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SPEED LIMIT COMPLIANCE IN MINNESOTA

JOHN M. WILLIAMS JAMES D. CLEARY

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STATE OF MINNESOTA HOUSE OF REPRESENTATIVES RESEARCH DEPARTMENT 17 STATE CAPITOL ST. PAUL, MINNESOTA 55155

PREFACE

This report analyzes speed trends on Minnesota highways during the period beginning October 1, 1975 and ending June 30, 1980. It compares Minnesota's speed limit compliance record with the compliance standards established by federal law, and uses a statistical technique (time-series analysis) to project this compliance record into the future. Law enforcement countermeasures and the role of public opinion are also discussed.

This report was written by John Williams, Legislative Analyst and James Cleary, Research Methodologist, in the Minnesota House of Representatives Research Department, with the assistance of Mark Reynolds-Ruscinski, Research Assistant. Questions or comments regarding this report should be addressed to Mr. Williams at 296-5045.

> Peter B. Levine, Director House of Representatives Research Department

SUMMARY

The federal Surface Transportation Act of 1978 attempted to put "teeth" into the national 55 m.p.h. speed limit by requiring vigorous enforcement of the law at the state level. Each state was required to show, through speed monitoring studies, that by September 1, 1979, not more than 70 percent of its motorists were exceeding the limit, and the federal standards become increasingly strict each year. By September 30 of this year not more than 60 percent of the motorists may exceed the limit, and the standard tightens to 50 percent, 40 percent and 30 percent in the succeeding three years. States which fail to meet these limits are now subject to a cut of 5 percent in federal aid funds for their non-Interstate highway construction, with the penalty going up to 10 percent in 1982.

This study examines, through time-series analysis, Minnesota's speed trends since late 1975, and finds that these trends have had a tendency to stabilize at a level where about 55 percent of the state's motorists are exceeding the 55 m.p.h. limit. This level of compliance is projected to continue at least through calendar year 1983, so that the state is likely to fail to comply with the 50 percent minimum federal compliance level on September 30, 1981.

Current countermeasures by the Minnesota State Patrol do not appear to be having a demonstrable impact on statewide speed trends. The problem to be dealt with is a formidable one, dealing with public attitudes that change only slowly and with difficulty, but there are some signs that it is not insoluble.

INTRODUCTION

With the passage of the Surface Transportation Act of 1978 the U. S. Congress for the first time attempted to mandate rigorous enforcement of the national 55 m.p.h. speed limit which it had imposed in 1974. Under the terms of Section 205 of the Act the states are required to submit each year certification that they are actively enforcing the 55 m.p.h. limit, and to document this certification with data on the percentage of vehicles exceeding the limit. The act uses a sliding scale to establish minimum levels of compliance with the speed limit to avoid federal penalties:

| DATE | MAXIMUM PERCENTAGE OF VEHICLES EXCEEDING 55 m.p.h. |
|----------------|---|
| Sept. 30, 1979 | 70% |
| Sept. 30, 1980 | 60% |
| Sept. 30, 1981 | 50% |
| Sept. 30, 1982 | 40% |
| Sept. 30, 1983 | 30% |

The penalty for failure to achieve the compliance levels through Sept. 30, 1981 is 5 percent of a state's non-interstate highway construction funds for the second fiscal year following non-compliance. After Sept. 30, 1981 the penalty increases to 10 percent.

The question of Minnesota's compliance with these federal standards has been raised with each announcement of a new quarterly speed report, and becomes increasingly important as the federal standards become more stringent. As part of its efforts to adapt computer methodology to transportation issues, the House Research Department approached this question by using time-series analysis to analyze past speed trends on Minnesota highways and to project these trends into the future. The purpose of this study is to compare these projections with the federal standards to estimate if or when Minnesota would fail to meet them.

DATA AND METHODS

The Minnesota Department of Transportation (Mn/DOT) has been monitoring vehicle speeds since 1975 in accordance with guidelines issued by the U. S. Department of Transportation. Monitoring locations are set up on rural and urban Interstate highways, other expressways and two-lane trunk highways. In a typical quarter, approximately 8 - 10,000 vehicles are measured at some 75 locations around the state. From the product of this measurement are calculated average and median speeds, the 85th percentile speed (the speed at or below which 85 percent of the vehicles are traveling) and the percentage of vehicles exceeding 55, 60 and 65 m.p.h., both for each roadway category and for the system as a whole.

Special attention is given to assuring that the measurement techniques do not themselves influence vehicle speed. Since the presence of radar can be detected by "fuzzbusters" and similar devices and disclosed via citizen's band radio, observation periods are kept brief and radar is projected in ways that will minimize its detection. It is expected that future federal guidelines will require 24-hour monitoring, thus making unmanned systems necessary and reducing reliance on radar.

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Comparable data on speed limit compliance is available beginning with the last quarter of calendar year 1975 (the first quarter of federal fiscal year 1976), making a total of 19 quarters available for analysis. For the gathering of data over the last three quarters (October 1979 through June 1980) different weights were given to the differing highway systems and the data-collection base was changed from "free-flow" (measuring only those vehicles whose speed was uninhibited by other vehicles in front) to "all vehicle" (monitoring all vehicles passing the monitoring station). To insure that all data used is comparable, the figures for all previous quarters were adjusted using an adjustment factor developed by Mn/DOT.

Two kinds of data are available from the Mn/DOT reports, one showing the <u>percentages of vehicles</u> exceeding the 55 m.p.h. limit and other speeds, and the other showing the <u>actual speeds of vehicles</u> as measured by average, median and 85th percentile speed. The primary focus of this analysis is on the statewide percentage of motorists exceeding 55 m.p.h. since this is the basis for the federal standard, but the other figures are useful for understanding speed trends. The actual measurements are shown in Table 1.

Figure 1 shows graphically the statewide percentage of vehicles exceeding 55 m.p.h. and 60 m.p.h. for the 19-quarter period (October 1, 1975 through June 30, 1980). Generally, the percentage of 55 m.p.h. violators is in the range of 53 - 58 percent, while the percentage exceeding 60 m.p.h. ranges from 11 to 23 percent. By subtraction, we may conclude that generally about 40 percent of the vehicles measured are traveling between 55 and 60 m.p.h.

Figure 2 shows the 85th percentile speed and the median speed (the speed which half the vehicles are below and half above) for the same time

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FIGURE 1 PERCENT OF MOTORISTS EXCEEDING 55 AND 60 M.P.H.



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period. Median speeds over the period have been 54 to 57.5 m.p.h., while the 85th percentile speed has varied from 58.5 to 62.5 m.p.h. Thus, we may say that during the period April through June 1980 about half the motorists in Minnesota traveled below 55.4 m.p.h., 35 percent traveled between 55.4 and 59.5 m.p.h., and 15 percent exceeded 59.5 m.p.h.. As the figure shows, these speed patterns have been remarkably stable during the time studied, having declined only negligibly since 1976.

Figure 1 shows noticeably more fluctuation, but again no overall downward trend. The greater fluctuation in this table may be attributed to the fact that most motorists in Minnesota travel at or slightly above the speed limit, so that an almost negligible increase or decrease in average speed can mean a shift of a sizeable proportion of drivers over or under the critical speed of 55 m.p.h. In other words, given the relatively tight distributions of highway speeds around the 55 m.p.h. level, the statistic which shows the percentage of vehicles exceeding that level is a hypersensitive measure.

In order to project Minnesota's level of compliance over the next three years to see if the Congressionally-prescribed standards will be met, it was first necessary to fit a statistical model by applying a time-series analysis to the 19 quarterly compliance measurements. As described in the Appendix, the time series model selected reflects two basic processes underlying past compliance trends:

- a process in which some external factors (unidentified at this time) affect traffic speeds only temporarily, lasting no more than one guarter, and
- a process in which some external factors have an impact which wears off very gradually over a longer period of time.

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FIGURE 3

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TABLE 2

PROJECTED SPEED LIMIT COMPLIANCE LEVELS

| Calendar Year-Quarter | Projected Non-Compliance Level at end of quarter | Federal Maximum Non-Compliance Level at end of Quarter |
|-----------------------|---|---|
| 1980-3 | 55.4719% | 60% |
| 1980-4 | 55.4720% | 60% |
| 1981-1 | 55.4722% | 60% |
| 1981-2 | 55.4724% | 60% |
| 1981-3 | 55.4725% | 50% |
| 1981-4 | 55.4727% | 50% |
| 1982-1 | 55.4728% | 50% |
| 1982-2 | 55.4730% | 50% |
| 1982-3 | 55.4731% | 40% |
| 1982-4 | 55.4733% | 40% |
| 1983-1 | 55.4735% | 40% |
| 1983-2 | 55.4736% | 40% |
| 1983-3 | 55.4738% | 30% |
| 1983-4 | 55.4739% | 30% |
| | | |

FINDINGS

Figure 3 and Table 2 display the projection of current trends over the next three years, and the projections reveal that even though speeding behavior may be sensitive to long and short term influences, the overwhelming pattern is a horizontal or stable one. The projected percentage of motorists exceeding 55 m.p.h. for federal fiscal years 1981 and after is approximately 55.47 percent, with barely perceptible variations from one quarter to the next.

The projections show a straight-line pattern but this should not be interpreted as ruling out seasonal or other fluctuations from time to time. Rather it should be expected that such fluctuation will hover around the 55 percent level and that the tendency to return to that level will continue to predominate over any fluctuations.

This projection can be foreseen from the strong tendency of the non-compliance level to fluctuate between 54 and 58 percent from the beginning of calendar 1978 to the middle of calendar 1980. Only once in the period measured has non-compliance fallen below 50 percent, that occuring in the first quarter of 1977 when the level fell to 41,5 percent. Figure 4 shows graphically three possible explanations of this anomaly and illustrates the difficulty in attempting to isolate a single cause for any sudden change in driving behavior. Weather can clearly affect driving patterns in several ways, with precipitation being probably the most important factor in limiting speeds, but precipitation in the first three months of 1977 was not abnormally high. Fuel availability, or the public's perception of it, can be a short-term inhibitor of high speeds, but the Minnesota data does not show a clear correlation; the winter months in Minnesota have for at least the last five years been accompanied

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TABLE 1

SPEED MEASUREMENTS AND EXTERNAL FACTORS

| C.Y Quarter | Pct. Exceeding _l 55 m.p.hAdj. | Median Speed | 85th% Speed | Gross Gallons ² | C.P.I. ³ | Precip.4 |
|----------------|---|-----------------|----------------|-------------------------------|---------------------|----------|
| 1975-4 | 60.6 | 57.49 | 62.51 | 198.40 | 177.53 | 1.67 |
| 1976-1 | 57.9 | 56.24 | 61.21 | 161.47 | 174.07 | 1.28 |
| 1976-2 | 57.6 | 56.89 | 61.15 | 177.10 | 174.50 | 1.95 |
| 1976-3 | 57.6 | 56.58 | 61.19 | 203.13 | 181.50 | 1.59 |
| 1976-4 | 60.2 | 56.38 | 60.88 | 184.00 | 181.63 | 0.31 |
| 1977-1 | 41.5 | 54.20 | 58.55 | 173.93 | 183.23 | 1.72 |
| 1977-2 | 50.1 | 54.98 | 59.33 | 180.47 | 188.93 | 3.29 |
| 1977-3 | 52.9 | 55.46 | 59.98 | 206.30 | 190.73 | 5.08 |
| 1977-4 | 55.5 | 55.73 | 60.05 | 188.90 | 189.57 | 2.18 |
| 1978-1 | 55.1 | 55.66 | 60.30 | 172.93 | 189.63 | 0.42 |
| 1978-2 | 57.2 | 55.91 | 60.18 | 190.23 | 192.13 | 3.91 |
| 1978-3 | 54.2 | 55.65 | 60.22 | 215.07 | 199.50 | 4.09 |
| 1978-4 | 57.5 | 55.93 | 60.56 | 193.63 | 203.87 | 0.73 |
| 1979-1 | 54.0 | 55.47 | 59.60 | 179.93 | 214.00 | 1.06 |
| 1979-2 | 56.6 | 55.78 | 60.01 | 197.93 | 249.37 | 3.48 |
| 1979-3 | 54.6 | 55.57 | 59.77 | 196.63 | 291.00 | 3.19 |
| 1979-4 | 60.3 | 55.63 | 60.23 | 189.23 | 308.20 | 1.46 |
| 1980-1 | 53.4 | 55.30 | 59.30 | 168.03 | 354.37 | 0.91 |
| 1980-2 | 55.0 | 55.40 | 59.50 | 167.87 | 354.37 | 1.65 |

¹ Percent of motorists exceeding 55 m.p.h. on all roads, adjusted as explained in text.

² Gross taxable gallons of gasoline received in Minnesota, as reported to the Department of Revenue; quarterly figures are the average for each month of the quarter.

³ National Consumer Price Index for gasoline (1967=100); quarterly figures are the average for each month of the quarter.

4 Precipitation in inches for the East-Central region of Minnesota; quarterly figures are the average for each month of the quarter.

by a drop in the taxable gallons of gasoline received in the state, but only once has this been accompanied by a sharp drop in speeds. The price of gasoline, as represented by the Consumer Price Index for gasoline, is also not by itself an explanation, since it reamined relatively stable from mid-1975 to mid-1978, and its sharp climb upward since then has not been accompanied by any consistent downward trend in speeds.

Concentrated law enforcement might also serve as a partial explanation, but the State Patrol's major enforcement concentration program in 1977, the CARE (Concentrated Accident Reduction Enforcement) program, took place in the summer of that year and was aimed at highfatality highways rather than at highways with a high incidence of speeding.

DISCUSSION

As noted earlier, present trends indicate that Minnesota will be in violation of federal standards for speed limit compliance by September 30, 1981. The penalty for such non-compliance, a reduction in federal funds for the Federal Aid Primary, Secondary and Urban systems, could cost the state as much as \$6 million per year if the penalty goes to 10 percent of those funds, as it would in federal f.y. 1982. The penalty applies to federal funds apportioned for the second fiscal year after the year of non-compliance (a lag intended to allow states time to bring their figures into compliance), so any penalty Minnesota might experience would be applied beginning with the apportionment for federal f.y. 1983.

The term "federal penalty" has been a controversial one in recent years and is capable of provoking intense reaction. The threat of federal

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penalties (in the form of a reduction in apportioned funds in various federal-aid categories) has been raised several times in the past decade to aid specific pieces of legislation, successfully in the case of the original 55 m.p.h. speed limit law in 1974 and the highway beautification laws of 1971, unsuccessfully in several legislative sessions in the cases of periodic motor vehicle inspection and vehicle emission inspection. What has made this aspect of federal policy such a focal point of controversy is not only the argument that the federal government has no business withholding from the states funds collected from the taxpayers of those states, but also the indecisiveness which has frequently characterized the interpretation and administration of federal penalty provisions by the U.S. Department of Transportation.

This report does not attempt to judge the wisdom of the approach to speed limit enforcement embodied in the Surface Transportation Act of 1978. However, as noted earlier the level of 55 m.p.h. compliance is a hypersensitive measure of driving behavior since, in a state such as Minnesota, where the average speed is just above 55 m.p.h., a slight drop in average speed can produce a disproportionate increase in the percentage at or under the speed limit. Conversely, in a state where the average speed is significantly above 55 m.p.h. a sizeable lowering of that speed might be only minimally reflected in an improved compliance level.

The main value of the present federal approach is that it identifies 55 m.p.h. as the single most visible and readily understood benchmark of speed control, and that it emphasizes compliance with the law as the most essential task of enforcement. This philosophy was outlined before

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a U.S. Senate committee in 1979 by Clarence M. Ditlow III, Director of the Center for Auto Safety:

Perhaps the most striking fact about energy conservation and gasoline savings is that the American public fully supports it if every one does their fair share. But if the public perceives that an unfair burden is being placed on them or if a large number of scofflaws are getting off without penalties being imposed, then the public support deteriorates and more people become willing to violate the law or public program. This factor is clearly at work in driving up highway speeds. Some States are not aggressively enforcing the law. Others are reducing the penalty for speeding so that citizens quickly realize that they will get little more than a slap on the wrist instead of a license suspension for speeding. As more and more people speed, it becomes more and more difficult to enforce whatever remains of the law.

It cannot be stated with any degree of certainty that the federal penalty will be invoked against Minnesota or any other state. Some indication of federal intent was shown on June 1, 1979, when letters were sent to the governors of 13 states warning them of possible noncompliance (all these states had non-compliance levels of 65 percent or higher, while Minnesota's level at that time was about 59 percent). If the U.S. DOT chooses to take action only against the most grossly non-complying states Minnesota might escape sanction, since states such as Arizona and California had non-compliance levels of over 65 percent for the second quarter of c.y. 1980 while Minnesota's was about 55 percent. If the penalty is invoked against all non-complying states Minnesota is unlikely to escape its imposition unless some new factor is introduced.

Whatever that new factor is, it appears that it will probably not be a relaxation of the provisions of the 1978 Act by Congress. In August of this year Assistant Transportation Secretary Mortimer L. Downey told a legislative seminar that "my reading of Congress is that (the standards) would probably not be loosened," although he predicts that

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a large number of states falling out of compliance in 1981 could make the standards a political issue. The National Highway Traffic Safety Administration has announced support for a tightening of the law that would raise the minimum compliance levels for fiscal years 1981, 1982 and 1983 by 10 percent over the levels now in the law and raise the federal aid penalty from 10 percent to 15 percent for fiscal 1984 and beyond. A bill introduced in 1979 by Senator Howard Metzenbaum of Ohio would have increased the compliance levels even more drastically, from 50 percent to 80 percent by September 20, 1981 and to 90 percent by September 30, 1983. With the initiatives coming in the direction of tightening the law it appears unwise to base future policy on the assumption that the law will be weakened during the next twelve months.

The principal effort now being undertaken at the state level to achieve greater speed limit compliance is the State Patrol's "Project 20." This project, funded with about \$1.7 million in federal money, utilizes an additional twenty state troopers, divided into two ten-trooper teams which provide rotating enforcement coverage of 21 selected saturation sights on 2,000 miles of high-speed high-volume highways. The project began in October of 1979 with a partial complement and reached full strength in March of this year. Next month ten of the Project 20 troopers will be added to the permanent roster of the Patrol, but the complement of federally funded troopers will be augmented by another ten by next June.

The Patrol describes Project 20 as a "dynamic, new concept for traffic law enforcement" and points out that it differs from previous specialized enforcement programs, such as the 1979 "Project 55," and the 1976 SPAR (State Patrol Accident Reduction) program and the 1977 CARE

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(Combined Accident Reduction Effort) program in that it is an ongoing effort which will function year-round at least through 1981. One of the anticipated benefits is the so-called halo effect, a residual impact which causes motorists to drive more slowly even after a saturation team has left an area.

The relationship between Project 20 and statewide speed measurements is shown in Table 3.

TABLE 3

PROJECT 20 AND STATEWIDE SPEED MEASUREMENT

| PERIOD | % OF VIOLATORS | MEAN SPEED | PROJECT 20 STATUS |
|-----------------|----------------|------------|--|
| July-Sept. 1979 | 54.6% | 55.57 | No program |
| OctDec. 1979 | 60.3% | 55.63 | Partial program* begun 10-29-79 |
| JanMar. 1980 | 53.4% | 55.30 | Partial program to 3-10-80 Full program** since 3-11-80 |
| April-June 1980 | 55.0% | 55.40 | Full program all quarter |

^{*} Program using 10 extra troopers

** Program using 20 extra troopers

While the ultimate impact of Project 20 cannot yet be determined, Table 3 suggests that its state-wide short-term effects have not been dramatic. Both mean speeds and the percentage of speed limit violators increased in the first quarter of partial Project 20 operation over the previous quarter. While these indicators fell the next quarter (January-March 1980) they rose again during the period April-June 1980, the first quarter in which the full program was operational. On the basis of this admittedly limited experience there does not appear to be a relationship between Project 20 and improved statewide speed-limit compliance.

There are inherent difficulties in judging on a short-term basis what is intended to be a long-term program. Unlike previous "get tough" or "crackdown" efforts, which tended to have immediate but temporary effects, Project 20 is planned to be a minimum two-year program integrated into the Patrol's regular enforcement operations. It is entirely possible that the program will sink into the consciousness of the Minnesota motorist over time to the extent that it has a measurable impact on statewide speed figures.

The difficulties facing any such effort are, however, formidable, first among them being the challenge of altering the public's basic perception of speed and speed laws. National Highway Traffic Safety Administrator Joan Claybrook defined one aspect of the problem in citing the results of a Department of Transportation survey of public attitudes on highway safety:

Only 19 percent [of the drivers surveyed] felt that speeds in excess of 55 m.p.h. should be strictly enforced. So while the driving public may appear to be willing to accept a more strict enforcement effort, there appears to be a tolerance factor to be considered in the public acceptance of the law. The tolerance factor for all speed limits has historically ranged between 5 and 7 miles per hour regardless of the speed limit, be it 35, 45 or 55 miles per hour.

The broader problem was spelled out in a recent address by Glen B. Craig, Commissioner of the California Highway Patrol:

I can assure you we will keep the enforcement pressure on, to the best of our ability. But we need more than enforcement. We need commitment, and that only comes from each individual, willing to do his or her share to make it work. Without that, total compliance may be byond our grasp.

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The situation need not be considered hopeless. Several states have recently shown ability to achieve a substantially better compliance rate than Minnesota -- for the first three-quarters of federal f.y. 1980 Maryland's rate of violation was only 28.9 percent, Georgia's 38 percent and Virginia's 41.7 percent. Studies are now being undertaken in the states of New York, Connecticut and Utah to attempt to identify the most successful strategies to enforce the 55 m.p.h. limit. New technology, including automated enforcement procedures, is being developed.

Whatever the future effect of new strategies or technology may be, it appears clear that the current level of enforcement activity in Minnesota will not be sufficient to meet Congressionally-mandated minimum standards for speed limit observance over the next twelve months.

APPENDIX

TIME SERIES ANALYSIS OF SPEEDING DATA

In order to forecast highway speed compliance patterns for future years, time series analysis (i.e., the Box-Jenkins approach) was applied to the 19 quarterly percentages of vehicles in excess of 55 m.p.h. The autocorrelations and partial autocorrelations for the lagged data values are presented in Table 1. None of the coefficients are statistically significant and, thus, no patterns are readily apparent from the autocorrelations. Nevertheless, several possible time series models, including models with seasonal components, were estimated and evaluated statistically. The best fitting and most meaningful model contains a first-order autoregressive component and a first-order moving-average component with no seasonality and no non-horizontal trend (i.e., an ARIMA (1,0,1) model). The parameter estimates for this model appear in Table 2.

Conceptually speaking, two kinds of effects are accounted for by this type of model. The moving average term reflects influences on speeds which last no more than one quarter (perhaps such as, unusually good or bad weather or a temporary change in fuel availability). Whether such factors decrease or increase the proportion of speeders, their effects generally vanish after a single period and the percentage of speeders tends to return to its prior "normal" level unless another such influence occurs. The autoregressive term, on the other hand, reflects influences on speeds which wear off very gradually (perhaps such as, the effects of fuel price increases or traffic speed enforcement programs). According to this ARIMA (1,0,1) model, it is possible for traffic speeds to change from one "typical" level to another or for there to be an overall upward or downward trend, but this has not been the case with traffic speeds in the past 19 quarters. Instead, the overwhelming pattern in these data is the horizontal or stable pattern.

Statistically speaking, the model above is nearly equivalent to an ARIMA (0,1,1) model in which the first-order autoregressive component has been replaced by a first-order integrated component (i.e., firstorder differencing). Table 3 presents the parameter estimates for this alternative model. Conceptually speaking, this equivalence of models is due to the fact that the influences represented by the autoregressive component of the ARIMA (1,0,1) model diminish so gradually with the passing of time that they are effectively permanent over the total time series represented by the integrated component of an ARIMA (0,1,1) model which assumes that such effects are non-diminishing over time. For purposes of this analysis, the choice between these models is mostly arbitrary since they fit the data equally well, as measured by the mean squared error, and since they yield virtually identical forecasts of future speeding behavior.

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TABLE 1

| <pre># Periods Lagged</pre> | Autocorrelation | Partial Autocorrelation |
|-----------------------------|-----------------|----------------------------|
| 1 | .089 | .089 |
| ··· 2 | .064 | .056 |
| 3 | 152 | 164 |
| 4 | 039 | 015 |
| 5 | 384 | 372 |
| 6 | 018 | .032 |
| 7 | 134 | 132 |
| 8 | .080 | 006 |

AUTOCORRELATIONS AND PARTIAL AUTOCORRELATIONS OF QUARTERLY PERCENTAGES OF VEHICLES EXCEEDING THE 55 MPH SPEED LIMIT

Confidence Limits = $\frac{+}{-}$.458

TABLE 2

PARAMETER ESTIMATES FOR THE FITTED ARIMA (1,0,1) MODEL

| Туре | <u>Coefficient</u> | Standard Deviation | Significance |
|-------|--------------------|--------------------|--------------|
| AR(1) | 1.000 | .0000 | 69030.98 |
| MA(1) | 1.053 | .0022 | 480.15 |

Mean Squared Error = 18.599.

Forecasts for future periods range between 55% and 56%.

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TABLE 3

PARAMETER ESTIMATES FOR THE FITTED ARIMA (0,1,1) MODEL

| Parameter | | | |
|-----------|----------|--------------------|----------------|
| Туре | Estimate | Standard Deviation | <u>T-Ratio</u> |
| MA(1) | .9507 | .1478 | 6.43 |

Mean Squared Error = 18.847 Forecast for each future period = 55.07%

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