BICYCLE SURVEY

Abstract: Background report on bicycle use in America and Europe as a basis for formulation of an EPA policy on bicycle use.

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TABLE OF CONTENTS

I. SUMMARY

This report is a brief study of bicycle usage in the United States and Europe today. It was conducted in-house by the Environmental Protection Agency, Office of Planning and Evaluation, for the purpose of determining the desirability of formulating an EPA bicycle policy. The major findings are summarized below and include recommendations for pursuing further the development of such a policy.

Bicycle Boom in Progress

America is experiencing an unprecedented boom in bicycle sales and uses. In 1972 bicycles outsold automobiles, 13 million vs. 11 million. Bicycle use has doubled in the last ten years, increasing dramatically since 1970 to the present level of about 80 million users. Looking to the future, it is estimated that by 1980, over 100 million persons will be using bicycles regularly.

Classes of Owners and Users

There are four major classes of ownership. Children and youth between 6 and 15 years old own the greatest number of bikes, with per capital ownership peaking at 15 years of age. Among adolescents, 16 and 17 years old, bicycle ownership falls off as access to the auto begins. Younger adults, 17 to 40 years old maintain relatively constant ownership, although the greatest increase in bike use is presently occurring in this age group. In 1972, about half the bicycles were sold to adults whereas in 1969 they only purchase 12 percent of the total. Finally,

ownership declines gradually for adults between ages 40 to 60.

Four types of users have been identified: Children and youths, recreational users, bicycle buffs, and utility users. While children and youths comprise the largest group of users, the recreational group rides over half of all total bike miles travelled. The bicycle buffs are a small but vocal group of bike racers, long distance cyclists and bicycle association members. The utility group makes a large percentage of total bicycle trips, either for commuting, shopping, or visiting friends.

Potential Environmental Dividend

A preliminary analysis by EPA suggests that increased use of bicycles in urban commuting could reduce auto vehicle miles travelled (VMT) by 2 to 3 percent, and perhaps even more in those cities for which EPA has proposed very strict transportation controls. Furthermore, because of the low average speeds involved in the short trips which the bicycle would replace, gasoline savings and auto emissions reductions would be slightly larger than these VMT reductions. Other less tangible environmental benefits would be noise reduction, space savings and the aesthetic pleasure of being closer to nature.

Cycling Incentives and Disincentives

Equally strong incentives and disincentives confront the potential cyclist, creating ambivalence toward bicycle use today.

Much of the general public does not fully appreciate the advantages the bicycle offers. Health and recreational benefits are substantial--cycling being often referred to as "perfect exercise"--and families can participate in the sport together. In addition, the bicycle offers mobility, autonomy, and literally door-to-door service at speeds comparable to auto travel in urban areas, while at the same time being a relatively inexpensive form of transportation. Finally, there are those who are committed to cycling because of the environmental dividend offered: it emits no air pollutants, uses few natural resources, is quiet and conserves space.

The major disincentives to cycling are: high accident rates, exposure to automotive air pollutants, uncontrolled bicycle theft, and insufficient support facilities.

The National Safety Council estimated that 850 cyclists were killed and 40,000 were injured in 1971 alone. Furthermore, the accident rate is growing at about 15 percent per year. Most of these accidents involve collisions with automobiles and in 2 out of 3 cases the cyclist violated a law or safety rule.

Because cyclists usually must use road and highway rights-of-way, they are exposed to excessive levels of automobile generated pollutants, primarily carbon monoxide, hydrocarbons,

lead and asbestos particulates. In addition, the cyclist ingests larger quantities of these pollutants due to his elevated respiration rate. Medical evidence indicates that such exposure increases the likelihood of respiratory diseases and stomach cancer.

Bicycle theft is a third major problem, having increased 30 percent in 1971 alone. Last year an estimated half million bikes were stolen. This crime is encouraged by the fact that stolen bicycles are hard to identify and have resale values of $40 to $300.

All of the above problems could be greatly reduced through better support facilities, both segregated bikeways and secure parking arrangements. In addition, such facilities would further promote bicycle useage by improving the convenience of this mode of transportation. Indeed, the ultimate development would be to integrate the bicycle mode with mass transit through parking facilities designed to provide a "feeder!' function.

Federal Posture

The Federal Government is just beginning to recognize bicycles as a viable form of transportation. In the past, government has been basically limited in its perspective of viewing the bicycle as a recreational vehicle rather than in a broader environmental and societal perspective. Since 1971, the Department of Transportation (DOT) has been the leader in promoting the bicycle. DOT has allowed states to fund bikeways along federally funded roads with high trust fund monies.

Other significant Federal agency activities are also underway. The Bureau of Outdoor Recreation and National Park Service are presently building limited bikeway networks for recreation on Federal lands, and Consumer Products Safety Commission is formulating bicycle design safety regulation; EPA has encouraged, to a limited degree, the use of bicycles as part of the Transportation Control Strategies to be employed in urban areas with high levels of automotive pollutants; and CEQ called together an ad hoc interagency committee to discuss the formulation of Federal policy on bicycles.

In terms of new legislation, the most promising development on the horizon is the latest amendment of Federal-aid Highway Act now before Congress. The bikeway section of the compromise bill authorizes $120 million of trust fund monies to be used for bikeway construction over the next three years.

State and Local Posture

State involvement to date has been mixed, although interest in bicycle use is definitely increasing. Twenty seven states are presently conducting research on the cost and benefits of bike facilities. Thirteen states have passed legislation promoting bicycle safety and facilities construction while an additional eleven have such legislation pending.

Local activities have been restricted to a handful of localities. Davis, California, boasts that 40% of all downtown trips are travelled by bicycles. Denver and Ann Arbor recently approved bond issues of $300,000 and $850,000 respectively, for bikeway construction.

European Experience

Europe is currently experiencing a resurgence in bicycle useage after a marked decline in recent years. Apparently the environmental concerns, urban congestion, and high costs of fuel, are contributing to the new bicycle boom. European countries particularly Sweden, Denmark, and Holland are actively promoting bicycle transportation by establishing separate rights-of-way, bicycle traffic lights, and pedestrian malls.

Conclusions

A. The bicycle is a viable form of transportation for short urban trips.

B. About 2 to 3 percent of the automobile vehicle miles traveled in urban areas could be shifted to bicycles.

C. Four major obstacles to bicycle usage exist: poor cycles and safety, exposure to air pollution, bicycle theft and lack of support facilities.

D. Providing adequate support facilities (i.e., segregated bikeways and secure parking facilities) and better law enforcement goes far in overcoming the major obstacles to cycling.

E. Although bicycle programs must be implemented at the State and local level, the Federal government can do much to promote such programs.

F. EPA occupies a unique position vis-a-vis bicycle usage, and can greatly contribute to a national bicycle policy:

- by encouraging bicycle programs through its rule-making related to transportation control plans
- by making clear to other Federal agencies the environmental implications of bicycle usage.

Recommendations

Based on the findings, of this study, the following Agency actions are recommended:

- Seek changes in current GSA policy, which discourages Federal employees from commuting by bicycle
- Make it more attractive for EPA employees to commute by bicycle
- Actively promote interagency coordination in the development of a national bicycle policy
- Launch campaign to make the public aware of the benefits of cycling
- Investigate the feasibility of making Washington, D.C. a model bicycle city in time for the Nation's bicentennial.

II. Introduction

This report represents a two-week effort to determine the "state-of-the-art" of bicycles in the U.S. and Europe in order to recommend the appropriate method for formulating an EPA policy on bicycles.

The body of the report details many aspects of bicycle use. It is divided into six sections. "General Use in America" describes who owns bikes, how they use them, and the prospects for urban commuting. "The Cycling Environment" develops the positive and negative aspects--the incentives and disincentives--surrounding the use of the bicycle. "Federal Posture" examines the existing Federal programs and policies addressing bicycle use and the recent and upcoming legislation on bicycles. "State and Local Posture" briefly surveys the bicycle related activities of the more progressive state governments and local jurisdictions. "Foreign Experience" briefly summarizes the salient European and other foreign bicycling experience. The remainder of the report is divided into two sections: "Conclusions of Phase I" and "Recommendations for Phase II," which enumerate the study findings and recommend both immediate activities supporting bicycle use and longer term activities buttressing EPA's policy orientation.

III. General Use In America

This section will be divided into three parts: (a) some statistics on market data including bicycle sales, use, and types; (b) ownership of bikes and (c) the use patterns, including types of users, potential use for urban work trips and an economic appraisal of bicycle commuting.

A. Some Statistics -- Market Data

In the six years from 1965 to 1971, the number of bicycles in use has increased 61 percent from 32.9 to 53.1 million. (See Appendix I). Bicycle users increased from 35.2 million in 1960 to 75.3 million in 1970, the bicycles per capita ratio increasing from .03 to .25 during the same period (See Appendix II).

Since 1970 the boom has been even more pronounced. The Bicycle Institute of America estimates that 1972 saw 85 million users, or one bicycle rider for every two persons between the ages of 7 and 69. For the first time since the advent of the automobile, more new bicycles were sold than automobiles in 1972,

13.7 versus 11.0 million. (See Appendix III). Bike sales doubled in 7 years - an increase of 65 percent occurring in 1972 alone over sales the previous year. (See Appendix I.)

The unprecedented boom has left manufacturers incapable of meeting the demand. For instance, in 1971, the Schwinn Bicycle Company had sold its entire 1971 production of 1.2 million units by May of that year.[2] Demand for vital component parts for domestic and foreign bicycles still exceeds supply today, despite dramatic plant expansion of both domestic and foreign plants this year.

As a percentage of national annual sales, foreign bikes now claim over 50 percent of the market - 4.5 compared to 8.5 million in 1972 whereas it averaged about 40 percent over the last decade. Japan leads the bicycle import business with about 29 percent of foreign sales, followed by the United Kingdom and Austria.[3]

Total industry dollar volume for 1972 was estimated at $700 million including bikes, parts and accessories.[4] Eighty-five percent of bicycle production has been geared to lightweight, multi-speed bicycles, priced at $60-500. This represents a dramatic change from the mid-1950's when 85 percent of production went to single speed children's bicycles.[5]

Projections are no less optimistic: the bicycle will not be the hula-hoop of the 1970's. By 1980 it is estimated

there will be 100 million cyclists in America and bicycling will continue to be one of America's fastest growing outdoor activities.[6] Bicycle sales may level off or even decrease slightly as the market becomes saturated with the more recent bike models, but use will continue to escalate.

B. Ownership

It has been a common understanding that bikes are for kids, and kids are for bikes. Clearly, until recently children had been the dominant bicycle users. Equally clear, the bicycle has become an attractive mode of transit for the adult as well. In 1972 50 percent of all bikes sold went to adults; in 1969 only 12 percent were sold for adult use.[7]

One index of ownership is bicycles per capita. Although statistics of per capita bicycle ownership by age are not available for the entire nation, a study completed for Ann Arbor, Michigan on bikeway development revealed the following:[8]

a. Bicycle use prior to school age is usually restricted by parents to areas very near the child's home. For this reason, ridership prior to age six is minimal.

b. Ownership rises sharply between ages six and fifteen. Ownership reaches its peak among 15-year olds (0.7 bikes per capita).

c. Between the ages 15 and 17 there is a pronounced decline in per capita bicycle ownership. This corresponds to a rapid rise in car ownership. Bicycle ownership then levels off and remains fairly stable until about age 40.

d. There is a gradual decline in bicycle ownership in the 40 to 60 age group. Ownership becomes insignificant at approximately age 60.

e. The age span between 18 and 45 is where the greatest increase in bicycle use and ownership can be expected.

Other characteristics of race, sex and increase are important determinants of who rides bicycles. Most surveys have found bicycling is a middle to upper class, predominantly white activity. Males of all age groups participate more than females, although the percentage of female cyclists is increasing.

C. Use Patterns

Patterns of bicycle use have been analyzed in three sections: the general types of users, the potential market for urban work trips, and an economic appraisal of bicycle commuting.

1. Types of Users

Bicycles use has been categorized into four types:

a. Children - this, the largest single group of the "transportation-deprived" looks to the bicycle as its only independent means of mobility. Cycling is also a form of recreation which is almost synonymous with childhood.

b. Recreational User - the pedalers who come out in fair weather to recreate on neighborhood streets and parks on evenings and weekends. Recreational use probably accounts for well over half the total miles ridden.

c. Bicycle Buffs - a small but vocal group comprised of the hard core cyclists. They sponsor bicycle racing, long distance tours, and generally lobby for cycling as a viable component of transportation networks.

d. Utility Users - a hardy breed appearing on the urban scene; the bicycle commuters, shoppers, school or university travelers now probably make a large percentage of all bicycle trips.

Several other surveys have been conducted around the country on use patterns. A recent study conducted in Lexington, Kentucky (a college town) suggests that 34 percent of trip destinations are school, university or work, while 15 percent are for shopping.[9] Another survey of League of Wheelmen Members in California (see Bicycle Organizations for explanation) indicated that 40 percent of their trips were recreational, while 23 percent were shopping, 23 percent were work and 14

percent were school.[10] Further, a survey of members of bicycle clubs in the Washington metropolitan area showed 43 percent attempt to commute regularly. (For more information see Appendix IV.)

Other results of the latter survey indicate that in the D.C. area, the average male respondent was 38 years old. The average female respondent was closer to 40 years old. This conflicts with the present presumption that the prime movers of the bicycle mode are college students and adults in their twenties. The assumption of younger participation may still prove true as the younger groups are probably less inclined than their elders to join an association or answer a survey.[11] In short, age breakdown for bicycle use is inadequate and in part conflicting.

2. Urban Work Trips - Potentials

Regardless of who exactly utilizes the bicycle, its potential use for certain types of transportation is profound. Specifically, 40 percent of all urban work trips made by the automobile are four miles or less. A recent survey was conducted for EPA on those who worked in center city Philadelphia and might be willing to commute by bike. 44 percent of those interviewed lived within six miles of city hall, and 33 percent owned bikes of which 75 percent were multi-speed. Out of the 500 motorists sampled, 32 percent said they would commute by

bicycle if there were safe bike routes and secure parking. Of the non-bike owners 17 percent said they would buy a bike to commute to work if the same conditions were met. It was felt that there would be a greater number of auto commuters converting to biking if there were more stringent restrictions placed on the auto.[12]

Similarly impressive figures for the Washington metropolitan area have been crudely estimated. The Washington Area Bicyclist Association, the Council of Governments and the D.C. City Council are all in agreement that, if personal safety and bicycle security problems were resolved, bicycle commuting would become acceptable to an estimated 44,000 people. Of this number, 8,000 could be expected to use their bicycles in the Central Business District.[13]

The construction of the Metro could allow mixed mode transportation so that an additional 66,000 persons would ride bicycles on segments of the trip to and from work. Of this number, 12,000 would use bicycles in the CBD.[14]

3. An Economic Appraisal of Bicycle Commuting

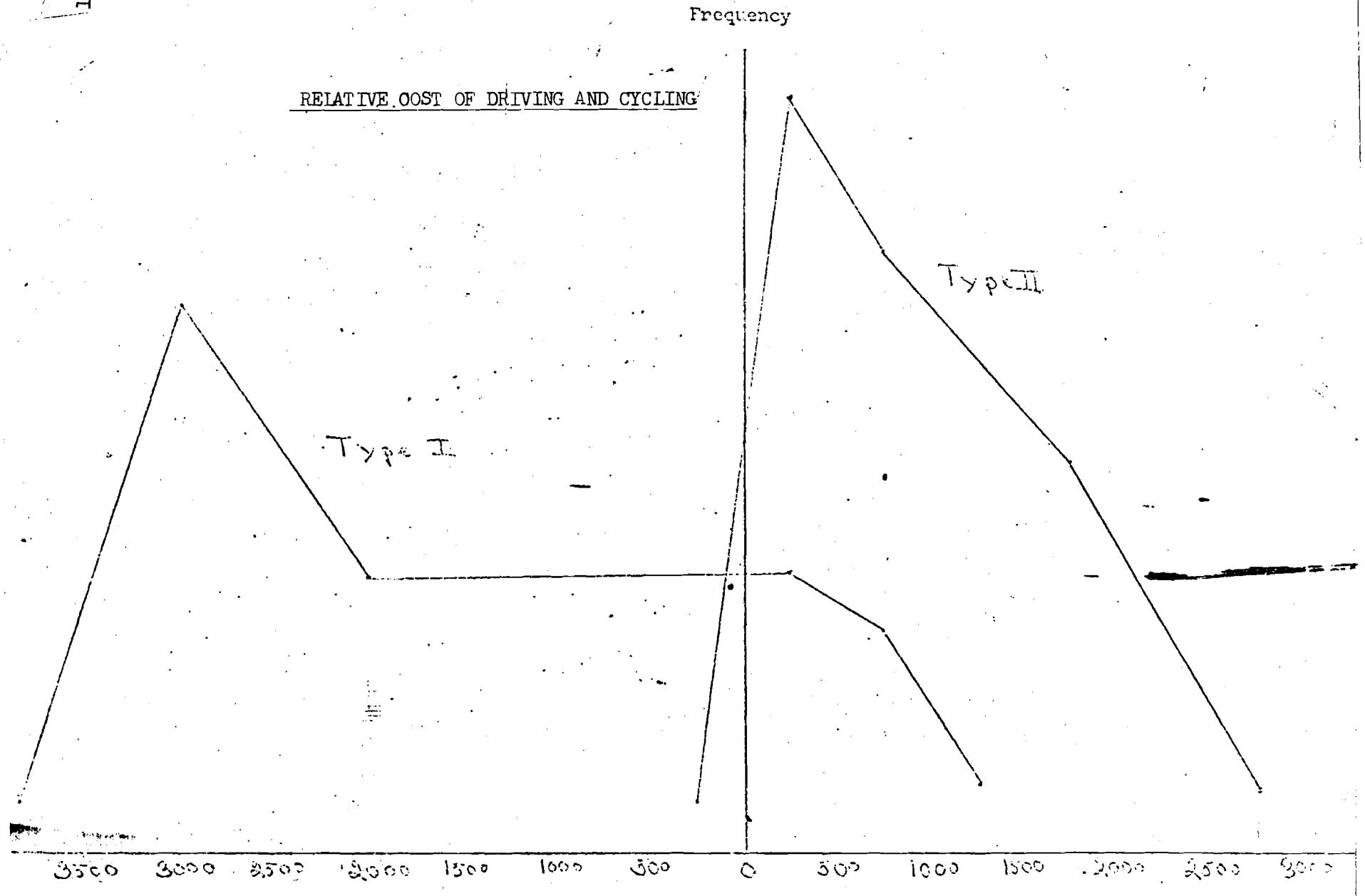
If general public opinion presently supports bicycle commuting, a preliminary analysis of the economics of bicycle commuting suggests a lack of economic incentive for white collar workers to convert from auto to bike.

Choice of mode of transportation is a bundle of services (and dis-services) which a commuter perceives a particular mode will provide him. However, the decision between using a bike or car for commuting can be viewed as "how to obtain the desired services or portion thereof, at minimum cost".[15]

A recent study examined two groups of prospective commuters - the white collar worker and the more casual university or college student. The paper identifies and models the fixed costs of car/bike acquisition; the distance commuting; the variable costs of maintenance, and parking; and the time costs of commuting, showering and so forth. The results are not too surprising as shown in Graph I: For a large majority of white collar (Type I) workers, significant savings will accrue from driving, while slight savings will accrue to a majority of students (Type II) from pedalling. What this analysis excludes is the quantification of benefits accruing to the white collar worker for health and recreational aspects received while commuting. These benefits would decrease the cost estimates, thus increase the propensity of the office worker to bike to work.

Development of this quantitative model is continuing through computer simulation.[16] Other theoretical, quantifiable efforts on commuter bicycle use may be available, but they have not come to light in research for this report. Further

research utilizing this model and others as formulated is clearly necessary before any final conclusions on economic viability of bicycle commuting can be reached.



Source: Mike Everett, "An Economic Analysis of Bicycle Commuting", Spring, 1973.

FOOTNOTES - BIKES

1. Much of the boom, at least according to Bicycle Institute of America, has occurred as a result of bicycle industry efforts to promote bicycling popularity including product publicty, safety education and community and public relations.

2. Atlantic Magazine, November 1971.

3. Bicycle Institute of America, Inc., "Some Facts About the Current Bike Explosion." August, 1972, p. 3. United Kingdom is 21% and Austria 14% of all foreign sales.

4. Ibid, pp 1-2.

5. Germano, A. Trent, et al, The Emerging Need of Bicycle Transportation, Georgia Institute of Technology, January, 1973.

6. Bureau of Outdoor Recreation, "Bicycle Speech Material," Winter, 1973.

7. Bicycle Institute of America, Inc., op cit, p. 1.

8. Smith, Haldon L., Ann Arbor Bicycle Path Study, Ann Arbor, Michigan, July, 1972.

9. City Planning Commission, Evaluation of Bicycling Facilities, Needs and Use, Lexington, Kentucky, 1972.

10. Institute of Transportation and Traffic Engineering, Bikeway Planning Criteria and Guidelines, University of California, Los Angeles, April, 1972.

11. Bernard W. Poirier, "Preliminary Analysis of Bicyclist Survey in Metropolitan Washington, D.C., and in California and Illinois, June, 1973.

12. Ralph Hirsh, "Bicycle Commuting into Central Philadelphia", for EPA by Philadelphia Coalition and Drexel University, Spring, 1973.

13. Washington Area Bicyclists Association, "Forecasts of Bicycle Usage," Spring, 1973, p 1.

14. Mike Everett, "An Economic Analysis of Bicycle Commuting", Spring, 1973.

15. Ibid.

16. Ibid.

IV. The Cycling Environment

The decision to bike or not to bike is a function of the incentives and disincentives to immerse oneself to the cycling environment. This section examines these two facets of an extremely complex question of factors relating to bicycle use. The incentives are identified as (a) reduced energy and emissions levels, (b) attainment of health and recreational benefits, and (c) other contributing factors. Disincentives are identified as (a) the prospect of physical harm; (b) the unhealthy exposure to auto and other pollutants; and (c) the probability of bike theft.

The lack of adequate bike facilities underlies most of the problems identified above and impedes the attainment of bicycling benefits. The state of bikeway technology and the possibility for dual-mode transportation is examined very briefly as a basic requirement for a positive cycling experience.

A. Incentives

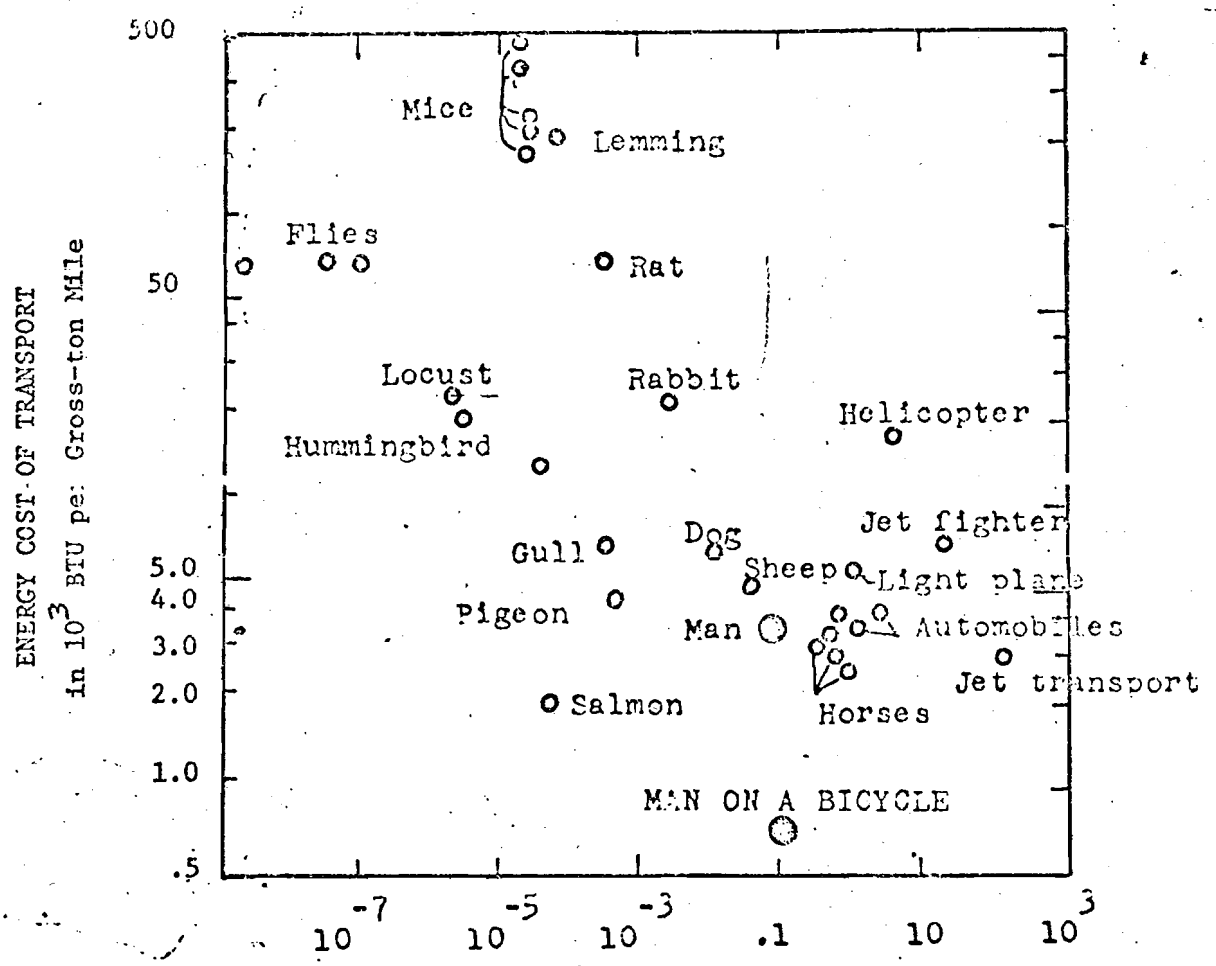
1. Energy Efficiency and Savings

This section will be divided into two sections--the first on the efficiency of the vehicle and, second, the fuel savings and consequent auto emission reductions plausably achieved by bicycle use.

a. Vehicle Efficiency. In relation to body weight, man on a bicycle is probably the most efficient energy utilizer on earth as demonstrated in Graph II. Bicycles deliver an incredible 500-700 miles per 130,000 BTU, the energy equivalent of one gallon of gasoline. In terms of another index, the Vehicle Transport Efficiency, which represents the efficiency of the entire vehicle in carrying itself through its operating medium,[3] the bicycle lies about in the middle between the least efficient mode, the "Auto with Driver" and the most efficient mode, "the Supertanker", as shown in Table.I.

b. Fuel Savings and Emission Reductions. Two obvious spin-offs from significant bicycle use are reduced gasoline consumption and reduced auto emission levels. The objective here is to estimate fuel savings and auto emission reductions. from bicycle use. Little research has been completed in this area, although the statistics for auto travel provide the jumping off point. As documented in the Home to Work Travel Survey, 1963, of the Bureau of the Census, 28 percent of all urban work trips are under 3 miles, and 54 percent are under 5 miles. However, According to the DOT Personal Transportation Survey of 1971, all trips under 5 miles represented only 11.1 percent of all vehicle miles travelled.

GRAPH II



Graph data from article by S. S. Wilson (Scientific American, March , 1973)

Table 1. Vehicle and Payload Transport Efficiency

	Gross weight, tons	Average speed mi/hr	Installed power HP	Vehicle Transport Efficiency (VTE)	(Payload/ Gross weight) ratio	Payload Transport Efficiency (PTE)
Supertanker	200,000	20	40,000	533	0.90	480
100 car train	8,000	50	5,000	426	0.65	277
Slow freighter	10,000	10	2,000	266	0.76	202
Passenger liner	86,000	35	140,000	93	0.26	24
Bicycle	.10	10	0.1	53	0.88	47
Large aircraft	375	600	70,000	17	0.25	4.3
Mach 3 aircraft	250	2000	335,000	8	0.10	0.8
City bus 3/5 full	13	10	225	6	0.20	1.2
Auto with driver	2	40	150	2.8	0.05	0.14

The normal acceptable range for bicycle commuting has been assumed to be 4 miles per one way trip. Thus, if all urban work trips less than 4 miles were converted to bicycles, roughly 8 percent of VMT are curtailed. Let us assume 1/4-1/3 of all urban auto work trips of this distance could be converted to bicycles, then 2-2.5 percent VMT reductions could be achieved easily. Assuming other short trips than commuting work trips would be affected, and assuming strict disincentives are applied to auto usage, VMT reductions may conceivably reach 8 percent. Given the prospects of gasoline rationing and the Transportation Control Plans now approved or proposed by EPA for 36 metropolitan areas, both assumptions seem plausible.

VMT reduction is the first calculation in estimating fuel savings and auto emission reductions. Although data is presently unavailable, cold starts, engine idling, and low average speeds, may cause gasoline consumption and thus emission levels to exceed associated VMT. (Source: EPA, Compilation of Air Pollutant Emission Factors. February 1972. Emission reductions could thus range between 2.0 and 4.0 percent depending on bicycle use. Even a one percent reduction significantly contributes towards meeting the legal requirements of metropolitan air quality control agencies for ambient air quality standards compliance. For instance, if a metropolitan area must reduce emission by 14 percent, the one percent emission reduction resulting from a switch to bicycles represents 7 percent of the required improvement. This demonstrates the bicycle's potential as a viable transportation control measure.

2. Health/Recreational Opportunities

Medical literature contains numerous reports on the physical and psychological benefits of bicycle training. These reports indicate that cycling offers a pleasurable way to:

--control body weight

--enhance the cardio-vascular status

--develop a slower heart rate

--lower blood pressure and heart rate

--increase strength and endurance

--improve the adequacy of the blood supply to the muscles of the extremities and the heart itself

--improve mood and emotional stability.[4]

Other benefits which accrue from bicycle use are family cohesiveness, the fostering of independence and self-reliance on one's own physical capacity. Cycling also allows a communion with nature. Speeds are slow enough to notice the immediate pleasantries of natural habitat and surroundings.

3. Other Contributing Factors

Other factors contribute to the decision to immerse oneself in the cycling environment. These include the silence of cycling, the vehicle versatility, and the parking relief.

Noise is becoming an intolerable yet tolerated fact of urban living. Cars, trucks, buses and other motorized vehicles cause ear pollution. Bikes are quiet. People enjoy bikes partially because they provide for auditory correspondence between the cyclist and his immediate environment.

Silence accruing from bike use provides a societal benefit as well as general personal benefit. Two senators recently returned from Mainland China to report that one of the most appealing facts of Chinese urban life was the absence of traffic noise. Only a swish of hundreds of bicycles can be heard at intersections.

Another positive inducement to bike use is the vehicle versatility. It can move in and out of traffic, travel on sidewalks, paths and meadows or discover alleys where larger vehicles are excluded. It provides a freedom of mobility, not so much from long distance travel (as with the automobile), but from expansive exploration of the out-of-the-way places. And on recreational trips particularly, conversion from the two wheel to the biped mode is as easy as getting off the bike--no problem with finding a parking place.

Not only does the cyclist not search for a parking place, but much less space would be needed than for auto parking. Sixteen bikes park in the space of an average American sedan. Other savings than space would occur. These savings can be expanded to reduced need for on-street parking, additional highway lanes, and so forth. The cluttered urban environment, would certainly become less congested.[6]

B. Disincentives

1. Personal Safety

Statistics show that the cyclist rides in a dangerous environment. The number of accidents, injuries, and deaths associated with bicycle riding has increased dramatically. While most bicycle accidents are caused by motor vehicle collisions, other accidents occur because of road obstructions, bicycle malfunctioning, inexperienced handling, traffic law violations, and lack of uniform traffic laws.

The National Safety Council estimated that 40,000 people were injured and 850 people were killed in bicycle accidents in 1971.[7] "Bicycle accidents are about 2% of the total fatal and 3.5% of the total of the reportable accident problems."[8] The problem is growing at an increasing rate of 14% to 15% per year.[9] Bicycle deaths are increasing at a faster rate than deaths caused by the automobile or any other source. Between 1961-1971, bicycle deaths increased 70% nationally, while motor-vehicle death increased 44%.[10] (See Appendix V.)

The cyclist, especially the commuter, is forced to ride on the road because of lack of bike paths. Most (71%) of the fatal bicycle accidents involve passenger cars.[11] A recent study conducted in San Diego found that 76% of bicycle-auto collisions occur at intersections and another 11% resulted from the opening of car doors.[12] In addition, accidents occur because of roading grading, pavement cracks and potholes, loose dirt and gravel, wet streets, curbs and other fixed objects.[13]

Many accidents occur because the cyclist is inexperienced. The high percentage of accidents that occur before driver education age strongly supports the need for earlier bicycle education. The Bicycle Institute of America urges early education in both traffic regulations and proper riding techniques.[14]

One out of four bicycles involved in accidents are mechanically defective.[15] The Food and Drug Administration standards for bicycles will hopefully improve this record. Another problem associated with bicycle use is that cyclists buy wrong sized bikes which they are then unable to control.

Another problem cyclists face is visibility, especially at night, by motor vehicle drivers. Cyclists fail to use reflectors and lights and police officers fail to enforce the law. The FDA standards will require reflectors on all bicycles. Educational programs in schools and driver education classes would help cyclist to realize the importance of being seen.

Estimates show that two out of three accidents occurred because the cyclist violated a law or safety rule.[16] Education programs and better law enforcement would make cyclists more aware of the hazards and necessity of obeying the law.

Finally, cyclists are forced to learn many traffic laws because they vary from state to state. For example:

bicycles are not vehicles under the Uniform Vehicle Code and the law of 38 states as of January 1, 1972. Though a bicycle is a vehicle in 12 states, these laws make it clear that a bicycle is a vehicle only for purposes of rules of the road.[17]

These problems could be greatly ameliorated if decision-makers established separate paths for bicycles away from traffic, eliminated obstructions in the roads, designed a safe bicycle, improved the design of intersections, established educational programs about safe bicycle riding, and enforced uniform traffic laws.

2. Exposure to Pollutants

The cyclist is usually forced to ride directly in the highway right-of-way because of the unavailability of bike trails. Thus, he is exposed to a variety of air pollutants, high concentrations of which have proven hazardous to health. Further, the cyclists increased respiration rate in this polluted environment compounds the ill-effects.

Studies show that the cyclist who travels along heavily congested roads is exposed to air pollution higher than general ambient air in the area.[18] For example, carbon monoxide (CO) and nitrogen oxides pollution levels along urban streets (at intersections) exceeds present Federal standards of 35 ppm. "During periods of stagnant air in cities curb-side levels between 100 and 300 ppm have been measured. Although levels drop off, CO readings may be high a block away from the road."[19] Also, there

is basis for speculating that a person travelling along a busy road is exposed to particulate matter higher than the general ambient air. These particulates include lead, asbestos from brake linings and tire particles, and hydrocarbons emitted from motor vehicles. Other particulate matter lying along the road are mixed into the air by the air turbulence caused by the vehicles.

Convincing evidence points to deleterious effects of air pollution on general populations including increased morbidity and other respiratory diseases.[20] While exercising in these higher concentrations of air pollution the cyclist ingests these pollutants. The frequency of respiratory diseases, stomach cancer, and chronic emphysema occurs among cyclists at a higher rate than for the rest of the population.[21] Exercise appears to accelerate CO bonding to hemoglobin because of the relatively large volume of air and CO being passed through the lungs.[22] The health effects can be both acute and chronic. Bike paths and routes located away from heavily trafficked routes and cyclist education programs covering the effects of air pollution on health would help reduce this hazard.

3. Bicycle Security

One of the most difficult problems a bicyclist faces is the lack of bicycle security. Based on reports

submitted from 1,723 cities in the U.S., the American Automobile Association estimates that over half a million bikes are stolen annually.[24] Bicycle theft accounted for 17% of all larcenies in the U.S. last year, and bicycle theft increased at least three times as fast as larcenies in general.[25] The FBI recently issued a report showing that bicycle theft has increased by 57% from 1960-1971 and grew at the unprecedented rate of 30% in 1971. The cost of bicycle thefts for the 80 million owners must be phenomenal; for in California alone police sources valued stolen bicycles in 1971 at $22,300,000.[26]

Based on the above statistics it is obvious that bicycles are not safe from theft if they are not locked up. Even when they are locked up, bicycles can be stolen. Most cyclists go to great lengths to secure their bikes from theft with a lock and chain to a permanent post or bike rack. However, bike thieves can steal locked bicycles by cutting the chain and breaking the lock with either wire cutters, wrenches or crowbars to twist, hacksaws and bolt-cutters. Boltcutters are most popular among bike thieves because of their strength and speed.

Bike thieves can sasily resell stolen bicycles at lucrative profits, for three reasons: (1) stolen bicycles are very hard to identify and claim; (2) multi-speed bicycles range in resale value between $40 and $300; and (3) recent shortage of new bikes at most bike shops.

Increased police enforcement must be undertaken to reduce theft and resale of bicycles. Several new methods of security and identification are being implemented. These include improved security devices, secure parking areas, bicycle licensing, and police bicycle squads, to name the more prominent. There are two, supposedly theft-proof, locks now on the market which cost between $15 and $20. One is a U-shaped locking device that foils the closed jaws bolt cutters. The other is a high alloy steel chain hardened throughout.[27]

Secure bicycle parking facilities are scarce and hard to find. As noted on the NBC TV news July 25, 1973, cyclists in Washington, D.C., are having problems with parking garages. Many garages refuse to let bicycles park and others charge the bicycle the full price as a car. Even where bike racks are placed in front of security guards, bike thefts occur. This has occurred, in fact, at EPA. However, Raymond Seakan, President of the Bike Security Systems claims there are new bike racks available which offer the bicycle more protection for both wheels instead of only one in the old style racks. In some locations, attended parking garages check bikes in and out by a ticket. DOT has applied this system. Conventional bike racks have also been installed at most government buildings in the Washington area.

Other proposals are to fix bike racks with chains embedded in concrete at transit stations. The cyclist only has to provide the lock. Enclosed lockers at metro stations is another feasible innovation.

Once a bicycle has been stolen, recovery is quite difficult. Bicycle identification is extremely difficult because very few municipalities have mandatory licensing or registration requirements. Until 1972, there were no required state bicycle licensing and registration programs.[28] Jay Townly of Schwinn Bicycle Company believes that local registration is not adequate. State-wide licensing and registration is needed because of the incidence of bicycles being stolen in one jurisdiction and sold in another.

In a state-wide registration program every bicycle would be registered with proof of ownership and serial numbers stamped on the frame for identification. Of course, the amount of success would depend on the number of states participating and the cooperation between states to catch bike thieves who cross state lines.

Other new program ideas for discouraging the resale of bikes is "Operation Identification" using driver license numbers and a nationwide bike registration system sponsored by the National Bicycle Dealers Association.[29]

Theft prevention not only depends on secure bicycle parking and bicycle registration, but it also depends on law enforcement. Washington, D. C. has begun an "officer friendly" program where police officers on bicycles try to prevent crime, and urge people to register bikes. Understandably policeman have found that it is difficult to chase a bike thief in a scout car.

Attempts to solve bicycle security problems have been irregular throughout the U.S. Although reasons for bicycle theft are being investigated, more and active programs are needed to prevent the growing number of bicycles stolen.

C. Support Facilities

It is time to consider the bicycle as a basic component of our transportation system. The bicycle is inexpensive, efficient, healthy and, perhaps most important, non-polluting. However, at present there are not enough adequate facilities to exploit the bicycle's potential. Following is a discussion of these facilities and what can be done to improve and expand them.

1. Bikeways

With the increasing use of and interest in bicycles in this country comes the need for pathways and routes where bicycles can be ridden with relative safety.

With several exceptions, the majority of "bike routes" in the U.S. today consist of little more than signs which guide bicyclists along their routes and admonish motorists of their presence.[30] A nationwide inventory by the Bureau of Outdoor Recreation indicates that throughout the country there are less than 3,000 miles of urban and suburban bikeways. There is, no doubt, a need for more bikeways.[31]

(a) Location of Bikeways

The "commuter" cyclist will advocate a route that is functional, while the recreational cyclist will support one that is isolated and scenic. There is, however, a unifying bond between both cyclists--a plea for protection from the automobile. Today's planners are thinking in terms of bike routes, separated as much as possible from automobile traffic, which serve the needs of both commuters and recreationists.[32]

(b) Cost

The cost of bikeway construction ranges from 0 to an excess of $10 per linear foot. This construction cost does not include the cost of land acquisition which is often the most costly factor.[33] These land aquisition costs can be reduced by the effective use of both abandoned and existing rights-of-way.[34] Also, recognizing their responsibility to make outdoor resources available to more people, private parties are willing to make their rights-of-way available for trail usage.[35]

(c) Safety

Safety on bikeways is probably the most important issue at present. Locating bikeways away from all automobile traffic is not practical, especially for commuter trails. Therefore, adequate signing for both cyclists and motorists is necessary, especially at auto crossings.[36] (The National Park Service in the D.C. area now have bike-mounted police who patrol the trails and offer assistance with breakdowns and accidents.)[37]

(d) Bikeways Surface

The type of surface best suited to bikeways is still in question. Porous, gravel surfaces are ideal for water runoff, although the dust from these surfaces tends to cause wear on the most sensitive parts of good bikes and is a slower surface than asphalt.[38]

(e) Maintenance

The National Park Service in the D.C. area is exploring the idea of maintaining bikeways through the use of volunteer "overseers" who would take care of minor maintenance problems of various sections of the trails.[39]

(f) Support Facilities

Probably the most demanding concern is for safe and adequate parking at access points along the trail. Increasing

the number of access points helps reduce this, as does providing for the opportunity to bicycle to a particular section of the trail as opposed to driving to it. Rentals, restrooms, water, and showers are important secondary facilities which can increase the vitality of any trail, but especially recreation-oriented routes.[40]

2. Inter-modal Integration

When traveling more than 2-5 miles, one might find it convenient to consider dual-mode transportation. This would include the use of bicycle-automobile systems, bicycle-bus systems and bicycle-mass transit systems.[41]

(a) Bicycle-Automobile Systems

The travel system of the automobile and bicycle does not appear to have restrictions on its application or feasibility. It has mixed mode commuting application as a freer mode to car pools and to peripheral parking. For recreational purposes, this system provides the usual automobile mobility which is a necessity for the weekend cyclists since public transportation accommodating cyclists is extremely limited. One problem which might arise is lack of inexpensive, safe, and conveniently located parking facilities for both car and bicycle.[42]

(b) Bicycle-Bus System

The bicycle-bus system is the most obvious possibility for integrating bicycles into dual-mode use in public transportation. It holds promise for average

trip speeds more competitive with automobiles and for a large increase in potential ridership of a given bus line. To realize these improvements, bicycle-bus route planning must take into account the unique capabilities of such a system.[43]

Some problems with the bicycle-bus system include storage volume required, access for loading and unloading, protection and restraints to avoid damage to bikes or other baggage, and ease and speed of loading and unloading.[44]

(c) Bicycle-Mass Transit System

Generally, bicycles are restricted from passenger cars of trains and mass transit vehicles, with the possible exception of the folding bike. However, trains with baggage cars accept bicycles in their baggage service. Thus, train commuters requiring bicycles at both ends of their trip may be accommodated by trains with baggage cars or by having two bikes--one for the downtown station and one for the home station.[45] Concern for safety and secure parking appear to be major deterrents to the cyclists and liability and expense deterrents to the railway.[46]

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   Vehicle Transport Efficiency is defined as:

$$VTE = \frac{(W)(V)}{P}$$

   Where

   VTE = vehicle transport efficiency
   W = vehicle gross weight
   V = average speed
   P = total installed power

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28. Jay Tonnley, Bicycle Laws, Ordinances & Enforcement; Theft & Registration, The Past & Future State and Local Registration Programs. (Speech presented at Bicycle Synposium 1973).

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37. Wilkinson, p. 7.

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45. Lum, p. 8.

46. Lum, p. 6.

V. Federal Posture

In the past, the Federal Government has not given much attention to bicycles. However, because of the recent bicycle boom and the present need for new transportation alternatives, the bicycle is receiving more recognition and consideration in existing federal programs and policies, and recent and upcoming legislation.

A. Existing Federal Programs and Policies

While there is no legislative authority given to agencies by any bill, and while there is no national policy for bicycles, many agencies have studied the bicycle. EPA, DOT, DOI, the Consumer Protection Agency, CEQ and others have all been involved to some degree as summarized in Table II.

1. Environmental Protection Agency

EPA has promoted bicycle use little, if at all. For the most part, EPA's activities have been restricted to sending representatives to (a) an interagency working group sponsored

FEDERAL AGENCY INVOLVEMENT IN BICYCLE POLICY

AGENCY	REASON FOR CONCERN	LEGISLATIVE AUTHORITY	AGENCY PROGRAMS (ACTIVE)	RELATED ACTIVITIES	POTENTIAL INVOLVEMENT
EPA	Environment (Air pollution and energy use)	1970 Clean Air Act	Office of Air Programs (Transportation Control Plans)	1972 Motor Vehicle Report. Participation in CEQ Interagency Meeting. Participation in Nat'l Bicycle Symposium.	Transportation Control Plans, Policy Statement Studies, Funding.
DOT	Transportation	Fed. Aid Highway Act Urban Mass Transit Act. National Highway Safety Act. Dept. of Transportation Act.	Office of Safety Affairs Pedestrian Safety Committee	Bike paths, bike racks in gov't. offices. Co-sponsored Nat'l Bicycle Symposium. Bike safety	Bicycle program office Funding Bike lanes Safe Traffic Regulations
DOI	Recreation	1968 Nat'l. Trails Act Land and Water Conservation Act.	BOR Nat'l. Park Serv.	Co-sponsored Nat'l. Bike Symposium.	Funding Bike Trails Support Facilities
Consumer Products Safety Commission	Safety	Regs. of product safety	FDA	NONE	Funding and Enforcement
CEQ	Environment	NONE	NONE	CEQ Interagency work group Annual Report (mention of bicycles)	Funding Studies Coordination
D.C. Government	Recreation;	NONE	NONE	Studies on use of bikes, bike safety bike secutiry	Demonstration City

by CEQ; (b) a bicycle symposium held in Washington in February sponsored by DOI; and (c) the National Bicycle Symposium sponsored by DOT and DOI. Bicycles were also briefly mentioned in EPA's 1972 Annual Report to Congress, Progress in Preventing Motor Vehicle Emissions. EPA could become more involved in promoting the bicycle because of certain sections in the Clean Air Act Amendments of 1970. Section 104 of the Act gives EPA the authority to develop low emission alternatives to present internal combustion engines. Obviously, bicycles could be considered. Also, Section 110 requires States to submit plans for implementing the national ambient air standards in each state air quality region where transportation control measures are necessary to reduce the auto emissions. Bicycle useage could thus be generally encouraged through these plans, as they now are in the plan submitted for the Denver urban area.

EPA disapproved all but 8 of the 43 transportation control plans submitted by the states and the District of Columbia.

In the preamble to its notice of June 22, 1973, publishing the approval/disapproval notices, EPA mentioned bicycles as one means of reducing the number of miles travelled in automobiles in urban areas: "Alternative transportation capacity ... exists in the possibility that many short trips now made by car could be made by bicycle or on foot". However, in their transportation control strategies, every state except Colorado disregarded bicycle planning, although bicycles are mentioned very briefly in the Pennsylvania plans. Arizona, California, New Jersey, Texas, Oregon, Pennsylvania and New York all have provisions for a bus car/pool lane but do not provide bikelanes.

The one exception, the Denver, Colorado plan, includes an integrated strategy for bicycle use, the results of which are projected to reduce emissions by one percent by 1975. The plan proposes a pilot bicycle route to be built as a first step to indicate how a prospective system of 164 miles might work. Total implementation costs are estimated at $800,000 to $900,000.[1] A bicycle license fee of $5 for two years would levied to cover the costs.

Citizen groups testified at public hearings in the District and Pennsylvania and other areas and submitted written public comments asking that provisions for bicycles be included in the plans.

However, the comments and testimonies were practically ignored as no comprehensive bicycle provisions became incorporated in the plans.

2. Department of Transportation

DOT has been the leader and the most active agency in promoting the bicycle since early 1971 when Secretary of Transportation John A. Volpe and Secretary of Interior Rogers C.B. Morton made a joint decision to promote bicycling. Secretary Volpe mentioned the bicycle alternative in many speeches in 1971, particularly the inauguration speech for Transportation Week, May 16, 1971, in Washington, D.C.[2] DOT has shown interest in almost every aspect of bicycle use, although efforts to integrate bicycles with other modes of transportation have fallen off recently.

Four offices within DOT have developed complementary programs on bicycle use. These are: The Federal Highway Administration (FHWA), the Office of the Assistant Secretary of Transportation for Environment, Safety, and Consumer Affairs (TES), the National Highway Traffic Safety Administration (NHTSA), and the Urban Mass Transit Administration (UMTA).

a. Federal Highway Administration

FHWA has organized a planning group to keep abreast of new developments in bicycle paths and traffic control. It is working on a set of guidelines in

cooperation with the American Association of State Highway Officials for the design of bike paths and the control of bicycle traffic. More importantly, this group has published the Policy and Procedures Memorandum (PPM) 20-23, "Bicycle Routes Along or Crossing Federal-Aid Highways," issued March 14, 1973.

The PPM provides Federal support of bikeways by allowing the use of Highway Trust Fund money for bikeways. It permits and encourages state highway departments to request money for bikeway projects as part of the over-all highway program. Federal grant-in-aid monies are then given to state highway departments to complete all projects approved by FHWA.

Other key provisions of the PPM are: (1) bikeways can be built only along Federal-aid highways and as part of larger highway project, (2) the percentage funding from the Federal grant in-aid is identical to that of the associated highway project, and (3) monies are allocated from the Highway Trust Fund. The number of projects existing or proposed under this mandate currently stands at 21.[3]

The FHWA Office of Research, is investigating design criteria for bicycle paths. Other research efforts in bicycle safety include traffic control, uniform marking and physical restraints.

b. Office of the Assistant Secretary of Transportation for Environment, Safety, and Consumer Affairs (TES)

TES has launched a number of activities related to bicycle use, including the following: gaining information on bicycle programs in 10 U.S. cities; issuing a memo setting forth the conditions under which trails for bicyclists and bikers may be constructed with Federal money; completing a contract with BART to demonstrate the integration of bicycles with mass transit; funding with UMTA and NHTSA of a community planning manual on bicycle facilities; provided leadership in planning DOT's national bicycle symposium in May, 1973; and provided technical assistance to the staff of the Senate Public Works Committee on the bicycle provisions included in the Federal-Aid Highway Act of 1972.

c. National Highway Traffic Safety Administration (NHTSA)

NHTSA has engaged in basically two projects. Its Research Institute is beginning a study of pedestrian and bicycle accidents including causes, types, and prevention. And its Traffic Safety Programs has proposed a revision of its Highway Safety Program Standards which include bicycle and pedestrian traffic.

d. Urban Mass Transit Administration (UMTA)

UMTA has contracted with Washington's METRO for a demonstration project on bicycle access and parking facilities. Other contracts for bicycle use complementing mass transit systems are also being considered.

Finally, DOT has been quite active in the Washington Metropolitan area by laying out the bicycle paths on National Capital Parks property for both commuting and recreational purposes; obtaining bike racks in enclosed government parking areas as well as in planned metro stations; and organizing Symposium on Bicycles with the Transportation Systems Center and DOI, which brought together Federal, state and local officials, industry representatives, policy safety officials and bicycle organizations.

3. Department of Interior

The Department of Interior has also been active in promoting bicycles since early 1971. Emphasis in this agency is on recreational usage of bikes. Two offices explicitly provide for its use: the Bureau of Outdoor Recreation and the National Park Service.

a. Bureau of Outdoor Recreation. The National Trails Act is the main mandate for BOR involvement. Enacted in 1968, it has helped to establish better conditions for cyclists. Its full potential has not yet been realized. More specifically, it (1) encourages states to consider establishing bicycle (and other trails) on public lands in or near urban areas; (2) provides for adding urban trails to the National System; (3) provides for interagency cooperation on bike trail development on abandoned property; and (4) allows planning for bicycle use on some sections of National Scenic Trails Systems.

The Bureau provides matching grants to States and local jurisdictions of approximately $300 million per year for recreational facilities including bikeways. Despite this impressive amount, the California legislature has found that State and local agencies do not always seek available Federal funds under this LWCF.*

Other BOR activities include sponsoring bicycle symposiums, disseminating information on utility transportation rights-of-ways abandonment, and reviewing environmental impact statements for inclusion of bike trials. (For more detailed information see Appendix VI.)

b. The National Park Service. The National Park Service has also played an active role by sponsoring

*LWCF is Land and Water Conservation Fund

bike-related activities and establishing new miles for bike trails. Rock Creek Parkway and Mount Vernon trail in Washington are one of their projects. In 1971, they classified 232 miles of trails within its parks as being suitable for bikes. The Park Service has declared 1973 the "year of the Bike. This designation is a testament to its conviction that the bicycle should become an acceptable, integral and equal component of urban transportation systems.

4. Consumer Products Safety Commission (CPSC)

CPSC's concern is not for providing the bicycle as a transportation or recreational vehicle but rather for providing a safe vehicle for children to ride. Therefore, the U.S. Food and Drug Administration's Bureau of Product Safety will be coming out with final regulations requiring bicycle manufacturers to make products which meet a whole series of strict performance, configuration and visibility standards. FDA initiated these standards because more than one million bicycle-related accidents occur annually (See Safety) Therefore, the purpose of these standards is to provide children less than 16 years of age with a safe vehicle. The regulations are aimed at mass-produced bikes to effect the standard of equipment and accessories on the bike as it goes into the user's hands.

5. Council on Environmental Quality

CEQ has not been very actively concerned with the bicycle movement. However, CEQ did mention bicycles in its Third Annual Report as a possible alternative mode of transportation in national parks. An ad hoc interagency working group convened at CEQ's request for the purpose of formulating Federal policy on bicycles. This working group discussed incorporation of bicycle planning specifications in existing programs, funding of bikeways, action on bicycle theft, traffic safety, initiation of technical research and development, and the designation of Washington, D.C., as a "model bicycle city." Except for CEQ plans to mention bicycles in its next annual report, no other follow-up has occurred.

6. Other Federal Programs

A recent survey of Federal Programs shows that approximately 260 federal programs administered by 92 separate federal entities could, in theory, provide funding for bicycle trails. However, the Department of Parks and Recreation has stated in response to the survey that very few of these 260 programs translate into bike related dollars and cents. Twenty-two of the most promising programs are identified in Appendix VII.

In a proposal for a National Bikeway System, DOT listed a number of Federal programs which could be used to plan and/or develop urban, surburban, and intercity bike routes of various types-shared roadways, grade separate pathways (See Appendix VIII).

B. Recent/Upcoming Legislation

Attempts in 1971 and 1972 to obtain funds for bikeways through legislation were only mildly successful. The Bicycle Transportation Act of 1971 and 1972 and the 1972 Federal-Aid Highway Act failed to pass or even get out of conference. Also, two new bills were recently introduced to Congress, one dealing with abandoned rights of way and the other with installing bicycle racks. Both of these bills failed to pass and have not been reintroduced.

The only promising legislation to remove the obstacles to safe and healthful bicycling across America is the Federal-Aid Highway Act. The conferees allotted $40 million in annual bikeway authorizations from the Highway Trust Fund for separate and preferential bike lanes. The money will be provided in the form of grant-in-aids ranging from 50 to 70 percent to the State highway departments. Lanes can be built only as part of a highway project, but may be removed from the highway right-of-way as long as they bear bicycle traffic which would have used a Federal-aid route. This money will be available to the 50 states and the District, with no more than $2 million of any single state's highway monies going

for construction of bikeways and pedestrian paths annually. The money could be used for construction of bikeways along Federal primary, secondary, urban and forest systems but not for bikeways along Federal interstate highways. The bill also provides $5 million for a bikeway safety study and requires the secretary to promulgate bikeway safety compliance standards for state highway safety programs. The conferees approved the Highway Fund Bill July 20, 1973, and has won Senate approval. It still awaits House action before going to the President for his signature.

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3. Department of Transportation/FHWA, Policy and Procedure Memorandum, Transmittal 285, 21-23, March 14, 1973.

VI. State and Local Posture

A. General Survey

State governments appear to be concentrating their efforts in the areas of research, development of planning and design criteria, and funding for local systems. Twenty-seven states are conducting bicycle research; thirteen states have passed related legislation; and another 11 have such legislation pending. Finally, 13 states have prepared planning and design criteria.[1] State funding of bikeways and other facilities has generally been quite limited. Notable exceptions are Oregon, Michigan, Washington, and California, all of which have passed legislation allocating a fixed percentage (usually 1 percent) of all gasoline tax revenues for investment in bicycle facilities.

B. The Bicycle Progressives

Several state and local government efforts deserve special recognition. They have taken a progressive attitude to bicycle use and provide examples for others to emulate.

1. State Efforts

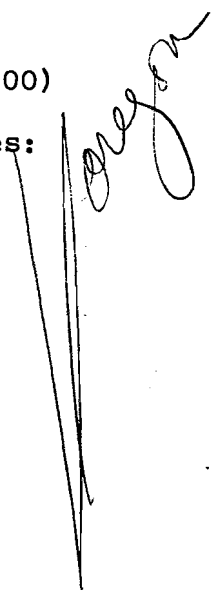
(a) California has been the leader with at least 37 cities and counties having existing bicycling

facilities and with twenty other systems being planned. Davis, California is one of the best examples of viable bicycle transportation systems where 60 percent of all rush hour traffic is on bicycles.[2]

(b) Florida, the next most active state, has 20 existing systems and five in the planning process. The midwest states of Indiana, Illinois, Ohio, Michigan and Wisconsin have all taken large strides in the implementation of bicycle facilities. Collectively, these states have at least 51 existing bicycling systems and 15 more in the planning stage.[3] (See Appendix on State and Local activities in Bikeway Development).

(c) Oregon has enacted legislation (H.B. 1700) which has provided a model to many states. The Act states:

> "Footpaths and bicycle trails should be established wherever a highway, road or street is being constructed, reconstructed or relocated. Funds received from the State Highway Trust Fund may also be expended to maintain such footpaths and trails; to establish footpaths and trails along other highways, roads and streets and in parks and recreation areas...The amount expended by the commission or by a city or county as required or permitted by this section shall never in any one fiscal year be less than one percent of the total amount of the funds received from the highway fund."[4]



(d) Arizona recently passed a bicycle study bill on a statewide basis from which $50,000 was appropriated from the general fund for the highway department to administer.[5]

2. Local Efforts

The city of Davis, California is probably the best example in the U.S. of the bicycle being used as a major transportation mode, almost equal to the auto. California's climate provides ideal conditions for bicycle riding and the city-built bicycle path network makes it possible for the bicycle to be used safely as a regular transportation vehicle.

Davis's population of 24,000 own 18,000 bicycles. No other city in the U.S. has such a high proportion of bicycle ownership--and in Davis, "owning" means "using."[6] "On one heavily travelled street, traffic counts during the summer (with few university students in town) revealed that bicycles represented 40% of all traffic rush hour; 90% of all riders were adults.[7]

Davis, California lends itself to bicycle riding because of its mild weather, flat terrain, wide streets, a collegiate town's age breakdown and, a majority of the population living within two miles of downtown and campus. Equally important, Davis has adequate bike lanes and paths and new development in the city must set aside space for bicycle lanes separated from traffic.

Over the past 8 years Davis has had authority to promulgate bicycle regulations. Before 1967, the City Public Works Department made plans to create bike lanes on the outside of streets which were over 50 feet wide. Then the passage

of California Motor Vehicle Code in 1967 permitted the Davis City Council to build bike lanes and regulate bike traffic. Present plans call for 12 miles of bicycle paths by 1974, including five miles of lanes completely separated from the roadway.[8]

The high percentage of commuters that ride bicycles on the bikeways has provided the city with less rush hour traffic, almost no parking problems and the separated bikeway system has reduced the auto-bicycle accidents.[9]

The City of Chicago and its suburbs have some of the best bicycle paths removed from motor vehicle routes in the country. Over one hundred miles of pathways, all paved in some manner, wind through forest preserves, along the shore of Lake Michigan, and across virgin praries. The Chicago Park District Lakefront Bicycle Path is on excellent commuter path for those living a short distance from the lake shore either north or south. The most extensive of the bicycle paths is the DuPage Praire Path which extends over 20 miles through the western suburbs of the city from Elmhurst to Elgin or Aurora. The Green Bay Trail provides a quick way of traveling through Chicago's northern suburbs to the outskirts of Evanston.

It is worth noting that as of October of 1971 the City of Chicago had twenty-six bicycle lots of various sizes, all in the central downtown area. Until recently, there was an active Association of Bicycle Commuter which succeeded in having several city streets designated as bicycle routes. This, however, consisted of no more than the posting of such streets marked "Bicycle Route," which did no demonstrable good for those cyclists who attempted to use the route.

Local initiatives and jurisdictions include:

- In April 1973, the City of Ann Arbor, Michigan passed an$850,000 bond issue to provide an immediate 91 mile bike commuter system.

- Denver citizens voted approval of an $300,000 bond issue earmarked for bikeways in the fall of 1972. Also, partially with BOR assistance, the city created another bike system (along Cherry Creek).

- The D. C. Policy Department recently instituted the Friendship Force which now has 10 bicycle-mounted police on patrol.

This coverage has been somewhat limited due to time constraints. However, the status of 1973 State Bikeway Legislation and the state activities in Bikeway Development across the country are included as Appendices IX and X.

Footnotes - State and Local

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2. Doug Adler, Administrative Assistant for Congressman Koch

3. Germano

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5. Ibid.

6. Robert & Somner & Dale F. Lott, "Bikeways in Action: The Doris Experience," The Bicycle Institute of America.

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8. Ibid.

9. Ibid.

VII. European Experience

Because of the expense of automobile ownership and use and the prevalent crowded conditions, extensive bicycle use has been an accepted fact in Europe since the bicycle was first introduced. In some areas, such as Copenhagen in Denmark, Upsala in Sweden, Rotterdam in the Netherlands, and Stevenage in England, bicycles account for as much as 43 percent of all the trips made by any form of transportation.[1] In order to accomodate cyclists and promote the increased use of bicycles, many areas have constructed special facilities.

The Netherlands has separate roadways for bicycles with underpasses and traffic signals and extensive parking facilities are available in shopping and business areas. In Holland and Sweden, a commuter may check his bicycle at a train station and rent another at his destination. Bicycles are available at 90 stations in Holland and 750 in Sweden. Holland also has special bicycle trains which enable the cyclists to take their vehicles with them.[2] Holland, Denmark, Sweden, and Finland all have comprehensive bicycle plans which will be implemented in the next few years. Many cities throughout the continent have extensive systems of bicycle lanes separated from the highways and many metro stations have large protected bicycle parking areas.

Sweden recently began to institute comprehensive arrangements for bicyclists and Copenhagen and Stockholm already have separate bicycle paths.[3] Many other cities, such as Oxelosund, are constructing auto free malls in the center of town with access for cyclists and pedestrians.[4] Sweden's "modal-split" transportation plan provides for separate lanes for every mode of transportation. In Landskrona, for instance, the bicycle mode will be six minutes (30%) faster to the town limit than a bus or auto.[5]

Bicycle accidents in Europe pose a problem basically because of the number of cyclists. The theft rate in Europe is also rising rapidly because of the lack of adequate security devices.

Although Europe has not solved all the problems associated with bicycle use, in general, the combination of bicycles, public transportation, and autos has been shown to be an effective transportation system. If safe facilities are available for bicycles, people will tend to use them.

European Experience Footnotes

1. Washington Area Bicycle Association, Ride On, Vol. II, No. 1, WABA Inc., April-May 1973.

2. Robert Sommer and Dale F. Lott, "Bikeways in Action: The Davis Experience" presented as a public serve by the Bicycle Institute of America, 1973.

   Wesley Lum, "Bicycles in Mixed-Mode Travel," produced as part of a program of Research and Training in Urban Transportation sponsored by Urban Mass Transportation of the Department of Transportation, April 1973.

3. Steve Hudak, Secretary, Washington Area Bicycle Association, Extensive Study of European Bikeways, June-July 1973.

4. Nils Rosen, "Modal Split Should Be At Least Triple Split," presented at Swedish Embassy, June, 1973.

5. Ibid.

VIII. Study Conclusions

Based on the findings of this preliminary study, the following conclusions have been reached with regard to the development of an EPA bicycle policy.

A. Bicycle technology, current useage and public opinion survey results indicate that the bicycle is a viable form of adult transportation for short urban shopping, work and recreation trips.

B. Potential exists for significantly reducing gasoline consumption, automotive emissions and noise in urban areas. About 2 to 3 percent of the automobile vehicle miles travelled in these areas could be shifted to bicycles.

C. Realization of a significant shift from autos to bicycles is highly dependent on overcoming four problems: high accident rates, exposure to automotive pollutants, high bicycle theft rate and lack of support facilities. of support facilities.

D. Cyclist safety is perhaps best improved through the construction of bikeways segregated from automobile traffic; better cyclist education, enforcement of traffic laws and improved mechanical condition of bicycles also would help.

E. Reducing the cyclist's exposure to excessive air pollution can only be accomplished through segregated

bikeways located a sufficient distance from heavy automobile traffic.

F. Bicycle theft is perhaps best combatted by better law enforcement methods aimed at making the resale of stolen bicycles a difficult and risky business; secure parking facilities and more effective locking devices also would help alleviate this problem.

G. The construction of adequate support facilities, primarily segregated bikeways and parking racks, not only enhance the convenience of cycling but also, as noted above, complements efforts to remove the other major obstacles to bicycle usage.

H. The construction of bikeways and better law enforcement are public goods, requiring governmental involvement.

I. Although the implementation of bicycle programs must occur primarily at the state and local levels, the Federal government can play a significant role to promote such programs.

J. Within the Federal family, EPA occupies a unique position vis-a-vis bicycle usage; whereas the other agencies have mandates to pursue the limited objectives of financing facility construction and promulgating safety in a recreational context, EPA has a broader environmental perspective.

K. EPA could greatly contribute to the development of a national bicycle policy in two ways:

1. by encouraging bicycle programs through its rule-making related to transportation control plans,
2. by making clear to other Federal agencies the environmental implications of bicycle usage.

IX. Recommendations

The objective of this report has been to research the "state-of-the-art" and usage of bicycles in order to recommend appropriate steps toward the formulation of an EPA bicycle policy. Based on the study findings and conclusion, the following Agency actions are recommended.

A. Seek changes in current GSA policy.

Present GSA policies constrict bicycle use by Federal employees. Several changes could increase bicycle commuting throughout the government.

We are working with GAS on the following suggestions:

- o Include in all of GAS bicycle lease solicitations the requirement that secure provision be made for the shortage of bicycles
- o Provide safe storage facilities in existing government buildings
- o Modification of present GSA policy forbidding employees from bringing bicycles into their offices.

B. Make it more attractive for EPA employees to commute by bicycle.

The best incentive for the feasibility of change is through example or demonstration. EPA should be designated a model agency for bicycle use. Incentives for bicycle usage include:

- o EPA will construct a secure bike storage area for commuting cyclists. In addition, showers will be available to them.
- o EPA will encourage managers of EPA facilities outside of Washington to incorporate similar charges.

C. Actively promote interagency coordination in the development of a national bicycle policy.

Encouragement of bicycle use nationwide realizes different benefits to each of the Federal agency programs involved. These various aspects should be complementary. Coordination could occur through an existing mechanism, such as the CEQ sponsored ad hoc interagency committtee on bicycles. EPA should thus encourage the formalization and active functioning of this skeletal framework of DOT, DOI, HEW, CEQ, and EPA, representation. Issues appropriate for interagency coordination at this time include:

- Analyses of the costs and benefits of bikeway facilities, of the elasticities underlying shifts from auto to bike trips and of methods for alleviating personal safety and bicycle security problems.
- Sponsorship of a conference on bicycle use in the spring of 1974.

D. Launch a campaign to make the public aware of the benefits of cycling.

The benefits accruing from bicycle use have been inadequately publicized to the public at large. Accordingly, EPA would initiate a publicity program to:

- Prepare phamphlets, film and/or TV commercials on the benefits of bicycle use through its Office of Public Affairs
- Publicize the The Denver Bikeway Network by having a prominent EPA official to deliver a bicycle speech in Denver
- Publicize internal EPA efforts to make bicycling attractive to its employees.

E. Investigate the feasibility of making Washington, D.C. a model city in time for the Nation's bicentennial.

Washington has considerable potential for developing an integrated bike network with its high density residential areas close to major employment centers. Several bicycle plans have been drawn up and could be implemented. EPA should determine the costs and benefits of making D.C. a model city, in time for the bicentennial, perhaps in conjunction with other Federal agencies.

Determination of the benefits would include defining the:

- Number of auto trips feasibly converted to bicycle trips before and after Metro completion
- Health and recreational benefits
- Probable number of accidents eliminated.

Determination of costs would include defining the:

- Physical infrastructure costs of the network
- Administrative costs
- Police and enforcement expenses.

Implementation will entail identification of funding sources, enlistment of citizen participation, and gaining intergovernmental cooperation between various federal agencies and state governments.

APPENDICES

1. Annual Sales of Bicycles
2. U.S. Bicycles and Users Per Capita
3. Bicycles vs. Automobile Sales
4. Bicycle Use
5. Dateline chart of Bicycle Injuries and Deaths
6. Programs under Bureau of Outdoor Recreation, Department of Transportation relating to bicycling
7. State/Federal programs relating to Bicycling
8. Potential Federal Programs for Bicycle Transportation
9. State Activities in Bikeway Development
10. Summary of 1973 State Bikeway Legislation
11. List of Bicycle Manufacturers
12. List of National Bicycle Organizations

APPENDIX I.

Annual Sales in Millions: U.S. Manufacturers and Imports

Year	Domestic Sales	Import Sales	Total: U.S. & Imp.	Bikes in Use*	Est. Users*
1960	2.6	1.1	3.7	23.5	35.2
1965	4.6	1.0	5.6	32.9	49.3
1968	6.0	1.5	7.5	42.3	63.4
1969	5.1	2.0	7.1	47.7	71.5
1970	5.0	1.9	6.9	50.0	75.3
1971	6.6	2.3	8.9	53.1	79.6
1972	7.5	5.5	13.		95.3

* Bikes in use estimate is based on estimated bike "life" multiplied by a unit sales factor. Rentals and other multiple use situations are calculated into the Estimated Users estimates.

Source: Bicycle Institute of America, Inc., "Some Facts about the Current Bike Explosion., 1972.

Appendix II.

Table 1
U.S. BICYCLES AND USERS PER CAPITA

	1950	1960	1970
U.S. Population	150,000,000	180,000,000	203,000,000
Bicycles	---	25,500,000	50,000,000
Users	19,000,000	35,200,000	75,300,000
Bicycles Per Capita	---	0.03	0.25
Users Per Capita	0.15	0.26	0.37

Source: U.S. Census and Bicycle Institute of America

Appendix III.

Table 2
BICYCLE AND AUTOMOBILE SALES

Year	Bicycle Sales (millions)	Automobile Sales (millions)
1968	7.5	8.8
1969	7.1	8.2
1970	6.9	6.5
1971	8.9	8.6
1972	13.7	11.0

Source: Some Facts About the Current Bike Explosion, Bicycle Institute of America, 1972.

APPENDIX IV.

Bicycle Use

V. The Findings

For purposes of exposition, we will present the Los Angeles area findings first, then compare those to Washington; and finally, add the New York and Chicago results to what has preceded. Los Angeles is chosen first as the most dispersed and therefore most automobile-reliant city of the four.

TABLE 8.1 "How many miles do you travel to work?"

No. of Miles	L.A.	D.C.	N.Y.C.	Chicago
one mile or less	6%	2%	4%	3%
2-3 miles	17	10	15	11
4-5 miles	12	11	13	10
6-7 miles	5	9	5	11
8-9 miles	3	7	6	5
10-11 miles	12	11	11	13
12-13 miles	2	13	5	6
14 or more	41	35	38	37
no answer, etc.	2	3	3	3

NOTE: Data in this and subsequent Tables are those given by respondents who use cars or car pools as their primary means of travel to work.

TABLE 8.2 "How long does it take to get to work?"

Length of Time	L.A.	D.C.	N.Y.C.	Chicago
0-9 minutes	10%	3%	8%	10%
10-19	35	16	27	23
20-29	16	16	16	29
30-39	14	21	18	18
40-49	12	26	8	11
50-59	2	5	3	2
60-69	6	6	7	3
70-79	1	4	1	0
80 minutes or more	0	0	6	0
no answer, etc.	3	2	6	4

TABLE 8.3 "Do you use your car for anything in addition to going directly to or from your work?"

If other uses	L.A.	D.C.	N.Y.C.	Chicago
yes, frequently	79%	60%	68%	78%
yes, sometimes	10	20	23	12
almost never	0	12	2	3
never	1	5	2	1
no answer, etc.	8	3	4	5

Source: Student Competitions on Relvant Enginerring, Inc., Urban Vehcile Design Competition, Feb., 1973.,p.93-96.

TABLE 8.4 "How likely is is that you would continue to drive to work, if it were made very difficult for you to use your car for these additional purposes?"

Likelihood of continued use	L.A.	D.C.	N.Y.C.	Chicago
very likely	52%	53%	47%	60%
somewhat likely	16	23	28	17
somewhat unlikely	12	10	7	11
very unlikely	7	6	11	6
no answer, etc.	13	7	7	6

TABLE 8.5 Point at which respondent would "probably decide NOT to use a car to get to work", because of an increase in parking cost.

Increase in parking cost of...	L.A.	D.C.	N.Y.C.	Chicago
...less than five dollars	40%	29%	41%	43%
... five dollars	22	22	25	25
...more than five dollars and less than ten dollars	3	3	4	3
...ten dollars	14	27	13	8
no answer, etc.	20	19	18	22

TABLE 8.6 Point at which respondent would "probably decide NOT to use a car to get to work", because of an increase in tolls.

Increase in tolls of...	L.A.	D.C.	N.Y.C.	Chicago
...less than one dollar	32%	20%	24%	27%
...one dollar	19	23	20	28
...more than one dollar and less than two dollars	7	2	6	4
... two dollars	6	9	16	10
...more than two dollars and less than three dollars	1	0	2	1
...three dollars	10	16	12	6
no answer, etc.	24	29	21	24

TABLE 8.7 Point at which respondent would "probably decide NOT to use a car to get to work", because of an increase in the cost per gallon of gasoline.

Increase in cost per gallon of gasoline of...	L.A.	D.C.	N.Y.C.	Chicago
...10¢ or less	30%	30%	33%	35%
...11-20¢	16	25	20	20
...21-30¢	14	14	12	14
...31-40¢	10	4	7	3
...41-50¢	13	11	13	11
no answer, etc.	16	16	16	16

TABLE 8.8. Point at which respondent would "probably decide NOT to use a car to get to work", because of a chance of not finding a legal parking space.*

Probability of not finding a legal parking space of...	L.A.	D.C.	N.Y.C.	Chicago
...less than 50%	48%	50%	43%	44%
...50%	24	23	23	25
...more than 50% and less than 100%	6	3	9	4
...100%	5	5	6	6
no answer, etc.	17	19	19	21

*Respondents were asked to "assume a 50% chance of getting a $25.00 ticket if you park illegally."

TABLE 8.9 Importance and present rating of areas served by public transportation: "How important (are areas served) to you in deciding whether to use public transportation?" "How would you rate (areas served) as presently found in your city's public transportation system?"

	L.A.	D.C.	N.Y.C.	Chicago
IMPORTANCE:				
very important	64%	66%	45%	53%
important	19	22	32	24
not very important	2	1	4	4
not important at all	1	0	3	1
no answer, etc.	14	11	17	18
PRESENT RATING:				
very good	3%	2%	9%	5%
good	10	23	33	24
not very good	20	23	14	18
poor	22	19	12	16
very poor	23	19	13	11
no answer, etc.	22	14	18	26

TABLE 8.10 Importance and present rating of schedule frequency.

	L.A.	D.C.	N.Y.C.	Chicago
IMPORTANCE:				
very important	57%	64%	50%	52%
important	22	25	26	25
not very important	5	0	6	4
not important at all	3	1	2	1
no answer, etc.	14	10	17	17
PRESENT RATING:				
very good	2%	1%	3%	2%
good	12	21	26	24
not very good	20	22	21	19
poor	15	19	14	11
very poor	29	21	17	15
no answer	27	16	19	30

TABLE 8.11 Importance and present rating of trip time.

	L.A.	D.C.	N.Y.C.	Chicago
IMPORTANCE:				
very important	55%	55%	49%	48%
important	29	33	29	27
not very important	5	1	4	6
not important at all	3	1	3	1
no answer, etc.	10	9	16	17
PRESENT RATING:				
very good	0%	1%	4%	2%
good	21	20	23	23
not very good	16	24	23	23
poor	20	18	16	13
very poor	23	21	17	12
no answer, etc.	20	16	18	27

TABLE 8.12 Importance and present rating of cleanliness of public transportation facilities and vehicles.

	L.A.	D.C.	N.Y.C.	Chicago
IMPORTANCE:				
very important	41%	26%	38%	30%
important	36	50	31	40
not very important	13	11	13	8
not important at all	2	1	4	2
no answer, etc.	8	12	15	21
PRESENT RATING:				
very good	3%	1%	4%	2%
good	42	36	15	24
not very good	14	26	20	20
poor	13	12	19	15
very poor	6	10	25	9
no answer, etc.	22	15	17	30

TABLE 8.13 Importance and present rating of comfort on public transportation.

	L.A.	D.C.	N.Y.C.	Chicago
IMPORTANCE:				
very important	31%	22%	32%	23%
important	38	48	31	38
not very important	16	16	17	15
not important at all	3	2	3	3
no answer, etc.	12	12	17	22
PRESENT RATING:				
very good	1%	1%	3%	2%
good	38	36	18	28
not very good	19	26	21	19
poor	14	12	21	13
very poor	7	10	20	9
no answer, etc.	21	15	18	28

TABLE 8.14 Importance and present rating of equipment age.

	L.A.	D.C.	N.Y.C.	Chicago
IMPORTANCE:				
very important	23%	15%	25%	16%
important	28	34	25	28
not very important	23	30	26	28
not important at all	10	9	7	5
no answer, etc.	15	12	18	23
PRESENT RATING:				
very good	1%	2%	5%	3%
good	42	34	21	31
not very good	22	26	24	15
poor	2	12	17	13
very poor	9	9	16	10
no answer, etc.	23	17	18	29

Dupicated from A. Trent Germano, et. al., The Emerging Need of Bicycle Transportation, Georgia Institute of Technology, Jan. 1973.

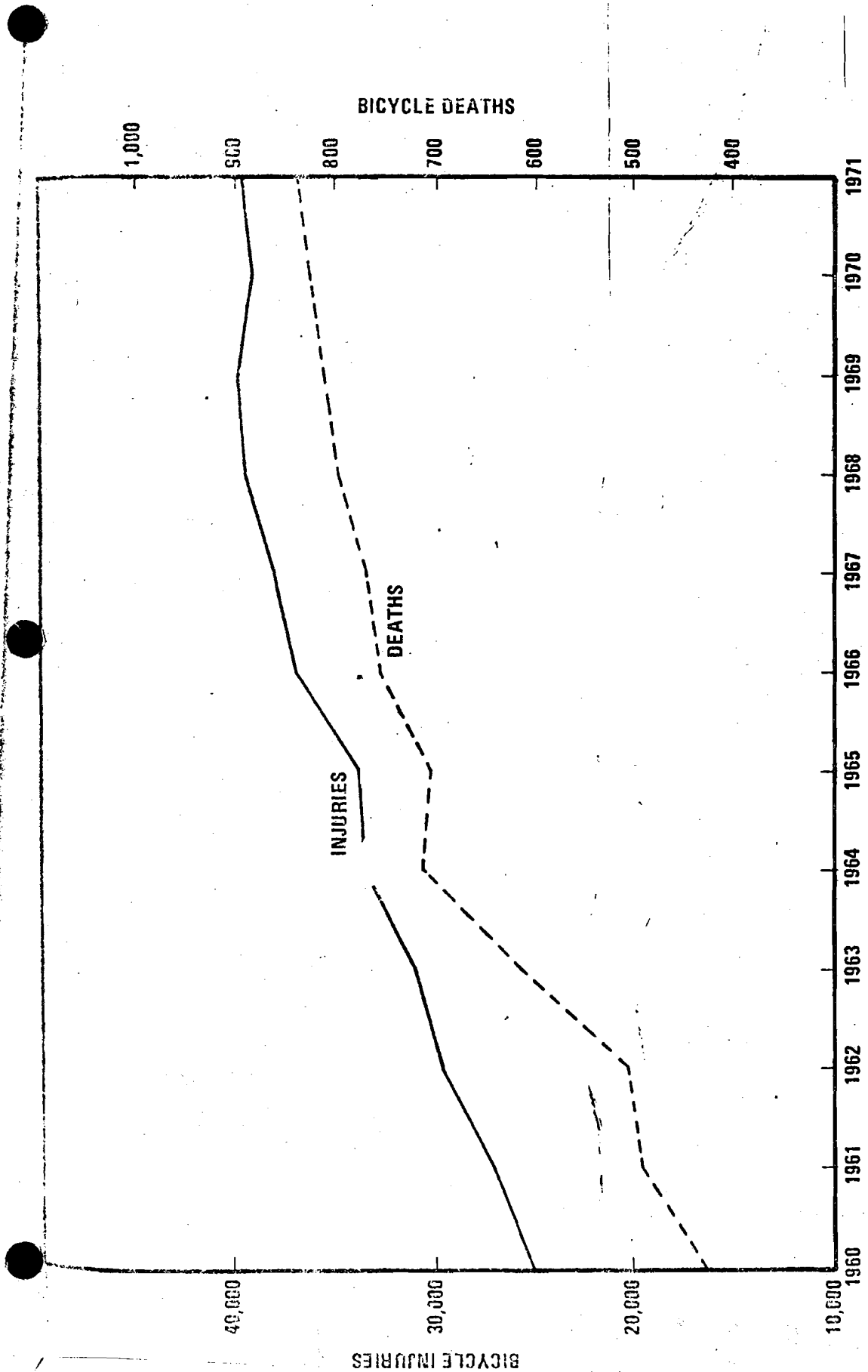

FIGURE 3. U.S. BICYCLE INJURIES AND DEATHS (11)

APPENDIX VI

Programs involving the Bureau of Outdoor Recreation, Department of the Interior, which promote bicycling safety and enjoyment

1. National Trails Act

   a. Encourages States to consider in SCORPS and in requests for financial assistance from the L&WCF, the needs and opportunities for establishing trails, including bicycle trails, on public lands in or near urban areas.

   b. Secretary encourages States and private organizations to establish urban trails

   c. Provides for adding urban trails to the National System. Ten trails designed for bicycle use have been added to the National System by the Secretary.

   d. Provides for cooperation with DoD, DoT, ICC, FCC, FPC, and other Federal agencies having jurisdiction or control over abandonment or disposition of rights-of-way or other properties which may be suitable for trails in order that abandonments which have trail potential may be made available for such use.

   e. Allows planning for bicycling (non-motorized use) on some sections of those trails named for study as possible national scenic trails.

2. Technical Assistance

   a. Technical Assistance Clearinghouse - collects and maintains information on 35 major outdoor recreation subject categories, one of which is bicycling.

   b. Outdoor Recreation Action - a quarterly publication reporting private, local, State and Federal outdoor recreation and environmental actions

   c. Technical Assistance Meetings Media Program - stimulates governmental and private action through workshop meetings. The Bureau planned and co-sponsored the 1st National Symposium on Trails in 1971 and is cooperating with the National Trails Council in planning for the second symposium in June, 1973. BOR will conduct a Mid-Continent workshop to promote bicycling in Denver in 1973 and will co-sponsor (with DOT) a National Symposium on Bicycling for Recreation and Commuting in Cambridge, Mass., in May 1973.

   d. BOR provides planning assistance for bicycle trails.

Presented by BOR at the CEQ Interagency Task Force meeting

e. Screens applications and disseminates information regarding proposed right-of-way abandonments to State planners and interested trail groups.

f. Compiled list of railroad right-of-way abandonments from 1960 to 1970 which, hopefully, will be published in the near future.

g. Cooperated with the Department of the Interior Library in the preparation of a bibliography on Bicycling and Biclcle Trails. (Bibliography Series No. 24, available from the National Technical Information Service, Springfield, Virginia)

3. Environmental Review

a. Review of EIS on right-of-way abandonments to determine effect on the environment in removing such open space from public use.

b. Review of EIS on section 4(f) statements. BOR often recommends that State highway agencies incorporate bicycle trails into the highway project.

4. Nationwide Planning. The Bureau is compiling an inventory, through questionnaires to public planning bodies, of all outdoor recreation facilities. The section of the questionnaire on trails will be broken down into uses, including bicycle trails.

5. Financial Assistance. Through the L&WCF, the Bureau of Outdoor Recreation can provide matching grants to States and political subdivisions, under certain conditions, for the purchase of lands for and the development of bicycle trails.

State of California, Resources Agency, Department of Parks and Recreation
1416 Ninth Street, Room 15[illegible] Sacramento, California 95814
Phone [illegible] 445-4441

STATE AND FEDERAL PARK, RECREATION, AND HISTORIC
FINANCIAL ASSISTANCE PROGRAMS TO LOCAL JURISDICTIONS
Partial List—June 1969

APPENDIX VII

STATE PROGRAMS

PROGRAM	PURPOSE	EMPHASIS	PLANNING REQUIREMENTS	PROJECT REQUIREMENTS	BASIS FOR FUNDING	ADMINISTRATIVE AGENCY
Harbors and Watercraft Loans and grants	Development and minimum acquisition (planning & construction loans)	Pleasure craft, water access, marinas	Site plan; engineering and economic feasibility report	Developable site	Plan loans - 10 years; Construction loans - 20 yrs; Launching facilities grants; Refuge harbor grants/loans	Dept. of Harbors and Watercraft, 1416 Ninth Street, Sacramento, California
Wildlife Conservation Act of 1947	Acquisition and development	Hunting & fishing access, boat ramps, lake construction, wildlife habitat improvement	Site plan; engineering and economic feasibility report	State or regionwide significance; Recreation related to wildlife; Local agency willing to operate and maintain	WCB develops and turns over to local agency (50-100% varies)	Wildlife Conservation Board 1416 Ninth Street, Sacramento, California
Davis-Grunsky Grants	Acquisition and development	Water surface for recreation use + minimum land, basic facilities	Engineering and economic feasibility report	Conformity to California Water Plan	100% grant; $400,000 maximum, additional with legislative approval	Department of Water Resources, 1416 Ninth St.,
1964 Park Bond Act Grants	Acquisition and/or development	Regional park, recreation, & historic areas	County general plan, project on recreation element, intercounty pact (urban project)	50 acres (acq.), multi-purpose, County Board of Supervisors approval	100% grant apportioned on population basis	Dept. of Parks & Recreation 1416 Ninth Street Sacramento, California

FEDERAL PROGRAMS

PROGRAM	PURPOSE	EMPHASIS	PLANNING REQUIREMENTS	PROJECT REQUIREMENTS	BASIS FOR FUNDING	ADMINISTRATIVE AGENCY
Land & Water Conservation Fund	Acquisition and/or development	Recreation lands meeting regionwide urban needs, overnight use	General plan for jurisdiction, conform to State Recreation Plan intercounty pact (urban acquisition	Acquisition; 50 acres or $50,000; Development: no minimum, but must serve regional needs; multi-purpose projects	50% grant (Note: State bond funds may be used for matching)	Bureau of Outdoor Recreation through Dept. of Parks and Recreation, 1416 Ninth St. Sacramento, California
Title VII "Open Space" Land Grants	Acquisition, limited development, demolish, relocate	Establish open and recreation lands in urban areas; day use	Comprehensive plans for jurisdictions and urban region	In urban areas, no size limit, basic facilities	50% grant (State bond funds may be used for matching) 100% relocation grants	Dept. of Housing & Urban Development, 450 Golden Gate Avenue, San Francisco, California
Urban Beautification and Improvement Grants	Development	Beautification of urban environment	Comprehensive plans for jurisdictions; part of larger local beauty program	Continuing program necessary	Incremental: 50% of difference between prior 2 yrs. beauty budget & proposed 1 year budget	Dept. of Housing & Urban Development, 450 Golden Gate Avenue, San Francisco, California
Urban Renewal	Acquisition, development	Urban park & recreation areas	Seven step program including comprehensive plan	Renewal program must consider P & R facility	2/3 federal, 1/3 local (acq. costs of P & R area can count toward 1/3)	Dept. of Housing & Urban Development, 450 Golden Gate Avenue, San Francisco, California
Recreation and Public Purposes Act	Acquisition	Establishing recreation areas on public domain lands	Amount of acreage limited yearly	Public domain land. Project proposal from applicant	Public agencies may acquire BLM land at $2.50/acre or lease at 25c/acre/year for 25 yrs.	Bureau of Land Management 650 Capitol Avenue Sacramento, California
Public Law 566: Small Watershed Act	Planning, acquisition, and development	Conservation, recreation, Reservoirs and other multiple-use areas, basic facilities	Feasibility, technical, and construction reports	Small watershed development project	Grants (50%) and loans	U.S. Soil Conservation Svc. thru State Div. of Soil Conservation, 1416 Ninth Street, Sacramento, Calif.
[illegible] Grant	Comprehensive planning	all planning elements,	Recreation element can	Statement of goals and	2/3 federal, 1/3 local	HUD through State Office of

Public Works & Development Act of 1965 - Economic Development Planning Grants	Plans, programs, and facilities to economically depressed areas	Public and private recreation	Review by State Office of Planning	Start in short time, reduce unemployment, & long-term economic development	Grants (50-80 %) with no legal limit. Loans	Economic Development Administration, 450 Golden Gate Ave., San Francisco, California
Disposal of Surplus Federal Land - Federal Real Property Grants	Acquisition	Park, recreation, and historic areas	Site plan	Review by U.S. Bureau of Outdoor Recreation	Land available at 1/2 market value for public purposes. Historic sites. No charge	General Services Administration, 450 Golden Gate Avenue, San Francisco, California
Historic Preservation	Acquisition, restoration and improving sites, buildings, or areas	Historic or architectural significance in urban areas	Compliance with local general plans	Urban Areas; meet National Register criteria; active use by local community	Grants up to 50% of costs	Dept. of Housing & Urban Development, 450 Golden Gate Ave., San Francisco, Calif.
Aging: Older Americans Act of 1965; PL 89-73, Title III	Financial support for outdoor recreation programs	Staffing & operating multi-purpose activity services	Comprehensive state plan for services to older people	State administer and supervise program. Plan approved by Secty HEW	75% of cost first year; 60% second year; 50% third yr. (No funds for construction of facilities)	California Commission on Aging, 1108 Fourteenth St., Sacramento, California
Aging: Older Americans Act of 1965; Titles IV and V	Training of persons working with aged or preparing for such work	Original research, conducting or expanding training	Conformance with State Plan for services to older people	Originality and need	100%; sharing of costs preferred	Regional Office, Administration on Aging, 50 Fulton St., San Francisco, Calif.
Community Action Program Economic Opportunity Act of 1964; PL 88-452	Help urban and rural communities mobilize their resources to combat poverty	Includes funds for recreation leadership salaries, training, research & recreation equipment		All components of local antipoverty programs must be focused on the needs of low-income individuals & families	80% grant; private, nonprofit or public agencies eligible	Office of Economic Opportunity, State Capitol, Sacramento, California
Cropland Adjustment Program (Greenspan) Food & Agriculture Act of 1965; PL 89-321	Take farmland out of production	Convert land to open space, recreation facilities, wildlife habitat, natural beauty		Conversion from crop production to other public benefits	50% of land acquisition costs; governmental agencies eligible	U.S. Dept. of Agriculture Agricultural Stabilization & Conservation Service, 2020 Milvia Street Berkeley, California
Neighborhood Facilities Grants; Housing & Urban Development Act of 1965; Title VII; PL 89-117	Finance neighborhood facilities projects	Neighborhood or community centers	Consistent with comprehensive community plan	Necessary for carrying out program of community service; location must be available for use by low- or moderate-income residents	2/3 of project costs or up to 3/4 in redevelopment areas. Local public bodies or nonprofit organizations	Dept. of Housing & Urban Development, 450 Golden Gate Avenue, San Francisco, California
Neighborhood Youth Corps; Economic Opportunity Act of 1964, Title I, Part B; PL 88-452; PL 89-253	Work training for unemployed youth ages 16-21 from low-income families	Public service work in the community		Must increase employability of enrollees or to resume school attendance	90% of the project cost. Sponsor's share may be cash or in kind, services	Any public or private nonprofit organization. Additional training assistance programs are available through Dept. of Labor
Public Facilities Land Advance Grants; Housing and Urban Development Act of 1965, Title VII; PL 89-117	Encourage and assist communities in timely, well planned advance acquisition of land	Access roads, cultural centers, gymnasiums, neighborhood centers and recreation buildings, scenic roads, school recreation areas	Must be in accord with comprehensive planning for the area	Project must contribute to economy and planned development of the area; construction must start within five years of land acquisition.	Grant covers reasonable interest charges for up to five years on loans.	Dept. of Housing & Urban Development, 450 Golden Gate Avenue, San Francisco, California
Public Domain Grants for Historic Monuments Act of 1926; PL 69-284 with with amendments	Transfer of public domain lands to political subdivisions and non-profit organizations for historic monument purposes	Historic sites only		See Land Sales Program of BLM for requirements; only historic site and its features may be included in the transfer.	Transfer of land title without cost	Bureau of Land Management 650 Capitol Mall Sacramento, California

SOURCES AND ADDITIONAL INFORMATION:

1. "Federal Outdoor Recreation Programs", Bureau of Outdoor Recreation, November 21, 1967.

2. For case histories of local, state, and federal assistance see "Investing in Parks and Recreation Centers - 1964" ($1.50 + 8c tax)
[illegible] 1416 Ninth Street, Room 1419-25, Sacramento, California 95814

Appendix VIII

Potential Federal Programs for Bicycle Transportation

-- Land and Water Conservation Fund (Interior Department)
-- Federal-aid Highway Programs (Department of Transportation)
-- Title VII "Open Space" land Grants (Housing and Urban Development)
-- Urban Beautification and Improvement Grants (Housing and Urban Development)
-- Urban Renewal (Housing and Urban Development)
-- Recreation and Public Purposes Act (Bureau of Land Management, Interior Department)
-- Public Law 566; Small Watershed Act (U.S. Soil Conservation Service Agriculture)
-- "701" Planning Grant Program (Housing and Urban Development)
-- State and Community Highway Safety Program (Department of Transportation)
-- Public Works and Economic Development Programs (Economic Development Administration, Commerce)
-- Historic Preservation (Housing and Urban Development, Interior)
-- Older Americans Act (Administration on Aging, Health Education and Welfare)
-- Public Facilities Land Advance Grants (Housing and Urban Development

Reproduced from DOT proposal for National Bikeway System

TABLE 1 - STATE ACTIVITIES IN BIKEWAY DEVELOPMENT

STATE	CONSIDERING LEGISLATION	LEGISLATION PENDING	LEGISLATION PASSED	DEVELOPED PLANNING CRITERIA	DEVELOPED DESIGN CRITERIA
Alabama					
Alaska					
Arizona	X	X			
Arkansas	X				
California	X	X		X	X
Colorado	X	X		X	X
Connecticut		X			
Dist. of Columbia	X			X	
Delaware					
Florida	X	X		X	
Georgia	X	X			
Hawaii	X			X	
Idaho	X			X	
Illinois	X	X			
Indiana					
Iowa	X				
Kansas					
Kentucky				X	
Louisiana					
Maine	X				
Maryland	X		X		
Massachusetts		X			
Michigan					
Minnesota	X				
Mississippi					
Missouri					
Montana	X				
Nebraska					
Nevada					
New Hampshire	X				
New Jersey	X	X			
New Mexico	X				
New York	X		X	X	
North Carolina					
North Dakota					
Ohio	X	X			
Oklahoma					
Oregon	X		X	X	X
Pennsylvania	X				
Rhode Island					
South Carolina					
South Dakota					
Tennessee	X				
Texas					
Utah					
Vermont					
Virginia	X				X
Washington	X		X		
West Virginia					
Wisconsin	X				
Wyoming					

APPENDIX A - BIKEWAYS EXISTING IN THE UNITED STATES

Alabama	-
Alaska	
Arizona -	Phoenix, Tempe, Tucson
Arkansas -	Little Rock
California -	Alhambra, Azusa, Berkeley, Catalina Island, Chulavista, Corona Del Mar, Corona Island, Cupertino, Davis, Goleta, Long Beach, Los Angeles, Manhattan Beach, Menlo Park, Newport Beach, Oakland, Palm Springs, Palo Alt , Pasadena, Pleasanton, Point Reyes, Pomona, Redondo Beach, Riverside, Sacramento, San Diego, San Francisco, San Jose, San Mateo, Santa Barbara, Santa Monica, Santa Rosa, Sausalito, Stockton, Sunnyvale
Colorado -	Boulder, Colorado Springs, Denver, Fort Collins, Grand Junction, Littleton
Connecticut -	Milford
Delaware	
Florida -	Clearwater, Coconut Grove, Coral Gables, Fort Lauderdale, Gainesville, Hialeah, Hollywood, Homestead, Lake Wales, Lake Worth, Miami, Ormond Beach, Palm Beach, Pompano Beach, Sarasota, Siesta Key, St. Petersburg, Tallahassee, Tampa, Tomoka State Park
Georgia -	Savannah, Decatur, Jekyll Island
Hawaii -	Honolulu
Idaho -	Boise, Pocatello
Illinois -	Aurora, Chicago, Decatur, Elk Grove, Geneva, Palatine, St. Charles, Sterling, Wayne, Wheaton
Indiana -	Bloomington, Elkhart, Evansville, Fort Wayne, Gary, Hammond, Hobart, Lafayette, Rockville
Iowa -	Cedar Falls, Des Moines, Ft. Madison, Iowa City, Waukon
Kansas -	Topeka, Wichita
Kentucky -	Louisville

TABLE 1 - STATE ACTIVITIES IN BIKEWAY DEVELOPMENT

STATE	CONSIDERING LEGISLATION	LEGISLATION PENDING	LEGISLATION PASSED	DEVELOPED PLANNING CRITERIA	DEVELOPED DESIGN CRITERIA
Alabama					
Alaska					
Arizona	X	X			
Arkansas	X				
California	X	X		X	X
Colorado	X	X		X	X
Connecticut		X			
Dist. of Columbia	X			X	
Delaware					
Florida	X	X		X	
Georgia	X	X			
Hawaii	X			X	
Idaho	X			X	
Illinois	X	X			
Indiana					
Iowa	X				
Kansas					
Kentucky				X	
Louisiana					
Maine	X				
Maryland	X		X		
Massachusetts		X			
Michigan					
Minnesota	X				
Mississippi					
Missouri					
Montana	X				
Nebraska					
Nevada					
New Hampshire	X				
New Jersey	X	X			
New Mexico	X				
New York	X		X	X	
North Carolina					
North Dakota					
Ohio	X	X			
Oklahoma					
Oregon	X		X	X	X
Pennsylvania	X				
Rhode Island					
South Carolina					
South Dakota					
Tennessee	X				
Texas					
Utah					
Vermont					
Virginia	X				X
Washington	X		X		
West Virginia					
Wisconsin	X				
Wyoming					

APPENDIX A - BIKEWAYS EXISTING IN THE UNITED STATES

Alabama	
Alaska	
Arizona -	Phoenix, Tempe, Tucson
Arkansas -	Little Rock
California -	Alhambra, Azusa, Berkeley, Catalina Island, Chulavista, Corona Del Mar, Corona Island, Cupertino, Davis, Goleta, Long Beach, Los Angeles, Manhattan Beach, Menlo Park, Newport Beach, Oakland, Palm Springs, Palo Alt , Pasadena, Pleasanton, Point Reyes, Pomona, Redondo Beach, Riverside, Sacramento, San Diego, San Francisco, San Jose, San Mateo, Santa Barbara, Santa Monica, Santa Rosa, Sausalito, Stockton, Sunnyvale
Colorado -	Boulder, Colorado Springs, Denver, Fort Collins, Grand Junction, Littleton
Connecticut -	Milford
Delaware	
Florida -	Clearwater, Coconut Grove, Coral Gables, Fort Lauderdale, Gainesville, Hialeah, Hollywood, Homestead, Lake Wales, Lake Worth, Miami, Ormond Beach, Palm Beach, Pompano Beach, Sarasota, Siesta Key, St. Petersburg, Tallahassee, Tampa, Tomoka State Park
Georgia -	Savannah, Decatur, Jekyll Island
Hawaii -	Honolulu
Idaho -	Boise, Pocatello
Illinois -	Aurora, Chicago, Decatur, Elk Grove, Geneva, Palatine, St. Charles, Sterling, Wayne, Wheaton
Indiana -	Bloomington, Elkhart, Evansville, Fort Wayne, Gary, Hammond, Hobart, Lafayette, Rockville
Iowa -	Cedar Falls, Des Moines, Ft. Madison, Iowa City, Waukon
Kansas -	Topeka, Wichita
Kentucky -	Louisville

APPENDIX B - RUNWAYS BEING PLANNED IN THE UNITED STATES

Alabama	
Alaska	
Arizona -	Scottsdale
Arkansas	
California -	Bakersfield, Claremont, Eureka, Freemont, Glendora, Hemet, Lakewood, Livermore, Long Beach, Lompoc, Los Gatos, Montebello, Newport Beach, Riverside, San Bernardino, San Jacinto, Santa Ana, Santa Paula, Thousand Oaks, Ventura
Colorado -	Greeley, Loveland, Lakewood, Pueblo, Wheat Ridge
Connecticut -	Danbury, New Haven, Wilton
District of Columbia	
Delaware -	New Castle County
Florida -	Boca Raton, Cocoa Beach, Jacksonville, Okefenokee, Titusville
Georgia -	Atlanta
Hawaii	
Idaho	
Illinois -	Arlington Heights, Elmhurst, Homewood, Palos Park, W. Frankfort, Urbana
Indiana -	Indianapolis
Iowa -	Ames, Cedar Falls, Newton, Sioux City
Kansas -	Hutchinson, Lawrence, Mission
Kentucky -	Clermont, Lexington, Winchester
Louisiana -	Alexandria, Baton Rouge
Maine -	Portland
Maryland	
Massachusetts -	Amherst, Concord, Falmouth, Quincy, Richmond, Springfield, Wayne, Wilmington, Woods Hole

Summary of 1973 Bikeways Legislation
Will Cyclists in Your State Benefit?

The following is a state-by-state compilation of bikeway legislation as introduced so far this year. Most of it calls for the construction of new bicycling facilities; some with feasibility studies; with acquisition and development of land; and a lot of it with methods of funding. All of it, when enacted, will benefit cyclists enormously, providing them with paths, trails, parking, recreation, or commuter cycling facilities.

Whether or not these bills ever become law is largely up to you. They need your support. Write to the legislators listed here who have introduced bikeway bills in your state. Volunteer your help. Ask them how you can best support this legislation. Find out the dates of hearings, and plan to appear and testify. Rally the support of friends, neighbors, bike club members and family. If your state is not represented here, write away for a copy of one of the bills that interests you, then convince a favorite legislator to introduce a similar one for cyclists in your state. Passage of these bills will make cycling safer and more pleasant for all; their passage is vital to the continued growth of cycling . . . and your help is needed. Do it now!

LEGEND:

H.B. House Bill
S.B. Senate Bill
A.B. Assembly Bill
J.R. Joint Resolution
C.R. Concurrent Resolution
3/7/73 Date Introduced
John Jones (R-Dist #2) Name, party and district of sponsors

ARIZONA

H.B. 2282, 2/13/73, Michael Goodwin (R-Dist. #27)
John Wettlaw (R-Dist. #2), Charles W. King (R-Dist. #14)
Provides that the state highway director design and construct a system of bicycle pathways and foot pathways adjacent to certain state highways in cooperation with the Federal aid highway program.

H.R. 2162, 2/5/73, Helen Grace Carlson (D-Dist. #13)
John Wettaw (R-Dist. #2), Benjamin Hanley (D-Dist. #2)
Provides that the state shall establish and maintain bicycle trails and footpaths provided they are not contrary to public safety; bill also provides for bike registration and devices to assure safe operation.

H.C.R. 2016, 2/13/73, Michael Goodwin (R-Dist. #27)
Sandra D. O'Connor (R-Dist. #24)
Proposed amendment to Arizona constitution designates specific uses of vehicles and other tax receipts for many street and highway purposes, including construction and maintenance of bicycle pathways.

CONNECTICUT

S.J.R. 14, 1/10/73, Peter L. Cashman (R-Dist. #20)
Resolution requires the Committee on Transportation to study the best means of using available Federal funds for creating bicycle trails, and making its recommendations to the 1974 session of the General Assembly.

S. 974, 1/22/73, Lawrence J. Denardis (R-Dist. #34)
Proposes adoption of a State Bike Act by the Senate and House to encourage the use of bicycles by allocating a portion of the revenues from gasoline taxes to finance bikeways and bike paths.

S. 115, 1/10/73, Peter L. Cashman (R-Dist. #20)
Provides for enactment of a law establishing bicycle lanes on state highways together with appropriate road signs to provide for the safety of bicyclists and motorists.

S. 1155, 1/22/73, Ruth O. Truex (R-Dist. #9)
Provides for the Department of Transportation to study the feasibility of a program of bicycle use and travel as an alternate means of transportation for commuters, giving consideration to creating bike lanes along highways.

H.B. 7537, 1/23/73, John N. Demerell (R-Dist. #35)
William L. Churchill (R-Dist. #100)
Provides for creating a bike path on the unused roadbed of the old New York, New Haven and Hartford Railroad, with small picnic areas at selected sites along the route made available to bike riders.

H.B. 7695, 1/23/73, David O. Odegard (R.-Dist. #4)
Donald S. Genovesi (R-Dist. #12)
Francis J. Mahoney (D-Dist. #18)
Provides for the passage of a law requiring bicycle paths along all new highways constructed by the state in the future.

H.B. 6986, 1/22/73, Virginia S. Connolly (R-Dist. #16)
Russell L. Post, Jr. (R-Dist. #62)
Provides that the Commissioner of Transportation may pay one-half of the cost of construction of bicycle paths on private property to encourage their availability and use by the public.

H.B. 6549, 1/18/73, Richard L. Mercier (D-Dist. #44)
Provides for the establishment and maintenance of bike trails in the state forests at no expense to the state, and with the approval of the Commissioner of Environmental Protection.

Support Bikeways

CONNECTICUT *(Cont.)*

H.B. 5267, 1/9/73, Morton J. Blumenthal (R-Dist. #50)
Provides for adoption of a master plan to encourage the promotion, development and maintenance of existing and proposed bicycle trails, horse trails and hiking trails for the maximum benefit of the citizens of the state.

H.B. 5269, 1/9/73, Joseph S. Coatsworth (D-Dist. #32)
John A. Fabrizio (R-Dist. #140)
Provides for the Commissioner of Environmental Protection to establish linear parks for bicycle use throughout the state, thus creating areas for the exclusive use of bike riders and better use of natural resources.

FLORIDA

H.B. 1, 4/3/73, Murray H. Dubbin (D-Dist. #115)
Allocates a portion of the state's first gas tax beginning in fiscal 1974-75 and annually thereafter for the construction and maintenance of bicycle trails and footpaths, and a uniform system of signs and regulations.

H.B. 100, 4/3/73, Arthur H. Rude (R-Dist. #85)
Provides for establishing the Florida recreational trails system – a state-wide network of recreation trails to be used for bicycling, hiking, horseback riding and driving in motor vehicles where feasible.

H.B. 103, 4/3/73, John J. Savage (R-Dist. #57)
Provides for the establishment and maintenance of bicycle trails throughout the state, and authorizes the Dept. of Transportation to defray cost from the state roads trust fund.

S. 246, 4/3/73, Ralph R. Poston, Sr. (D-Dist. #38)
Companion bill to H.B. #1 (see above) – allocates a portion of state's first gas tax for the construction and maintenance of bicycle trails and footpaths, and a uniform system of signs and regulations.

GEORGIA

H.B. 870, 2/22/73, W. W. Larsen, Jr. (D-Dist. #102)
Authorizes and directs the Georgia Department of Transportation to construct bicycle trails in the state, after the routes of such trails have been determined by the Department of Natural Resources.

HAWAII

H.B. 174, 1/22/73, Tadao Beppu (D-Dist. #10)
Requires that bicyclists ride single file upon a roadway, except on paths or parts of roadways set aside for the exclusive use of bicycles where riding not more than two abreast may be permitted.

H.B. 237, 1/22/73, John S. Carroll (R-Dist. #2)
Proposes appropriation of funds from general revenues to provide for planning and constructing bikeways and bike paths in the 12th Representative District.

H.B. 251, 1/22/73, John S. Carroll (R-Dist #2)
Amends existing statutes to provide that not less than one percent of all taxes expended by the Highway Fund be used for the design and construction of bikeways in the county where collected.

H.B. 464, 1/26/73, Charles T. Ushijima (D-Dist. #13)
Amends existing statutes to provide that a portion of State Highway Fund be expended for the construction of bikeways when feasible wherever a highway, road or street is being biult or rebuilt.

H.B. 491, 1/26/73, Richard Garcia (D-Dist. #17)
Amends existing statutes to provide for the establishment and maintenance of bicycle trails and footpaths from the State Highway Fund wherever a highway, road or street is being built or rebuilt.

H.B. 515, 1/29/73, Jean S. King (D-Dist. #14)
Provides state funds for the construction of bikeways and bicycle facilities in the Waikiki, Oahu, area to bring recreational pleasure to the people and alleviate some of the traffic congestion.

H.B. 592, 2/1/73, Akira Sakima (D-Dist. #18)
Anson Chong (D-Dist. #13)
Establishes means for financing the design and construction of bikeways by specifying that all taxes collected as a result of increases in rates of state taxes be applied to the needs of bikeways.

H.B. 749, Companion bill to H.B. 464 (see above)

S.R. 120, 3/2/73, Percy Mirikitani (D-Dist. #6)
Resolution requests Department of Transportation to expend previously appropriated funds to building a bikeway along the Ala Wai Canal to provide greater riding safety and scenic and recreational attractions.

ILLINOIS

S. 83, 1/24/73, Sam M. Vadalabene (D-Dist. #56)
Requires the Highway Department to expend one percent of available motor fuel tax allotments for the establishment, designation and maintenance of bicycle paths and footpaths in conjunction with highways, roads and streets.

INDIANA

H. 1757, 2/8/73, Floyd B. Coleman (R-Dist. #13)
Provides for the appropriation of one percent of the State Motor Vehicle Highway Account for the planning, development, construction and maintenance of bicycle trails.

H. 1806, 2/9/73, Nelson D. Kennedy (D-Dist. #69)
Authorizes the State Highway Commission to establish bike paths and routes for the purpose of safely accommodating bicycles and their riders, and provides for a study to determine the best locations and routes for such paths.

Support Bikeway Legislation

MASSACHUSETTS

S. 26, 1/3/73, John F. Aylmer (R)
Provides for the Commonwealth to reimburse cities and towns in planning, designing and constructing bicycle paths and hiking trails from funds previously appropriated.

S. 881, 1/3/73, William L. Saltonstall (R)
Provides additional regulations for the operation of bicycles to assure greater safety for the bike rider and consistent with the traffic regulations governing motor vehicles.

S. 1331, 1/3/73, John F. Aylmer (R)
Provides for the construction of bicycle paths with Chapter 90 funds; such paths may be established wherever a road is being constructed, reconstructed or relocated.

S. 1374, 1/3/73, Thomas F. Brownell (D)
Arthur H. Tobin (D)
Provides for the establishment of bicycle trails and footpaths wherever a highway, road or street is being built, rebuilt or relocated out of the State Highway Fund.

H.B. 1444, 1/3/73, Terrence P. McCarthy (I)
Proposes an amendment to the State Constitution which provides revenues from the Highway Fund for highway-related bicycle paths.

H.B. 1646, 1/3/73, Terrence P. McCarthy
Provides for an amendment to existing law relative to the state's accelerated highway program for highway-related bicycle paths.

H.B. 3095, 1/3/73, John S. Ames (R)
Provides for setting up a joint board of three state departments to develop a master plan and a method of financing of a system of highway-related trails, including bicycle paths and hiking trails.

H.B. 3912, 1/3/73, Alan D. Sisitsky (D)
Robert J. McGinn (D), Garreth J. Lynch (D)
Authorizes and directs the County Commissioners of several counties to construct bicycle paths at suitable locations in order to provide recreational facilities and help relieve traffic congestion.

MICHIGAN

S. 198, 2/27/73, David A. Plawecki (D-Dist. #12)
Directs the State Highway Department to construct a system of intra-city bicycle paths between Detroit and Sault Sainte Marie, paralleling state or federal highways, and to assure their maintenance and repair.

MISSOURI

H.B. 743, 2/21/73, Eric F. Fink (R-Dist. #92)
Earl L. Sponsler (D-Dist. #151)
Provides that the State Highway Dept. may participate with the Federal government in the development, design, construction and maintenance of bicycle paths or lane, shelters and parking facilities.

MONTANA

H.B. 371, 1/26/73, Gary Kimble (D-Dist. #18)
Barbara K. Bennetts (D-Dist. #12)
Robert W. Watt (D-Dist. #18)
Provides for the Highway Commission to earmark its own funds to establish a uniform system of bicycle trails and footpaths along highways, roads and streets in parks and recreation areas.

NEBRASKA

H.B. L196, 1/16/73, Orval A. Keyes (Dist. #3)
Authorizes use of Highway Allocation Fund by cities and counties for the establishment of bicycle trails and footpaths wherever a highway, road, or street is being built, rebuilt or relocated.

NEVADA

S.B. 327, 2/27/73, John P. Foley (D)
Authorizes an appropriation of $250,000 to the Department of Conservation and Natural Resources to match available Federal funds for the purpose of constructing bicycle paths.

NEW HAMPSHIRE

H.B. 420, 2/20/73, Elizabeth A. Greene (R-Dist. #17)
Provides for the establishment of a system of bicycle trails which are to be constructed within the rights of way existing or new highways and in state parks and recreation areas.

H.B. 299, 2/1/73, Robert H. Gillmore (R-Dist #34)
Amends existing law to permit the Director of Community Recreation to designate certain highways as bicycle trails, and to publish maps and literature describing same.

H.B. 34, 1/3/73,Malcolm J. Stevenson (R-Dist. #3)
Amends existing law relative to the rules of the road and licensing of bicycles using public highways, special bicycle paths or trails.

NEW JERSEY

S.R. 16, 3/27/72, Frank X. McDermott (R-Dist. #9)
Jerome M. Epstein (R-Dist. #9)
Resolution requests the Department of Transportation to study the feasibility of establishing separate bicycle trails and passageways along state highways and parkways, and report findings to Governor and Legislature.

NEW MEXICO

H.B. 85, 1/19/73, Raymond Garcia (D-Dist. #12)
John J. Mershon (D-Dist. #51)
Provides for the establishment of bicycle lanes, footpaths and bridle paths on certain state, county and municipal roads, and authorizes highway funds to defray costs of construction and maintenance.

H.B. 118, 1/24/73, Fred A. Gross, Jr. (R-Dist. #21)
Bill L. Lee (D-Dist. #42)
Senate Companion Bill to H-85 (see above) which authorizes establishment of bicycle lanes, footpaths and bridle paths, and the expenditure of highway funds for their construction and maintenance.

NEW YORK

H.B. A-598, 1/3/73, G. Oliver Koppell (D-Dist. #84)
Amends highway law to provide for the construction and maintenance of bicycle trails and footpaths wherever a highway, road or street is being constructed, reconstructed or relocated with the use of state funds.

H.B. A-223, 1/3/73, Clarence D. Lane (R-Dist. #102)
Requires the Commissioner of Parks and Recreation to promulgate a comprehensive plan for the establishment of a state-wide trails system which would include bikeways and footpaths, among others.

H.B. A-224, 1/3/73, Clarence D. Lane (R-Dist. #102)
Establishes a Council on Trails and Bikeways with broad powers for formulating a plan for establishing a statewide trails system, and promulgating regulations for its administration and use.

S.B. 1037, 1/10/73, Bernard C. Smith (R-Dist. #2)
Senate Companion Bill to H.B. A-223 (see above) requiring the Commisioner of Parks & Recreation to promulgate a comprehensive plan for a state-wide system which would include bikeways, footpaths, etc.

S.B. 1041, 1/10/73, Bernard C. Smith (R-Dist. #2)
Senate Company Bill to H.B. A-224 which establishes a Council on trails and Bikeways with broad powers to formulate a plan for establishing a state-wide trails system and regulations for its administration.

NORTH CAROLINA

H.B. 460, 2/23/73, Ernest B. Messer (D-Dist. #44)
Liston B. Ramsey (D-Dist. #44), Wade Smith (D-Dist. #15)
Creates a North Carolina Appalachian Trail System to provide for the designation, acquisition and administration of recreation, scenic and connecting or side trails and t rail rights-of-way.

OKLAHOMA

H.B. 1368, 2/26/73, Jack L. Lindstrom (D-Dist. #64)
Creates the Oklahoma Trails System Act which would establish a system of scenic and recreation trails and campsites for bicyclists, hikers and horseback riders, and authorizes necessary state funds.

LOTS OF BIKEWAYS

There are more than 25,000 miles of marked bike routes in America in nearly 300 towns and cities, with more than 265 communities planning them right now.

PENNSYLVANIA

H.B. 189, 1/29/73, George W. Gekas (R-Dist #103)
W. William Wilt (R-Dist. #180), Charles H. Dager (R-Dist. #151)
Establishes a state-wide scenic and recreation trails system for the benefit of hikers, horseback riders and bicyclists, and authorizes funds for acquisition of connecting or side trails and trail rights-of-way.

RHODE ISLAND

H.B. 5197, 1/30/73, Jacob Harpootian (R-Dist. #86)
Provides for the creation of bicycle paths or roadways within state parks for the exclusive use of bicyclists.

VIRGINIA

H.J.R. 224, 1/22/73, J. Marshall Coleman (R-Dist. #15) (Senator)
Arthur R. Giesen, Jr. (R-Dist. #43)
(Representative)
Directs the Dept. of Highways to conduct a study on the feasibility of establishing a system of bicycle trails throughout the Commonwealth, and to consider using a portion of state highway funds for this purpose.

H.B. 1805, 1/24/73, Vincent F. Callahan, Jr. (R-Dist. #18), David A. Sutherland (R-Dist. #18)
Adopts policy of establishing bicycle trails and footpaths wherever a highway, road or street is constructed, reconstructed or relocated, and provides for funds to cover construction and maintenance costs.

WEST VIRGINIA

S.B. 18, 2/14/73, Pat R. Hamilton (D-Dist. #11)
Authorizes the establishment of bicycle trails throughout the state, and the allotment of not less than two percent of total funds in the State Road Fund to accomplish this purpose.

Special Bikeway Legislative Summary

Write To Your Legislator: Support These Bills

A Compilation Of World Manufacturers, Builders, Makers And Assemblers Of Bicycles

APPENDIX XI

The following is a listing of world manufacturers, builders, makers and assemblers of bicycles, exclusive of companies, firms, agents or individuals engaged in the purchase of bicycle tubing and bicycle component parts and accessories for resale of same as such in domestic and other markets. The list has been compiled over a period of time from business sources known to Schwinn Bicycle Company, Chicago, magazines and newspaper articles. Schwinn Bicycle Company representatives have not visited every company named herein, and the production of bicycles by each company may range from mass assembly line production to firms specializing in manufacturing, building and assembling custom-built bicycles in small or limited quantities. Also, this compilation may not be an all-inclusive listing of world manufacturers, builders, makers and assemblers of bicycles because information from certain countries has either been difficult to obtain or verify. Wherever possible addresses have been included. Schwinn invites comments and information from anyone who can assist in making this compilation more complete and accurate. Total annual world bicycle production is estimated to be about 40 million units, with the United States accounting for about 9 million of that annual total.

North America

United States (U.S.A.)

AMF Wheel Goods Division, P.O. Box 344, Olney, Illinois 62450

Chain Bike Corporation, 350 Beach Street, Rockaway Beach, New York 11693

Columbia Manufacturing Company, Inc., Westfield Massachusetts 01085

Huffman Manufacturing Company, P.O. Box 1036, Dayton, Ohio 45401

MTD Products, Inc., 5389 West 130th Street, Cleveland, Ohio 44111

Murray Ohio Manufacturing Company, 635 Thompson Lane, Nashville, Tennessee 37204

Schwinn Bicycle Company, 1856 North Kostner Avenue, Chicago, Illinois 60639

H. P. Snyder Manufacturing Company, Inc., Little Falls, New York 13365

Stelber Cycle Corporation, 91-31 Queens Boulevard, Elmhurst, New York 11373

Belgium

M. M. Bonaventure, 162/164 Statiedreef, Roeselare

A. Claeys, Flandria, Torboutsteenweg 113D, Zedelgem

R. Claeys, Superia, Zedelgem

Marcel Cools, Feestewegel, 12-Tielt

Sadi Davignon and Henri George, rue Platinckx 35, Brussels B-1000

A. Declercq and Zonen, P.V.B.A., Noordstraat 211-213, Roeselare

S. DeStoop, Nederkouter 10, Gent

Cycles A. Dossche, Pilorjsestraat 5, Gent-Damport

Joseph Duchene, Route de Gembloux 190, St. Servais, Namur

Hufkens, Luikersteenweg 105-15, Hasselt

Kessels, Torhiutsteenweg 349, Oostende

Marcel Kint, 21 rue de la Prevote, Courtrai

L'Avenir, Hazenstraat 53, Lier

Lannoy and ZN., Noordlaan, 8720 Kuurne

Gaston Lapierre, 11, quai Francois Galliot—21 Dijor

Lejeune (Ets), 190 blvd de Charonne—75 Paris 20

Manufrance (Ste) 84, cours Fauriel—42 Saint-Etier

Mercier (Ets) 60, rue Gutenberg—42 Saint-Etienne

S.E.C.T.A.M., 25 rue Asseline, 75, Paris 14eme

Ets. A. Singer, 53 rue Victor Hugo, 92, Levallois

Stella, 21 Chausse Madeleine, 44, Nantes

Rene Valdenaire, 26 Faubourg d'Alsace, 88, Ren mont

Ets. Pierre Virlat, 30bis quai Claude le Lorrain, Nancy

Cycles Mercier, 60 rue Gutenberg, Saint Etienne

Societe M.I.C.M.O. Gitane, 44, Machecoul

Motobecane (Ateliers de la) 16, rue Lesault—93 Pa

Peugeot (Ste des Cycles) 25 Beaulieu-Valentigney

Holland (The Netherlands)

N.V. Gazelle Rijwielfabriek, Wilhelminaweg 8, Dieren

"Batavus" Rijwiel-En Motorenfabriek, Industriewe Heerenveen

N.V. Rijwielindustrie Phoenix-Fongers-Germaan, H weg 85, Groningen

N.V. Union Rijwielfabriek, Ken Hulst (Ov.)

N.V. Magneet Rijwielen-En Motorenfabriek, Korte S merdijk 13, Weesp

Empo Rijwielfabriek, Vorden

Fongers, De-Groninger Rijwielenfabriek N.V., Here 85, Groningen

Rijwielfabriek EROBA., Echt (Limburg)

N.V. Rijwielfabriek M. Pon, Nijverheidsweg 3, Am foort

Julius Smit. Van Miereveldstraat 7, Amsterdam Z

N.V. "Sparta" Rijwielen-En Motorenfabriek, Postbu Apeldoorn

[illegible]

Acer Mex, Av[illegible] Uno #4, San Bartala, Maucalpan

Bicicletas de M[illegible]o, S.A., Apartado Postal 2682, Mexico #4, Districto Federal

Bicicleta Condor, S.A., Calzada Traquepaque 1970, Guadalajara, Jal.

South America

Argentina

Bier Company, Buenos Aires (founded 1947-48, Italian origin, trade names: "Botechia" and "Viscontea")

Cafici & Cia, Calle Reconquista 452, Buenos Aires (Italian "Legnano" under license)

Jonas Barski, 3 de Febrero 1228, Buenos Aires

Perez & Bielsa, Calle Piron 1854, Buenos Aires

Brazil

Ind. E. Com. De Bicicletas Caloi S/A., Av. Santo Amaro, 4728 Sao Paulo

Curi & Marcos, Rua Vergueiro 2367, Sao Paulo

Monark, Rua Engenbeiro, Mesquita Sampaio 880, Sao Paulo

Takahashi & Filhos, Ltda., Rua Joao, Cachoeira 690, Sao Paulo

Chile

Repuestos Industriales, Ltda., Casilla 166D, Santiago

Colombia

Fabrica De Bicicletas Monark De Colombia, Dpto. de Compras, Apartado Aereo 2046, Cali

Uruguay

Nelson Jorge Loffredo, Colonia 840, Montevideo

West Europe

Austria

Franz Dusika, Fasangasse 26, A-1030, Vienna

Franz Hamedl, Sporthaus RIH, 48 Parterstrasse, A-1020, Vienna 11

Edward Lachnit, Langobordenstrasse 19, A-1220, Vienna XX11

Juniorwerke, A-8580 Koflach/Stmk

Steyr-Daimler-Puch, Karntnerring 7—A-1011 Wien

L. M[illegible], rue de College 25, Verviers

Roelens Rob, R[illegible]steenwe[illegible]43, Torhout

Ets. August Simons, Staatsbaa[illegible], Bekkevoort

Firma Spagnaerts, Libertas P.V.B.A., Antwerpsestraat 17, 19. 21., 2640, Niel

Van Ballaert, Hessenbrug 1-3, Antwerp

E. Vanden Broeck, 60 Broeckmansstraat, Booischot

Van Genck, Cycle Plume Sport, rue de la Rossee 6, Brussels

Van Ham, Kolderhosstraat 24, Genk

Van Hamelen, Markt 32, Olen

V.D. Berghe, Grote Markt 16, St. Niklaas

V.D. Hulst, Champ Delsart 4-8, Dion le mont les Wavre

Denmark

Hede Nielsen, Horsens

Kildemose, Odense

O. F. Olsens Cyclefabrik, Godthaabsveji 8, Copenhagen

Schroder Cykler, Bernstorffsvej 137, 2900 Hallerup

Smith and Company, Kochsgade 31, Odense

Finland

Helkama Oy, Vattuniemenkatu 27, Helsinki 20

Pyrkija, Jokikatu 2-6, Turku 2

Teras Oy, Hovioikeudenpuistikko 17-19, Vaasa

Tunturipyora Oy, Untamonkatu 2, Turku 3

France

Bertin Andre, 6 Rue Roger Salengro, 62 Saint-Laurent-Blangy

Cizeron (Ste des Ets) 19 rue Gutenberg—42 Saint Etienne

Societe Dangre, 39, La Briquette—59 Valenciennes

Delcroix, Saint Amand

Societe Gottfried, 23 rue Rouffach, 68, Mulhouse

Jeunet (ets. A.) 22 r. de Besancon, Dole, (Jura)

Society Lejeune, 190 Boulevard de Charonne, 20e Paris

Cycles Aquila, 3 rue Bernard Palissy, 32, St. Etienne

Blanchard Grange, 67 rue A. Durafour, 42, St. Etienne

Brocal, 47 rue de l'Eglise, 59, Douai

Ets. Chapuis Freres, 24 avenue de Neuilly, 92, Neuilly

R.M. Fletcher, 184 rue du Faubourg Saint-Denis, 75, Paris 10eme

Rene Herse, 12, rue du President Wilson—92 Levallois-Perret

Bozzi Lodio S.p.A., Cor[illegible]genova, [illegible], Milano

Faliero Masi, Via Arona 10, 20149 Milano

Nucci Nicola, Via Bramante da Urbina, 1[illegible]0052, Monza

Chiorda dei F.LLI Trapletti, 24060, Vigano S. Martino (Bergamo)

Chiorda-Sud, Cisterna di Latina, 04010, Loc. Le Castella (Roma)

Cinelli, Via E. Folli 45, 20134 Milano

Edorado Bianchi, Officine Metallurgiche, Servizzo Approvvigionamenti, via E.V. Parodi 57, c/- Ufficio S.E.I.M.M., 22054, Mandello De Lario (Como)

Fassi Virginio And Figlio, 20020, Vanzaghello (Milano)

Garlatti Emilio S.A.S., Strada Al Collegio M. Luigia, 12, 43100, Parma

Leone F.LLI "Aurelia," 12011, Borgo S. Dalmazzo (Cuneo)

Marcolongo Guido, Via Brunacci, 5, 35030, Sarmeola (Padova)

Faliero Masi, Via Arona 19, 20149, Milano

Rizzato Cesare & C.S. N.C., Via Venezia, 29, 35100, Padova

S.A.S. Taurus di Fassi, Via A. Maiocchi 9, 20129, Milano

Torpado di F & A. Torresini, Zona Industriale-1 Strada, 35100, Padova

Norway

Jonas Oglaend, Sandnes

Portugal

Vilarinho & Moura, Lda., Apartado 23, S. Mamede de Infesta

A. Claeys Flandria Portuguesa, Lda., Agueda

Uniao Ciclista De Agueda, Lda., Agueda

Spain

Beistegui Hermanos, S.A. Olarizu, Apartado 195, Vitoria

Macario Llorente Garcia, Ulpiano Benito 7Y8, Madrid

Marotias, Alegria De Oria, Guipuzcoa

Zeus Industrial S.A., Apartado 72, Abadiano, Vizcaya, (Previously "Orbea")

Aguirrehomezcorta y Cia, S.A., Carmen 30, Eibar (Guipuzcoa)

Bicicletas Iriondo, S.A., Comandante Izardui 20, Vitoria

Jose Luis Eibar, S.A., Barrio Matiena, Abadiano (Vizcaya)

(Cont. on other side)

...world manufacturers, builders, makers and assemblers of bicycles

Garate Ahitua y Cia, S.A., Chonta 21, Eibar (Guipuzcoa)

Gimbernat Hermanos, S.R.C., Avenida Jose Antonio 186, Figueras (Gerona)

Industrial Orbea, S.A., Carretera de Villatobas, s/n, Tarancon (Cuenca)

Orbaiceta, Avda. Carlos III 12, Pamplona

Orbea y Cia, S.A., Paseo Arrate 7, Eibar (Guipuzcoa)

Riera y Juanola, S.A., Borrassa 39-41, Figueras (Gerona)

Sweden

Monark Crescent AB., P.O. Box 141, 43200 Varberg

Switzerland

Alpa-Werke A.G., 8370 Sirnach

Centre Autombiliste Jan, Petit Rocher 6, 1003 Lausanne

Cilo S.A., 6, Petit Rocher, 1300 Lausanne

Condor S.A., Schweiz, Fahrradfabrik, 2853 Courfaivre

Cosmos B. Schield & Co., S.A., Obere Vorstadt 198/B., 5722 Granichen

P. Del Po, Velos-Rahmenbau, 8004 Zurich, Langstr., 13-Bauhallengasse 7

Fahraadfabrick Imholz, Lukasstrasse 4, St. Gallen

Arnold Grandjean S.A., Allegro-Fahrradfabrik, 2002 Neuemburg

Jeker, Haefeli & Cie S.A., Mondia-Fahrradfabrik, Holderweg 921, 47-10 Balsthal

Maschinenfabrik Granichen AG., 5722 Granichen bei Aarau

Velos Haefeli Sport, 5034 S.U.H.R.

Verzinkerei A.G., 9042 Ebnat-Kappel

United Kingdom

Birmingham Bicycle Company (city unknown)

Carlton Cycle Company, Ltd., Dock Road, Worksop-Notts.

Southeast Europe

Turkey

Name and address of Turkish manufacturers of bicycles unknown . . . believed to be located in Istanbul . . . has an engineering agreement with T.I.

East Europe

Czechoslovakia

Eska Cheb Zavod Favorit Rokycany, Mr. Smolik, Praha 1

Obchod Prumyslovym Zbozim, Vaclavske Namesti 6, Praha 1, Mr. Kozak

Uv Cstv Na Porici 12, Praha 1, Mrs. Mencakova

Motokov, Import Department 642, Jeruzalemski 12, Praha 1, Mr. Slavikova

Hungary

Konsumex, Budapest V., Tanacs KRT 26

Pannonia Cycle, Budapest

Poland

Stalexport, Kotowice, 36 Plebiscytowa St.

Zaklady Rozerowe "R O M E T", Bydgoszcz, Pl. Piastkowski 3, Warsawia

U.S.S.R.

A/V Avto Export, Smolenskaya, Sennaya, 32/34, Moscow G200

Yugoslavia

Preduzece "Tito", Sarajevo/Vogosce

Partizan, Subotica

Rog, Tzubarjeva 72, Ljubljana

Tehnika, Djelovar

Taiwan

Gokei

Jyochu Bicycle, Taipei

Marubeni Hodaka, Tainan

Taiwan Bicycle, Takao

Wulen Industries, Taipei

North Viet Nam

Name and location of manufacturers unknown, but mentioned in the Chicago Tribune Sunday Magazine or rotogravure section in the last five or six years as in Hanoi, North Viet Nam

Australia

Australia

General Accessories Pty., Ltd., 161 Sturt Street, South Melbourne

Motor Spares Pty., Ltd., 547 Elizabeth Street, Melbourne

Keep Brothers & Wood Pty., Ltd., 43 Buckhurst Street, South Melbourne

D.C. Harris Pty., Ltd., 622 Nicholson Street, North Fitzroy

Carlisle & Company Pty., Ltd., 1-9 Milligan Street, Perth, Western Australia

J. N. Taylor & Company Pty., Ltd., 27 Gilbert Street, Adelaide

Elliott Brothers (Wholesale) Ltd., 176 Gawler Place, Adelaide

General Accessories Pty., Ltd., 55 Flinders Street, Adelaide

Williams, Dredge & Hayden P/L, 405 Prices Highway, St. Peters

Bennett Wood Pty., Ltd., 114 Joynton Avenue, Zetland 2017

D.C. Harris (Old) Pty., Ltd., 142 Mont[illegible] Road [illegible]

Dawes Cycles, Ltd., Wharf Road, Tyseley, Birmingham 11

Elswick-Hopper Cycle & Motor Company, Ltd., (city unknown)

Halmanco, Ltd., Gemini Works, Pontnewynydd, Pontypool Mon-mouthshire

Holdsworthy Company, Ltd., Lullington Road, Anerley, London S.E. 20

Bob Jackson, 148 Harehills Lane, Leeds LS8 5BD

Lines Brothers, Ltd., (city unknown)

Raleigh Industries, Ltd., Lenton Boulevard, Nottingham

David Rattray & Co., Ltd., 86-88, Dalhousie St., Glasgow, C.3

Swift Cycle Company (city unknown)

Trusty Manufacturing Company, Ltd., Granborne Works, Potters Bar (Herts.)

Wearwell Cycle Company, Ltd., Cycle City, Alveley (Shrops)

West Germany

Rudolf Faus, Hansaring 29, Koln

Gebr. Heidemann K.G., 54 Postfach - 5520 Bitburg

Heidemann, Postfach 106 - 3352 Einbeck/Han

Carl Heinz Luders, Sophie, Charlotten Strasse 29, 1 Berlin 19

Nurnberger Hercules-Werke GMBH, Nopitschstrasse 70-8500 Nurnberg

Hubner & Koch, Oranienstr 198, 1000 Berlin 36

Kalkhoff, Postfach 110 - 4590 Cloppenburg

Kynast, Postfach 55 - 4570 Quakenbruck

Mengen, Postfach 69 - 4572 Essen/Oldbg.

Niklas, Wenden

Alfons Pesendorfer, Gereonsmuhlengasse 26, Koln

Hugo Rickert, Dammstrasse 28, 46 Dortmund

Rixe, Postfach 4364, 4805 Brake, Bielefeld

Schauff, Remagen

Schminke, Bahnofstrasse 32 - 3590 Bad Wildungen

Staiger, Martinstrasse 15, D-7 Stuttgart

Eigen Stier & Co., Johannesstrasse 11, 7 Stuttgart 1

Vaterland, Neuenrade

India

Atlas Cycle Industries, Sonepat, Distt, Rohtak, Haryana, (near Delhi)

H. R. Bhalla & Sons, Private Ltd., 3 Netaji Subash Marg, Delhi 6

Everest Cycles, Ltd., Kamarpatty, Gauhati, Assam

Hero Cycle Industries, G.T. Road, Ludhiana, Punjab

Roadmaster Industries of India, Private Ltd., Rajpura, Punjab

Sen-Raleigh, Ltd., Mercantile Buildings, Lall Bazar Street, Calcutta 1, West Bengal

T.I. Cycles of India, 11/12 North Beach Road, Madras 1, Tamil Nadu

Japan

Araya, Osaka

Bridgestone, Tokyo

Deko, Tokyo

Hattori, Tokyo

Hikari, Osaka

Katakura, Tokyo

Kawamura, Kobe

Kofu, Tokyo

Marubeni Yamaguchi, Tokyo

Maruishi, Tokyo

Miyata, Tokyo

National, Osaka

Nichibei Fuji, Tokyo

Nissan Bicycle, Osaka

Sakai Export, Sakai

Sekine, Tokyo

Tokyo Sports, Tokyo

Tsunoda, Nagoya

People's Republic of China

Two bicycles manufactured in the People's Republic of China under the names "Flying Pigeon" and "Phoenix." Location(s) of manufacturing plants unknown. Source: Business Week magazine, November 20, 1971.

New Zealand

Morrison Industries, Ltd., Private Bag, Hastings

Africa

Angola

Fabimor, Launda (Portuguese West Africa)

Cameroon

La Maison du Cycle, Douala

Central African Republic

Ste. Bangui Cycles, Bangui

Dahomey

Ste. Indacy, Cotonou

Ghana

Tube Investments (assembly arrangement)

Ivory Coast

Ste. M.A.C., Abidjan

Mali

Ste. Imacy, Bamako

Nigeria

Raleigh Industries Nigeria Sales, Ltd., 7 Docemo Road, P.O. Box 402, Lagos

Union of South Africa

Raleigh Cycles (South Africa) Ltd., Hassett Road, Nuffield Springs, Transvaal

Tube Investments (location unknown)

Upper Volta

Ste. Ivolcy, Boba Dioulasso

APPENDIX XII
ORGANIZATIONS CONCERNED WITH BICYCLING TO BE CONTACTED *

The following organizations supply detailed and specialized information concerning some aspects of bicycling as a public service. For listings of their publications, member clubs, associated museums, libraries and agencies, the reader should write directly to the organization listed. The Bicycle Institute of America provides most of this information in an excellent comprehensive guide, BICYCLE CLUBS DIRECTORY AND OTHER STUFF. This free pamphlet serves as the basis for Appendix II.

Amateur Bicycle League of America. Ernest Seubert, President, 137 Brunswick Road, Cedar Grove, New Jersey 07009. Racing. Governing body of competitive cycling in U.S.A.

American Association for Health, Physical Education, and Recreation. 1201 16th Street, N.W., Washington, D.C. 20036. Safety education. Affiliate of the National Educational Association.

American Automobile Association. Pennsylvania Avenue at 17th Street, Washington, D. C. 20036, Accident statistics, safety programs. (see BOOKS)

American Youth Hostels, Inc., 20 West 17th Street, New York, New York 10011. Touring and recreation. (see MISCELLANEOUS for publications).

Antique Bicycle Club of America. Dr. Roland C. Geist, Secretary, 260 West 260th Street, New York, New York 10471. Bike history and preservation.

Bicycle Institute of America, Inc., 122 East 42nd Street, New York, New York 10017. Spokesman for bike industry; bike safety; legislation. BIA provides excellent free literature on most bike topics. (see STATE AND LOCAL DOCUMENTS, and MISCELLANEOUS).

Bicycle Touring League of America. c/o Dr. Roland C. Geist, 260 West 260th Street, New York, New York 10471. Adult touring activities.

Boy Scouts of America. Bicycle Department, National Headquarters, North Brunswick, New Jersey 08902. Touring, recreation and sports.

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Konski Engineers

Committee For Safe Bicycling, Inc., 264 Beacon Street, Boston, Massachusetts 02116. Safety programs.

Eastern Intercollegiate Cycling Association. William Lambert, 3210 Byrd Place, Baldwin, New York 11510. Racing. A division of the Amateur Bicycle League of America.

Girl Scouts of America. Bicycling Department, National Headquarters, 830 3rd Ave., New York, New York 10017. Touring, recreation and safety.

Insurance Institute for Highway Safety. 711 Watergate Office Building, Washington, D. C. 20037. Safety.

International Bicycle Touring Society. Dr. Clifford Graves, 846 Prospect Street, La Jolla, California 92037. Touring for experienced cyclists.

League of American Wheelmen. P.O. Box 3928, Torrance, California 90510. Recreational touring. Newsletter provided.

National Bicycle Dealers Association, 29025 Euclide Avenue, Wickliffe, Ohio 44902. Bicycle retailers association.

National Education Association, 1201 16th Street, N.W., Washington, D. C. 20036. 1. American Association for Health, Physical Education, and Recreation. 2. National Commission on Safety Education.

National Safety Council, 425 North Michigan Avenue, Chicago, Illinois 60611. Safety.

Unicyclists Association of America. William Jenack, 67 Lion Lane, Westbury, New York. For unicycle enthusiasts.

U. S. Bicycle Polo Association. Carlo F. Concheso, P.O. Box 565, FDR Station, New York, New York 10022. Team sports.

U. S. Olympic Association. Olympic Cycling Committee, Alfred E. Toefield, 87-66 256 Street, Floral Park, Long Island, New York 11001. Racing.

The Wheelmen, c/o Robert E. McNair, Commander, 32 Dartmouth Circle, Swarthmore, Pennsylvania 19081. Bike history and preservation.

See "Bicycling!" May and June 1972 for Bicycle Club Directory.

Also: Friends for Bikecology. 1035 E. De La Guerra Street Santa Barbara, California 93103