Bicycling Life

A Web-site for Everyday Bicyclists.

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A SURVEY OF NORTH AMERICAN BICYCLE COMMUTERS

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January 24, 1997

SUMMARY RESULTS

A SURVEY OF NORTH AMERICAN BICYCLE COMMUTERS

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NOTE: This document summarizes the results obtained in a study of bicycle commuters in the U.S. and Canada. A paper (97-0979) describing the methodology and aggregate results of the survey was presented at the 1997 Transportation Research Board meeting in Washington. D.C., on January 15, 1997. The information below was taken from the oral presentation made at TRB. A copy of the survey instrument is attached to this report.

OBJECTIVES of the study:

From as many bike commuters (BC) as possible,

Gather as much information as practical,

At the lowest possible cost. (This study was unfunded.)

GOALS: TO CHARACTERIZE NORTH AMERICAN BICYCLE COMMUTERS -

Demographics

Frequency / Time / Distance of commute trips

Bicycle type / Accessories used / Costs

Library

Position Papers Research and Source Documents

Links

Facilities used during commute

What motivated them to start/continue bike commuting

What was their safety/crash experiences.

QUALIFICATIONS to participate:

Be A REGULAR BC - which meant

At least 1 day per week and

At least 6 months per year

in the 12 months prior to completing the survey.

(The survey was available from May 1995 through May 31, 1996.)

DISTRIBUTION / RETURN

Primarily by electronic means using the Internet.

Also provided in hard copy if a SASE was sent.

Some were returned by FAX.

"PUBLICITY" The following means were used to make bike commuters aware of the survey:

Via the Internet using various bicycle mailing lists.

Several bike clubs announced it in their newsletters.

National bicycle magazines:

Adventure Cycling

Bicycle USA (LAB)

Bicycling

Recipients were asked to 'pass-it-along' to others.

LIMITATIONS: It is important to understand what the survey was NOT.

Not a statistical or random sample of BCs.

No attempt was made to estimate the total number of BCs.

Results represent a subset of all BCs.

SURVEY INSTRUMENT: A written questionnaire was prepared. (Copy attached.)

Contained 36 questions with the maximum number of responses equal to 95. For some questions multiple responses permitted.

Basically a fill-in-the-blanks format.

Comments were permitted at the end.

Estimated average time to complete the survey is 15 minutes

REQUIRED RESPONSES In order to be included in the data set

certain responses were required:

How many years BC?

Number of BC trips per week.

Usual commute mode.

Commute distances and times.

Total BC miles in the prior 12 months.

Fractional use of bike facilities while BC.

Age

Sex

ZIP or Postal Code

Failure to provided these responses resulted in the survey being rejected.

DATA CHECKING The survey contained several internal checks for consistency. These included:

Obvious entry errors.

"Impossible" average commuting speeds (BC > 24 MPH / Usual > 50 MPH)

Total fractional facilities use in the range 90-110%.

Total fractional trip purposes in the range 90-110% (this was for their TOTAL bicycling miles / year).

(Total yearly bike miles) times (stated % commuting) had to equal total reported BC miles to within +/-20%.

RESPONSE: During the 12 months the survey was open,

Total returned = 2700 of which

Incomplete or Duplicate = 255 (9%) and

Failed data checking = 71 (3%) yielding a

Sample size = 2374 (88% of those returned)

(NOTE: Small Canadian response may be due to the difficulty of Canadians to provide a SASE with US postage - a problem that was not anticipated when the survey was designed.)

RESPONSE METHOD:

Internet (sent and returned electronically) = 66%

Internet sent / mailed hardcopy back = 10%

Regular mail sent and returned = 24%

(As noted above, a small number were returned by FAX.)

GEOGRAPHICAL DISTRIBUTION of responses,

New England / NY / NJ / PA	16%
Mid Atlantic / South	15%
Great Lakes / Midwest	16%
Mountain / West	8%
CA / HI	20%
WA / OR / ID	21%
Canada	3%

PROFILE OF THE "AVERAGE" BC

Sex: Male (81%)

Age: 39 years (range 15-71)

Occupation: Professional (58%)

Household income: >$45,000 (63%)

Health: Improved somewhat or greatly since BC (82%)

Car ownership: 1 (44%) while 12% reported ZERO cars of whom 90% said this was by their choice.

(NOTE: These results probably are due to the primary method of distribution - Internet. More professionals and higher incomes might be expected from net users.)

AGE DISTRIBUTION:

< 26 = 6%

26-35 = 33%

36-45 = 36%

46-55 = 19%

> 55 = 5%

COMMUTING HABITS OF THE "AVERAGE" BC

Average years BC = 8+ (range 0.5 to 42)

Usual commute mode: bike = 70%, auto = 20%

Average one-way commute trips per week = 8

Mode before BC:

Automobile = 54%

Transit = 18%

Walking = 12%

COMMUTE DISTANCE / TIME

	Usual Distance	Bike Distance	Usual Time	Bike Time
Average	7.3 mi	7.2 mi	20.4 min	30.3 min

Median	6	6	20	25

YEARLY CYCLING MILES

	Commuting	TOTAL
Average	1858	3288
Median	1500	2607
Low	100	100
High	12000	18000

Aggregate miles reported: Commuting = 4410287, TOTAL = 7805466

REASONS NOT TO BC MORE

Weather	39%
Other	14%
Need car at work	8%
Multiple responses	6%
Family duties	6%

FACILITIES AVAILABLE AT DESTINATION percent reporting

Bike lockers	15%
Bike racks	69%
Locked room/cage	19%
Shower	57%
Clothes storage	44%

BIKE COMMUTING COSTS

Commute bicycle cost: average = $687 / median = $500

Annual expenses: Average = $714 TOTAL

Bike purchase	= $308
Upgrades	= $102
Consumables	= $ 76
Clothing	= $ 89
Tools/Repairs	= $ 89
Miscellaneous	= $ 50

HELMET USE: Ownership 98%

Worn while BC: At All Times = 87%

90-99% of time = 5%

Never = 3%

MOTIVATION: Why BC? (Multiple responses OK)

Health/Fitness	95%
Environment	82%

Congestion	52%
Cost of gas	40%
Parking cost/availability	34%

Noted as missing from the choices: FUN!!!

CRASH EXPERIENCE in the previous 12 months resulting in at least $50 in property damage and/or personal injury expense. (While commuting)

Number reporting a crash	232 (10%)
Total crashes reported	271
Fraction reported to police	38%
Legal action followed	13%

CRASH EXPENSES

	Prop Damage	Medical
Average	$ 339	$ 1120
Median	$ 100	$ 100
High	$10000	$20000

CRASH TYPES

Motor vehicle	58%
No on else (e.g. fall)	30%
Other cyclist	6%
Pedestrian	3%
Animals	2%

FACILITY CRASH RATES per million miles while bike commuting

Major street/highway (no bike facs)	77.6
Minor street (no bike facs)	63.7
Streets with bike lanes/bike route*	30.8
Mixed use trail/"bike path"	41.0
Other (usually indicated as sidewalks)	327.1

* an error occurred in designing the survey wherein BL and BR were combined in the crash facility question making it impossible to separate the crash rates between these facs.

CONCEPT OF "RELATIVE DANGER" defined for a facility type as the [fraction of crashes] divided by the [fraction of miles ridden on that facility]. Thus facility where

20% of the crashes occur with 20% of the miles ridden would have a RD = 1.0. Crashes in proportion to exposure. Based on the data submitted by these 2374 BCs, the following RDs can be calculated for each facility type:

	Relative Danger
Major street/highway (no bike facs)	1.26
Minor street (no bike facs)	1.04
Streets with bike lanes/bike route	0.50
Mixed use trail/"bike path"	0.67
Other (usually indicated as sidewalks)	5.32

CONCLUDING THOUGHT, in the words of one respondent:

"We are truly blessed. How many people riding in their cars would say that about their commute?"

//

A COPY OF THE TEXT OF THE SURVEY FOLLOWS:

##

SURVEY OF REGULAR BICYCLE COMMUTERS.

1995-6

This survey seeks data on bicycle commuting (to either work or school / college), and is being carried out by the Human Powered Transportation Program at the University of Washington.

Our goal is to reach as many bike commuters as possible across the U.S.A. and Canada. For the purposes of this survey, a 'regular' bike commuter uses a bicycle at least 1 day per week, 6 months a year. If you do not bike commute at least this much, please pass on this survey to someone who does.

All identifying information will be removed upon receipt and the results will be tabulated so that individual replies will not be identifiable and only summaries of the responses received will be reported. Answers should be based on the all bicycle commuting you did during the PREVIOUS 12 month period, unless otherwise stated.

Complete answers by replacing the asterisk with your answer.

Where a series of choices is given, replace the asterisk with the number assigned to your particular choice.

Please share this with other regular bike commuters you know, we

are looking for the widest possible distribution.

Thank you for taking the time to complete this survey.

ABOUT YOUR COMMUTING.

Unless otherwise stated, trip refers to your typical, one-way commute trip. A round trip (e.g. home-work-home) should be treated as two one-way trips.

* 1. How long have you been regularly commuting by bicycle (yrs)?
* 2. How many commute trips (each way) do you make per week? [Going to work and returning home once per day, 5 days/week would = 10.]
* 3. Over the course of a year, what is your USUAL (>50%) commute mode?

own car=1, vanpool / carpool=2, transit=3, motorbike=4, bike=5, walk=6, other=7

4. What is your commute distance and time for your USUAL mode?
* a. miles (typical one-way trip).
* b. minutes (typical one-way trip).

5. What is your commute distance and time by bike ONLY?
* a. miles (typical one-way trip).
* b. minutes (typical one-way trip).

* 6. Total miles of bike commuting in the past 12 months.
* 7. How did you commute before you started using your bicycle?

motor vehicle=1, car/vanpool =2, transit=3, motorbike=4, walk=5, always bike commuted=6, other=7

* 8. If 100% of your commute trips are NOT by bike, what is the PRIMARY reason for not bike commuting on these occasions ?

need car at work=1, roads too dangerous=2
personal safety=3, lack of facilities at work=4,
weather conditions=5, darkness=6,
family reasons (i.e. drop off/pick up children)=7,
other (please specify)=8

* 9. How many months in a year do you NOT commute by bicycle because of your regional climate (bad weather)?

ABOUT THE FACILITIES YOU USE.

10. What percentage of your BICYCLE commute trip is made on...
*% a. major or arterial roads (w/no specific bike facilities) ?
*% b. minor streets (w/ no specific bike facilities) ?
*% c. on-street facilities (bike lanes)?
*% d. signed bike route (only signs - no bike lanes)?

*% e. bike paths / trails (off street bike facilities) ?

*% f. other?

11. Are any of the following facilities provided at your destination for bicycle commuters? (No=0, Yes=1)

* a. Parking lockers

* b. Racks

* c. Locked room / cage

* d. Showers

* e. Clothes storage

* f. Others (please specify)

12. What facilities not provided at your destination would you most like to see (& why) ?

*

ABOUT YOUR BIKE.

* 13. What type of bicycle do you use MOST for commuting? road / racing=1, mountain=2, hybrid=3, touring=4 recumbent=5, other (please specify)=6

* 14. Do you have a second commuting bike for bad weather conditions, alternative destination, etc. ? Answer No=0, or use key above from Q. 13.

* 15. a. Estimate your total MILES ridden (all purposes), in the past 12 months. Indicate what percentage of these MILES were:

*% b. commuting trips

*% c. utility / non-commute trips (i.e. shopping)

*% d. recreation / touring / exercise

* e. Are responses on odometer data? (No=0, Yes=1)

The following questions are concerned only with the bicycle you MOST REGULARLY use for commuting...

$* 16. How much did it cost?

17. Do you regularly carry / use any of the following on your commute? (No=0, Yes =1)

* a. mirror

* b. odometer/"computer/speedometer

* c. bags / panniers

* d. pump and patch kit

* e. spare tube and/or tire

* f. comprehensive tool kit

* g. front light(s) - NOT a flasher

```
*       h. approximate total watts for front light(s)
*       i. front flasher(s)
*       j. rear light(s) - NOT a flasher
*       k. rear flasher(s)
*       l. reflectors and / or reflective tape
*       m. bell / horn
*  18. Do you own a cycling helmet? ( No=0, Yes=1 )
*% 19. Percentage of commute trips do you use your helmet?
   20. Amounts spent (total dollars) in the last 12 months on...
     NOTE: When considering yearly costs, assign each cost item
     to one category only, e.g. do not assign home repair costs
     to 'consumables' & 'repairs'.
$*   a. bicycle purchase
$*   b. accessories at the time of bike purchase except clothes
$*   c. upgrades after bike purchase (e.g. better wheels, pedals)
$*   d. consumables (e.g. chains, brakes pads, tires etc.)
$*   e. clothing
$*   f. bike shop repairs/service
$*   g. tools / supplies for HOME repairs and service
$*   h. bike parking
$*   i. any other costs not included above (specify below)
*% 21. What percentage of repairs do you do yourself (as opposed
       to taking your bike to a bike shop)?

ABOUT YOUR MOTIVATION.
   22. Does your employer/school encourage bike commuting by:
        ( No=0, Yes=1)
*       a. Loaner bikes / free bikes
*       b. Cash incentives
*       c. Prizes / award ceremonies
*       d. Guaranteed ride home
*       e. Ride companion scheme
*       f. Education program
*       g. New facilities
*       h. Other (please specify)
   23. Did any of the following play a part in your decision to
       bike commute? ( No=0, Yes=1 )
*       a. Motor vehicle parking costs / availability
*       b. Motor vehicle fuel costs
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* c. Congestion

* d. Improved public bicycle facilities

* e. Moved closer to work

* f. Environmental concerns

* g. Health/fitness

ABOUT SAFETY / ACCIDENTS.

24. Regarding SERIOUS accidents that you have been involved in while commuting by bicycle in the last 12 months (count only those incidents in which injuries or property damage in excess of $50 resulted):

* a. How many have you been involved in?

$* b. Estimate TOTAL property damage for these accidents.

$* c. Estimate TOTAL medical costs for these accidents.

25. How many of the accidents from Q. 24..

* a. were reported to the police?

* b. resulted in legal action?

26. How many of the accidents from Q. 24...

* a. involved a motor vehicle?

* b. involved other cyclists?

* c. involved pedestrians?

* d. involved animals?

* e. involved no-one else?

27. How many of the accidents from Q. 24...

* a. required you to visit a doctor &/or accident room?

* b. required a stay in hospital?

28. How many of the accidents from Q. 24...

* a. occurred on a major street / highway?

* b. occurred on a minor street?

* c. occurred on a bike lane / bike route?

* d. occurred on a bike path?

* e. occurred on another type of facility?

ABOUT YOUR HEALTH.

* 29. Your general health since you started bicycle commuting?

improved greatly=1, improved somewhat=2,

not improved at all=3, has deteriorated=4

ABOUT YOU AND YOUR HOUSEHOLD.

* 30. Age?

* 31. Gender? (Female=1, Male=2)
* 32. Total Household Income per year. Less than $15K=1,
  $15-$30K=2, $30K-$45K=3, $45-60K=4, More than $60K=5
* 33. Occupation. Student=1, Clerical=2, Professional=3,
  Administrative=4, Academic/Teacher=5, Managerial=6,
  General/Skilled Labor=7, Sales=8, Other=9
* 34. a. How many motor vehicles do you own ?
* b. If ZERO, is this by choice ? (No=0, Yes=1)
* 35. City.
* 36. Zip / Postal Code.

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