Index

ABG region
  car kilometres distribution 26–7
  general characteristics 22, 23
  infrastructure investment programmes 33–5
  mobility patterns 28–31, 32, 33
  road supply 25, 26
  traffic volume 24, 35
  accessibility profile, locations 266
  activities, routine weekly 241, 243–6
  activity behaviour 218–19
  definitions and data source 224
  patterns of 224–5
  thresholds of response 225–7
  activity-based model, travel behaviour 233–63
  activity-related factors, congestion 148–9
  age, impact of telematics on work-related trips 65
  ageing, driving population 146
  aggression, time pressure 221–3
  Alps Railway Crossing 136
  answering machines, work-related trips 70, 71
  Antwerp-Brussels-Ghent see ABG region
  automobile see cars
  avoidance-avoidance decisions 223
  behavioural responses, congestion and policies 165–9
  behavioural thresholds study 218–31
  activity behaviour 224–7
  behavioural threshold, defined 221–4
  conclusions 230–1
  decision making under congestion 219–21
  driving behaviour 228–30
  Belgium and Brussels
  mobility problems 81–6
  telecommuters/teleworkers
  current numbers 89–92
  prospective numbers 92–9
  telecommuting/teleworking
  alternative to mobility problems 86–7
  conclusions and research needs 105
  form and scope of 87–8
  impact on transport 100–5
  see also ABG region
  Betuwe rail freight 138
  bicycle attributes, by purpose, CA results 209
  bicycles, utilizing potential of 17
  Billion Trips a Day, A 181
  bottlenecks 153, 154, 160
  Bottlenecks in European Infrastructure 160–1
  Brussels see Belgium and Brussels
  building type
  impact of telematics on work-related trips 64, 70, 72
  numbers of work-related trips 61
  bundled deconcentration 5
  business district parking survey 37–51
  car ownership
  distance of travel 58
  Netherlands 10
  Nordic countries 59
  car use
  private vehicles, Brussels 84
  versus public transport 128–33
  carbon dioxide emissions (CO₂)
  Ile-de-France 190
  rail and car travel 134
  road and barge travel 138–9
  urban sprawl 189
  Carmel Center, parking pricing survey 40–51
Travel behaviour

cars
attributes, by purpose, CA results 207
cause of congestion 147–8, 149
emissions 134
kilometre distribution, class of road 26–7
traffic, annual growth rate 180
CHASE see Computerized Household
Activity Scheduling Elicitor
choice set, travellers facing congestion 167–9
clerks
devices diminishing work-related trips 71
numbers of work-related trips 62
commuters, behaviour thresholds 218–31
commuting
pattern trends, France 183–5
rate, proximity principle 14, 15
see also telecommuting/teleworking
compact cities
historical development 4–5
lower-than-expected effects 15–16
motivation behind 4
policy-behaviour gap 3
comparative studies
congestion, Europe 157–9, 160–2, 173–4
road networks 162–4
complementarity, telematics and travelling 73, 76
Computerized Household Activity
Scheduling Elicitor (CHASE) 235–7, 262
conceptual model, activity/travel decisions 233–63
conclusions 262–3
data collection methodology 235–7
model development 237–54
random event simulator 254–61
conference calls, work-related trips 70, 71
congestion see road traffic congestion
contact network, telephone usage study 108–19
costs
congestion 125, 154–5, 169–70, 175
housing, Vinex locations 11
parking management programmes 38
travel 167
cycling 186
data
geographical analysis, trips 181
long-distance telephone calls study 112
transport networks and mobility study 21–2
decision field theory (DFT) 219–20
Decision on Location-linked Subsidies 6–7
decision making, under congestion 219–21
decisions
scheduling 241, 251–4
to telecommute/telework 95, 99
delay time, behaviour thresholds 221, 225, 226
deletions, scheduling process 240, 241, 247, 261
demand-side measures, curbing congestion 172
departure time changes, congestion responses 167
DHV/Colquhoun study 159
distance of travel
average daily travel speed, Finland 58
mobility patterns 28–30
public transport 129–31
‘do-nothing’ situation, congestion response 167
downtown areas 38
driving behaviour 219
data source 228–9
thresholds’ definition 228
thresholds for lane switching 229–30
driving population, congestion 146
Dutch Association of Homeowners 11
ECMT survey, congestion 157, 158
economic factors, congestion 147–8
economic measures, curbing congestion 169–71, 173
education, curbing congestion 173
electronic homeworkers 88
electronic mail, work-related trips 68, 69, 70, 71, 72
employees, reactions to office relocations 268–70
employment distribution, Randstad, Ruhr and ABG region 32, 33
employment location policy, Netherlands 266–7, 276
energy consumption, transport mode 138–9
environmental achievements, rail freight transport 137
environmental quality, PT investment 133–6
Europe, congestion see congestion experts
devices diminishing work-related trips 71
numbers of work-related trips 62
females
activity behaviour 225–6
devices diminishing work-related trips 71, 72
Finland
telecommunications and work-related travelling 55–76
use of information and ICT 79–80
Flanders, rail infrastructure 163
Fourth Memorandum Extra 7
Fourth Memorandum on Spatial Planning 5
Framework Law Areas 6
France, geographical analysis, trips and mobility 180–94
freight
rail transport 136–9
traffic congestion 159
French Road Federation 164
gender
activity behaviour 225–6
impact of telematics on work-related trips 64, 65, 71, 72
number of work-related trips 61
geographical analysis, trips and mobility 180–94
commuting pattern trends 183–5
conclusion 193–4
housing and travel expenses, Ile-de-France 191–3
methodology 181–3
trip geography and traffic calming measures 185–8
urban sprawl and sustainability 188–91
Germany see Ruhr
goal gradient 223
goods see freight
growth-center policy 5
heavy travellers, effect of telematics 63–6
Helsinki, survey on work-related travel 59–73
high-quality public transport system 6, 8, 12, 16
historical periods, congestion policies 171–2
home locations
commuting distances 184
working population 183–4
home-based businesses, congestion responses 168
homeworkers
Belgium 90–2
electronic 88
traditional 88
hours, road congestion 160, 161
household activity agenda 238, 241–3
household activity scheduling process
model 233–63
conclusions 262–3
data collection 235–7
model development 237–54
random event simulator 254–61
household population, congestion 146
housing expenses, Ile-de-France 191–3
housing market, mobility patterns 30–1
housing and mobility aims, Netherlands 3–17
conclusions and perspective 16–17
effects of increase in density 14–16
historical development 4–5
residents’ preferences versus mobility aims 10–13
urbanization, its preconditions 5–10
market-oriented construction 9–10
numerical goals 6–7
public transport 7–8
spatial and mobility conditions 7
Houten 17
human activities 56–7
Travel behaviour

Ile-de-France
- carbon dioxide emissions 190
- housing and travel expenses 191–3
- impulsive mode, scheduling 254–5, 257
- income, congestion 147
- indifference bands, congestion 218
- information societies, national 73–4
- Information Superhighways programme 73
- information and telecommunications technology, Finland 79–80
- information transfer, reduction, work-related trips 68–72
- information-intensive work, telematics 60
- infrastructure
  - investment programmes 33–5
  - see also rail infrastructure; road infrastructure
- Innsbruck, SP/CA analysis, mode-choice behaviour 197–215
- inter-urban travel 126–7, 184
- International Federation for Information Processing (IFIP) 74
- international traffic, congestion 157
- investment
  - congestion relief 176
  - infrastructure programmes 33–5
  - public transport 133–6
- labour market, mobility patterns, Randstad and Ruhr 30
- land use patterns, Randstad, Ruhr and ABG region 31, 32, 33
- land-use scenarios, state-of-the-art models 275–6
- lane switching, thresholds for 229–30
- lifestyles, congestion 148
- location policy 274
- locations
  - business 266–7
  - see also home locations; relocation; Vinex locations; work locations
- long distances, public transport 129–31
- long-distance telephone calls study 108–19
- conclusion 117–18
- data 112
- empirical model and estimation procedures 112–15
- estimation results 115–17
- model 109–12
- Long-term Program Infrastructure and Transport see MIT procedure
- males
  - activity behaviour 225
  - devices diminishing work-related trips 71, 72
- market-oriented housing 9–10
- measures of congestion 152–4
  - a critique 154–6
  - proposal for improvement 156–7
  - as quality indicators 174–5
- media endowment, telephone usage study 108–19
- messages, use of telematics 75
- Ministry of Transport and Public Works
  - 8, 12, 16, 20
- Ministry of VROM 6, 7, 8, 17
- MIT procedure 8
- mitigation strategies, curbing congestion 172–3, 174
- mobile phones
  - Finland and Sweden 79
  - telephone demand 116
  - work-related trips 68, 69, 70, 71, 72
- mobility
  - Belgium and Brussels
    - effect of telecommuting/teleworking 100–5
  - problems 81–6
  - telecommuting/teleworking as alternative 86–7
  - see also geographical analysis, trips and mobility; housing and mobility aims; transport networks and mobility
- mobility profile, locations 267
- modal attributes, SP/RP results 210
- mode of transport
  - distance of travel 28, 29
  - environmental achievement 137–9
  - switching, congestion response 168
  - work-related trips, Helsinki 68, 69
- mode-choice behaviour analysis 197–215
- conclusions and future work 212–14
- results from CA/SP exercises 204–12
- survey administration and response behaviour 202–4
survey approach 198–202
translation of SP and CA forms 217
modifications, scheduling 247, 259–60
modify and conflict resolver (MCR) 239, 241, 255, 257, 259–60
momentaneous priority, activities 241, 244–5, 249–51
motorized commuter round trips 100–1
reduction through telecommuting/teleworking 102–10
motorways
congestion, Randstad, Ruhr and ABG region 24, 35
design, probability of congestion 170
traffic volume, Randstad 26–7
National Environmental Policy Plan 2
270
national information societies 73–4
National Institute of Public Health and the Environment (RIVM) 265
National Model System 270–1
National Personal Travel Survey (NPTS) 181, 186
National Physical Planning Agency 5
Netherlands
car use versus PT use 128
employment location policy 266–7, 276
housing and mobility aims 3–17
rail transport
freight 139
versus car use 130
road traffic congestion 20, 126, 127–8
excess time spent 164
policy making 170–1
see also Randstad
network congestion
comparative studies 157–9
measure of congestion 153
networkers, professional 88
new urbanism movement 5
nitrogen oxide emissions (NOx)
car and rail travel 134
road and barge travel 138–9
nomadic workers 88
non-routine trips, effect of telematics 67–8
non-work trips
activity behaviour threshold 226
effects of telecommuting/teleworking
responses
parking supply versus parking charges 47–8
to parking availability measures 45, 46, 47
to parking price increases 42, 43, 44
to recent parking regulations 50
numerical goals, Dutch housing policy 6–7
occupation classes, telecommuting/teleworking 95–9
office relocations survey 265–77
conclusions 276–7
Dutch employment location policy 266–7
empirical research 267–8
land-use scenarios, state-of-the-art models 275–6
methodology 270–2
models for employees’ reactions 268–70
relevance for policy 274
results 272–4
spatial scenario 270
office workers’ survey, work-related travel 59–73
open time, activity scheduling 256
optimization, scheduling 261
orbital roads 185
organizational telecommuters 87–8
parking availability measures, responses to 44–7
parking management 37
programmes 38
parking policies 37–8, 42
parking pricing study 37–51
survey 40
sample 41
responses
to parking availability measures 44–7
to parking price increase 41–4
to parking supply versus parking charges 47–9
to recent parking regulations 49–50
conclusions 50–1
parking regulations, response to 49–50
parking search time responses 44–7, 50
parking supply, versus parking charges 47–9
peak periods, distance of travel 29–30
penetration, telecommuting/teleworking 88
Belgium
Brussels Capital Region 98
future 93, 94–5
motorized/vehicle computer round trips 102–5
planning, curbing congestion 172–3
planning mode executive 241, 256–9
policies
congestion
behavioural responses 165–9
in Europe 169–73
need for valid and comparable facts 156
statements 124
travel speed 149–50
geographical classification, trips 180–94
policy instruments
and outcomes 3–4
traffic congestion 84
policy-behaviour gap, housing and mobility 3–4
population
distribution, Randstad, Ruhr and ABG region 32, 33
mobility patterns, Randstad and Ruhr 30
portable personal computers, work-related trips 68–9, 70, 71
pre-planning, scheduling 244, 248, 257
price increases, parking responses 41–4
printers, work-related trips 69
priority, in scheduling 241, 244–5, 249–51
private vehicles, use, Brussels 84
probability of congestion, motorway design 170
proximity principle 14, 15
public transport (PT)
attributes, by purpose, CA results 208
congestion relief measure 177
Dutch urban development 7–8
investments, environmental quality 133–6
policy statements 124
type of trip 186
versus car use 128–33
Vinex locations 16
see also office relocations survey
quality, road infrastructure 159–60
quality indicators, congestion measures 174–5
 quitting work, congestion response 168
rail infrastructure
budget 140
Randstad, Ruhr, Flanders 163
rail transport
environmental achievements 133–6
policy statements 124
transportation of goods 136–9
versus car use 129–30, 131–2
random event simulator 254–61
Randstad
car kilometres distribution 26–7
congestion
motorway 162
statistics 151
general characteristics 22, 23
infrastructure
investment programmes 33–5
rail 163
mobility patterns
population, labour market and housing market 30–1
spatial characteristics and development 31, 32, 33
traffic loads 28–30
road supply 25–6
traffic volume 24, 25, 26, 35
regulation
curbing congestion 172
see also parking regulation
relocation
congestion response 168
see also office relocations survey
residential construction, Netherlands 9–10
residents, preferences versus mobility aims 10–13
Index 289

responses
activity behaviour 225–7
driving behaviour 229–30
parking pricing study 41–50
SP/CA analysis, mode-choice behaviour 202–4
to congestion and policies 165–9, 176
reverse commuting 184
Rhine-Ruhr see Ruhr
road infrastructure
perceived quality of 159–60
Randstad, Ruhr and ABG region, supply of 25–6
upgrading of 178
road networks, traffic congestion 125–8
road pricing 84, 172
road traffic congestion
behaviour thresholds of commuters 218–31
in Europe 143–78
behavioural responses 165–9
Belgium and Brussels 81
causes 146–50
conclusions 173–6
nature and extent of 151–65
Netherlands, motorway system 20
patterns or problems? 145–6
policy making and policy taking 169–73
Randstad, Ruhr and ABG region 24
recommendations 176–8
policy instruments 84–5
study 123–41
conclusions 139–40
implication of findings 140–1
intervention, road traffic systems 128–33
PT investment, environmental quality 133–6
rail freight links 136–9
road networks 125–8
road type, car kilometres distribution 26–7
route changing, congestion response 167
routine weekly activity skeleton 241, 243–6
Ruhr
car kilometres distribution 26–7
general characteristics 22, 23
infrastructure investment programmes 33–5
mobility patterns 162–3
population, labour market and housing market 30
spatial characteristics 31, 32, 33
traffic loads 28–30
rail infrastructure 163
road supply 25, 26
traffic volume 24, 35
salary, impact of telematics on work-related trips 65
satellite offices, employees working at 88
scheduling process 223
deletions 240, 241, 247, 261
household activity agenda 241–3
modifications 247, 259–60
momentaneous priority 241, 244–5, 249–51
open time 256
optimization 261
planning mode executive 256–9
sequential decision structure 251–4
time pressure 255–6
weekly 246–9
shift-share technique 95–9
situational change, threshold definition 222, 223
socio-demographic features, congestion 146
socio-economics categories, mobility 28–9
spatial characteristics, Randstad, Ruhr and ABG region 31, 32, 33
spatial conditions, Dutch urban development 7
spatial development, congestion relief 177
spatial planning policy, Netherlands 5
spatial scenario, office relocations 270
spatial structure, congestion 148
state-of-the-art models, land-use scenarios 275–6
stated-preference/conjoint analysis, mode-choice behaviour 197–215
conclusions and future work 212–14
results from exercises 204–12
survey administration and response behaviour 202–4
survey approach 198–202  
translation of SP and CA forms 217  
statistics, on congestion 177  
stimulation, telematics and work-related  
travel 72–3, 76  
substitution, telematics and work-related  
travel 62–3, 76  
suburbanization  
congestion and 148  
demand for mobility 17  
process of 4  
supervisors  
devices diminishing work-related  
trips 71  
number of work-related trips 60–2  
supply-side measures, curbing congestion 172, 178  
sustainability, and urban sprawl 188–91  
sustainable transport policy, and  
telematics 73–6  
systems dynamics, congestion 149–50  
taxation, cars 148  
taxi users, parking supply versus  
parking charges measures 48  
technological development, telecommunica-  
tions and transport 57  
technology-based approaches, curbing  
congestion 173  
telematics  
as substitute for transport 85–6  
use of, Finland 79–80  
work-related travelling 55–76  
connection between transport and  
56–9  
effect on 62–73  
office workers’ survey, Helsinki  
59–62  
telematics and sustainable transport  
policy 73–6  
telemutters/teleworkers  
Belgium and Brussels  
current numbers 89–92  
prospective numbers 92–9  
organizational 87–8  
United Kingdom, distribution 87  
telemutting/teleworking 81–106  
Belgium and Brussels  
alternative to mobility problems  
86–7  
conclusions and research needs 105  
forms and scope of 87–8  
impact on transport 100–5  
mobility problems 81–6  
congestion response 168  
Finland, posts 79  
telecopying 69  
telefax  
growth phase 57  
telephone demand 116  
work-related trips 68, 69, 70, 71  
telematics  
sustainable transport policy 73–6  
time and place restrictions 57–8  
use, Finland 79  
work-related trips  
complementarity 73, 76  
heavy travellers 63–6  
means of information transfer  
68–72  
non-routine trips 67–8  
stimulation 72–3, 76  
substitution 62–3, 76  
telenetworks, access to 74  
telephone survey, mode-choice behav-  
ior 199  
conjoint-analysis survey 199–201  
states preference 201–2  
telephones  
work-related trips 69  
see also long-distance telephone calls  
study  
telework centres 88  
teleworking see telecommuting/  
teleworking  
temporal changes, congestion response  
167  
temporal structure, congestion 148  
time, buying, congestion response 167  
time factor, congestion 145  
time and money, work-related travel 58  
time and place, telecommunications and  
transport 57–8, 60  
time pressure  
activity scheduling 255–6  
aggression 221–3  
behavioural thresholds 230–1  
traditional homeworkers 88  
traffic calming measures, trip geography  
185–8
Index

traffic jams 127
traffic queues, time lost in 127
traffic systems, congestion 128–33
traffic volume
  Dutch motorway system 20
  Randstad, Ruhr and ABG region 22–5, 26, 35
  mobility patterns 28–30
transit users
  parking supply versus parking charges 48–9
  response to recent parking regulations 50
transport
  connection between telecommunications and 56–9
  impact of telecommuting/teleworking 100–5
  telecommunications as substitute for 85–6
transport models, effects of office relocations 268–9
transport networks, mobility analysis 20–36
  background and objectives 20–1
  conclusions 35–6
  data sources 21–2
  distribution of car kilometres 26–7
  infrastructure investment programmes 33–5
  mobility patterns 28–33
  supply of infrastructure 25–6
transport planning, stated-preference-based surveys 197
transport policies, and telematics 73–6
Transportation Demand Management (TDM) strategies 171–2
transportation forecasting models 99
Transportation Systems Management (TSM) period 171
travel
  behaviour, activity-based model 233–63
  choices 132
  costs, accepting or reducing 167
  demand
    lifestyle 148
    PT fares 130
  expenses, Ile-de-France 191–3
  reducing demand through
    telecommuting 86
    speed
      average daily and distance per person, Finland 58
      congestion policy 149–50
      surveys 188–9
    travel times 127
    travellers, congestion responses 166–9
  trend analysis, telecommuters/teleworkers, Belgium 92–5
  trip-related characteristics, congestion 151
  trips
    geographical classification, policy assessment 180–94
    impact of telecommuting/teleworking 100–5
    as measure of congestion 153
    purpose and distance of travel 28
    see also non-work trips; work-related trips
  trucks, environmental performance, freight transport 136
  unit of analysis, congestion 152–4
United Kingdom
  compact cities/new towns debate 4–5
  congestion 164
  telecommuters/teleworkers, distribution 87
United States
  Information Superhighways programme 73
  new urbanism movement 5
  telecommuters/teleworkers, growth rate 93–4
  urban sprawl 180
  and sustainability 188–91
  urban units 181
  urban zones 181–2
  allocating emissions 189–90
  urbanization
    preconditions 5–10
    see also suburbanization
  vehicle commuter round trips 101–2
  reduction through telecommuting/teleworking 102–5
  videoconferences
    Finland 79
<table>
<thead>
<tr>
<th><strong>Travel behaviour</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>work-related trips 70, 71</td>
</tr>
<tr>
<td>videophone calls Finland 79</td>
</tr>
<tr>
<td>work-related trips 70, 71</td>
</tr>
<tr>
<td>VINEX locations expensiveness 9–10</td>
</tr>
<tr>
<td>public transport 7–8, 16</td>
</tr>
<tr>
<td>residents’ preferences versus mobility goals 10–13</td>
</tr>
<tr>
<td>spatial and mobility conditions 7</td>
</tr>
<tr>
<td>walking 186</td>
</tr>
<tr>
<td>weekly scheduling process 246–9</td>
</tr>
<tr>
<td>work, quitting as congestion response 168</td>
</tr>
<tr>
<td>work locations commuting distances 184</td>
</tr>
<tr>
<td>working population 183–4</td>
</tr>
<tr>
<td>work position devices diminishing work-related trips 71</td>
</tr>
<tr>
<td>impact of telematics on work-related trips 64</td>
</tr>
<tr>
<td>number of work-related trips 61</td>
</tr>
<tr>
<td>work-related trips activity behaviour threshold 226, 227</td>
</tr>
<tr>
<td>congestion, Europe 164–5</td>
</tr>
<tr>
<td>Helsinki study, number of 60–2</td>
</tr>
<tr>
<td>survey responses parking availability measures 45, 46, 47</td>
</tr>
<tr>
<td>parking price increases 42, 43, 44</td>
</tr>
<tr>
<td>parking supply versus parking charges 47–8</td>
</tr>
<tr>
<td>recent parking regulations 49–50</td>
</tr>
<tr>
<td>telematics complementarity 73, 76</td>
</tr>
<tr>
<td>heavy travellers 63–6</td>
</tr>
<tr>
<td>means of information transfer 68–72</td>
</tr>
<tr>
<td>non-routine trips 67–8</td>
</tr>
<tr>
<td>stimulation 72–3, 76</td>
</tr>
<tr>
<td>substitution 62–3, 76</td>
</tr>
<tr>
<td>transport mode 68, 69</td>
</tr>
<tr>
<td>time and money restrictions 58</td>
</tr>
<tr>
<td>working population, home and job locations 183–4</td>
</tr>
</tbody>
</table>