City of Toronto
1999 Cycling Study

Final Report on Quantitative Research Results

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Contents

- Background & Purpose
- Research Objectives
- Research Methodology
- Conclusions & Implications
- Summary of Key Findings
- Detailed Results
- Appendices

Background & Purpose

- As part of their Cycling Master Plan, the City of Toronto required research on issues related to cycling in the new amalgamated city.
- Similar studies conducted in 1986 and 1991 addressed the state of cycling in the City of Toronto. Although political boundaries have changed since 1991, conclusions were drawn by comparing results from the 1991 research effort to this most recent study where possible.
- The 1999 version of the study looks to address a sample that reflects the entire new City of Toronto. While previous studies compared results between the former City of Toronto and the rest of metro, comparisons in this study are made based on the City's four Transportation Districts.
- This study will serve as a new benchmark for future studies, and this report will speak to trends where historical comparisons are possible.
- The overall study objective is to measure the prevalence of cycling in Toronto with a focus on utilitarian trips.
- Study results will be used as input to the Cycling Master Plan.

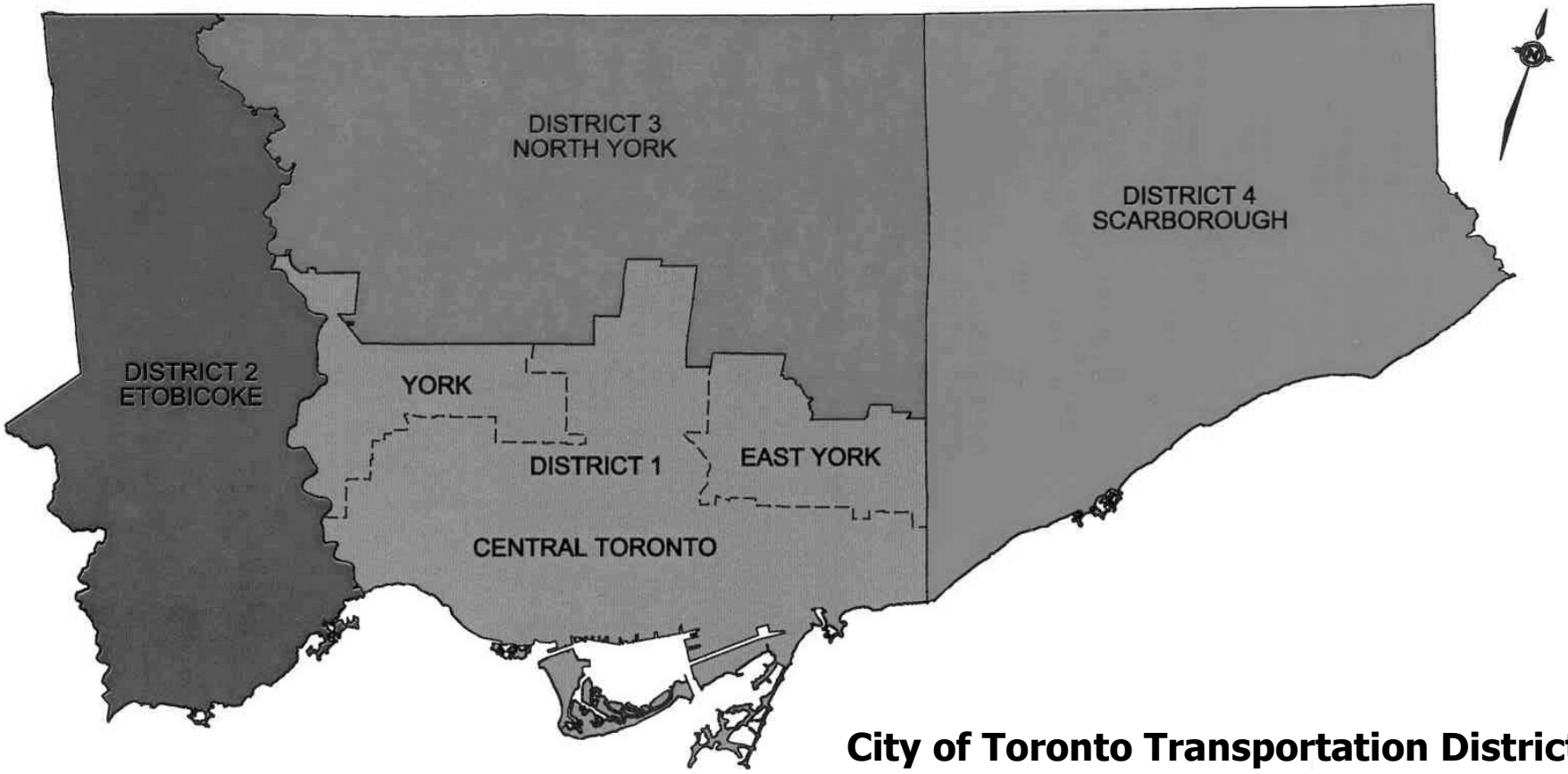
Research Objectives

- The specific research objectives of the study are as follows,
  - To estimate the incidence of bicycle ownership among households and the number of utilitarian and recreational cyclists;
  - To establish a **profile** of Toronto residents with regard to their use of the bicycle as both a mode of transportation and a recreational vehicle;
  - To determine barriers to utilitarian cycling, current transportation modes used and opportunities to encourage cycling;
  - To estimate the percentage of cyclists who use their bicycle in conjunction with public transit and the potential to increase this activity;
  - To identify any concerns the public may have about cycling or cyclists in Toronto;
  - To gauge the public's perception of the overall quality of cycling facilities available and opinions on possible mechanisms for improvement;
  - To obtain information on the public's perception of the following issues:
    - Aggressive behaviour of cyclists and motorists; and
    - Atmospheric smog.

Research Methodology

- Results are based on 1001 Computer Assisted Telephone Interviews (CATI) with individuals aged 15 years or older who reside in the City of Toronto.
- The sample excludes persons employed in marketing research, advertising, public relations or news media industries.
- The sample was divided equally among the City's four transportation Districts. The map on the following page defines the boundaries for each of the four Districts.

District Map



City of Toronto Transportation Districts

Research Methodology

- The population, number of completed interviews and margin of error for each District are listed below. A detailed explanation of our weighting scheme can be found on page 85.

		15+ Population	n=	Margin of Error
District 1	Central Toronto	763,130	251	6.2%
District 2	Etobicoke	267,090	250	6.2%
District 3	North York	481,205	250	6.2%
District 4	Scarborough	448,515	250	6.2%
Total		**1,959,940**	**1001**	**3.1%**

- All interviews were completed between October 12 and October 21, 1999. Compared to that typically achieved in urban centres, the response rate for this study was very high at 20.9%.

- A copy of the complete questionnaire is appended, along with an overview of the survey methodology and the call record summary.

Methodological Notes

Several terms appear frequently in the body of this report. To assist in accurate interpretation of the results, the following definitions should be kept in mind:

- **Utilitarian Cyclists** - those who ride a bicycle for utilitarian purposes such as going to work or school, running errands, going shopping or visiting friends. Utilitarian cyclists may also ride a bicycle for recreation or fitness purposes, but they are classified hierarchically as utilitarian.

- **Recreational Cyclists** - those who ride a bicycle for recreation or fitness purposes. Recreational cyclists do not ride a bicycle for utilitarian purposes. It should be noted that wherever cyclist comparisons are made throughout this report, recreational cyclists are those who cycle for recreational purposes only.

- **Cyclists** - those who ride a bicycle for utilitarian and/or recreational purposes.

- **Non-Cyclists** - those who do not ride a bicycle at all.

- **City of Toronto -** Previous versions of this study were conducted before the amalgamation of the "new" City of Toronto. In the present version of the study, "The City of Toronto" refers to the entire city - inclusive of the North York, Scarborough, Etobicoke, Toronto, York and East York Community Council areas.

- **District -** Previous studies have compared results between the "former City of Toronto" and the "Rest of Metro". In order to get a better understanding of cycling issues across the new city, we divided the sample evenly across the four Transportation Districts which are comprised of North York, Scarborough, Etobicoke, and Central Toronto the latter of which is made up of the former cities of Toronto and York and the borough of East York. Results were weighted in proportion to the population on the basis of the known distribution for age, gender and district.

Conclusions and Implications

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Conclusions & Implications

The results in this report provide a benchmark of cycling behaviour and attitudes for the new City of Toronto. The five major conclusions associated with our findings are as follows.

1 Cycling is a critical mode of transportation and form of recreation for City of Toronto residents. Overall, approximately 48% or 939,000 residents over age 15 are cyclists.

✔ In total, there are approximately 388,000 Utilitarian cyclists who ride to get to work, school, or to go shopping, run errands or go visiting, representing approximately 20% of the population. Given some of these Utilitarian cyclists ride for more than one of these practical purposes, the more detailed estimates sum to greater than the total:

- ➢ Cyclists who ride to work number almost 159,000 or 8%. These cyclists make approximately 573,000 work trips per week. Two-thirds (66%) have a commute of less than 30 minutes, with a median point of 16.1 minutes and the average ride taking 23.6 minutes.
- ➢ Cyclists who ride to school number almost 63,000 or 3%. These cyclists make 184,000 school trips per week. Seven-in-ten (71%) have a commute of less than 30 minutes, with a median point of 20.0 minutes and the average ride taking 19.3 minutes.
- ➢ Cyclists who ride to go shopping, run errands or go visiting number 341,000 or 17%. These cyclists make almost 817,000 such trips per week.

✔ In total, there are approximately 862,000 Recreational cyclists who ride for leisure or fitness, representing 44% of the population. Recreational cyclists make more than 1,600,000 such trips per week.

Note: Those who cycle for work, school, shopping, running errands, or visiting friends are sub-components of utilitarian cyclists. Thus, because it is possible for one to cycle for more than one of the reasons, the sum of the parts is greater than the whole.

Conclusions & Implications

2 Cyclists in the City of Toronto are not a marginalized group. The profile identifies a group who tend to be mainstream residents with a skew to younger citizens with a moderate to high socio-economic status. Communications with cycling residents should remain cognizant of this profile.

- ✔ When solely reviewing the present profile of cycling in Toronto, our analysis reveals that age is a primary factor in contrasting the different types of cycling groups. That is, as age increases, cycling behavior tends to shift from utilitarian to recreational to non-cycling.

- ✔ When comparing current results to past studies, the data also reveals that an increasing proportion of Torontonians continue to be active cyclists as they age. Thus in the context of an aging population, cycling facilities will need to meet this growing demand.

  - ✔ Utilitarian Cyclists - One in five Torontonians can be classified as utilitarian cyclists. These people tend to be men who are younger, earn higher incomes and reside in Central Toronto.

  - ✔ Recreational Cyclists - Almost three in ten Torontonians can be classified as cyclists who ride for recreational purposes only. Similar to utilitarian cyclists, recreational cyclists tend to be younger and earn higher incomes. However, recreational cyclists are just as likely to be women as men and are evenly distributed across the City.

  - ✔ Non-cyclists - One in two Torontonians are classified as non-cyclists. Non-cyclists tend to be older, earn less income and are more likely to be women.

Conclusions & Implications

3 Based on residents' evaluations, there is considerable opportunity to improve the overall quality of cycling facilities and routes.

✔ Residents feel three key areas of improvement would have the greatest impact on the overall quality of cycling facilities and routes in the City of Toronto. These factors relate primarily to cycling infrastructure, but also include the need for our workplaces and schools to accommodate cyclists better:

- More on-street bike lanes;
- More off-street bike paths or trails; and
- Shower or change facilities in our workplaces and schools.

4 There is considerable opportunity to increase "Bike-n-ride" behaviour with the introduction of innovative public transit measures.

✔ Fully 30 % of Utilitarian cyclists report they have combined public transit with cycling. Almost six-in-ten (57%) work cyclists report they most often use public transit when not cycling to work. Public transit measures such as bike racks on buses and secure bike parking at transit stations would stimulate new "Bike-n-ride" behaviour among six-in-ten Utilitarian cyclists. Further, eight-in-ten work cyclists who currently "Bike-n-ride" say they would do so more often were such measures introduced.

Conclusions & Implications

5 Public education and communication are required to address concerns about cycling in the City of Toronto. These findings provide the foundation for a public education campaign where respective concerns can be addressed effectively.

✔ The principle issue is one of perceived carelessness, and the public seems to be engaged in a "he said, she said" debate. For example, Non-cyclists express concern over careless cyclists, and Utilitarian cyclists are far more likely to point to careless motorists. All parties share common ground in that they express an equal concern about collisions in general.

Summary of Key Findings

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Summary of Key Findings

Overall perception of cycling in the City of Toronto

- ✔ Overall perceptions of the quality of cycling routes and facilities in the City of Toronto suggest there is significant opportunity for improvement. Despite the fact that 52% of Torontonians evaluate cycling routes and facilities as at least "good", fewer than two in ten (18%) feel the quality of cycling facilities is "excellent" (4%) or very good (14%). On average, residents from Etobicoke and Central Toronto rate cycling facilities more favourably. North York residents provide the least favourable evaluations of the quality of cycling facilities. Residents of the Scarborough District are significantly more likely to answer "don't know" or "not stated".

- ✔ Utilitarian cyclists tend to be most critical of the quality of cycling routes and facilities in the City of Toronto.

- ✔ A significant proportion (29%) of Toronto seniors (aged 65+ years) feel they are not familiar enough to provide an opinion. Their disengagement corresponds to the finding that seniors are far less likely than others to be cyclists.

Summary of Key Findings

Profile of Toronto Cyclists

- ✔ This 1999 survey of 1001 Torontonians aged 15 years or older reveals that 20% of respondents can be classified as utilitarian cyclists, 28% as recreational cyclists and the remaining 52% as non-cyclists. Combined, almost half (48%) of all Torontonians are cyclists.

- ✔ Decima analyzed the profile of cyclists and non-cyclists by comparing groups on key demographic indicators (e.g. gender, age, income, etc.) and District. Where significant differences are detected they are noted. No reference is made where no significant differences are observed on a particular profiling dimension.

- ✔ When solely reviewing the present profile of cycling in Toronto, our analysis reveals that age is a primary factor in contrasting the different types of cycling groups. That is, as age increases, cycling behavior tends to shift from utilitarian to recreational to non-cycling.

- ✔ When comparing current results to past studies, the proportion of utilitarian and recreational cyclists in the City of Toronto has continued to rise regardless of age. The data also reveal that when compared to previous years, the proportion of Torontonians who continue to to be active cyclists as they age is increasing. Thus in the context of an aging population, cycling facilities will need to meet this growing demand.

Utilitarian Cyclists

- ✔ Age plays a key role in defining utilitarian cyclists. Those who are younger are more likely to be utilitarian cyclists than those who are older. It is also evident that as household income rises, so too does the probability that one is a utilitarian cyclist. Men (25%) are much more likely to be utilitarian cyclists than women (15%). Compared to those in other areas, Central Toronto residents (30%) are more than twice as likely to be utilitarian cyclists. Eight-in-ten (81%) utilitarian cyclists also cycle for recreation or fitness.

Summary of Key Findings

Recreational Cyclists

- ✔ Recreational cycling is equally common in all Districts of the City of Toronto. As with utilitarian cyclists, age plays a role in defining recreational cyclists. Those who are younger are more likely to cycle for recreation or fitness than those who are older. It is also evident that as income rises so to does the number of recreational cyclists. Considering this fact is also true for utilitarian cyclists, it is apparent that higher income earners are more likely to be cyclists in general. Students or those who are employed also tend to be recreational cyclists. This is perhaps a result of the relative age categories associated with students and those who are employed.
- ✔ Almost half (48%) of recreational cyclists name distance as the number one reason they do not cycle for utilitarian purposes. The next major concern is unsafe traffic conditions (15%). It is also apparent some feel cycling to work is simply not be feasible – "can't carry things on bike" (9%), "incompatible with work clothes" (7%), and "need car for work" (6%) are the 3rd 4th and 5th most common barriers to utilitarian cycling.
- ✔ When those mentioning distance (48%) as the cycling barrier were asked what steps could be taken to encourage them to begin cycling to work or school, 59% said "nothing". However, when prompted, 53% of those who said "nothing" said they would combine cycling with public transit if there was convenient and secure bike parking, and 35% would "bike-n-ride" if there were bike racks attached to City buses.

Non-Cyclists

- ✔ The non-cyclist profile is essentially opposite from the recreational cyclist profile. For example, those who are older (50+) are less likely to cycle as are those who earn lower incomes. Further, women are more likely to be non-cyclists than are men.

- ✔ Residents in the more suburban Districts (54%) are somewhat more likely to be non-cyclists than those who reside in Central Toronto (49%). This could be partially a function of the age profile of suburban areas versus the City's core (i.e. suburban residents are slightly older on average).

Summary of Key Findings

Cycling Comfort Levels

- ✔ More than nine in ten (93%) Toronto cyclists are comfortable cycling on bike trails or paths, more than eight in ten (87%) on residential streets, and more than five in ten (53%) on major roads with bike lanes. Less than two in ten (18%) cyclists are comfortable cycling on major roads without bike lanes. Utilitarian cyclists are more likely to be comfortable cycling in any of these areas than are recreational cyclists.

- ✔ Among cyclists who are comfortable cycling on major roads without bike lanes, seven in ten (70%) are men, six in ten (60%) are utilitarian cyclists, and three in ten (30%) are cycling to go to work. Those cyclists who are comfortable cycling on major roads without bike lanes also tend to be younger. Conversely, among cyclists who are only comfortable cycling on bike paths or trails, six in ten (62%) are female and three quarters (75%) are recreational.

- ✔ By District, there are no significant differences among those who are comfortable cycling on bike trails or paths. However, residents of Central Toronto are significantly more likely to be comfortable cycling on residential streets, major roads with bike lanes, and major roads without bike lanes. This higher comfort level could contribute to the greater proportion of Utilitarian cyclists in Central Toronto.

Summary of Key Findings

Concerns about Cycling in Toronto

- ✔ In total, one third of respondents (33%) say their number one concern about cycling in Toronto is careless cyclists (i.e. cyclists who don't obey the rules and laws). Both non-cyclists and recreational cyclists name this as their number one reason and utilitarian cyclists name this as their number two reason. It is apparent that as age rises there are a greater number of people who feel this way about careless cyclists.

- ✔ The next greatest concern behind careless cyclists is careless drivers (18%). However, there are significant differences of opinion in this regard. Utilitarian cyclists (35%) are far more likely to harbour this concern about careless drivers than recreational cyclists (23%) and non-cyclists (9%).

- ✔ Utilitarian cyclists are also more likely than others to express concerns over the lack of bike lanes (19%) and trails (13%), car door opening (11%), road conditions(10%), bike theft (5%) and lack of knowledge on the part of both cyclists (5%) and motorists (4%).

Summary of Key Findings

Improving Cycling in Toronto

- ✔ One-third (33%) of respondents volunteered that adding more on-street bike lanes is the number one thing that would improve Toronto cycling. About one-in-ten (13%) Torontonians feel adding more off-street bike paths is the number one thing that would improve cycling.

- ✔ Asked outright about a battery of improvement mechanisms, 59% of respondents say "better education for cyclists" would improve cycling in Toronto "a great deal". Almost half (48%) feel "better education for motorists" would improve cycling in Toronto "a great deal". Non-cyclists are more likely to say it is the cyclists who need more education, and utilitarian cyclists are more likely to say it is the motorists who need more education. This may be evidence of some degree of finger pointing, i.e. each believes it is the other who should be better educated. Perhaps both require some schooling.

- ✔ There are no significant differences by District, age, gender, etc.

- ✔ The following table summarizes the differences of perceived cycling improvement attributes between the three cyclist types.

Summary of Key Findings

Concerns about Toronto Cycling

	Total n=1001 %	Non-Cyclists n=522 %	Recreational n=281 %	Utilitarian n=199 %
Careless cyclists	33	32	37	30
Careless drivers	18	9	24	35
Lack of bike lanes	13	11	14	19
Worried about collisions	12	12	11	11
Traffic conditions	10	9	13	8
Lack of paths and trails	8	6	6	13
Bikes on sidewalks	7	10	4	3
Safety gear	7	7	6	7
Safety (general)	7	7	7	4
Road conditions	4	3	2	10
Car doors opening	3	1	1	11
Cyclists should not be on same road as drivers	3	4	1	1
Nothing/No concerns	16	19	12	14
DK/NS	2	2	2	1

Note: Superscript letter in the table indicates the respective cell value for the column is statistically different at the 95% confidence interval when compared to that corresponding cell value in the column noted.

Summary of Key Findings

Combining cycling and public transit

- ✔ Currently, 17% percent of all cyclists have combined cycling and public transit at some time. However, 30% of utilitarian cyclists have combined the two transportation modes compared to only 8% of recreational cyclists. Notably, those who earn less than $20K are significantly more likely to combine cycling and public transit than are those who earn more than $20K.
- ✔ Results indicate significant differences according to place of residence. Differences may be attributable to the more comprehensive nature of the public transit facilities in Toronto's core. For example, Central Toronto cyclists are far more likely to report using public transit in combination with a cycling trip than those in Etobicoke, North York or Scarborough. However, the greater incidence of bike-n-ride behaviour in Toronto's core is partially due to a higher incidence of utilitarian cyclists in this district (as discussed, utilitarian cyclists are far more likely to report bike-n-ride behaviour).
- ✔ Of those cyclists who have combined cycling and public transit, 82% would be more likely to do it more often if secure bike parking facilities were available. A similar proportion, (78%) say they would be more likely to do it more often if there were bike racks attached to buses. These findings are similar among both recreational and utilitarian cyclists.
- ✔ Of those cyclists who do not combine cycling and public transit, 60% would be more likely to try it if secure bike parking facilities were available. Slightly fewer (50%) say they would be more likely to try it if there were bike racks attached to buses. The idea of bike racks appeals somewhat more to utilitarian cyclists that are not already combining cycling with public transit. They would be significantly more likely (59% versus 45%) than recreational cyclists to begin combining cycling and public transit if bike racks were attached to City buses.
- ✔ Three quarters (75%) of cyclists who have not combined cycling and public transit in the same trip have access to a motor vehicle all the time. Of those 75%, almost three quarters (73%) report using a car as their alternative/regular mode of transportation. This suggests that rather than going through the effort of combining cycling and public transit to reach a desired destination, these people simply use their car.

Summary of Key Findings

Respect for Other Road Users

- ✔ There is a perception of a declining trend in the general respect that motorists and cyclists have for other road users. Almost half (49%) of respondents feel motorists' respect for other road users has decreased in the past five years. A lesser proportion (33%) feel cyclists' respect for other road users has decreased. Despite this perceived downward trend, 15% feel motorists' respect, and 15% feel cyclists' respect for other users is *increasing*.

- ✔ Torontonians' perception of motorists' respect for other road users is positively correlated with their perception of cyclists' respect for other road users. Case in point, almost half (47%) of those who feel motorists' respect for other road users has decreased also feel cyclists' respect for other road users has decreased. Similarly, more than one third (37%) of those who feel motorists' respect for other road users has increased also feel cyclists' respect for other road users has increased.

Atmospheric Smog

- ✔ More than two thirds (68%) of Torontonians feel atmospheric smog is "a major problem" in the City. Utilitarian cyclists are significantly more likely to feel this way - 77% of them believe Toronto smog is "a major problem". Women are also significantly more likely than men to say Toronto smog is "a major problem". Overall, one quarter (24%) of respondents say they switch to a more environmentally friendly mode of transportation during smog alert days. However, utilitarian cyclists (30%) are significantly more likely to change their behavior than are recreational (25%) or non-cyclists (22%).

Summary of Key Findings

Distance to Bike Trails, Paths and Lanes

- ✔ Residents of Etobicoke are significantly more likely to perceive/report living closer to a *bike trail or path* than residents in all other Districts (7.4 minutes versus 10.1 minutes overall) Residents of Central Toronto are significantly more likely to perceive/report living closer to a *bike lane* than residents in all other Districts.

- ✔ One in four of those who reside in North York and Scarborough say they don't know how far it is to the nearest bike path or trail.

- ✔ Statistically, there are no significant differences in perception of the distance to bike trails or paths among the three cyclist types. However, utilitarian cyclists are significantly more likely to perceive/report closer proximity to bike lanes than are recreational or non-cyclists.

Trends and Comparisons (1991 - 1999)

- ✔ Toronto has experienced an increase in the number of utilitarian cyclists who have combined cycling and public transit – from 23% in 1991 to 30% in 1999. The number of recreational cyclists who would begin combining cycling and public transit if secure bike parking facilities were provided has significantly increased from 1991 (39%) to 1999 (53%). This statistic identifies a potential growth opportunity for bike-n-ride trips.
- ✔ As the following table shows, recreational cyclists' reasons for not cycling to work have remained relatively consistent over the past eight years. The top five reasons found in the 1999 data (shown in order below) contain the same top five reasons that appear in the 1991 data.

	1991 (n=156)	**1999 (n=281)**
Distance	55%	48%
Unsafe Traffic Conditions	17%	15%
Can't carry things on bike	6%	9%
Incompatible with work clothes	14%	7%*
Need car for work	10%	6%

- ✔ One reason above that has declined since 1991 – incompatibility with work clothes – may be explained by reasons that aren't related to cycling. The significant decline in "incompatibility with work clothes" may be a result of the more relaxed and casual dress code in today's workplace.
- ✔ Possibly due to the increased public awareness of mandatory helmet use for those under age 18, the number of cyclists who always use a helmet has risen by almost 250% from 18% in 1991 to 44% in 1999.

Note: " * " in the table indicates the respective cell value is statistically different at the 95% confidence interval when compared to that corresponding cell value in the 1991 study.

Detailed Results

Note:Due to rounding, some total values may not equal 100%

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Household Cycling Profile

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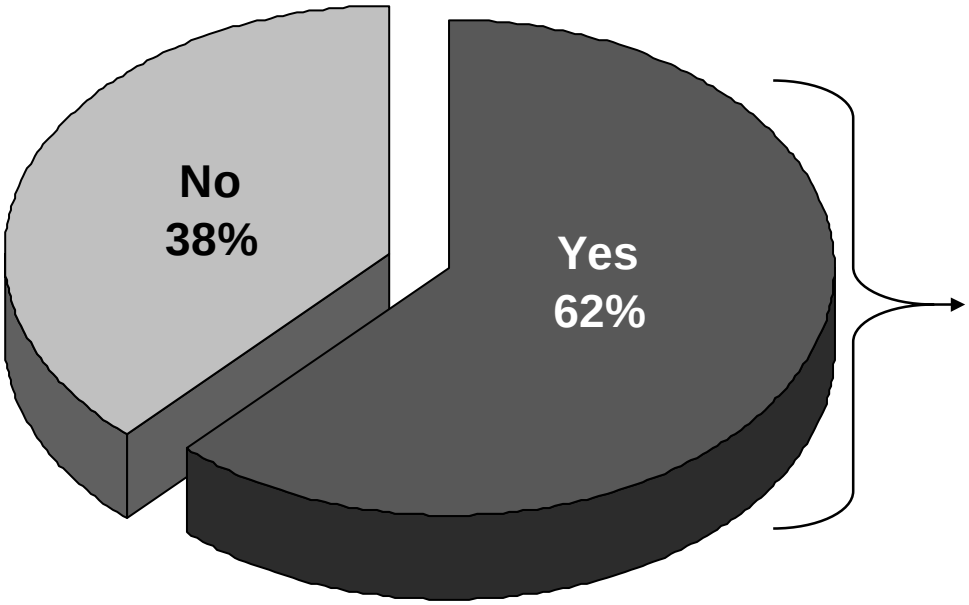
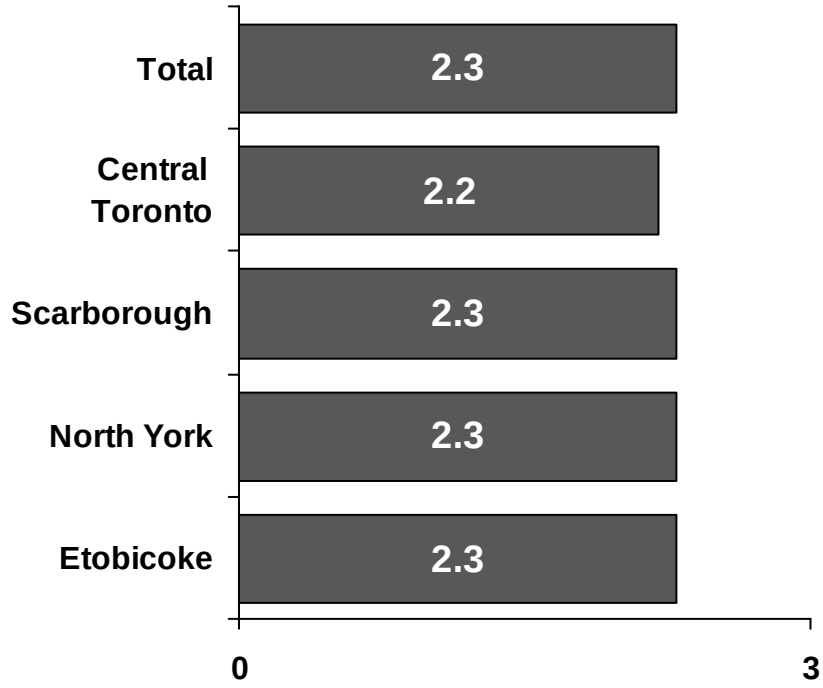
Household Bicycle Ownership

Households with Bicycles



Average # of Bikes per Household



Question A2 Read: Do you or does anyone in your household own a bicycle?

Base: All n=1001

Question A3 Read: How many bikes are there in your household?

Base: Households that own a bicycle n=618

Note: Base for mean only includes those with valid responses.

Household Cyclist Frequency

Average # of Cyclists in Bicycle-Owning Households

Question A5 Read: Including yourself, how many persons 15 years and over in your household ride a bike?

Base: Households that own a bicycle n=681

Note: Base for mean only includes those with valid responses.

Prevalence of Cyclist Types in Households - by District

	Total (n=1001) %	Etobicoke (n=250) %	North York (n=250) %	Scarborough (n=250) %	Central Toronto (n=251) %
% of Households with Utilitarian Cyclists	**24**	**18**	**19**	**18**	**33**
% of utilitarian cyclists who cycle to work	48	40	37	40	56
% of utilitarian cyclists who cycle to school	25	30	24	19	25
% of utilitarian cyclists who cycle to go shopping, visit friends or run errands	93	89	88	93	95
% of Households with Recreational Cyclists	**54**	**55**	**50**	**53**	**46**

Question A6 Read: Including yourself, how many persons 15 years and over in your household ride a bike for practical purposes such as going to work, school, shopping, running errands or visiting friends?

Base: All n=1001

Question A7 Read: More specifically…Including yourself, how many persons 15 years & over ride a bike to WORK, to SCHOOL, or to go SHOPPING, RUN ERRANDS or VISIT FRIENDS, in good weather?

Base: Household with utilitarian cyclists n=244

Question A8 Read: Including yourself, how many persons 15 years and over in your household ride a bike for RECREATIONAL or FITNESS purposes in good weather?

Base: All n=1001

Profile of Respondents

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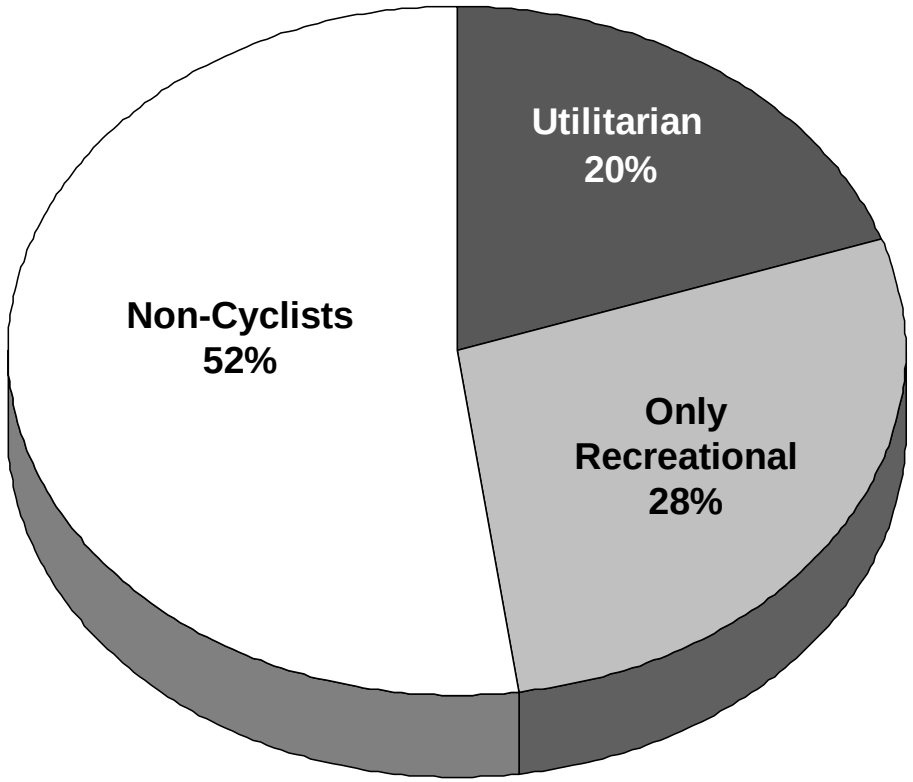
1999 Toronto Cyclist Classification



NOTE: Percentages shown in chart are the result of a hierarchical categorizing procedure- those who cycle for recreational purposes only, were categorized as recreational cyclists. Those who cycle for recreational and utilitarian purposes were categorized as utilitarian cyclists.

Profile of Respondents

		Total (n=1001) %	Non-Cyclist (n=522) %	Recreational Cyclist (n=281) %	Utilitarian Cyclist (n=199) %
Gender	**Male**	47	40	52	61
	Female	53	60	48	39
Age	**15 to 17**	4	1	6	7
	18 to 34	32	28	32	41
	35 to 49	29	22	37	35
	50 to 64	19	22	17	13
	65+	14	23	5	4
	DK/Refused	4	4	4	1

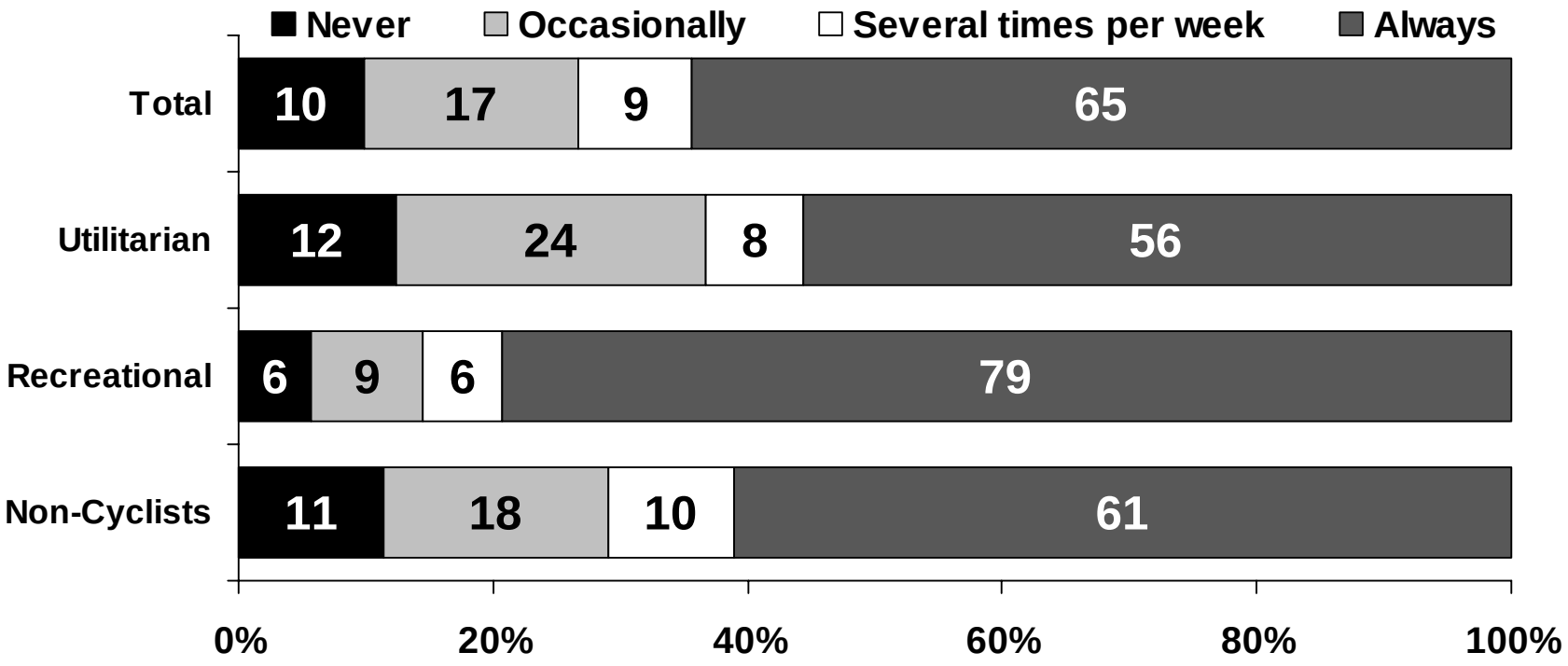
Profile of Respondents

		Total (n=1001) %	Non-Cyclist (n=522) %	Recreational Cyclist (n=281) %	Utilitarian Cyclist (n=199) %
Education	**High School**	33	37	31	25
	College	21	20	21	23
	University	31	31	30	34
	Post Graduate	14	12	16	18
	DK/Refused	1	1	1	-
Household Income	**Under 20K**	8	10	6	8
	$20 to $39K	19	24	11	16
	$40 to $59K	21	23	19	21
	$60 to $79K	13	11	17	14
	$80 to $99K	6	3	10	7
	$100K+	10	6	14	13
	DK/Refused	23	24	24	20

Profile of Respondents

		Total (n=1001) %	Non-Cyclist (n=522) %	Recreational Cyclist (n=281) %	Utilitarian Cyclist (n=199) %
Employment	**Full-time**	47	41	56	52
	Part-time	11	9	14	13
	Self-employed	9	9	8	12
	Retired	17	27	8	4
	Home-maker	3	3	3	2
	Unemployed	3	3	3	2
	Student	9	7	8	14
	Refused	-	0	1	0

Access to a Motor Vehicle



Question D31 Read: How often do you have access to a motor vehicle?

Base: All n=1001

Individual Cycling Habits

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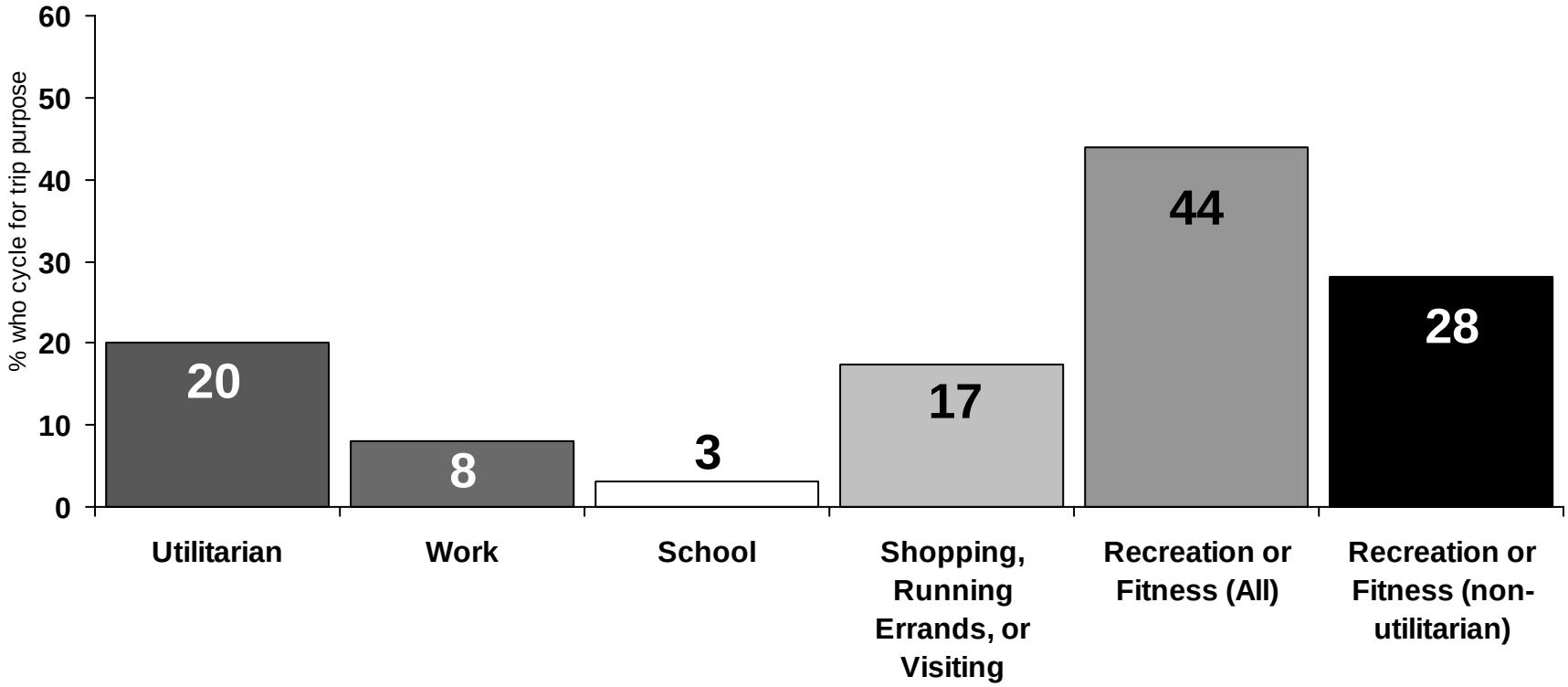
Prevalence of Individual Cyclist Types - by District

	Total (n=1001) %	Etobicoke (n=250) %	North York (n=250) %	Scarborough (n=250) %	Central Toronto (n=251) %
Utilitarian Cyclists	**20**	**15**	**11**	**14**	**30**
% of adults who cycle to work	8	5	3	3	15
% of adults who cycle to school	3	4	3	3	3
% of adults who cycle to go shopping, visit friends or run errands	17	14	11	13	26
Recreational Cyclists	**28**	**32**	**33**	**32**	**21**

Question A9 Read: Do you personally ride a bike in good weather for any of the following reasons? To go to work, to go to school, to go shopping, run errands, or go visiting, or for recreation or fitness?

Base: All n=1001

1999 Estimates of Incidence of Toronto Cyclists by Trip Purpose

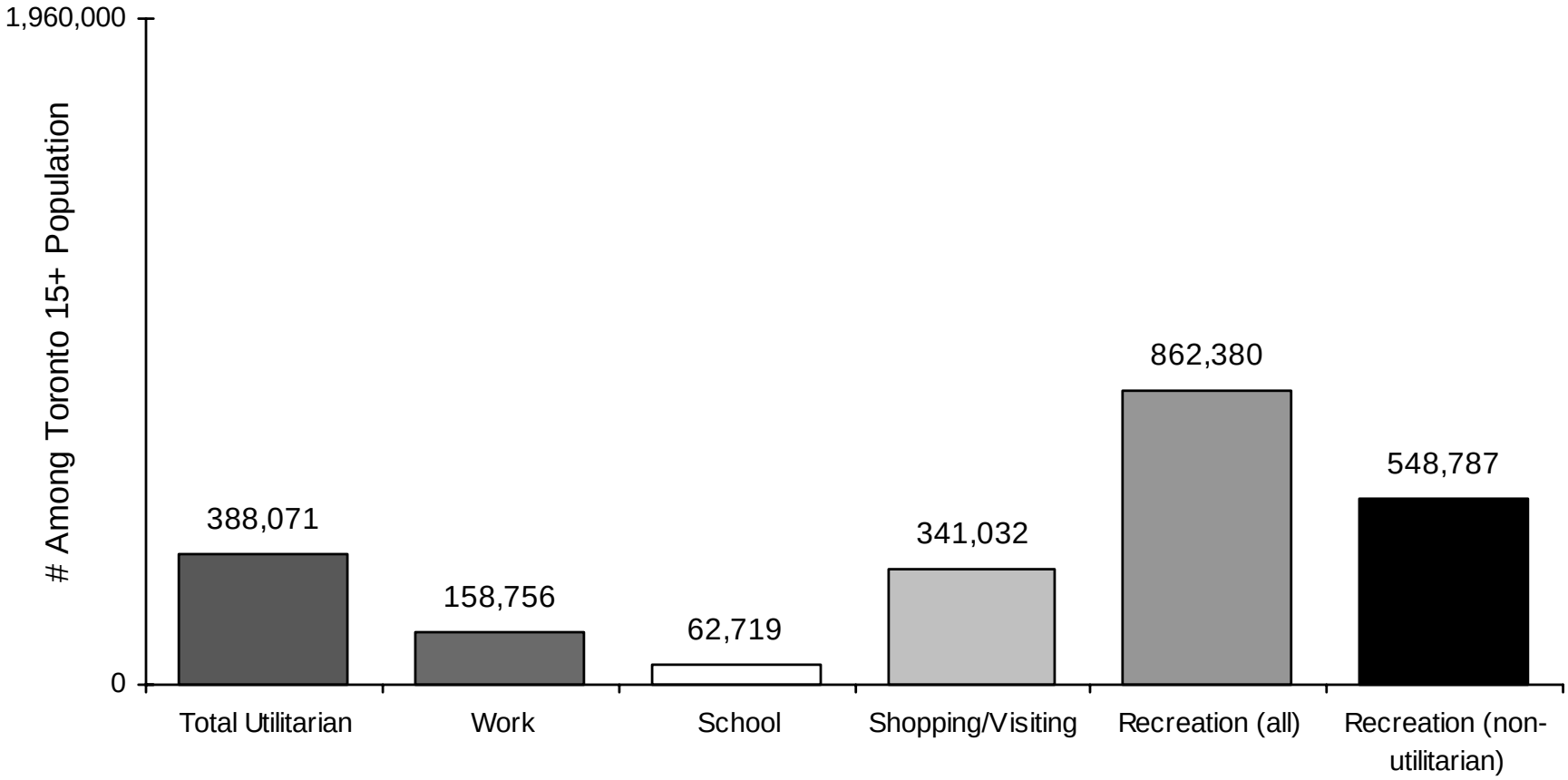


Question A9 Read: Do <u>you personally</u> ride a bike in good weather for any of the following reasons? To go to work, to go to school, to go shopping, run errands, or go visiting or for recreation or fitness?

Base: All n=1001

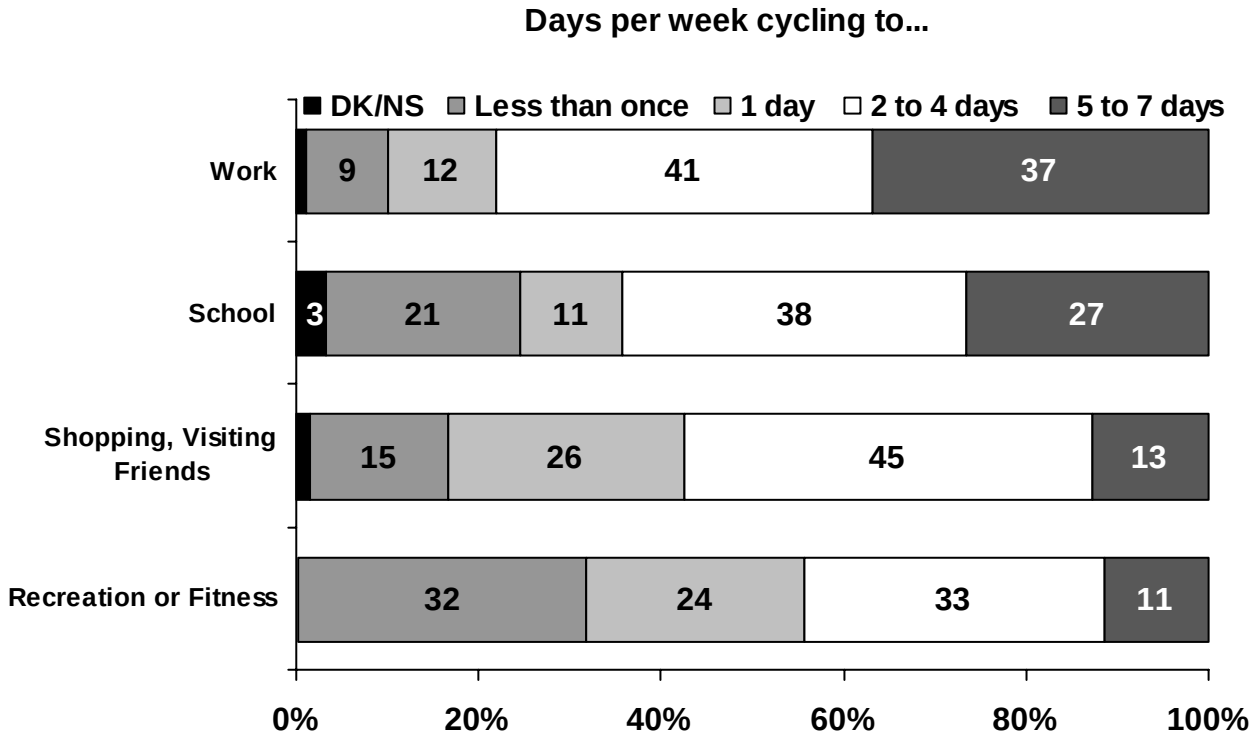
Note: Those who cycle for work, school, and shopping, running errands, or visiting friends are sub-components of utilitarian cyclists. Thus, because it is possible for one to cycle for more than one of the reasons, the sum of the parts is greater than the whole.

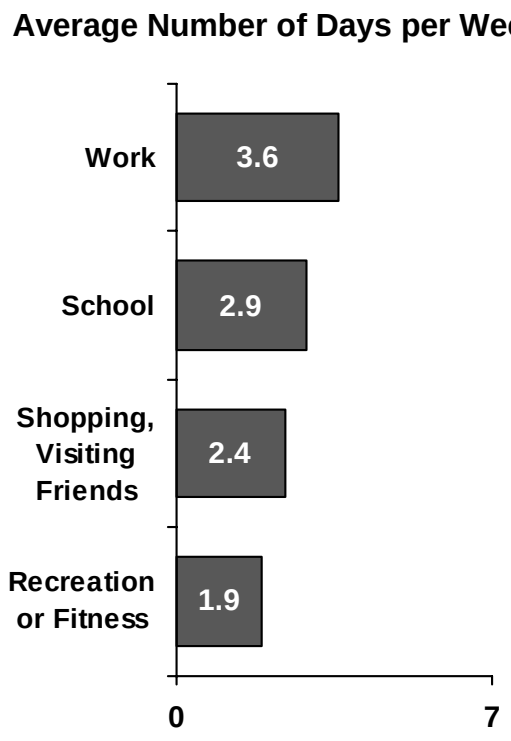
1999 Estimates of Number of Toronto Cyclists by Trip Purpose



Note: Those who cycle for work, school, shopping, running errands, or visiting friends are sub-components of utilitarian cyclists. Thus, because it is possible for one to cycle for more than one of the reasons, the sum of the parts is greater than the whole. For a detailed explanation of our population projection procedure, please refer to page 94.

Cycling Trip Frequency



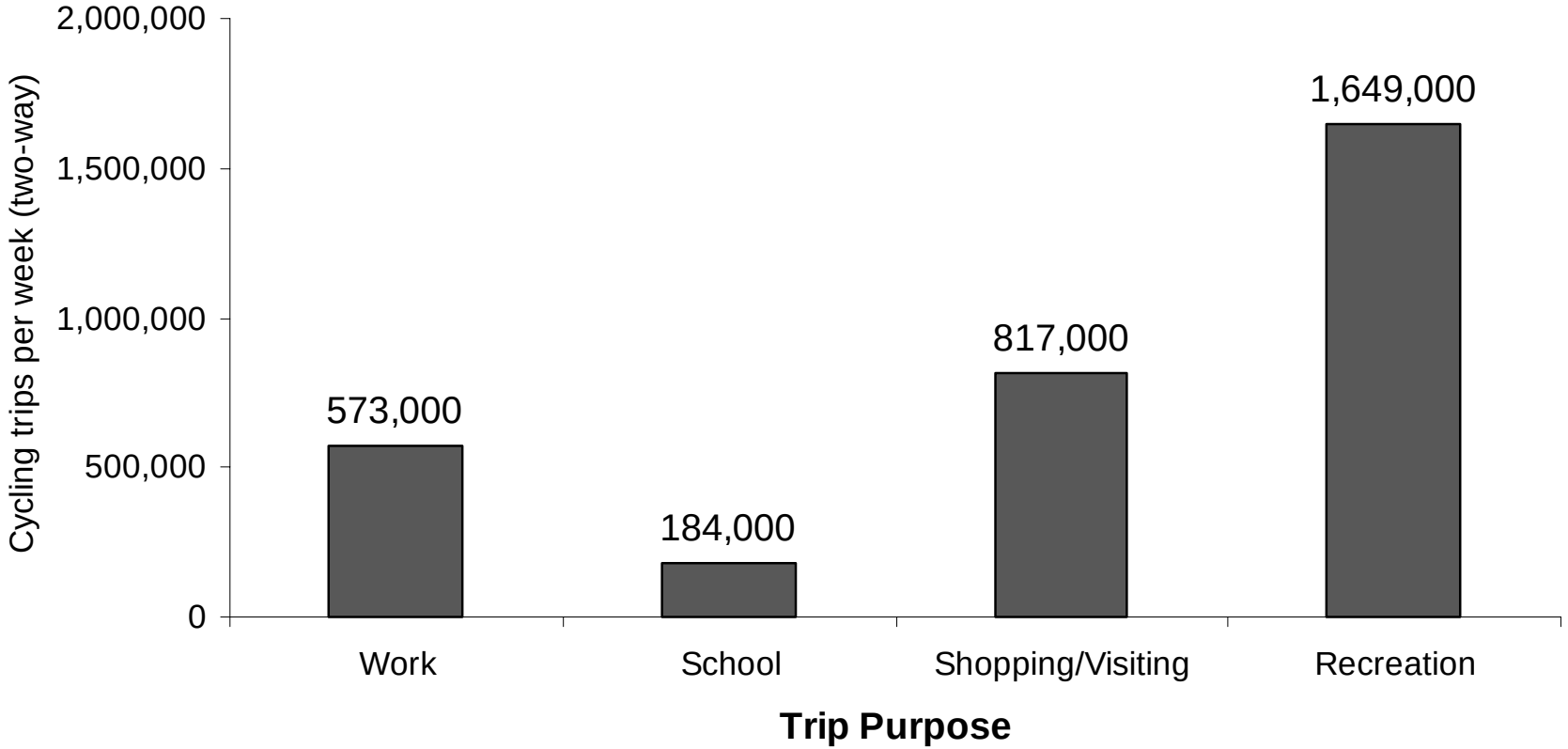


Question B10 Read: During good weather, how many days per week do you ride a bike … to get to work, to go to school, to go shopping, run errands or visit friends, or for recreation or fitness?

Base: All Cyclists n=480 (work n=81, school n=32, shopping, visiting friends n=174, recreation or fitness n=441)

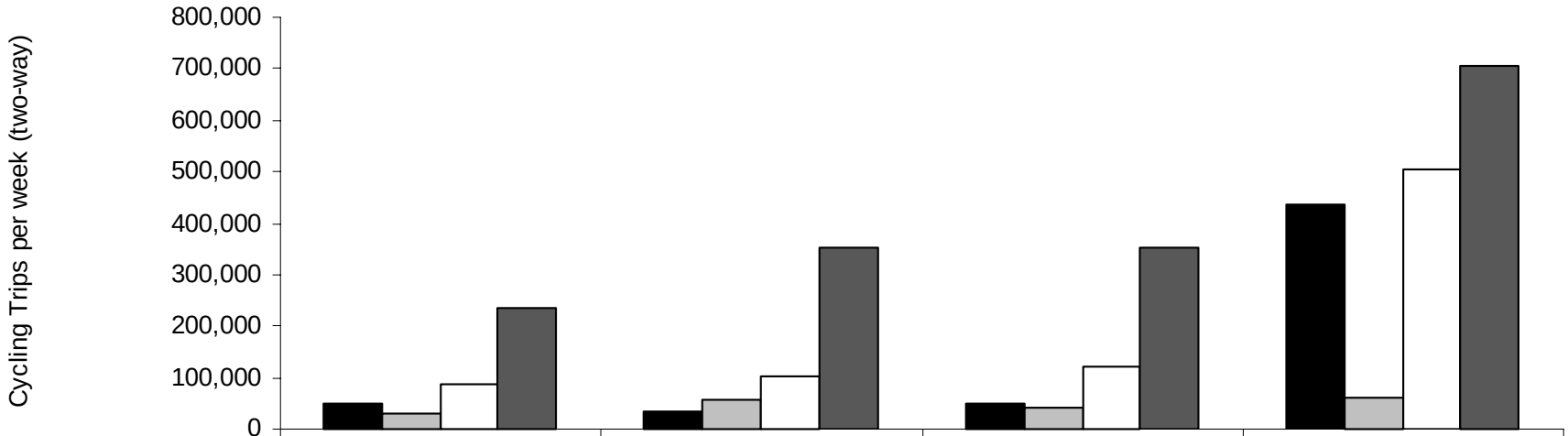
Note: Base for mean only includes those with valid responses.

1999 Estimates of Weekly # of Cycling Trips - Total



Note: For a detailed explanation of our population projection procedure, please refer to page 95.

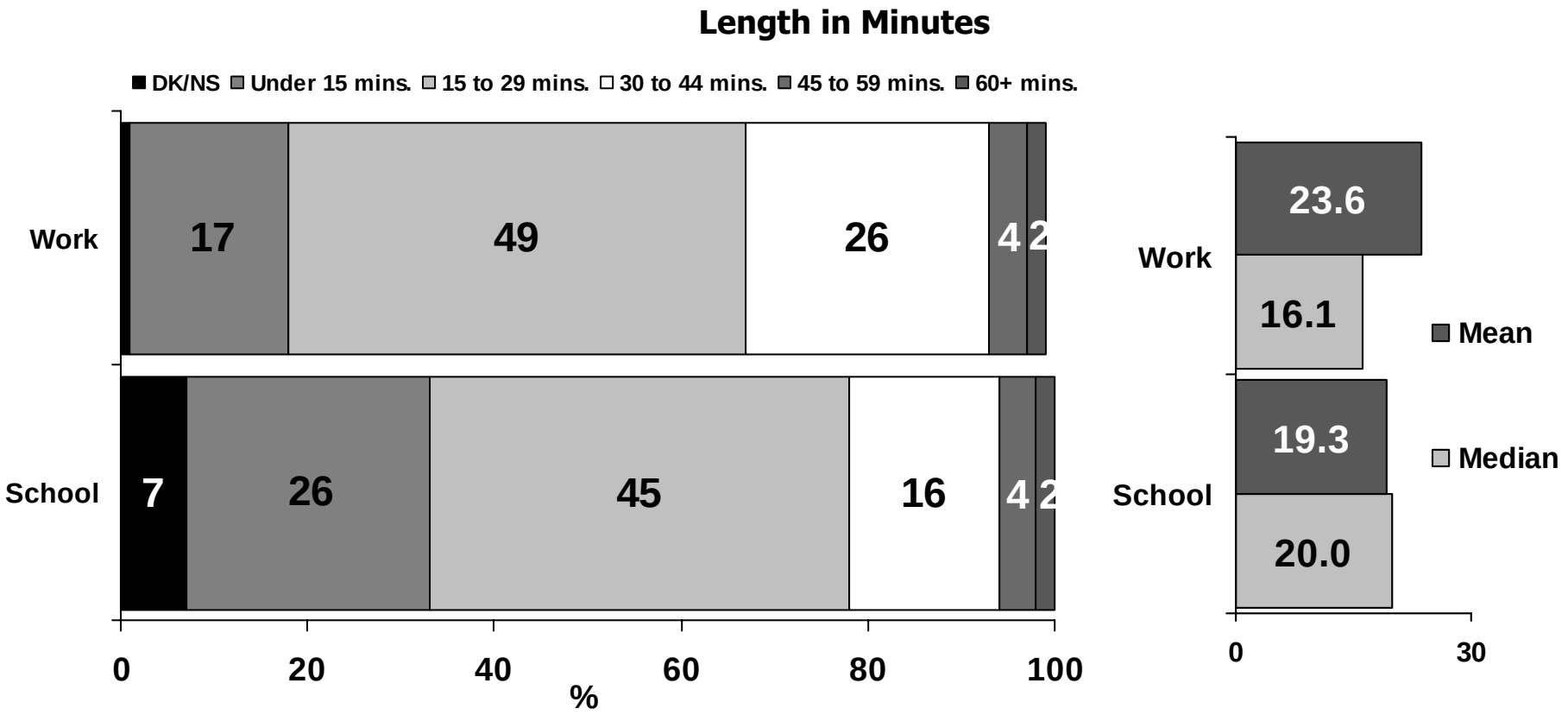
1999 Estimates of Weekly # of Cycling Trips - By District



	Etobicoke	North York	Scarborough	Central Toronto
Work	48,343	33,514	49,610	437,307
School	29,254	56,007	40,062	59,256
Shopping/Visiting	88,181	103,429	121,976	503,356
Recreation	236,798	353,506	352,661	706,123

Note: Values shown in chart are those who cycle for work, school, and shopping, running errands, or visiting friends are sub-components of utilitarian cyclists. Thus, because it is possible for one to cycle for more than one of the reasons, the sum of the parts is greater than the whole. For a detailed explanation of our population projection procedure, please refer to page 94

Utilitarian Travel Time

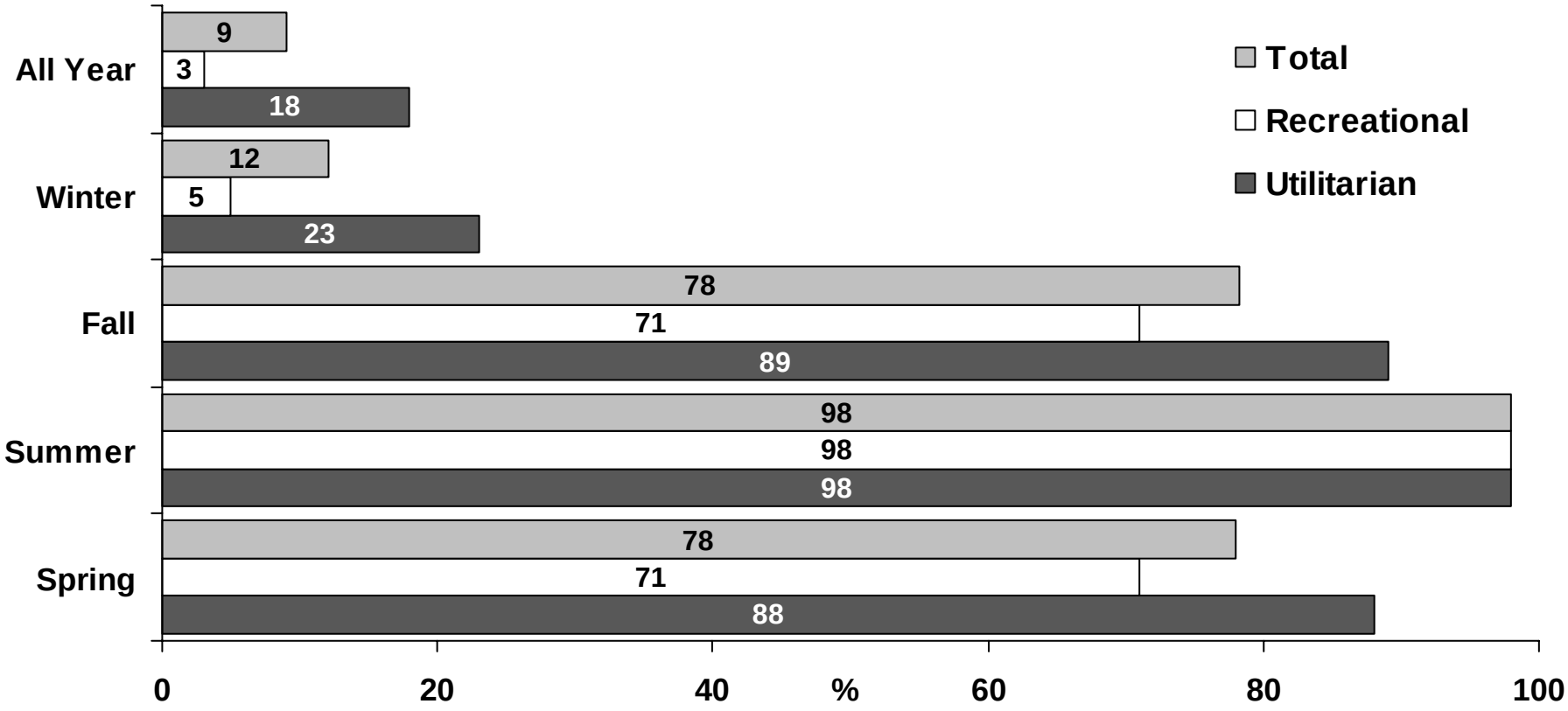


Question B11 Read: On average, how long does your bike trip to work or school take, one way?

Base: Utilitarian work n=81 or school cyclists n=32 only.

Note: Base for mean only includes those with valid responses.

Seasonal Cycling Incidence

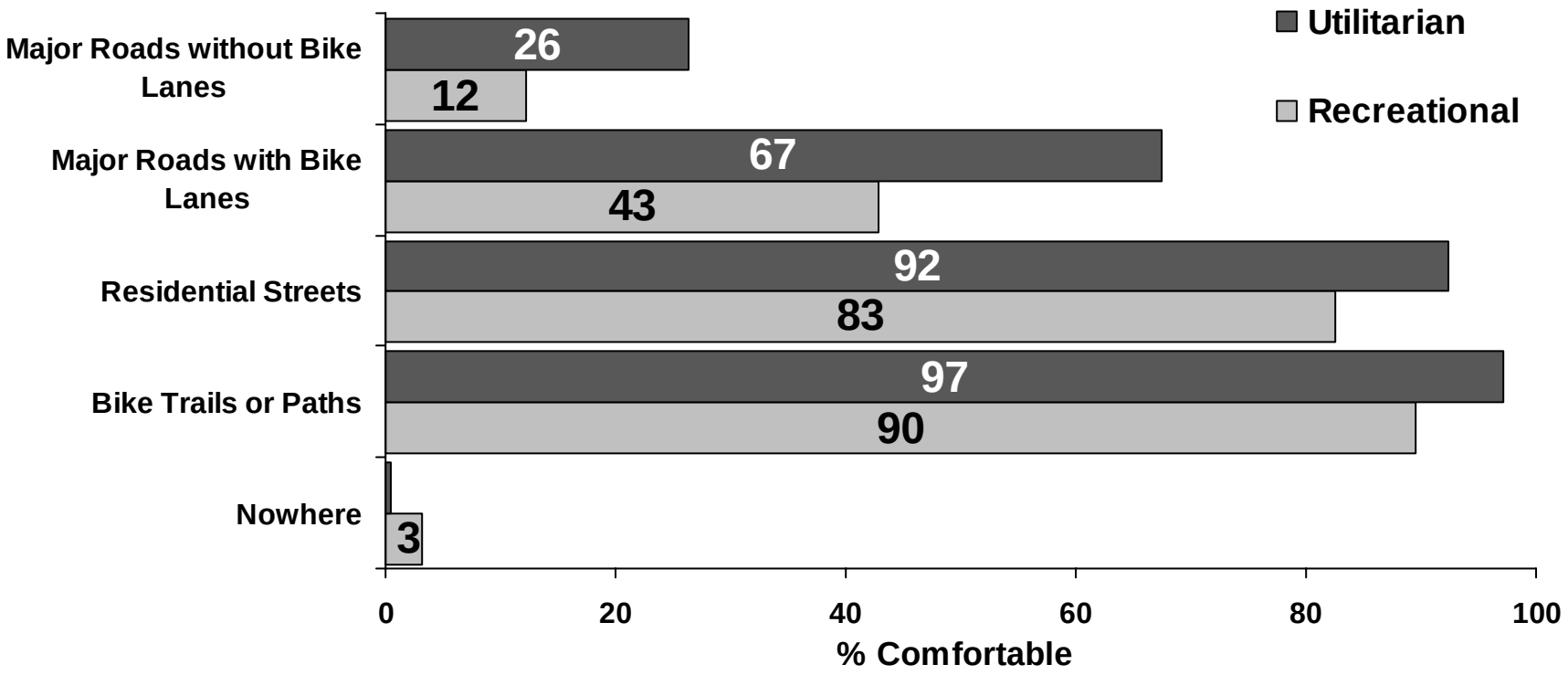


Question B15 Read: In what months of the year do you cycle? Would you say…

Base: All cyclists n=480

Note: Seasonal percentages reflect the fact that cyclists who indicated they cycled all year were also counted once for each season.

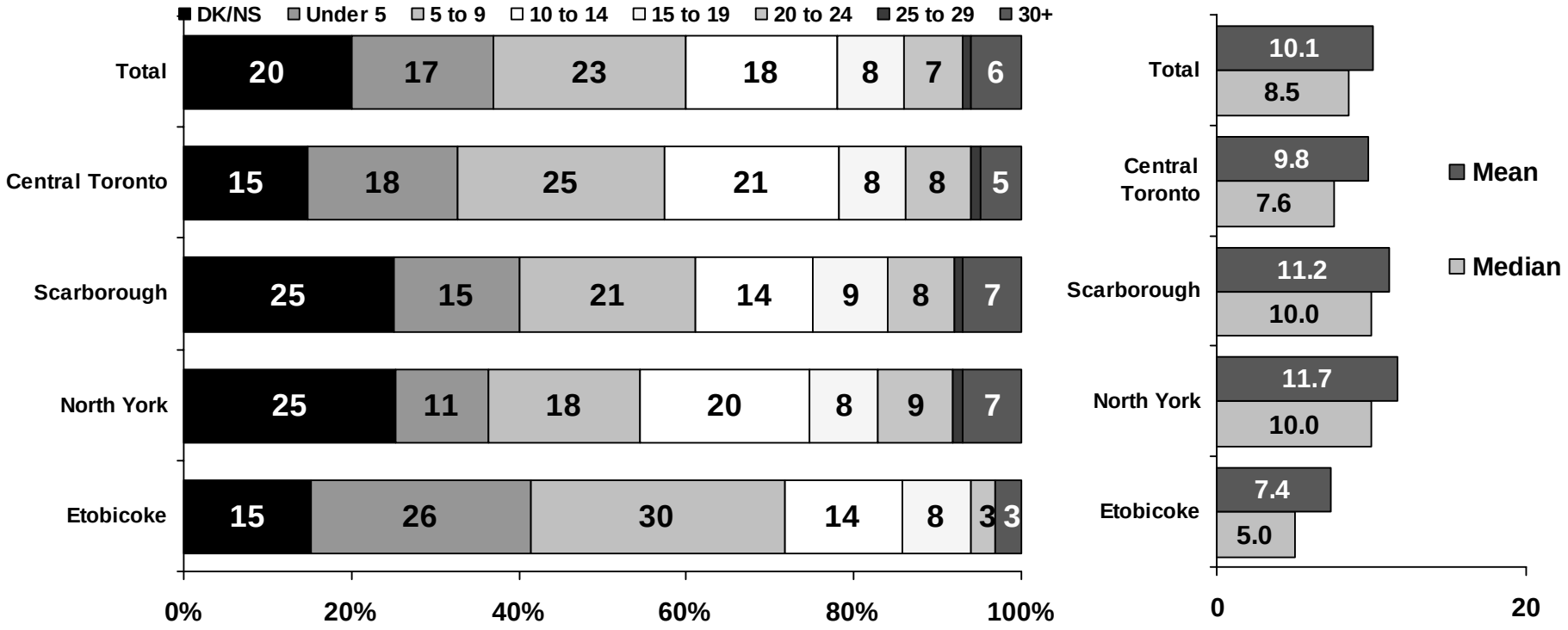
Cycling Comfort Levels



Question B16 Read: For each of the following statements please answer yes or no. Would you say you are…comfortable cycling on bike trails or paths, comfortable cycling on residential streets, comfortable cycling on major roads with bike lanes, or comfortable cycling on major roads without bike lanes?

Base: All cyclists n=480

Distance to Nearest Bike Trail or Path

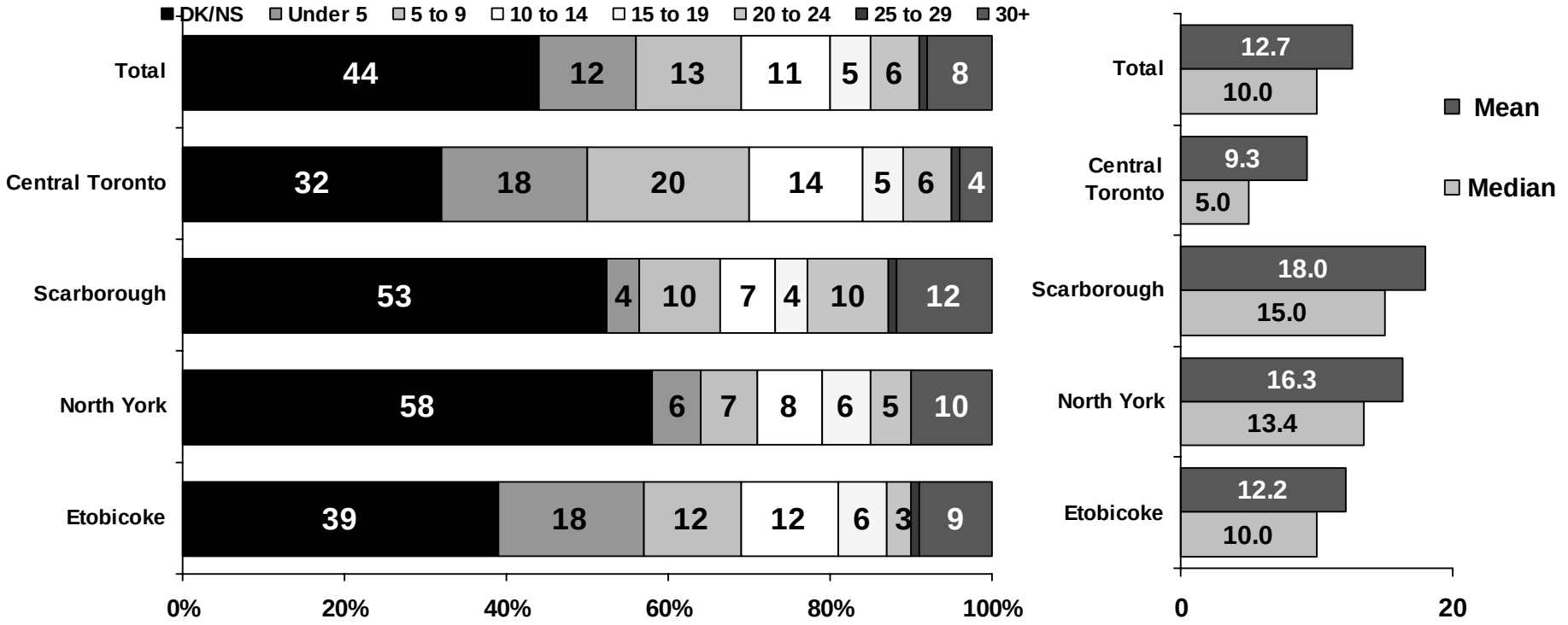


Question D32 Read: How far in minutes do you live from the nearest major bicycle path or trail?

Base: All n=1001

Note: Base for mean only includes those with valid responses.

Distance to Nearest Bike Lane

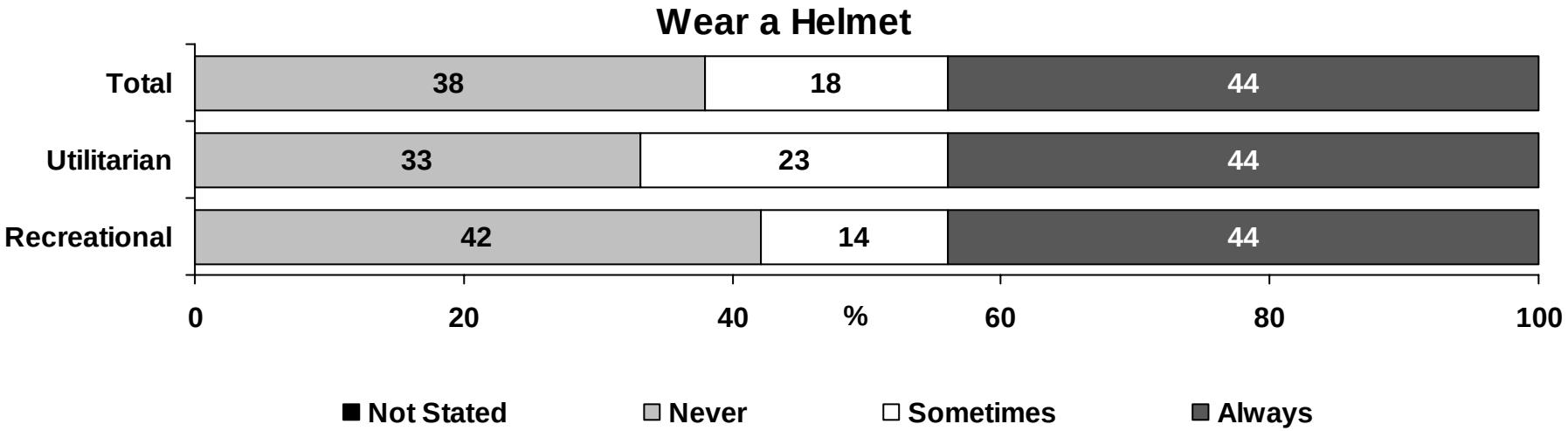


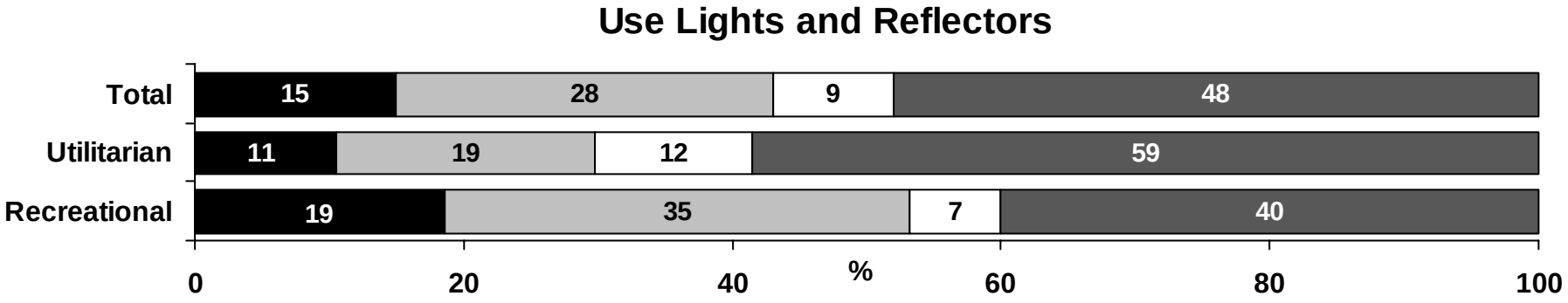
Question D33 Read: How far in minutes do you live from the nearest major bike lane?

Base: All n=1001

Note: Base for mean only includes those with valid responses.

Safety Measures

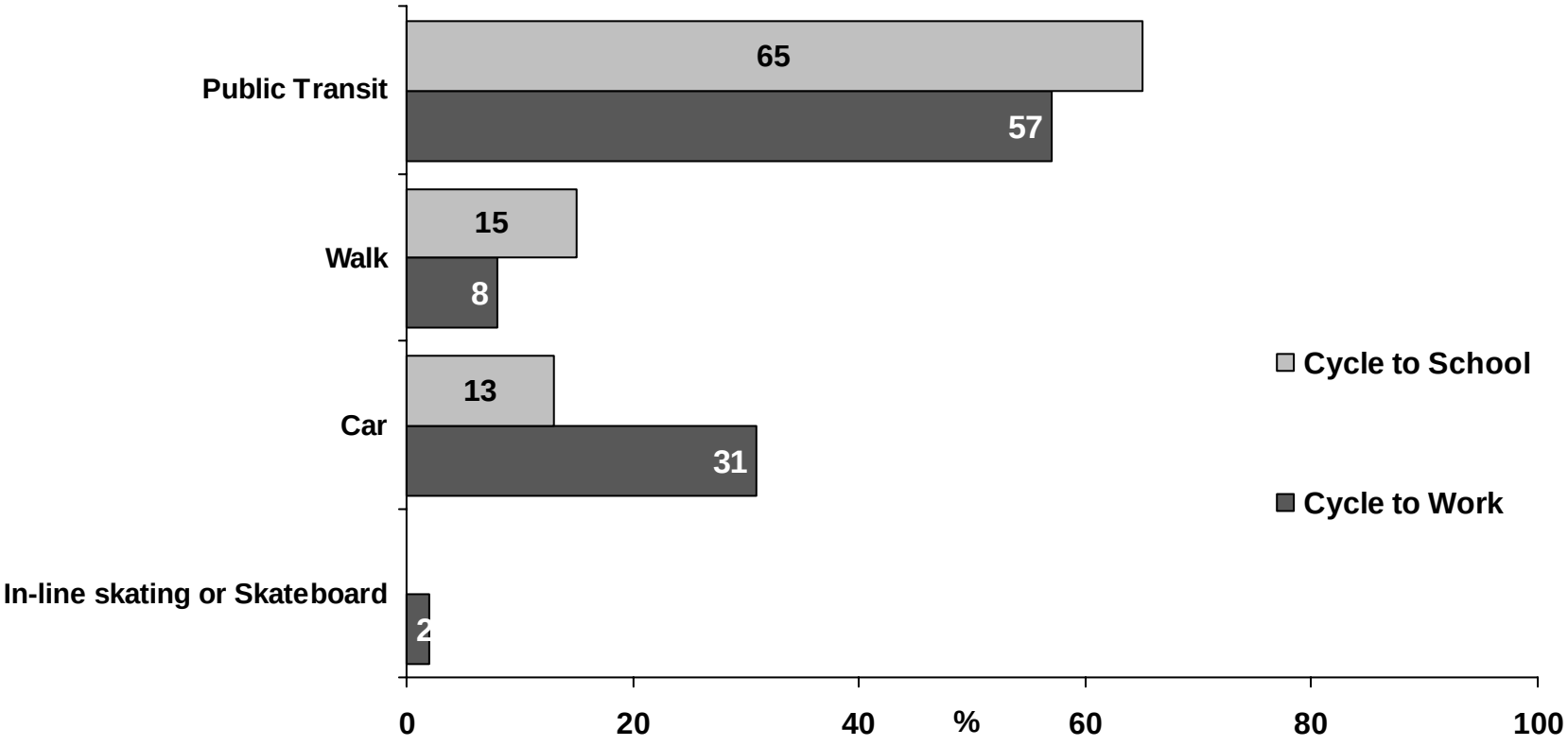




Question B13 Read: Would you say you always, sometimes or never…wear a helmet when cycling... use lights and reflectors?

Base: All cyclists n=480

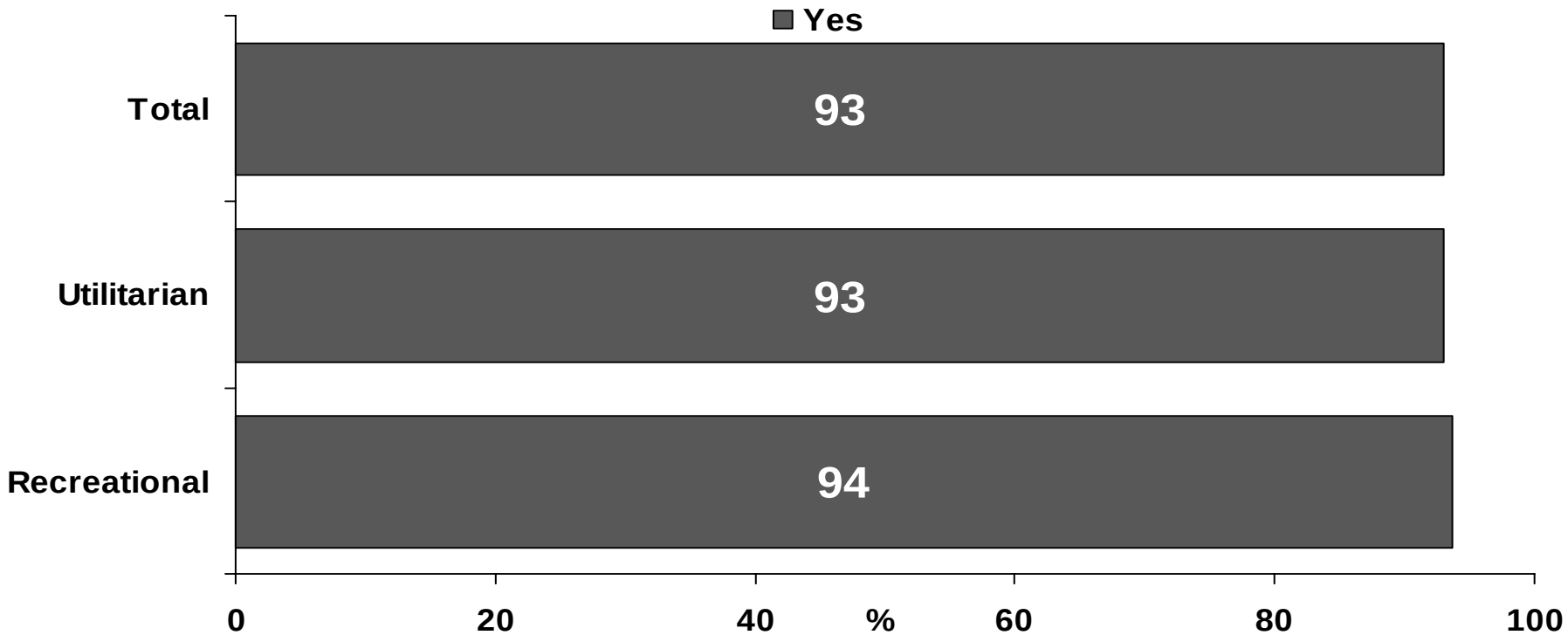
Utilitarian Use of Alternative Transportation Modes



Question B12 Read: How do you most often to commute to work or school when not cycling? By…

Base: Utilitarian work n=81 or school cyclists n=32 only.

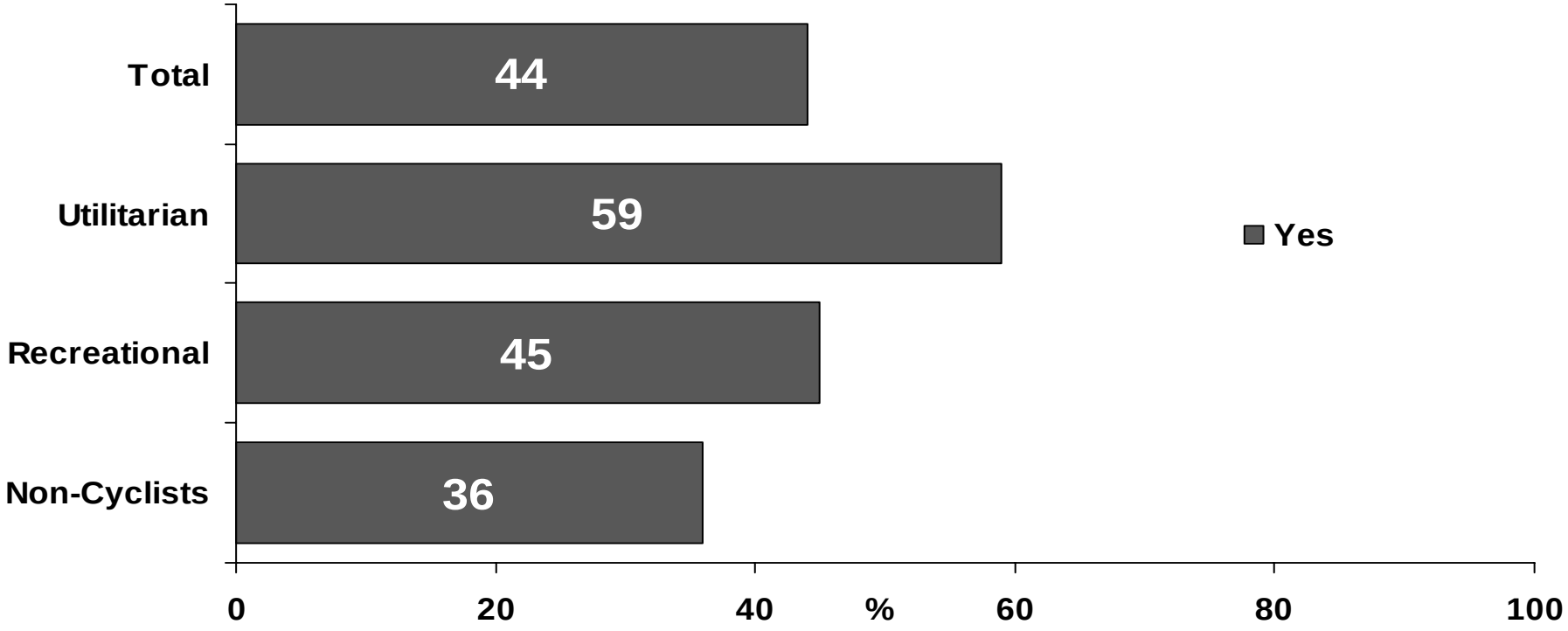
Convenient and Secure Bike Parking at Home



Question B14 Read: Do you have a convenient and secure place to store your bike at home?

Base: All cyclists n=480

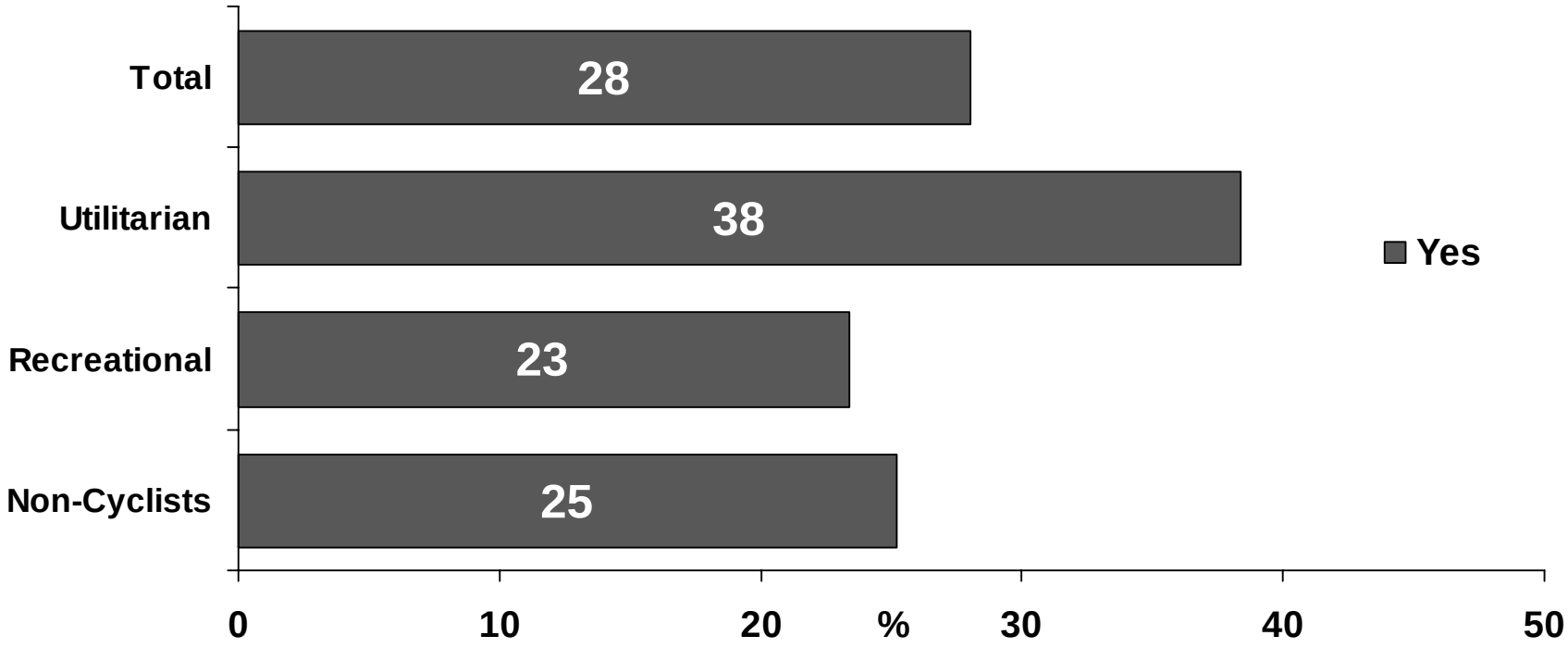
Convenient and Secure Bike Parking Facilities at Work/School



Question D34 Read: Do you have convenient and secure bicycle parking facilities at your workplace/school?

Base: All n=1001- NOTE Graph shows percentages that were recalculated after excluding those who answered "I do not go to work or school".

Convenient Shower/Change Facilities at Work/School



Question D34 Read: Do you have convenient shower/change facilities at your workplace/school?

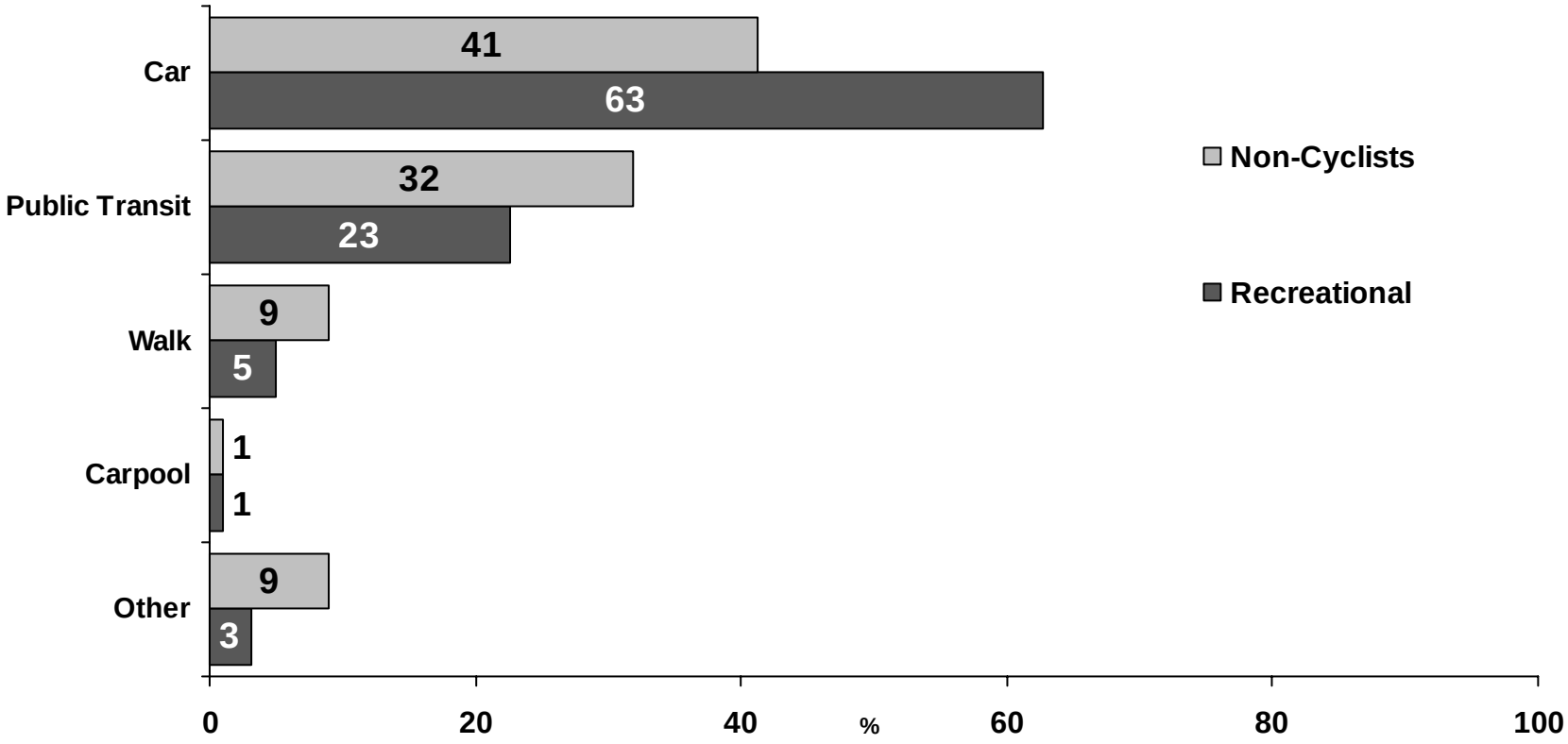
Base: All n=1001- NOTE Graph shows percentages that were recalculated after excluding those who answered "I do not go to work or school".

Recreational/Fitness Cycling

February, 2000

Decima Research Inc

Recreational & Non-Cyclists Regular Transportation Methods



Question C17 Read: How do you most often commute to work or school? By...

Base: Recreational and non-cyclists n=803

Reasons Why Recreational Cyclists Don't Cycle To Work/School

	Recreational n=281 %
Distance	48
Unsafe Traffic Conditions	15
Can't carry things on bike	9
Incompatible with work clothes	7
Need car for work	6
Inconvenient (general)	6
Time Consuming	5
Too tiring / I'm lazy	3
I'm retired	3

Question C18 Read: Why don't you use your bike to get to work, school, or for shopping, running errands or visiting friends?

Base: Recreational Cyclists n=281

Note: Only reasons named 3% or more of the time are shown.

Changes that would Encourage Recreational Cyclists to Cycle to Work/School

	Recreational n=281 %
Nothing	49
More bike lanes, (on-street)	15
Secure bicycle parking	9
More bike paths (off-street)	6
Enforce the regulations / ensure safer conditions	6
Shower/change facilities at work/school	6
Distance is the problem	5
Monetary compensation / buy me a bike etc.	3
Don't Know/Not Stated	6

Question C19 Read: What, if anything, could the city or your employer or school do to encourage you to bike to work or school?

Base: Recreational cyclists n=281

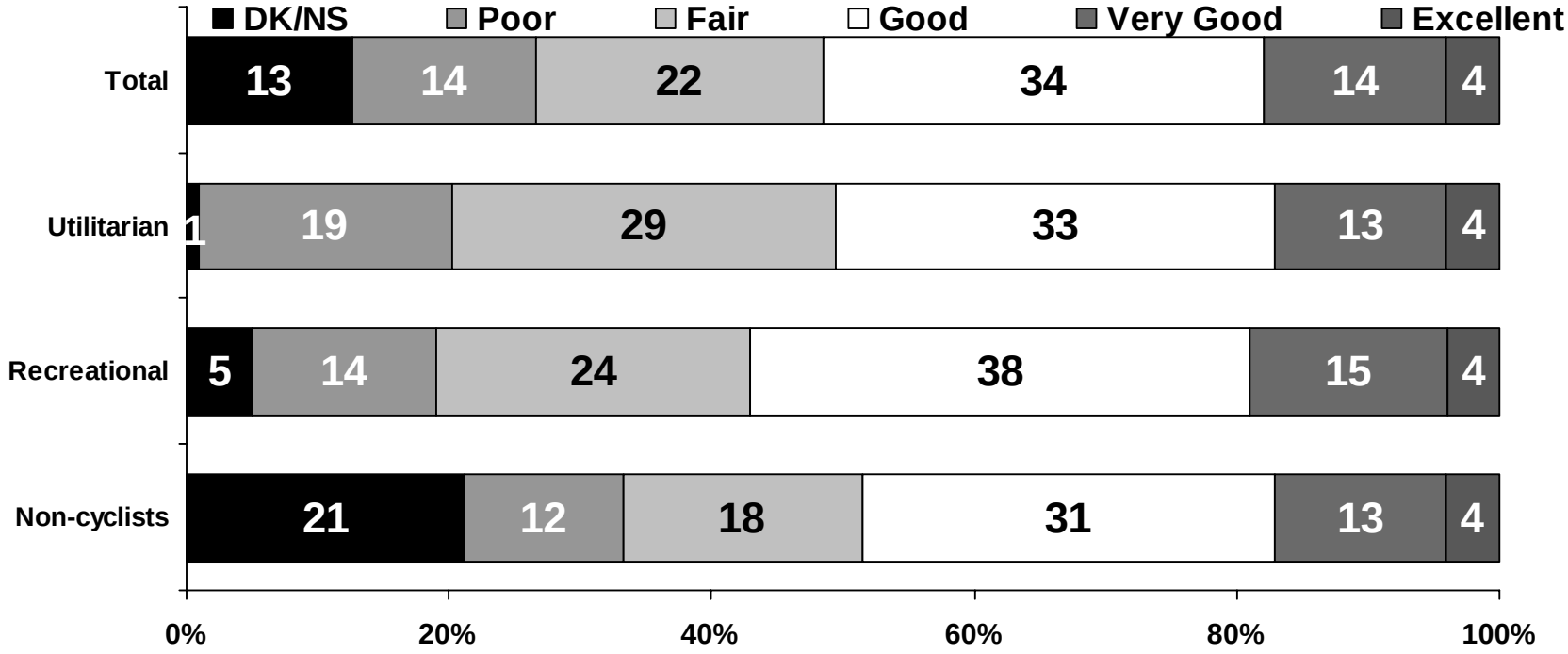
Note: Only reasons named 3% or more of the time are shown.

Attitudes toward Cycling & Cycling Facilities

February, 2000

Decima Research Inc

Evaluation of the Overall Quality of Cycling in Toronto



Question A1 Read: Thinking about the overall quality of cycling routes and facilities available to residents of the City of Toronto, would you say they are…

Base: All n=1001

Evaluation of the Overall Quality of Cycling in Toronto

Three key areas of improvement are associated with perceptions of the quality of cycling routes and facilities.

- ✔ Efforts to improve the items listed below will foster a positive increase in the overall quality of cycling perceptions:
  - ✔ More on-street bike lanes;
  - ✔ More off-street bike paths or trails; and
  - ✔ Shower or change facilities in workplaces or schools.

Analysis: Based on regression analysis of improvement areas on overall quality perceptions (these are the only three factors that entered as significant in the regression equation)

Base: All n=1001

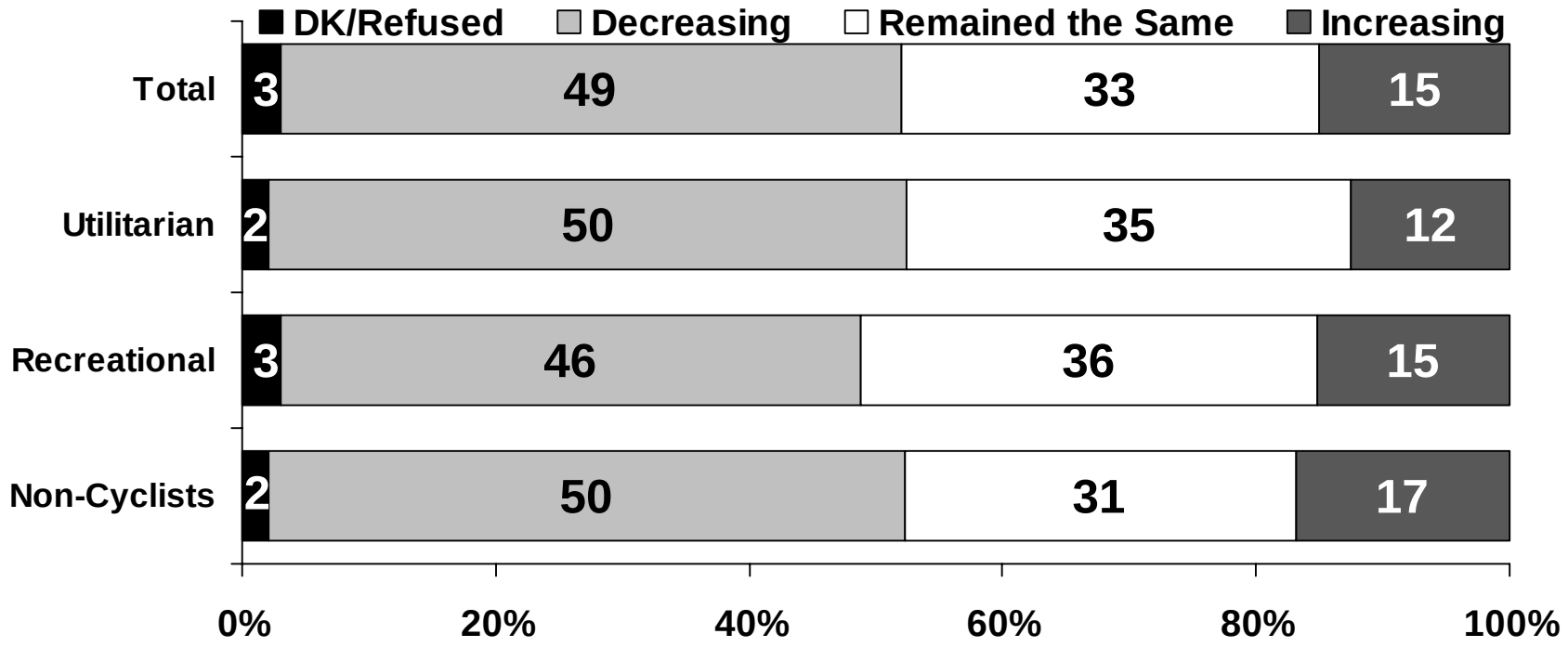
Concerns About Toronto Cycling

	Total n=1001 %	Non-Cyclists n=522 %	Recreational n=281 %	Utilitarian n=199 %
Careless cyclists	33	32	37	30
Careless drivers	18	9	24	35
Lack of bike lanes	13	11	14	19
Worried about collisions	12	12	11	11
Traffic conditions	10	9	13	8
Lack of paths and trails	8	6	6	13
Bikes on sidewalks	7	10	4	3
Safety gear	7	7	6	7
Safety (general)	7	7	7	4
Road conditions	4	3	2	10
Car doors opening	3	1	1	11
Cyclists should not be on same road as drivers	3	4	1	1
Nothing/No concerns	16	19	12	14
DK/NS	2	2	2	1

Question D20 Read: What concerns if any do you have about cycling or cyclists in Toronto?

Note: Only reasons named 3% or more of the time in total are shown.

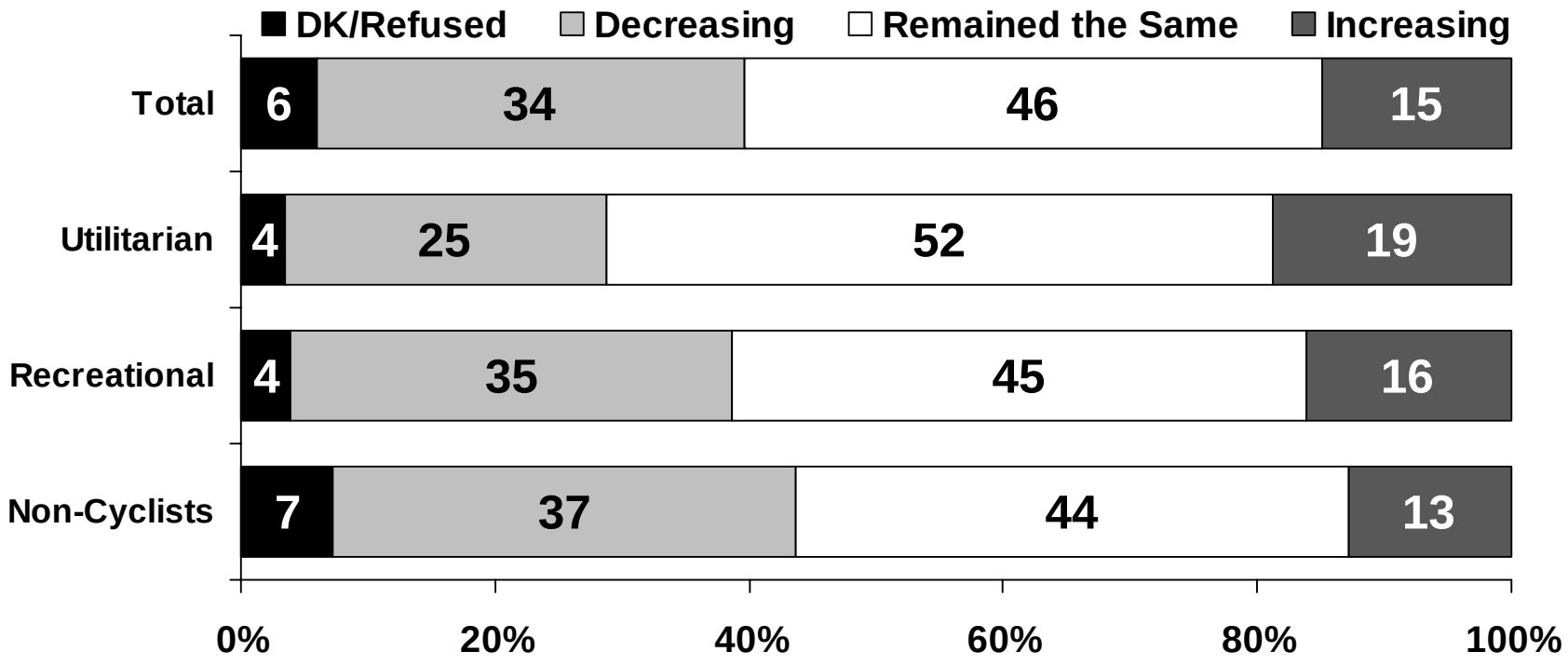
Motorist's Respect for Other Road Users



Question D26 Read: In the past five years, do you feel motorist's respect for other road users has increased, decreased, or remained the same?

Base: All n=1001

Cyclist's Respect for Other Road Users



Question D27 Read: In the past five years, do you feel cyclist's respect for other road users has increased, decreased, or remained the same?

Base: All n=1001

Changes that would Improve Toronto Cycling

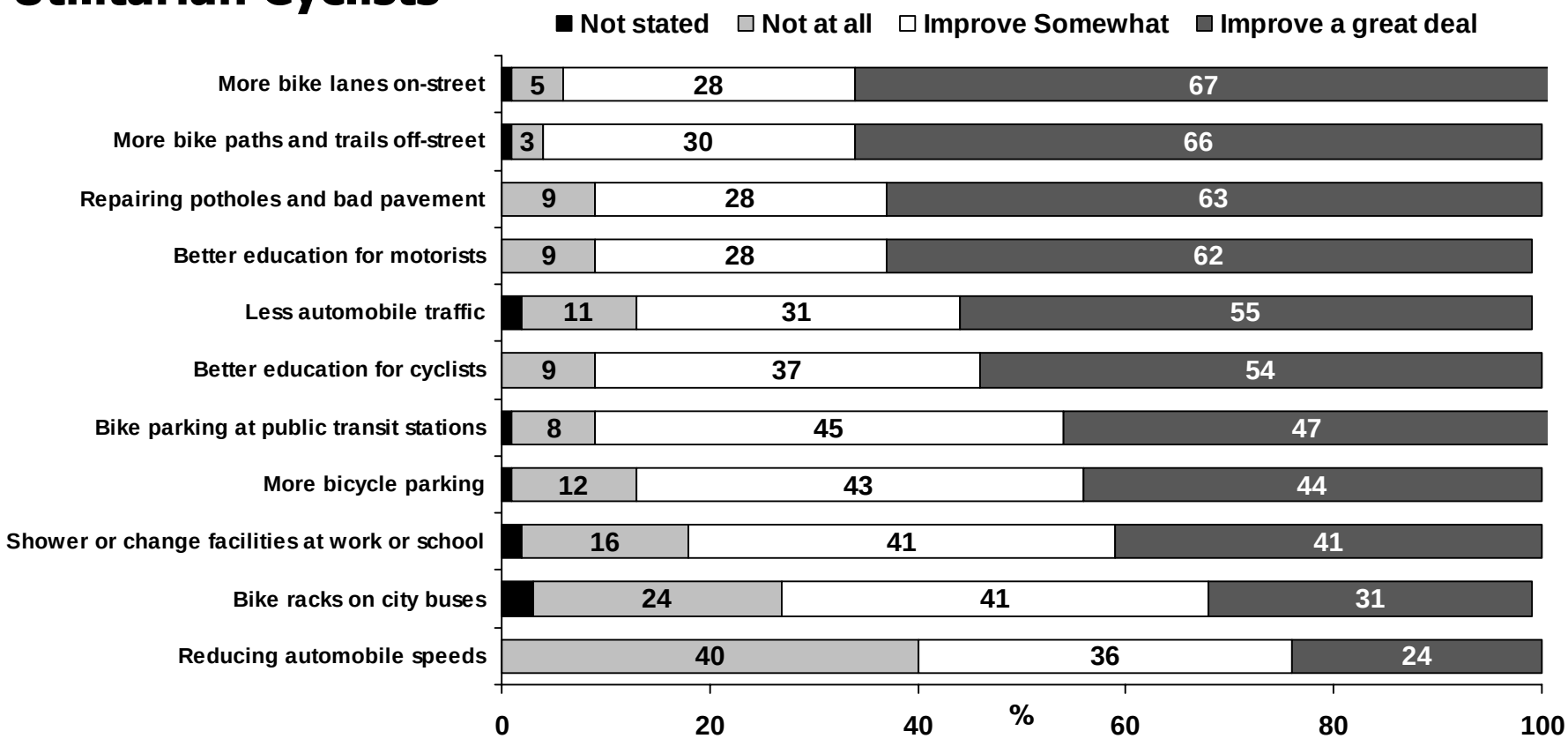
	Total n=1001 %	Non-Cyclists n=522 %	Recreational n=281 %	Utilitarian n=199 %
More bike lanes, (on-street)	33	28	35	42
More bike paths and trails (off-street)	13	12	17	11
Better education for cyclists	7	10	2	5
Enforce rules/regulations more	4	5	3	5
More bicycle parking	3	1	4	5
Better education for motorists	3	2	4	2
OTHER	8	8	6	9
DK/NS	2	2	2	1

Question D21 Read: What ONE thing do you feel the City or your employer or school could do to improve cycling in Toronto? (Volunteered)

Note: Only reasons named 3% or more of the time in total are shown.

Most Important Toronto Cycling Improvements

Utilitarian Cyclists

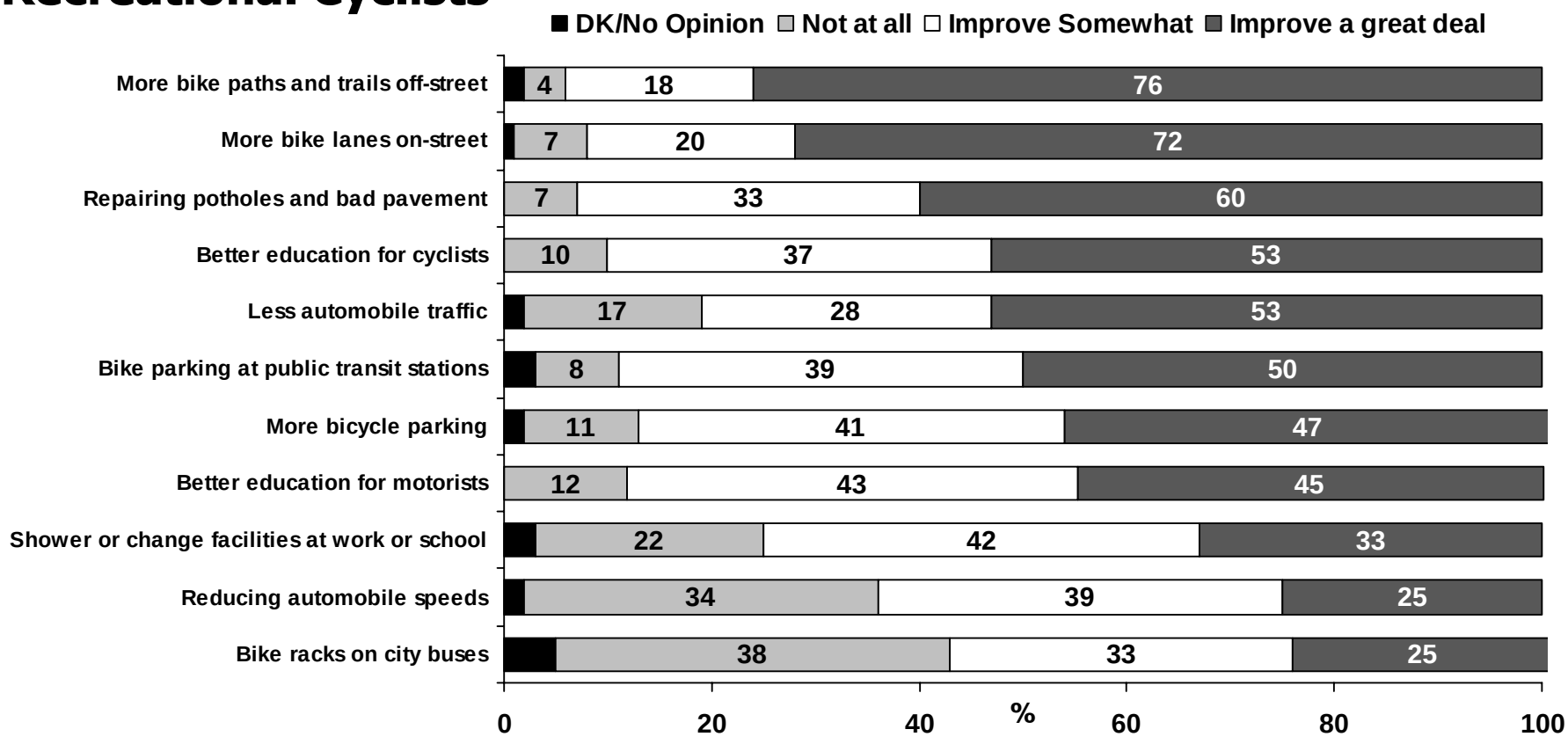


Question D22 Read: For each of the following, please tell me if you believe it would improve cycling in Toronto a great deal, improve cycling somewhat or not at all? How about…

Base: Utilitarian Cyclists n=199

Most Important Toronto Cycling Improvements

Recreational Cyclists

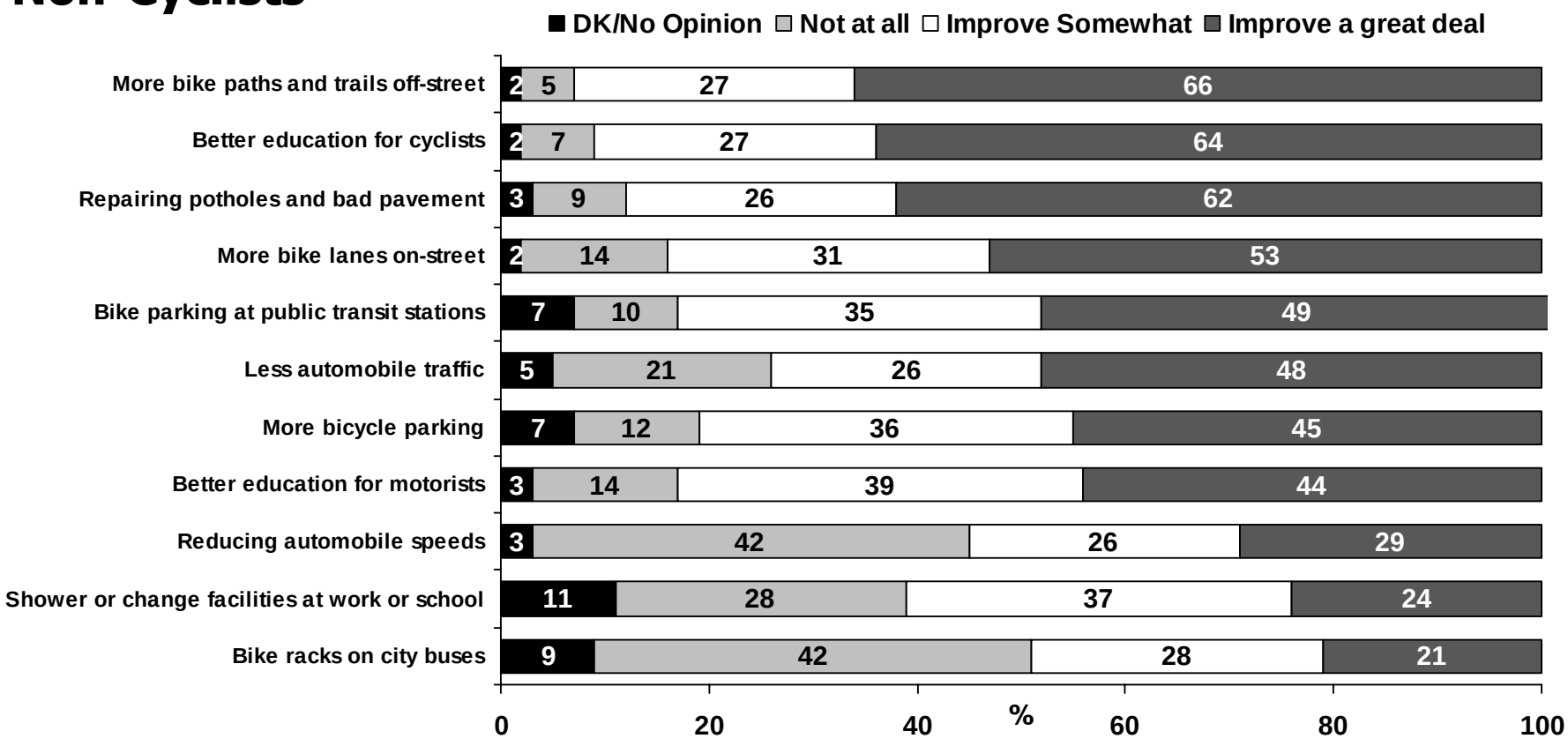


Question D22 Read: For each of the following, please tell me if you believe it would improve cycling in Toronto a great deal, improve cycling somewhat or not at all? How about…

Base: Recreational Cyclists n=281

Most Important Toronto Cycling Improvements

Non-Cyclists



Question D22 Read: For each of the following, please tell me if you believe it would improve cycling in Toronto a great deal, improve cycling somewhat or not at all? How about…

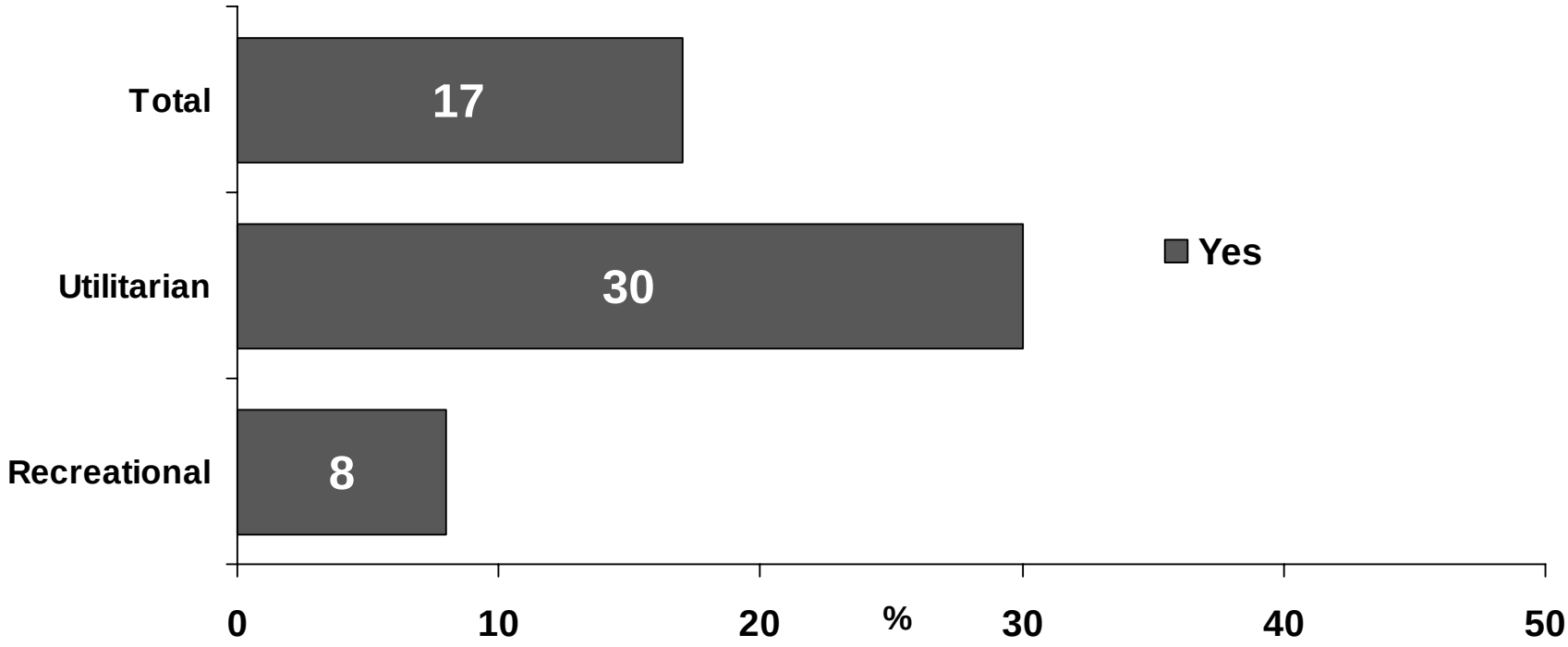
Base: Non-Cyclists n=522

Cycling & Public Transit

February, 2000

Decima Research Inc

Prevalence of Combining Cycling and Public Transit

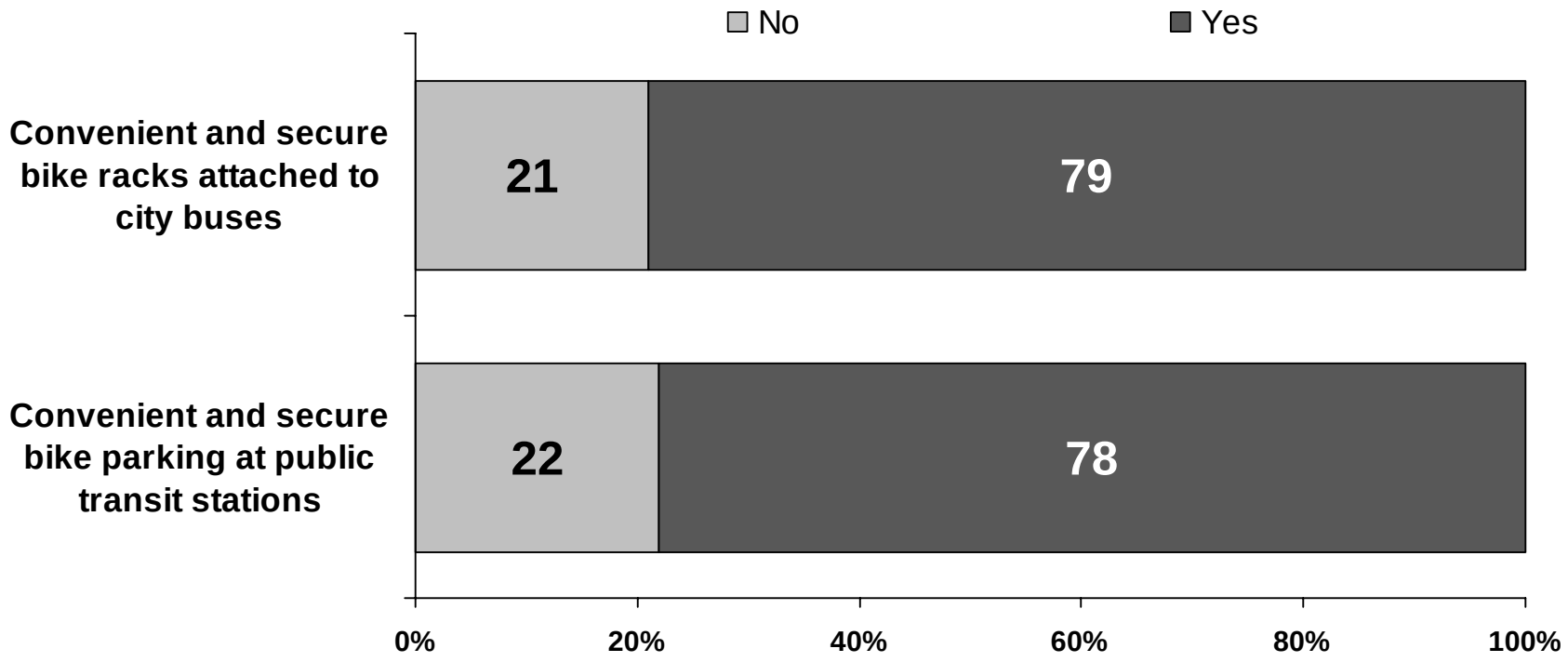


Question D23 Read: Do you ever combine cycling and public transit in the same trip?

Base: All cyclists n=480, utilitarian n=199, recreational n=281

Ways to Encourage More Cycling and Public Transit Trips

Utilitarian Cyclists

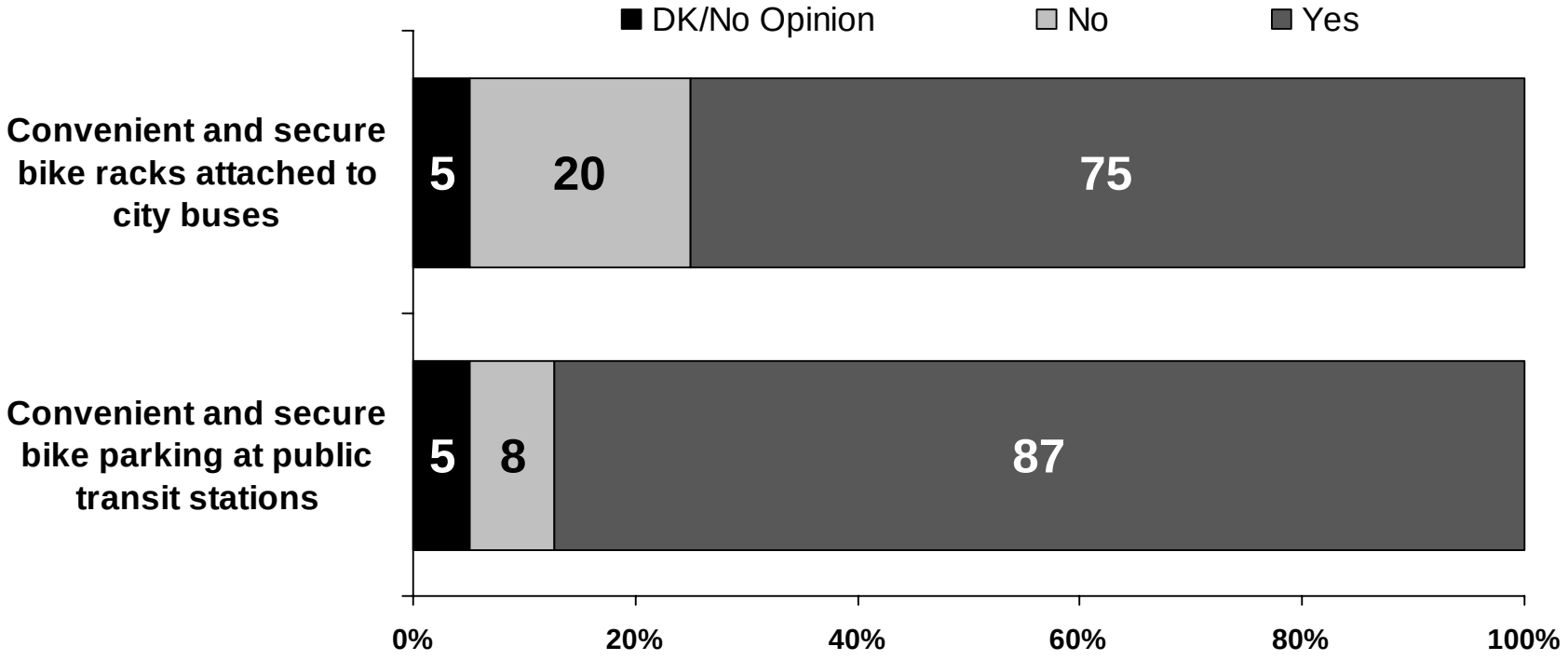


Question D24 Read: Would you combine cycling and public transit in the same trip more often if the following were provided? How about…

Base: Utilitarian cyclists who already combine cycling and public transit n= 60

Ways to Encourage More Cycling and Public Transit Trips

Recreational Cyclists

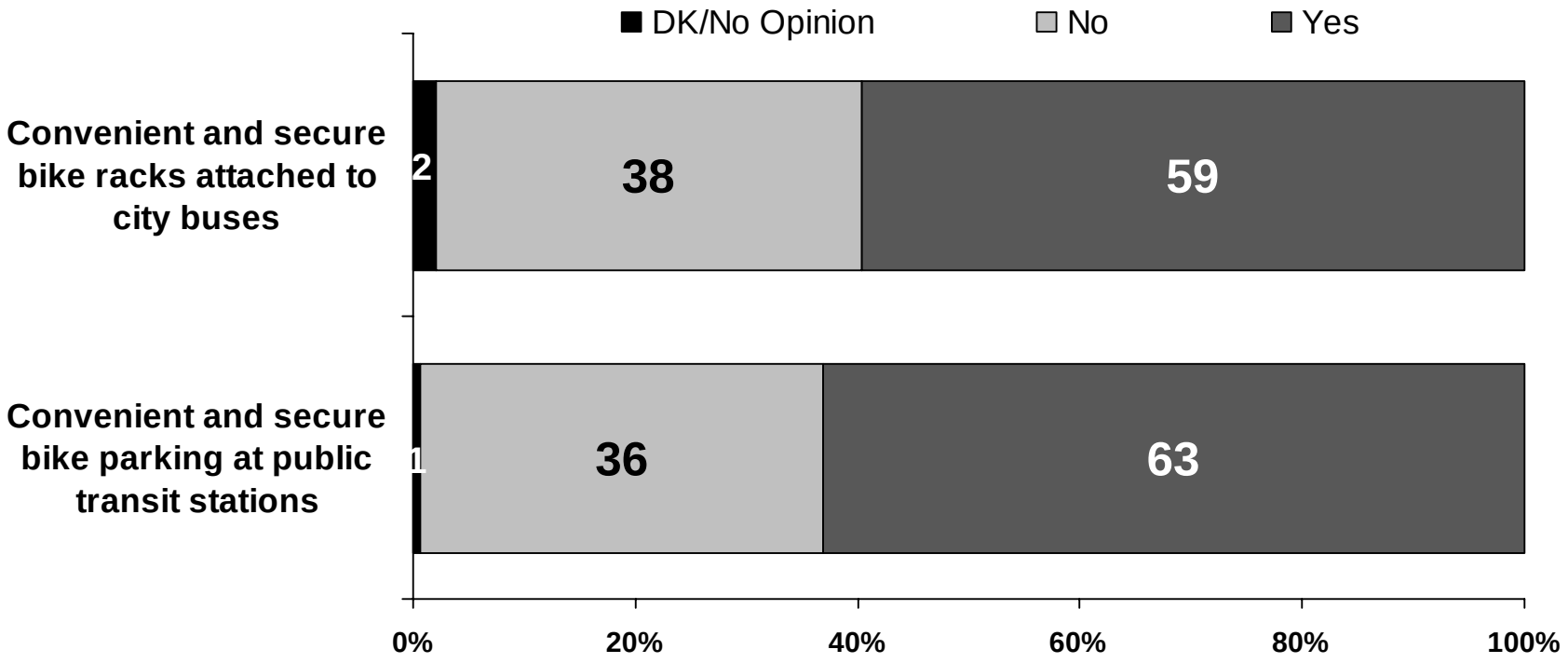


Question D24 Read: Would you combine cycling and public transit in the same trip more often if the following were provided? How about…

Base: Recreational cyclists who already combine cycling and public transit n= 22

Stimulating Combined Cycling and Public Transit Trips

Utilitarian Cyclists

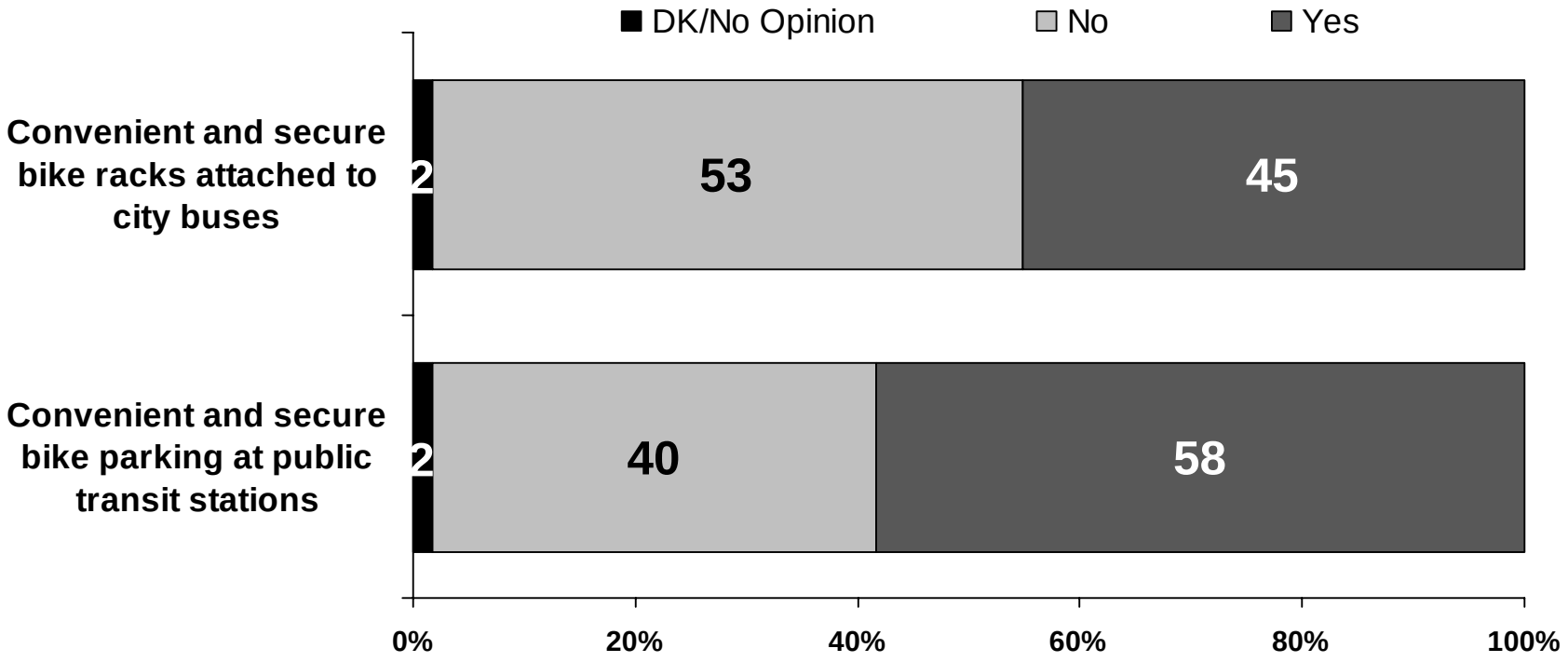


Question D25 Read: Would you consider combining cycling and public transit in the same trip if the following were provided? How about…

Base: Utilitarian cyclists who do not already combine cycling and public transit n= 139

Stimulating Combined Cycling and Public Transit Trips

Recreational Cyclists



Question D25 Read: Would you consider combining cycling and public transit in the same trip if the following were provided? How about…

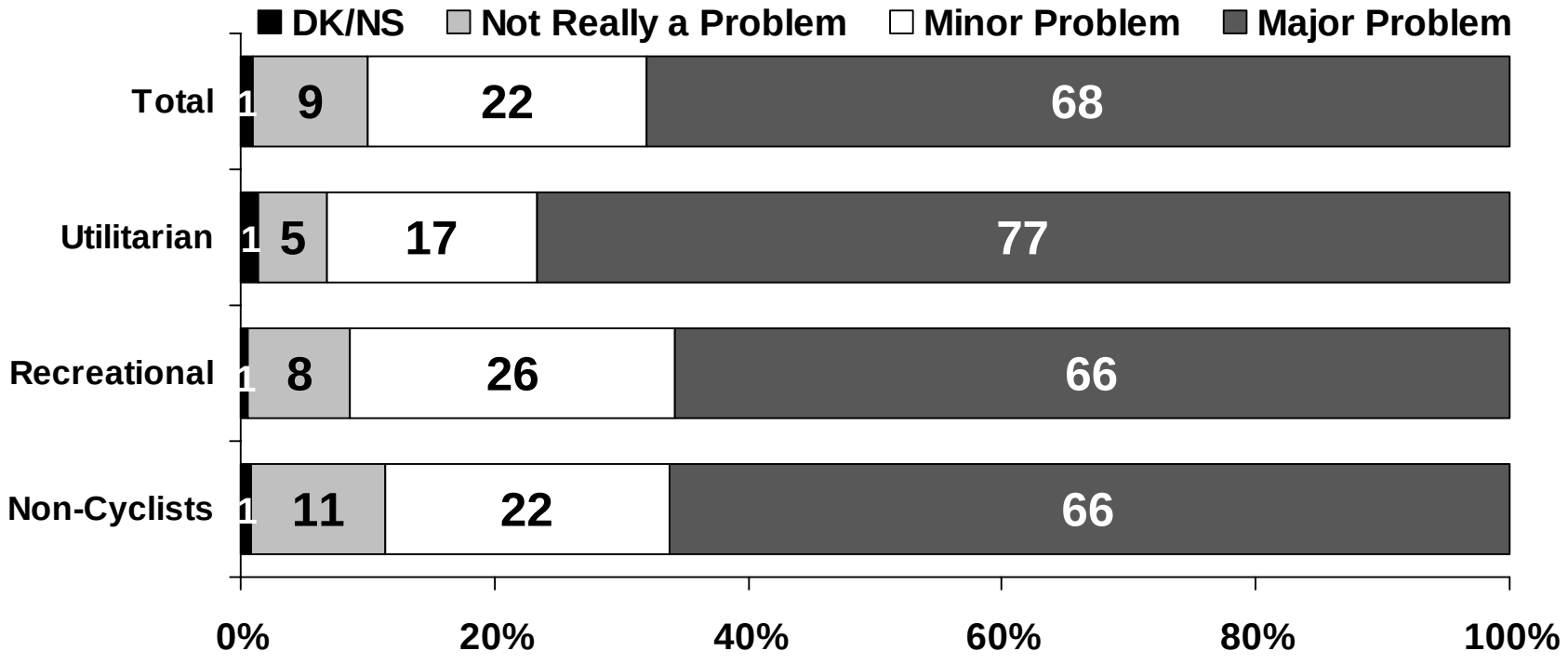
Base: Recreational cyclists who do not already combine cycling and public transit n= 258

Cycling and Environmental Attitudes

February, 2000

Decima Research Inc

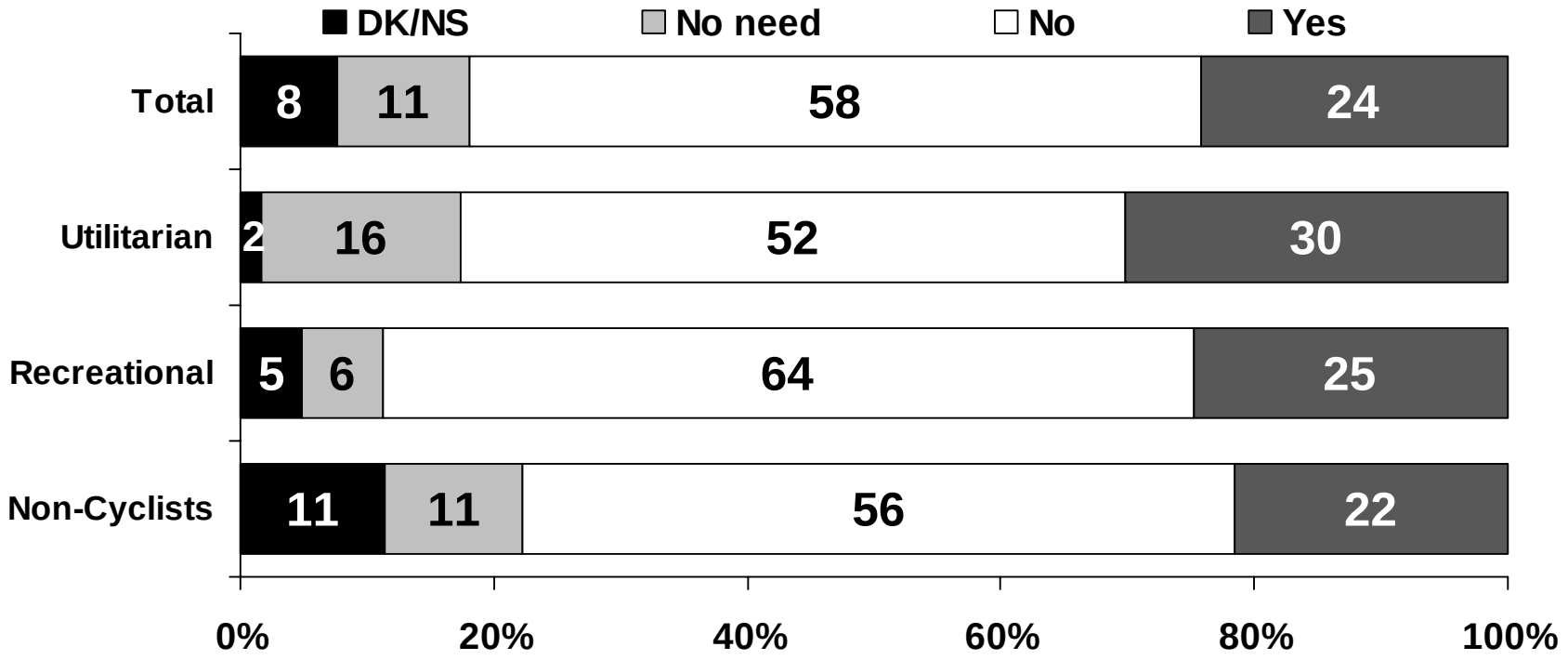
Smog in Toronto



Question D28 Read: Do you feel that smog or atmospheric pollution in Toronto is a major problem, a minor problem or not really a problem?

Base: All n=1001

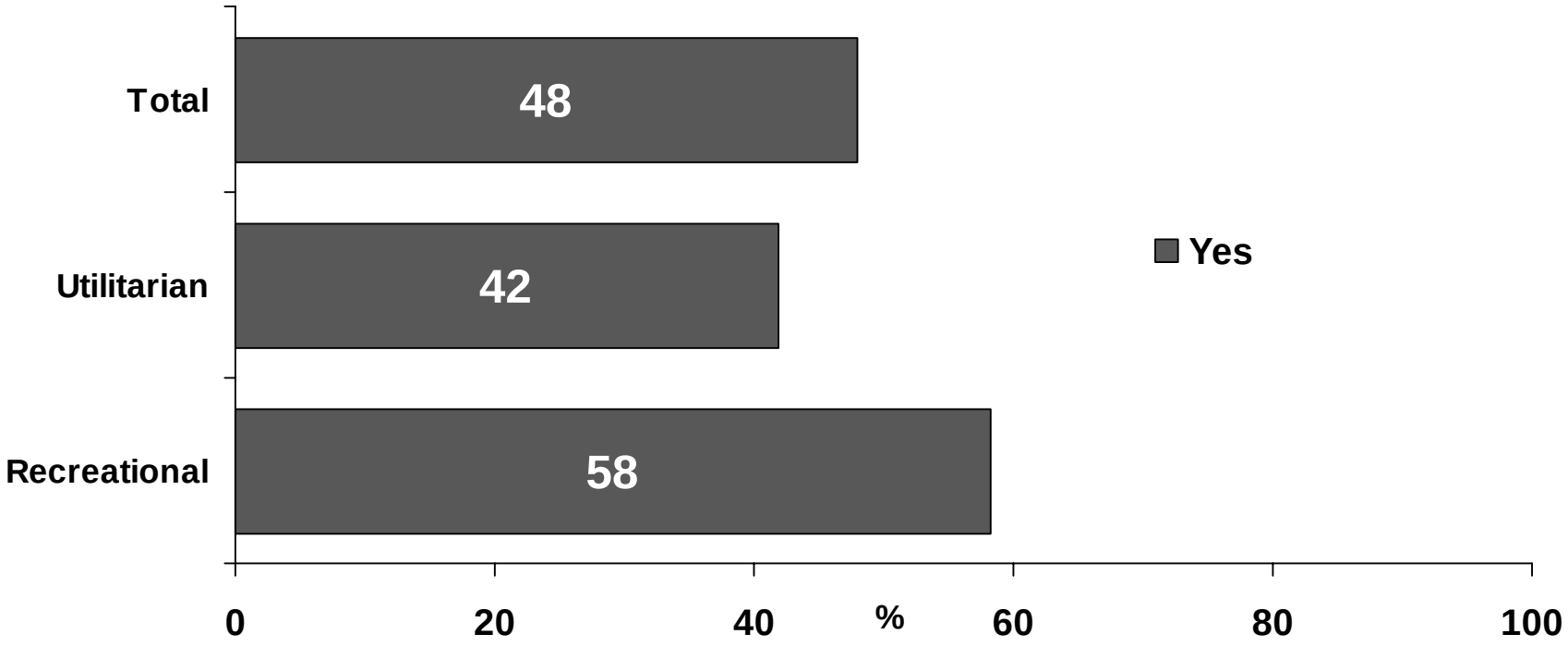
Changes in Transportation Modes During Smog Alert



Question D29 Read: As you may know, there are several times throughout the year when the City of Toronto must declare a smog or atmospheric pollution alert. In the past year, when such an alert was in effect, did you switch to a more environmentally friendly method of transportation to go to work or school?

Base: All n=1001

Choose Not To Cycle During Smog Alert



Question D30 Read: Did you choose not to cycle during these smog alert days?

Base: All cyclists n= 480

Appendices

February, 2000

Decima Research Inc

Survey Overview

February, 2000

Decima Research Inc

Survey Overview

Introduction

- Decima Research is pleased to present **Marshall Macklin Monaghan,** and **The City of Toronto**, the results of the 1999 wave of the "Toronto Cycling Study".
- The specific research objectives of the study are as follows:
  - To estimate the incidence of bicycle ownership among households and the number of utilitarian and recreational cyclists;
  - To establish a **profile** of Toronto residents with regard to their use of the bicycle as both a mode of transportation and a recreational vehicle;
  - To determine barriers to utilitarian cycling, current transportation modes used and opportunities to encourage cycling;
  - To estimate the percentage of cyclists who use their bicycle in conjunction with public transit and the potential to increase this activity;
  - To identify any concerns the public may have about cycling or cyclists in Toronto;
  - To gauge the public's perception of the overall quality of cycling facilities available and opinions on possible mechanisms for improvement; and
  - To obtain information on the public's perception of the following issues:
    - Aggressive behaviour of cyclists and motorists; and
    - Atmospheric smog.

- Principal client contact for this study is Bob Murphy, Vice President. Dave Meulensteen, Assistant Consultant, is also involved in the various phases of research and analysis for this study.

Survey Overview

The CATI System

- To take advantage of a lower cost per interview, generally higher response rates, a lower selection bias, and faster completion rates, a telephone interview methodology was used to collect survey responses. Moreover, to facilitate accuracy, the questionnaire was programmed into a computer-assisted telephone interviewing (CATI) system and trained interviewers collected data. Interviewers spoke directly with respondents. To minimize non-response error, a minimum of 6 call attempts were made to contact a household before a substitute was selected from the sample.

- Decima's field division operates one of the largest networks of telephone interviewing stations in the country. With 100 interviewing stations in its original Ottawa location and 50 more in its new central Toronto office, the firm enjoys the ability to complete interviews quickly and efficiently.

- Questionnaires are completed using the *Interviewer* CATI system, fast becoming an industry standard. *Interviewer* is a product of Info Zéro Un, located in Montreal.

- The CATI system handles sampling and questionnaire completion electronically, removing the possibility of misdials and imposing control over skip patterns, branching and valid ranges. The system can be used to automate many calculations that would otherwise slow unaided interviewers. CATI also removes the need for separate coding and data entry cycles, thereby further reducing the opportunity for error.

Survey Overview

The CATI System Cont.

- Supervisors monitor all interviewing on an ongoing basis, randomly checking responses and listening in on interviews. The client authority is invited to monitor calls in our comfortable facilities, without alerting respondents or interviewers. The system used by Decima automates all scheduling and callback tasks, ensuring that every appointment is set within project time limitations and that an interviewer is available for every callback. Indeed, the system will prioritize callbacks, first attempting to send the call to the original interviewer, then moving to the next available interviewer.

- Another strength is the system's ability to maintain quota control. The number of interviews completed can be tracked according to literally hundreds of possible definitions based on any combination of known database variables or information collected during the interview process.

- CATI systems remove the need for separate re-entry of data. Open-ended variables are coded directly into the system and the resulting data file is exported to SPSS (Statistical Package for the Social Sciences) for Windows for data cleaning and analysis.

Survey Overview

Sampling Frame

- Decima uses the Canada Survey Sampler (CSS) to provide a randomly selected residential sample. CSS is a selection engine designed to extract random samples from the ProCD Canada Phone database. The Canada Phone database is a comprehensive listing of Canadian telephone numbers. Decima has conducted parallel tests and has found that samples generated from this database is comparable to that obtained from commercial sample providers in terms of the proportion of not-in-service numbers.

- The CSS maintains a list of populated exchanges. Generally, the CSS works by randomly generating 4-digit suffixes for these exchanges. These suffixes are generated in proportion to the percent population of the individual exchanges, i.e.; a 90% populated exchange would experience twice as many 'hits' as a 45% populated exchange.

- As each suffix is generated, it is compared to the database of existing, known phone numbers. If it matches a listed phone number, it is placed into the 'valid number' file. If not, it is placed in the 'orphan' file. OSI uses the valid number file as its primary calling list. We then supplement that calling list with numbers from the orphan list. As with the random generation above, numbers are chosen from the orphan list in proportion to the percent population of the exchanges.

- The supplementing of the sample file with the orphan file is intended to ensure that our sampling scheme accurately emulates what is known as a 'Waksberg' RDD design. The 'Mitofsky Waksberg' design uses a random number generator to produce random telephone numbers, calls these numbers, and uses the results of those calls to identify 'working blocks'. A random sample is then generated based on the 'working blocks'.

Survey Overview

Sampling Frame, Cont...

- This sample was comprised of randomly selected telephone numbers from each of the four Districts involved in the study. (i.e. Etobicoke, Scarborough, North York, Toronto) NOTE - To ensure a representative sample, the District of Central Toronto was broken down into the former cities of Toronto and York, as well as the borough of East York, and sampled in proportion to each areas respective population. These three Community Council areas were combined into one stratum (Toronto) for reporting purposes.

- The sampling technique produced a systematic random sample with probability of selection disproportionate at the District level. The first step in the sampling procedure was the division of the population into four equal strata or "Districts." (i.e. Etobicoke, Scarborough, North York and Central Toronto). The following table outlines the number of interviews that were conducted per District.

District	n=	Margin of Error
Central Toronto	251	6.2%
Etobicoke	250	6.2%
North York	250	6.2%
Scarborough	250	6.2%
	1001	**3.1%**

- After applying the following weighting scheme, our sample was proportionate at the District level.

Survey Overview

Weighting

- The vast majority of survey research Decima conducts is disproportionate to population, and as such, these data sets require weighting to ensure that the observed results accurately reflect the target populations. For each study, Decima obtains population information from the most appropriate source. In the case of the study under consideration, population data from Statistics Canada was used because 1) this is the source on which the sampling is based, and 2) population data is provided by Statistics Canada at the community level. This sample is then weighted in tabulation to replicate actual population distribution by District, age and gender.

- In order to incorporate those who did not give their age into the weighting scheme, respondents were placed into age categories based on their responses to other demographic questions. Those who did not give their age but reported they were students (n=5) were placed into the 18 to 24 age category. Similarly, those who did not give their age but reported they were retired (n=9) were placed into the 55+ age category. The remaining 29 people who did not give their age were placed into the median age category (25 to 54).

- Using 1996 population figures from Statistics Canada, we first calculate the percentage of people in each of the six specified Community Council areas split by gender and three age categories (actual population % N). A proportionate to population value (PPS n=) is then calculated by multiplying the percent value of each district/gender/age category by the number of completed interviews (n=1001). The proportionate to population values (PPS n=) are then divided by the actual or disproportionate to population values (DPS n=) to determine a weight value. By multiplying the weight value and the DPS value for each district/gender/age category the "weighted n" value is created and is equal the PPS value.

- The following table illustrates the weighting scheme that was applied to the data set.

Weighting Scheme

REGION			POPULATION Actual N	POPULATION % N	PPS n=	DPS n	Weight PPS/DPS	Weighted n	PPS n=
Etobicoke									136
	Male	15-24	19385	0.009890533	10	17	0.582377867	10	
	Female	15-24	19305	0.009849716	10	22	0.448162075	10	
	Male	25-54	70875	0.036161545	36	64	0.565589157	36	
	Female	25-54	74765	0.038146284	38	89	0.429038542	38	
	Male	55+	36580	0.018663694	19	23	0.812276413	19	
	Female	55+	46200	0.02357197	24	35	0.674158335	24	
Scarborough									229
	Male	15-24	38350	0.019566776	20	20	0.979317127	20	
	Female	15-24	37430	0.019097377	19	24	0.796519776	19	
	Male	25-54	120915	0.061692743	62	50	1.235088714	62	
	Female	25-54	132220	0.067460733	68	97	0.696166941	68	
	Male	55+	52810	0.026944496	27	28	0.963265738	27	
	Female	55+	66800	0.034082415	34	31	1.10053218	34	
North York									246
	Male	15-24	38805	0.019798924	20	22	0.90085104	20	
	Female	15-24	38310	0.019546367	20	21	0.931710167	20	
	Male	25-54	121755	0.062121324	62	67	0.928111127	62	
	Female	25-54	135535	0.069152098	69	75	0.92295	69	
	Male	55+	64730	0.033026268	33	26	1.271511336	33	
	Female	55+	82070	0.04187341	42	40	1.047882094	42	
Toronto									284
	Male	15-24	37385	0.019074418	19	11	1.735771995	19	
	Female	15-24	39010	0.019903518	20	7	2.846203102	20	
	Male	25-54	174725	0.089147455	89	48	1.859095883	89	
	Female	25-54	173930	0.088741833	89	76	1.168823358	89	
	Male	55+	57065	0.029115464	29	16	1.821536241	29	
	Female	55+	73705	0.037605455	38	24	1.568460862	38	
York									60
	Male	15-24	8645	0.004410816	4	1	4.41522637	4	
	Female	15-24	9075	0.004630208	5	5	0.926967711	5	
	Male	25-54	32615	0.016640688	17	9	1.850814319	17	
	Female	25-54	35920	0.018326951	18	18	1.01918213	18	
	Male	55+	13670	0.00697465	7	2	3.490812289	7	
	Female	55+	18310	0.009342051	9	4	2.337848318	9	
East York									45
	Male	15-24	5255	0.002681184	3	2	1.341932595	3	
	Female	15-24	5645	0.002880168	3	2	1.441524168	3	
	Male	25-54	25055	0.012783457	13	8	1.599530027	13	
	Female	25-54	27240	0.013898278	14	11	1.264743323	14	
	Male	55+	10385	0.005298591	5	2	2.651944815	5	
	Female	55+	15480	0.007898141	8	4	1.976509665	8	

Survey Overview

Respondent Screening

- Prior to completing the core questionnaire, potential respondents were asked a screening question to ensure that they were qualified to participate in the survey. It was confirmed that all survey participants were not employed by a marketing research, advertising, public relations or news media company.

Pilot of Survey Instrument

- It is standard practice before launching a major telephone fieldwork initiative to pre-test or pilot the survey instrument. This step serves to identify any weaknesses in the survey instrument such as questions that are not being correctly understood by respondents or questions whose phrasing is ambiguous or confusing.

- The survey instrument used for this study was pre-tested by Decima interviewers prior to the full launch of the data collection phase. The Field Supervisor first read the questionnaire to the interviewers, thereby ensuring pronunciation would be correct and uniform, and second, interviewer-respondent role-playing was used to illustrate skip and rotation patterns. Next, the Field Supervisor held a debriefing session and provided an opportunity for interviewers to have questions answered or procedures clarified. Politeness and sensitivity are essential at all times. It was stressed to all interviewers that they should be as accommodating and professional as possible. The experience of taking part in a telephone interview should be a positive one.

- Experienced interviewers then conducted several interviews with actual respondents while the Lead Consultant, Research Analyst, and Field Supervisor monitored the progress. Based on the pre-test results, minor programming changes were made to facilitate the field portion of the study.

Survey Overview

Telephone Fieldwork

- All interviewing was conducted from our Toronto, Ontario field and operations centre between October 12 and October 21, 1999. Weekday evening interviews were conducted between the hours of 4:00 p.m. and 9:30 p.m. Weekend interviews were conducted between the hours of 10:00 a.m. and 8:00 p.m.

- Commencing each call, interviewers revealed the survey sponsor - The City of Toronto, identified his/herself as a Decima employee and informed the respondent that the survey was registered with the *Canadian Survey Research Council (CSRC)* where required. At the respondent's request the interviewer provided the CSRC toll free telephone number and the study reference number.

- In total, Decima completed 1001 interviews lasting an average of 11.0 minutes in length.

Survey Overview

Quality Control

- Throughout the study, on-site supervision was provided on a regular basis. Interviews were centrally monitored, thereby ensuring consistency and accuracy. Supervisors monitored all interviewing on an ongoing basis and randomly checked the recording of responses and listened to 14.9% of all interviews, a rate which exceeds the minimum demanded by the Canadian Association of Marketing Research Organizations (CAMRO), of which Decima is a member.
- Decima interviewers are rigorously screened and trained before being hired and allowed to conduct live interviews. Virtually all interviewers are currently enrolled or have completed at least the first year of a university bachelor's program. No high school students are accepted. Potential interviewers are tested for their reading skills in both official languages.
- As part of the general training process, new interviewers are given an intense briefing on proper telephone protocol including the following items:
    - if respondent states that the present time is inconvenient to participate in the survey, the interviewer is taught ways of seeking a more convenient time rather than accepting a refusal;
    - interviewers are briefed on means of turning initial refusals into participating respondents, by stressing the importance of the survey and the value of the respondent's input;
    - the means of politely terminating an interview when a respondent becomes abusive or offers nonsensical responses; and
    - the importance of reading survey text word for word, without offering any bias through voice intonation or other comments.

Survey Overview

Data Entry Coding and Processing

- CATI systems remove the need for separate re-entry of data. Open-ended variables are coded directly on the system and the resulting data file is exported to SAS, SPSS (or any statistical package) for data analysis. For open ended questions, Decima followed the following standard procedures:

  - An initial briefing of coders;
  - Supervision of trained staff; and
  - Verification of 15% of each coder's work.

- Using the first 30% of completed surveys in each stratum, codes were constructed for the open-end questions by sorting and writing out the responses into independent categories. The Research Analyst checked all categories for completeness and consistency.

- Decima carried out the data entry and processing on-site on our CATI interviewing system. The interactive software system, designed specifically for survey analysis, has a robust data entry facility which permits cleaning of the data, including out-of-range values and skip-pattern errors, as well as other logic errors. The fully cleaned data were then summarized into aggregate tables. Further analysis of the data included crosstabulation tables, measures of association, regression analysis, correspondence analysis and discriminant analysis.

Survey Overview

Confidence Intervals

- At the 95% confidence level, statistical error due to sampling is no more than ±3.1% for the total sample (n=1001). In other words, there is a 95% probability that a result based on the entire City of Toronto population would fall within ±3.1% of a result based on the sample used in the study. The following table defines the margin of error for each District.

	n=	Margin of Error
Central Toronto	251	6.2%
Etobicoke	250	6.2%
North York	250	6.2%
Scarborough	250	6.2%
	1001	**3.1%**

- ***Limitations***
- While the most sophisticated procedures have been used to collect and analyze the information presented herein, it must be remembered that surveys are not predictions. They are designed to measure public opinion and behavioural incidence within identifiable statistical limits of accuracy at specific points in time. This survey is in no way a prediction of opinion or behaviour at any future point in time.

Call Record Summary

February, 2000

Decima Research Inc

Call Record Summary

- The CATI system permits a disposition result for every attempted call. From this information, the response rate and the refusal rate were calculated and are displayed below. These measures are defined according to recently developed standards adopted by the Professional Marketing Research Society (PMRS).

Record of Contact
as per the PMRS Standard Format for Telephone Surveys

	Disposition of the last attempt	Number
A	**Total numbers attempted (total of lines 1-14)**	**6100**
1	Not in service, duplicates	632
2	Fax/Modem	137
3	Business Numbers	108
B	**Total eligible numbers (total of lines 4-14)**	**5223**
4	Busy	29
5	Answering machine	471
6	No answer	322
7	Language	437
8	Illness, incapable	0
9	Selected respondent not available (includes callbacks)	1043
C	**Total asked (total of lines 10-14)**	**2921**
10	Household refusal	1731
11	Respondent refusal	0
12	Qualified respondent break off	99
D	**Co-operative contacts (C-10-11-12)**	**1091**
13	Disqualified (out of sample frame/quotas)	90
14	Complete interview	1001
	Disqualification rate (10 + 11 + 12)/C	**62.6%**
	Response Rate D / B	**20.9%**

Notes on Analysis

Estimating the Number of Cyclists

- In order to derive an estimate of the number of cyclists by trip purpose, Decima uses the following information components and executes the estimation formula:

  A - Obtain Statistics Canada population counts for persons aged 15 years and older in each District of the City of Toronto (actual population numbers used are found in the weighting table on page 85)

  B - Use survey results to calculate the incidence (%) of persons who cycle for each of four trip purposes measured (i.e. work, school, shopping/visiting and recreation)

  Estimation formula = A * B

- This same formula is used for the City of Toronto aggregate estimates and the District estimates.

Notes on Analysis

Estimating the Number of Cycling Trips per Week During Good Weather

- In order to derive an estimate of the weekly number of cycling trips by trip purpose, Decima uses the following information components and executes the estimation formula:

  A - Obtain Statistics Canada population counts for persons aged 15 years and older in each District of the City of Toronto (actual population numbers used are found in the weighting table on page 85)

  B - Use survey results to calculate the incidence (%) of persons who cycle for each of four trip purposes measured (i.e. work, school, shopping/visiting and recreation)

  C - Use survey results to calculate the average number of days per week persons who cycle for each trip purpose do so.

  Estimation formula = A * B * C

- This same formula is used for the City of Toronto aggregate estimates and the District estimates.

- Note: Decima's definition assumes that each cycling trip is a two-way trip. No double counting has occurred (all estimates are expressed as "number of two-way trips" during good weather).

Perceptual Map

February, 2000

Decima Research Inc

Understanding a Perceptual Concept Map

Improving Cycling in Toronto - Perceptual Concept Map

The perceptual map on the following page provides a unique learning opportunity by:

- ✔ Identifying the perceptual space different groups occupy based on different need sets. In this case each cycling group is unique and individual. However, recreational and non-cyclists have more similar needs than utilitarian and recreational or utilitarian and non-cyclists (determined by their proximity to one another);

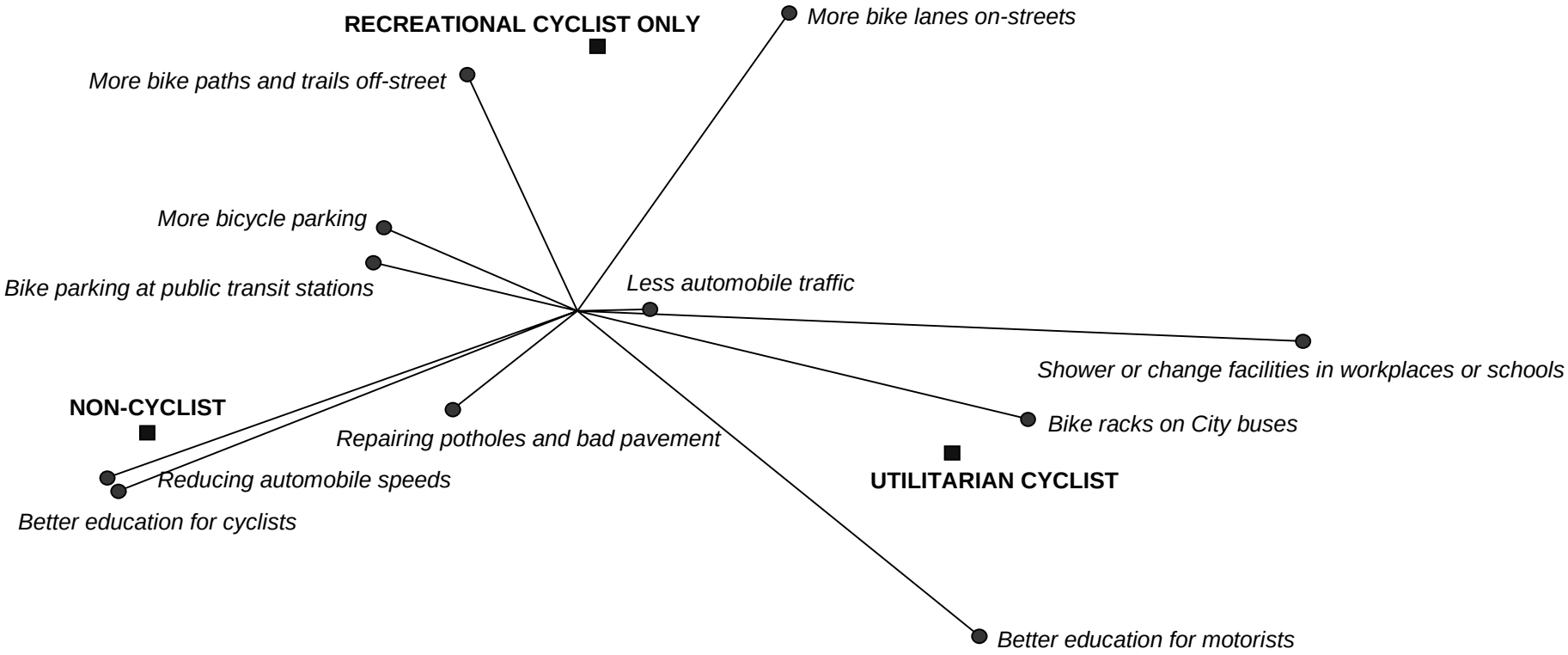
- ✔ Defining the key discriminators among the different cyclist groups. In this case, "Shower or change facilities" and "Better education for motorists" are among the key differentiators (determined by the length of the line or vector). The attribute "Less automobile traffic" is not a major discriminator of cyclist groups because it is shorter in length or located closer to the origin;

- ✔ Depicting the relative importance of an attribute to a particular group. In this case, "Reducing automobile speeds" and "Better education for cyclists" are relatively more important improvement attributes to non-cyclists. Similarly, "Bike racks on City buses" are relatively more important improvement attributes to utilitarian cyclists and "More bike paths and trails off-street" and "More bike lanes on-street" are relatively more important improvement attributes to recreational cyclists. (All of which are determined by the proximity of a particular attribute to a particular group); and

- ✔ Identifying the relative similarities between two or more attributes. In this case "More bicycle parking" and "Bike parking at public transit stations" are two attributes that have similar characteristics (based on their close proximity to one another).

Perceptual Concept Map

Improving Cycling in Toronto



Questionnaire

February, 2000

Decima Research Inc