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ONE-DAY A WEEK DRIVING BAN ON PRIVATE AUTOMOBILES

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PROPOSAL

One possible method for reducing auto travel is to prohibit use of every private automobile one day each week. In other words, each automobile owner would be allowed to select six days of the week during which his vehicle could be legally operated. Each motorist would be given a sticker to affix to the windshield of his automobile. The color or shape of the sticker would indicate the day of the week on which that car cannot be driven. The stickers would have to be large enough so that enforcement is feasible. Government, commercial, and emergency vehicles would not be covered under such a program.

ENERGY SAVINGS

According to statistics collected by the Federal Highway Administration (FHWA), automobile travel is spread nearly equally among the seven days of the week (roughly 14% each day). However, the distribution of auto travel (in terms of trip purpose, trip length, and origin/destination combination) is quite different for different days. Table 1 shows automobile trip distributions for a typical weekday and for the weekend.

Table 1. Distribution of Daily Automobile Travel

	<u>Weekday</u>	<u>Weekend</u>
Earning a living	52.1%	13.8%
Family business	20.0	17.4
Educational, civic, & religious	4.9	5.2
Social & recreational	21.1	60.8
Other	1.9	2.8
Total	100.0%	100.0%

The maximum possible savings due to implementation of this proposal would be one-seventh of all private automobile fuel use. In 1975, this maximum savings would be 650 thousand bbl/day (1.3 Quads per year). However, this maximum cannot be achieved for a number of reasons.

Perhaps the most important reason that the maximum savings will not be achieved is that most drivers are likely to respond to the one-day a week driving prohibition by shifting their travel to one or more of the other six days rather than by reducing their auto travel. This is especially true for multi-car families, since they can shift travel, whether for commuting, shopping, or personal business, with only minor inconvenience, and equally minor travel reductions. More than half of all U.S. households have two or more cars.

In addition, a mandatory program such as this one, operated over an extended period of time (several years), is prone to abuse. Individuals can buy low-cost, junked cars, register them with the state, and then have two stickers - thus permitting them to drive all seven days of the week. Forging stickers or transferring stickers from one car to another is likely to be easy unless adequate enforcement is available.

Commuting travel is more difficult to curtail or shift. Thus, most people are unlikely to choose a weekday for their non-driving day if they currently commute by car. This is because mass transit is presently unavailable to most people. About 95% of all work related travel is conducted with automobiles. In other words, bus and rail transit presently carry only about 5% of the work-related travel in the U.S. More than half of all the people surveyed by the FHWA (i. e. a 1969 study) indicated that public transportation was not available to them for home-to-work travel. Even among those for whom transit is available, the transit option is generally not exercised because it takes too long, is not convenient to the place of work, and involves too many transfers.

To reduce the ability of motorists to avoid reductions in auto travel, the system could mandate which day of the week each driver must not drive. Such an arrangement would, of course, require an elaborate exceptions and appeals system, and would still not guarantee substantial savings. Because of the great uncertainty with respect to the degree of auto travel reduction due to this program, it is difficult to estimate exact energy savings. Table 2 shows the energy savings in 1975 for a range of travel reductions.

Table 2. Potential Energy Savings in 1975
With a One Day Per Week Driving Ban

Percent reduction in auto travel	Petroleum Savings	
	Quads	bbl/day
0	0	0
5	0.5	230,000
10	0.9	460,000
14	1.3	650,000

In Israel, a one-day per week driving ban imposed during and shortly after the October 1973 war resulted in a 10% reduction in private gasoline consumption. However, the savings are likely to be much lower in the U.S. because of differences in driving levels and patterns and because the intense wartime emergency situation does not exist here. We estimate that U.S. savings would be no more than 200,000 barrels of oil per day, even with substantial enforcement efforts.

EQUITY IMPACTS

This program strongly favors wealthy households because poor people own fewer cars than do wealthy people. Table 3 shows auto ownership in 1969 as a function of income, in terms of both average auto ownership per household and the number of cars owned per household. As income grows, households are more likely to own an automobile and more likely to own more than one automobile. Because this program relates mobility to auto ownership, poor people - who generally own no more than one car - suffer a loss in mobility relative to wealthier families that own more than one car.

Table 3. Automobile Ownership by Income Class

Annual household income (\$)	Average number of cars per household	% of households in income class with -		
		1 car	2 cars	3 or more cars
under 3,000	0.40	33.6	3.3	0.0
3,000 - 3,999	0.74	56.5	8.4	0.3
4,000 - 4,999	0.90	62.3	11.3	1.4
5,000 - 5,999	0.93	64.7	16.5	2.0
6,000 - 7,499	1.22	57.8	25.6	3.6
7,500 - 9,999	1.35	59.2	30.8	4.1
10,000 -14,999	1.61	44.0	46.0	7.2
15,000 and over	1.94	27.4	55.2	16.2
All	1.17	48.4	26.4	4.6

Moreover, such a set of limitations is a very large government incursion into an individual's freedom of mobility, and thus by inference his freedom of association and assembly.

DOLLAR COSTS OF PROGRAM

There are essentially no private dollar costs of operating this program. However, the government costs are likely to be substantial. These costs are the result of:

- producing the stickers
- public advertising and education
- distributing the stickers to motorists
- enforcing the system

The cost of producing the stickers similar to state inspection stickers is about 5¢ each. With 102 million private automobiles and 5 million motorcycles, in use, the annual cost of printing the stickers would be \$5.4 million.

The cost of public education and advertising is harder to estimate. Use of both print and broadcast media for advertising would probably cost about \$20 million during the first year. Education costs would decline substantially after the program has been in effect for some time.

The cost of distributing the stickers is a function of the distribution mechanism. Post Offices are likely vehicles to use for distribution, although Post Offices are quasi-federal establishments and motor vehicle registrations are handled by state agencies. Assuming 3 minutes to process each sticker and a \$10/hour (labor + overhead) cost yields a total cost each year of \$54 million. This does not include the additional costs of providing stickers to purchasers of new and used cars or for people who wish to change the day of the week allowed to them. Nor does it include the costs of processing exempt vehicles. Thus, the overall annual costs are likely to be about \$70 million.

The cost of enforcement is likely to be sizeable. Without strict enforcement on the part of state highway patrols and municipal police, compliance with the system would decrease with time. For example, the response to the 55 mph speed limit was initially quite good during the embargo; however, as gasoline supplies increased and enforcement waned, average highway speeds gradually increased.

The total cost of highway patrol departments in 1974 was over \$1.0 billion. Assuming a 10% increase in highway patrols (and associated support costs) suggests that the cost for adequately enforcing the sticker system would be about \$200 million annually (\$100 million for rural highway patrols and \$100 million for municipal police).

In summary, the total cost to governments of implementing and enforcing this program is about \$300 million dollars during the first year. This cost is likely to decrease somewhat with time.

RELEVANT PAST EXPERIENCES

During the October 1973 mideast war, Israel instituted and strictly enforced the system discussed here. The estimated 10% saving was attributed to both the enforcement efforts and to substantial voluntary compliance, since compliance was equated with patriotism, at least during the emergency. Recently, Israel dropped the system in favor of raising gasoline prices from \$1.30 to \$2.00 per gallon to encourage conservation.

One of the proposals for the Boston Transportation Control Plan (TCP) was to limit driving to six days per week. The only difference between the Boston proposal and the one discussed here is that the Boston proposal assigned the non-driving day to people. The goal of the Boston proposal was to reduce air pollution, rather than to save gasoline. The proposal was later dropped because of the overwhelming public opposition expressed to the plan at the TCP public hearings.