

TABLE 12

PATTERNS OF ACTIVITIES PER MOBILE PERSON AND DAY

	PETERBOROUGH	
	%	cum. %
<u>PATTERNS OF ACTIVITIES</u>		
H – W – H	17	17
H – E – H	11	28
H – S – H	9	37
H – L – H	7	44
H – S – H – L – H	3	47
H – W – H – L – H	3	50
H – E – H – L – H	2	52
H – L – H – L – H	2	54
H – L – L – H	1	55
H – ES – H – ES – H	1	56
H – S – H – S – H	1	57
Other patterns of activities	43	100

Explanation:

H = Home
 E = Education
 ES = Escort
 L = Leisure
 S = Shopping
 W = Work

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 13

PATTERNS OF ACTIVITIES PER JOURNEY

	PETERBOROUGH	
	%	cum. %
<u>PATTERNS OF ACTIVITIES</u>		
H – L – H	20	20
H – W – H	19	39
H – S – H	16	55
H – E – H	11	66
H – ES – H	9	75
H – P – H	3	78
H – L – L – H	2	80
H – S – L – H	1	81
H – L – S – H	1	82
H – ES – S – H	1	83
H – S – S – H	1	84
Other journeys with two activities	8	92
Other journeys with more than two activities	8	100

Explanation:

H = Home
 E = Education
 ES = Escort
 L = Leisure
 P = Personal business
 S = Shopping
 W = Work

Database: 4,461 people, 12,740 trips (up to 100 km)

MODE CHOICE

TABLE 14

MODE CHOICE

	PETERBOROUGH		
	PER MOBILE PERSON PER DAY	PER PERSON PER DAY	%
<u>MAIN MODE</u>			
Walking	0.77	0.65	22
Bicycle	0.17	0.15	5
Motorbike	0.02	0.01	1
Car as driver	1.49	1.28	43
Car as passenger	0.80	0.68	23
Public transport	0.22	0.19	6
Total	3.47	2.96	100

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 15

MODE CHOICE BY GENDER

	PETERBOROUGH		
	TOTAL %	MALE %	FEMALE %
<u>MAIN MODE</u>			
Walking	22	20	24
Bicycle	5	7	3
Motorbike	1	1	0 ^{*)}
Car as driver	43	49	38
Car as passenger	23	18	27
Public transport	6	5	8
Total	100	100	100
Share of all trips	100	49	51

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 16

MODE CHOICE BY AGE

PETERBOROUGH						
	TOTAL %	UP TO 15 YEARS %	16-25 YEARS %	26-45 YEARS %	46-60 YEARS %	61 Y. AND OLDER %
<u>MAIN MODE</u>						
Walking	22	35	20	19	14	23
Bicycle	5	6	8	4	6	3
Motorbike	1	0 ^{*)}	2	0 ^{*)}	0 ^{*)}	0 ^{*)}
Car as driver	43	0 ^{*)}	29	63	61	44
Car as passenger	23	56	26	9	14	19
Public transport	6	3	15	5	5	11
Total	100	100	100	100	100	100
Share of all trips	100	21	11	35	20	13

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 17

MODE CHOICE BY EMPLOYMENT

	PETERBOROUGH							
	TOTAL	NOT YET AT PRIMARY SCHOOL	HOME DUTIES	RETIRED / PENSIONER	AT SCHOOL, COLLEGE, UNIVERSITY	LOOKING FOR WORK	EMPLOYED WOMEN	EMPLOYED MEN
	%	%	%	%	%	%	%	%
<u>MAIN MODE</u>								
Walking	22	36	34	24	32	33	15	13
Bicycle	5	1	3	4	9	10	4	5
Motorbike	1	-	0 ^{*)}	0 ^{*)}	0 ^{*)}	0 ^{*)}	0 ^{*)}	1
Car as driver	43	-	45	41	4	38	59	68
Car as passenger	23	61	13	20	48	6	15	9
Public transport	6	2	5	11	7	13	7	4
Total	100	100	100	100	100	100	100	100
Share of all trips	100	7	9	13	19	1	23	28

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 18

MODE CHOICE BY TIME OF THE WEEK

	PETERBOROUGH			
	TOTAL %	WORKDAY %	SATURDAY %	SUNDAY %
<u>MAIN MODE</u>				
Walking	22	23	21	17
Bicycle	5	6	6	3
Motorbike	1	0 ^{*)}	0 ^{*)}	1
Car as driver	43	44	40	41
Car as passenger	23	20	27	35
Public transport	6	7	6	3
Total	100	100	100	100
Share of all trips	100	75	13	12

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 19

MODE CHOICE BY TRIP PURPOSE

	PETERBOROUGH							
	TOTAL	WORK	WORK-RELATED BUSINESS	EDUCATION	SHOPPING	PERSONAL BUSINESS	ESCORT	LEISURE
	%	%	%	%	%	%	%	%
<u>MAIN MODE</u>								
Walking	22	8	3	41	26	17	29	22
Bicycle	5	9	0 ^{*)}	7	4	2	2	4
Motorbike	1	1	0 ^{*)}	0 ^{*)}	0 ^{*)}	1	0 ^{*)}	0 ^{*)}
Car as driver	43	64	90	4	39	45	56	37
Car as passenger	23	11	5	39	22	24	13	32
Public transport	6	7	2	9	9	11	0 ^{*)}	5
Total	100	100	100	100	100	100	100	100
Share of all trips (%)	100	23	2	11	21	3	12	28

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 20

TIME OF DAY BY MODE CHOICE

PETERBOROUGH							
	TOTAL	WALKING	BICYCLE	MOTOR- BIKE	CAR AS DRIVER	CAR AS PASSENGER	PUBLIC TRANSPORT
	%	%	%	%	%	%	%
<u>STARTING TIME OF TRIP</u>							
Before 5 a.m.	1	0 ^{*)}	0 ^{*)}	2	1	0 ^{*)}	1
5 a.m. - 9 a.m.	19	22	26	26	19	14	23
9 a.m. - 12 a.m.	20	23	17	12	19	20	21
12 a.m. - 3 p.m.	18	19	16	9	18	18	18
3 p.m. - 7 p.m.	32	29	32	40	31	36	28
7 p.m. - 12 p.m.	10	7	9	11	12	12	9
Total	100	100	100	100	100	100	100
Share of all trips (%)	100	22	5	1	43	23	6

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 21

MODE CHOICE BY PARTICIPATION

PETERBOROUGH

PARTICIPATION GROUPS

	TOTAL	WALKING	BICYCLE	MOTOR- BIKE	CAR AS DRIVER	CAR AS PASSENGER	PUBLIC TRANSPORT
	%	%	%	%	%	%	%
<u>MAIN MODE</u>							
Walking	22	60	12	5	9	16	18
Bicycle	5	3	63	0 ^{*)}	1	3	3
Motorbike	1	0 ^{*)}	0 ^{*)}	68	0 ^{*)}	0 ^{*)}	0 ^{*)}
Car as driver	43	17	11	20	85	9	8
Car as passenger	23	16	12	0 ^{*)}	4	69	12
Public Transport	6	4	2	7	1	3	59
Total	100	100	100	100	100	100	100
Share of all persons	(...)	27 %	7 %	1 %	38 %	27 %	10 %

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 22

MODE CHOICE
– all modes used per trip –

	PETERBOROUGH
	%
<u>ALL MODES</u>	
Walking	77.7
Bicycle	5.1
Bike + Ride	0.1
Motorbike	0.4
Private car as driver	42.7
Company-car as driver	0.3
Other mot. vehicle as driver	0.2
Car as passenger	
- family car	17.9
- other car	5.0
- company car	0.1
Bus	5.2
Train	0.2
Work- / School bus	0.1
Park + Ride	0.1
Taxi	0.9
Other	0.0 ^{*)}
Total (Multiple responses)	156.0

^{*)} less than 0.05 %

Database: 4,461 people, 12,740 trips (up to 100 km)

DURATION AND TRIP DISTANCE

TABLE 23

DURATION, DISTANCE, SPEED PER TRIP^{*)}

	PETERBOROUGH		
	DURATION (min)	TRIP DISTANCE (km)	SPEED (km/h)
<u>MAIN MODE</u>			
Walking	15	1.1	4
Bicycle	17	3.0	11
Motorbike	20	13.0	39
Car as driver	18	10.1	34
Car as passenger	16	7.8	29
Public transport	32	7.9	15
Total	18	7.1	24

*) "Door-to-door"

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 24

DURATION AND DISTANCE PER
PERSON AND DAY

	PETERBOROUGH	
	(min)	(km)
<u>MAIN MODE</u>		
Walking ^{**)}	17	1.2
Bicycle	3	0.4
Motorbike	0 ^{*)}	0.1
Car as driver	19	12.7
Car as passenger	9	5.2
Public transport	4	1.4
Total	52	21.0

^{*)} less than 0.5 minutes

^{**)} Including walking legs of bicycle-, motorbike-, car- and public transport-trips

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 25

MODAL-SPLIT PER TRIP, PER DURATION AND PER TRIP DISTANCE

	PETERBOROUGH		
	PER TRIP	PER DURATION	PER DISTANCE
<u>MAIN MODE</u>			
Walking ^{**)}	22	33	6
Bicycle	5	5	2
Motorbike	1	0 ^{*)}	1
Car as driver	43	37	60
Car as passenger	23	17	25
Public transport	6	8	6
Total	100	100	100
Non-motorised modes	27	38	8
Motorised private modes	67	54	86
Public transport	6	8	6
Total	100	100	100
Occupancy ^{***)}	1.5	1.5	1.4

^{*)} less than 0.5 %

^{**)} Including walking legs of bicycle-, motorbike-, car- and public transport-trips

^{***)} In relation to all cars (private and company cars)

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 26

TRIP DISTANCE BY MODE – cumulated –							
PETERBOROUGH							
	TOTAL %	WALKING %	BICYCLE %	MOTOR- BIKE %	CAR AS DRIVER %	CAR AS PASSENGER %	PUBLIC TRANSPORT %
<u>TRIP DISTANCE</u>							
Up to 1.0 km	20	62	20	0 ^{*)}	5	11	3
Up to 3.0 km	40	92	54	10	21	29	19
Up to 5.0 km	65	99	88	40	49	60	54
Up to 10.0 km	85	99	98	69	77	83	88
Up to 50.0 km	98	99	100	90	97	98	97
Total	100	100	100	100	100	100	100
Share of all trips	100	22	5	1	43	23	6
Average distance (km)	7.1	1.1	3.0	13.0	10.1	7.8	7.9

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 27

MODE CHOICE BY DISTANCE

PETERBOROUGH						
	TOTAL %	UP TO 1.0 KM %	1.1 - 3.0 KM %	3.1 - 5.0 KM %	5.1 - 10.0 KM %	OVER 10.0 KM %
<u>MAIN MODE</u>						
Walking	22	69	33	6	0 ^{*)}	0 ^{*)}
Bicycle	5	5	8	7	3	1
Motorbike	1	0 ^{*)}	0 ^{*)}	0 ^{*)}	1	1
Car as driver	43	12	34	49	60	67
Car as passenger	23	13	20	29	26	26
Public transport	6	1	5	9	10	5
Total	100	100	100	100	100	100
Share of all trips	100	20	20	25	20	15

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

CAR USAGE

TABLE 28

CAR USAGE

	PETERBOROUGH	
	PER PRIVATE CAR / DAY	"MOBILE" CARS
Usage (%)	75	(100)
Trips	2.43	3.24
Duration (min)	39 ^{*)}	52 ^{*)}
Distance (km)	24 ^{*)}	32 ^{*)}
Occupancy per trip - All days - Workdays		1.5 1.5
Drivers per car and day		1.1
Number of journeys per day		1.35
Parking per day (out-of-home destinations)		1.89

^{*)} Pure car-trip-duration without walking stages

Database: 2,330 private cars, 5,880 private car trips (up to 100 km)

TABLE 29

PRIVATE CAR USAGE BY DURATION AND TRIP DISTANCE ^{*)}
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	PETERBOROUGH
	"MOBILE" CARS
Duration	0 h 52
Parking time at home	17 h 52
Parking time at destination	5 h 16
Total	24 h

	ALL PRIVATE CAR TRIPS – cumulated –		
	SHARE %	DURATION (min)	TRIP DISTANCE (km)
Trips up to 1 km	5	7	1
Trips up to 3 km	21	9	2
Trips up to 5 km	49	11	3
Trips up to 10 km	77	13	5
Trips up to 50 km	97	16	8
Total	100	18	10

^{*)} "Door-to-door"

Database: 2,330 private cars, 5,880 private car trips (up to 100 km)
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SPATIAL ORIENTATION

TABLE 30

SPATIAL ORIENTATION

	PETERBOROUGH
	%
<u>SPATIAL ORIENTATION</u>	
Trips entirely within Peterborough ^{*)}	83
Trips to / from Peterborough	15
Trips outside Peterborough	2
Total	100

^{*)} Urban area of Peterborough

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 31

MODE CHOICE BY SPATIAL ORIENTATION				
PETERBOROUGH				
SPATIAL DISTRIBUTION				
	TOTAL %	TRIPS ENTIRELY WITHIN PETERBOROUGH %	TRIPS TO/FROM PETERBOROUGH %	TRIPS OUTSIDE PETERBOROUGH %
<u>MAIN MODE</u>				
Walking	22	25	4	28
Bicycle	5	6	2	0 ^{*)}
Motorbike	1	0 ^{*)}	1	0 ^{*)}
Car as driver	43	40	62	46
Car as passenger	23	23	26	16
Public transport	6	6	5	10
Total	100	100	100	100
Average trip-distance (km)	7.1	4.1	22.7	12.6

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

TRAVEL BEHAVIOUR BY WARDS

TABLE 32
– Part 1 –

BASIC TRAVEL CHARACTERISTICS
– per ward per day –

	PETERBOROUGH								
	Total (all wards)	Central	Dogsthorpe	East	Fletton	North	North Bretton	Orton Longueville	Orton Waterville
Share of mobiles	85 %	70 %	85 %	88 %	83 %	86 %	84 %	87 %	83 %
<u>MOBILE PERSONS:</u>									
- Activities	2.0	1.9	2.2	2.1	2.0	2.2	2.2	1.8	1.9
- Journeys	1.5	1.4	1.6	1.5	1.5	1.5	1.5	1.4	1.5
- Trips	3.5	3.3	3.8	3.6	3.5	3.7	3.7	3.2	3.4
<u>ALL PERSONS:</u>									
- Activities	1.7	1.3	1.8	1.8	1.6	1.9	1.9	1.6	1.6
- Journeys	1.3	1.1	1.4	1.4	1.3	1.2	1.2	1.1	1.2
- Trips	3.0	2.4	3.2	3.2	2.9	3.1	3.1	2.7	2.8
- Travel time (min)	52	41	51	55	53	49	54	50	49
- Distance (km)	21	13	18	23	18	17	27	18	21

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 32
– Part 2 –

BASIC TRAVEL CHARACTERISTICS (continued)
– per ward per day –

PETERBOROUGH										
	Total (all wards)	Park	Paston	Ravens- thorpe	South Bretton	Stan- ground	Walton	Werring- ton North	Werring- ton South	West
Share of mobiles	85 %	87 %	88 %	86 %	90 %	87 %	85 %	91 %	86 %	87 %
<u>MOBILE PERSONS:</u>										
- Activities	2.0	2.0	1.9	1.9	2.0	1.9	2.3	2.0	2.0	2.1
- Journeys	1.5	1.4	1.4	1.5	1.6	1.5	1.6	1.4	1.4	1.6
- Trips	3.5	3.4	3.3	3.4	3.6	3.4	3.9	3.4	3.4	3.7
<u>ALL PERSONS:</u>										
- Activities	1.7	1.7	1.7	1.6	1.8	1.6	1.9	1.8	1.7	1.8
- Journeys	1.3	1.3	1.2	1.3	1.4	1.3	1.4	1.3	1.3	1.4
- Trips	3.0	3.0	2.9	2.9	3.2	2.9	3.3	3.1	3.0	3.2
- Travel time (min)	52	48	54	52	55	51	51	57	64	59
- Distance (km)	21	19	25	17	21	17	19	24	32	30

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 33
– Part 1 –

ACTIVITIES PER WARD

PETERBOROUGH

	Total (all wards) %	Central %	Dogsthorpe %	East %	Fletton %	North %	North Bretton %	Orton Longueville %	Orton Waterville %
<u>ACTIVITIES</u>									
Work	21	19	18	20	17	17	17	17	25
Work-related business	3	3	2	2	1	1	5	5	5
Education	11	12	11	8	11	11	10	10	8
Shopping	21	31	26	20	24	24	17	17	23
Personal business	4	1	4	4	5	5	4	4	4
Escort	12	9	17	16	15	15	14	14	9
Leisure	28	25	22	30	27	27	33	33	26
Total	100	100	100	100	100	100	100	100	100

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 33
– Part 2 –

ACTIVITIES PER WARD (continued)

PETERBOROUGH

	Total (all wards) %	Park %	Paston %	Ravens- thorpe %	South Bretton %	Stan- ground %	Walton %	Werring- ton North %	Werring- ton South %	West %
<u>ACTIVITIES</u>										
Work	21	24	23	21	21	23	17	23	26	21
Work-related business	3	2	3	2	0 ^{*)}	2	2	3	3	2
Education	11	12	13	12	12	11	9	13	7	8
Shopping	21	15	16	22	21	23	21	19	21	20
Personal business	4	4	3	3	3	5	7	1	6	5
Escort	12	17	10	17	14	11	14	15	9	9
Leisure	28	26	32	23	29	25	30	26	28	35
Total	100	100	100	100	100	100	100	100	100	100

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 34
– Part 1 –

MODE CHOICE PER WARD

PETERBOROUGH								
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	Total (all wards) %	Central %	Dogsthorpe %	East %	Fletton %	North %	North Bretton %	Orton Lon- gueville %	Orton Waterville %
<u>MAIN MODE</u>									
Walking	22	28	14	24	25	19	17	26	15
Bicycle	5	8	7	2	5	6	6	5	5
Motorbike	1	0 ^{*)}	0 ^{*)}	0 ^{*)}	0 ^{*)}	0 ^{*)}	1	0 ^{*)}	1
Car as driver	43	33	39	47	48	38	44	36	51
Car as passenger	23	24	30	22	17	29	26	22	24
Public transport	6	7	10	5	5	8	6	11	4
Total	100	100	100	100	100	100	100	100	100

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 34
– Part 2 –

MODE CHOICE PER WARD (continued)

	PETERBOROUGH									
	Total (all wards) %	Park %	Paston %	Ravens- thorpe %	South Bretton %	Stan- ground %	Walton %	Werring- ton North %	Werring- ton South %	West %
<u>MAIN MODE</u>										
Walking	22	30	17	30	32	27	22	23	16	18
Bicycle	5	3	4	5	3	5	5	10	5	2
Motorbike	1	1	0 ^{*)}	0 ^{*)}	0 ^{*)}	1	0 ^{*)}	1	1	0 ^{*)}
Car as driver	43	42	42	35	43	40	48	41	49	56
Car as passenger	23	21	28	23	18	22	20	18	24	21
Public transport	6	3	9	7	4	5	5	7	5	3
Total	100	100	100	100	100	100	100	100	100	100

^{*)} less than 0.5 %

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 35
 – Part 1 –

SPATIAL ORIENTATION PER WARD

PETERBOROUGH									
	Total (all wards) %	Central %	Dogsthorpe %	East %	Fletton %	North %	North Bretton %	Orton Longueville %	Orton Waterville %
Trips within ward	23	30	24	29	23	12	29	22	28
Trips to/from city centre	8	16	10	7	11	8	4	7	8
Other trips within Peterborough	52	44	50	42	49	67	42	56	51
Trips to/from Peterborough	15	9	15	19	16	11	23	10	11
Trips outside Peterborough	2	1	1	3	1	2	2	5	2
Total	100	100	100	100	100	100	100	100	100

Database: 4,461 people, 12,740 trips (up to 100 km)

TABLE 35
– Part 2 –

SPATIAL ORIENTATION PER WARD (continued)

	PETERBOROUGH									
	Total (all wards) %	Park %	Paston %	Ravens- thorpe %	South Bretton %	Stan- ground %	Walton %	Werring- ton North %	Werring- ton South %	West %
Trips within ward	23	19	13	27	33	29	20	23	17	15
Trips to/from city centre	8	11	7	7	6	9	9	6	7	9
Other trips within Peterborough	52	51	62	54	45	48	57	54	53	56
Trips to/from Peterborough	15	18	15	11	15	13	12	16	21	17
Trips outside Peterborough	2	1	3	1	1	1	2	1	2	3
Total	100	100	100	100	100	100	100	100	100	100

Database: 4,461 people, 12,740 trips (up to 100 km)

Annex 2: Glossary

General terminology

The following definitions refer to the terminology used in the tables.

Activity	Main business carried out in one spatial setting out-of-home.
Commercial (trip)	Trips undertaken exclusively as professional services (as e. g. taxi-driver, freight traffic) are not included in the presented results.
Household	All people who occupy the same housing unit.
Journey	A sequence of trips starting and ending at home to do one or more activities.
Leg	(Also referred to as a „stage“ or „unlinked trip“). Portion of a trip, conducted on a single mode of transportation (including walking). If there is a change of mode within a trip, a new leg starts. A trip can consist of one or more legs: the movement by (main) mode, (walking) legs to or from parking space on public ground, access to or from PT stops. Changing between two modes of PT and waiting for a PT mode can also be considered as a leg of a trip.
Mobile persons	Persons undertaking at least one trip during the sampling day.
Mode	The means of transport used for one trip including private and public modes as well as walking; for one trip generally more than one mode can be used. If more than one mode is used for one trip, a main mode (of the trip) is determined according to the following ranking: Public Transport (train, bus, work- / schoolbus, taxi) – motorised private modes (car, motorbike) – non-motorised modes (bicycle, walking).
Participation	Usage of a certain "main mode" at the travel day. If one person is using a certain main mode at least for one trip, this person belongs to the respective participation group. If one person is using different main modes at the travel day, this person is belonging to different participation groups.
Persons	All members of the surveyed households.
Spatial orientation	Referring to origin and destination a spatial orientation for all trips can be given. It can be distinguished between <ul style="list-style-type: none">• trips entirely within one area• trips from one area to another area and vice versa• trips outside one area
Speed	Average speed (door-to-door) calculated by distance and duration.
Trip	Movement generated by an out-of-home activity plus trips back home. For one trip more than one mode can be used.

Annex 2: Glossary (continued)

(Trip) distance	Door-to-door distance of a trip (as reported by the respondent). The analysis of day-to-day mobility excludes trips of more than 100 km (around 2 % of all trips) to avoid skewing any distance-related indicators.
(Trip) duration	Duration between the start of a trip and the arrival at the destination (based on the time starting a trip and arriving at the destination both reported by the respondent).
(Trip) purpose	Reason for conducting a trip; trips back home have the same reason as trips from home to the corresponding activity.

Trip purpose

The purpose of a trip is normally taken to be the activity at the destination, unless that destination is 'home' in which case the purpose is defined by the activity at the origin of the trip. Purposes include:

Education	Trips to school including nursery school and further / higher education by full-time students, students on day-release and part-time students following vocational courses.
Escort	When the traveller has no purpose of his or her own, other than to escort or accompany another person; for example, taking a child to school.
Leisure	Visits to meet friends, relatives, or acquaintances, both at someone's home or at a pub, restaurant, etc; religious activities, all types of entertainment or sport, clubs, and non-vocational evening classes, political meetings, recreation, leisure walks, day trips, holidays (within UK) etc.
Personal business	Visits to services e.g. hairdressers, launderettes, dry-cleaners, betting shops, solicitors, banks, estate agents, libraries, or for medical consultations or treatment.
Shopping	All trips to shops or from shops to home, even if there was no intention to buy.
Work	Commuting including trips to usual place of work from home, or work to home and trips to work from a place other than home or in the course of work, e.g. coming back to work from going to the shops during a lunch break.
Work-related business	Personal trips in course of work.

*ANNEX 3: FUNDAMENTAL PRINCIPLES OF THE
POTENTIAL ANALYSIS*

Researching reasons for mobility behaviour has concerned decision-makers, planners and scientists for a long time. Surveys in the transport field deal with various aspects of the mobility of people and therefore with a type of behaviour that appears to be simple and easily explained but is, in reality, very complex and sophisticated.

Serious empirical studies must adjust to the world they wish to depict and cannot expect that this world will adapt itself to their simplifying methods. For example, even ascertaining the reasons which determine mode choice becomes a comparatively complicated matter which requires reliable information from very diverse data fields.

The personal circumstances of an individual will influence and constrain the choice of a certain mode of transport (data field: sociodemography), a reasonable possibility for using this mode of transport must exist (data field: transport systems), the persons involved must perceive this option accurately (data field: perception), and they must be willing to use this option (data field: attitudes).

This means that the existence of an option alone is not enough if people do not perceive it or their personal circumstances prevent its use: a positive attitude towards a mode of transport does not lead to its use when no relevant option is available, etc. However the starting point for travellers' behavioural decisions is, in any case, the world they perceive, irrespective of how (in-) complete and / or (in-) accurate this perception is. If one wants to understand the behaviour of human beings, logic dictates that not only knowledge of the prevailing (external and personal) conditions for their decision is required, but knowledge of their perceived world(s) as well.

Therefore, even the description – let alone the explanation and prediction – of mode choice becomes a task of considerable complexity. In addition, it is made even more difficult by the fact that daily, weekly, and monthly every individual is confronted by many different decision-making situations with regard to their travel mode choices that involve varying constellations (sets) and combinations of the above data fields: simplifying approaches which only deal with the “unit person” are therefore of little help in the description, explanation, or prediction of mode choice.

A perceptible raising of the quality standard for mobility research is becoming more and more important; mobility research is becoming increasingly recognised as an aid to decision-making in many planning fields. However, the resulting link to application brings with it the demand for the provision of reliable decision-making assistance. This decision-making assistance needs to be of the highest quality in order to safeguard the investment of considerable financial resources and create prevailing conditions for our everyday life whose consequences may still be felt by our children and grandchildren. Practical mobility research is anything but experimentation without consequences in an encapsulated academic playground. Therefore our efforts must be directed above all to a constant improvement in our methodological standards and practices.

In spite of the complexity of our research topic (mobility), the application of common sense often suffices. It requires no great scientific effort to recognise, for example, that the use of an alternative mode of transport is only possible: if there is no constraint requiring the use of the present mode, if a suitable alternative mode is actually available; if the person involved is also adequately informed about this alternative; if she/he thinks the use of this alternative is possible with regard to travel time, travel costs, travel comfort (and similar usage characteristics); and if she/he has no reservations in principle against this alternative and finally chooses it from the available alternatives.

From this (conceptual) model of mode choice, data requirements can then be formulated. These data requirements will include various types of primary and secondary data. On close examination, it will quickly become clear that even the primary data can only be obtained through a combination of different (partial) surveys. If reliable data is to be collected, different survey methods – with each being particularly suitable for its respective data field – must be used.

Once the data is collected and recorded, careful analyses must be employed to determine if the conceptual assumptions that have led to the development of the underlying conceptual model can be confirmed or, if necessary, need to be modified. Only then can the mathematical/statistical information of this model begin.

Many models predicting transport behaviour are based on empirically measured behaviour patterns. They determine the framework conditions and then try to derive a statistical correlation between framework conditions and behaviour to infer the behaviour under framework conditions. Subjective scopes of action are not taken into account nor are they replaced by assumptions (“experienced-based assumptions”).

Such models usually just predict status-quo behaviour under new framework conditions.

Transport decision makers can neither develop innovative solutions, nor understand the potential to better use existing systems by using models of the existing system. They need to know the extent to which existing behaviour cannot be changed, which measures will (not) achieve the predicted effects, and how such measures are to be valued beyond behaviour change.

Socialdata developed the “situational approach” as a model to measure the real potential (and limits) for travel behaviour change.

The situational approach offers not only everything that is asked for by an “individual behaviour model”, but also has some advantages compared to other versions of this “model family” e.g.:

- The approach is based on actual behaviour and achieved changes in behaviour (therefore it is possible to make a projection of the “total behaviour” for a given population).
- With this information, factors which determine behaviour are recorded (through this it is possible to estimate the impact of measures, which were not subject of the initial project).
- The recording of all “objective” and subjective factors (through this it is possible to get information about car trips that are constrained by, lack of an alternative for example and also about the trips where “soft policies” (information and motivation) have the potential for behavioural changes to real alternatives).
- By testing every trip against the actual system for alternatives to the car and the “objective” constraints against using the alternatives (distance to / from the public transport stop, actual travel time etc.), it becomes possible to evaluate the actual extent of information in comparison to the perception of these alternatives.
- A summary of all factors in a single model structure makes it possible to evaluate the impacts of opposing and complementary factors.

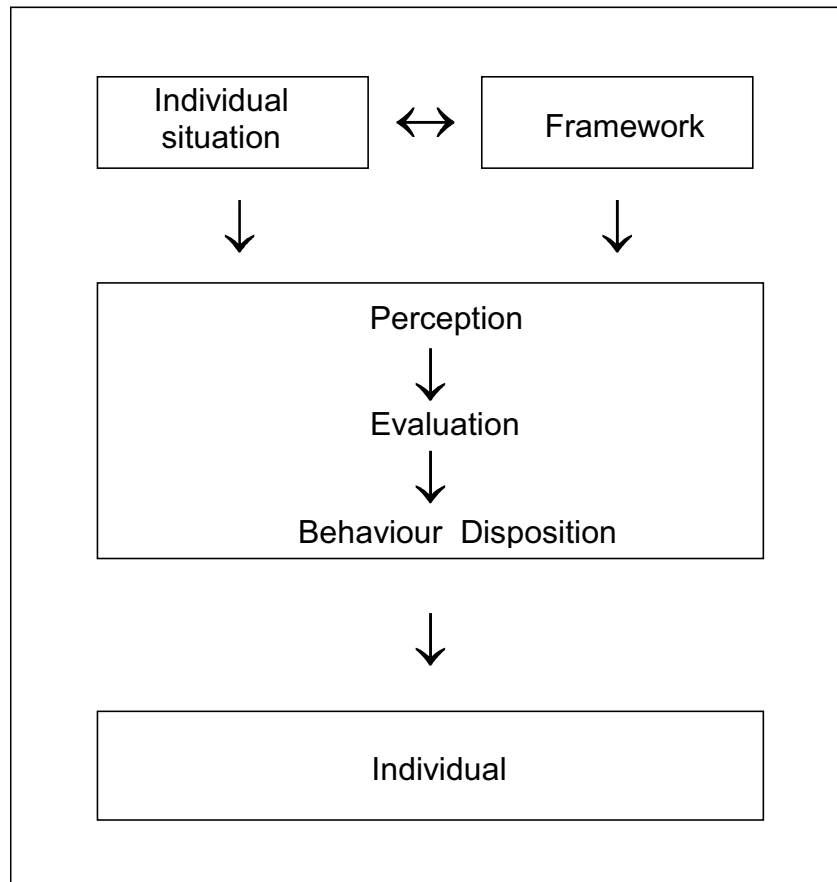
- A strict reference to the unit family / household. This reference enables analysis to determine the influence of individual behaviour on the behaviour of other members of the family. Also to estimate the direction and impact of possible secondary reactions (e.g. if a working car driver changes to public transport, the other members of the family may use the spare car and not use public transport anymore).

The situational approach assumes, simply, that each individual has a special scope of behaviour as a result of his / her environment ("objective" situation). Each individual experiences these "objective" situations – the transportation infrastructure they can access, the constraints and options of the individual and their household which can be socio-demographically deduced, and social values, norms and options which are pertinent to travel behaviour.

Each individual experiences these "objective" situations differently, thus creating individually different subjective situations. The subjective situations differ from objective situations due to perceptions being incomplete or distorted - consciously or unconsciously. The extent of deviation depends upon the individual person and their specific experiences. Individual decisions are made in these subjective situations. Subjective situations have a major influence on determining behaviour.

The situational approach is not limited to individual behavioural situations, such as factors influencing an individual's free choice. The approach also recognises the fact that individual (behavioural) decisions are made in accordance with a personal, subjective logic that is frequently at odds with the researcher's, planner's or politician's "rationality". This does not imply that the individual does not act rationally – only that their logic is also subjective.

The influences and processes of the “situational approach” can be simplified as follows:



Individual situation includes primarily socio-demographical variables like age, sex, occupation, etc; framework is infrastructural (system measures) as well as “legislative” parameters (e.g. parking rules).

Therefore behavioural change measures are based on “system measures” (hard policies) as well as on “measures on the mind” (soft policies).

Simplified, five different potential groups can be derived.

SITUATIONAL APPROACH



AREA	DIMENSION(S)	POTENTIAL-GROUP
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Individual situation	Constraints	Constraints (CON)
Framework conditions	"Objective" choice operation	No connection (SYS)
Perception	Information Subjective disposition	Lack of information / acceptance (PAW)
Evaluation	Time Comfort Costs	Negative subjective evaluation (SUB)

Behavioural disposition	With "objective" and subjective choice	Free of choice (FOC)
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Group CON: Trips with constraints because of individual situation where there is no behavioural alternative (e.g. car use because of business reasons).

Group SYS: Trips without behavioural alternatives because of infrastructural constraints (e.g. no adequate public transport connection available).

Group PAW: Trips with "objective" behavioural alternatives but these options are excluded in the individuals subjective filter (e.g. persons without sufficient information about existing public transport alternative, prejudice against public transport etc.)

Group SUB: Trips with an objective alternative and with an awareness about the alternative, but this existing option is assessed negatively (e.g. negative perception of travel time).

Group FOC: Trips with a real alternative and a subjective awareness of the alternative, but where the option is not currently chosen.

Each of these five groups has potential for change – in this context three different measures are important:

- System measures for group SYS. This includes also restrictive measures against other modes.
- Public Awareness measures for group PAW.
- “Conventional” marketing and information campaigns for group SUB and FOC.

(Behaviour change for group CON cannot be easily achieved, so it is not considered for further actions).

These five groups exist because of multiple individual situations and perceptions, which have an influence on the mode choice, for every single trip.

Special in-depth research involving intensive dialogue with each household, with each member having previously completed a travel diary, revealed the above mentioned reasons for behaviour. This method of in-depth research is more reliable than the common approach of asking non-users to state “why” they don’t choose alternatives to the car.

Mode choice is determined by several of the influences identified by the research. The combinations of influences need to be considered to identify the potential for change for each of the transport measures available. A group of people/trips with a system constraint (SYS) may also have a negative perception regarding public transport (PAW), so a system solution alone will be insufficient to change mode choice.

Annex 4:

***SUSTAINABLE TRAVEL TOWNS
TRAVEL BEHAVIOUR RESEARCH
PROGRAMME IN PETERBOROUGH***

Field Report

CONTENTS

- Summary 1

- 1 METHODOLOGY 2**
 - 1.1 Behavioural Travel Survey..... 2
 - 1.2 In-Depth Survey..... 3

- 2 TIMETABLE 3**

- 3 Fieldwork 4**
 - 3.1 Behavioural Travel Survey..... 4
 - 3.2 In-depth Survey 6

Summary

Socialdata has nearly completed the fieldwork for the travel behavioural research as part of Peterborough City Council's Sustainable Travel Town programme.

The research consists of behavioural travel surveys and in-depth interviews. Together these will provide a comprehensive database on personal travel behaviour, detailed information about the potential for travel behaviour change, attitudes towards local transport issues, and baseline data against which the effects of planned STT interventions can be evaluated.

The household travel behavioural survey covered a representative sample of Peterborough's inhabitants and finished with a net sample of over 4,400 people (well above the contract requirement of 4,000), resulting in a 60 % response rate.

The in-depth research is nearly finished; to date personal interviews have been completed with 302 people of the agreed net sample of 400. The remainder will be conducted in early January.

Overall, people in Peterborough have responded positively to the travel surveys. There have been relatively few complaints received by *Socialdata* concerning the survey process.

It should be noted that the time-frame for conducting this research was extremely tight and a well-planned approach and a strict day-to-day management were needed to complete this task in the time available.

1 METHODOLOGY

1.1 Behavioural Travel Survey

The methodology used by *Socialdata* is a mail-back diary technique, proven to be the most reliable method for collecting data on travel behaviour (known as “New KONTIV Design”). It consists of a questionnaire that is sent to each household in the survey sample, together with a set of individual travel diaries for a nominated day of the week for all household members. This includes households completing travel diaries for all seven days of the week.

The survey form is designed to collect information on individual activities performed at all out-of-home destinations on the nominated travel day. The questionnaire design allows respondents to report their activities in their own words, helping to increase the quality and accuracy of the data. For the STT programme additional telephone calls were carried out as follow up to the surveys to allow detailed data on trip stages (including walking) to be collected.

The sampling strategy for the survey was determined by the requirement to get a representative picture of mobility for the population of Peterborough and to carry out analysis at a ward level:

- the survey area covers all residential households in Peterborough (85,000 people)
- the sample was randomly selected and stratified to ensure a sufficient sample size to provide reliable data at ward level.
- the sample included households with and without known telephone numbers (the latter requiring a modified survey procedure using repeat postal contact in place of telephone motivation).

The sample was drawn from a commercially available database of postal addresses and telephone numbers, AFD Names and Numbers®, excluding households registered with the Mailing and Telephone Preference Services. This database incorporates the Royal Mail Postal Address File (PAF), the most up-to-date and complete address-only database in the UK.

1.2 In-Depth Survey

A sub-sample from the behavioural survey has been selected for further in-depth research to collect valuable information about awareness and attitudes, reasons for mode choice and potentials for change. This sample again is constructed so that it covers the whole city and was stratified that it gives enough a sufficient basis for the different modes. This is based on face-to-face interviews. These personal interviews were conducted at the respondent's home by interviewers using an interactive technique.

2 TIMETABLE

The behavioural survey was planned and implemented as a series of eight waves splitting the total sample in eight sub-samples to make the survey process manageable and to cover a longer period of time. The survey started at end of September with the sending of the first announcement letters. The first travel day of the first wave was scheduled for Monday September 27th, the last one for Sunday November 21st. Including the reminder phases the survey covered the period of the calendar weeks 40 till 52 of 2004.

The follow-up telephone calls on the trip stages were conducted the same day a questionnaire was returned. In some cases some calls per household were necessary to reach the persons concerned.

The in-depth interviews could start only on completion of the behavioural interviews, which were needed as input for it. So the fieldwork started in the first week of November and is nearly completed. Some interviews are scheduled but not completed yet as the interviewees changed agreed dates.

3 FIELDWORK

3.1 Behavioural Travel Survey

The fieldwork was carried out from *Socialdata's* office in Bristol. The following step-by-step process was used to conduct the surveys for each wave of the process:

- Mailing of an announcement letter (bearing the Peterborough City Council logo and an official signature) to all households in the gross sample;
- Mailing of the survey forms and the official covering letter (as above) to all households in the gross sample;
- Households were contacted by phone (if possible) on their nominated travel day to motivate them to respond to the survey;
- Mailing of a reminder letter (bearing the Peterborough City Council logo and an official signature) to all households who fail to respond within one week;
- Mailing of a second reminder letter (this time on *Socialdata* headed paper and signed by the *Socialdata* fieldwork manager) to non-responding households a week later;
- Reminder telephone calls to non-responding households to offer support in completing the forms and to motivate them and return them.
- A new mailing of the questionnaire to non-responding households (including those without available telephone numbers).
- A further reminder mail-out to non-responding households (as above).
- New mailing of the questionnaire to those households who asked for it in the reminder actions.

A number of other steps were taken to ensure data quality and high response rates:

- All envelopes were personally addressed to the household and carried a Royal Mail stamp rather than a franking mark;
- A free phone number was included on the front of the survey form to enable residents to contact *Socialdata* with any queries;
- All returned travel diaries were checked by *Socialdata* staff to see if they were complete and correctly filled out. If they contained implausible statements or clarification was needed, households were phoned to check the information given.
- Additional controls happened in the process of destination coding and data-entry. If inconsistencies were found the questionnaire was sent back to the call-centre for further exploration.

After this completing process the responses of each household were checked for relevance for the subsequent 'exploration' of trip stages. This exploration was carried out by phone and reached 85 % of the sub-sample of around 1,300 people.

This survey was implemented by work teams each responsible for a different step. The whole process was co-ordinated by a field-manager.

Some figures on the different survey mail-outs illustrate the scale of the operation:

- over 4,000 announcement letters
- nearly 4,000 sets of survey forms (main mailing)
- nearly 6,000 reminders
- about 2,500 new and extra mailings of the survey forms

For these mailing actions a total of around 30,000 stamps was put on envelopes and paper with a weight of nearly 3 tons was handled.

The mailing was accompanied by around 2,000 first motivation calls by phone and over 2,000 reminder calls. Completing and correction calls were done with nearly 1,000 households.

The helpdesk offered by *Socialdata* received a total of about 250 phone calls. But it should be noted that all households with phone were rung up by *Socialdata* for motivating and clarifying reasons.

This is one reason that the number of complaints remained quite low. Only eight households were removed from the database on their own request.

The table below shows the response received from the respondents in Peterborough.

These figures show the results from the field-work and still have some preliminary character as the final figures are only validated after processing the data, where badly filled-in questionnaires will be excluded. In any case though the contract-specified net sample of 4000 people will be exceeded, all responses will be included in the data-processing without additional costs.

Response Table for Behavioural Travel Survey (Households)

	TOTAL	Households with telephone	Households without telephone
Mail-out Gross	4,100	1,900	2,200
Sample loss ¹²	590	284	306
Adjusted household gross	3,410	1,616	1,794
Returns households	2,028	1,139	889
Returns persons	4,461	2,460	2,001
Response rate in %	60 %	71 %	50 %
(Contracted persons)	(4,000)		

All the given facts prove that there was a high level of interest and willingness to participate in the survey amongst households in Peterborough.

3.2 In-depth Survey

The in-depth research focused on a programme of face-to-face interviews, conducted in the home, with all household members over the age of 14. They should involve all members of a household. So the interviews had to be conducted at the respondents' home. Specially trained staff from *Socialdata's* Bristol office was responsible for making appointments for the interviews. The interviews themselves were prepared and organised in Peterborough by two locally based field-managers. The interviews were carried out by locally hired and especially trained staff. The average duration of an interview was 50 minutes. For every second interview a field-control was made afterwards by phone checking the implementation, duration and number of household members involved.

¹² Sample loss: incomplete address, unknown address, address without letterbox, no private address, company address, house unoccupied, addressee deceased, householder moved away, householder absent for a longer period.

Finally 403 persons have been interviewed:

Sustainable Travel Demonstration Town : Peterborough

Response Table for In-Depth Survey (Persons)

	TOTAL
Gross sample	670
Sample loss	40
Adjusted gross sample	630
Returns	403
Response rate in %	64 %
(Contracted persons)	(400)