	59.2	-2.1	67.8	65.3	-2.5
18spd	I-96	Intercity	340698	72917	70.8	68.6	-2.2	75.7	74.4	-1.3
19spd	I-69	Intercity	257298	64059	72.6	70.6	-2.0	78.0	76.6	-1.4
24spd	US-31	Recreational	66782	8824	68.5	68.3	-0.2	74.0	73.7	-0.3
26spd	I-75	Recreational	194997	25448	72.3	70.6	-1.7	77.6	76.6	-1.0
31spd	I-94	Intercity	192337	46024	68.3	67.0	-1.3	75.0	73.6	-1.4
40spd	US-27	Recreational	112745	15126	68.9	67.8	-1.1	74.0	73.5	-0.5
43spd	I-69	Intercity	131824	31494	69.9	67.0	-2.9	75.5	74.0	-1.5
52spd	I-96	Intercity	362995	79445	69.8	68.1	-1.7	75.8	74.1	-1.7
53spd	M-60	Rural Highway	42418	8840	57.8	57.3	-0.5	62.9	62.2	-0.7
69spd	US-2	Rural Highway	67032	9487	60.9	60.7	-0.2	65.6	65.4	-0.2
70spd	I-75	Recreational	25282	1889	72.1	72.6	0.5	78.0	79.4	1.4
74spd	I-69	Intercity	337338	90077	71.4	70.2	-1.2	77.4	76.4	-1.0
77spd	US-131	Recreational	135499	29189	65.8	65.5	-0.3	71.0	70.8	-0.2
87spd	US-28	Rural Highway	17341	2673	62.5	62.6	0.1	64.4	64.7	0.3
IRD	SB I-75	Urban Freeway	550912	166532	62.6	64.3	1.7	72.1	72.3	0.2
IRD	NB I-75	Urban Freeway	604304	197116	63.6	63.7	0.1	70.3	70.2	-0.1
PAT-028	I-75	Recreational	174555	23793	68.2	67.3	-0.9	73.6	73.4	-0.2
PAT-305	US-131	Recreational	190544	32922	68.9	68.0	-0.9	74.0	73.7	-0.3