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# RURAL COURTS AND HIGHWAY SAFETY

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U.S. Department of Transportation  
National Highway Traffic Safety Administration  
Washington, D.C. 20590

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Department of Transportation  
National Highway Traffic Safety Administration  
Washington, D.C. 20590

U.S. DEPARTMENT OF TRANSPORTATION  
NATIONAL HIGHWAY SAFETY ADVISORY COMMITTEE  
WASHINGTON, D.C. 20590

SUBCOMMITTEE ON ALCOHOL AND ADJUDICATION

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## FOREWORD

National attention must be brought to bear on the problems of rural justice, especially the handling of serious criminal-traffic cases such as driving while intoxicated. One-third of our total population lives in areas considered rural. Rural areas comprise 80% of the nation's land and special problems are posed to provide traffic enforcement and court services over a large area. There were 29,500 rural deaths out of 46,000 deaths from motor vehicle accidents in 1975 in the United States. Current efforts to identify problems and the needs of the rural citizenry in this field are insufficient. In rural areas the issues of population density, regional and local customs, and varying community mores create a range of problems and needs that urban-oriented highway safety programs do not address fully.

The Adjudication and Alcohol Subcommittee of the National Highway Safety Advisory Committee assembled rural spokesmen to develop an accurate perspective of the current status of rural traffic justice. The Committee found that, (a) horizontal and vertical communication among local, State and Federal levels of government is limited when addressing rural court problems and needs, (b) the small county prosecutor, sheriff, judge or probation agent has little or no communication linkage with practitioners facing similar problems, and (c) funds are very limited for the development of traffic justice programs with a strong rehabilitation and referral orientation.

This report presents a brief national overview of single judge systems. It specifically focuses upon the problems of lay judges in the adjudication of, and referral to, treatment of alcohol-related traffic offenders. The need is to provide for acceptable, appropriate, and workable channels of communication to develop the "health/legal" sentencing approach into a successful concept and a widely acceptable practice in the rural court setting. Both judicial and community alcohol highway safety education is needed to assure appropriate funding for construction, maintenance and staffing of alcohol treatment resources to be utilized by the courts. The findings, conclusions, and recommendations in this report should be considered by rural court judges, practitioners, and researchers in the design and implementation of rural adjudication of offenses in regular traffic and in alcohol-related traffic offenses.

A first step towards transmission of this report will begin with The American Judges Association at their annual meeting in late 1977. Findings, recommendations and discussion of this report will be on the agenda of trial judges.

I would also like to express my appreciation and that of the Advisory Committee to Professor David J. Saari, of the Center for Administration of Justice, American University, for his exceptionally able and knowledgeable advice and to National Highway Traffic Safety Administration staff members, George D. Brandt and Otto T. Hall, of the Adjudication Branch, and Bob Doherty, of the Executive Secretary's Office, for their valuable assistance.

**Rupert A. Doan**

Chairman, Adjudication and Alcohol Subcommittee  
of the National Highway Safety Advisory Committee

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## ABSTRACT

The *Final Report* of the Subcommittee on Alcohol and Adjudication of the National Highway Safety Advisory Committee develops recommendations for the Secretary of the United States Department of Transportation to improve highway safety.\* These recommendations include:

- (1) increasing the National Highway Traffic Safety Administration budget for the next 10 years, seeking other revenue sources for budget increases,
- (2) improving federal intergovernmental coordination in the drinking-and-driving field,
- (3) intensifying educational and other programs for diverse audiences in the drinking-and-driving field,
- (4) continuing of Alcohol Safety Action Programs with more advanced assurances of long-term local commitment,
- (5) expanding of the ASAP concept in modified form to rural areas,
- (6) expansion of research in the drinking-and-driving field, coordinating federal efforts and focusing upon economic loss research,
- (7) encouraging federal-state and intra-state intergovernmental and public-private cooperation in the drinking-and-driving field, and
- (8) recommending a White House Conference on Alcoholism and Alcohol Abuse to focus public attention upon safety, health, economic losses and energy conservation potentials in improved public policies in the field.

The recommendations are based upon (1) site visits by Subcommittee members in 1976 and 1977 to five states: Tennessee, Louisiana, Mississippi, Utah and Colorado, (2) examination of NHTSA evaluations of ASAP programs, (3) study of the major policy issues and their interrelationships in highway safety, energy conservation, public health and criminal justice, (4) review of the literature in the field and (5) a study of germane data in the highway safety field from a variety of sources.

The *Final Report* articulates findings from field work related to rural courts and courts in smaller cities. These findings and recommendations are coupled with previous work in urban settings obtained by Subcommittee members from personal experience, national contacts and diverse local experiences in local and state government.\*\*

The *Final Report* includes an essay exploring highway safety issues in the next 20 years to 1997. A special excerpt of relevant research is included from the Second Special Report to the U.S. Congress on Alcohol and Health—*New Knowledge*, June 1974 by the Secretary of Health, Education and Welfare. A bibliography is included.

\*The 35-member National Highway Safety Advisory Committee appointed by the President under the Highway Safety Act requires the Advisory Committee to "consult with, and make recommendations to" the Secretary of Transportation "on activities and functions of the Department in the field of highway safety."

\*\*See the 1975-76 *Final Report on Alcohol Safety Adjudication* by the Adjudication Task Force of the National Highway Safety Advisory Committee (September, 1976).

## FINDINGS

The field visits by the Subcommittee on Alcohol and Adjudication reinforced the following realities about rural justice:

1. Population densities are low, people are spread over vast expanses of land in small towns or farms. Unique problems such as traffic adjudication affecting Indian tribes contribute towards difficulty in enforcement and adjudication.
2. No lawyers is the rule in many counties, and in small towns. Few lawyers is the rule where they do exist. This severely constrains the legal system and the use of adjudication as a dispute resolving process. It suggests use of mediation or arbitration in some instances.
3. Laymen as judges become increasingly significant and important in rural areas. Limited resources of rural areas is a fact of life where specialists in alcohol rehabilitation are rare.
4. Erratic population invasions were reported several times in different states, confronting rural justices with urban masses on vacation, at concerts or meetings, or otherwise "on the loose" in the rural country in large numbers. The social control implications fell on the courts.
5. Often there is no jail facility for short-term sentencing. Fines are the only real option for a sanction along with probation, probably with minimal or no supervision. Reporting of court actions is not standardized.
6. Social services for the judges to enhance the rehabilitation aspects of sentencing are completely nonexistent in many places—although state facilities are placed into use on occasion. In the site visits, especially in Mississippi under an NHTSA grant there is a concerted effort to make probation services, diagnostic counselling, alcoholism specialists, defensive driving and other programs available on a statewide-regional service concept in either a permanent way or on an experimental basis for the rural judges or small town judges. Lay judges would depend upon this service to a great extent in some states.
7. An individual charged with a traffic offense, especially a drunken driving charge, needs justice "on site" and "right now" both of which make it extremely difficult for centralized or circuit-riding systems to function in a rapid response mode over vast territories at reasonable public expense.
8. The decentralized service system is characteristic of the rural courts. There is little formalized laymen/judge (lawyer) interaction. The low cost, informal process, minimal or monetary sanction approach are primary characteristics in the traffic field. Few trial locations in rural courts with long distances between them is a function of low population density particularly in the West and Midwest. Weather factors prevent travel over high mountain passes for months and this introduces periodic isolation of some mountain areas. Cost of gasoline to make a 150 to 300 mile round trip in some rural settings to a courthouse will become a factor encouraging more decentralization.

## RECOMMENDATIONS

### Recommendation No. 1—Increase Budget of NHTSA

The Subcommittee recommends that the Secretary of the Department of Transportation increase the NHTSA budget related to alcohol and driving in the next fiscal period to meet societal costs and losses and that budget increases continue to rise until NHTSA research and management planning determine that an adequate level of national funding for highway safety has been reached by 1987. Alcohol excise tax receipts (rising at the \$5.4 billion level) should be considered when financing of expanded programs is being studied.

The Committee recommends that the Secretary of the Department of Transportation take all necessary steps to encourage the legislatures of all jurisdictions enumerated in the Highway Safety Act of 1966, as amended, to take the initiative to adopt revenue legislation which would sufficiently fund future statewide development of alcohol abuse, alcoholism prevention and treatment, and appropriate highway safety related programs. Legislation from which such revenue would be derived and earmarked for the funding of the respective state alcohol programs could range from an excise or user tax on alcohol beverages sold (subject to legislative review or public scrutiny) to a special court cost levied on alcohol-related convictions.

### Recommendation No. 2—Intergovernmental Coordination

The Secretary of the Department of Transportation should, at the cabinet level, encourage development of strong leadership, coordination and control over all federal programs expenditures related to alcohol so that the efforts of NHTSA, NIAAA, NIMH, NIH, LEAA, NSF and NIE or their successors are coordinated and supportive of similar program goals, especially as they impact upon drinking-and-driving behavior. Interagency agreements should be established.

### Recommendation No. 3—Educational Leadership

The NHTSA should provide national leadership coordination and funds to intensify legislative, judicial, prosecutorial and defense educational programs in the drinking-and-driving field. Lay judge education should receive special attention in programs, funding and research. A massive program should be mounted of education and training at all levels—of kindergarten through 12th grade, college, professional, academic and post-graduate levels in the subject of man, alcohol and passenger vehicles. National contests, well

publicized, for imaginative solutions in the drinking-and-driving field should be an annual event with substantial awards for best suggestions.

### Recommendation No. 4—ASAP Programs

NHTSA should continue to develop the ASAP programs shifting new federal benefits to those states and communities where definite long-term adoption of a viable ASAP program is assured at the beginning of the program, so that initial federal funding is clearly to be followed by local or state funding under express agreement. Local capability in terms of interest, ability, and fiscal resources to continue plus program need are important basic-line criteria for selection of communities.

### Recommendation No. 5—Rural Justice

NHTSA should make certain that ASAP models currently under rural experimentation be continued, expanded and evaluated. Regionalizing of services to rural areas through coordinated NIAAA and NHTSA programs should be started along the lines of Mississippi.

### Recommendation No. 6—Research

NHTSA should become the single federal agency with primary responsibility in the drinking-and-driving field, with all other agencies coordinating with it to enhance highway safety, reduce accidents, save energy and support other program goals. NHTSA role and responsibility should be to develop a wholeness of approach—an integration—in this field so that it can provide comprehensive national planning across federal government in the field.

### Recommendation No. 7—Encourage Federal-State Cooperation

NHTSA should increase its efforts to encourage imaginative programs at the local level so that local and state legislative, judicial and executive agencies focus productively upon the problem and solutions to drinking-and-driving. For example, *ad hoc* local committees of county or city officials, state legislators, judges, lawyers should be encouraged in the drinking-and-driving field with specific federal grants.

The Subcommittee on Alcohol and Adjudication recommends that all jurisdictions create a position which reports to the Governor to mobilize the resources of any alcohol safety program, either private or public, that is in operation within the jurisdiction. Special attention should be



given to judicial-alcohol safety referral activities, which involve the private and public sectors, to insure maximum utilization of available treatment alternatives within the two sectors. In jurisdictions where social services exist, judges should be encouraged to order presentence investigations for convicted drinking-driving offenders and refer the offenders to such services under formal probation to provide for monitoring and supervision.

**Recommendation No. 8—White House Conference on Alcoholism and Alcohol Abuse**

The Secretary of the United States Department of Transportation should request the President of the United States to convene a White House Conference, to (1) identify

the pervasiveness of the alcoholism and alcohol abuse problem, (2) determine which "working solutions" have been effective in this field, and (3) develop a report which will assist in unifying private and public sector support for more effective efforts in the future.

The Secretary of the United States Department of Transportation should request the President of the United States to conduct the White House Conference, under the sponsorship of the National Highway Safety Advisory Committee and the dual secretariat of the Department of Transportation and the Department of Health, Education and Welfare (National Institute for Alcohol Abuse and Alcoholism) and invite as participants key members and executives from all facets of society who have the authority to commit resources and assign priorities and responsibility in both private and public sectors.

# Background Information and Analysis of Findings and Recommendations

## Introduction

The Adjudication and Alcohol Subcommittee met on October 19, 1976 in Washington, D.C., to look at the needs and problems of the small town court and the rural court situation across the country. According to Chairman Rupert Doan, the Committee had already examined the larger jurisdictions where Alcohol Safety Action Programs funded by NHTSA existed.<sup>1</sup> It now wished to focus upon the one-man court, one-judge court and the smaller jurisdictions to determine how they handle the caseloads of traffic cases, and especially cases that deal in the driving while intoxicated and other alcohol abuse cases associated with driving. The reaction of the community to judicial action, the impact of the judge on the community, and other broad factors were of interest.

The October 19 hearing lasted a full day during which the Subcommittee learned about the problems of rural courts from a variety of perspectives—both state and national. By December 9, 1976 the Subcommittee received three additional items prepared by its consultant, preparatory to field visits:

- Rural Justice: An Overview and Special Analysis of Selected States
- Judicial Education and Training—A Survey of the States
- Interview Guide of Questions for Field Visits

On December 12-14, 1976 the Subcommittee visited Memphis, Tennessee to study the operations of the Tennessee DWI Probation Follow-Up Demonstration Project. That project is sponsored by NHTSA. On December 14-16, 1976 the Subcommittee visited three Mississippi locations—Tupelo, Columbus and Starkville to explore the NHTSA sponsored DWI Probation Follow-Up study in conjunction with the Mississippi Alcohol Safety Education Program. Finally, on December 16-17, 1976, the Subcommittee visited Lafayette, Louisiana to examine the Lafayette Alcohol-Traffic Action Program. After this week-long site-visiting the Subcommittee met again in Salt Lake City to study problems of traffic adjudication in Utah's lower courts on January 4 and 5, 1977 and to survey in Denver many aspects of Colorado rural court adjudication on January 5, 6 and 7, 1977. Public hearings were held in both locations. During these visits, the Chairman, Judge Rupert Doan, was in attendance at all of the sites. The other Subcommittee attendees varied according

to availability, usually two or more attended. Minutes were made of the October 10, 1976 hearing in Washington; abbreviated site visit reports were prepared for the southern and western visits.

These site visits exposed committee members to lay and lawyer judges serving part time in remote rural counties who handle drunken driving cases to judges in smaller cities of a thousand on up, as well as to two large urban/suburban jurisdictions in Brighton, Colorado and Memphis, Tennessee. The site visitation program produced insights into the problems and needs of the rural courts in alcohol-traffic adjudication. This final report examines both short-range and long-range problems in handling the drinking driver in a wide variety of settings outside of the usual metropolitan area programs of traffic courts. Based upon the Subcommittee's understanding of the problems, certain recommendations flow from these deliberations. The recommendations aim to improve NHTSA response to rural court problems, to maximize all government services at all levels employed to control drunken driving, to develop a larger sense of mission and purpose in this area of public policy, to encourage research, experimentation, demonstration programs and training, specifically oriented to low-population density counties. The ultimate long-range goal of reasonable, acceptable and effective control over persons who drink too much and drive is, in one sense, the same problem in rural and urban areas. The person, the car, the liquor and the highway are outwardly the same. The government officers, the judges and the sanctioning alternatives are quite different in rural areas from urban areas. Let us first examine the nature of rural America.

## The Nature of the Problem

### Excerpts from Subcommittee Hearing on October 10, 1976

"Now Bullfrog [Utah] has a population of 100. The closest town is about 150 miles. So that you just have to have a self-contained unit, and that is all there is to it. . . . Well, how on earth are you going to get a lawyer to sit down here with one hundred people? . . . The JP system is the salvation of these western areas."

T.Q. Cannon

"The point is you start from the premise you have a Federal Constitution. How do you cope with

providing a person who comes at that level [Bullfrog, Utah] with the protection the Constitution says he is entitled to?"

D. Lanford

"You can't. That is a myth. You can't possibly give him all of those [constitutional rights]."

T.Q. Cannon

"What blends of professional judges and what blends of lay judges would make a good system that could support a democratic social order?"

D. Saari

"... I know of no law school today that is offering courses in sanction for traffic court judges, whether they be in administrative adjudication or a judge in a court system."

K. Jocelyn

"The real world is that the court deals at the human level and the legislature mandates the laws on an ivory tower level."

R. Forman

"How do we overlay basic rights, sanctioning of the individual, effective administration of the judicial system, and relate them to the objectives of traffic safety?"

R. Forman

"Let's get us together. And I think this is the thing we lack here. We absolutely lack in our program something to get us together."

T.Q. Cannon

"You are not talking to legislators.... It would have been so much more effective if you had the chairman of the Judiciary Committee in to sit along with you.... But you spin your wheels so much...."

R. Stockton

These comments, probing various aspects of the rural justice problem, illustrate how diffused and diverse are our understandings of the problem. These committee members provide some deep insights into the raw workings of government at the local level in the rural areas. They know

it firsthand. The federal Constitution itself fights for life in remote settings like Bullfrog, Utah, and often there may be no choice to be constitutional, or to be healing and helpful in traffic sentencing. These stark realities confront each of us. Recognizing the realities is the first step in policy development. The Subcommittee hearing riveted attention to the realities of alcohol and adjudication in rural areas. What could be done to improve rural adjudication remained uppermost in the minds of Subcommittee members during the ensuing field visits in Tennessee, Mississippi, Louisiana, Utah and Colorado.

One of the most concise statements of the problem we face is by Dr. George Hartman, a former Acting Director of Planning in NHTSA:

"In the absence of strong deterrents, alcohol-related fatalities may be expected to increase. The per capita consumption of alcohol has been increasing at a rate of 2% annually. If the trend continues to 1980, it may be expected that more drivers will drink or that drinking drivers will drink more, or both. If nothing more is done than is currently being achieved, alcohol involvement in fatal crashes may rise from an estimated 55 percent to 65 percent by 1980. This translates to an estimated 5-10,000 additional fatalities by 1980."<sup>2</sup>

This projection for the future has dire implications. Standing in the pathway of this vision of increasing highway chaos are the rural court systems adjudicating alcohol traffic offenses. A large proportion of the work of rural courts is devoted to traffic cases and among the most troublesome is the drunken-driving case. This is the principal justification for concern about the problems and needs of rural courts and courts in smaller towns, but understanding the adjudication role does not begin to explain the problem. To understand what is really at stake nationally requires a basic look at the rural-urban differences.

While this report focuses upon the rural aspects of drunken driving, the urban aspects of the problem are not in any way made more solveable. The nagging belief is that both sides deserve attention simultaneously.

## What is Rural and What is Urban?

This fundamental question applied to rural traffic adjudication requires a fresh look at some new and old data about America. The data relates to population trends, accidental

deaths, financial data, automobile data, driver license data and comparative expenditure data.

### Population Trends

The 1977 estimated U.S. population is 216.5 million. One-half (107 million) live in the South and West, up about 6 million from the 1970 census. Coastal areas in the United States claim 53% of the population, some projections foresee by 2000 that 80% of our population will live near the coasts, great lakes or Gulf of Mexico. Major population shifts are under way. Some fundamental data is needed to understand the rural-urban division. In 1970 the basic population was:

Rural	53,887,000	—	26.5%
Urban	149,325,000	—	73.5%

An important fact for driver-drinking adjudication is that by 1974, there were an estimated 144,128,000 persons 18 years of age or older. This is the base for the driver population both rural and urban.

Another data series relates to population density comparing 1960 and 1970:

U.S.—Total Square Miles—3,548,974

#### Urban

1960 — 40,238 sq. miles — 1.1%

1970 — 54,103 sq. miles — 1.5%

#### Rural

1960 — 3,508,736 sq. miles — 98.9%

1970 — 3,482,752 sq. miles — 98.5%

This data shows the miniscule part of the United States defined by the U.S. Bureau of Census to be urban—1.5% of the surface of the nation. Traffic social control in rural areas must be exercised over 98.5% of the land surface in the nation exclusive of areas irrelevant to highway traffic.

Population density reveals the same differing quality:

#### Persons per Square Mile

Urban	Rural
1960 — 3,113	1960 — 15
1970 — 2,760	1970 — 15

The population shifts from 1960 to 1970 are important factors:

#### Total Population

Urban	Rural
1960 — 179,323,000	1970 — 203,212,000
1960 — 125,269,000 — 69.9%	1960 — 54,054,000 — 30.1%
1970 — 149,325,000 — 73.5%	1970 — 53,887,000 — 26.5%

While total population rose, the rural proportion sank which meant migration to cities and suburbs was still at work in the last decade 1960-70. However, recent research has revealed a probable end to the long trend of urban migration dominance over the last 50 years.

In March 1975 the U.S. Bureau of Census asked 50,000 households where they lived in 1970. In Current Population Reports, Series P-20, No. 285, the Census Bureau estimates that 6,721,000 people left metropolitan areas while 5,127,000 moved into metropolitan areas. This net gain of 1,594,000 to non-metropolitan areas contrasts greatly with the prior period. Other data series confirm this estimate of a trend of migration towards rural America.

“Clearly an increasing number of Americans are choosing to move beyond the daily influence of metropolitan living toward those areas which have historically provided population for our cities.”<sup>3</sup>

In fact, *The Annals*, a professional journal of the American Academy of Political and Social Science devoted the entire issue of January 1977 to “The New Rural America”. The reversal of a 50-year trend towards the cities may create new types of stresses in the rural-small town environment impacting upon traffic adjudication. However, it is speculated that energy shortages could dampen this trend.<sup>4</sup> Some think it has already happened.

Even more puzzling is the question: Does the rural-urban distinction make enough difference to warrant serious attention?<sup>5</sup> Glenn and Hill report three differing theoretical viewpoints on this issue and conclude:

“The answer, clearly, is that the importance [of the rural-urban dichotomy] is more than negligible and that there is little reason to believe that the importance is diminishing or will soon diminish very much.”

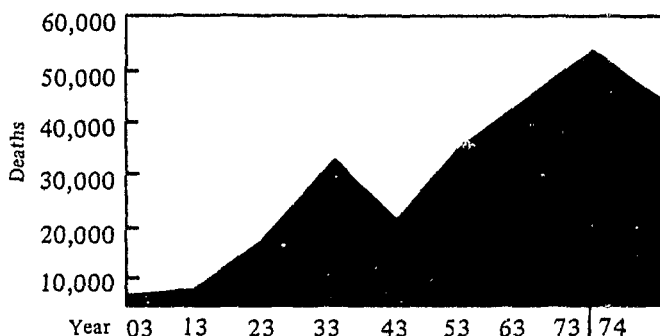
They caution against exaggerating rural-urban differences to explain attitude and behavior differences. With these precautions noted, the rural-urban distinction for traffic adjudication should probably be observed more carefully in analysis of highway safety issues because of the peculiar problems of constitutionally-approved social control over drinking-and-driving behavior, the high fatality rate and other factors noted in the findings.

## Accident Trends

To place this report in appropriate perspective, it is important to review some very commonly known information about the American driver and his behavior.

Accidental deaths from motor vehicles in 1973 were 55,800 while in 1974 a drop of 9,600 deaths to 46,200 deaths reflected the speed reduction and mileage driven during severe gas crisis. This fact is of extreme importance. (See the National Safety Council figures in Chart No. 1 on the rural-urban traffic deaths.) The deaths in 1973 arose out of 16,600,000 motor vehicle accidents that year. Death trends over 1903-1973 period reveal a stark simplicity of growth:

Year	Deaths
1903-07	400 (average a year)
1913	4,200
1923	18,400
1933	31,363
1943	23,823
1953	37,955
1963	43,564
1973	55,800
1974	46,200



Since 1966 we have had more than 50,000 deaths a year from motor vehicles ranging from 52,924 to 56,600, not including 1974. This total death pattern over 8 years is 438,351 accidental motor vehicle deaths. Over half of those deaths probably related to driver-drinking, the size of a medium population city over 200,000, all dead. *Economic losses are staggering. There is no other human activity on earth more destructive of humans than this activity other than war or major calamity.*

## Fiscal Reaction<sup>6</sup>

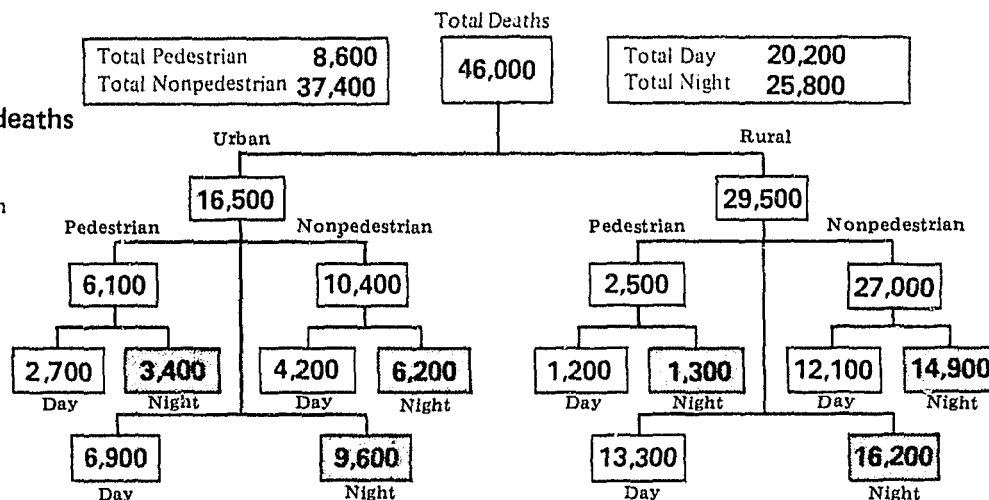
For military defense of the nation in FY 1976, national defense outlay was \$88,500,000,000 (billion). For social defense from drinking drivers the NHTSA actual 1976 expenditures were \$38,000,000 in the detailed budget.<sup>7</sup> This \$38 million expenditure (about a third of which is alcohol-related programming) should be compared with other data. In 1972, retail trade sales (the latest Bureau of Census data) were as follows:

Alcoholic drinks	-	\$ 7,306,000,000 (billion)
Package alcoholic beverage	-	11,286,000,000 (billion)
		<u>\$18,592,000,000 (billion)</u>

Chart No. 1

## Principal classes of motor-vehicle deaths

About two out of three deaths in 1975 occurred in places classified as rural. In urban areas, nearly two out of five of the victims were pedestrians; in rural areas, the victims were mostly occupants of motor vehicles. Slightly over half of all deaths occurred in night accidents, with the proportion somewhat higher in urban areas.



Source: National Safety Council Estimates. 1970 Accident Facts p.41.

This was the annual liquor bill of America several years ago, a portion of which is directly causing traffic deaths at a high magnitude. But most striking is the comparatively minute sum of a third of 38 million dollars for safety compared with 18.5 billion dollars for liquor. The \$38 million response is less than 2/10 of one percent—the equivalent power to a gnat flying into a hurricane. One wonders how we could use the IRS 1975 excise tax on alcohol of \$5,400,000,000. On the billion-dollar scales of spending several other bits of data provide more meaningful comparisons:

#### 1972—Retail Trade—U.S. Sales

Cigars, cigarettes, tobacco	\$ 6,110,000,000 (billions)
Toiletries	4,485,000,000 (billions)
Jewelry, optical	4,979,000,000 (billions)
	\$15,574,000,000 (billions)

Given these somewhat dated expenditure levels for relative non-essentials in human existence in a single year, one could hardly argue that Americans are determined individuals in highway safety nor could it be argued that America is just too poor to offer more for highway traffic safety, particularly in the alcohol-driving area. *A clearer case of misplaced priorities is hard to imagine.* The cause for this behavior is seen in the ambivalent swings now being experienced in sales of full-sized passenger cars while energy conservation potential of unsold small cars goes unused. The American love affair with his car is obviously resistant to change except at the level of international crisis or war.

#### Economic Losses<sup>8</sup>

The 1975 societal costs of motor vehicle accidents according to NHTSA is \$37.59 billion.<sup>9</sup> Economic losses of \$36,058,000,000 (billion) is estimated for traffic accidents in 1975 by The Insurance Information Institute of New York. *In the last 50 years The Insurance Information Institute estimates \$422,016,000,000 is the cumulative traffic accident loss experience in America.* The National Safety Council estimates \$21.2 billion as the motor vehicle accident costs in 1975. These figures—\$37.5 billion, \$36.0 billion and \$21.2 billion are principal indicators of loss. This latter figure of the NSC excludes many accidents and types of losses and has a narrower definition of cost, excluding indirect losses such as funeral costs.

In 1971, the National Institute for Alcohol Abuse and Alcoholism estimated \$6.44 billion economic costs associated with motor vehicle accidents of alcohol misuse and alcoholism in the U.S., out of a \$25.37 billion total economic cost of alcoholism. The latest data (still unpublished) will be similar to prior estimations.

#### Auto-Driver Data

A final basic look at cars and drivers would be helpful to round up and update our perspective. Of the world's 300,000,000 registered motor vehicles, the U.S. had in 1973 some 125,000,000 vehicles. Of the world's 237,000,000 passenger cars, the U.S. had in 1973 some 101,000,000 passenger cars. Each year annual sales of passenger cars is high—in 1970—6,547,000, in 1974—7,331,000. This tremendous tonnage of 100,000,000 passenger vehicles, supplemented each year by 7 million new cars (less those junked), is manned by 121,628,000 licensed drivers of every description, in every adult age group, driving in every mood humanly possible. Out of this seething cauldron of \$18-\$20 billion in liquor sales, consumed by some large number of 120 million licensed drivers, sitting in 100,000,000 passenger cars (7 million of which are new) is netted 50,000 highway deaths (half (25,000) attributable to excessive drinking) and 16 million car accidents in a year. Each and every year this goes on and on. Some believe that the deaths and accidents can be reduced. However, in this maelstrom-like setting a weak and relatively inefficient rural or urban court system attempts to offer social control of drunken drivers. *It has almost no tools to do its job.* As a consequence, is it any wonder that deaths on the highways have been impervious to any police, prosecutor or court manipulation at the \$38 million NHTSA level when only a multibillion dollar assault on gas prices and gas shortages in 1973, or a war in the 1940s, produced meaningful reductions over such behavior. An absolute death reduction of 9,600 from 55,800 to 46,200 deaths—1973 to 1974 is the result of effective social control over driver behavior. Casket makers felt the reduction in fewer casket orders. This extraordinary event proves conclusively that it takes billion dollar efforts or impacts to reduce deaths on highways. The current highway safety efforts of \$38 million are just too little to move the gargantuan problem measured in every meaningful way by billion dollar indicators of vehicles, liquor sales, drivers and economic losses.

## What Do We Know About Rural Court Systems?

One thing we know with great certainty is that we are painfully ignorant about rural court systems. Our knowledge is not much better about urban traffic courts with some exceptions.

In *Rural Justice: An Overview and Special Analysis of Selected States*, we noted one early study in 1973 which found 17,400 judgeships in 13,000 court systems of courts of limited jurisdiction. We found, confirmed by site visits in several states, that laymen are the judges in many of these courts. As many as 15,000 persons may be lay judges but we do not know for sure. There are 2,100 lay judges in New York, 580 in Pennsylvania, 800 plus in Texas, and proportions of one-third to one-half in some of the site visit states observed by the Subcommittee. We know now that lay judges are constitutionally approved under the 1976 U.S. Supreme Court case of *North v. Russell*, 49 L.Ed.2d 534.<sup>10</sup>

Three-fourths of the nation's courts are courts of limited jurisdiction. Everyone says, and has said for years, that the traffic courts are the single most visited courts of all in the nation. We tentatively have identified 64 court systems in the states, but further research would no doubt clarify that count. These courts handle the traffic cases. Most of the courts, about 80%, have a single judge. A large number of judges serves part time. In FY 1974 counties spent on courts \$860 million and cities spent \$373 million. This is the total amount expended—\$1,233 million identified by the latest FY 1974 census figures. Gross calculations lead us to believe a part of the \$475,000,000 spent by states on courts and \$205 million spent outside the 312 largest counties in 2,700 rural or smaller jurisdiction courts, or approximately \$250 million to \$300 million is the cost of rural justice for the judicial segment of the traffic/criminal justice system. These traffic courts collect multimillion sums from fines, costs and forfeitures and fees, usually far in excess of their public cost.

The proportion of judge time in traffic cases is high in the lower courts;<sup>11</sup> the sentencing power is usually constrained to fines under a \$1,000 and confinement to 6 months or less. In a few states no confinement in jail is possible. Sanctions in terms of probation control are minimal or nonexistent.

Educational and training programs for this level of the judiciary are currently few in number. However, the *North v. Russell* case has in 1976 stimulated planning in virtually every state for the lowest judiciary level, especially for the layman. A survey made by the Subcommittee in December 1976 established this fact.

## Findings

The field visits by the Subcommittee on Alcohol and Adjudication reinforced the following realities about rural justice:

1. Population densities are low, people are spread over vast expanses of land in small towns or farms. Unique problems such as traffic adjudication affecting Indian tribes contribute towards difficulty in enforcement and adjudication.
2. No lawyers is the rule in many counties, and in small towns. Few lawyers is the rule where they do exist. This severely constrains the legal system and the use of adjudication as a dispute resolving process. It suggests use of mediation or arbitration in some instances.
3. Laymen as judges become increasingly significant and important in rural areas. Limited resources of rural areas is a fact of life where specialists in alcohol rehabilitation are rare.
4. Erratic population invasions were reported several times in different states, confronting rural justices with urban masses on vacation, at concerts or meetings, or otherwise "on the loose" in the rural country in large numbers. The social control implications fell on the courts.
5. Often there is no jail facility for short-term sentencing. Fines are the only real option for a sanction along with probation, probably with minimal or no supervision. Reporting of court actions is not standardized.
6. Social services for the judges to enhance the rehabilitation aspects of sentencing are completely nonexistent in many places—although state facilities are placed into use on occasion. In the site visits, especially in Mississippi under an NHTSA grant there is a concerted effort to make probation services, diagnostic counselling, alcoholism specialists, defensive driving and other programs available on a statewide-regional service concept in either a permanent way or on an experimental basis for the rural judges or small town judges. Lay judges would depend upon this service to a great extent in some states.
7. An individual charged with a traffic offense, especially a drunken driving charge, needs justice "on site" and "right now" both of which make it extremely difficult

for centralized or circuit-riding systems to function in a rapid response mode over vast territories at reasonable public expense.

8. The decentralized service system is characteristic of the rural courts. There is little formalized laymen/judge (lawyer) interaction. The low cost, informal process, minimal or monetary sanction approach are primary characteristics in the traffic field. Few trial locations in rural courts with long distances between them is a function of low population density particularly in the West and Midwest. Weather factors prevent travel over high mountain passes for months and this introduces periodic isolation of some mountain areas. Cost of gasoline to make a 150 to 300 mile round trip in some rural settings to a courthouse will become a factor encouraging more decentralization.

### **Are Mandatory Sanctions (Such as License Suspension for a Year) Neutralized by Rural Courts, Juries, Prosecutors?**

The answer is yes, to a considerable degree.

The site visits revealed a basic reality which seems to be everywhere: severe legislatively mandated sanctions for traffic offenses are neutralized by judges, juries, prosecutors and probably police in charging or arresting or deciding not to exercise the power of arrest. This use of discretion by actors in a criminal justice system is nothing new.<sup>12</sup> Using discretion to frustrate the explicit commands of the legislature is normal system behavior both in the American criminal justice system and particularly in that aspect of it related to traffic adjudication.<sup>13</sup> Perhaps the assertion that neutralization occurs requires further analysis.

In *The Neutralization of Severe Penalties: Some Traffic Law Studies*,<sup>14</sup> Ross reviewed the Connecticut speed crackdown of 1955, the jail program for drunk drivers in Chicago, the Denver court study of drinking-and-driving legislation of 1950, and other studies in Hennepin County, Minnesota under an ASAP program (Alcoholic Safety Action Program). He argues that penalty levels may exceed community norms of fairness and that actors in the system exercise discretion in the direction of such norms and away from legislative pressure to introduce harsher sanctions, the actors being especially sensitive to peer and colleague pressure to neutralize. The public quickly learns of the gap between the threat (legislative command to sanction) and the

reality (what sentences are suspended, reduced, not prosecuted, prosecuted lightly, bargained away, etc.). Human behavior wiggles away from the arms of the law. The law reads: *Be tough on some other person, not me.*

In the site visits of the Subcommittee, there was repeated evidence of the amelioration or softening of the legislative command in almost every site visited. It became almost predictable to listen to a response to the following question:

"How do you handle drinking drivers?"

"If a person is charged with DWI, we pay attention to the evidence, particularly to the blood alcohol content tests, the time of day of the arrest and the nature of the violation. Then, if we find the person guilty, we fine them to the maximum, say \$1,000, we sentence them to prison for the maximum, say six months, and then we suspend all of it upon the condition that the convicted person (especially if he is a first offense DWI) agrees to probation for a year, agrees not to get into driving trouble again and agrees to take a defensive driving course and in general behaves during the period of watchfulness. Of course, we will react more harshly if it is a second or third DWI offense, and we may reinstate sanctions if there is a failure to comply during probation. Only in a rare instance, do we find DWI repeaters. Only on a rare occasion do we need to recommend driver license suspension or revocation, but that does happen."

In one state, there are an estimated 150,000 problem drinkers. The nature of this driver pool and its interaction with authorities in the police, prosecutor, court and correctional fields is not well understood. A thin stream each year—about 3,000—are sanctioned to a more limited or no use of driver's license sanction. The state has more than 1,000,000 drivers. The application of the severe sanction is (in statistical terms of miles driven a year per licensed driver) almost nonexistent. If Ross is right, the public knows the real sanction and also understands that the police cannot be everywhere, thus the probabilities<sup>15</sup> of any one individual being caught and having his license suspended are so remote as to have negligible impact upon driving behavior, drunk or sober. This is the reality which underlies mandatory license suspensions statutes. Persons with suspended licenses continue to drive, according to some studies—over 60% of suspended drivers continue to drive.



Structuring and confining discretion of police, prosecutors and judges in the field of drunken driving by explicit command of the legislature through drafting of a thorough control statute which forbids or minimizes discretion and forbids alternative possibilities is a possibility in conceptual terms. In real life politics there may be no hope of reducing the pluralistic discretionary power centers, especially at state government levels, where the separation of powers is alive and well, or at the local level where home rule powers blunt legislative sessions.

Because of the over-criminalization of American law, the excessive use of the penalty of jail, and the reluctance to impose a health-legal model, the American legislatures are caught in the web of making too many empty penal threats, which the public knows will never be carried out. Deterrence and trust and certainty of consistent reaction are not the hallmark of enforcement of DWI and related laws.

However, there is no need for despair or to resort to a feeling that no policy can really be enforced. *There is a continual need for the legislature to reassess reaction to statutes and to adjust them to the realities existing in the state.*<sup>16</sup> *All parts of the traffic-criminal adjudication system must interact meaningfully.*<sup>17</sup>

### **Can Urban Models of Drinking-and-Driving Control Be Used in Rural Settings?**

ASAP models (Alcohol Safety Action Programs)—attempted in 35 cities over the last few years have cost \$70 million or about \$6 million a year. These are rough figures for purposes of exposition. The committee looked at some similar rural alternatives in the south site visit. None of the urban ASAP models is to be continued as a federal responsibility. No jurisdiction has adopted the full ASAP model although ideas from ASAP are used liberally and they have spread across the nation. The Advisory Committee in a report last year<sup>18</sup> praised the ASAP programs, but ultimate praise by locals is to continue the programs at the local level. The ASAP concepts are good, the cost of supporting a local ASAP raises local financing issues<sup>18</sup>. Why the gap?

For one thing, these ASAP service models to help judges sentence more intelligently have easily transferable ideas which judges during site visits to rural areas illustrated that they were able to use without a great deal of expense in transferring such knowledge. In other words, some parts of

ASAP innovation have spread because their transferability is easy, trialability is easy and determining effectiveness is easy.<sup>19</sup> Some aspects of ASAP screening have spread such as the Mortimer-Filkens test for problem drinkers.

But the other aspects of the programs—particularly costly parts like hiring probation staff, etc., and parts when interorganizational and intergovernmental decision-making must be persuaded to cooperate and stay involved—these organizational innovations are traditionally difficult to transfer from jurisdiction to jurisdiction. Continued funding by states, counties or cities after highway funds were stopped (Section 403 monies) is a problem for NHTSA, and it is a problem, as well, in various LEAA program fields. A great deal more long-range planning and local commitment has to become involved in the initial development of ASAPs so that the long-range institutional survival of ASAPs is not jeopardized by lack of foresight and commitment when federal dollars stop.<sup>20</sup>

Particularly striking as long-term federal commitment affecting rural justice and highway safety is the Mississippi site visited.<sup>21</sup> The idea of multi-year funding, heavy evaluation, and solid program management along with close cooperative working with the judiciary may provide successful prototypes for urban models transferable to the rural setting.

Given sufficient adaptability, it would seem social control models in either a rural or urban setting should be transferable in a modified form to the opposite setting. There should not be a barrier to idea flow and innovation in either direction, although cities have traditionally claimed more creativity than rural areas. In a general way our site visits confirm this observation: that transfer is not one way—it is both ways and rural/urban differences in adjudication across states were not that different in fact. Diffusion of innovation is flowing in diverse ways.

### **Excerpt from Field Visit Notes in December 1976**

#### **TUPELO, COLUMBUS AND STARKVILLE, MISSISSIPPI**

1. The Mississippi DUI Probation Follow-up Study was somewhat delayed in becoming operational. The program began September 1, 1976 with the first intake on

September 20. All six full sites were operational on October 20, 1976. This makes statistics scarce. There are 17 schools scattered about the state generally making a school site available to anyone with no more than a 40 mile trip.

2. There has been good cooperation between all local officials involved in the program. The judges like the program because it gives them another sentencing alternative and the system works effectively. Another stated advantage of the system is that there is an additional process of identifying the alcoholic and providing treatment. The mental health counseling phase of the program is done by the state's mental health agency using NIAAA funds. A great deal of funding for the program is available through a cooperative pooling of resources from throughout the state. "Our main concern is that we will use up our DOT funds before the pilot period is over. We hope the state will help us if that happens."
3. The questionnaire portion of the Mortimer-Filkens test is used but not the interview portion because it takes too much time and their use testing shows that the interview portion only duplicates the questionnaire information obtained.
4. Public defenders are used frequently. In Tupelo, the public defender announces his presence to the defendants in the courtroom and makes his services available. If there is no public defender, the court appoints attorneys from the local bar association. In general, very few defendants are represented by attorneys.
5. The DUI Probation Follow-up Study works only with the city courts in relatively rural settings. There are 30-32 city judges appointed for four years. All are law trained. Cities under 10,000 population can use mayor courts. There are also 18 county court judges and 429 justices of the peace.
6. There are two statutory offenses: driving under the influence of alcohol (DUI) and driving while intoxicated (DWI). DUI offenses involve a blood alcohol content (BAC) of .1-.149. DWI involves a BAC of .15 and over. Average BAC is .17. DUI first offense does not require license revocation but a second DUI requires automatic revocation. DWI first offense requires revocation.
7. Prior to the DUI Probation Follow-up Study, there was not a mandatory court appearance for DUI. A bond could be posted in the amount of the fine and then forfeited. Now all DUI and DWI charges require mandatory court appearance. When defendant is arrested, he is usually put in jail for five hours to sober up.
8. DUI/DWI defendants are classified as "social" or "problem" drinkers. The programs are specialized for the two classifications but, once classified in a group, the defendant is randomly assigned to one of four subgroups:
  - (1) Placed on probation with follow-up only
  - (2) Placed on follow-up probation as above but after receiving appropriate instruction and counseling (rehabilitation)
  - (3) Placed in instruction and counseling group but with no follow-up, i.e., unsupervised probation
  - (4) Placed in a control group, i.e., receive only usual fine or jail term without probation, instruction or counseling. (Done for statistical evaluation purposes only.)
9. Program is still too new to have any recidivism statistics. If a defendant fails to attend, a court may use its contempt powers to enforce attendance. Can fine \$50 and one day in jail for contempt. If defendant fails to appear in court, a bench warrant for his arrest is issued. Bond forfeitures are not allowed in lieu of appearance.
10. No specialized law enforcement is utilized in the small towns except occasionally additional officers may be assigned weekend duty. Find little need for specialized enforcement since the small towns usually only have a couple of bars located on the main street. "Everybody has to go down Main Street to get home. We can't help but see them."
11. To enroll in the program, a person must pay a \$45 fee. There is some problem collecting the fee from everybody but time payments are being used. Court does not collect or assess this fee but does advise defendant about it.
12. No defendant has yet asked simply to be allowed to pay his fine and not go to the program. Apparently prospect of keeping driver's license is an incentive to go to program. While attending program, defendant is on probation. Must not become involved in another DUI/DWI offense or other criminal conduct.

## Recommendations

### Recommendation No. 1—Increase Budget of NHTSA

The Subcommittee recommends that the Secretary of the Department of Transportation increase the NHTSA budget related to alcohol and driving in the next fiscal period to meet societal costs and losses and that budget increases continue to rise until NHTSA research and management planning determine that an adequate level of national funding for highway safety has been reached by 1987. Alcohol excise tax receipts (rising at the \$5.4 billion level) should be considered when financing of expanded programs is being studied.

The Committee recommends that the Secretary of the Department of Transportation take all necessary steps to encourage the legislatures of all jurisdictions enumerated in the Highway Safety Act of 1966, as amended, to take the initiative to adopt revenue legislation which would sufficiently fund future statewide development of alcohol abuse, alcoholism prevention and treatment, and appropriate highway safety related programs. Legislation from which such revenue would be derived and earmarked for the funding of the respective state alcohol programs could range from an excise or user tax on alcohol beverages sold (subject to legislative review or public scrutiny) to a special court cost levied on alcohol-related convictions.

### Recommendation No. 2—Intergovernmental Coordination

The Secretary of the Department of Transportation should, at the cabinet level, encourage development of strong leadership, coordination and control over all federal programs expenditures related to alcohol so that the efforts of NHTSA, NIAAA, NIMH, NIH, LEAA, NSF and NIE or their successors are coordinated and supportive of similar program goals, especially as they impact upon drinking-and-driving behavior. Interagency agreements should be established.

### Recommendation No. 3—Educational Leadership

The NHTSA should provide national leadership coordination and funds to intensify legislative, judicial, prosecutorial and defense educational programs in the drinking-and-driving field. Lay judge education should receive special attention in programs, funding and research. A massive program should be mounted of education and training at all levels—of kindergarten through 12th grade, college, professional,

academic and post-graduate levels in the subject of man, alcohol and passenger vehicles. National contests, well publicized, for imaginative solutions in the drinking-and-driving field should be an annual event with substantial awards for best suggestions.

### Recommendation No. 4—ASAP Programs

NHTSA should continue to develop the ASAP programs shifting new federal benefits to those states and communities where definite long-term adoption of a viable ASAP program is assured at the beginning of the program, so that initial federal funding is clearly to be followed by local or state funding under express agreement. Local capability in terms of interest, ability, and fiscal resources to continue plus program need are important base-line criteria for selection of communities.

### Recommendation No. 5—Rural Justice

NHTSA should make certain that ASAP models currently under rural experimentation be continued, expanded and evaluated. Regionalizing of services to rural areas through coordinated NIAAA and NHTSA programs should be started along the lines of Mississippi.

### Recommendation No. 6—Research

NHTSA should become the single federal agency with primary responsibility in the drinking-and-driving field, with all other agencies coordinating with it to enhance highway safety, reduce accidents, save energy and support other program goals. NHTSA role and responsibility should be to develop a wholeness of approach—an integration—in this field so that it can provide comprehensive national planning across federal government in the field.

### Recommendation No. 7—Encourage Federal-State Cooperation

NHTSA should increase its efforts to encourage imaginative programs at the local level so that local and state legislative, judicial and executive agencies focus productively upon the problem and solutions to drinking-and-driving. For example, *ad hoc* local committees of county or city officials, state legislators, judges, lawyers should be encouraged in the drinking-and-driving field with specific federal grants.

The Subcommittee on Alcohol and Adjudication recommends that all jurisdictions create a position which reports to the Governor to mobilize the resources of any alcohol safety program, either private or public, that is in operation within the jurisdiction. Special attention should be given to judicial-alcohol safety referral activities, which involve the private and public sectors, to insure maximum utilization of available treatment alternatives within the two sectors.

#### **Recommendation No. 8—White House Conference on Alcoholism and Alcohol Abuse**

The Secretary of the United States Department of Transportation should request the President of the United States to convene a White House Conference, to (1) identify the pervasiveness of the alcoholism and alcohol abuse problem, (2) determine which "working solutions" have been effective in this field, and (3) develop a report which will assist in unifying private and public sector support for more effective efforts in the future.

The Secretary of the United States Department of Transportation should request the President of the United States to conduct the White House Conference, under the sponsorship of the National Highway Safety Advisory Committee and the dual secretariat of the Department of Transportation and the Department of Health, Education and Welfare (National Institute for Alcohol Abuse and Alcoholism) and invite as participants key members and executives from all facets of society who have the authority to commit resources and assign priorities and responsibility in both private and public sectors.

### **Conclusions**

The importance of this report and the implications of the recommendations require further explanation here. Let us first consider the recommendations.

#### **Discussion of Recommendations**

The recommendations make sense as a unit—in *that* way they are significant. Separately they are fragmented into meaningless parts of a whole that is difficult to grasp. United they stand, divided they fall. The recommendations do not suggest throwing valuable taxpayers' money at a problem

with the childish hope that the problem will go away. Much of the criticism of social programs of the sixties cannot be leveled at the recommendations in this report. Merely suggesting an increase of financial efforts in the drinking-and-driving problem sector is made with a belief that the amount now devoted is almost insignificant in view of the problem's magnitude. It is impossible to know the appropriate upper funding level until newer and higher funding levels are tried so that we can see what bright, cost-effective ideas take hold and start having an impact, as suggested above, like war or the 1973 energy crisis. It is unwise at this time to set a ceiling and none has been attempted.

In the recommendations, the Secretary of the Department of Transportation is cast into a central energizing role with reference to the President, the Cabinet and other federal agencies on the subject of drinking and driving. The White House Conference recommendation in particular stresses this responsibility. The educational, research and intergovernmental cooperative leadership roles of NHTSA could be stimulated further. The persuasive quality of the work of the NHTSA must be of the highest quality because the public quickly sees through sham laws, sham threats and recognizes what to do with fraudulent gestures or futile behavior. Ignore it. Beneath the NHTSA work there must be a quality of persuasion which convinces the American public beyond any doubt of the need for them to see what is in their best interests in the drinking-and-driving field. Especially must the public be brought to the fullest possible understanding of the subject of drinking and driving in the shortest possible time. There is vast ignorance on the subject of drinking and driving by well-intentioned people who, if they knew better, would themselves do better.

The requirement of local commitment towards ASAP is merely one of attracting the more innovative states and communities who will come forth with sufficient publicity for the program. These natural leader communities and states still need encouragement in current times and ASAP programming stimulates creativity in the communities.

Keeping in mind the peculiar needs of the rural areas, the urban models should work if adapted as in Mississippi. The lay judge needs special care and nurture, and in the traffic field NHTSA could begin to see that things happen for such judges so that they are not forgotten in educational programs. The rural factors to consider are stated in the Findings section of this report. These factors should shape the ASAP and other programs.

Whenever feasible, NHTSA should support the development of a rural court capability in highway safety adjudication and referral on a national-regional basis. This would seem appropriate in federal regions such as NHTSA Region No. 8 in Denver, which encompasses states of a highly rural nature having similar and related rural justice and highway safety problems. The states in Region No. 8 are Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming. Such regional programming would require resource sharing and coordination between NHTSA headquarters and regional NHTSA offices and the affected states in the region.

It is important for jurisdictions to develop a statewide alcoholism treatment program that focuses on safety and the interaction of private organizations and public agencies. A position, reporting to the Governor, needs to be established to carry out this plan. A significant part of this plan is to insure that alcohol safety judicial referral activities maximize treatment alternatives, including corporate alcoholism treatment programs. Such a plan would be supported, similarly to legislation recently enacted by the Colorado legislature, by an identified source of funds and would provide identification, referral and treatment statewide.

The Department of Transportation was non-supportive of the recommendation that the Secretary submit to Congress a legislative proposal which would provide for the assessment of one cent per proof content of each gallon of alcoholic beverage sold in the United States. While the assessment revenue collected would be used in federally funded activities relating to alcohol abuse and other highway safety programs, it is the Department's position that support of state and local action programs must come from 402 funds and from local governments themselves, according to information provided to the Subcommittee.

Legislation enacted by the States of Arkansas, Colorado, Idaho and South Carolina serves to illustrate a self-sustaining approach toward providing rehabilitational and training program opportunities for persons with an alcohol or drug-related problem.

#### Arkansas

The Arkansas Legislature passed Act 931 (1975), which provides that any person convicted of driving under the influence (DUI) shall pay to the convicting court a penalty to be levied at a cost of twenty-five dollars (\$25). Such penalty is in addition to the imposition of any statutorily

authorized sentence, fine, or other court costs. All monies received under the provisions of the above Act are remitted to the State Treasurer who in turn deposits same to the credit of the "Community Alcohol Safety Fund". Monies deposited are used exclusively by the Coordinator of Police Safety in making grants to local communities to be used to promote alcohol safety programs.

#### Colorado

The Colorado General Assembly enacted House Bill No. 1150 (1976), which provides for an increase in the excise tax on alcoholic beverages in that State. The increased revenues derived from the above Act may be viewed as one of the sources of funding for the development of alcoholism treatment programs and for the payment of other related direct and indirect cost caused by the consumption of alcohol.

#### Idaho

The Idaho Legislature passed House Bill No. 652 (1974), which among others, provides for an alcohol safety action program fund. Under this law the superintendent of the State liquor dispensary is authorized and directed to include in the price of goods sold in the dispensary, and its branches, a surcharge equal to two percent (2%) of the current price per unit computed to the nearest multiple of five cents (5¢). Monies thus collected are remitted monthly to the State Auditor who then credits the amount to the alcohol safety action program fund.

#### South Carolina

The South Carolina General Assembly passed Act 1063 (1972), which provides, in part, that alcoholic liquors and beverages sold in sealed containers of two ounces or less are to be taxed at the rate of twenty-five cents (25¢) per container in addition to the case tax. Section 5 of the same law provides for the remittance of twenty-five percent (25%) of the revenue derived to the counties on a per capita basis to be used for educational purposes relating to the use of alcoholic liquors and for the rehabilitation of alcoholics and drug addicts. Counties may pool such funds with other counties and with other funds for these purposes.

The last suggestion to keep in mind about the recommendations is that they provide the needed integration of policy impacts at every level of government so that there

is a united force at work on a very serious, social problem which grows more acute as our energy conservation needs rise to reduce the waste of accidents. Multiple goals are:

1. Reduction of accidents, deaths and property damage.
2. Improving highway safety, security in driving and public health.
3. Reduction of economic losses in all levels of impact after accidents.
4. Reduction in waste; an increase in efficiency per unit of energy expended for transportation.

The third goal—reduction of economic losses after accidents—deserves a bit of amplification. In 1975, the economic losses from motor vehicle accidents totaled:

\$37,590,000,000 (billion)<sup>22</sup>

\$103,000,000 a day

The losses were—wages, legal, medical, hospital, funeral, insurance administration, accident investigation, losses to others, traffic delay and property damage. What if we set severely modest goals to reduce that loss figure by 10% in 10 years so that by 1987 or so the annual losses stood at \$34 billion. With inflation at current levels that reduction by 1987 would be significant. One can see how rising economic loss levels are excused by inflation. What is suggested is that regardless of inflation, the 1975 loss figure be *the national target* for everyone to grasp. After all, \$340 billion in economic losses over ten years is nearly impossible to imagine. It would support the federal government for nearly a year. Surely we shift large sums in the federal budget, but here is a loss suffered by Americans which, if held constant or reduced, would have an enormously beneficial impact. Medical and hospital facilities would not be so taxed. Businessmen facing injured employees and lost wages and insurance premiums would face fewer losses. Legal problems would be reduced for vast numbers of persons. Of course, reduced funeral expenses were sensed in 1974 because 9,600 fewer deaths occurred. And auto repair shops would have less to do, so would insurers. These industries or businesses would have to be considered in the adjustment phase, but there is envisioned a gradual 20-year program with continuous federal, state and local government pressure to reduce accidents, during which time those businesses could adjust.

If a 50% reduction of 1975 economic losses of \$37 billion gave us in 1978 a \$18.5 billion loss reduction—then \$185 billion in the 10 years ahead could be shifted away from mopping up after auto accidents—towards other social problems. The 20-year impact of \$370 billion loss reduction would be a national dividend for our children. We can dream, only dream, of 75% to 90% reductions of losses in the real world. This report does not dream in an impossible future. Somewhere up to 50% loss reduction ought to be reasonably within our grasp.

### Is Change Impossible?

Most puzzling is the question: Why should the drinking-and-driving problem be amenable to change, especially since we have had so little luck on changing our behavior towards cars, liquor and driving? Perhaps this is an inexact or artless or unscientific view of the matter, but it is a practical question. Why bother with this subject—is it hopeless, especially in view of the vast numbers of cars, drivers, liquor? What, after all, can man do about a problem he has created? The answer here is neither idealistic nor stupid. Drinking-and-driving problems could be solved, if we willed that it be done. The solutions may not be complete, they may take years, but time is overtaking America and while we adults may not suffer so much from foolhardy losses—our children will certainly be hurt, and our national future will be diminished without serious purpose and effort in this field. How many nations of this earth are going to suffer self-inflicted wounds of \$370 billion economic losses in the next 20 years just “tooling” around in their cars?

### Foolish Drinking Habits

Reflect for a minute on the latest word from the former head of the National Institute of Alcohol Abuse and Alcoholism. Dr. Morris Chafetz tells us *to learn* how to drink liquor—after all these years.<sup>23</sup> He claims that Americans drink foolishly, and it is reflected in driving. He suggests that we learn to drink and eat, and do so in a way that being drunk in America is considered very bad taste at all levels of society. That would be some lesson. But consider the “drink-ins” which are used as training devices for American state judges to orient them to the technology of blood testing, breathalyzers and BAC—blood alcohol content

data—when does BAC seem to get serious for the judge? If many judges do not really understand the situation with alcohol, how can the rest of America be ahead in understanding? This report recommends that we do something about the problem. Maybe bartenders should sit with judges in “drink-ins”. Maybe “drink-ins” should be expanded to develop a more critical capacity in society as a whole.

### **Irrelevance of No-Fault insurance**

The efforts required to accomplish loss reduction in the motor vehicle field are confronted and confounded, and still puzzle those in the “injury industry”.<sup>24</sup> No-fault insurance plans in over 26 states vary in their efforts to simplify and modernize the risk of loss, shifting-mechanisms for auto accidents. S. 354 (a federal plan) died in Congress in 1976, and with it, a lot of momentum of change. The recommendations in this report start from a fundamentally different root. Reducing the number, type, severity and costs of accidents is a first priority, far more significant than being fair in allocation of losses after injury, the field of no-fault insurance. Thus, the emphasis of no-fault insurance is irrelevant here. Any method of insurance is satisfactory if the number of accidents is reduced by 50%. No one can argue morally against the reduction in the number of accidents involving motor vehicles, not even those who brought about a defeat of proposed federal legislation on no-fault insurance.

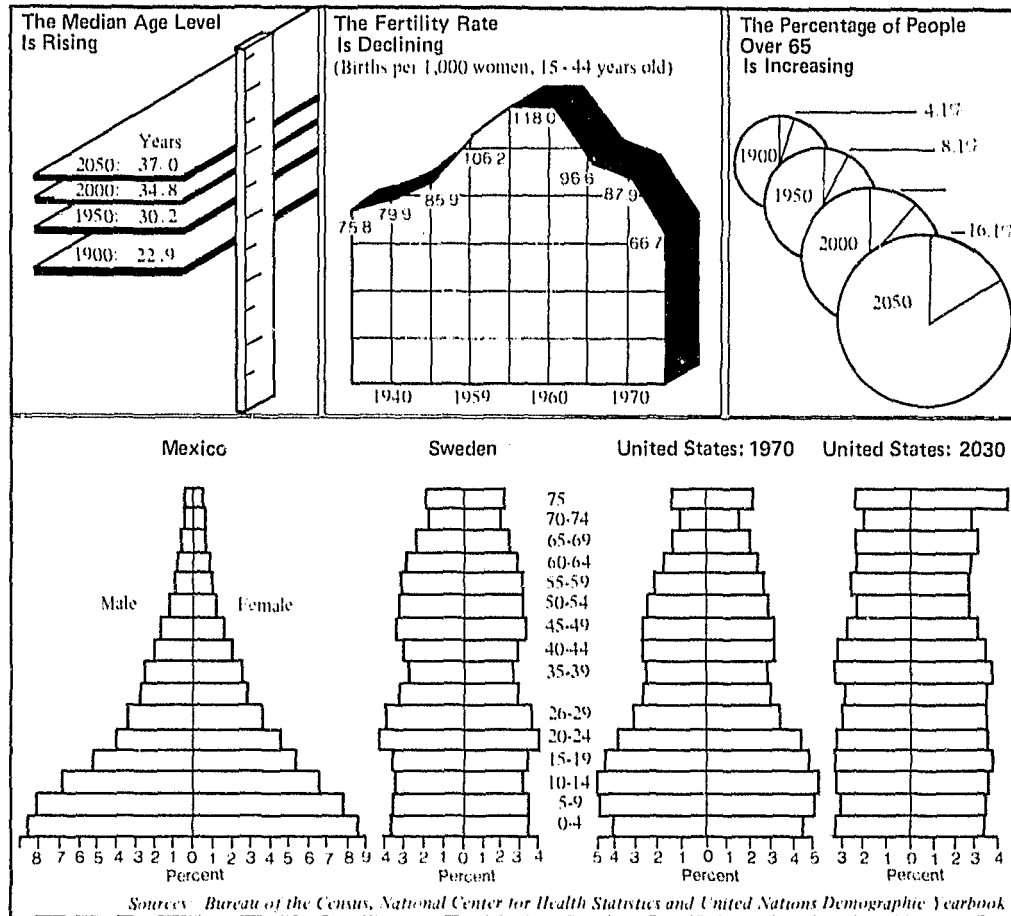
### **An Aging Population**

The “graying” of Americans, the change in the shape of the American “Christmas tree” is seen in the recent population data. (See chart on next page.) This data could suggest that the drinking-and-driving problem will solve itself through the aging process in America. Fewer younger drivers means fewer accidents, fewer deaths, fewer tires burning, wild driving and drunken driving proms. But the population projections tell us of a planning horizon to 2030 and 2050. This report is much shorter—a mere 20 years ahead to 1997 or around the turn of the century. And the urgency of the losses sustained every day—\$103,000,000 a day overcomes any objections to the report recommendations to begin action now. This economic loss is not a mortal wound, but American losses are severe and again, at the annual multi-billion dollar level which escapes human detection and concern. It is just too large to be detected by human sensors.

There is a rapid increase in persons 25 to 34 years and a substantial increase in those 18 to 24 years—both as a result of the large numbers of persons having been born after World War II. These babies are now part of the massive driver population, pushing indicators off the scale of recognition. See Table No. 1.

In the traffic field, the population data describes *10,500,000 persons* becoming eligible to drive in the 1970-1976 period. This population pressure makes the 1975 economic loss figure of \$37.5 billion even more seriously subject to severe upward pressure if nothing more is done to counteract the situation.

## New Population Trends Transforming U.S.



Top graphs depict United States population trends. Those on bottom show difference between countries having high and low growth rates. In Mexico, with growing population, younger rate ranges predominate. Sweden,

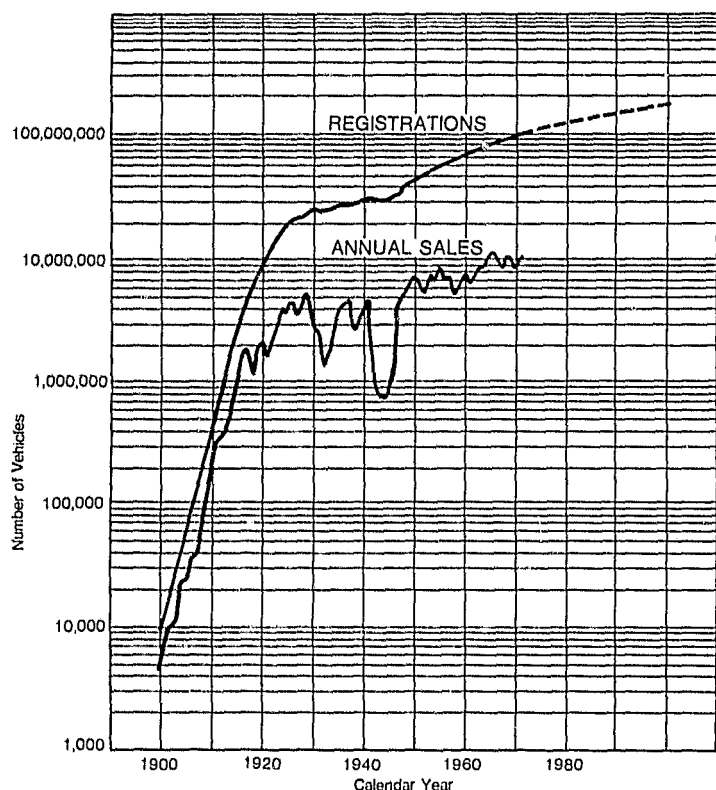
with low growth, shows balance between young and old. The U.S. in 1970 had pattern similar to Mexico's, except that the birth rate dropped. By the year 2030, the U.S. may show a population profile similar to Sweden's.

**Table 1**  
**Age Structure of the Population: July 1, 1976 and April 1, 1970\***  
(Numbers in thousands. Total population including Armed Forces overseas)

Age	Population		Percent distribution		Population change	
	July 1, 1976	April 1, 1970	July 1, 1976	April 1, 1970	1970 to 1976	Percent, 1970 to 1976
All ages	215,118	204,335	100.0	100.0	+10,783	+5.3
Under 5 years	15,339	17,163	7.1	8.4	-1,824	-10.6
5 to 13 years	32,955	36,675	15.3	17.9	-3,720	-10.1
14 to 17 years	16,897	15,854	7.8	7.8	+1,043	+6.6
18 to 24 years	28,166	24,455	13.1	12.0	+3,711	+15.2
25 to 34 years	32,044	25,146	14.9	12.3	+6,898	+27.4
35 to 44 years	23,076	23,214	10.7	11.4	-138	-0.6
45 to 54 years	23,642	23,254	11.0	11.4	+389	+1.7
55 to 64 years	20,064	18,603	9.3	9.1	+1,462	+7.9
65 years and over	22,934	19,972	10.7	9.8	+2,962	+14.8

\*SESA, Department of Commerce, released February 11, 1977.



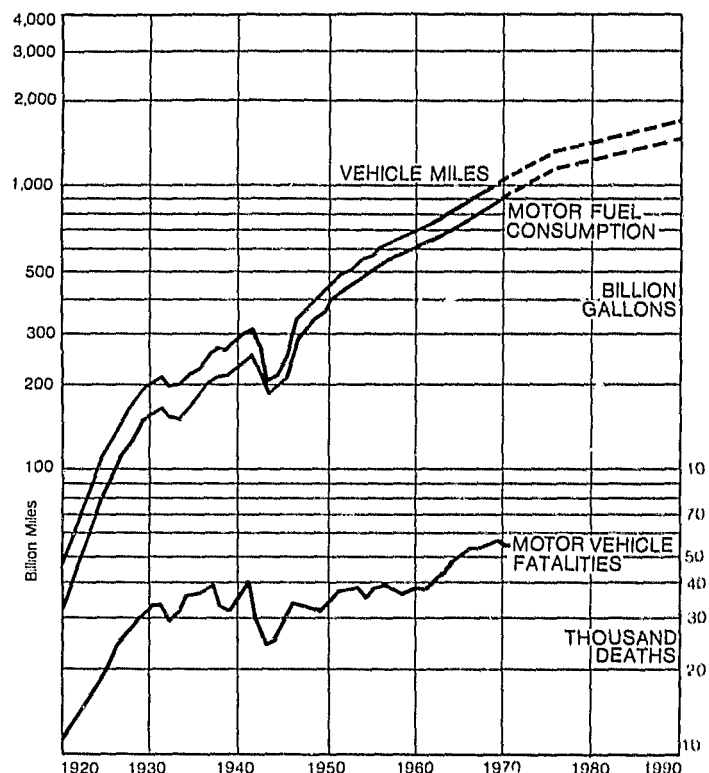


#### U.S. Motor-Vehicle Sales and Registrations

The top line represents the growth of private ownership of cars and trucks, as determined by the count of recorded registrations. The bottom line charts new-car sales. The American compulsion to keep rolling, come hell or high water, is evidenced by the negligible dips in the top line when new-car sales sagged precipitously during the Depression and when they actually plunged below the pre-World War I level during the World War II freeze on sales of all but essential vehicles. A chart of old-car rehabilitations would, of course, show corresponding peaks.

#### Prime Movers in the U.S. Economy (1900 and 1970)

Prime Mover	Horsepower	
	1900	1970
Railroads	18.7 million	54 million
Work animals	24.5	1.3
Factories (power on site)	10.3	54
Human energy	4	10
Aircraft	0	183
Mines	2.9	45
Central electric plants	2.4	435
Merchant fleet	1.7	22
Motor vehicles	0.1	19.325
	64.6 million	20.129 million



#### Motor-Vehicle Data

The Depression put a slight crimp in motor-vehicle travel (upper line), but it took the gasoline curbs of World War II (center line) to cause it to stagger. Otherwise the two (naturally parallel) lines for miles and gallons march onward and upward with monotonous regularity. The trend seems likely to continue for at least another twenty years; there is no likelihood that the internal-combustion engine will cease to dominate the roadways before 1990. By that time, total vehicular traffic will probably have reached 1.7 trillion miles. (For convenience, the scales of the two curves have been adjusted. Values for miles are on the left of the graph; values for gallons are on the right.) The lethality of the automobile is pinpointed by the death statistics which continue to pile up despite the innovation of safety devices and highway safety engineering.

#### Growth of Horsepower

The horsepower expended to keep America functioning has increased almost a thousandfold in the past eighty years. In 1970 the proportion of the total that was generated by motor vehicles dwarfed all the rest to a mere speck. (See Table )

The remarkable shift from beasts of burden as the largest source of power in 1900 to "horses under the hood" in 1970 truly reflects the motorization of America.

*Figures and Tables from Ralph E. Lapp, The Logarithmic Century (Englewood Cliffs, N.J.: Prentice Hall, Inc., 1973).*

## Appendix A

### A 1977-1997 National Perspective on Alcohol Consumption, Economic Losses, Energy Conservation and Highway Safety<sup>1</sup>

By Professor David J. Saari

1. Wheeling Into Hell
2. Policy Issues
3. Traffic Adjudication, Mediation and Arbitration Processes
4. Three Basic Traffic Programs Emerging
5. Federal Role in Highway Safety

The purpose of this essay is to assist in long-term, macro-policy development in highway safety at the national level. The essay describes the auto in American society and the policy implications related to liquor and driving. A broad review of policy issues, a new look at traffic social control processes and an abstraction of three basic traffic programs emerging in the states are outlined. A suggested federal role in highway safety is explained with reference to energy conservation and public health implications. The ultimate issue is explained in terms of the future 20-year period where thousands of lives, millions of accidents and billions of economic losses are projected.

#### Wheeling Into Hell

The ultimate importance of the subject is found in Dr. Ralph Lapp's book, *The Logarithmic Century*,<sup>2</sup> particularly his Chapter 2—*Hell on Wheels*. Two graphs from Lapp's book illustrate the scientist's view of growth of motor vehicle registrations, annual sales, vehicle miles, motor fuel consumption and fatalities.

His Table 2-2 describes prime movers in the U.S. economy in terms of horsepower, and the dominant position of motor vehicles. 19,325,000,000 horsepower out of 20,129,000,000 in 1970. Out of this data we should shape macro-policy judgments.

Lapp says that "human populations have not yet realized the significance of energy limitations, but awareness of finite fuel resources is just beginning to have an impact on man." (p. 7) He wonders how the United States will husband its resources in development of a prudent conservation policy towards energy. With a century of petroleum fuels ahead, Lapp asks what responsibility the present generation has to look at where it is going and begin to think about the ethics of exploitation. Even J.K. Galbraith's *The Affluent Society* (1958) bemoaned frivolous auto bodies while missing the gas tank. "No word appears about resource depletion of petroleum and fossil fuels which were the key to U.S.

affluence and which today add up to consumer fuel bills in excess of \$100 billion. Few reckoned the costs or bothered to heed Nature's warnings that it could endure only so much insult and no more." (Lapp, p. 253)

"How long can the United States, constituting only five percent of the world's population, continue to exploit such an inequitable proportion of its natural resources?" (Lapp, p. 218) We use over 33% of the world's energy.<sup>3</sup> About seven-tenths of the world's population is energy "poor"—it uses one-fourteenth of the fuel used by the energy "rich" which includes the United States. "If the 'poor' suddenly used as much fuel as the 'rich', world fuel consumption would treble right away."<sup>4</sup> The ethical foundation is premised upon the belief that America must come to terms with the rest of the world in fairness of energy use, but even more glaring is the grossly wasteful motor vehicle accident behavior which is the subject of this report.

Dr. Lapp, one of the scientists in the Manhattan Project which developed the first atomic bomb, is adamant about the automobile:

"If the automobile has been stressed repeatedly throughout this book, it is because the internal-combustion engine so vital to vehicular propulsion is playing such an impact role on the United States and other nations. Considering its resource consumption, its pollution potential, its suburbanizing effect, and its weapons character, I think one is justified in calling it the great self-destruct mechanism of the twentieth century." (pp. 239-40)

The result is that highway safety is at the core of an important goal for Americans. That goal is efficiency in the use of energy and other resources.<sup>5</sup> The national image we project—of drunken profligacy behind the wheel of a car—is an international deficit. Both domestic and foreign implications are obvious, but the ethical issue is paramount. A growing internal discipline of conservation is vitally important. Included as a key piece of conservation work is cutting down on car accidents and deaths and property damage. Of all governmental activities, the costs of government programs are minor compared with the benefits—deaths and accidents that never happen, and sober people driving cars in a safe way who keep working and do not have medical, hospital, lawyer, and repair bills and who enjoy living safely in our society. We must begin to see the

future more clearly, our options are not unlimited. If we "blow" \$37 billion a year in economic losses from traffic accidents, our children's choices will be far fewer. If we continue the squandering, the children may have no options. This essay examines such issues of paramount importance to American society. These issues are a tangled web woven of the triangle of man, car and liquor. Highway safety, energy conservation and public health matters are just as tightly woven together.

Consider living in a society where the following conditions exist:

- (a) Liquor is readily available everywhere night and day.
- (b) Passenger cars are readily available in the same way.
- (c) It is genuinely difficult to go to work, shop, get medical care, visit friends and socialize or party without using a car, except in some urban areas and only parts of those.
- (d) The car, job and economic survival are highly interrelated—even for problem drinkers.

Social control of drinking-and-driving behavior under these conditions in both urban and rural situations is facing an exceedingly complex set of real constraints. Solution to the problem of controlling drunken driving has defied the best minds so far. And the solution is likely to be only a partial answer with unknowns abounding in every direction or at every turn of analysis. Accepting these realities about the intractable nature of the problem, the search for solutions under these conditions must turn in new directions.

Additional factors should be kept in mind. Most people love their cars, many people love to drink moderately and are uncertain about the precise relationship of alcohol to them and their cars. People feel they have a right to drive which they equate with a right to survive economically in our society. Involuntary rationing—as in the 1973 energy crisis or voluntary rationing in World War II produced a major disturbance in the man-car-liquor triangle. Deaths dropped. Social control in the name of highway safety *alone* without a war or energy crisis is proving to be inadequate to motivate compliant driver behavior. As one adds energy conservation to highway safety, then driving behavior begins to take on increased significance to the ordinary shivering American after the cold spells of the 1976-77 winter season. The driver in America has never been convinced about the

seriousness of the traffic accident—even the serious accident. He takes it in his stride as a cost of living. He insures against it happening to him to reduce impact. Just like pollution, and because of the intractable nature of the problem, he has given up or is about to give up seeking solutions to the problems.

Perhaps energy conservation and highway traffic social control must be woven together to produce a new social interest or motivation. A case must be made, research should be performed to convince ourselves that it is in our best interests to control our behavior so that we can continue to enjoy the automobile. The energy conscious person who drinks to excess may rethink his behavior. The policy maker in an energy policy-making role needs to be realerted to the horrendous waste of the automobile accident world. The social control agents in the criminal justice systems can reevaluate their priorities in policing, prosecuting, defending, judging and correcting. Educators could reassess what they do when they teach about drinking and driving in terms of energy conservation connected to highway safety. Policy researchers could well define more clearly the costs and benefits in this area. We have seen just a bit of this thinking in development of the improvement of bumpers on cars and the resultant reductions in repair costs. This approach needs to be vastly expanded across the entire spectrum of drunken driving. Just as we have environmental impact statements for programs, we should develop energy conservation statements to programs which cost federal tax dollars but produce anticipated net energy benefits. This would be particularly appropriate in the social control of drinking-and-driving behavior where energy saving benefits would be great. One could argue that half of the \$37 billion in economic losses in 1975 could be cut out by improved control over drinking and driving.

Fundamentally, the premise in business and government has been to spend as little as possible on "non-productive" activities. This makes common sense. Controlling drinking-and-driving behavior is a "non-productive" activity, therefore the government should spend as little as possible on it. There are powerful political interests at every turn of the road. A similar argument goes for the \$16 billion spent on the federal, state and local criminal justice systems, although there has been over a decade (1965-1976) of rapid change and rethinking about the benefits and costs. In spending to control driving behavior in the name of highway safety, energy conservation or for humanitarian reasons, the "non-productive" nature of the expenditure must be

recalculated. The benefits in a system sense will become clear so that the expenditures do not seem out of proportion.

America is still learning to live with the automobile in 1977. All of the years since 1900 have taught us much but we are far from knowing it all. We may even know more than other nations where the automobile's introduction was later and is less pervasive. But we are and will remain children when it comes to the fundamental issues. And each generation must learn anew the lessons of the prior generation in a most wasteful driving pattern, especially in drinking and driving.

A start is needed of rethinking what we do to grasp the macro-implications of the drinking-and-driving problem. We are entering in the 1977-2000 period a profound change in automobile use, perhaps a massive switch to mass transit. But whether it would be wise to defer new programs for 20 years until the inevitable squeeze on private transportation systems is upon us, is debatable. We should consider the deaths—nearing a million over the next 20 years (which includes 500,000 deaths related to drinking-driving), the 500 million accidents, \$370 billion in economic losses and the \$400 billion to be spent on liquor. Rather than consider ourselves helpless in the face of such complexity, would it not be wise to double our efforts? Probably so, especially in view of the benefits.

The principal national energy conservation benefit of much stronger highway safety programs, particularly in the drinking-and-driving field, is the reduction of deaths, the reduction of injury and the reduction of property damage. The energy used in mopping up after car accidents is genuinely "wasted" resources for which the nation pays greatly. The energy used in 25,000,000 car accidents is spread across auto body repair shops, hospitals and many other service industries. Any concern for energy conservation which promotes both energy conservation, improved public health, and highway safety is a sound policy. There should be a research effort (a thorough study of the impact of costs) and relative benefits of reduced accidents in energy terms. If there were incremental decreases in deaths and crashes through a more effective dispute resolution in the drinking-and-driving field—each segment of decrease would serve to benefit both highway and energy conservation in a significant way. The costs of public programs such as NHTSA and NIAAA could be included in the overall analysis.

## Policy Issues

What are some of the significant policy issues which intersect in developing a common sense approach to effective, acceptable and reasonable social control over drinking-and-driving behavior?

Some issues of national significance relate to the excessive use of the criminal sanction in the legislation process which is called overcriminalization.<sup>7</sup> This phenomenon exists in 50 state capitols, and in local legislative bodies and the mentality pervades Washington, D.C. Overcriminalization affects traffic litigation in general, highway safety, and DWI cases. Witness the neutralizing forces of police, prosecutors, defense counsel and judges to protect the public from legislative insensitivity of more deeply-felt norms of justice and fairness. And consider the decriminalization of minor traffic cases—sending them to executive branch agencies in several jurisdictions in New York. Or consider the rise of the use of the idea of "infractions"—a clear reaction to the overcriminalized traffic code. And witness the rapid rethinking about the use of the criminal sanction in cases where the 6th Amendment right to counsel arises in misdemeanors where imprisonment is possible. This is the impact of the *Argersinger* decision of the U.S. Supreme Court since 1972. The use of jail to enforce legislative commands is taking a wholesale rethinking across the nation today, particularly as the right to counsel pervades the consciousness of the public and public funds now total almost \$250,000,000 a year nationally to provide some of the indigent defense. Thus, the rural and urban courts feel the search for alternatives to traditional methods of social control through ordinary traffic adjudication in trial courts. The American Bar Association and The Pound Conference of judges and lawyers reacted with a broadened, new concept of the American courthouse as a dispute resolution center. These forces swirl in no rational manner. But the undercurrent of forces is deeper than this.

For years, the therapeutic ideal has been divesting the penal ideal in American jurisprudence.<sup>8</sup> A look at the mentally ill, delinquent youths, psychopaths, addicts, alcoholics, and sterilization provided *Kittrie* with ample evidence to become concerned about unchecked power of the therapeutic ideal used in the criminal process. Alcoholism in the public drunk, or those civilly committed as alcoholics, is merely another facet of the \$18-\$20 billion annual liquor bill. It shows up in public form in drunken

driving and the area of driving while impaired and other alcohol-related traffic offenses. To punish too hard leads to neutralization as we have seen during the site visits of the Subcommittee on Alcohol and Adjudication of the National Highway Safety Advisory Committee under Judge Rupert Doan of the Hamilton County Courts in Cincinnati, Ohio. To embrace too fully the therapeutic ideal for sick people who drink and drive, leads to extensive state control over the lives of citizens often without regard to their rights.<sup>9</sup> It could lead to abuses in the name of therapy serving both health and highway safety, two goals linked in one action. Thus, the struggle to reexamine therapy for problem drinkers who drive, and the balance needed for penal sanction for social drinkers is an insoluble problem. The health-legal model is not a complete answer, but a vitally necessary ingredient. We have a divergent problem of balancing two aims which make one pursue mentally both forks of a "Y" simultaneously. A balance must be achieved to resolve these conflicts between therapy and freedom to be left alone.

Implicit in traffic cases, particularly in DWI cases, is the struggle between due process and crime control. Due process concerns are legal, they involve notice, right to be heard, counsel, etc. Fairness is dominant. Crime control concerns itself with law and order—it means that every offense detected leads to complete conviction and sentencing. It is a machine model and it is very popular as a simplified version of a much more complex real world. Crime control over DWI behavior would have to include the control of police, prosecutor, defense, and judicial behaviors. Both due process and crime control models<sup>10</sup> compete for dominance in the traffic field, particularly in the serious traffic offenses where the criminal sanction of jail or prison now exists and is likely to continue. Due Process concerns of the bar rise when a first offender convicted of DWI receives a one-year driver license suspension, loses his job because he cannot drive, goes on welfare with his family and a rippling impact of penalty cuts across from the convicted to those around him in a most serious way. The tug of war between the *need* to be fair and to offer due process, constitutional rights and justice on the one hand, and the *need* to control drunken driving as serious behavior which hurts and kills, sometime at random, will never be solved to everyone's satisfaction. A balance, again, must be struck between divergent due process and crime control.

Highway safety is a noble goal of government. Fairness to persons accused of violating the traffic laws is also a noble goal of government. These diverse aims can conflict seriously

when the urge to be efficient in ridding the highways of problem drinkers overwhelms the urge to be fair in the process of taking away the right or privilege to use the highways. Even the concept of highway use, is it a right or privilege, is not settled—especially where, in urban, suburban or rural areas, life and death depends upon personal transportation systems.

Mandatory penalties spelled out by the legislature struggle for recognition in the welter of police agencies, prosecutors' offices, defense counsel systems, and court systems across the nation. As previously noted, actor discretion is almost impossible to legislate out of existence in human systems, especially those of the size, diversity, plurality and ambiguity of the American Government. Shared power means shared discretionary judgment. There are no magic solutions, no wandwaving improvements to suggest to stop the continual imbalances in the excesses of either mandatory penalties or too liberal discretion. Saying we want a government of laws and not men means we want equal justice under law. But we want something more than mere whimsy for the police, prosecutors and judges. We want them to obey the traffic laws and enforce them for goals at least as important as justice—or perhaps equally important—life itself in terms of enhanced highway safety and energy conservation. In turn, we want legislators to temper their judgments with mercy and not punish excessively so that cruel and unusual punishments are not imposed in violation of the 8th Amendment of the U.S. Constitution. Thus, each linking aspect of government is limited and all should see their own limits for the sake of all the rest. In this way new balances could be struck among the legislatures, courts and executive agencies on the subject of traffic control and highway safety coordinated with other policy considerations of public health and energy conservation.

Judges in courts face an immediate need to decide issues of fact and law, determine guilt and pass sentence. The issue of centralizing judicial authority in the *vast* stretches of America by unifying courts has a surface appeal of simplicity and this the American Bar Association offers in its *Court Organization Standards*. On the other hand, the reality of the size of the nation, the need for justice at thousands of locations close to the people, the role of the state in improving local self-government, the pressure for home rule, the limits on use of lawyers in rural courts of limited jurisdiction, the improved education of lay judges and other factors make court unification an exceedingly difficult ideal to attain.<sup>11</sup> Most states have found the unifying approach

impractical. Some smaller states have tried partial unification, but nothing holds hope for improved traffic case processing merely through unification. Improved management in the state levels and local levels is probably more significantly helpful in the long run. And management can be improved in either centralized or decentralized operations of government. Lower courts with large numbers of laymen in rural areas particularly in Pennsylvania, are offering satisfactory justice in hundreds of locations. Management has brought improvement along with constitutional, legislative, administrative and other reforms. Thus the divergency of centralizing and decentralizing offers no solid hope in either direction to improve trial court functioning. The site visit to Colorado was convincing of the proposition that both centralizing and decentralizing strategies can be made to work well together to produce an improved traffic case processing.

The policy factors include a number of divergent goals—(1) overcriminalization vs. decriminalization, (2) excessive discretion vs. too little discretion, (3) defense counsel vs. no legal dispute, (4) therapeutic ideal vs. penal ideal, (5) due process vs. crime control, (6) right to drive vs. privilege to drive, and (7) centralization vs. decentralization of judicial branches. As balanced positions are achieved on these divergencies, a state can begin to achieve a new policy orientation towards traffic adjudication, energy conservation and public health in alcoholism and alcohol abuse. Separate from these divergency issues is the question of process. What is going on in traffic adjudication? Something else—other than adjudication in process terms? More importantly, what processes do we want to prevail?

### **Traffic Adjudication, Mediation and Arbitration Processes**

Traffic adjudication may need to be rethought in terms of the basic processes. In the April 1976 Pound Conference (jointly sponsored by the Judicial Conference of the United States, Conference of Chief Justices and The American Bar Association), there began an exploration of new ways to handle "minor disputes". Chief Justice Burger called for this in his keynote speech.<sup>12</sup> Other speakers questioned whether courts were overloaded with too much expected of them.

Others urged dispute resolution process more nearly in accord with the nature of the dispute, the relationship between disputants, the amount in dispute, the cost and speed of resolution. In addition to adjudication, human differences are resolved by arbitration, mediation, conciliation, negotiation, avoidance, investigation and administrative process with an adjudication feature. Traffic adjudication processes may be changing drastically so that mediation or arbitration more clearly characterize the process especially where much of the traffic code is "infraction"—neither felony nor misdemeanor. The important point is that a concept of the American courthouse as a dispute resolution center is arising where all of these conflict resolution processes are used, not exclusively adjudication. And in this situation, the current Attorney General, Griffin B. Bell, chaired a group in the American Bar Association, and issued a *Report of Pound Conference Follow-Up Task Force* in August 1976. In the report there is a call in clearest terms for "development of models of Neighborhood Justice Centers...such facilities would be designed to make available a variety of methods of processing disputes, including arbitration, mediation..." (p. 1). While this idea has urban roots, its applicability to traffic case processing in the NHTSA Seattle SAFE project and its suburban extension, or the Rhode Island NHTSA project is clear. Different processes for different kinds of disputes are needed. Traffic cases are being handled in new ways. In other areas, alternatives are being sought in drug treatment by physicians. Alternatives to conventional adjudication for processing minor (non-traffic) misdemeanors is a movement well underway in terms of experimentation. For minor criminal cases, there is a major revolution changing both overcriminalization and decriminalization, settling or screening of cases, diverting of cases and alternative processes to avoid traditional adjudication.<sup>13</sup> This same experimentation is evident in the traffic field.<sup>14</sup> Thus, the solutions of transferring urban process models while the models themselves are undergoing rapid transformation and the uncertainty of the nature of the real processes in the rural setting in traffic requires additional research to clarify exactly what is happening. It is probably accurate at this time to say that the urban/rural distinction is no barrier to transferring ideas in either direction, but very careful attention to the factors of the rural setting must be borne in mind in transferring models, especially in the rural direction. No simple assumption of transferability can be made.

## Three Basic Traffic Programs Emerging

What national pattern of highway safety legislation is emerging to fundamentally reshape process approaches to traffic justice?

Three basic norms are arising:

1. For Driving While Intoxicated and Related Alcohol Offenses
2. For violation of more serious traffic laws: Reckless Driving, Excessive Speeding, etc.
3. For violation of every other provision of traffic codes.

Because of national concern over energy conservation, speeding excessively carries with it not only a disregard for the rights and safety of others, but it wastes precious fuel. This illustrates the changing nature of our attitudes towards driving behavior. Our society will probably be placing more rather than fewer controls over highway traffic in the name of safety and conservation, but none of this would upset the concept of three norms developing for traffic control. This analysis is prepared for a national perspective on problems of rural courts, but it is probably applicable to the entire nation and is intended to be understood that way.<sup>15</sup>

### Program No. 1 Driving While Intoxicated and Related Charges

What is emerging here is the following picture:

- Increased analogizing to control over communicable diseases, especially for repeat DWI problem drinkers. Special due process concerns will arise to ensure fairness.
- Increased recognition of liberality towards the first offender in terms of reduced sanction severity.
- Increased levels of fines, jail sentences and license suspensions and revocations for habitual offenders.
- Increased alternative sanctions such as permanent or temporary confiscation of the vehicle or vehicles owned by the repeat DWI offender.
- Increased concern to provide due process for habitual offenders in courts of record, with lawyers as judges or well-trained laymen in proceedings attended by prosecutors and defense counsel.

- Increased use of the jury system to offset increased "hardening" by the state towards DWI.
- Vastly heavier use of alcoholism experts to work with problem drinkers, an expansion of social services of an intense variety for problem drinkers.
- A broadening and deepening of our knowledge of alcoholism in professional, academic and research senses, as well as vastly increased public knowledge about the realities of alcohol and driving in terms of normal effects on human behavior. A practical sense of limits will be developed and taken seriously by a better-educated public.
- An expansion under coordinated federal, state and local programs to provide centers to serve as educational centers, catchment locations for professionals serving the courts and for other purposes to enhance technology transfer to the community for all dealing with alcoholism.
- A recognition that alcohol drinking and driving is held a serious urban and rural offense.
- A potential for "take-over" by all states of the prosecution and adjudication of the DWI and related charges as a matter of "state concern" transcending home rule concerns.

To summarize Program 1 for DWI, the social pressure on the drinking driver will very likely increase.<sup>16</sup> Not only more sanctions, but more due process, and heavier social services. Everything legal will be more legal, everything in services more professional. The social defense theme will be dominant—deterrence, rehabilitation will be subdued and social defense will overcome many objections to expansion of controls. The need for highway safety alone will drop into the background as justification for increased social control over drinking-and-driving behavior of a serious repeated nature. It will be joined by energy conservation and public health claims and strategies.

### Program No. 2 Other Serious Traffic Offenses

This area will become changed nationally. What offenses are in, what are out? The national consensus will improve with time. The future holds about the same

here—increasingly legal in orientation, increasingly professional in tone with much of the same characteristics as Program No. 1. All factors will be less stringently clear compared with Program No. 1.

### Program No. 3 Traffic Offense-Moving and Non-Moving

There will be a resorting of each minor offense and its relationship to the sanction of jail. Overcriminalization or overreach of the criminal law will run headlong into decriminalization, either full or partial in nature. The concept of infraction will be expanded and enlarged in our vocabulary. It will dominate in this non-therapeutic, non-penal field of social control resting primarily on social defense principles.<sup>17</sup> Hearing Officers, that is new personnel models will emerge such as Driving Specialists. Non-Crime is the basic view—no criminal orientation. No juries, no social services, greater informality, little thinking of due process, a decrease or non-use of the point system, no jail, minor fines if any—all of these will join together in mediative or arbitral processes. Trained laymen will occupy all roles. There will be little judicial branch activity—almost exclusively will the Executive Branch function in traffic infraction control at state, county, city levels. Identical policies for city, suburbs and rural areas will prevail. Educational views will dominate in correction. Social efficiency is the goal here.

These three program descriptions are mere outlines of programs which seem to describe the realities emerging in the states. The tests of relevance towards policy development in the highway safety field are these:

1. Does the three-program concept respond to current and future general environmental factors external to the NHTSA and DOT and to internal environmental factors?
2. Does the three-program concept respond to Congressional, Executive Branch and judicial needs?
3. Is the three-program concept sensitive to federal-state relations?
4. Does the three-program concept pull the highway safety work of DOT into a new focus?
5. Does the three-program concept fit in compatibly with other government programs related to alcohol—NIAAA, LEAA, NIMH, etc.?

Table 2

Classical	Positivist	Social Defence
Moral blameworthiness and free will	Determinism, no moral guilt	Individual responsibility and free will
Legal protection of civil liberties	No legal protection of civil liberties	Protection of civil liberties
Legal definitions of crimes	Social definition of crimes	Legal plus social definitions of crimes
Values from ethics	Scientific studies	Science plus values
Criminal law retained	Criminal law ignored	Criminal law revised with sociological concepts
Punishment and deterrence	Protect society and reform the criminal	Treatment of individual offender

### Federal Role in Highway Safety

**Should the federal government rethink its role in highway safety and whether or not it could enhance its effectiveness in both rural and urban areas?**

The National Highway Traffic Safety Administration (NHTSA) was established by the Highway Safety Act of 1970 to carry out a Congressional mandate to reduce the mounting number of deaths, injuries, and economic losses resulting from traffic accidents on the nation's highways. NHTSA issues safety standards for states and communities to consider. An 18-volume Highway Safety Program Manual has been issued by the United States Department of Transportation to assist state and local agencies in implementing the standards. New standards, eight published in the Federal Register in 1972, incorporate key findings and recommendations of NHTSA's research and demonstration programs. In 1977, the Congressional mandate, the fund flow of NHTSA, and the standards and programs confront a reality of inescapable seriousness. Without macro-policy approaches towards highway safety, the highways will remain unsafe, especially because people drive and drink almost with impunity. As explained earlier, the global approach asks about the relative relationship of NHTSA, annual car sales, cars licensed, liquor sold, economic loss, drivers driving and other data. *Every number in the data series is in the Billion range or over \$100 million except for car sales. The smallest monetary number is the NHTSA budget in the \$30,000,000 range.* As a consequence, it is possible to conclude that the disproportion in that relationship may have something to do



with the ultimate effectiveness of NHTSA in both the long and short haul. This, in turn, affects rather seriously the rural justice issues before the Subcommittee on Alcohol and Adjudication.

A definition of the problem must include a 10-year look ahead. Assume that passenger cars stay at the 100,000,000 level, that 120,000,000 drivers are licensed and that 25 million motor vehicle accidents occur each year and that 45,000 persons die in auto accidents. Also assume that \$20 billion is spent on liquor each year. Assume economic losses at \$37 billion a year.

This static projection gives no increases to passenger cars, drivers licensed or liquor consumed. It does not take inflation into account. It merely points out the gross disproportion between public response and the size of the problem. It calls for nothing more than a slightly refined analysis of the next 20 years to decide—shall we spend \$700 million on highway safety with little to show for it in terms of ultimate impact, or shall we spend nothing? Or, shall we become realistic and spend according to some long-range plan which makes sense and is sensitive to the magnitude of the problems encountered? If for no other reason than the need to conserve energy consumed by 500 million car crashes and 900,000 deaths from 1977-1997, forgetting the

humane impulses at work here, it would make good, practical, down to earth common sense to ask ourselves how much longer we can afford to be the most wasteful nation on earth. The issues of highway safety, rural and urban justice and energy conservation are intertwined in a complex manner. The automobile has almost brought down the American judicial branches in terms of human conflict being resolved through traditional means in both civil and criminal courts. The Congressional and state efforts to pass no-fault legislation is mere patchwork compared with the head-on assault in the highway safety alcohol and adjudication field which could be envisioned. At some point, if enough lights turn on in enough heads it may be possible to see what we are doing to ourselves in this nation. What we have done pitifully is to learn to live with the automobile, especially its grimmer side. The generations since 1900—only three—1921, 1942 and 1963 have failed to understand the global consequences of their behavior in the auto accident field. The next generation in 1984 and the next in 2005 will wonder why so little was done to stop such harmful and wasteful behavior. If we think more can be done then elevated funding levels need to be built into the federal response in NHTSA towards one of the nation's most serious problems. And corresponding program changes need to be devised.

#### Cumulative Straight Projection—20 Years

1977 (one year)	1987 (10-year accumulation)	1997 (20-year accumulation)
25 million accidents	250 million accidents	500 million accidents
45,000 deaths	450,000 deaths	900,000 deaths
\$20 billion for liquor	\$200 billion for liquor	\$400 billion for liquor
\$35 million NHTSA	\$350 million for NHTSA	\$700 million for NHTSA
\$37 billion economic losses	\$370 billion economic losses	\$740 billion economic losses

## **Appendix B**

### **Excerpts from Second Special Report to the U.S. Congress on Alcohol and Health New Knowledge from the Secretary of Health, Education and Welfare**

**June 1974**

The economic loss data is based upon *The Economic Cost of Alcohol Abuse and Alcoholism* (1971) by Ralph E. Berry, Jr. et al. for the National Institute for Alcohol Abuse and Alcoholism (PB - 242 270). Further analysis is to be found in *The Economic Cost of Alcohol Abuse* by Ralph E. Berry, Jr. and James P. Boland published in 1977 by the MacMillan Free Press. A third report to Congress is now under development and the data estimate for motor vehicle accidents in 1975 will approximate \$6 billion again.

*About 25 billion dollars is estimated as the economic cost to society of alcohol misuse in the United States in 1971. The main losses were incurred through reduced production, illness, and traffic accidents.*

*Imperfections in data and methods require that this estimate be regarded as a first approximation rather than a precise value.*

### Chapter III

## Economic Costs of Alcohol-Related Problems

A recent study of the economic effects of alcohol-related problems in the United States estimated, for the year 1971, a loss to society of over \$25 billion (3). The estimate (table 1) was based on an analysis of six areas of social behavior which past or current research had explicitly or implicitly identified as sources of significant economic costs that might be related to misuses of alcohol.

One cost estimate was developed for the market value of the lowered production of adult male workers with alcohol problems. Also, the costs to society in the form of output required in 1971 because of the socially dysfunctional effects of alcohol misuse and alcoholism were estimated separately for motor vehicle accidents and for health problems. The study estimated that over \$23 billion of the quantifiable costs occurred in these three areas. Finally, estimates were also prepared of the costs of alcohol-related programs, costs to the criminal-justice system for alcohol-related offenses in 1971, and costs of the social-welfare system related to alcoholism. An effort to assign a portion of the economic cost of fire losses to alcohol misuse did not succeed owing to the lack of adequate reliable data.

A comprehensive economic evaluation of the effects of the production and consumption of alcoholic beverages would take account not only of the costs to society associated with their misuse but also of numerous economic benefits arising from their use. This could not be accomplished in the present study. Thus, while health and medical costs of misuses have been calculated, the possible value of health-

promoting uses has been left out of the account. A further limitation of its scope is that no account is taken of the value of personal and social gratifications from use, or of the emotional sufferings caused by misuse; no attempt has been made to measure these human effects in economic terms. The present study, thus, is limited to an attempt to quantify only the economic costs of alcohol misuses and alcoholism.

Economic cost was defined as "the value of output of production that must be foregone by society because of alcohol misuse and alcoholism" (3). Costs arise from the socioeconomic process of allocating limited resources to meet, through the production of goods and services, the unlimited wants of society. If economic resources are reduced by or reallocated to alcohol-related effects, the economic cost to society is the value of the output which the resources would have produced if it had not

TABLE 1  
ECONOMIC COSTS OF ALCOHOL MISUSE  
AND ALCOHOLISM, U.S.A. 1971

	Billions of Dollars
Lost production	\$ 9.35
Health and medical	8.29
Motor vehicle accidents	6.44
Alcohol programs and research	0.64
Criminal-justice system	0.51
Social-Welfare system	0.14
Total	\$25.37

Source: Berry et al. (3).

**TABLE 2**  
**ECONOMIC LOSS DUE TO DIMINISHED PRODUCTIVITY OF MEN, U.S.A. 1971**

Age of Head	Estimated Number of Families (1000's) <sup>a</sup>	Percent of Families with Problem-Drinking Men <sup>b</sup>	Estimated Number of Families with Problem-Drinking Men (1000's)	Mean Gross Deficit in Family Income of Problem-Drinking Men <sup>b</sup>	1968 Estimate of Economic Loss of Problem-Drinking Men (billions of dollars)
21-29	7,197	21%	1,314.9	\$1,011	\$1.329
30-39	10,744	13	1,243.1	1,860	2.312
40-49	11,506	12	1,228.8	2,356	2.895
50-59	10,063	11	974.1	1,565	1,524
1968 Estimated Total					\$8.06 Billion
Adjusted 1971 Estimated Total <sup>c</sup>					\$9.35 Billion

<sup>a</sup> Derived from Statistical Abstracts of the U.S. (22), Table 54, p. 41, 1971.

<sup>b</sup> From Cahalan and Room (5).

<sup>c</sup> To adjust for inflation, the 1968 estimated total of \$8.06 billion was multiplied by the percentage increase in the Consumer Price Index (16 percent) between 1968 and 1971.

been for alcohol misuse and alcoholism. The measurement of economic cost is greatly facilitated if the market prices are available for the resources which are either reduced or reallocated as a result of alcohol misuse. Because the general understanding of the relationship between alcohol and various behaviors is in a comparatively primitive state, however, estimates of the costs of some possibly significant aspects of behavior could not be formed. As a result, the estimate of loss of about \$25 billion in 1971 due to alcohol misuses may be conservative. Some considerations which would suggest that this amount may constitute an overestimate, as well as still other elements of underestimate, will be dealt with below.

#### Methods

The study was a pioneering attempt to derive systematic quantitative economic cost estimates based on the observed behavior of people with alcohol-related problems. Ideally, cost estimation is a two-stage process: First, research identifies and quantifies specific behaviors which can be attributed to alcohol misuse and alcoholism. The behavioral data are then analyzed from

an economic perspective. This process was followed as closely as possible.

Two variations of the method were employed: (a) Behavioral research on alcoholism was surveyed and the economic costs of that illness were estimated; (b) cost studies of other alcohol-related behaviors were analyzed and a proportion of the costs was allocated to alcohol misuse and alcoholism.

The conclusions follow, separately, for each of six main identified cost areas.

#### Lost Production

The largest single area of economic cost—amounting to \$9.35 billion—was the lost production of the goods and services which could be attributed to the reduced productivity of alcohol-troubled male workers.

The cost of lost production was estimated on the basis of observations of the difference in earnings of families with and without problem drinkers. The estimate was limited to a 1-year period (1971) for noninstitutionalized men aged 21 to 59. A summary of the information and findings is presented in table 2. The study

includes, possibly for the first time, estimates of lost production derived from data on people with drinking problems in the general population rather than only those seen in treatment environments, and taking into account age and income as well as prevalence. It was not possible, however, to take into account other factors, such as ethnicity, region, urbanization, parents' status, psychiatric disablements other than problem drinking, and some other factors which may also be related to both income and drinking problems.

Another important aspect of the present lost-production estimate is that it was prepared from the perspective of society as a whole. Many individual firms and large organizations, including the Federal Government, have conducted studies on the relationship between employees' wages and their productivity and have generally employed alcohol misuse as a factor in lost production.

Pell and D'Alonzo (19) have clearly outlined the source of lost productivity among alcohol-troubled workers:

The cost of alcoholism to industry is made up of several components, including loss of efficiency, absenteeism, lost time on the job, faulty decision making, accidents, impaired morale of co-workers, and the cost of rehabilitation programs. A large significant portion of the economic impact of alcoholism also includes premature disability and death, resulting in the loss of many employees in their prime who have skills that are difficult to replace.

However, the cost of production as estimated by an industry is necessarily limited. In general, it does not include the cost of the unemployed worker. Nor need it even consider the costs of the reduced productivity of alcohol-troubled workers if their wages are reduced correspondingly, and there are indications that such downward adjustments in the pay of problem drinkers do occur. Society, on the other hand, must include the costs of reduced production by all these individuals in its estimate of the costs of alcohol-related problems. Although the wider view was taken in the present study, the estimate is not completely general. The information about some groups within society is too

inadequate to allow cost estimates based on their characteristics and behavior.

The lost or reduced production of women, and of alcoholic persons who are institutionalized or living on skid row, is not included in the \$9.35 billion estimate.

The economic cost of the lost production among women is probably substantial. For several reasons, however, these costs cannot be easily calculated: (a) No reliable market prices are available which would indicate the value of women's services in household or nonmarket production. (b) There is no reliable estimate of the actual number of alcoholic women; estimates range from 900,000 alcohol addicts (9) to as many as 4.5 million problem drinkers (3). (c) There have been no systematic studies of the changes in the economic roles of family members under the impact of either an alcoholic wife or husband. Thus any estimate at this time of the cost of lost production among alcoholic women would be little more than conjecture.

Similar difficulties apply to any attempt to estimate lost production costs among institutionalized and skid row problem drinkers.

While these latter insufficiencies indicate that the amount entered in tables 1 and 2 as the cost of diminished production is an underestimate, an important caution must be entered here. To begin with, no allowance has been made for the losses that would presumably have occurred in the same population even in the absence of any drinking problem—for example, because of other psychiatric disablements. This consideration gains force from the hypothesis, as enunciated by Schuckit (20), that for some people—men in particular, in contrast to women—alcoholism represents a "choice of symptoms" as against an affective disorder. Further, the present estimate is based on comparing income of families of men exhibiting some drinking problems with income of families of men not having such problems, controlled only for age, and all the difference is assigned to the drinking problem. This leaves at least three important components out of account: (1) Since a sizable proportion of alcoholic persons are unmarried, the use of family income as a base tends to inflate the resulting loss value. (2) There may be factors other than age which are related to both drinking problems and income. For example, members of some ethnic and religious groups with relatively high rates of problem drinkers are also more likely to be workers in occupations

with lower status and income. (3) The method used herein simply attributes all reduced income of problem drinkers to the misuse of alcohol. But it is of course possible that some misuse of alcohol is caused by socioeconomic disadvantage as manifested in lower income. These various factors, not allowed for in the present estimate, render it to some extent an overestimate. There is no basis at present for gauging to what degree the overestimating and underestimating factors may balance each other. All that can be said is that the estimate of a \$9.35 billion loss of production is the best that can be derived from the presently available data. It should be thought of as a first approximation. Intensive study of a multiplicity of relevant factors, and critical refinements of methodology, will be needed to formulate a more satisfactory estimate.

### Health and Medical Costs

Treatment for alcohol-related conditions accounted for more than 12 percent of the \$68.3 billion health bill (8) for adult Americans in 1971. Approximately \$8.29 billion was expended for alcohol-related health and medical problems, making this the second largest component of the economic costs of alcohol misuse, problem drinking, and alcoholism.

Included in these costs are expenditures for the major types of health care and for medical construction, training, and education. These expenses are adjusted so that they reflect only the share attributable specifically to alcohol-induced problems. Account was taken of the costs for medical care that these patients would have been expected to incur even if they had not been impaired by alcohol, and these were excluded in arriving at the final estimate of \$8.29 billion.

Of the \$8.29 billion expended for alcohol-related health services, \$5.3 billion was for hospital care; \$0.9 billion for physicians' services; nearly \$0.3 billion for drugs; and more than \$1 billion for administration and construction. The \$5.3 billion for hospital care is nearly 30 percent of the total hospital expenditures for adults in 1971.

Three independent sources of information were analyzed in the health-medical cost estimate. The literature on the relation between

alcohol and medical care utilization was surveyed; the information system of the Nation's Alcoholism Treatment Centers was used to obtain data on hospital utilization by alcoholic patients; and field interviews were conducted among medical and health experts in the alcohol field to obtain estimates of health-care utilization by the general alcoholic population. The weakness of the bases for estimating utilization is recognized, and more reliable sources and methods should be developed in future research.

Expenditures for dental care were not included. Field interviews established that problem drinkers use fewer dental services than the general population. This appears to be reflected in the poorer dental health of alcoholic persons (15, 16).

### Motor Vehicle Accident Costs

The third largest economic cost associated with alcohol misuse is that proportion of the costs of various types of motor vehicle accidents which can be attributed to that cause. It comes to \$6.44 billion. A review of the literature suggested that the appropriate dividing line at which responsibility may be attributed to the presence of alcohol is the finding of a blood alcohol concentration of 0.05 percent or higher in the driver or pedestrian (4). This appears to be the dividing line at which the likelihood of being involved in an alcohol-caused accident begins. In this section, therefore, "alcohol misuse" indicates such a finding.

Three types of accidents were studied: fatal, personal injury, and property damage.

Based on data supplied by the National Highway Traffic Safety Administration, alcohol misuse contributed to 43 percent of the non-pedestrian traffic fatalities (19,000 deaths) in 1971; 38 percent of the adult pedestrian fatalities (2,700 deaths); 14 percent of the personal-injury accidents; and 6.8 percent of the property-damage accidents. Thus, about 40 percent (21,700) of the motor vehicle deaths were believed attributable to alcohol in 1971. This estimate does not include nonadult pedestrian deaths or any sober adult pedestrians who may have been killed by drivers under the influence of alcohol.

When these accident proportions are applied to the National Highway Traffic Safety Administration's estimates of costs in each category,

the cost of alcohol-related accidents can be determined as follows:

Fatal accidents .....	\$ 3.56 billion
Injury accidents .....	2.38 billion
Property damage .....	0.50 billion
Total .....	\$ 6.44 billion

Other sections of the study, such as those on lost production and health and medical costs, undoubtedly include some expenditures which rightfully belong in the motor vehicle category. Double counting could not be avoided completely and this may have inflated the estimate, although care was taken to estimate these costs conservatively. It is, however, the assignment of the cost of any accident in which the driver or pedestrian had a blood alcohol concentration of 0.05 percent to alcohol misuse that introduces a possibility of error on the side of overestimation. The assumption that the person with any blood alcohol concentration—even higher than 0.05 percent—was at fault in an accident is clearly arbitrary. In two-vehicle or automobile-pedestrian accidents the other person, or both, could be at fault. Moreover, 0.05 percent is the lowest blood alcohol concentration at which motorists are thought to be impaired.

In most jurisdictions the criterion of impairment is set at 0.08 percent, 0.10 percent and higher. From this viewpoint the \$6.44 billion estimate represents a maximum. The development of more precise information on joint or "other person" culpability, as well as a more rational basis for using a presumptive blood alcohol level other than 0.05 percent, with supporting data on incidence of other blood alcohol levels, will allow a more confident estimate of the costs of traffic accidents attributable to alcohol misuse. Thus the present estimate should be regarded as the best first approximation that could be developed at this time.

#### Program and Research Costs

The expenditures for alcohol and alcoholism-related programs, including diagnosis, treatment, rehabilitation, prevention, education, and research, were estimated to have totaled approximately \$0.64 billion in 1971. Federal, State, and voluntary private agency budgets were reviewed to obtain these cost estimates.

The tremendous surge of interest in and awareness of the problems of alcohol since 1971 has resulted in increased program expenditures. Estimated Federal Government expenditures for alcoholism programs in 1971 were \$127 million. Since that time, new agencies, including the National Institute on Alcohol Abuse and Alcoholism, have been created, and more funds are being allocated especially for alcoholism treatment programs, so that current expenditures are substantially greater.

#### Costs to the Criminal-Justice System

The study estimated that violent and anti-social behavior linked to alcohol misuse cost the Nation's criminal-justice system more than half a billion dollars in 1971. This amount represents a small but not inconsiderable proportion of the \$10.5 billion expended by the police, courts, and correctional institutions in that year (21). These estimates represent only the costs to the criminal-justice system, not any costs of the crime to the victim or to the perpetrator.

No presumption was made that alcohol is the causal agent of any crime. Nonetheless, it is recognized that a certain proportion of all crime that comes to the attention of the authorities has some alcohol involvement. As the National Commission on Causes and Prevention of Violence (17) has put it, "No drug, narcotic, or alcoholic beverage presently known will, by itself, lead to violence. Nevertheless, these substances may, through misuse or abuse, facilitate behavior which may result in violence to persons or property."

Costs were determined first by reviewing the literature on alcohol and criminal behavior. The reports indicated that alcohol is frequently associated with certain violent crimes such as homicide, assault, and rape. Other offenses, such as drunkenness, disorderly conduct, driving under the influence of alcohol, and vagrancy, were classified as 100-percent alcohol-related, but liquor-law violations were excluded entirely from this accounting, since they do not bear on alcohol misuse. In 1971, violent crimes associated with alcohol, and the 100-percent alcohol-related offenses, accounted for 3.6 million arrests, equal to 41 percent of all arrests.

Cost estimates were assigned on the basis of determining what percentage of the various crime categories could be attributed to alcohol. The number was then multiplied by average cost

TABLE 3  
SUMMARY OF ALCOHOL-RELATED COSTS TO THE CRIMINAL-JUSTICE SYSTEM, U.S.A. 1971

		<u>Violent Crimes</u>	<u>100 Percent Alcohol Related Offenses</u>
<u>Police</u>			
Cost per case	\$17.80		
Total for alcohol-involved arrests		\$236.9 million	\$ 58.6 million
<u>Court</u>			
Cost per case	\$4.69		
Total for alcohol-involved procedure		\$ 28.1 million	\$ 15.4 million
<u>Jail</u>			
Cost per day per inmate	\$6.10		
Total for alcohol-involved inmates			\$ 71.4 million
<u>Prisons</u>			
Cost per day per inmate	\$6.00		
Total for alcohol-involved inmates		\$ 76.2 million	
<u>Other</u>			
Crime prevention (alcoholism rehabilitation)			\$ 25.0 million
<u>Grand Total</u>			<u>\$511.5 million</u>

data for arrests, trials, and incarceration in each category.

Drunkenness, driving under the influence, disorderly conduct, and vagrancy were found to have cost \$74 million in the year 1971. This is based on the finding that there were 3.3 million arrests for those offenses that year, and on an estimate (7) that police and court costs for each arrest came to \$22.49 per offense. More than \$71.4 million was expended for incarceration as a result of these nonviolent crimes. The estimate of police and court costs per arrest was based on findings in a study conducted for the City of Phoenix, Arizona (7), and to the extent that these costs may not be representative for the entire country the estimate would have to be modified. At the present time the Phoenix study is the only one that provides a basis for formulating a reasonable estimate.

An association with alcohol was recorded in 64 percent of all murders (26), 41 percent of all assaults (18), 34 percent of all forcible rape (1), and 29 percent of all other sex crimes (12).

Arrest and court costs for violent crimes were calculated as follows:

	<u>Police cost</u>	<u>Court costs</u>
<i>(In millions of dollars)</i>		
Criminal homicide . . .	\$ 13.5 . . .	\$10.8
Aggravated assault . . .	209.5 . . .	15.5
Forcible rape . . . . .	13.9 . . .	1.8
Total . . . . .	\$236.9 . . .	\$28.1

Nearly 35,000 persons were incarcerated for violent crimes associated with alcohol use during 1971. The estimated average cost of maintaining a person in prison is \$6 per day (24) and in jail, \$6.10 (25). When multiplied by the 34,805 alcohol-involved prisoners, the cost of the imprisonment is \$208,830 per day or \$76,222,950 per year. The loss of income by these prisoners has not been taken into account. On the other hand, this estimate has assumed that each of these persons was in prison a full year.

In addition to these costs, and based on an estimate of the U.S. Office of Management and Budget (23), \$25 million was assigned as the cost of crime prevention or alcoholism rehabilitation activities by the criminal justice system.

The total costs are summarized in table 3.



## Social-Welfare System Costs

Alcohol-related expenditures by the social-welfare system can be divided between two categories: social-services costs and transfer payments. Transfer payments represent a transfer of income to the needy in order to arrest the decline in the standard of living of one whose job may have been lost because of alcoholism. These payments, except for administrative costs, are not additional economic costs. They do not measure reduced or foregone output, which is measured directly by the amount of the total reduced earnings of workers. However, these income maintenance payments do have social and political significance, for they represent a financial burden to the taxpayer. If these payments were not socially mandated, the funds could have been used for alternative purposes, either by the taxpayer or the appropriate level of government. Income-maintenance payments attributable to alcoholism were estimated to be \$2.2 billion in 1971.

Social-service costs which do meet the criterion of economic cost totaled some \$135,100,000 during 1971. The social-service costs were incurred in the areas of child welfare and special welfare. This amount probably represents only a fraction of the economic cost of the weakening and, in some cases, the total disruption of family structure under the impact of alcoholism.

Social and related research has begun to identify some of the destructive effects of alcoholism on the family. Some of these effects may have complex economic as well as social implications. Chafetz et al. (6) found marital instability in 41 percent of the families of alcoholic persons. As many as 15 to 20 percent of all applications to some family-service agencies involve a drinking problem (2), and the family court in New York City has been reported to estimate that 40 percent of the problems brought to it are directly or indirectly attributable to problem drinking (11).

## Economic Cost of Fire

Preliminary research suggested that a considerable portion of the more than \$4.5 billion (10)

suffered in property loss and expended to combat fires in 1971 might be attributed to the misuse of alcohol. For example, one study (13) attributed more than 80 percent of all fire-related deaths in Memphis over an 8-year period to alcohol. Another study (14) tentatively concluded that "alcohol was a major contributor in approximately 30 percent" of 89 fires in which fatalities occurred during a 2-year period: "Smoking was established to be the major ignition source in approximately 50 percent of the fires, but alcohol was present in significant quantities in 60 percent of the 'smoking' fires." The data are suggestive, but the existing studies are not extensive enough to allow the development of cost estimates attributable to alcohol misuse; such estimates were therefore not included in the present study.

## Summary

The adverse effects of alcohol misuse impose a significant economic burden on society. It is not possible at present to place a reliable economic value on all adverse effects—such as broken homes and disturbed children. And because of insufficient data or still inadequate methodology, it is not yet possible to arrive at a cost value of certain effects in which the economic component is obvious, such as fires or loss of production in homemaking. In six areas, however, estimates could be developed of the costs of alcohol misuse in the United States in 1971. The cost assigned to lost business-industrial production was \$9.35 billion, to health-medical services \$8.29 billion, to traffic accidents \$6.44 billion, to the criminal-justice system \$0.51 billion, to the social-welfare system \$0.14 billion, and to alcohol-related programs and research \$0.64 billion, for a total of \$25.37 billion. Some factors which would cause under- and overestimations in the three largest categories could not be taken into account, nor was account taken of any counterbalancing beneficial effects of alcohol use. These estimates should therefore be regarded not as precise values but as reasonable first approximations, for the present, of the economic costs of alcohol misuse. They represent, moreover, a distinct advance in understanding, as well as a foundation for continued study.

## REFERENCES

- (1) Amir, M. Alcohol and forcible rape. *Br J Addict*, 62:219-232, 1967.
- (2) Bailey, M.B. The family agency's role in treating the wife of an alcoholic. *Soc. Casework*, 44:273-279, 1963.
- (3) Berry, R.; Boland, J.; Laxson, J.; Hayler, D.; Sillman, M.; Fein, R.; and Feldstein, P. "The Economic Costs of Alcohol Abuse and Alcoholism—1971." Prepared for the National Institute on Alcohol Abuse and Alcoholism under Contract No. HSM-42-73-114, Mar. 31, 1974.
- (4) Borkenstein, R.F.; Crowther, R.F.; Shumate, R.P.; Ziel, W.B.; and Zylman, R. *The Role of the Drinking Driver in Traffic Accidents*. Bloomington, Ind.: Indiana University, Department of Police Administration, 1964.
- (5) Cahalan, D., and Room, R. *Problem Drinking Among American Men*. Monograph No. 7. New Brunswick, N.J.: Rutgers Center of Alcohol Studies, 1974.
- (6) Chafetz, M.E.; Blane, H.T.; and Hill, M.J. Children of alcoholics; observations in a child guidance clinic. *Q J Stud Alcohol*, 32:687-698, 1971.
- (7) City of Phoenix Advisory Committee on Drug Abuse Control. Study conducted in 1971.
- (8) Cooper, B.S., and Worthington, N.L. National Health Expenditures, 1929-72. *Soc Security Bull*, 36:3-19, 40, 1973.
- (9) Efron, V.; Keller, M.; and Gurioli, C. *Statistics on Consumption of Alcohol and on Alcoholism*. New Brunswick, N.J.: Rutgers Center of Alcohol Studies, 1974.
- (10) Fires and fire losses classified, 1971. *Fire J* 66 (5):65-69, 1972.
- (11) Fox, R. Treating the alcoholic's family. In: Catanzaro, R.J., ed. *Alcoholism: The Total Treatment Approach*. Springfield, Ill.: Thomas, 1968. pp. 105-115.
- (12) Gebhard, P.; Gagnon, J.; Pomeroy, W.; and Christenson, C. *Sex Offenders: An Analysis of Types*. New York: Harper & Row, 1965.
- (13) Hollis, W.S. Drinking: Its part in fire deaths. *Fire J*, 67 (3):10-11, 13, 1973.
- (14) Johns Hopkins University, Applied Physics Laboratory. Fire problems program. *Annual Summary Report*: July 1, 1972-June 30, 1973. p. 35.
- (15) King, W.H., and Tucker, K.M. Dental problems of alcoholics and nonalcoholic psychiatric patients. *Q J Stud Alcohol*, 34:1208-1211, 1973.
- (16) Larato, D.C. Oral tissue changes in the chronic alcoholic. *J Periodont Res*, 43:772-773, 1972.
- (17) National Commission on Causes and Prevention of Violence. *Crimes of Violence*. Staff report. Vol. 12. Washington, D.C., 1969. p. 683.
- (18) National Commission on Causes and Prevention of Violence. *Crimes of Violence*. Staff report. Vol. 12. Washington, D.C., 1969. p. 644. Cited in Report of the President's Commission on Crime in the District of Columbia.
- (19) Pell, S., and D'Alonzo, C.A. A 5-year mortality study of alcoholics. *J Occup Med*, 15:120-125, 1973.
- (20) Schuckit, M.A. Depression and alcoholism in women. In: *Proceedings of the First Annual Alcoholism Conference of the National Institute on Alcohol Abuse and Alcoholism*. Research on Alcoholism: Clinical Problems and Special Populations. DHEW Publ. No. (HSM) 73-9074. Washington, D.C.: U.S. Government Printing Office, 1973. pp. 355-363.
- (21) U.S. Bureau of the Census, and U.S. LEAA. *Expenditure and Employment Data for the Criminal Justice System, 1970-1971*. Washington, D.C.: U.S. Government Printing Office, 1971. p. 1.
- (22) U.S. Bureau of the Census. *Statistical Abstract of the U.S.: 1971*. Washington, D.C.: U.S. Government Printing Office, 1971.
- (23) U.S. Bureau of the Census. *Statistical Abstract of the U.S.: 1972*. U.S. Office of Management and Budget, Budget of the U.S., fiscal year 1972. Washington, D.C.: U.S. Government Printing Office, 1972.
- (24) U.S. Bureau of the Census. *Statistical Abstract of the U.S.: 1973*. Washington, D.C.: U.S. Government Printing Office, 1973. p. 421.
- (25) U.S. Government Law Enforcement Assistance Administration. *National Jail Census, 1970*. Washington, D.C., 1971.
- (26) Wolfgang, M.E. *Patterns in Criminal Homicide*. New York: Wiley, 1966.

## Chapter VI

# Alcohol and Highway Safety

Viewed broadly, a highway accident is an unexpected and unwanted event. However, certain recurring patterns and common factors in crashes indicate that they are not simply random happenings. Alcohol is one factor which has been found frequently related to crashes that cause bodily injuries and deaths as well as property damage. The high economic cost of this association is discussed in chapter III of this *Report*.

The contribution of alcohol misuse to highway crashes has been inferred from two different types of data: epidemiological and experimental. On the one side, alcohol has been implicated in fatal and serious-injury crashes by epidemiological studies (3, 4, 15, 18, 21, 22, 33, 36, 37, 39, 46). The evidence from these after-the-fact studies indicates that the probability of being responsible for a fatal crash rises sharply as blood alcohol concentrations increase above those achieved by social drinking (4, 18, 22, 33). On the other side, how alcohol affects driving and driving-related behavior has been studied in experiments in which subjects perform contrived psychophysical, sensorimotor, and automobile driving tasks, either in laboratories or on closed courses or driving ranges (2, 8, 16, 23, 31). However, no controlled study has yet been conducted to obtain systematic data on the actual influence of alcohol upon real-world driving behavior in its natural environment. From these epidemiological and experimental studies, it has been inferred that alcohol degrades a driver's capabilities—and, consequently, his actual driving performance—so that the probability of his being involved in a crash is increased. Because of their more direct relation to crashes, the epidemiological data will be discussed here in some detail.

### Alcohol Involvement in Highway Crashes

The primary source of epidemiological evidence is the amount of alcohol actually found in the body, referred to as the blood alcohol concentration (BAC). But neither the presence of alcohol in the body nor the magnitude of the BAC can be taken alone as conclusive evidence that alcohol caused or even contributed to an accident. Rather, special methods of sampling and collecting data have had to be developed to determine the role of alcohol. The main method is the case-control study.

To determine the contribution of alcohol (or any other factor) to crashes, one must know to what extent crash-involved drivers are representative of drivers with similar exposure but not involved in accidents. Thus, it is necessary to compare the distribution of BACs of drivers involved in crashes with those of "control" or "comparison" drivers randomly selected while driving past the same place as the crashes at equivalent times. Such sets of data make it possible to determine the similarities and differences between the two groups of drivers: what proportions of each group have no alcohol or have different levels of BAC.

Before considering these questions it is useful to note that several ranges of BAC are usually distinguished in American conceptions and laws—differing, however, among jurisdictions. A BAC up to 0.05 percent (50 milligrams of alcohol per 100 milliliters of blood) is usually considered safe; the person is presumed to be unimpaired in his ability to drive. This BAC might be achieved by an average-sized man with two average drinks. Between 0.05 and 0.10 percent (50 to 100 mg of alcohol per 100 ml of blood) usually no presumption of impairment is made;

but the BAC may be presented in evidence in connection with other behavior of the driver to support a charge of being under the influence of alcohol. In some European jurisdictions, especially in Scandinavian countries, a BAC of 0.05 percent is considered legal evidence of impairment. In some American jurisdictions a BAC of 0.08 percent is legally defined as evidence of impairment. In others, a BAC of 0.10 percent is the legal standard of impaired driving or intoxication. In nearly all jurisdictions a BAC of 0.15 percent (150 mg of alcohol per 100 ml of blood) or higher is regarded as *prima facie* evidence of intoxication.

Despite differences in many methodological details, the general findings from a number of different studies are compellingly consistent: drivers with high BACs are grossly overrepresented in fatal and serious-injury crashes in comparison with samples of uninvolved drivers. Furthermore, these findings were obtained in studies which range across the major types of driving experience in the United States, namely, in metropolitan areas in the Manhattan study (22), in urbanized areas in the Grand Rapids study (4), and in rural areas in the Vermont study (33). Similar findings have also been reported more recently from those Department of Transportation Alcohol Safety Action Projects which were designed to gather relevant data (38) as well as from the case-control studies conducted in other countries and reported by Stroh (36, 37).

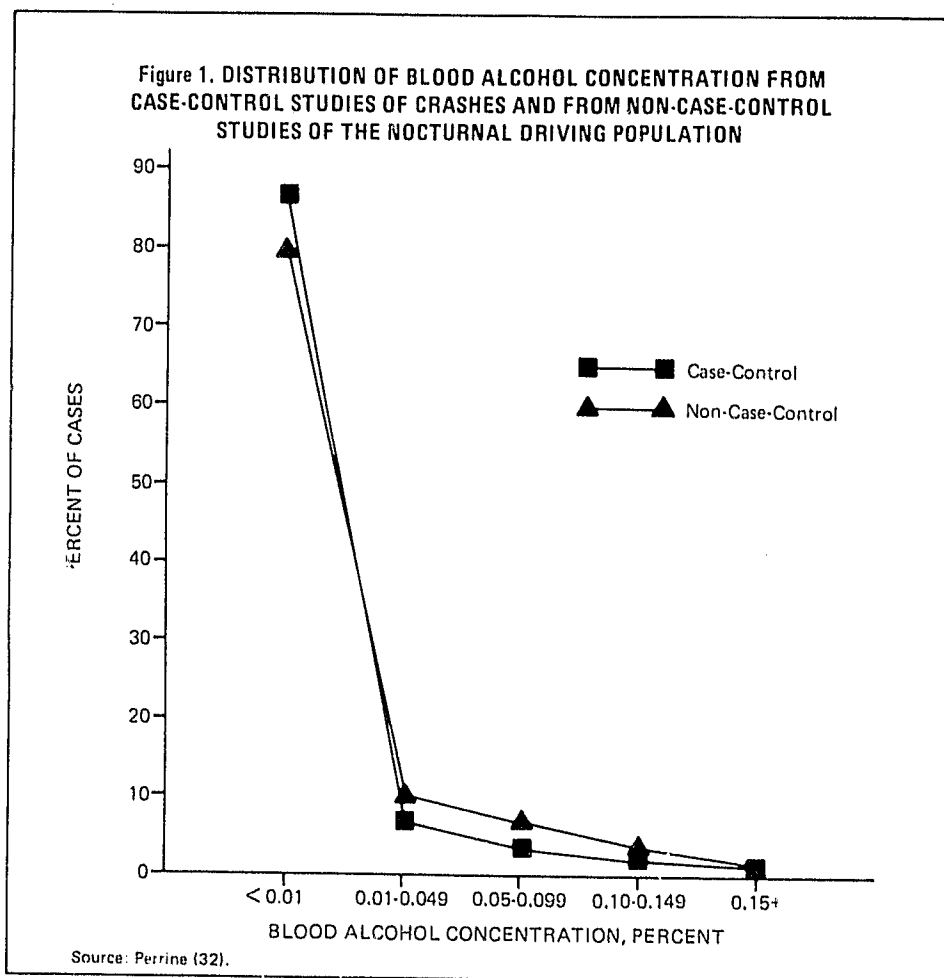
### The Driving Population

Estimates of the BAC distribution in the driving population come from two types of roadside research surveys: case-control and noncase-control. The estimates obtained from the case-control studies, i.e., the Toronto, Manhattan, Grand Rapids, and Vermont surveys (4, 21, 22, 33), are deliberately biased in favor of drivers not involved in crashes, with presumably the same exposure as the drivers who crashed at the sites and times which were used to determine the survey points. The noncase-control studies involve survey points which do not necessarily correspond to previous crashes, but rather are selected for other reasons, such as an attempt to describe the driving population in a particular area on the basis of a 24-hour saturation sampling procedure (15), or simply to describe the nighttime driving population (5).

It is noteworthy that the results from both types of studies are essentially the same: a relatively small proportion of the driving population is found with presumptively impairing BACs, that is, in excess of 0.10 percent. Generalizing from these studies (as in figure 1), it can be expected that, at any given time, between 80 and 90 percent of drivers have no alcohol; 5 to 10 percent have low BACs (0.01 to 0.049 percent); 3 to 10 percent have medium BACs (0.05 to 0.099 percent); 0.5 to 3 percent have high BACs (0.10 to 0.149 percent); and up to 1 percent have extremely high BACs (0.15 percent or more).

### Clear-Record Drivers

Presumably the bulk of the driving population consists of individuals who have had few if any reportable crashes or convictions for serious traffic violations. In one of the case-control studies (33), the investigators attempted to determine whether drivers with clear records (according to both self-report and official record check) differed from the rest of the population-at-risk or from the other specifically selected samples of driving-while-intoxicated (DWI) and killed drivers. From all the motorists tested at the roadside surveys in the Vermont study, they selected a sample of drivers who had had no crashes or citations during the previous 5 years (a limited time period being used to reduce differences in exposure due to age). The BAC distribution in this sample of clear-record drivers is presented in figure 2. It is very different from that of the larger sample of control drivers (figure 1) and is strikingly different from that of the DWIs (also in figure 2) and of the killed drivers. As figure 2 shows, 98 percent of clear-record drivers had no alcohol, and the remaining 2 percent were in the lowest BAC range, from 0.01 to 0.049 percent; that is, not one of these clear-record drivers was found with a BAC sufficiently high to be admissible as evidence of an alcohol-aggravated crash (0.05 to 0.099 percent), even if he had been involved in one at the time. In comparative terms, there was no overlap between the BAC distributions of the clear-record drivers and the DWIs. In fact, the two groups were separated by the most important BAC range for differentiating average social drinkers from heavy drinkers, namely, 0.05 to 0.099 percent. It is perhaps both symbolic and indicative that no clear-record driver's BAC was



high enough—and no DWI's was low enough—to be in this transition range.

#### Nonfatal Crashes

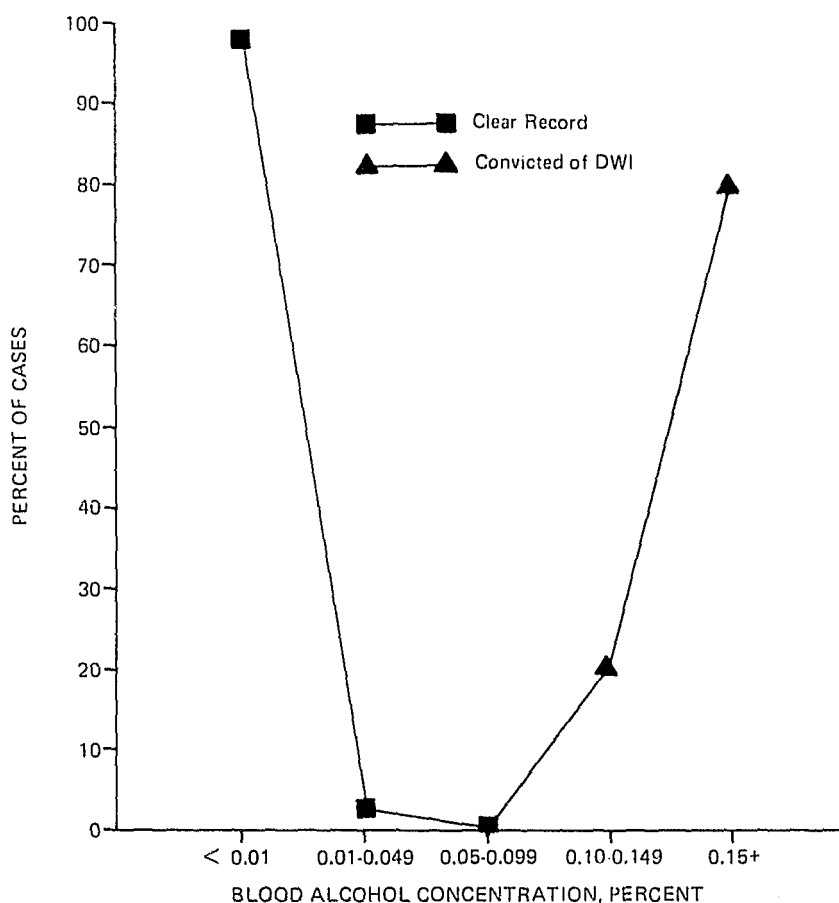
Despite probable underreporting due to selective sampling and to legal and logistical problems, it seems safe to estimate that impaired drivers (0.10 percent BAC or higher) are involved in 5 to 10 percent of the run-of-the-mill accidents and 10 to 35 percent of the serious-injury crashes (4, 6, 15, 27, 33, 35). Furthermore, injury to the driver is more likely after drinking, and both the probability and the severity of injury appear to increase as the amount of alcohol rises. The likelihood of being responsible for the crash is greater if the driver has been drinking, and higher BACs are associated with higher proportions of drivers responsible for the crashes.

#### Fatal Crashes

More complete data are available about fatal crashes than about other types. In general, about 45 percent (ranging from 40 to 55 percent) of all fatally injured drivers have BACs of 0.10 percent or more, and a surprisingly large proportion of these drivers exceed the highest BACs found in the population-at-risk (13, 22, 24, 25, 33, 43). However, in order to obtain a more accurate portrayal of the contribution of alcohol to fatal crashes, it is useful to distinguish between multiple- and single-vehicle accidents and, more importantly, to determine whether or not the fatally injured driver was responsible.

When drivers fatally injured in multiple-vehicle crashes are considered as a separate subgroup, regardless of estimated responsibility, approximately one-third (ranging from about one-quarter to one-half) have BACs of 0.10 percent or higher (13, 24, 25, 33, 43).

Figure 2. DISTRIBUTION OF BLOOD ALCOHOL CONCENTRATION IN CLEAR-RECORD CONTROL DRIVERS AND IN THOSE CONVICTED OF DRIVING WHILE INTOXICATED



Source: Perrine et al. (33).

When drivers fatally injured in single-vehicle crashes are examined as a subgroup, between 55 and 65 percent have BACs of 0.10 percent or higher (13, 22, 26, 33, 43). Single-vehicle and multiple-vehicle crashes occur with approximately equal frequency; each represents about 40 percent of all fatal crashes (pedestrian fatalities account for the remaining 20 percent). Thus a disproportionately large part of the high-BAC driver fatality problem is contributed by the drivers in single-vehicle crashes. This overrepresentation becomes even greater when responsibility is considered.

A useful system for assigning crash responsibility was first reported by McCarroll and Haddon (22) and has been utilized in a number of studies since that time. In this system, a driver-vehicle combination is assumed to be

responsible if it is the only vehicle involved, or it has struck a nonmoving object, or it played an unambiguous role in initiating the crash. If two vehicles were involved and both contributed substantially to the event, responsibility is treated as unascertained, contrary to the common practice among enforcement agencies. Based on a composite of studies by Neilson (26) and by Perrine et al. (33), Zylman (48) has determined that about 43 percent of drivers designated as "responsible" had legally impairing BACs of 0.10 percent or higher, whereas only 10 percent of those designated as "not responsible" had BACs in that range. Thus, a composite of all drivers assumed responsible in nonpedestrian fatal crashes (that is, all drivers from single-vehicle crashes, as well as from about two-thirds of the multiple-vehicle crashes according to the

McCarroll-Haddon classification system) would show that about 50 percent were legally impaired with BACs of 0.10 percent or higher.

### DWI Drivers

Motorists who have been convicted of driving while intoxicated (DWI) comprise a group of rather mixed composition in terms of the reasons for initially coming to attention by the police. The three major reasons are: deviant driving, involvement in a crash which is investigated by the police, and a complaint registered by some citizen. The general finding from the relevant studies is quite clear: the vast majority of drivers arrested for DWI have BACs in the extremely high range (0.15 percent or more) and therefore can definitely be presumed to have been drunk (20, 33, 35). A composite of the BAC distributions from these studies is presented in figure 2; it is similar to distributions reported in several other countries: Australia, Canada, England, France, Germany, the Netherlands, and Sweden. The average (median) BAC of the arrested DWIs in the four American studies is above 0.20 percent (20, 33, 35, 44).

A 180-pound man would have to consume 10 drinks within an hour on an empty stomach in order to reach the average BAC of these DWIs. (A person weighing less would need fewer drinks.) At the other end of the distribution, an extremely small proportion of arrested DWIs are found with BACs less than the minimum (0.10 percent) for legal impairment, and a relatively small proportion (4 to 18 percent) are found with BACs in the lower range for legal impairment (0.10 to 0.149 percent). Hyman (20) has demonstrated that two-thirds of the DWI drivers were found with BACs between 0.185 and 0.280 percent. Thus, it is clear that the vast majority of drivers arrested for this particular violation are being appropriately labeled as "driving while intoxicated" or "driving under the influence." And from the sheer magnitude of the majority of BACs among this group it is unavoidable to infer that a large proportion of those arrested for DWI must surely qualify for the label "problem drinker" or "alcoholic person." This conclusion is supported by the facts indicating a history of heavy drinking (44): First, DWIs convicted with BACs in the lower impairing range (0.10-0.199 percent) tend to be younger, on the average, than those in the upper range (0.20 percent or higher); second, repeat DWI

offenders tend to have higher mean BACs (0.22 percent) than first offenders (0.19 percent).

### Pedestrian Fatalities

About one-third (ranging from 28 to 43 percent) of fatally injured adult pedestrians have BACs of 0.10 percent or higher (13, 14, 26, 33, 43). There is a striking similarity between the BAC distributions of adult pedestrians killed by automobiles and drivers fatally injured in multiple-vehicle crashes. Waller (42) has recently attempted to evaluate the relationship between BAC and crash "responsibility" in collisions between vehicles and pedestrians by attempting to assign "responsibility" in a manner conceptually analogous to the scheme developed by McCarroll and Haddon (22). He found that adult pedestrians with BACs of 0.10 percent or higher were usually responsible, and he concluded that "when the pedestrian has alcohol in his system, it is the driver of the striking vehicle who is innocent rather than the pedestrian."

Figure 3 summarizes the proportions of persons with BACs of 0.10 percent or higher in various segments of the populations involved in road traffic (including pedestrians) as reported in numerous studies.

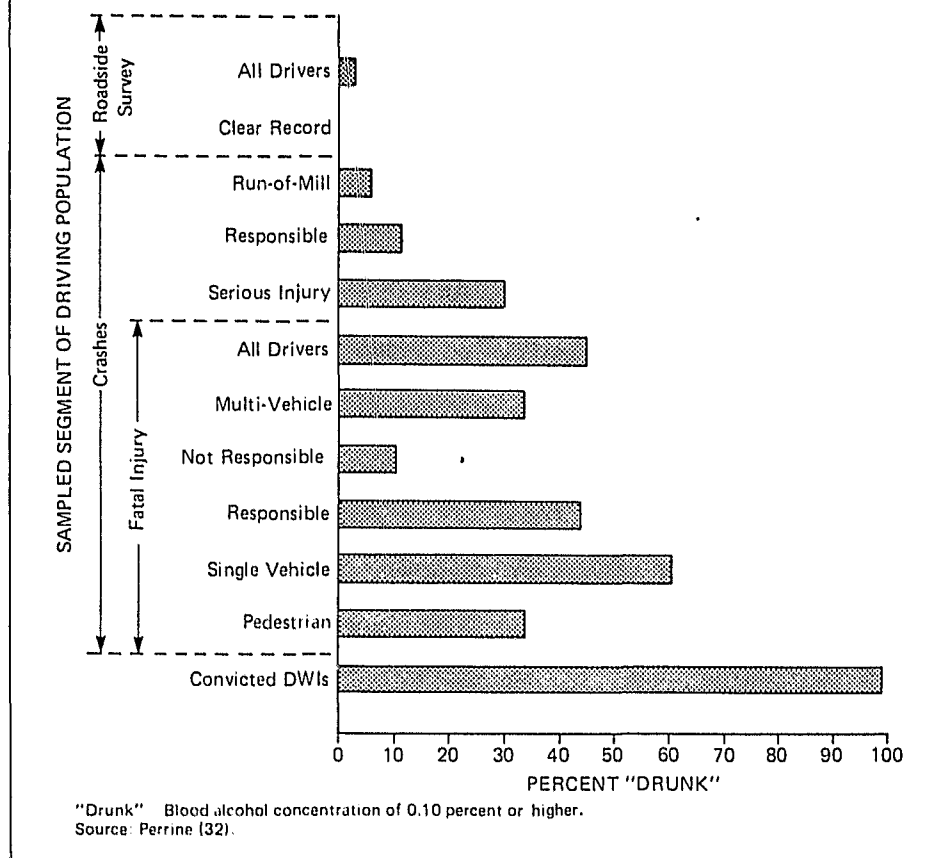
### Crash Probability and Blood Alcohol Concentration

The relative probability of being involved in a crash can be inferred by comparing the BAC distribution of the population-at-risk (as indicated by the sample of "control" drivers obtained at corresponding times and places of crashes) with the BAC distribution of the drivers actually involved in these crashes.

Hurst (17, 18) in his extensive review of five relevant studies (Evanston, Toronto, Manhattan, Grand Rapids, and Vermont) has calculated the relative probability of crashing, setting no alcohol (0 percent) as equal to 1.0. The resulting relative hazards are shown in figure 4. Hurst (18) has offered several tentative inferences from the data: (1) The relative hazard or probability of crash involvement is steeper in the more urbanized areas; and (2) the incidence of more serious crashes has a greater acceleration than run-of-the-mill crashes beginning at a BAC of 0.08 percent.

A more crucial issue is the relation of alcohol to responsibility for initiating a fatal crash. By the McCarroll-Haddon system (22) the relative

Figure 3. PERCENTAGE OF "DRUNK" DRIVERS AND ADULT PEDESTRIANS IN VARIOUS SEGMENTS OF THE ROAD TRAFFIC POPULATION



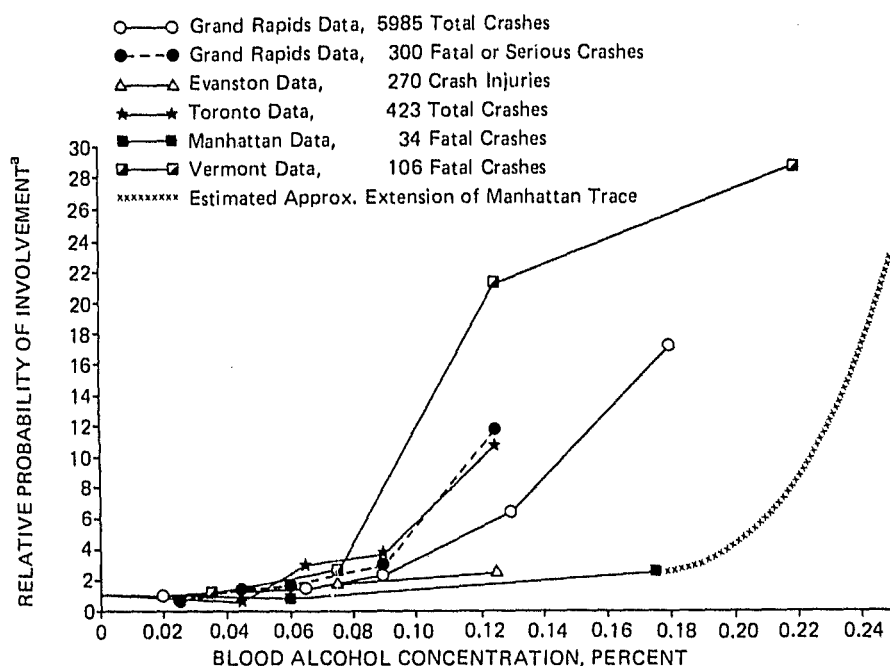
probability of being presumed responsible for a fatal crash can be estimated for subsets of the fatally injured drivers in two of the case-control studies, the Manhattan and Vermont. Because of the larger sample size, the Vermont data are used in figure 5, which shows the relative probability of being responsible for initiating a fatal crash in relation to BAC. It appears that at low BACs (less than 0.05 percent), the probability of being responsible for a fatal crash is essentially the same among fatally injured drivers as it is among control drivers (exposed to similar circumstances of time and place but not involved in a crash). At BACs between 0.05 and 0.10 percent, however, the relative probability of fatal-crash responsibility begins to increase appreciably, so that at a BAC of 0.10 percent a driver would be seven times more likely to be responsible for having a fatal crash than he would with no alcohol. The relative-hazard curve rises very steeply above this lower limit for a

DWI violation (0.10 percent in most States); at a BAC of 0.15 percent a driver would be 25 times more likely to be responsible for a fatal crash; at 0.18 percent, 60 times more likely; and at 0.20 percent (the average BAC found among those convicted for DWI and among fatally injured drivers who would have been eligible for conviction) he would be at least 100 times more likely to be responsible for a fatal crash than if he had not been drinking at all.

Similar results were obtained in the Grand Rapids study of drivers assumed responsible (using another system) for all crashes, regardless of severity. A comparison of drivers assumed responsible for crashes in three case-control studies (Grand Rapids, Manhattan, and Vermont) has been presented by Hurst (18). Perrine et al. (33) concluded from these studies that BACs of 0.08 percent or higher "are incompatible with safe driving, and the higher the concentration, the greater the incompatibility."



Figure 4. RELATIVE PROBABILITY OF CRASH INVOLVEMENT IN RELATION TO BLOOD ALCOHOL CONCENTRATION



<sup>a</sup>Relative probability at zero alcohol = 1.0.

Source: Hurst (18, Figure 1).

Small increases in BAC above 0.08 percent result in "disproportionately large increases in crash risk." For example, among fatally injured drivers in the Vermont study who were assumed to have been at fault, 52 percent had BACs of 0.08 percent or higher, compared with only 14 percent among those not at fault.

### Personal Characteristics, Crashes, and Alcohol

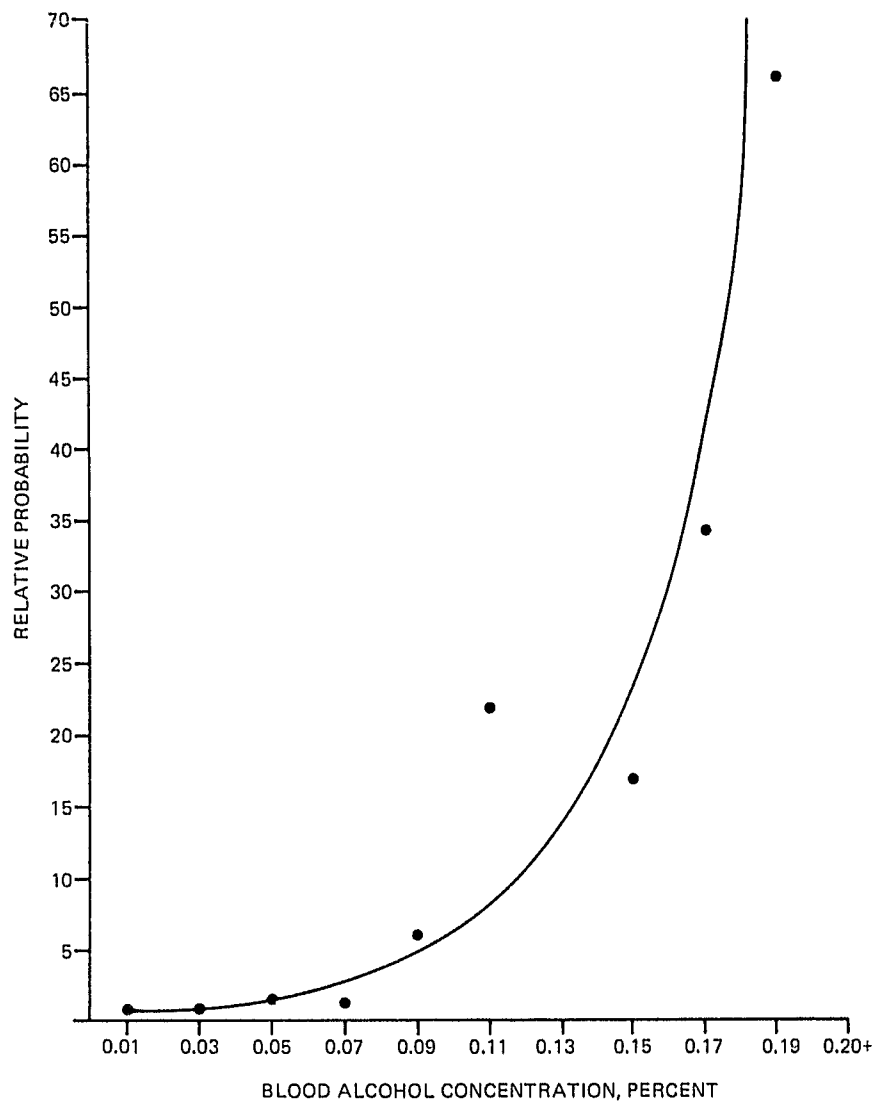
The biographical and psychological characteristics of drivers who are involved in highway crashes or citations have been studied in the belief that such information can be helpful in identifying problem drivers and designing appropriate countermeasures for different subgroups. The relevant personal variables tend to fall into three general classes, the first essentially demographic (sex, age, etc.), the second two essentially behavioral: (a) driving history and drinking-and-driving patterns, and (b) patterns of alcohol use.

### Biographical Variables

A number of studies have found significant relations between crashes, alcohol, and the following biographical variables: sex, age, marital status, and occupational level. Less consistent but still potentially useful findings have been reported for such single and combined variables as ethnicity, religious affiliation, educational level, socioeconomic status, social stability, social mobility, leisure activities, and contact with social agencies (1, 4, 5, 6, 7, 9, 10, 11, 13, 19, 20, 28, 29, 30, 33, 41, 43, 45, 47).

**Sex.** Drinking-and-driving is predominantly a male behavior. In contrast to approximately equal representation in the adult population, men comprise a larger proportion of licensed drivers (about two-thirds), a larger proportion of drivers sampled during roadside surveys (about 80 percent), a larger proportion of fatally injured drivers (about 90 percent), and virtually all (about 98 percent) convicted DWIs (9, 10,

Figure 5. RELATIVE PROBABILITY OF BEING RESPONSIBLE FOR A FATAL CRASH  
IN RELATION TO BLOOD ALCOHOL CONCENTRATION



Source: Perrine et al. (33).

33). A larger proportion of women (about 90 percent) than men (about 80 percent) do not drive after drinking (10). A recent study of alcohol use by the nocturnal driving population (5) found that at night women drivers are relatively less involved in single-vehicle crashes and are less likely to have been drinking than men, but when drinking they are more likely to be involved in crashes—and at relatively low BACs (0.05 percent). Since women drive less at

night and drink less than men, Carlson (5) suggests that, as with young male drivers, inexperience with drinking-and-driving probably results in the higher risk of alcohol-related crashes.

*Age.* Younger drivers who get into alcohol-related trouble on the highways do so at lower average BACs than do older people (33). However, two important additional factors must also

be considered, namely, crash involvement and exposure. On the basis of his extensive review of the interrelations between age, alcohol, and crash involvement, Zylman (47) summarized the data from a number of studies: Alcohol increases the probability of crash involvement among teenagers much more than among drivers aged 20-24; the latter, in turn, are at higher risk than those aged 25-69, and the probability of crash involvement rises again among drivers aged 70 or older. In a definitive study of the interrelations of age, exposure, and alcohol involvement in nocturnal crashes, Carlson (6) developed a new method for assessing exposure which allows for a more accurate determination of the contribution of the other two factors. In explaining the high crash involvement of drivers aged 16-25, Carlson reasons that these young people face two learning situations: first, learning to drive—with peak fatal crashes at age 18; and second, learning to drive after drinking—with peak alcohol-involved fatal crashes at age 21. These two learning situations result in a higher rate of crash involvement than can be attributed to exposure. Nevertheless, young drivers continue to have a disproportionately large number of crashes even after these two peaks in the learning period. Carlson concludes that the excess crash involvement of drivers aged 16-25 corresponds to a high degree of night driving which he regards as the most significant single modifier variable after BAC itself. Thus, the apparent overrepresentation of youth in the subpopulation of fatally injured drivers—both with and without alcohol—is partly attributable to their life style, which involves much night driving for recreational purposes.

*Marital Status.* Married drivers are proportionately less involved in drinking-and-driving problems than the single, divorced, separated, or widowed, even when drivers under age 25 are not counted. Divorced and separated men are especially overinvolved in drinking-and-driving problems, as well as in alcohol use in connection with nighttime driving (5, 11, 19, 20, 33, 45).

*Occupation.* Several studies have found that people in the lower occupational levels are overrepresented among those who have drinking-and-driving problems, especially DWI convictions (20, 29). This pattern becomes even more pronounced when younger drivers (under age 25) are not counted.

## Driving Variables

Significant relations have been found between alcohol, selected personal characteristics, and the following driving variables: previous crashes, citations, suspensions, experience, and exposure (6, 9, 13, 33, 34, 45).

*Previous Crashes.* Drivers with alcohol-related problems (alcoholics, DWIs, and fatally injured drivers with high BACs) have a higher incidence of crashes than random samples of the driving population (9, 13, 33, 34). In the most comprehensive study of this factor, Clark (9) reported that the DWI sample had the worst crash experience. Two-thirds of them had one or more crashes, and they averaged nearly three times as many crashes as a random sample of licensed drivers. She concluded that the group which misuses alcohol in the driving situation and is convicted of DWI is a high-risk crash group before the incident which led to the conviction. In a related analysis of Michigan data, Rosenblatt (34) found that hospitalized alcoholic drivers with high rates of noncrash-related driving convictions have high crash rates, and that the high crash rates are concentrated in the younger age categories. The interrelations of younger age and higher crash rates—both with and without alcohol—were examined by Carlson (6), who found analogous results in samples of nonalcoholic Michigan drivers, as discussed above.

*Driving Convictions.* Although serious-injury crashes are the events which command the greatest amount of attention, they are statistically rare events. This limits their utility for comparative and predictive purposes. It is therefore desirable to examine problems which occur with higher frequency, namely, convictions for serious driving violations (9, 13, 33). The number of convictions in Michigan for all types of driving violations during 6½ years was analyzed by Clark (9), and the number of convictions for selected and more serious moving violations (excluding speeding) in Vermont during 5 years was analyzed by Perrine et al. (33). Despite the technical and geographic differences between the two studies, the DWIs in both States showed remarkable similarities on this as on other relevant variables. In both studies, the DWIs had significantly more previous driving convictions than the comparison populations (a sample of licensed Michigan

drivers, and a sample of case-control drivers interviewed on Vermont highways): The Michigan DWIs had four times as many convictions and the Vermont DWIs seven times as many as the random samples of drivers. In fact, the Michigan DWIs had averaged almost one conviction per year.

In both studies, drivers killed in crashes had also had more convictions for moving violations than the two random samples of drivers, but fewer than the DWI samples. Nevertheless, the killed drivers in Michigan who had high BACs were more like the DWIs in number of previous convictions, whereas those with no alcohol were more like the random sample of licensed drivers. Clark (9) also found previous DWI convictions in 1 percent of the random sample of licensed drivers, but in 12 percent of the DWI sample and in 16 percent of the hospitalized alcoholic drivers. Although the Michigan alcoholics, DWIs and high-BAC killed drivers were not exactly the same on all four driving variables studied, Clark concluded that their similarities on these measures of driving deviancy indicate that these samples may well have been drawn from the same subpopulation of drivers.

From his analysis of the same large sample in Michigan Rosenblatt (34) concluded that, among the crash-involved alcoholic drivers, younger people with high rates of driving convictions represent a disproportionate part of the drinking-driver problem. Judging from their high rate of convictions, these individuals must already have been well known to the courts, but were presumably seen as driving violators rather than as problem-drinking drivers because they were younger and had probably not yet developed the characteristics associated with alcoholism.

*License Suspensions.* Since suspension or revocation of the license to drive is seen as the most severe punishment, short of being jailed, the relative effectiveness of this traditional alcohol countermeasure is especially worth examining. In the Vermont study, 14 percent of the case-control drivers had suffered one or more suspensions (during all years of driving), whereas 60 percent of the DWIs had already experienced two or more suspensions (33). Thus, again, it is obvious that the overwhelming majority of individuals convicted for DWI were already well known to the courts and the Motor Vehicle Department.

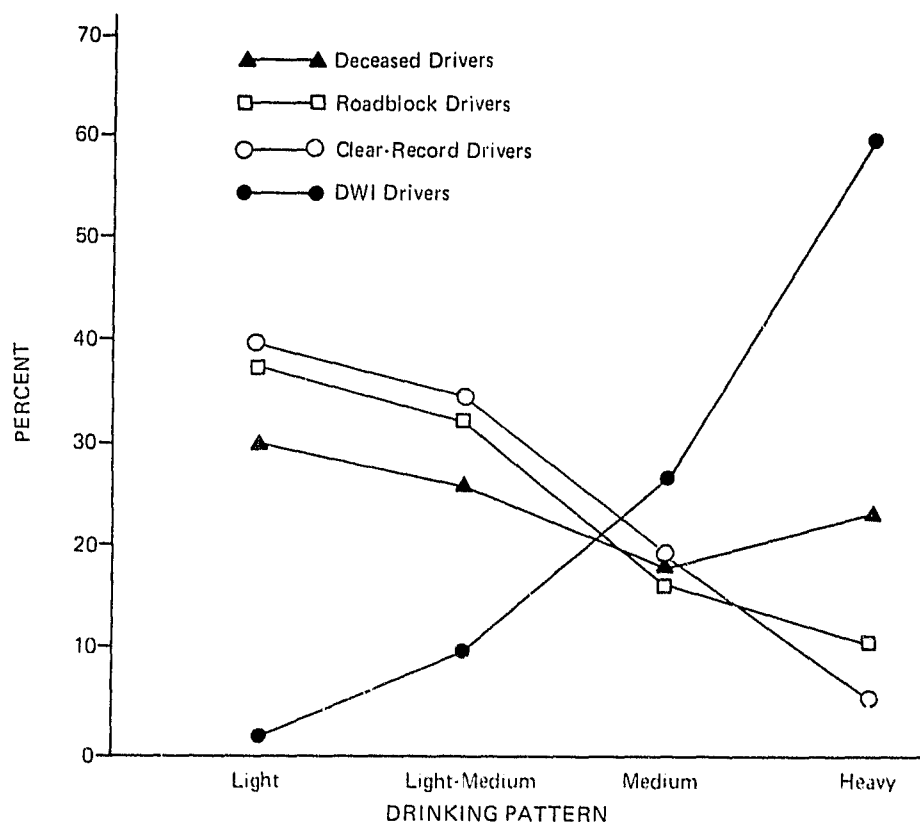
These investigations of driving variables tend to support the assumption that past driving behavior is the best single predictor of future driving behavior. A major question which awaits further investigation, however, concerns the extent to which this assumption holds for individuals as well as groups or subpopulations. In other words, with an event as relatively rare as a crash, to what extent can predictions be made which are specific to a given individual, as opposed to predictions based upon group membership?

### Drinking Variables

Perhaps because of the relatively sensitive and stigmatized nature of the topic, very few studies are available in which data concerning drinking patterns were obtained from drivers, especially in conjunction with BAC data. The extent of the drinking-pattern information ranges from simple questions about drinking only on the day of the survey (5, 10) to studies in which questions were asked about potentially sensitive topics, such as frequency of "getting high" and of exceeding one's capacity, driving after drinking, having alcohol problems, hangovers, and blackouts (4), and in which very detailed questions were asked about frequency and quantity of usual consumption of the major alcoholic beverage types as well as typical occasions and places of drinking (29, 33). In this respect, the Vermont study (33) obtained the most extensive alcohol-relevant data for the widest range of the driving spectrum, and has the unique advantage of being able to validate aspects of reported drinking patterns by comparing them with actual BACs in samples of killed drivers, control drivers, and clear-record control drivers, as well as DWIs.

A drinker classification developed in the Vermont study is based on the usual amount of the preferred beverage (beer, wine, or distilled spirits) consumed per occasion, and the resulting Quantity-Frequency Index (QFI) is presumed to reflect the likelihood of attaining an impairing BAC. For killed drivers the drinking information was obtained from relatives. The QFIs were compared and cross-tabulated with selected biographical and driving variables, as well as with the obtained BACs. A summary of the reported drinking patterns is presented in figure 6, in which the proportions of roadblock control, clear-record, DWI, and killed drivers are plotted against four drinker categories based on the QFI.

Figure 6. DRINKING PATTERNS OF ROADBLOCK, CLEAR-RECORD, DWI, AND KILLED DRIVERS AS CLASSIFIED BY QUANTITY-FREQUENCY INDEX OF PREFERRED BEVERAGE, IN PERCENT



Source: Perrine et al. (33), Vermont Study.

The roadblock and clear-record drivers are distinguished by mostly light and light-medium drinking patterns, with very few heavy drinkers. In sharp contrast, those convicted of DWI have a large proportion of heavy drinkers.

The proportion of men to women and of unmarried to married people increased as the QFI increased. A surprisingly large proportion of the very young drivers could be categorized as heavy and frequent drinkers, and the quantity of alcohol typically consumed apparently decreased with increasing age. Although there were no significant differences by occupation, there was some indication that drivers with high QFIs were more likely to have had a greater number of job changes during the 5 years immediately preceding the interviews.

Two parallel generalizations were offered by the investigators as evidence that the BAC

sampled at one point in time during the study was a reliable indicator of usual patterns of driving after drinking: (a) the higher the frequency of driving after drinking, the heavier and more frequent the reported usual alcohol consumption; and (b) the lighter and less frequent the reported usual alcohol consumption, the lower the frequency of driving after drinking.

No clear-cut patterns of difference beyond those of the basic distributions were obtained from cross-tabulations of crashes or license suspensions by QFI, except that control drivers with higher QFIs tended to have more violations in the previous 5 years than those with lower QFIs.

An unexpected finding in the Vermont study was a high correlation of BACs of 0.10 percent or more with frequent heavy consumption of beer. Thus, when compared with both fatally

injured drivers and control drivers who had zero BACs, almost twice as many drivers with high BACs were daily beer drinkers; and among those whose preferred beverage was beer, 67 percent of DWIs and 80 percent of the fatally injured who had high BACs were daily beer drinkers. In view of this finding, Perrine et al. (33) recommended (a) that "more research, administrative, and public education concern should be focused on the effects of beer, the frequent heavy users of beer, and the counteracting of the erroneous and contrived image of beer as a less harmful beverage than distilled spirits"; and (b) "eradication of the double standards for beer (as opposed to distilled spirits), which sanction and institutionalize the advertising and distributing of beer at a more permissive social level than distilled spirits."

### Countermeasure Programs

Attempts at prevention and control of the problems stemming from the mixture of alcohol and driving in the past were characterized by stringent laws and scare slogans. That these attempts were successful is doubtful; at any rate they were never systematically evaluated. Newer types of countermeasure programs are relatively rare and these too have rarely been systematically evaluated. Voas (40) lists only seven such studies: the Lackland Air Force Base Project (1) and the Alcohol Safety Action Program of the Department of Transportation in the United States, as well as programs in Great Britain, Sweden, Austria, Czechoslovakia, and Canada. Of these programs, the U.S. Department of Transportation's Alcohol Safety Action Program (ASAP) is the most extensive and ambitious.

The background, issues, and specific countermeasures of the ASAPs and some of the other countermeasure programs have recently been discussed and evaluated in a comprehensive review by Driessen and Bryk (12), which also lists more than 100 alcohol countermeasures.

Because of the clear indications that a substantial proportion of the drivers who get into trouble with the law are problem drinkers, the NIAAA has established treatment programs in conjunction with some of the ASAPs. These fulfill two purposes: They take advantage of the case-finding potential of the ASAPs, and they attempt to reduce the highway carnage by dealing with the drinking problems.

### Summary

The highway is the scene of a substantial portion of the accidental deaths and injuries in the United States. A large part of these are associated with the gross misuse of alcohol. The risk of a driver or pedestrian being involved in a traffic accident increases precipitously with the increased amount of alcohol in the body. Most people killed in traffic accidents after drinking, as well as most who are convicted of driving while under the influence of alcohol, have very high blood alcohol concentrations, averaging about twice the level considered legally impairing. Many of the arrested drivers have a history of repeated alcohol-related offenses and show numerous indications of being problem drinkers. A focus on the relation of alcohol to highway safety can therefore be expected both to reduce the highway carnage and identify problem drinkers who are in need of treatment.

### REFERENCES

- (1) Barmaek, J.E., and Payne, D.E. Injury-producing motor vehicle accidents among Armenians. I. The role of drinking. *Bull Highw Res Bd*, 285:1-11, 1961.
- (2) Barry, H., III. Motivational and cognitive effects of alcohol. In: Perrine, M.W., ed., *Alcohol, Drugs, and Driving*. National Highway Traffic Safety Administration, Technical Report, DOTHS-801-096, 1974.
- (3) Biecheler, M.B.; Lefort, E.; Rambach, M.C.; Filou, C.; Goffette, D.; and Monseur, J.L. Etude alcool conduite et accidents de la route. I.R.T.-O.N.S.E.R., 1971.
- (4) Borkenstein, R.F.; Crowther, R.F.; Shumate, R.P.; Ziel, W.B.; and Zylman, R. *The Role of the Drinking Driver in Traffic Accidents*. Bloomington, Indiana: Indiana University, Dept. of Police Administration, 1964.
- (5) Carlson, W.L. Alcohol usage of the nighttime driver. *J Safety Res*, 4:12-25, 1972.
- (6) Carlson, W.L. Age, exposure, and alcohol involvement in night crashes. *J Safety Res*, 5:247-259, 1973.
- (7) Carlson, W.L.; Chapman, M.M.; Clark, C.D.; Filkins, L.D.; and Wolfe, A.C. "Washtenaw County BAC Roadside Survey." Report #HSRI-71-126, Highway Safety Research Institute, University of Michigan, 1971.
- (8) Carpenter, J.A. Effects of alcohol on some psychological processes; a critical review with special

- reference to automobile driving skill. *Q J Stud Alcohol* 23:274-314, 1962.
- (9) Clark, C.D. A comparison of the driving records and other characteristics of three alcohol involved populations and a random sample of drivers. Highway Safety Research Institute, University of Michigan. *HIT LAB Reports*, 2(10):1-5, 1972.
  - (10) Clark, C.D.; Compton, M.J.; Douglass, R.L.; and Filkins, L.D. A 3 year comparison of alcohol related driving behavior in Washtenaw County, Michigan. Highway Safety Research Institute, University of Michigan. *HIT LAB Reports*, 1(2):1-14, 1973.
  - (11) Cospers, R., and Mozersky, K. Social correlates of drinking and driving. *Q J Stud Alcohol*, Suppl. No. 4, 1968, pp. 58-117.
  - (12) Driessen, G.J., and Bryk, J.A. Alcohol countermeasures: Solid rock and shifting sand. In: Perrine, M.W., ed. *Alcohol, Drugs, and Driving*. Washington, D.C.: National Highway Traffic Safety Administration, Technical Report, DOT HS-801-096, 1974.
  - (13) Filkins, L.D.; Clark, C.D.; Rosenblatt, C.A.; Carlson, W.L.; Kerlan, M.W.; and Manson, H. *Alcohol Abuse and Traffic Safety: A Study of Fatalities, DWI Offenders, Alcoholics, and Court-Related Treatment Approaches*. Washington, D.C.: U.S. Department of Transportation, National Highway Safety Bureau, Technical Report, FH-11-6555 and FH-11-7129, 1970.
  - (14) Haddon, W., Jr.; Valien, P.; McCarroll, J.R.; and Umberger, C.J. A controlled investigation of the characteristics of adult pedestrians fatally injured by motor vehicles in Manhattan. *J Chron Dis*, 14:655-678, 1961.
  - (15) Holcomb, R.L. Alcohol in relation to traffic accidents. *JAMA*, 111:1076-1085, 1938.
  - (16) Huntley, M.S., Jr. Alcohol influences upon closed-course driving performance. In: Perrine, M.W., ed. *Alcohol, Drugs, and Driving*. Washington, D.C.: National Highway Traffic Safety Administration, Technical Report, DOT HS-801-096, 1974.
  - (17) Hurst, P.M. Estimating the effectiveness of blood alcohol limits. *Behav Res Highway Safety*, 1:87-99, 1970.
  - (18) Hurst, P.M. Epidemiological aspects of alcohol in driver crashes and citations. In: Perrine, M.W., ed. *Alcohol, Drugs, and Driving*. Washington, D.C.: National Highway Traffic Safety Administration, Technical Report, DOT HS-801-096, 1974.
  - (19) Hyman, M.M. Accident vulnerability and blood alcohol concentrations of drivers by demographic characteristics. *Q J Stud Alcohol*, Suppl. No. 1, 1968, pp. 31-57.
  - (20) Hyman, M.M. The social characteristics of persons arrested for driving while intoxicated. *Q J Stud Alcohol*, Suppl. No. 4, 1968, pp. 138-177.
  - (21) Lucas, G.W.H.; Kalow, W.; McColl, J.D.; Griffith, B.A.; and Smith, H.W. Quantitative studies of the relationship between alcohol levels and motor vehicle accidents. *Proceedings 2nd International Conference on Alcohol and Road Traffic*. Toronto: Garden City Press Cooperative, 1955, pp. 139-142.
  - (22) McCarroll, J.R., and Haddon, W., Jr. A controlled study of fatal automobile accidents in New York City. *J Chron Dis*, 15:811-826, 1962.
  - (23) Moskowitz, H. Laboratory studies of the effects of alcohol on some variables related to driving. In: Perrine, M.W., ed. *Alcohol, Drugs, and Driving*. National Highway Traffic Safety Administration, Technical Report, DOT HS-801-096, 1974.
  - (24) Neilson, R.A. *Alcohol Involvement in Fatal Motor Vehicle Accidents in 27 California Counties in 1964*. San Francisco: California Traffic Safety Foundation, Sept. 1965.
  - (25) Neilson, R.A. *A Survey of Postmortem Blood-alcohol Levels from 41 California Counties in 1966*. San Francisco: California Traffic Safety Foundation, Apr. 1967.
  - (26) Neilson, R.A. *Alcohol Involvement in Fatal Motor Vehicle Accidents, California, 1962-1968*. San Francisco: California Traffic Safety Foundation, Sept. 1969.
  - (27) Perrine, M.W. *Alcohol Safety: Behavioral and Medical Aspects. Part I: Comparison of deceased drivers and roadblock control-group motorists*. Technical Report, University of Vermont. Washington, D.C.: National Highway Safety Bureau, DOT Contract FH-11-6609, 1969.
  - (28) Perrine, M.W. Identification of personality, attitudinal, and biographical characteristics of drinking drivers. *Behav Res Highway Safety*, 2(4):207-226, 1970.
  - (29) Perrine, M.W. *Methodological Considerations in Conducting and Evaluating Roadside Research Surveys*. Washington, D.C.: National Highway Traffic Safety Administration, Technical Report, DOT HS-800-471, 1971.
  - (30) Perrine, M.W. The spectrum of drinking drivers. In: Waller, P.F., ed. *Alcohol and Highway Safety*. Vol. 3. North Carolina Symposium on Highway Safety. Chapel Hill, North Carolina: University of North Carolina Press, 1972.
  - (31) Perrine, M.W. Alcohol influences upon driving-related behavior: A critical review of laboratory studies of neurophysiological, neuromuscular and sensory activity. In: Perrine, M.W., ed. *Alcohol, Drugs, and Driving*. Washington, D.C.: National Highway Traffic Safety Administration, Technical Report, DOT HS-801-096, 1974.
  - (32) Perrine, M.W. *Alcohol and Highway Safety: a review of behavioral and medical aspects*. Report submitted to National Institute on Alcohol Abuse and Alcoholism. May 21, 1974.
  - (33) Perrine, M.W.; Waller, J.A.; and Harris, L.S. *Alcohol and highway safety: Behavioral and medical aspects*. Washington, D.C.: National Highway Traffic Safety Administration, Technical Report, DOT HS-800-599, 1971.
  - (34) Rosenblatt, C.A. Recognizing the drinking driver. Highway Safety Research Institute, University of Michigan, *HIT LAB Reports*, (May), 1-4, 1971.

- (35) Shupe, L.M., and Pfau, R.O. Who are these drinking drivers? *Proceedings of the 4th International Conference on Alcohol and Traffic Safety*. Bloomington, Indiana, 1966. pp. 62-82.
- (36) Stroh, C.M. Roadside surveys of drinking-driving behavior. *Proceedings of Conference on Medical, Human and Related Factors Causing Traffic Accidents, Including Alcohol and Other Drugs*. Ottawa, Ontario, Canada: Traffic Injury Research Foundation of Canada, May 1972.
- (37) Stroh, C.M. Alcohol and highway safety. Roadside surveys of drinking-driving behaviour: A review of the literature and a recommended methodology. *Road and Motor Vehicle Traffic Safety*. Ontario, Canada: Ministry of Transport, CTS-1b-74, 1974.
- (38) U.S. Department of Transportation. *Alcohol Safety Action Projects: Evaluation of 1972 Operations*. Vol. I (Summary). NHTSA Technical Report. Washington, D.C.: the Department, Feb. 1974.
- (39) Vamosi, M. Experiences with nonalcoholic road traffic in Czechoslovakia. *Proceedings of the Third International Conference on Alcohol and Road Traffic*. London: B.M.A. House, 1963.
- (40) Voas, R.B. Factors related to alcohol involvement in crashes. *Proceedings of the 1st International Conference on Driver Behaviour*. IDBRA, Zurich, Switzerland, 1973.
- (41) Waller, J.A. Identification of problem drinking among drunken drivers. *JAMA*, 200:114-10, 1967.
- (42) Waller, J.A. Factors associated with alcohol and responsibility for fatal highway crashes. *Q J Stud Alcohol*, 33:160-170, 1972.
- (43) Waller, J.A.; King, E.M.; Nielson, G.; and Turkel, H.W. Alcohol and other factors in California highway fatalities. *J Forensic Sci*, 14:429-444, 1969.
- (44) Yoder, R.D., and Moore, R.A. Characteristics of convicted drunken drivers. *Q J Stud Alcohol*, 34:927-936, 1973.
- (45) Zylman, R. Accidents, alcohol and single-cause explanations: lessons from the Grand Rapids Study. *Q J Stud Alcohol*, Suppl. No. 4, 1968. pp. 212-233.
- (46) Zylman, R. Analysis of studies comparing collision-involved drivers and non-involved drivers. *J Safety Res*, 3:116-128, 1971.
- (47) Zylman, R. Youth, alcohol, and collision involvement. *J Safety Res*, 5:58-72, 1973.
- (48) Zylman, R. A critical evaluation of the literature on "alcohol involvement" in highway deaths. *Accident Analysis and Prevention*, 6:163-204, 1974.



## BIBLIOGRAPHY

### 1. BOOKS

- Baker, Robert F. *The Highway Risk Problem*, Policy Issues in Highway Safety. New York: John R. Wiley & Sons, Inc., Interscience, 1971.
- Bendixson, Terence. *Without Wheels*, Alternatives to the Private Car. Bloomington, Indiana: Indiana University Press, 1974.
- Berry, Ralph E. and James P. Boland. *The Economic Cost of Alcohol Abuse*. New York: The Free Press, 1977.
- Calabrese, Guido. *The Costs of Accidents*, A Legal and Economic Analysis. New Haven, Conn.: Yale University Press, 1970.
- Chafetz, Morris. *Why Drinking Can Be Good For You*. New York: Stein and Day, 1976.
- Conard, Alfred F., James N. Morgan, Robert W. Pratt, Jr., Charles E. Voltz, and Robert L. Brombaugh. *Automobile Accident Costs and Payments*, Studies in the Economics of Injury Reparation. Ann Arbor, Michigan: University of Michigan Press, 1964.
- Davis, Kenneth Culp. *Discretionary Justice*, A Preliminary Inquiry. Baton Rouge, Louisiana: Louisiana State University Press, 1969.
- . *Discretionary Justice in Europe and America*. Urbana, Illinois: University of Illinois Press, 1976.
- Jeffery, C. Ray. *Crime Prevention Through Environmental Design*. Beverly Hills, California: Sage Publications, 1971.
- Kittrie, Nicholas N. *The Right to be Different, Deviance and Enforced Therapy*. Baltimore, Maryland: The Johns Hopkins Press, 1971.
- Lapp, Ralph E. *The Logarithmic Century*. Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1973.
- Little, Arthur D., Inc. *Cost-Effectiveness in Traffic Safety*. New York: Frederick A. Praeger, 1968.
- . *The State of the Art of Traffic Safety*, A Comprehensive Review of Existing Information. New York: Praeger Publishers, 1970.
- Malik, Lynda P. *Sociology of Accidents*. Pennsylvania: Villanova University Press, 1970.
- Miser, Hugh J. (Editor) *Traffic Safety: Strategies for Research and Action*. Hartford, Connecticut: The Travelers Research Center, Inc., 1968.
- Morris, Norval and Gordon Hawkins. *The Honest Politician's Guide to Crime Control*. Chicago, Illinois: University of Chicago Press, 1970.
- O'Connell, Jeffrey. *The Injury Industry and the Remedy of No-Fault Insurance*. New York: Commerce Clearing House, Inc., 1971.

- Organization for Economic Cooperation and Development. *Young Driver Accidents*. Paris, France: Organization for Economic Cooperation and Development, 1975.
- Packer, Herbert L. *The Limits of the Criminal Sanction*. Palo Alto, California: Stanford University Press, 1968.
- Rogers, Everett M. with F. Floyd Shoemaker. *Communication of Innovations*, A Cross-Cultural Approach. 2nd ed. New York: The Free Press, 1971.
- Rogers, Everett M. and Rekha Agarwala-Rogers. *Communication in Organizations*. New York: The Free Press, 1976.
- Schumacher, E.F. *Small is Beautiful*, Economics as if People Mattered. New York: Harper and Row, 1973.
- Watt, Kenneth E.F. *The Titanic Effect*, Planning for the Unthinkable. New York: E.P. Dutton & Co., Inc., 1974.

### 2. ARTICLES, REPORTS AND DATA SOURCES

- Aaronson, David E., Bert H. Hoff, Peter Jaszi, Nicholas N. Kittrie, and David Saari. *The New Justice—Alternatives to Conventional Criminal Adjudication*. Washington: Institute for Advanced Studies in Justice, The American University, 1975. (To be published by GPO)
- American Academy of Judicial Education. *Research and Analysis of Non-Lawyer Judges in the United States*. Washington, D.C., 1975.
- American Academy of Political and Social Science. *The New Rural America*. Vol. 429. January 1977.
- American Bar Association. *Standards for Traffic Justice 1974 Report of Pound Conference Follow-Up Task Force*. August 1976.
- American Judicature Society. *Courts of Limited Jurisdiction*, A National Survey. Washington, D.C.: Government Printing Office, 1976.
- Beitel, George A., M.C. Sharp and W.D. Glauz. "Probability of Arrest While Driving under the Influence of Alcohol." *Journal of Studies on Alcohol*, Vol. 36, No. 1, 1975, pp. 109-116.
- Berry, Ralph E., Jr., and James Boland. *The Economic Cost of Alcohol Abuse and Alcoholism*. Washington: National Institute on Alcohol Abuse and Alcoholism, March 31, 1974. (NTIS - PB - 242 170)
- Colorado District Attorneys Association. *Prosecution Manual—Driving Under the Influence—Driving While Ability Impaired*. Denver: Colorado Highway Department, Division of Highway Safety, May 1976.

- Federal Rules Decisions. *Addresses Delivered at the National Conference on the Cause of Popular Dissatisfaction with the Administration of Justice*. St. Paul, Minn.: West Publishing Co., Vol. 70, pp. 79-246.
- Force, Robert. "Administrative Adjudication of Traffic Violations Confronts the Doctrine of Separation of Powers." *Tulane Law Review*, Vol. XLIX, No. 1 (November 1974), pp. 84-138.
- Insurance Information Institute. "Traffic Accident Experience in the United States." February 1977, *Insurance Facts*, 1976 Edition.
- Halper, Andrew and John McDonnell. *New York Department of Motor Vehicles Administrative Adjudication Bureau*. Washington, D.C.: Government Printing Office, 1974.
- Jones, Ralph K. *Traffic Case Adjudication System*. A Seminar. Bloomington, Indiana: Institute for Research in Public Safety, 1976.
- Kadish, Sanford H. "The Crisis of Overcriminalization." *Annals*, Vol. 374 (November 1967), pp. 158-170.
- Li, Livia K. and Patricia F. Waller. *Evaluation of the North Carolina Habitual Offender Law*. Chapel Hill, N. Ca.: University of North Carolina, March 1976.
- National Academy of Sciences, National Research Council, Highway Research Board. *Economic Costs of Traffic Accidents*. Bulletin 263. Washington, D.C., 1960.
- National Center for State Courts. *Survey of Judicial Salaries in State Court Systems*. Denver, Colorado, 1976.
- National Safety Council. *Accident Facts*. Annual Editions 1946-1976, Chicago, Illinois.
- New York Times*. "New Population Trends Transforming U.S.," February 6, 1977, p. 1.
- Packer, Herbert. "Two Models of the Criminal Process." *University of Pennsylvania Review*, Vol. 113 (1964), p. 1.
- Ross, H. Lawrence. "The Neutralization of Severe Penalties: Some Traffic Law Studies." *Law and Society Review*, Vol. 10 (Spring 1976), pp. 403-413.
- Saari, David J. "Modern Court Management Trends in Court Organization Concepts-1976." *The Justice System Journal*, Vol. 211 (Spring 1976), pp. 19-34.
- U.S. Department of Commerce. "Age Make-up of the U.S. Population Changing in the 1970's" *Commerce News*, February 11, 1977. Statistical Abstract, 1975 edition.
- U.S. Department of Health, Education and Welfare. *New Knowledge*. Second Special Report to the U.S. Congress on Alcohol and Health, June 1974. National Institute on Alcohol Abuse and Alcoholism.
- U.S. Department of Justice. *National Survey of Court Organization*. Washington, D.C.: Government Printing Office, 1973.
- \_\_\_\_\_. *Expenditure and Employment Data for the Criminal Justice System 1974*. Washington D.C.: Government Printing Office, 1976.
- U.S. Department of Transportation. National Highway Safety Advisory Committee. *Final Report of the Ad Hoc Task Force on Adjudication*. June 1973.
- \_\_\_\_\_. *1975-76 Interim Report on Alcohol Safety Adjudication by the Adjudication Task Force*. September 1976. (DOT HS-802-023)
- \_\_\_\_\_. *Hearings of Adjudication and Alcohol Subcommittee*. October 19, 1976.
- \_\_\_\_\_. *Mandatory Traffic Law Sanctions*. December 1976. (DOT HS-802-112)
- U.S. Department of Transportation. National Highway Traffic Safety Administration. *1975 Societal Costs of Motor Vehicle Accidents* by Barbara M. Faigin. Office of Planning and Evaluation. December 1976.
- \_\_\_\_\_. *New Trends in Advanced Traffic Adjudication Techniques*. February 1976.
- \_\_\_\_\_. *Report on Symposium on Effective Highway Safety Adjudication*. Vols. 1 and 2. March 1975. (DOT HS-249-3-704)
- \_\_\_\_\_. *Special Adjudication for Enforcement (Safe)*. 1st Annual Report, February 1976.
- \_\_\_\_\_. *Summary of ASAP Results for Application to State and Local Programs*. Vol. 1 ASAP Findings, Vol. 2 Costs. August 1976.
- \_\_\_\_\_. *Development of Advanced Traffic Adjudication Techniques*. Final Report. October 1976.
- U.S. Department of Transportation. Automobile Insurance Compensation Study. *Economic Consequences of Automobile Accident Injuries*. Vol. 1, April 1970.
- \_\_\_\_\_. *Compensation for Motor Vehicle Accident Losses in the Metropolitan Area of Washington, D.C.* December 1970.
- West, Anita S., Murray Blumenthal, John Reese, and Linda Elliot. *Traffic Adjudication in Denver, Colorado. Phase 1*. Denver, Colorado: University of Denver College of Law and Denver Research Institute. May 1976.
- World Book Yearbook 1974*. Chicago, Illinois: Field Enterprises, p. 78.
- Yoder, Richard P. "Prearrest Behavior of Persons Convicted of Driving While Intoxicated." *Journal of Studies on Alcohol*. Vol. 36, No. 11 (1975), pp. 1573-1577.

### 3. RELATED BACKGROUND REPORTS AND STUDIES

Allstate Insurance Co. *Crash Damage to Automobile*. October 1972.

U.S. Department of Transportation. *Manual of Procedure for a Study of the Cost of Motor-Vehicle Accidents*. October 1949.

\_\_\_\_\_. *Cost-Effectiveness and Highway Safety, Final Report*, by G.A. Fleischer. Los Angeles, California: University of Southern California, February 1969.

13 \_\_\_\_\_ *Highway Safety Workshop for Traffic Court Judges, Trainer's Manual*. November 1973.

\_\_\_\_\_. *A Report of the Status and Potential Implications of Decriminalization of Moving Traffic Violations*. December 1972.

#### Colorado

*Colorado Municipal Courts*, 1971.

*Attitudes Towards Traffic Offenses and Enforcement*, 1974.

*Annual Statistical Report of the Colorado Judiciary*, 1975-76.

*Colorado Municipal Court Manual*, 1970.

*Colorado County Judges Manual*, 1974.

#### Mississippi

*Survey of Traffic Courts in Mississippi*, 1969.

*DUI Probation Follow-Up Project, Detailed Plan*, 1976.

#### Tennessee

*Tennessee DWI Probation Follow-Up Demonstration Project, Detailed Plan*, 1976.

#### Utah

*Utah Courts of Limited Jurisdiction: Analysis and Recommendations*, 1976.

## REFERENCES

### Background Information and Analysis of Findings and Recommendations

- <sup>1</sup>1975-76-Interim Report on Alcohol Safety Adjudication by the Adjudication Task Force of the National Highway Safety Advisory Committee (September 1976).
- <sup>2</sup>Report on Symposium on Effective Highway Safety Adjudication, Vol. 11, Final Report March 1975, p. 16.
- <sup>3</sup>Gordon F. DeJong and Ralph R. Sell, *Population Redistribution, Migration, and Residential Preferences*, *Annals*, AAPSS Vol. 429 at p. 134, January 1977.
- <sup>4</sup>Don A. Dillman and Kenneth R. Tremblay, Jr., *The Quality of Life in Rural America*, Vol. 429 *Annals*, AAPSS at p. 129, January 1977.
- <sup>5</sup>Norval D. Glenn and Lester Hill, Jr., *Rural-Urban Differences in Attitudes and Behaviors in the United States*, *Annals*, Vol. 429, pp. 36-50, at p. 39, January 1977.
- <sup>6</sup>Data series are from the *Statistical Abstract of the United States 1976* and from the U.S. Budget through FY 1978. Some data is roughly comparable due to aging.
- <sup>7</sup>Not included are highway safety program funds provided to the states under Section 402 of the Highway Safety Act at approximately \$65 million annually. LEAA was funded at the \$698 million level in 1972, the National Institute for Alcohol Abuse and Alcoholism at the \$86 million level in 1972. Today LEAA is funded with budget authority at \$809 million, while NIAAA is part of a larger Alcohol Abuse effort of \$138 million.
- <sup>8</sup>See pp. 44-46 and 60-62 for further discussion in this report.
- <sup>9</sup>NHTSA, Planning and Evaluation, U.S. Department of Transportation, *1975 Societal Costs of Motor Vehicle Accidents*, December 1976.
- <sup>10</sup>California disagrees in *Gordon v. Justice Court*, 12 Cal.3d 323, 525 P.2d 72, 115 Cal.Rptr. 632 (1973), where lay judges were excluded. The state courts have rejected the *Gordon* case in *Ex parte Ross*, 522 S.W.2d 214 (1975) (Texas), *State v. Lindgren*, 235 N.W.2d 379 (1975) (Minnesota), *Tsiodia v. Rainaldi*, 547 P.2d 553 (1976) (New Mexico), and *Shelmdine v. Jones*, 550 P.2d 207 (1976) (Utah).
- <sup>11</sup>Except in jurisdictions with referees.
- <sup>12</sup>See K.C. Davis, *Discretionary Justice* (Baton Rouge, LA: Louisiana State University Press, 1969) and *Discretionary Justice in Europe and America* (Urbana, Illinois: University of Illinois Press, 1976).
- <sup>13</sup>Some say the public wants "prohibition with liquor". To put it another way, the public wants drunken drivers kept off the highways and severely punished, except when it involves themselves or a family member. The legislatures hear the irony of two conflicting desires.
- <sup>14</sup>H. Lawrence Ross, *The Neutralization of Severe Penalties: Some Traffic Law Studies*, Vol. 10, *Law and Society Review* (Spring 1976), pp. 403-413.
- <sup>15</sup>"The highest observed probability of arrest was about .02 (1 in 50) at a BAC of 0.20 - 0.24%. The overall probability of being arrested if drunk (BAC 0.10%) was .0058 (1 in 200). The probability of being arrested for DUI if a driver 'only had one drink, officer' (BAC 0.04%) is about 1 in 100,000. Since these probabilities are predicated on passing a police officer who is also watching for a drunken driver, the threat of apprehension in general is actually much less." G.A. Beitel, M.C. Sharp and W.D. Glauz, "Probability of Arrest While Driving Under the Influence of Alcohol," *Journal of Studies on Alcohol*, Vol. 36, No. 1, 1975, pp. 109-116 at p. 114.
- <sup>16</sup>See legislative dramatic changes in NHTSA, U.S. Department of Transportation, *New Trends in Advanced Traffic Adjudication* (1976), and the *Ad hoc* Task Force on Adjudication of the National Highway Safety Advisory Committee, NHTSA, U.S. Department of Transportation, *Mandatory Traffic Law Sanctions*, DOT HS 802 112 (1977).
- <sup>17</sup>1975-76 Interim Report on Alcohol Safety Adjudication by the Adjudication Task Force of the National Highway Safety Advisory Committee (September 1976).
- <sup>18</sup>NHTSA, U.S. DOT, *Summary of ASAP Results for Application to State and Local Programs*, Vol. 1 - *ASAP Findings* and Vol. 2 *Costs* (DOT HS 801 963) (1976).
- <sup>19</sup>See Everett M. Rogers and F. Floyd Shoemaker, *Communication of Innovations, a Cross-Cultural Approach* (2nd ed.) (New York: Free Press, 1971). See also, Everett M. Rogers and R. Agarwala-Rogers, *Communication in Organizations* (New York: Free Press, 1976).
- <sup>20</sup>Recommendation No. 1 suggests that liquor tax revenues may be helpful in overcoming resistance. See further comment below based upon a resolution of the NHSA (passed January 10, 1977).
- <sup>21</sup>See Excerpt from field notes of Mississippi visit in December 1976 which follows.
- <sup>22</sup>NHTSA estimate 1975 data.
- <sup>24</sup>Jeffrey O'Connell, *The Injury Industry and the Remedy of No-Fault Insurance* (New York: Consumers Clearing House, 1971).
- <sup>23</sup>Morris Chafetz, *Why Drinking Can Be Good For You* (New York: Stein and Day, 1976).

### Appendix A

- <sup>1</sup>Prepared for the U.S. Department of Transportation under Contract Number DOT-HS-7-3179.
- <sup>2</sup>Ralph E. Lapp, *The Logarithmic Century* (Englewood Cliffs, N.J.: Prentice Hall, 1973).
- <sup>3</sup>*The 1974 World Book Year Book* (Chicago, Ill.: Field Enterprises, 1974), p. 78.
- <sup>4</sup>E.F. Schumacher, *Small is Beautiful* (New York: Harper & Row, 1973), p. 25.
- <sup>5</sup>Kenneth E.F. Watt, *The Tragic Effect, Planning for the Unthinkable* (New York: E.P. Dutton, 1974).

- <sup>6</sup>The National Institute on Alcohol Abuse and Alcoholism reasons that in 1971 the loss in drunken driving was \$6.4 billion.
- <sup>7</sup>Sanford H. Kadish, *The Crisis of Overcriminalization*, The Annals of AAPSS, Vol. 374, pp. 158-170 (November 1967) and Herbert L. Packer, *The Limits of the Criminal Sanction* (Stanford, CA: Stanford University Press, 1968).
- <sup>8</sup>Nicholas N. Kittrie, *The Right to be Different, Deviance and Enforced Therapy* (Baltimore, Md.: Johns Hopkins Press, 1971).
- <sup>9</sup>The analogy to state control over persons with communicable diseases arose several times during visits.
- <sup>10</sup>Herbert Packer, *Two Models of the Criminal Process*, Vol. 113, University of Pennsylvania Law Review (1964), p. 1.
- <sup>11</sup>David J. Saari, Modern Court Management: Trends in Court Organization Concepts in 1976, *The Justice System Journal*, Vol. 2, Spring 1976, pp. 19-33.
- <sup>12</sup>Chief Justice Warren E. Burger, *Agenda for 2000 A.D.—The Need for Systematic Anticipation*, 70 Federal Rules Decisions 79-246 at p. 93 (April 7-9, 1976).
- <sup>13</sup>Aaronson, Hoff, Jaszi, Kittrie and Saari, *The New Justice—Alternatives to Conventional Criminal Adjudication*, Institute for Advanced Studies in Justice, December 1975. (To be published by GPO in 1977.)
- <sup>14</sup>*New Trends in Advanced Traffic Adjudication Techniques*, NHTSA, Department of Transportation (February 1976).
- <sup>15</sup>For an alternative conceptual pattern see *Traffic Case Adjudication System, A Seminar*, Institute for Research in Public Safety, Indiana University (1976) (in Testing in 1977) and *Report on Symposium on Effective Highway Safety Adjudication*, Vol. I & II, March 1975, by NHTSA.
- <sup>16</sup>See Norval Morris and Gordon Hawkins, *The Honest Politician's Guide to Crime Control* (Chicago: University of Chicago Press, 1970), pp. 62, 63, 73-75.
- <sup>17</sup>C. Ray Jeffery, *Crime Prevention Through Environmental Design* (Beverly Hills, CA: Sage Publications, 1971). Differences among the three criminology views is expressed by Jeffery in the table on page 59 of this report, which summarizes major assumptions.

**END**