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
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Airport Car Parking Strategy: Lessons From The Non-Airport Sector

by

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A Doctoral Thesis

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Certificate of Originality

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Abstract

Despite September 11th 2001, many international airports are operating close to capacity, a problem that is likely to become more acute given the projected long-term growth in air traffic. This growth is likely to have major implications on runway, terminal and surface access capacity, infrastructure which is already experiencing constraints. The area of surface access is as much, if not more an issue in terms of employees accessing the airport as it is for

passengers. Typically, one third of access traffic can be attributed to employees. Employees represent a particular problem for airports in terms of surface access due to the frequent, peak hour nature of trips made and their higher usage rates of the car compared to passengers. A range of initiatives exist to encourage the use of modes other than the private car by employees but overall these measures tend to be ‘soft’ in nature and one generally has to look to the non-airport sector to see examples of more innovative ‘harder’ initiatives such as financial incentive and disincentive car parking measures direct to employees.

This thesis utilises a series of carefully selected interviews and focus groups at Heathrow Airport and three best practice non-airport organisations, underpinned by a process grounded in the concept and methodology of best practice benchmarking, to suggest areas where BAA, and potentially airport authorities around the world, could learn from other organisations in the area of employee surface access and specifically car parking . It is concluded that there are four key areas airports should focus on to explore the issues surrounding the implementation of a car parking charge or car parking cash out direct to employees, namely: the use of a package approach; a requirement for top management support; gaining acceptance from employees, and; the issues surrounding the process of implementation.

The thesis contributes to knowledge in a number of areas, predominantly the use of benchmarking in the area of car parking and the airport sector, an industry which has thus far not adopted the technique to any great extent.

Key words: Airport, Surface Access, Car Parking, Benchmarking, Best Practice

Table of Contents

ACKNOWLEDGEMENTS	I
ABSTRACT	II
TABLE OF CONTENTS.....	III
LIST OF FIGURES.....	XII
LIST OF TABLES.....	XIII

LIST OF TABLES.....	XIII
----------------------------	-------------

CHAPTER 1. INTRODUCTION	1
--------------------------------------	----------

1.0 THE PROBLEM OF SURFACE ACCESS TO AIRPORTS	1
1.1 RESEARCH BACKGROUND: THE CURRENT SITUATION AT HEATHROW AIRPORT.....	3
<i>1.1.1 Heathrow Airport Profile</i>	<i>3</i>
<i>1.1.2 Surface Access Constraints placed upon Heathrow Airport.....</i>	<i>5</i>
<i>1.1.3 Air Quality Constraints placed upon Heathrow Airport</i>	<i>5</i>
1.2 CURRENT STRATEGIES AT HEATHROW AIRPORT.....	6
1.3 THE PROBLEM FACING HEATHROW AIRPORT.....	8
1.4 OUTLINE OF THE THESIS.....	9

CHAPTER 2. A REVIEW OF THE LITERATURE ON AIRPORT SURFACE ACCESS, CAR PARKING AT AIRPORTS AND CAR PARKING STRATEGIES IN THE NONAIRPORT SECTOR.....	12
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2.0 INTRODUCTION.....	12
PART 1: AIRPORT SURFACE ACCESS.....	13
2.1 INTRODUCTION TO THE PROBLEM OF AIRPORT SURFACE ACCESS.....	13
2.2 THE NATURE OF AIRPORT SURFACE ACCESS TRAFFIC.....	15
<i>2.2.1 The Airport Population and Surface Access Users.....</i>	<i>15</i>
<i>2.2.2 The Employee Surface Access Market.....</i>	<i>18</i>
2.3 MODAL CHOICE OF SURFACE ACCESS USERS	20
<i>2.3.1 Modal Choice of Employees as Surface Access Users</i>	<i>22</i>
2.4 DISTRIBUTION OF AIRPORT SURFACE ACCESS TRAFFIC.....	24
2.5 AIR TRANSPORT FORUMS AND AIRPORT SURFACE ACCESS STRATEGIES AT UK AIRPORTS.....	26
PART2: THEISSUESSURROUNDINGCARPARKINGATAIRPORTS.....	28
2.6 INTRODUCTION.....	28
2.7 TYPES OF CAR PARK AT AIRPORTS	28
2.8 CAR PARK USERS AT AIRPORTS	30
2.9 PLANNING AND DESIGN OF CAR PARKS AT AIRPORTS	31

2.9.1 Passenger Car Park Design at Airports.....	31
2.9.2 Employee Car Park Design at Airports.....	35
2.10 AIRPORT CARPARK REVENUE GENERATION	35
2.11 STRATEGIES TO MANAGE CAR PARKING AT AIRPORTS.....	38
2.11.1 Strategies to Manage Employee Car Parking at Airports	40
2.12 REFLECTIONS ON THE AIRPORT SURFACE ACCESS AND AIRPORT CAR PARKING LITERATURE	
41 PART 3: STRATEGIES USED TO MANAGE CAR PARKING IN THE NON-AIRPORT	
SECTOR	
.....	43
2.13 CAR PARKING STRATEGIES IN THE NON-AIRPORT SECTOR.....	43
2.14 TYPES OF PARKING POLICY.....	44
2.14.1 Parking Pricing.....	44
2.14.2 Regulatory Parking Policies.....	46
2.14.3 The Impact of Parking Pricing.....	47
2.14.4 Parking Cash Out	49
2.15 THE PROBLEMS ASSOCIATED WITH OFFERING FREE PARKING TO EMPLOYEES.....	52
2.16 ACCEPTANCE OF A PARKING STRATEGY AND THE PACKAGE APPROACH.....	55
2.17 CONCLUSIONS	59
CHAPTER 3. EMPLOYEE CAR PARKING AT AIRPORTS: A SCOPING STUDY OF	
THE CURRENT ISSUES.....	62
3.0 INTRODUCTION.....	62
3.1 METHODOLOGY	62
3.2 CHARACTERISTICS OF THE FOUR AIRPORTS.....	64
3.3 KEY ISSUES ARISING FROM THE INTERVIEWS.....	65

3.3.1 Airport Context.....	66
3.3.2 Employee Car Parking	69
3.3.3 Introducing a direct charge.....	74
3.4 CONCLUSIONS	75
3.5 AIMS AND OBJECTIVES OF THE RESEARCH.....	76

CHAPTER 4. THE CONCEPT AND METHODOLOGY OF BEST PRACTICE BENCHMARKING.....79

4.0 INTRODUCTION.....	79	PART 1:
OVERVIEW AND INTRODUCTION TO THE CONCEPT OF BENCHMARKING	80	4.1 DEFINITIONS
OF BEST PRACTICE BENCHMARKING AND JUSTIFICATIONS FOR ITS USE IN THE RESEARCH	80	OF BEST PRACTICE BENCHMARKING AND JUSTIFICATIONS FOR ITS USE IN THE RESEARCH
4.1.1 Definitions of Best Practice Benchmarking.....	80	
4.2.2 Justifications for Using Benchmarking in the Research.....	84	
4.2 TYPES OF BENCHMARKING	86	
4.2.1 Internal, Competitive, Functional and Generic Benchmarking.....	87	
4.2.2 Internal Benchmarking.....	88	
4.2.3 Competitive.....	90	
4.2.4 Functional.....	92	
4.2.5 Generic.....	94	
PART 2: WHY DO ORGANISATIONS USE BENCHMARKING?.....	95	
4.3 REASONS FOR USING BENCHMARKING	95	
4.4 WHERE BENCHMARKING IS USED.....	98	
4.4.1 Benchmarking in the Airport Sector.....	100	
PART3: APPLYING BENCHMARKING TO THE RESEARCH	103	
4.5 THE USE OF FUNCTIONAL BENCHMARKING.....	103	

4.6 THE BENCHMARKING PROCESS.....	104
4.7 AIDING THE SUCCESS OF A BENCHMARKING EXERCISE	108
4.7.1 Data Collection.....	108
4.7.2 Consideration of the Organisation Being Benchmarked.....	109
4.7.3 The Importance of Consumers.....	110
4.7.4 The Importance of a Benchmarking Champion and a Benchmarking Culture.....	110
4.7.5 The Importance of Employees	111
4.8 LIMITATIONS OF BENCHMARKING.....	111
4.8.1 Finding “Best” Practice.....	113
4.8.2 Control of Sensitive Information.....	114
4.8.3 Implementing Best Practices	114
4.8.4 Playing Catch Up	115
4.8.5 Resources.....	115
4.8.6 Is Benchmarking the Appropriate Technique To Use?.....	116
4.8.7 Specific Risks of Benchmarking.....	117
4.8.8 General Solutions to Benchmarking Limitations.....	118
4.9 CONCLUSIONS	118
4.10 DEVELOPING A BENCHMARKING PROCESS FOR THE RESEARCH.....	120
CHAPTER 5. RESEARCH DESIGN AND METHODS.....	123
5.0 INTRODUCTION.....	123
5.1 RESEARCH DESIGN.....	124
5.1.1 Purpose of the Research Design.....	124
5.1.2 Rejected Strategies	126
5.1.3 Case Study.....	127

5.2 CASE STUDY RESEARCH DESIGN	129
5.2.1 <i>General Approach to Designing Case Studies</i>	130
5.2.2 <i>Judging the Quality of a Case Study Research Design</i>	131
5.2.3 <i>Types of Case Study</i>	134
5.2.4 <i>Replication Logic for Case Studies</i>	135
5.2.5 <i>Case Study Research Design Flexibility</i>	136
5.2.6 <i>Case Study Action Plan</i>	137
5.3 RESEARCH CASES	138
5.3.1 <i>Selection of Heathrow Airport</i>	138
5.3.2 <i>Selection of Non-Airport Organisations for Case Studies</i>	139
5.4 RESEARCH METHODS AND DATA COLLECTION.....	142
5.4.1 <i>Choice of Methods</i>	142
5.4.2 <i>Interviews</i>	143
5.4.3 <i>Focus Groups</i>	156
5.4.4 <i>Reflections on the Data Collection Methods</i>	160
5.5 CONSIDERATIONS OF THE RESEARCH DESIGN WITH REGARD TO BENCHMARKING.....	163
5.6 ANALYSIS AND REPRESENTATION OF DATA.....	165
5.6.1 <i>Interpretative Analysis</i>	166
5.6.2 <i>Coding of Qualitative Data</i>	166
5.7 CONCLUSIONS	168
CHAPTER 6. HEATHROW AIRPORT CASE STUDY.....	170
6.0 INTRODUCTION.....	170
PART 1: HEATHROW AIRPORT: BACKGROUND LITERATURE AND SCOPING INTERVIEW	171
6.1 CURRENT CAR PARKING PROVISION AT HEATHROW	171
6.2 PRESSURES FACING CAR USE AND CAR PARKING.....	173

6.2.1 Terminal 5 Parking Cap	173
6.2.2 Sustainable Development and the Environment.....	173
6.3 FOCUS ON EMPLOYEES.....	174
6.4 FUTURE STRATEGIES.....	175
PART 2: HEATHROW AIRPORT INTERVIEW ANALYSIS.....	175
6.5 INTRODUCTION.....	175
6.6 THE CURRENT CAR PARKING SITUATION AND THE NEED TO CHANGE.....	177
6.6.1 Congestion and Pressure on Car Parks	177
6.6.2 Targeting Employees for Change.....	179
6.6.3 Efficiency Improvements to Current Car Park Operations	180
6.7 PUBLIC TRANSPORT AND ALTERNATIVES	181
6.8 EXTERNAL INFLUENCES	182
6.9 COMMUNICATION.....	183
6.10 ATTITUDES TO CHANGE	185
6.10.1 Interviewee Attitudes to Change.....	185
6.10.2 Third Party Companies' Attitudes to Change.....	186
6.10.3 Employee Attitudes to Change.....	187
6.11 CULTURE.....	188
6.11.1 BAA Company Culture.....	188
6.11.2 Culture of Individuals.....	190
6.12 USE OF FINANCIAL INCENTIVES AND DISINCENTIVES	191

6.12.1 Direct Parking Charges for Employees.....	192
6.12.2 Financial Incentives.....	194
6.12.3 Adopting a Package Approach	195
6.12.4 Additional Issues Raised Regarding Financial Incentives and Disincentives	197
6.13 FOCUS ON INDIVIDUALS	198
6.14 RECRUITMENT AND RETENTION.....	199
6.15 EQUALITY AND FAIRNESS	200
6.16 FLEXIBILITY AND CHOICE	202
6.17 IMPLEMENTATION	203
6.18 CONSULTATION.....	204
6.19 LEARNING AND BENCHMARKING.....	206
PART 3: HEATHROW AIRPORT FOCUS GROUP ANALYSIS.....	208
6.20 Heathrow Airport Focus Group Analysis.....	208
6.21 The Current Car Parking Situation and the Need for Change	208
6.22 Perceptions of Current Car Reduction Initiatives	211
6.23 Proposed Strategies and Attitudes towards Change.....	213
6.23.1 Financial Incentives.....	213
6.23.2 Parking Charges.....	214
6.23.3 Parking Permit Reallocation	216
6.24 NEW APPROACHES AND SOLUTIONS TO HEATHROW'S CAR PARKING ISSUES.....	218
6.25 CONCLUSIONS:DEVELOPING A BENCHMARKING TEMPLATE	219
6.25.1 Selecting the most Suitable Measures to deal with the Car Parking Problems.....	221
6.25.2 Management Support.....	223

6.25.3 Gaining Acceptance.....	223
6.25.4 Implementation	226
CHAPTER 7. NON-AIRPORT ORGANISATION CASE STUDIES.....	228
7.0 INTRODUCTION.....	228
CASE STUDY 1: ADDENBROOKE'S NHSTRUST	229
7.1 INTRODUCTION.....	229
7.2 THE NATURE OF THE PROBLEM AND REASONS FOR CHANGE	229
7.3 THE CAR PARKING STRATEGY	231
7.3.1 Overview of the Car Park System.....	231
7.3.2 Car Parking Charge.....	232
7.3.3 Management and Security	233
7.3.4 Reasons for Selecting a Parking Charge Strategy.....	233
7.3.5 Impacts and Problems with the Parking Charge.....	234
7.3.6 Focus on Individuals	236
7.3.7 Equality and Fairness.....	237
7.3.8 Flexibility and Choice.....	238
7.4 PUBLIC TRANSPORT AND ALTERNATIVES	238
7.4.1 Public Transport.....	238
7.4.2 Cycling and Walking	239
7.4.3 Car Sharing	240
7.4.4 Pool Cars.....	241
7.4.5 Flexible Working Policies.....	241

7.5 MANAGEMENT AND LEADERSHIP.....	241
7.6 ATTITUDES TO CHANGE, CULTURE AND ACCEPTANCE ISSUES.....	241
7.6.1 Hypothecation.....	242
7.6.2 Culture.....	243
7.7 COMMUNICATION AND CONSULTATION	244
7.8 IMPLEMENTATION	246
7.9 IMPACTS OF THE PARKING CHARGE	247
7.9.1 Targets and Effectiveness.....	247
7.9.2 Recruitment and Retention	249
7.10 KEY FINDINGS.....	249
CASE STUDY 2: THE UNIVERSITY OF BRISTOL.....	252
7.11 INTRODUCTION.....	252
7.12 THE NATURE OF THE PROBLEM AND REASONS FOR CHANGE	252
7.13 THE CAR PARKING STRATEGY	253
7.13.1 Overview of the Car ParkSystem.....	253
7.13.2 Parking Permits.....	254
7.13.3 Parking Charge.....	255
7.13.4 Management and Security.....	256
7.13.5 Reasons for Selecting a Parking Charge Strategy.....	257
7.13.6 Impacts of the Parking Charge.....	257
7.13.7 Focus on Individuals.....	258
7.13.8 Equality and Fairness.....	259
7.13.9 Flexibility and Choice.....	260
7.14 PUBLIC TRANSPORT AND ALTERNATIVES	260
7.14.1 Public Transport.....	260

7.14.2 <i>Cycling and Walking</i>	261
7.14.3 <i>Car Sharing</i>	261
7.15 MANAGEMENT AND LEADERSHIP.....	262
7.16 ATTITUDES TO CHANGE, CULTURE AND ACCEPTANCE ISSUES.....	263
7.16.1 <i>Hypothecation</i>	264
7.16.2 <i>Culture</i>	265
7.17 COMMUNICATION AND CONSULTATION	266
7.17.1 <i>Consultation</i>	267
7.18 IMPLEMENTATION	268
7.19 IMPACTS OF THE PARKING CHARGE	269
7.19.1 <i>Targets and Effectiveness</i>	269
<i>Source: University of Bristol, 2004</i>	270
7.19.2 <i>Recruitment and Retention</i>	271
7.20 KEY FINDINGS.....	272
CASE STUDY 3: PFIZER	274
7.21 INTRODUCTION TO PFIZER.....	274
7.22 THE NATURE OF THE PROBLEM AND REASONS FOR CHANGE	274
7.23 THE CAR PARKING STRATEGY	275
7.23.1 <i>Overview of the Car ParkSystem</i>	275
7.23.2 <i>Parking Cash Out System</i>	276
7.23.3 <i>Management and Security</i>	277
7.23.4 <i>Reasons for Selecting a Parking Cash Out Strategy</i>	278
7.23.5 <i>Impacts and Problems with the Parking Cash Out System</i>	279

7.23.6 Other Applications of the Parking Cash Out System.....	280
7.23.7 Focus on Individuals.....	280
7.23.8 Equality and Fairness.....	281
7.23.9 Flexibility and Choice.....	282
7.24 PUBLIC TRANSPORT AND ALTERNATIVES	282
7.24.1 Public Transport.....	282
7.24.2 Cycling and Walking.....	283
7.24.3 Car Sharing	283
7.24.4 Other Demand Management Policies.....	284
7.25 MANAGEMENT AND LEADERSHIP.....	284
7.26 ATTITUDES TO CHANGE, CULTURE AND ACCEPTANCE ISSUES.....	285
7.26.1 Culture.....	286
7.27 COMMUNICATION AND CONSULTATION	287
7.28 IMPLEMENTATION	288
7.29 IMPACTS OF THE PARKING CASH OUT.....	289
7.29.1 Targets and Effectiveness	289
7.29.2 Recruitment and Retention.....	290
7.30 KEY FINDINGS.....	290
7.31 CONCLUSION.....	292

CHAPTER 8. BENCHMARKING BAA AGAINST THE NON-AIRPORT ORGANISATIONS: A DISCUSSION.....	294
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8.0	INTRODUCTION.....	294
8.1	CONDUCTING THE BENCHMARKING COMPARISON	295
	THE BENCHMARKING COMPARISON AND DISCUSSION	297
8.2	SELECTING THE MOST SUITABLE MEASURES TO DEAL WITH THE CAR PARKING PROBLEMS	297
8.2.1	<i>A Package Approach</i>	298
8.2.2	<i>The Core Car Parking Measure</i>	299
8.2.3	<i>Direct and Daily Parking Charges or Cash Payments</i>	302
8.2.4	<i>The Level of a Parking Charge or Cash Payments</i>	302
8.2.5	<i>Parking Permit Allocation</i>	304
8.2.6	<i>Alternative Working Practices</i>	304
8.2.7	<i>Availability of Car Parking Spaces</i>	305
8.2.8	<i>Flexibility and Choice</i>	306
8.2.9	<i>Equity, Fairness and Exemptions</i>	308
8.3	MANAGEMENT SUPPORT.....	309
8.3.1	<i>Management Understanding</i>	309
8.3.2	<i>A Desire To Change</i>	310
8.3.3	<i>The Importance of a Project Champion</i>	311
8.4	GAINING ACCEPTANCE	312
8.4.1	<i>Recognition of the Problem by Employees</i>	313
8.4.2	<i>Overcoming Cultural Barriers and Attitudes to Change</i>	313
8.4.3	<i>Parking Hierarchy</i>	316
8.4.4	<i>Hypothecation of Parking Revenues</i>	316
8.4.5	<i>Recruitment and Retention</i>	317
8.4.6	<i>Communicating Clear and Transparent Objectives</i>	318
8.4.7	<i>Consultation</i>	320

8.5 IMPLEMENTATION	322
8.5.1 <i>The Process of Implementation</i>	322
8.5.2 <i>Implementation of the Core Element of the Strategy</i>	323
8.6 CONCLUSION.....	324
CHAPTER 9. CONCLUSIONS.....	326
9.0 INTRODUCTION.....	326
9.1 THE ISSUES AT HEATHROW AIRPORT	327
9.2 ISSUES TO BE ADDRESSED BY BAA AND HEATHROW AIRPORT SHOULD THEY DECIDE TO INTRODUCE A FINANCIAL INCENTIVE OR DISINCENTIVE EMPLOYEE CAR PARKING MEASURE	329
9.2.1 <i>A Package Approach and the Core Element</i>	329
9.2.2 <i>A Requirement for Top Level Management Support</i>	331
9.2.3 <i>Gaining Acceptance from Employees</i>	332
9.2.4 <i>Issues Surrounding the Process of Implementation</i>	334
9.3 THE RELATIVE IMPORTANCE OF THE ISSUES TO BE ADDRESSED BY BAA AND HEATHROW AIRPORT	335
9.4 CONTRIBUTIONS OF THE RESEARCH	338
9.4.1 <i>Functional Benchmarking by Airports</i>	338
9.4.2 <i>The Number of Organisations</i>	339
9.4.3 <i>The Comparison of 'Innovative' Processes</i>	339
9.4.4 <i>Conducting Benchmarking from an Objective Viewpoint</i>	340
9.4.5 <i>Wider Implications</i>	340
9.5 LIMITATIONS OF THE RESEARCH	341
9.5.1 <i>The Benchmarking Process: A Continuous Cycle</i>	341
9.5.2 <i>Benchmarking Only Allows Imitation</i>	342
9.5.3 <i>Target Setting</i>	343
9.5.4 <i>Team Approach</i>	343

9.5.5 Comparability of Case Studies	343
9.6 FURTHER RESEARCH	344
9.6.1 The Regulated Nature of Employee Car Parking at Heathrow Airport.....	344
9.6.2 Wider Range of Organisations	345
9.6.3 Further Interviews and Focus Groups.....	345
9.6.4 Investigation of Other Strategic Measures.....	346
9.6.5 Implementation of Recommendations.....	346
REFERENCES	347
APPENDIX 1	362
THE BENCHMARKING PROCESS: VIGNETTES	362
<i>Benchmarking at Post Office Counters Limited.....</i>	<i>362</i>
<i>Benchmarking at Royal Mail</i>	<i>366</i>
<i>Nationwide Building Society.....</i>	<i>367</i>
<i>Benchmarking in Air Cargo.....</i>	<i>368</i>

List of Figures

FIGURE 1.1: COMPARISON OF UK AIRPORT SIZE AND GROWTH SINCE 1992.....	4
FIGURE 2.1: THE EFFECT OF PARKING CHARGES ON MODE SHARE (PREDICTIONS)	54
FIGURE 3.1: QUESTIONS USED AT AIRPORT INTERVIEWS	63
FIGURE 4.1: THE FORMAL, TEN-STEP BENCHMARKING PROCESS	104
FIGURE 4.2: THE FIVE STAGE BENCHMARKING PROCESS.....	107
FIGURE 4.3: THE BENCHMARKING PROCESS USED FOR THE RESEARCH	121
FIGURE 5.1: INTERVIEW QUESTIONS FOR HEATHROW AIRPORT	146
FIGURE 5.2: INTERVIEW QUESTIONS FOR ADDENBROOKE'S HOSPITAL	148
FIGURE 5.3: INTERVIEW QUESTIONS FOR THE UNIVERSITY OF BRISTOL.....	150
FIGURE 5.4: INTERVIEW QUESTIONS FOR PFIZER.....	152
FIGURE 5.5: FOCUS GROUP DISCUSSION AREAS FOR HEATHROW AIRPORT	160
FIGURE 5.6: STEPS OF THE DATA COLLECTION.....	165
FIGURE 6.1: MAP SHOWING ALL OF THE PUBLIC AND STAFF CAR PARKING AREAS AT HEATHROW	
AIRPORT	172
FIGURE 6.2: TEMPLATE OF AREAS TO FACILITATE THE BENCHMARKING OF BAA AGAINST THE NON	

AIRPORT ORGANISATIONS	227	FIGURE
8.1: TEMPLATE OF AREAS TO FACILITATE THE BENCHMARKING OF BAA AGAINST THE NON AIRPORT ORGANISATIONS	295	
FIGURE 8.2: THE BENCHMARKING PROCESS USED IN THE RESEARCH.....	296	

List of Tables

TABLE 1.1: MEASURES IN PLACE AT HEATHROW AIRPORT TO REDUCE EMPLOYEE CAR USE.....	7	TABLE
1.2: HEATHROW AIRPORT MODAL SPLIT FOR EMPLOYEES	7	TABLE 2.1:
PROPORTION OF PASSENGERS, EMPLOYEES, VISITORS AND SENDERS/GREETERS AT SELECTED AIRPORTS	16	TABLE
2.2: MILLION ANNUAL PASSENGERS AND PASSENGER VEHICLE TRIPS PER DAY AT CALIFORNIAN AIRPORTS	18	TABLE
2.3: SAMPLE DATA ON THE NUMBER OF EMPLOYEES AT U.S.AIRPORTS	19	TABLE 2.4: UK
AIRPORT SURFACE ACCESS BY PUBLIC TRANSPORT FOR PASSENGERS AND EMPLOYEES	22	TABLE
2.5: POLICY INSTRUMENTS: INCENTIVES AND DISINCENTIVES FOR DEALING WITH EMPLOYEE SURFACE ACCESS TO AIRPORTS	27	TABLE
2.6: ON-AIRPORT PASSENGER PARKING PROVISION FOR UK AIRPORTS.....	34	TABLE 2.7:
PARKING REVENUES AT NORTH AMERICAN AIRPORTS AS A PERCENTAGE OF TOTAL OPERATING REVENUE.....	37	
TABLE 3.1: PASSENGER AND EMPLOYEE NUMBERS AT THE FOUR AIRPORTS	64	
TABLE 3.2: PARKING PROVISION AT THE FOUR AIRPORTS.....	65	
TABLE 3.3: ISSUES SURROUNDING EMPLOYEE CAR PARKING AT AIRPORTS	65	
TABLE 3.4: EMPLOYEE CAR PARK MANAGEMENT AT THE FOUR AIRPORTS.....	69	
TABLE 4.1: WHAT BENCHMARKING IS AND IS NOT.....	83	
TABLE 4.2: NATURE OF BENCHMARKING ACTIVITY.....	88	
TABLE 4.3: PERCENTAGE OF UK ORGANISATIONS CLAIMING TO BE BENCHMARKING PER SECTOR.....	98	
TABLE 4.4: BENCHMARKING ACTIVITY AS A FUNCTION OF ORGANISATIONAL SIZE	100	
TABLE 5.1: RELEVANT SITUATIONS FOR DIFFERENT RESEARCH DESIGNS	126	
TABLE 5.2: CASE STUDY PROPOSITIONS.....	131	
TABLE 5.3: CASE STUDY TACTICS FOR FOUR DESIGN TESTS	133	
TABLE 5.4: BASIC CASE STUDY DESIGNS.....	134	
TABLE 5.5: OUTLINE OF CASE STUDY ACTION PLAN DEVELOPED FOR THE RESEARCH	137	
TABLE 5.6: ORGANISATIONS SELECTED AND THEIR SIMILARITIES AND DIFFERENCES TO HEATHROW AIRPORT	141	TABLE
5.7: MAIN RESEARCH METHODS IN ORGANISATIONAL RESEARCH.....	142	TABLE 5.8:
FOCUS GROUP PARTICIPANTS' JOB ROLE OR COMPANY.....	159	TABLE 6.1: STAFF

CAR PARKING PERMITS AT HEATHROW AIRPORT	173	TABLE 7.1: STAFF MODAL CHOICE FOR JOURNEYS TO ADDENBROOKE'S NHS TRUST (1993-2004)	248
TABLE 7.2: PATIENT/VISITOR MODAL CHOICE FOR JOURNEYS TO ADDENBROOKE'S NHS TRUST (1993 2004).....	248	TABLE 7.3: UNIVERSITY OF BRISTOL TRAVEL SURVEY RESULTS: PERCENTAGE OF STAFF WHO "USUALLY" USE EACH MODE OF TRANSPORT.....	270
TABLE 7.4: RESULTS FROM THE PFIZER TRAVEL SURVEYS	290	TABLE 8.1: ISSUES SURROUNDING THE SELECTION OF THE MOST SUITABLE MEASURES TO DEAL WITH THE CAR PARKING PROBLEMS	297
TABLE 8.2: ISSUES SURROUNDING MANAGEMENT SUPPORT FOR CHANGES TO CURRENT CAR PARKING STRATEGY AND THE POTENTIAL INTRODUCTION OF AN EMPLOYEE DIRECT FINANCIAL INCENTIVE OR DISINCENTIVE MEASURE.....	309	TABLE 8.3: ISSUES SURROUNDING GAINING ACCEPTANCE FOR A CAR PARKING MEASURE SUCH AS A FINANCIAL INCENTIVE OR DISINCENTIVE	312
TABLE 8.4: ISSUES SURROUNDING THE IMPLEMENTATION OF A CAR PARKING MEASURE SUCH AS A FINANCIAL INCENTIVE OR DISINCENTIVE	322		

Chapter 1. Introduction

1.0 The Problem of Surface Access to Airports

Airport capacity is dependent on a number of factors including air traffic control, runway and taxiway, terminal and apron and surface access. Constraints in any of these areas has a serious impact on the efficient functioning of the airport. Long term projections in international air travel show continued growth of over three and four percent per annum (ACI Europe, 2005). This growth is likely to have major implications on runway, terminal and surface access capacity, infrastructure which is already experiencing constraints to a greater or lesser extent.

Surface access to the airport is a crucial part of the whole journey by air. Transportation time to the airport is one of the three most important factors affecting the choice of an airport by a passenger, the other two being the number of flights offered and the price of the flight ticket. It is not just passengers who use the surface access system however – employees, suppliers to the airport, meeters and greeters and other visitors also make use of it (Kazda and Caves, 2000).

The problems surrounding surface access are not a recent phenomenon, however. In 1969 a report by the Committee on Transportation to and from Airports of the Technical Council on Urban Transportation (1969, p. 115) stated, “Airport ground access has long been recognised as a major inconvenience of air travel, if not a potential market constraint.” In many metropolitan areas, increasing concern over the impacts of traffic generated by airports on the surrounding street and highway systems, as well as the emissions created by the trips, is forcing airports to pay more attention to strategies to reduce or mitigate ground access traffic. (Caves and Gosling, 1999)

The UK economy is increasingly dependent on air travel; one third of visible exports and eight percent of service exports go by air and 17 million foreign visitors arrive by air. The aviation industry also directly supports 200,000 jobs and up to 600,000 indirectly, demonstrating the important role of aviation and airports to the economy (DfT, 2003). The number of passengers at UK airports grew from 30 million in 1970 to 229 million in 2005 (CAA, 2006) and terminal passengers comprising both international and domestic travel are forecast to grow by between 58 and 95 percent over the period 2005 to 2020 (DfT, 2005).

The 2003 White Paper “The Future of Air Transport” (DfT, 2003) recognises the constraints airports are facing in the areas of terminal, runway and surface access capacity but also identifies the importance of growth for the benefit of the economy balanced with the environmental implications of adding extra capacity. The issue of airport surface access is one which the UK Government has been keen to address in recent years, charging those airports with scheduled passenger services with leading Airport Transport Forums and producing an Airport Surface Access Strategy comprising targets and initiatives for increasing the percentage of surface access trips undertaken by the public transport (DETR, 1998).

The White Paper highlights that the South East is experiencing the most pressure on existing capacity. Nowhere are the problems of surface access more apparent than at London’s Heathrow Airport, the UK’s largest airport and the busiest international airport in the world (DfT, 2003). The scale and geographically constrained nature of Heathrow coupled with the pressure to expand from a business perspective and the external constraints placed upon it, as explored in section 1.1 below, mean that it is a leading example of a UK airport experiencing surface access problems. It is also supported for further development by the UK Government which places further priority on addressing its surface access problems. As

such, Heathrow Airport and surface access is an appropriate and relevant case study for the research contained in this thesis.

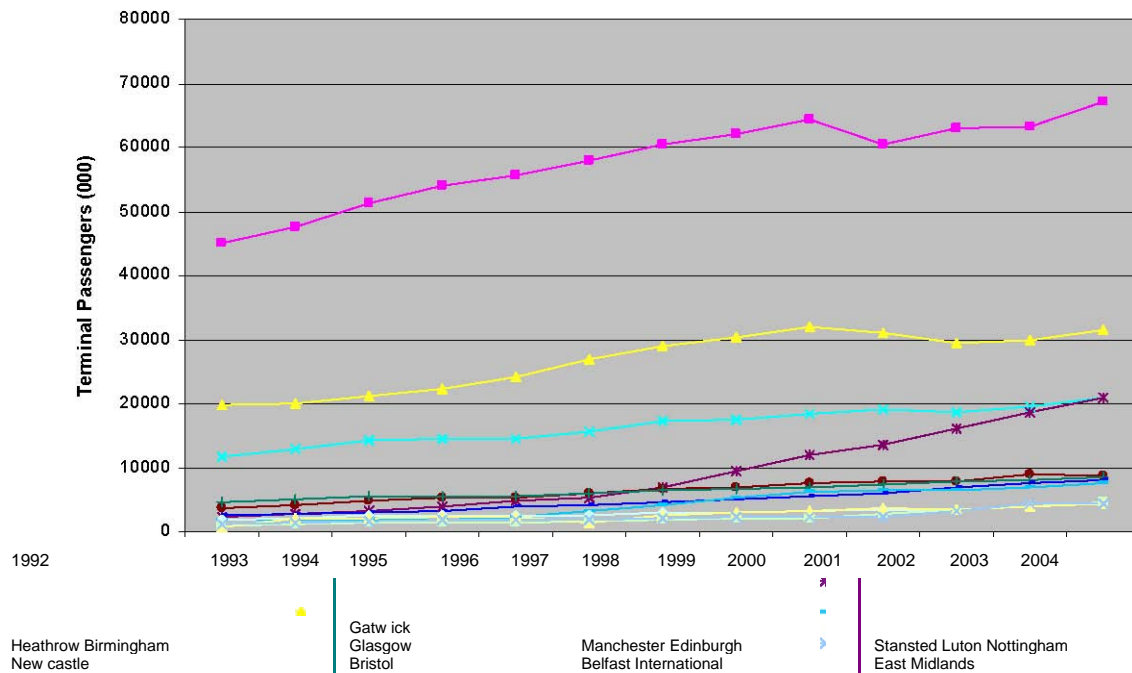
At medium and large airports, the number of employees who commute represents between one quarter and one half of the daily number of airline passengers (Kazda and Caves, 2000). Employees also account for two access trips to the airport each day, whereas most passengers will only make one access trip in a day. For these reasons the employee surface access market is of the same order of magnitude as the passenger surface access market. Within the objectives of the Airport Transport Forums and Airport Surface Access Strategies mentioned above there are clear suggestions that airports should concentrate some efforts on commuting and business travel for all employees working there. For these reasons, along with those detailed in section 1.1 below, the research presented in this thesis focuses upon the employee surface access market.

1.1 Research Background: The Current Situation at Heathrow Airport

1.1.1 Heathrow Airport Profile

Heathrow Airport is situated in West London. Figure 1.1 shows the dominant position of Heathrow in terms of passenger numbers at UK airports; in 2004 it handled 67.1 million passengers, accounting for 31.1 percent of all UK passengers, and 1.3 million tonnes of freight, accounting for 55.9 percent of all freight through UK airports (CAA, 2005). Heathrow, along with all the other airports shown in Figure 1.1, continues to grow despite a decline following the events of 11th September 2001, with passenger numbers projected to reach 75.63 million per annum in 2008 and 91.95 million per annum by 2016 (BAA, 2004a). It is the fourth busiest airport in the world and has the highest number of international passengers of any airport in the world (DfT, 2003).

Figure 1.1: Comparison of UK Airport Size and Growth since 1992



Source: Plotted from data provided by CAA, 2005

Approximately 70,000 staff are employed at the airport, working for 350 organisations and in the region of 75 percent of staff at Heathrow are shift workers (BAA, 2004b). As passenger numbers increase over time, so too will the number of employees. In addition to the jobs generated directly by Heathrow Airport, it is regarded as important to the national economy, supporting 30,000 jobs in the local area (DfT, 2003) and 240,000 jobs in the wider economy throughout the UK (BAA, 2004b). The Department for Transport (2003, p.12) state it is a “significant driver of economic growth...we recognise the immense value to the UK of Heathrow’s status as an international hub airport and we want to see that continue”. Current expansion at Heathrow Airport includes the development of a fifth terminal and the UK Government has also stated it’s support for the development of a third runway and further terminal capacity in the period 2015-2020 (DfT, 2003).

1.1.2 Surface Access Constraints placed upon Heathrow Airport

The scale of Heathrow Airport means that it has a significant effect on the surrounding area in terms of its environmental impact. To this end, in its Surface Access Strategy the airport has set itself a target of achieving 40 percent of air passengers travelling to and from the airport by public transport by the end of 2007, with a longer term target of 50 percent (BAA, 2002a). In 2002, approximately 35 percent of passengers arrived at the airport by non-car modes (BAA, 2003).

In November 2001, the UK Government approved the development of a fifth terminal at Heathrow Airport and this will open in March 2008 accommodating 30 million passengers per annum by 2016 (Caves and Humphreys, 2002). As a condition of the development of Terminal Five, Heathrow is subject to a parking cap of 42,000 spaces. This cap is currently in place and must also accommodate the additional car parking demand when Terminal Five opens. Within this cap, there is a limit of 17,500 spaces for employees (ODPM, 2001). This clearly places a constraint on employee car parking. With reference to congestion on the roads surrounding Heathrow, the Terminal Five Public Enquiry report stated “bearing in mind that these problems would inevitably be greatest in the peak hours, employees should be encouraged to make greater use of public transport.” (ODPM, 2001, p 240).

1.1.3 Air Quality Constraints placed upon Heathrow Airport

The Government’s Aviation White Paper (DfT, 2003 p. 122) demonstrates the importance of managing air quality, “compliance with air quality limits for nitrogen oxides will require a concerted effort by the airport operator and the aviation industry to identify ways of reducing emissions from aircraft, from other airport activity and from airport-related road traffic.” Heathrow is in an Air Quality Management Area, designated by the London Borough of Hillingdon, to manage the levels of nitrogen oxides and particulate matter. A particular challenge for Heathrow will be complying with the mandatory air quality limit values for nitrogen oxides that will apply from 2010. Cars in particular contribute a substantial amount to the levels and as such are a target area to reduce the airport’s impact on local air quality (BAA, 2004b). The Government White Paper “The Future of Air Transport” (DfT, 2003) suggests that a higher proportion of journeys should be made by public transport and also stipulates that air quality issues need to be resolved before a third runway is considered.

1.2 Current Strategies at Heathrow Airport

Several wide ranging strategies are in place at Heathrow Airport to reduce the number of people travelling to the airport by car, some of which such as the Heathrow Express direct rail link to central London, have been cited by the Department for Transport as “good” developments (DfT, 2003). A comprehensive car parking strategy is in place, the overall

objective of which is, “to ensure that car parking facilities are used as efficiently as possible by passengers and employees who are not able to take advantage of public transport services or other alternatives to the car” (BAA, 2004b, p 15).

It is recognised by BAA in their ‘Airport Surface Access Strategy’, however, that for many passengers, “there will never be a sensible alternative to car and taxi use and the whole question of public transport can be undermined by events far from Heathrow.” (BAA, 2003, p.9). To this end, use of the private car, taxi and hire car have remained fairly constant in terms of modal split for a number of years at approximately 36 percent, 25 percent and three percent respectively (BAA, 2003).

BAA suggest in documents such as their 2004-07 Travel Plan (BAA, 2004b) and Airport Surface Access Strategy (BAA 2002a, BAA 2003) that focusing on reducing the number of employees commuting by car is the most suitable way of operating within the imposed constraints detailed in section 1.1 and have set a target to reduce employee car use by one percent per year starting in 2002/2003 (BAA, 2003). BAA’s strategies also have some specific focus on the issue of employee car parking, “many car journeys are essential, however car parking at Heathrow is a scarce resource. Heathrow businesses need to find ways to reduce the demand for car parking.” Table 1.1 details the current measures used at Heathrow to encourage a reduction in employee car use. These measures are underpinned by a comprehensive communications strategy to raise awareness of the initiatives.

Table 1.1: Measures in place at Heathrow Airport to Reduce Employee Car Use

Alternative Modes

Bus and coach – extensive network coverage and free travel on site
Train and tube – good links to central London
Interest free loans – to assist with buying Travelcards and season tickets
Airports Travelcard – unlimited travel on designated public transport services with discounts for airport employees
Cycling – promotion and provision of facilities
Motorcycle/Scooter – dedicated parking at priority locations
Walking – accessible routes
Car sharing – dedicated car share programme in place

Flexible Working and Recruitment

Homeworking and teleworking
Business travel and video conferencing
Recruitment strategy – focused on local people

Source: BAA, 2004b

Table 1.2 details the modal split for employees at Heathrow Airport and indicated the high proportion of employees accessing the airport by private car.

Table 1.2: Heathrow Airport Modal Split for Employees

	1999 (%)	2002 (%)	2003 (%)
Car (including car share)	85	85.7	82.3
Car Share	--7		
Sole Car	--75.3		
Bus/Coach	5.3	3.9	8.8
Underground	2	2.4	4.2
Heathrow Express	0.1	0.2	0.7
Other Rail	-1.5	0.1	

Total Public Transport 7.6 8 13.8**

Motorcycle/Scooter 4.7 3.9 2.7 Bicycle 2.2 1.6 0.6 Walk 0.5 ?* 0.5 Works' Transport 0.1 ?* 0.1 Taxi -?* 0.1 Aircraft -?* 0.1

Total 100.1 100 100.1

* In 2002 these modes together represented 0.8%

** The substantial increase in public transport use is likely to be due to a combination of factors:

- the sample in 2003 was far more representative than in previous surveys as it was larger and better spread across various job functions.

- previous surveys probably under-represented certain categories (e.g. security workers) because of the difficulties involved in obtaining self-completion responses from such employees. This may have skewed results towards those who were more likely to use private car (e.g. office workers).

Source: BAA, 2003 In addition to the measures to reduce employee car use, a “Clean Vehicles Programme” is in place at the airport to reduce the impact of airport ground transport through the use of cleaner and more fuel efficient vehicles. Peripheral ‘Consolidation Centres’ are also in place for suppliers to deliver goods to, reducing their congestion and pollution impact. (BAA, 2004b)

BAA Heathrow also produces a comprehensive sustainability strategy and a range of associated documents, such as the “Sustainability Report 2003/04” (BAA, 2004c) and “Air Quality Strategy and Action Plan 2001 – 2006” (BAA, 2002b), which detail their work to meet sustainable development targets.

Overall, while the current initiatives at the airport to reduce car use by employees can be seen to have some positive impact on modal split, they can also be considered to have achieved limited success, given that in 2003 75.3 percent of employees commuted in single occupancy cars. All of the initiatives currently in place which are designed to encourage employees to use public transport services and alternative modes to the car can be regarded as “soft” measures and as such a more draconian measure could possibly be introduced in order to achieve greater levels of modal shift, thus relieving pressure on car parks and the surrounding road network and also reducing emissions. Employee car parking in particular is highlighted as an area which needs to be addressed and its emotive nature is recognised, “employee car parking continues to be a challenging and sensitive issue.” (BAA, 2004b).

1.3 The Problem facing Heathrow Airport

The three factors of passenger growth, parking cap constraints and air quality targets at Heathrow mean that the airport needs to be more proactive in terms of encouraging people to travel by modes other than the private car. This is supported by Government publications such as 'The Future of Air Transport' (DfT, 2003) and the 'Terminal Five Public Enquiry Report' (ODPM, 2001) which states that congestion is worst during the peak hours when employees are commuting.

The research contained in this thesis shows that, at present, managers at BAA who are involved with surface access issues recognise the impending problems brought about by the three factors detailed in section 1.1 and believe more needs to be done than the current strategies detailed in section 1.2 in order to bring about a modal shift away from the single occupancy private car. Overall there appears to be a lesser level of recognition of the problems by employees from across the whole airport site and a lesser level of urgency, in terms of identifying initiatives to help address the likely future problems related to surface access, by top level managers within BAA.

The literature review and an investigation into current car parking issues at four other airports identifies that targeting employees in order to reduce the number of surface access journeys made by private car, and the subsequent pressure on car parking capacity it creates, would be the most suitable approach. While airports have introduced a number of 'soft' measures to achieve modal shift amongst employees, few innovative or 'hard' initiatives are currently being utilised by the airport industry as a whole. Therefore Heathrow Airport appears to be at the forefront in terms of the need for airports to consider innovative employee car parking initiatives. Organisations in other industries, however, have made advances with employee car parking measures such as direct charging and financial incentives. Via the use of a benchmarking methodology, best practice examples of such initiatives from organisations in the non-airport sector will be investigated to enable BAA to learn how it might address its car parking and surface access issues.

1.4 Outline of the Thesis

This section provides an overview of each chapter of the thesis.

Chapter 2: A Review of the Literature on Airport Surface Access, Car Parking at Airports and Car Parking Strategies in the Non-Airport Sector. A literature review is used to collate the current published knowledge on the areas being studied. The literature review is split into three parts. Firstly airport surface access is considered, providing an overview of the main issues facing airport planners. Following this, more specific literature in the area of car parking at airports is reviewed with focus on employee car parking. Thirdly, car parking issues and the strategies used to resolve them in the non-airport sector are then explored.

Chapter 3: Employee Car Parking at Airports: A Scoping Study of the Current Issues. The current issues facing airports are explored in the form of findings from four airports: London Luton; Nottingham East Midlands; Birmingham, and; Amsterdam Schiphol. This chapter draws on interviews with surface access managers, documentation and site visits and acts as a scoping study regarding surface access and employee car parking specifically.

Chapter 4: The Concept and Methodology of Best Practice Benchmarking. Best Practice Benchmarking is defined and explored in terms of the underlying principles and the various typologies that exist. Its use in practice is examined in depth and the benchmarking process is detailed along with vignettes of Post Office Counters, Royal Mail, Nationwide Building Society and in the air cargo industry. The limitations of the best practice benchmarking approach are also recognised. Finally, the benchmarking process to be used in the research is presented.

Chapter 5: Research Design and Method. The methodological approach taken in the research is detailed and justified including the selection of the case study approach, the case study organisations and the data collection methods to be used. The practical use of benchmarking specific to the research is also explored.

Chapter 6: Heathrow Airport Case Study. The chapter details the findings from in-depth interviews with BAA managers and focus groups comprised of Heathrow employees. The employee car parking situation at Heathrow Airport is examined in detail from both a management and employee perspective as to the potential introduction of financial incentive and disincentive employee car parking measure. Key areas of importance are generated forming a template to be used when conducting the benchmarking comparison in Chapter 8.

Chapter 7: Findings of Non-Airport Case Studies. The findings from three non-airport case studies are detailed. The background to the organisations is presented along with details as to how each car parking strategy works, its objectives, employee attitudes, the impact it has and issues surrounding acceptance and implementation.

Chapter 8: Benchmarking BAA Against the Non-Airport Organisations: A Discussion. The findings from the Heathrow Airport case study and the non-airport case studies are compared and analysed in terms of the areas regarded as being important to BAA Heathrow and Heathrow Airport. The comparison and analysis is grounded in the benchmarking methodology and follows a template developed in Chapter 6. The relationship between the findings and the literature review is also explored.

Chapter 9: Conclusions. The important issues surrounding how BAA Heathrow could address employee car parking problems at Heathrow Airport are reviewed based on the findings presented in Chapters 6, 7 and 8. The additions to knowledge made by the thesis are considered, as are its recognised limitations and areas for potential further research.

Chapter 2: A Review of the Literature

Chapter 2. A Review of the Literature on Airport Surface Access, Car Parking at Airports and Car Parking Strategies in the Non-Airport Sector

2.0 Introduction

Despite September 11th 2001, many international airports are operating close to capacity, a problem that is likely to become more acute given the projected long-term growth in air traffic of over four percent per annum (ACI Europe, 2005). Terminal passengers at UK airports comprising both international and domestic travel are forecast to grow by between 58 and 95 percent over the period 2005 to 2020 (DfT, 2005). This growth is likely to have major implications on runway, terminal and surface access capacity, infrastructure which is already experiencing constraints. The issue of airport surface access is one which the UK Government has been keen to address in recent years, charging those airports with scheduled passenger services with leading Airport Transport Forums and producing an Airport Surface Access Strategy comprising targets and initiatives for increasing the percentage of surface

access trips undertaken by the public transport (DETR, 1998).

At medium and large airports, the number of employees who commute represents between one quarter and one half of the daily number of airline passengers (Kazda and Caves, 2000). Employees also account for two access trips to the airport each day, whereas most passengers will only make one access trip in a day. For these reasons the employee surface access market is of the same order of magnitude as the passenger surface access market. Within the objectives of the Airport Transport Forums and Airport Surface Access Strategies mentioned above there are clear suggestions that airports should concentrate some efforts on commuting and business travel for all employees working there. For these reasons, along with those detailed in section 1.1, the research presented in this thesis focuses upon the employee surface access market.

This chapter reviews the literature in three areas:

- Surface access to airports;
- Car parking at airports;
- Car parking strategies in the non-airport sector.

The chapter is structured in these three parts, first focusing on the importance of surface access to airports and the nature of surface access traffic. Specific focus is placed on the characteristics of employee surface access for the reasons detailed in Chapter 1. Secondly, the various aspects of car parking at airports are explored including the types and design of car parks, car park users, the importance of car park revenue generation for an airport and strategies in place to manage car parking demand at airports. It is found that there is a dearth of literature in the airport sector as to how to reduce employee car parking demand and that much of the literature is somewhat dated. As such, the third part of the chapter reviews literature from the non-airport sector in order to determine what strategies are being used in other sectors. Various parking policies are considered, along with an investigation of the problems of offering free parking to employees and the issues surrounding the implementation of a new parking instrument are also considered. Finally, conclusions are drawn and gaps in the literature identified.

PART 1: AIRPORT SURFACE ACCESS

2.1 Introduction to the Problem of Airport Surface Access

Airport capacity is dependent on a number of factors including air traffic control, runway and taxiway, terminal and apron and surface access. Constraints in any of these areas has a serious impact on the efficient functioning of the airport. Terminal passengers at UK airports comprising both international and domestic travel are forecast to grow by between 58 and 95 percent over the period 2005 to 2020 (DfT, 2005). This growth is likely to have major implications on runway, terminal and surface access capacity, infrastructure which is already experiencing constraints to a greater or lesser extent.

Surface access to the airport is a crucial part of the whole journey by air. Transportation time to the airport is one of the three most important factors affecting the choice of an airport by a passenger, the other two being the number of flights offered and the price of the flight ticket. It is not just passengers who use the surface access system however – employees, suppliers to the airport, meeters and greeters and other visitors also make use of it (Kazda and Caves, 2000) and the relative importance of each group is considered in section 2.2.1.

In many metropolitan areas, increasing concern over the impacts of traffic generated by airports on the surrounding street and highway systems, as well as the emissions created by the trips, is forcing airports to pay more attention to strategies to reduce or mitigate ground access traffic. (Caves and Gosling, 1999)

The problems surrounding surface access are just not a recent realisation, however. In 1969 a report by the Committee on Transportation to and from Airports of the Technical Council on Urban Transportation (1969, p. 115) stated, “Airport ground access has long been recognised as a major inconvenience of air travel, if not a potential market constraint.” In the 1970’s it was realised that inadequate road capacity would limit airport capacity and the potential growth in air travel. Los Angeles International Airport is a good example of this; projections made in 1967 concluded that access to the airport using existing freeways and streets was approximately 24 million passengers and that surface connections would have to be increased to enable additional capacity at the airport (Moore, 1976).

Over time the emphasis of the surface access “problem” appears to have shifted. Research in the 1960’s and 1970’s appeared to focus on increasing speed and reducing access times (Wohl, 1969) while more recent work is focused on relieving congestion and reducing pollution.

2.2 The Nature of Airport Surface Access Traffic

2.2.1 The Airport Population and Surface Access Users

Four categories of people who use the airport surface access system can be seen to exist, each of which has its own specific characteristics. They are:

Originating and terminating passengers;
Employees;
Supply, delivery and other commercial vehicles, and;

- Visitors to the airport. Transit and transfer passengers also exist and form part of the “airport population” but do not use the access system as they arrive at and depart the airport by air. (Humphreys, 1996, Ashford et al, 1997, Kazda and Caves, 2000, de Neufville and Odoni, 2003)

Kazda and Caves (2000) state that at medium and large airports, the number of employees who commute to the airport represents between one quarter and one half of the daily number of airline passengers. They add that visitors to the airport, also referred to as “accompanying persons” or “meeters and greeters” account for five to ten percent of total journeys. The definition of what a “visitor” is can dramatically affect the importance of this category. In a report by the Committee on Transportation to and from Airports of the Technical Council on Urban Transportation (1969), the category “visitors” includes groups such as sightseers, salesmen and service and repair personnel while de Neufville and Odoni (2003) do not consider the category “visitors” in their assessment of the surface access market at all. They state that the split between the other three categories in terms of total trips to the airport is at least 20 percent for each category. This potentially leaves a further 40 percent unaccounted for. Ashford et al (1997) separate “senders and greeters” from visitors. They also appear to discard suppliers as being less important although de Neufville and Odoni state that they generate a comparable number of trips to passengers and employees. All of the varying accounts highlight that there can be considerable variations within each category attributable to local conditions and characteristics.

Table 2.1: Proportion of Passengers, Employees, Visitors and Senders/Greeters at Selected Airports

Table 2.1 details the split of the airport population for a number of international airports. Although dated, the figures highlight how the size of each category can vary widely between airports.

Airport	Passengers	Senders and Greeters	Employees	Visitors
Frankfurt	0.60	0.06	0.29	0.05
Vienna	0.51	0.22	0.19	0.08
Paris	0.62	0.07	0.23	0.08
Amsterdam	0.41	0.23	0.28	0.08
Toronto	0.38	0.54	0.08	Not included
Atlanta	0.39	0.26	0.09	0.26
Los Angeles	0.42	0.46	0.12	Not included
New York JFK	0.37	0.48	0.15	Not included
Bogota	0.21	0.42	0.36	Negligible
Mexico City	0.35	0.52	0.13	Negligible
Curacao	0.25	0.64	0.08	0.03
Tokyo	0.66	0.11	0.17	0.06
Singapore	0.23	0.61	0.16	Negligible
Melbourne	0.46	0.32	0.14	0.08
U.S. Airports	0.33-0.56	-	0.11-0.16	0.31-0.42 (includes senders and greeters)

Source: Ashford et al (1997, p.413)

The airport “population” differs to the number of “access trips” made to and from the airport. In a day, each passenger generally accounts for a trip to *or* from the airport whereas employees and visitors account for a trip to *and* from the airport. Suppliers and visitors will also typically make a trip to *and* from the airport. As each employee, visitor or supplier accounts for two access trips, their importance in the access system is more pronounced than it is when looking at the airport population. (Committee on Transportation to and from Airports of the Technical Council on Urban Transportation, 1969)

The proportion of trips that each category of surface access user contributes to the total number of surface access trips depends on the local conditions present. For example, the proportion of surface access trips made by passengers may be reduced at large airports where there are more transfer passengers and the proportion of surface access trips by employees may be greater when an airline maintenance or training base is located at an airport. (Humphreys, 1996, de Neufville and Odoni, 2003)

Generally, as the usage of an airport increases, the rate of ground access vehicle trips decreases. Research carried out at airports in California highlights this and is shown in Table 2.2. Airport usage can be defined as the number of passengers boarding aircraft or million annual passengers. Further studies at other U.S. airports supports the trend that the largest airports generate the fewest vehicle trips per passenger, while the smallest generate the most

vehicle trips per hour. The figures in Table 2.2 only relate to passenger trips. Extra trips are also generated by employees and the movement of goods. At large cargo handling hubs, such as Los Angeles and San Francisco in the California study, an extra 40 percent of trips can be generated by these two categories. (Higgins, 1994)

Table 2.2: Million Annual Passengers and Passenger Vehicle Trips per Day at Californian Airports

Airport	Million Annual Passengers	Passenger Vehicle Trips per Day
Los Angeles	45.81	1.36
San Francisco	30.39	1.10
San Diego	11.10	2.11
San Jose	7.13	1.82
Oakland	5.51	1.81
Ontario	5.42	1.70
John Wayne	4.59	1.92
Sacramento	3.63	1.86
Burbank	3.49	2.10
Fresno	0.89	2.70
Santa Barbara	0.62	3.20
Bakersfield	0.27	3.73

Source: Adapted from Higgins (1994, p. 104)

2.2.2 The Employee Surface Access Market

Passengers are only part of the airport access problem and there is often a misplaced focus on this segment of the market. This misplaced focus is often because of the large numbers of air passengers using the airport relative to the population of the urban area served by the airport. At the same time the relative number of employees is low, typically less than 0.8 workers per 1000 passengers (de Neufville and Odoni, 2003). This is shown in Table 2.3 which relates to U.S. airports. Table 2.3 also includes the average daily number of employees as a percentage of daily passengers. This column highlights the differences which exist at airports. For example at San Diego the proportion of employees is low at 6.2 percent while at San Francisco/Oakland it is high at 41.6 percent. The majority of the airports lie within 12 and 30 percent range although this still gives scope for considerable variation.

Table 2.3: Sample Data on the Number of Employees at U.S. Airports

Airport	Average daily employees	Employees/1000 total annual passengers	Average daily employees/Average daily passengers (%)
Dallas/Fort Worth	48,000	0.80	29.2
Chicago/O'Hare	40,000	0.57	20.8
Los Angeles/International	40,000	0.65	23.7
San Francisco/International	31,000	0.79	28.8
Phoenix	23,700	0.76	27.7

St. Louis/Lambert	19,000	0.66	24.1
Denver/International	17,400	0.47	17.2
Boston/Logan	14,500	0.57	20.8
Houston/Bush	14,400	0.46	16.8
Salt Lake City	13,000	0.65	23.7
Seattle/Tacoma	11,400	0.44	16.1
San Francisco/Oakland	10,500	1.14	41.6
Tampa	8,200	0.59	21.5
Las Vegas	7,500	0.37	13.5
Portland (Oregon)	5,000	0.38	13.9
San Francisco/San Jose	3,500	0.34	12.4
San Diego	2,600	0.17	6.2
Sacramento	2,300	0.32	11.7
Median Value		0.57	20.8

Source: Adapted from de Neufville and Odoni (2003, p.698)

A different perspective is offered by Bonnet (1980) who suggests that the number of employees required at an airport is a function of the number of passengers using the airport and that as the number of passengers increases, the relative number of employees decreases. While this may be true for passenger terminal operations it does not consider that the number of employees also varies depending on the local conditions at the airport, for example as stated earlier if an airline has a maintenance base or there is a large cargo facility.

Although the share of the airport population accounted for by employees is generally less than 30 percent of the number of passengers it is important to consider the frequency of travel when looking at the airport surface access market. Each originating or terminating passenger only makes one surface access journey and the average number of journeys per passenger is usually less than one because people share car journeys to the airport. For example, a family of four will travel to the airport together meaning that each of the passengers only accounts for 0.25 journeys. Employees, however, make at least one round trip every day which accounts for approximately 500 trips per employee per year. The frequency of employee trips compensates for the low number and therefore makes it the same order of magnitude as passenger traffic. For example an airport with ten million passengers annually will have between seven and nine million passengers making trips to and from the airport because some passengers will be transferring and not making use of the surface access system. This implies approximately 20,000 – 25,000 passenger trips to and from the airport each day. If 5,000 people work at the airport every day, which is consistent with a ratio of about 0.5 employees per thousand passengers as shown in Table 2.3, then the

number of employee trips accounts for 10,000 a day on average. This highlights the importance of employee access journeys. (de Neufville and Odoni, 2003)

The importance of the employee in surface access terms is stated by Caves and Gosling (1999, p.161) in that, “Much of the local traffic generated by an airport is associated with the workers rather than the passengers...” but they also recognise that airports tend to focus on passengers where surface access is concerned, “...but the competitive nature of airports requires attention to the passengers’ quality of service.”

2.3 Modal Choice of Surface Access Users

For passengers, the following factors are considered to be the most important in determining the mode used to access the airport:

- Convenience, including convenient terminating points at both ends of the journey;
- Availability and relative attractiveness of the mode including issues such as safety and privacy;

- Cost, although this is regarded to be a secondary concern to passengers by de Neufville and Odoni (2003);

- Reliability of transport;

- Comfort and quality of transport;

- Distribution and distance of passenger origins and destinations. (Humphreys, 1996, Ashford et al., 1997, Kazda and Caves, 2000, de Neufville and Odoni, 2003)

Speed is not regarded as a primary concern for passengers, particularly if they have to wait for a long time once at the airport, although the frequency and reliability of the access mode should be high. (Bonnet, 1980)

While the six factors listed above relate directly to passenger they are also relevant to other groups of surface access users although accompanying persons, employees and visitors will each rank the factors differently in terms of importance (Kazda and Caves, 2000). The choice of surface access mode is not so relevant to suppliers to the airport who will predominantly use cars, vans and lorries.

Caves and Gosling (1999) consider that improvements in access may also be determined by airport size. For medium sized airports, improvements will normally be in the form of contributing towards the costs of improvements in the local road network, while larger airports should aim for a progressive shift towards public transport.

Table 2.4 details the modal split of passengers and employees at selected UK airports. The data suggest that the private car is the preferred mode of travel for both employees and passengers. At the smaller and medium sized airports such as Bristol, Nottingham East Midlands and Norwich, the percentage of trips made by public transport modes is below five percent, a key reason for this being the lack of public transport alternatives available (Humphreys and Ison, 2005).

Table 2.4: UK Airport Surface Access by Public Transport for Passengers and Employees

Airport	Million Passengers per annum	Passengers		Employees	
		Car, Taxi and Hire Car (%)	Rail and Bus (%)	Car and Taxi (%)	Rail and Bus (%)
Heathrow	63,495,367	65.3	34.4	77	17
Gatwick	30,005,262	67.5	32	84.5	11.3
Manchester	19,699,256	79.9	20.1	87	8
Stansted	18,722,112	66.2	33.8	96	2
Birmingham	9,079,172	87	13	87	13
London Luton	6,797,175	70	30	84	6
Nottingham East Midlands	4,258,965	98	2	93.8	3.5
Newcastle	3,920,204	88.7	11.3	87.3	11.6
Bristol	3,915,072	92	5	96	0
Liverpool John Lennon	3,177,009	95.2	4.5	77	9
Leeds Bradford	2,017,649	98	2	N/A	N/A
London City	1,470,576	79	2	74	21
Southampton	1,218,634	88.4	10.7	N/A	N/A
Norwich	448,971	95	4	86	3

Source: Humphreys and Ison, 2005

2.3.1 Modal Choice of Employees as Surface Access Users

From the employee perspective, the private car is the most convenient and flexible mode of access to an airport. Higher modal splits in favour of the private car have been found for employees than for air passengers. The main reason for this is because all employees start and finish their trips from their place of residence (Humphreys, 1996, Ashford et al., 1997). Research conducted at Paris airport cited three reasons why 80 percent of employees used private cars for their access journey. The reasons were:

Most employees live in the suburbs where there is a lack of public transport links to the airport;

The dispersal of work locations on the airport site is often not closely related to the public transport terminus, making the mode inadequate for many employees;

Public transport does not serve many employees whose shift times fall outside the

hours of public transport operation. (Bonnet, 1980)

While now a little dated, the small amount of more up to date research may suggest that the reasons still hold true. Such findings are, however, mirrored by more recent research by Humphreys and Ison (2005) who state that a complex situation exists in terms of changing employee parking behaviour because of dispersed origins and destinations, shift patterns which are incompatible with public transport timetables and the fact that at some airports as few as seven percent of employees may work for the airport company itself, thus making it difficult for the airport to persuade workers of tenant companies to change their travel behaviour.

As long as such circumstances exist, there is unlikely to be any significant reduction in the use of the private car by employees. The research by Bonnet (1980), however, only focuses on public transport as an alternative to the private car. It does not consider measures which may encourage a more efficient use of the car, such as car sharing, or initiatives such as home-working and teleworking. The idea of staggering work schedules is briefly mentioned but without much foundation. While altering work schedules may have the impact of relieving some road congestion it may also reduce the number of employees who make use of public transport, thus generating more road based traffic at other times.

Price is considered to be a more important factor for employees than passengers as they make round trips every day (Bonnet, 1980) although de Neufville and Odoni (2003) state that price considerations tilt both passengers and employees to use the private car to access the airport. This comment would, however, appear to some extent to contradict a statement by the authors that cost is generally a secondary concern for passengers.

Considering other modes of access, Humphreys (1996) discusses the use of demand responsive transport, where buses vary their routes to accommodate passengers who request to use the service. Such a scheme could be adopted by employers who could either provide “in-house” demand responsive transport for their employees or promote existing schemes. This is similar to the concept of car sharing. Ashford et al (1997, p.427) state “Rail links seldom attract large percentages of airport employees. Because of the size of airports, employees’ destinations on the airport can be a long way from the passenger terminal; also employees will not necessarily select a residential location that gives a good public transport link to the airport.” The effectiveness of rail will be dependent on the size of the network

and on the location of stations at either end of the journey. National rail is likely to be unsuitable for employees but local and regional rail networks, such as the London Underground at Heathrow or the Tyne and Wear Metro at Newcastle International Airport in the UK may be more suitable for employees as they serve a wider area including the suburbs and they link into other transport networks well. The attractiveness of rail timetables and their relationship to shift patterns can also make them a viable or unviable option. Similar arguments can be applied to buses. Their usage by employees will be largely dependent on the location of the bus terminal at the airport and the coverage of the network.

2.4 Distribution of Airport Surface Access Traffic

Ashford et al. (1997) state that the origins and destinations of the air traveller must be understood in order to address the problems of airport surface access. As detailed earlier, however, employees account for similar trip levels to passengers and as such a clear understanding of their travel patterns must also be obtained.

In general, flows of passengers, meeters and greeters, employees and commercial vehicles to and from the airport site are widely distributed and while the central business district (CBD) is the largest single generator of airport traffic it is still small compared to the total market, accounting for only one tenth of journeys (Humphreys, 1996, de Neufville and Odoni, 2003).

As such, part of the problem with solutions to surface access problems over the past 30 years is that they have failed to address the fact that with the exception of a few large metropolitan areas with dominant CBD's, air travellers do not generally begin or end their journeys in the city centre. The same is true, and to an even greater extent, for employees. Employee and commercial traffic goes primarily to the edges of the city to areas that are less expensive for housing and industry, and that only exceptionally is it connected to the city centre. (Ashford et al., 1997, de Neufville and Odoni, 2003)

Also the research is now dated, some justification for concentrating surface access resources on the CBD to airport corridor can be seen in the argument that the people travelling from the CBD have to travel along a narrow, crowded and often congested corridor while people coming from other places are spread through less busy areas. Many passengers from the

CBD are also business travellers, whose economic value is considered to be greater than that of a recreational passenger. (Committee on Transportation to and from Airports of the Technical Council on Urban Transportation, 1969)

A further issue raised is that airline schedules closely mirror urban commute peaks generated by the typical eight-hour working day. Passengers and employees accessing the road network face delay through congestion while those using public transport may face difficulty in finding seats and handling baggage. In many cases it appears that the timing of peaks can be coincident with shift changes of airport employees and heavy metropolitan commuter movements. Larger airports suffer from this coincidence of peaks more than smaller airports which is understandable given the greater numbers of people accessing or departing the airport site and the greater number of commuters wishing to use the road network in larger cities. As such, it is often the roads to the CBD which are most heavily affected. (Committee on Transportation to and from Airports of the Technical Council on Urban Transportation, 1969, Ashford et al., 1997)

2.5 Air Transport Forums and Airport Surface Access Strategies at UK Airports

In the UK, the issues surrounding surface access have been addressed by the government through the requirement for airports with over 1000 air transport movements per annum to establish an Airport Transport Forum containing representatives from the airport, transport operators, local businesses and authorities, airport employees, cyclists, walkers and the disabled as well as other stakeholder groups. The setting up of Airport Transport Forums were detailed by the Government in the White Paper on the Future of Transport 'A New Deal For Transport: Better For Everyone' (DETR, 1998) and are tasked with developing targets and a strategy for achieving a reduction in surface access trips by private car which are contained in an Airport Surface Access Strategy document. In the Department for Transport's guidance on Airport Transport Forums it states that the Forums should "draw up and agree challenging short and long term targets for decreasing the proportion of journeys to the airport made by the private car at the same time as increasing the share of journeys made by other modes." (DETR, 1999). The need to increase public transport usage for air passengers and airport employees has also been reiterated in the UK Government's White Paper 'The Future of Air Transport' (DfT, 2003).

Humphreys and Ison (2005) and Humphreys et al (2005) investigated the role of Airport Surface Access Strategies and consider that the UK government support the range of policy instruments for *employees* presented in Table 2.5. The authors conclude that both short term measures and long term strategies revealed a prevalence of incentive-based measures overall for reducing employee car use such as subsidised public transport, rewards for car sharing and improved public transport services. Larger airports displayed a wider and more elaborate range of schemes, but overall there was a reluctance to use a market-based approach to deal with the surface access problem.

While several airports currently concentrate on the promotion of public transport and alternative modes to the car via the use of incentives, there has not been a great deal of focus on implementing measures which directly reduce the number of employees commuting by private car. An important area in reducing the number of employees commuting by car is to focus on car parking and the measures shown in Table 2.5 such as parking cash out, car parking charges and parking restraint. Part 2 of this chapter explores car parking at airports in more detail and investigates the current strategies in place to manage it.

	Incentives	Disincentives
Private Car	Parking cash out	Road user charging Car parking charges Parking restraint
Public Transport	Concessionary fares Rail investment schemes Accessible light rail and bus-based rapid transit schemes Reallocation of road space to buses, coaches, taxis and private hire vehicles Taxi sharing schemes Improved marketing and wider availability of real-time information about public transport travel options Accessible park and ride	
Other	Improved cycling facilities Improved quality and security of the waiting environment	

Source: Humphreys and Ison, 2005.

Within this thesis road user charging is not explored as a measure to be introduced at Heathrow Airport, or airports in general, as it was considered more appropriate to focus on instruments aimed more directly at employee car parking. The potential use of road user

charging has however been mentioned by the Mayor of London and the Government in the context of Heathrow and BAA have recognised the possibility of such a scheme at the Heathrow site. (BAA, 2002a, BAA, 2003, DfT, 2003).

PART 2: THE ISSUES SURROUNDING CAR PARKING AT AIRPORTS

2.6 Introduction

The provision of car parking is an essential element of airport operations. The convenience and flexibility of the private car means that it is the principal method of accessing airports, particularly in developed countries. As a consequence, airports must incorporate a large parking capability into their design and operation (Ashford et al, 1997, Psaraki et al, 2002). Parking facilities can be a primary criterion for passengers when choosing between airports and investment in parking can draw passengers away from other regional airports (Windle and Dresner, 1995).

This section explores the issues surrounding planning car parks at airports, including the different types of car parks used and the users of those car parks. The importance of car parking as a revenue generator for airports will be explored and strategies that can be used by airports to manage car parking will be discussed. Within each section, passenger car parking is first explored, followed by employee car parking.

2.7 Types of Car Park at Airports

For passenger parking, large airports have until recently operated two types of car park – short-term and long-term. Short term parking is usually located close to the terminal building while long term is further away or even on a remote site, requiring a longer walk or shuttle bus service to transport passengers to and from the terminal. At UK airports, the use of a third type of car park, medium-term, is now increasingly common, due in part to large growth in the number of passengers travelling with “low cost” carriers. The price mechanism is usually enough to ensure that passengers use the most suitable car park (Ashford et al, 1997, Kazda and Caves, 2000, Fantoni et al, 2000). The level of service and convenience offered to people parking their cars when car parks are operated in close and

remote locations justifies higher charges for short-term parking than long-term parking. Passengers are also often able to pre-book parking spaces, enabling them to select the most suitable car parking option before arriving at the airport (Moran, 2002). Matthews (2003) states that at UK regional airports, the parking charges levied vary according to location, costs, size of airport, competition from local car parks, transport alternatives, environmental considerations and capital expenditure. At London Heathrow, space is so constrained in the “Central Terminal Area” that parking rates are approximately four times greater than those for long-term parking to discourage parking there (Matthews, 2000).

The short-term car parking category is further dissected by de Neufville and Odoni (2003) who describe a short-term car park limiting parking to just a few hours, used mainly to pick up arriving passengers, and additional ‘structured parking’ close to passenger buildings to serve persons on short trips or business travellers who can afford the more expensive facility.

Some parking is also provided along the curb for dropping off and picking up passengers. Curb space is based on the principle that vehicles will only stop here for a few minutes and is used mainly by friends and relatives delivering or picking up passengers, car park and hotel shuttle buses and taxis (de Neufville, 1982).

Additionally, space needs to be allocated for rental car parking which can sometimes be close to the passenger terminal building or at larger airports in a remote location served by shuttle buses (Kazda and Caves, 2000).

Segregation between different car park types was not used until the mid 1960’s when the major US airports began to introduce such systems as space for parking close to the terminal became constrained. Among the first airports to introduce different types of car park was Love Field at Dallas where parking types were split over different levels of a multi-storey car park and separate employee parking was introduced. Other airports among the first to introduce new parking strategies were O’Hare at Chicago, Friendship at Baltimore, Los Angeles International and San Francisco International (Lawler, 1964).

In 1994, Manchester Airport used three types of car parking to accommodate the total peak demand – short/medium-stay, long-stay and staff. The length of stay for car park users varied from approximately 30 minutes to a fortnight and longer. Short and medium term

parking was catered for on the airport site, as well as staff parking and some long-stay parking. The long-term parking which could not be accommodated on the airport site was connected to the airport by shuttle buses and maximum walking distances from any parking space to a bus collection point was set at 80 metres. (Heather and Edge, 1994)

In 2003, Amsterdam Schiphol Airport had 16,000 passenger parking spaces, 6,000 of which were for short-term parking and located close to the terminal building and 10,000 long-stay places which were in more remote locations and required the use of shuttle buses to reach the terminal. There were also “luxury” parking facilities available for paying members and a valet service. 9,000 employee parking spaces were available for the 38,000 strong workforce. 3,000 of these were located close to the terminal building and the other 6,000 were located remotely and used a shuttle bus to access the terminal. (BEST, 2003)

2.8 Car Park Users at Airports

As mentioned in section 2.7, the price mechanism is used to ensure passengers use the most appropriate car park. Hsu and Lin (1997) add that the total parking cost plays a major role in the choice of car park for travellers to the airport. As well as price, value of time can be an important factor in determining the selection of a car park by the traveller. For example, business travellers are likely to have higher time values than leisure passengers and this may impact on the choice of remote or central terminal parking (Hsu and Lin, 1995). Leisure passengers also travel for longer periods of time than business passengers. This pattern increases demand for long stay parking and the overall parking need (Robertson, 1995).

A market also exists for “premium public parking spaces”, defined by Fantoni et al (2000, p.1) as “innovative parking methods that offer extra convenience for fee-paying customers”. Premium parking includes services such as valet, reserved and business parking. This additional customer service can generate additional profits. It can also have the effect of encouraging passengers to park at the airport for the duration of their trip rather than being dropped off and picked up, thus reducing the degree of airport congestion (Fantoni et al, 2000).

Much of the literature relating to parking at airports focuses on passengers and does not consider the importance of employees (Stafford, 1966, Robertson, 1995). Stafford (1966, p.

132) states, “Because separate parking areas are normally provided for employees and special vehicles (taxis, rental cars etc), the public parking for passengers, companions and visitors is of primary concern.” As detailed in section 2.2.2, however, employees account for a large proportion of the airport population and have a substantial impact on surface access and car parking (Kazda and Caves, 2000).

Older research states that while the general practice is to provide separate parking facilities for employees, a total analysis of airport parking should include employee patterns. Employees’ arrival and departure times depend on shift changes and their parking duration is usually between eight and twelve hours. The main exception to this is aircraft crews who may park for longer if they are not returning to the same airport within the same shift. The accumulation of staff parking varies with the number of employees per shift and also changes in employee numbers due to weekly and seasonal fluctuations (Homburger and Eager, 1964).

2.9 Planning and Design of Car Parks at Airports

2.9.1 Passenger Car Park Design at Airports

The design of parking facilities has traditionally focused on the issue of quantity and simply providing enough capacity to meet demand. A lack of adequate parking capacity can result in periods where airport roadways and terminal curbs are congested, thus reducing the level of service offered by the airport. Provision of excessive parking capacity, however, means that resources are wasted. For passengers, the most critical elements in planning parking facilities at airports are regarded as being forecasting the number of spaces required and achieving a balance between short and long-term parking (Palmer, 1996, Psaraki et al, 2002). Where two or more airports are directly competing or where an airport is competing against another mode of transport, the quality of service in terms of car parking could give one airport a competitive advantage, particularly in the short haul market (Psarki et al, 2000).

The quality of service issue has been discussed since the 1960’s when it became apparent that airports were not able to meet all of the demand for parking with car parks in the immediate vicinity of the terminal buildings and hence multi-storey car parks and remote car

parks are common at large airports. Along with the design of the car park itself, consideration should be given to how to transport passengers from the car park to the terminal, particularly when parkers have luggage and when weather conditions are poor. (Lawler, 1964, Stafford, 1966, FHA and FAA, 1995). A potential danger of remote long-term car parks is that there may be an abundance of shuttle vehicles travelling between the car park and the terminal which can cause internal circulation problems. This type of situation needs to be monitored and managed to check that vehicles are not operating with very few or no passengers, or conversely if larger vehicles are needed because the current ones cannot cope with the demand (Ashford et al, 1997).

Airport car parks need to be able to cope with peaks in demand. Peak vehicle parking periods occur during July, August and September at most airports which corresponds with the peak in the number of flights attributable to summer holidays. “Average” parking months are May and October. For airports in the UK a general trend is that the smaller the airport, in terms of the number of passengers, the larger the ratio between the maximum and the average numbers of cars parked per month (Robertson, 1995).

Worldwide surveys have indicated that major airports typically provide between 200 and 1200 parking spaces per million total passengers a year, with the largest U.S. airports providing between 200 and 1700 spaces (Robertson, 1995, de Neufville and Odoni, 2003). Table 2.6 shows on-airport parking provision for passengers at UK airports in 1993. While a little dated, the figures serve to highlight that the relationship between the number of passengers and the number of parking spaces provided is not simple. Some of the figures in the table can be explained by local conditions specific to the airport. For example, the location of some airports such as Luton, Nottingham East Midlands and Bristol, which have a greater number of parking spaces per million annual passengers than larger airports such as Heathrow, Gatwick and Manchester, may do so because there is a lack of good public transport alternatives and so more parking is provided. Stansted was designed for greater passenger numbers than those that had been attracted by 1993 when the survey was undertaken and hence it has a large number of parking spaces per million passengers per annum. For many of the airports, however, there are no simple explanations and there are several factors which could influence parking provision including the number of transfer passengers, the mix of passenger type, the average length of trip and the quality of public transport links (Robertson, 1995). The column in the table detailing the number of spaces per million passenger spaces per annum varies from approximately 450 up to 4000, which

suggests that no relationship exists between the number of passengers and the number of parking spaces required. While these figures may give some indication of the number of spaces required, the range of findings from the surveys is so wide that they can only be of limited use when trying to plan accurately for car parking.

The data in Table 2.6 only shows on-airport parking and so does not reveal the full picture of airport parking, as some airports have a large amount of parking outside their boundaries. Examples of this type of parking are purpose built commercial car parks, which offer lower charges than the on-airport parking and hotel car parks, which offer guests free parking. Such car parks will usually be connected to the airport with shuttle buses (Robertson, 1995). Management of these car parks is often difficult because they are beyond the control of the airport and they can also impact on the rates which airports charge for their own spaces (Matthews, 2003).

Table 2.6: On-Airport Passenger Parking Provision for UK Airports

Airport	1993 Passengers (million passengers per annum)	On-airport parking spaces	Parking spaces per million passengers per annum
Heathrow	47.60	24,600	517
Gatwick	20.54	22,050	1074
Manchester	12.83	12,150	947
Glasgow	5.01	2,476	494
Birmingham	4.03	6,950	1725
Edinburgh	2.71	3,108	1147
Stansted	2.67	9,588	3591
Belfast	2.18	3,585	1645
Aberdeen	2.29	1,065	465
Newcastle	2.08	3,501	1683
Luton	1.84	5,300	2880
East Midlands	1.37	3,500	2555
Bristol	1.11	4,350	3919

Source: Adapted from Robertson, 1995

The total parking requirement and the split between short and long-term parking also varies depending on the characteristics of the traffic and the local conditions at the airport such as the split of long and short haul flights, the passenger mix, levels of car ownership, the road access system, the public transport supply, the stage of development of the airport, the extent of off-airport parking and parking charges (Robertson, 1995, Kazda and Caves, 2000, Psaraki et al, 2002). The changing nature of people's travel habits also impacts on this split with more people now taking advantage of low cost airlines and undertaking more short breaks per year (Matthews, 2003). Research from a range of airports around the world shows

that between 70 and 80 percent of vehicles park for less than three hours. It is long-term parking, however that dominates the demand for space. Short-term users can be served by 10-30 percent of the spaces for public parking but long-term users, accounting for approximately 25 percent of all parkers may require up to 90 percent (Psaraki et al, 2002).

The planning of airport car parking requirements is further confused by factors such as growing car ownership and demand for air travel. There are also other factors to consider such as the growth in airport conference facilities which generates more traffic and hence a greater demand for parking. Airports have also been seen to become increasingly popular as retail and leisure facilities with some airports, such as London Gatwick, becoming shopping destinations in their own right (Robertson, 1995). In addition, some large airports have become major transport interchanges in their own right for modes other than air travel; Heathrow Airport has the UK's busiest bus and coach hub (BAA, 2002a) and Amsterdam Schiphol has the sixth busiest rail station in The Netherlands and one which is developing quickly (Hatch, 2004).

2.9.2 Employee Car Park Design at Airports

In addition to passengers, space needs to be allocated for employee car parking with 250-500 spaces per thousand employees usually provided (de Neufville and Odoni, 2003). Some literature considers that a large amount of employee parking will be dispersed around the edge of the airport close to the facilities where people are employed. Spaces are also required closer to terminal buildings for employees who work there. Parking for employees may sometimes be in more remote locations with bus links (de Neufville and Odoni, 2003). One reason for this is that the land near the terminal can be used more profitably for passenger parking. The issue of parking is not so great for suppliers to the airport who will typically be dropping off goods.

With the exception of the basic model discussed by de Neufville and Odoni (2003), little has been written about the planning and design of car parks for employees. Robertson (1995) recognises that staff have high parking requirements largely due to shift working and that staff parking is related broadly to airport size and passenger throughput. Staff parking provision generally ranges from 25-45 percent of the number of airport employees, which correlates to de Neufville and Odoni's model of 250-500 spaces per 1,000 employees,

although there can be exceptions to this. For example, surveys carried out in the mid nineties showed that only three percent of parking at Glasgow airport was for staff (Robertson, 1995).

2.10 Airport Car Park Revenue Generation

The revenues generated from public car parking facilities are an important source of income for an airport and have been reported to be in the region of one-fifth of total revenue at the largest airports (Russell and O'Flaherty, 1969c, Ashford et al, 1997, Maise, 1997). In America, parking revenues at the biggest airports can be similar to those generated by landing fees. As airports increase in size the relative importance of the contribution of the parking revenues to overall revenue also increases (Ashford et al, 1997). This means that airport operators have to find a balance between car parking as a commercial venture while trying to control or reduce surface access congestion.

Airport revenue is usually classified into two main categories: aeronautical and non-aeronautical and is also referred to as aviation and commercial. Revenues generated from car parking form part of an airports non-aeronautical revenue if the car parks are operated by the airport operator. Non-aeronautical revenues account for approximately 40 to 50 percent of total revenues at European airports. Larger airports tend to be more suited to providing a range of commercial services than smaller airports and so often have a greater reliance on non-aeronautical revenues. Worldwide surveys conducted by ICAO found that on average airports with more than 25 million passengers per annum generated 58 percent of their revenue from non-aeronautical activities compared with the sample average of 36 percent (Graham, 2001). Recent directives introduced by the European Commission, which are targeted at opening up competition in the aeronautical side of the airport industry, have meant that non-aeronautical revenues have become increasingly important and the abolition of duty free sales for travel between countries in the European Union in 1999 has meant that parking revenues as a proportion of non-aeronautical revenues have increased in significance (Lutzel, 1997). After the abolition of duty free, car parking became the second most important retail revenue stream at BAA's UK airports where previously it had been the fourth most important. Retail outlets in the airports were the most important revenue stream on the non-aeronautical side (Dark, 2001).

US airports generate far greater revenues from car parking than European airports. Approximately 38 percent of non-aeronautical revenue at US airports is from parking while European airports generate about 14 percent from parking. In 2000, BAA generated £105 million through car parking revenues, approximately 15 percent of total retail revenue made by the company (Dark, 2001). European airports generate greater revenues from retail and real estate than US airports do however. Table 2.7

shows the parking revenue accounted for by car parking at US and Canadian airports. Small and medium hub airports generate a greater percentage of revenues from car parking than large hubs or non-hub airports in the US. This is because of the management of car parking at US airports. Approximately 85 percent of airports in the US with scheduled services contract out parking to other firms. Smaller airports which operate their car parking under a concession agreement pay on a sliding scale and so make more from car parking on a relative basis. Larger airports have a management agreement whereby they pay costs and a management fee or percentage (Canaday, 1999). It is also likely that larger airports will make more money from retail and other commercial ventures, thus reducing the impact of car parking overall.

Table 2.7: Parking Revenues at North American Airports as a Percentage of Total Operating Revenue

Airport Type	Percentage of Total Operating Revenue
US Non-hubs	15%
US Medium-hubs	25%
US Large-hubs	15%
US Small-hubs	24%
Canadian Airports	11%

Source: Canaday (1999)

An interesting point is raised by Kazda and Caves (2000) who state that constructing multi-level car parks in the vicinity of terminal buildings is costly and takes up space that could be better used for commercial purposes. This has to be contrasted with the fact that parking generates substantial revenues and highlights the issue that parking policy is not just about coping with current and predicted levels of traffic but also includes considerations about the most efficient, economical and profitable use of land at the airport, particularly land in prime locations such as that close to the terminal. That such competition exists between profitable passenger parking and other forms of development would suggest that airports who allow employees to park in the vicinity of the passenger buildings are losing out on substantial revenues.

Interviews with surface access managers in the UK found that for employees, almost all employers paid parking charges for their employees and also absorbed any price increases rather than passing them onto the employees (Humphreys and Ison, 2005). Research on car parking at London's Heathrow, Gatwick and Stansted airports, all of which are operated by BAA, found that BAA Heathrow imposed a levy on staff parking of £400-1000 per annum depending on location but that most employers bore the cost rather than passing it onto employees. At Gatwick, employers using BAA managed car parks paid £192 per pass per annum and at Stansted there was no levy on employee car parking (Matthews, 2000).

2.11 Strategies to Manage Car Parking at Airports

“Parking programmes are aimed at providing as much parking as possible, as close as possible, to the terminal building” (Lawler, 1964 p. 69). This view from 1964 is probably the ideal situation from the airports perspective as it allows the highest level of service and convenience to be offered to both passengers and employees. The growth in air transport following the publication of the paper and the predicted future growth, however, means that providing car parking is now much more complicated than providing as much as possible, as close as possible. This section sets out a number of ways in which parking can be managed by airports.

There is a wide range of instruments that can be used to manage car parking. Many of these are associated with using the current facilities more efficiently or making modifications to them. Other strategies may use measures which can be classified as “incentives” and “disincentives”. Such measures may encourage people to use their cars more efficiently or indeed use alternative modes of transport, thus reducing the demand for car parks which are at or over capacity. Incentives would be the encouraging factor and could involve some kind of financial incentive while disincentives would discourage people from parking, for example by increasing parking charges or not permitting certain groups to park.

The main options for improving airport parking conditions using measures which use existing facilities more efficiently or improve capacity include:

- Space reallocation to match parking demand;

- Modifications to parking operations or rates;

- Redesign and/or construction of facilities to improve capacity.

(FHA and FAA, 1995)

Sometimes an airport will have enough total spaces but too many are allocated to one user group, such as passengers, employees or rental cars, and not enough to another. In such situations it may be necessary to reallocate parking from one use to another. Different parking durations such as long-term and short-term could also be reallocated, as could different levels of service such as self-park or valet parking (FHA and FAA, 1995).

The pricing mechanism can be used by airports to manage the demand for parking. Charging more to park in short term car parks as opposed to long-term car parks has been discussed in section 2.7. The effects of parking cost on parking demand can also vary with passenger type. Business passengers are to a large extent insensitive to the cost of parking, while non-business passengers are more sensitive (Psaraki et al, 2000). This suggests that airports could use the pricing mechanism to target specific groups of passengers with the aim of reducing car parking demand. For this to work, however, there must be satisfactory alternatives to the private car available.

Off airport parking is a solution which many airports use to add extra capacity. The consolidation of car rental facilities away from the terminal is also seen as a way of expanding the landside capacity of the airport (Caves and Gosling, 1999). Off airport parking is sometimes seen by some drivers to be “second best” because it is further away from the terminal. This can often cause extra circulating traffic on the surface access system as drivers first drive close to the terminal to search for parking before going to off airport facilities. However, off airport parking can also reduce vehicle trips to the airport if people drive there directly. Off airport parking can result in lost revenues for the airport so from the airport’s perspective the most suitable forms of off airport parking are long-term public parking with regular transportation to the terminal (FHA and FAA, 1995).

Airport parking is currently most likely to be constrained by planning regulations. In the UK, Government Policy contains measures which could potentially reduce demand for airport parking and restrict new parking provision at or around airports. Government Planning Policy Guidance Note PPG13 on Transport calls for reduced parking requirements for new development in locations with good access via modes other than the private car and for parking requirements in general to be kept to the operational minimum (Robertson, 1995, DETR, 2001a). This is the case at London Heathrow Airport where the Inspectors Report

following a Public Inquiry into the development for a new fifth terminal constrained the number of parking spaces that could be developed. The report included limits for both airport employees and for passengers (DETR, 2001b).

2.11.1 Strategies to Manage Employee Car Parking at Airports

Airports regard employees as an easier group to target with strategies designed to reduce car use and parking because they have more information on them, their travel patterns are known and they do not have the inconvenience of luggage which passengers do. Airports may also be reluctant to dissuade passengers from travelling by car because of the revenues generated from passenger car parking and because it would lower the quality of service offered by the airport possibly giving advantage to a competing airport. (de Neufville and Odoni, 2003).

Car parking policy where employees are concerned is, however, still recognised as a sensitive issue for airport managers, most notably in terms of raising charges or removing spaces (Humphreys and Ison, 2005). Generally, however, almost all employers, at UK airports at least, do not pass parking charges onto their employees. This results in employees not appreciating the cost of driving to work and hence not altering their travel behaviour.

Off airport parking may be suitable for employees who are unable to park near to the terminal or their place of work. Research suggests that employees more readily accept remote parking because the uncertainty of shuttle bus schedules from the car park to the airport is less critical for them than passengers and because they do not have the hassle of luggage or the anxiety of making their flight (FHA and FAA, 1995). While it may be true that employees do not have luggage to transport, the other reasons must be questioned. For many, particularly those working shifts or aircraft crew, the certainty of arriving at the airport on time is critical and their employment may depend on it, hence anxiety levels could also be high and staff need to be confident in the shuttle buses.

One example of a more innovative approach exists at Amsterdam Schiphol airport where the main employer KLM (Royal Dutch Airlines) introduced an employee car parking scheme. KLM is the dominant employer at Schiphol Airport in Amsterdam, employing 25,000 staff, half of whom work in the central terminal area. Rapid growth in airport activity in the mid

to late 1990's created serious parking problems and KLM introduced a charge for employee parking. Prior to the scheme's introduction in 1995 a free parking place had been guaranteed for every employee. In 1995 each employee received a one-time salary increase equivalent to approximately 20 Euros a month, which was equivalent to the amount the KLM had paid Schiphol Airport each month for employee parking passes, and was required to pay for their own parking. This had no impact on single occupancy vehicle drivers but staff who used other modes of transport or car shared with other employees made financial savings as they did not have to pay to park but still received the 20 Euros monthly salary increase. The scheme was also expected to have a greater impact in the future as parking rates were gradually increased, further benefiting those who used alternative modes. Coupled with the parking charges were improvements to other modes of transport, most significantly cycling, where a new bicycle campaign was introduced, and the provision of a "limited use" parking pass which could be used in the event of bad weather or personal reasons for commuters committed to cycling. The main advantage for Schiphol was that by implementing the programme, more spaces were available in the summer when passenger demand was greater (Schreffler and de Vreede, 2000).

2.12 Reflections on the Airport Surface Access and Airport Car Parking Literature

The majority of research carried out in the field of airport surface access and airport car parking has tended to focus on passengers rather than employees. Where employee parking is mentioned, or indeed other parking types such as rental car parking, they are often considered to be of secondary importance. The relative importance of employees as surface access users must not be understated however. Employees have been shown to have high levels of private car use and are frequent travellers, particularly at peak times, creating a demand for surface access and car parking capacity that is of the same order of magnitude as passenger demand.

The central role of the surface access system to overall airport capacity and the predicted growth in air travel for the foreseeable future means that surface access and car parking issues need to be addressed if airports are to continue expanding. That the UK Government charge airports over a certain size with the formation of an Airport Transport Forum and

Airport Surface Access Strategy demonstrates that they perceive there to be issues regarding surface access which need to be addressed.

As commercial organisations, airports generate large revenues through passenger parking and need to offer a high level of service to passengers to help achieve a competitive edge over rivals. Airports are likely, therefore, to be more willing to focus on employees with car reduction strategies because they are an easier group to target in terms of the information airports have on their staff, their known and recurring travel patterns and because they can be communicated with more easily than passengers.

The literature shows that airports already use a range of measures to manage employee surface access and car parking including the promotion of various public transport and alternative mode initiatives, separating employee parking from passenger parking and often placing it in more remote locations and charging employers for car parking permits. From the literature, however, there does not appear to be a great number of initiatives in place to more actively and directly discourage employees from using their cars to access the airport, for example through the use of car parking charges or financial incentives not to drive. If airports are to continue expanding, while at the same time conforming to air quality targets as set out by local Government and European Union Directives and constraints on parking provision as contained within Planning Policy Guidance's such as PPG13 then it is likely they will need to begin considering ways of reducing the demand for employee car parking. The dearth of literature and experience in the airport sector suggests that knowledge should to be sought from other sectors, as explored in part 3 of this chapter.

PART 3: STRATEGIES USED TO MANAGE CAR PARKING IN THE NON-AIRPORT SECTOR

2.13 Car Parking Strategies in the Non-Airport Sector

Car parking in the urban sector is an area which has received a large amount of academic attention. A great deal of the research focuses on commuters, in particular the congestion problems that arise during rush hour and the parking strategies available to help address car parking issues. The most serious traffic-related issue in urban areas of the UK are perceived to be morning and evening peak period congestion. As this is the time when commuters are

using the road and adding to congestion, then successful strategies targeted at reducing the number of commuters who park at work, particularly solo drivers will significantly reduce this problem (Ison and Wall, 2003). In the UK, administrative traffic control measures, and in particular parking policies, have occupied a central place in transportation plans since the publication of the Buchanan report in 1963 (Gwilliam and Mackie, 1975). Local authorities are encouraged to seek a balanced approach to implementing parking policies, which recognises the legitimate need for parking but sets it against the negative effects of more traffic (Palmer, 1996).

This section of the literature review will explore the strategies available to manage car parking and attempt to address the issue of whether car parking measures are an effective way of tackling traffic issues and their level of effectiveness. The issues associated with offering free parking to employees are also explored and the issues surrounding the implementation of car parking measures will be discussed with relevant examples provided.

2.14 Types of Parking Policy

In general, two types of parking policy exist – economic and regulatory policy instruments. Parking charges are an economic policy instrument and are used to ration the demand for parking spaces. Parking controls are a regulatory instrument and include things such as physical limits on the number of parking spaces available, bans on parking during certain time periods and land use planning controls which restrict the number of places. A further regulatory control is that of enforcing parking measures. Enforcement also applies to parking charges as well as the adherence to limits. (Feeney, 1989, Acutt and Dodgson, 1997, Ison and Wall, 2000)

2.14.1 Parking Pricing

In relation to traffic congestion in urban centres, it is acknowledged among transportation planners that pricing policies are needed to cope with the problem. Expansion of the road network in such areas would be both extremely expensive and would encounter large public opposition. Also, efforts to get people who commute by car to switch to public transport or car share have only achieved partial success (Arnott et al, 1991).

To address the problems associated with parking it is important to look briefly at the

economics behind charging for parking. In the first instance a parking pricing policy is needed to allocate existing spaces efficiently in the short run and to provide guidelines for investment in the future. However, parking prices can be raised above this level with the aim of deterring traffic beyond the optimum parking space allocation level. The fee structure typically favours modes other than drive-alone, long-term parking and off-peak usage. There is a possibility that an optimal flow will result but a more likely outcome is a decrease in the use of car parks. While this may at first seem to have the desired effect, one drawback is that because only stopping traffic is subject to a parking charge, there may be an increase in the amount of through traffic which is able to exploit the less congested street at no additional cost (OECD, 1994, Button, 1993). Button and Verhoef (1998) suggest that the congestion-reducing impact of increasing parking charges has been mixed when put into practice, mainly because the peak hour commuters who contribute the most to road congestion are able to park at work for free.

Parking charges are regarded as being a “first-best” solution for dealing with the issue of efficiently allocating a scarce number of spaces (Verhoef et al, 1995). However, they and other parking instruments are often seen as a “second-best” measure in solving the problems created by excessive road traffic. Road pricing is seen as the first-best solution because it is able to differentiate between lengths of trips and routes followed, whereas parking policies can only influence the number of trips. Parking pricing is likely to be relatively insensitive to actual congestion levels as it is acting as a complement to road use rather than road use itself. Parking charges can also have distributional consequences, particularly on those making shorter journeys because the parking charge makes up a larger proportion of their trip (Button, 1993). Parking policies are unable to contain external costs such as air pollution, noise annoyance and issues of safety. The scope for useful regulatory parking policies is considered to be limited to containing congestion on urban road networks (Verhoef et al, 1995). In many cases, the main aim may be to simply influence the number of trips and contain some of the congestion on the road network.

The OECD (1994) state that parking pricing as an economic measure is a “significant application” for the urban environment, during peak times and is also useful for special events. It is seen to have “some application” in the off-peak market. In terms of the potential impact of parking pricing, it has a “significant impact” on promoting public transport and car sharing, shifting travel during the peak hour and shifting trips away from congested locations. It has “some impact” on reducing the need to make trips, reducing the

length of trips, promoting non-motorised transport and reducing traffic and traveller delays.

Parking charges are relatively straightforward to collect although there are costs of doing so. The optimal system will depend on the balance between resources employed and penalties for non-payment (Acutt and Dodgson, 1997).

2.14.2 Regulatory Parking Policies

It is possible to manage car parking by restricting the number of spaces available. Parking charges and physical restriction on spaces are not mutually exclusive however, and usually complement each other. They are also interconnected with the enforcement of charges and regulations (Verhoef et al, 1995, Ison and Wall, 2000). The use of parking charges means that restrictions on the number of spaces supplied can be made. Also, if parking restrictions are imposed then it is likely that a chaotic situation will emerge unless there is an associated pricing policy (Verhoef et al, 1995).

Better enforcement can also be applied to existing parking situations without the need to alter the supply or price of parking spaces to make more effective use of the existing mechanisms. Enforcement can be directed at either the driver so that rules and regulations are obeyed, or the supplier to ensure that the supply of parking remains within the set limits and is used in the way intended. Over time, planning permissions could be enforced more rigorously and new legislation could be introduced although it is expected to take a very long period of time before any substantial reductions in traffic congestion are witnessed (Gwilliam and Mackie, 1975, Coombe et al, 1997a).

There are a number of potential drawbacks with regulatory parking instruments. Parking restraint primarily affects terminal traffic and so there is a danger that it makes it easier for road space to be occupied by through traffic which can be inefficient and inequitable. In large conurbations there may be so much uncontrolled private off-street parking that the impact of any parking policy would be greatly reduced. Parking policies are also not suited to dealing with specific routes which may be heavily congested in the same way that a direct pricing policy would be. (Gwilliam and Mackie, 1975)

Examples of regulatory parking policies for employees can be found at hospitals in the UK. The relocation of 1,400 staff from “The Radcliffe Infirmary” in Oxford to “The John

Radcliffe Infirmary” in Headington was accompanied by a scheme that allowed 1,680 staff to park on site for a workforce of approximately 8,000. A model of journey options was used to determine a 45-minute journey by public transport as the cut-off point for staff trips. Only staff within this area who met certain criteria were able to obtain a parking permit and parking restrictions were set up around the hospital to prevent staff parking in residential streets. The scheme was supported by public transport improvements. (Moran, 2001).

Southampton University Hospitals Trust faced similar problems when a cancer centre was relocated from another hospital. The move saw an extra 250 staff and 60,000 outpatients a year using the site to be followed by further future increases. A strict staff permit scheme, supported by various initiatives to improve public transport and alternative mode usage, was adopted and generated a decrease in staff parking by 1,000 spaces as well as reducing local traffic congestion (Moran, 2001).

Parking permits, as mentioned in the context of Southampton University Hospitals Trust above are a method of managing the supply of parking spaces by only allowing those in possession of an administered permit to park (Verhoef et al, 1995).

2.14.3 The Impact of Parking Pricing

A number of questions regarding charging for car parking need to be considered before a scheme is implemented. These include:

- Are further parking controls needed?
- Who will actually be deterred from driving?
- Who will gain from the charge and who will lose out?
- What will the effect be on land uses in the controlled area?
- What proportion of traffic is likely to be affected by parking control measures?
- What will be the impact on traffic in congested areas?

(Coombe et al, 1997a)

Motorists can respond to decreased availability and increased costs in five ways:

- Change their parking location;
- Change the starting time of their journey;
- Change the mode used;
- Change their destination; or

- Abandon the last trip. For commuters, however, the last two of these effects are unlikely to occur (Feeney, 1989).

Extra factors can be added to Feeney's list such as a change of parking type (in an urban context this could be from off-street to on-street for example), a change in car occupancy, a change in frequency of trip making and a change in route taken. Small reductions in car ownership, fuel consumption and kilometres travelled by car may also be seen. The reactions are not discrete in nature and tend to interact with each other (Acutt and Dodgson, 1997, Bates et al, 1997, Ison and Wall, 2000).

Changing parking charges influences the price of parking directly. Imposing some type of regulatory policy can also influence the price of parking, but it does so indirectly, for example by changing the time costs associated with searching for a space. In terms of causing a change in the mode of transport used, studies on the parking price elasticity of demand have suggested that out-of-vehicle costs, either time or money, are more influential on mode choice than in-vehicle costs. For commuters, most parking price elasticity estimates are less than (-) 1, however, suggesting a relatively inelastic response in terms of mode choice (Ison and Wall, 2000).

It is important to remember that parking strategies will have no impact on some people. Gantvoort (1984) introduces the concept of "captives". They are people who have to use their car either because there are no public transport alternatives or because they need the car for other reasons. A survey carried out in The Hague in The Netherlands found that 45 percent of people affected by a car park closure were captives, meaning that 55 percent of people had a "free choice" over their mode of travel. The number of captives will always influence the impact of any traffic restraint measure as a greater number of people who must use their car will reduce the schemes impact.

From an economic perspective, the use of parking pricing overcomes two main issues associated with restricting parking supply. First, the use of parking fees does not require such a large flow of data whereas physical restrictions require real-time information on the level of occupation of the car park. Secondly, charging for parking discriminates according to the willingness to pay. These arguments are slightly different if they are considered from the perspective of the commuter. If commuters face physical parking restrictions then they may alter the time of their trips to arrive earlier to secure a space. In this situation the space restriction acts as a substitute for the pricing mechanism and an efficient allocation may result. The information argument may also not be so strong if commuters know the likelihood of finding a car parking space at certain times (Verhoef et al, 1995).

Experience suggests that policies which aim to make more effective use of the existing road capacity are the most appropriate. These include policies which include pricing or which use staggered and flexible working hours. Regulatory measures such as restricting parking supply results in people searching for parking spaces for long periods of time, thus adding to congestion and benefiting those who have private parking spaces (Acutt and Dodgson, 1997, Arnott et al, 1991).

The literature suggests that parking pricing and other methods of parking control are both extremely useful instruments for managing car parking in a more efficient manner. While parking pricing appears to be the more effective of the two policy types, they are both heavily interconnected and a successful parking strategy is likely to include them both.

2.14.4 Parking Cash Out

In the US in 1991, a transport subsidy ordinance in Los Angeles required that any employer offering free or subsidised parking had to offer each employee that did not drive a \$15 monthly transport subsidy to be used for commuting to and from work.

Although the sum was lower than the cost of providing parking and did not have much impact on mode choice it was a first step towards offering employees an alternative to having to accept subsidised parking at work (Shoup and Willson, 1992).

By 2001, a similar ordinance covered the whole of California which required some employers to offer commuters the option to take the cash equivalent of any parking subsidy offered. This option to “cash out” employer-paid parking raises the effective price of commuter parking without charging commuters for parking and rewards those who do not drive to work alone. This in turn increases the share of employees who car share, use public transport, walk or cycle to work (Shoup, 2001).

Case studies of parking cash out in California showed that employers’ spending for parking declined by almost as much as their cash payments in lieu of parking increased. Overall, total spending to subsidise commuting rose by \$2 per employee per month. Employers praised the system for its simplicity and fairness and said that it helped to recruit and retain employees (Shoup, 2001).

Other studies have shown that ending employer paid parking greatly reduces solo driving although the degree of influence is dependent on local conditions. The reduction in solo driving achieved by ending parking subsidies is also usually greater than the reduction achieved by providing subsidies to public transport and car sharing when parking continues to be subsidised (Shoup and Willson, 1990).

Many examples of successful parking cash out schemes can be found in the US (Shoup and Willson, 1990). Many of the schemes, however, have been implemented in the central areas of large cities and in businesses such as banks, insurance houses and civic centres, where there are high concentrations of employees who are more likely to use alternative modes of transport or car share than in less accessible areas. This raises the question of whether similar levels of success in terms of reducing car use and solo drivers can be achieved by smaller urban employers and by different types of businesses. With airports, there is a vast range of different types of employers, different workers and different shift patterns all on one site which adds to the complexity of the problem.

The principle of parking cash out is becoming increasingly popular in the UK, although the results of schemes introduced so far have been mixed. Four types of parking cash out scheme can be seen in the UK: buying back car parking spaces for good; annual schemes; monthly schemes, and; daily reward schemes (Enoch, 2002).

Derriford General Hospital in Plymouth bought back employee car parking spaces indefinitely. In 2000, Derriford General Hospital offered employees a one off payment of £250 plus an extra amount to cover VAT but only seven people out of 3,500 accepted the offer. BAA Heathrow introduced a similar scheme in 1997, offering employees £200 to give up their car parking space. 33 people accepted the offer, equivalent to approximately one percent. At BAA Stansted, employees were offered £110 per parking space but very few took up this offer (Enoch, 2002).

Annual schemes are operated by Southampton General Hospital and "Orange" in Bristol. Southampton General Hospital introduced its scheme in 1995. Employees were given a £150 initial payment and then annual payments of £96. By 2001 approximately 9 percent of the 5,900 workforce had taken up the scheme. At Orange, the planning constraints of an office relocation limited parking to 105 spaces for 700 staff. Staff who worked at the previous office were offered a four year package to give up parking at work. In the first year, staff received £1,200, then £900 in the second year, £600 in the third and £300 in the

fourth. The scheme cost Orange in the region of half a million pounds in the first year, equivalent to approximately 400 staff (Enoch, 2002).

At “Vodafone” in Newbury, Berkshire, a monthly scheme was introduced whereby any member of staff who opted out of parking received an extra £85 in their monthly wage. Approximately 1,500 staff from a workforce of 4,500 enrolled in the scheme. However, as parking is extremely constrained, once an employee gives up their space it can take some time before they are able to get it back again (Enoch, 2002).

The UK examples outlined above would suggest that the two elements which bring about the greatest take up of parking cash out schemes, and hence are the most effective, are the amount of money offered and the flexibility available within the system. It may be that staff are able to give up their parking spaces for one or two days a week but are not willing to completely relinquish their parking permits. It is also important to make sure that alternatives are available for those who do reduce or give up their car use, as is the case with the Pfizer scheme.

Parking cash out is well suited to providing part of a solution to addressing a parking problem at a specific site but as a solution to solving the whole problem of congestion on the roads it may not be so suitable (Enoch, 2002). Airports fall into this category and thus parking cash out could potentially be a suitable measure to address car parking issues.

Employers can be seen to favour parking cash out because it can help with the recruitment and retention of staff. They would rather pay money to solve the parking problems than charge employees or remove the ability to park. Parking cash out is also considerably cheaper than paying to construct new car parks.

2.15 The Problems Associated with Offering Free Parking to Employees

Shoup (1997) investigated the extent to which free parking subsidised car use in the US by comparing the cost of providing free parking to the price commuters paid for driving to work. The findings were that the subsidy for free parking at work was triple the vehicle operating costs for driving to work. Further calculations based on the monthly cost of providing a parking space revealed that the driver’s variable cost of commuting by car

without free parking was quadruple the cost of commuting with free parking. This creates a problem because it means that commuters do not consider the cost of parking when choosing their travel mode and thus they drive alone more frequently, creating more congestion. Several studies carried out in the US have revealed that approximately 90 percent of American commuters who drive to work do not pay for parking (Willson and Shoup, 1990, Shoup and Willson, 1992, Willson, 1992, Shoup, 2001).

Employers often choose to subsidise employee parking because it offers sound economic benefits. If offered as an employee benefit, the subsidised car parking space is cheaper than giving the employee a larger salary because it does not incur tax or social security liability. Using an example from Williams (1992) in relation to subsidised parking spaces in Washington D.C., if an employer wants to provide an extra \$2,000 to an employee then to do this through his or her salary would actually cost the employer in the region of \$4,400 after tax, social security and employment contribution. Offering the parking space, however, would only cost \$2,000.

There are other reasons why employers offer free parking. Firstly, it might enable staff to work extra and more flexible hours. Secondly, any increase in an employee's salary increases the base against which future living cost adjustments are applied. Fringe benefits such as free parking do not increase the base. Finally, non-salary benefits such as free parking are easier to cut than salary (Williams, 1992).

A problem with parking which is paid for by the employer is that it is usually a "take it or leave it" offer and employees are not offered any alternative if they do not take the parking. Employees who value the parking at less than it costs the employer to provide it will often take the parking subsidy rather than nothing. Many employees, however, do not think that their parking spaces are worth what it costs their employer to provide them because studies show that when employees have to pay for their own parking many stop driving to work alone (Shoup and Willson, 1992, Williams, 1992).

A mode choice survey carried out in Los Angeles using 5,060 employees and 118 employers found that free parking significantly increased the probability of solo driving. After a charge was introduced the proportion of people driving to work alone fell from 72 percent to 41 percent. It was also found that as parking costs increased, the probability of using the car (either for solo driving or car sharing) decreased. No relationship was found to support the hypothesis that responsiveness to travel cost varied inversely with income (Willson, 1992).

The relationship between the cost of parking and the mode share accounted for by solo driving, car sharing and public transport use is shown in Figure 2.1. The data from this 1986 survey shows that commuters respond to parking charges by reducing car use and that there is a linear relationship between parking price and mode choice. Public transport share increases more than car sharing because car sharers still bear the parking cost, although it is divided between the vehicle occupants (Willson, 1992). It is questionable whether a linear relationship would exist in all situations where a parking charge was introduced as there are several other factors which could change the demand for the different modes, such as the availability and cost of public transport, the ability to car share with other employees and the location of the place of employment.

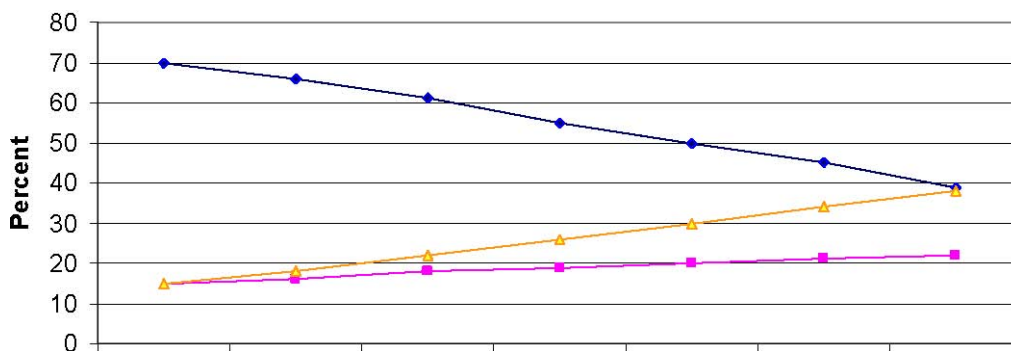
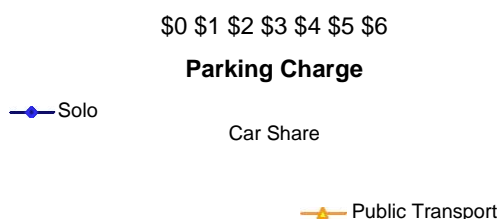


Figure 2.1: The Effect of Parking Charges on Mode Share (Predictions)



Source: Adapted from data in Willson, 1992.

Studies carried out at a number of case study sites in Los Angeles and Ottawa showed a 40 percent decrease in the number of solo drivers when commuters were made to pay for

parking and an associated 27 percent decrease in the number of cars driven overall. The price elasticity of demand for the various sites in the study ranged from -0.08 to -0.23 with an average of -0.16 indicating a 1.6 percent decrease in the number of cars driven for every 10 percent increase in the price of parking (Shoup and Willson, 1992).

Parking subsidies can clearly be seen to encourage single occupancy car use thus creating a greater amount of traffic. The research shows that making employees pay for parking reduces the number of solo drivers and the number of cars on the roads. Therefore the logical solution would seem to be to charge employees to park at work.

2.16 Acceptance of a Parking Strategy and the Package Approach

With urban traffic problems many people accept that there is a need for something to be done. A UK survey conducted in 1991 found that 95 percent of respondents agreed with the statement “traffic congestion and pollution is a serious problem in our larger towns and cities” and 92 percent of respondents agreed that “urban traffic problems are going to get worse, and something major needs to be done about them” (Jones, 1991).

While it is one thing to recognise a problem, it is another to put a strategy into place to address the problem. The instruments regarded as being the most effective at reducing traffic congestion, such as road pricing, parking charges and placing physical restrictions on the number of car parking spaces, are also those which people are most opposed to. This unpopularity makes the measures difficult to introduce (Enoch, 2002). Research carried out in Newcastle and Cambridge found that people were far more opposed to measures of restraint (road-user charging, increased parking charges and zone access controls) than they were to public transport improvements. In Newcastle, over half of the survey respondents found the three restraint measures to be either “fairly” or “totally” unacceptable, while the figures were slightly lower in Cambridge (Thorpe et al, 2000).

Schade and Schlag (2003) state that reducing parking space gains low levels of acceptability, but the least accepted measures are those incorporating fees for either parking cars and to an even greater extent, fees for driving cars either through the use of distance based pricing or congestion pricing. Button and Verhoef (1998) add that there is little evidence of public acceptance of high parking fees and they tend to be evaded except in the face of heavy

policing and transactions costs. Interviews conducted by Rye and Ison (2005) highlighted several key issues regarding the introduction of employee charging. The importance to staff of a parking charge cannot be understated. One interviewee said “from the staff side it is more emotive than pay”. It is also argued, however, that because parking policies already exist in many cities, the extension to regulatory parking policies may be easier than introducing a completely new system, for example electronic road pricing (Verhoef et al, 1995).

It is important to remember that varying levels of acceptance can be found in different places because of local conditions and the impact of any potential schemes on a specific area. Different people travelling for a range of purposes in varying circumstances may well react to parking controls in different ways (Coombe et al, 1997a). Varying levels of acceptance and effectiveness were found in the research comparing Newcastle and Cambridge (Thorpe et al, 2000).

A potential way around this difficulty is to utilise a traffic restraint measure as an integral part of a wider package of measures to deal with problems (Jones, 1991, Thorpe et al, 2000, Ison and Wall, 2002). Jones found that this approach significantly increased public willingness to contemplate traffic restraint and highlighted three elements to the package approach:

- A simple but fair method of vehicle restriction;
- Improvements in public transport, and;
- Some re-allocation of road space (e.g. new cycle or bus facilities, extra space for pedestrians or for residents’ parking).

Four elements to a package of proposals to deal with congestion were identified by Palmer (1996) as being:

- Constructing additional road space;
- Using existing road space more efficiently, including better information for drivers and better enforcement of parking restrictions;
- Shifting demand to alternative modes, by increasing investment for public transport and by implementing changes to increase the relative cost of cars, including increasing parking charges;
- Restraining and managing the demand for transport, of which a parking policy is seen to be an increasingly important instrument.

The surveys in Newcastle and Cambridge also investigated the perceived acceptance and effectiveness of packages of measures. The four packages of measures investigated were:

- Road-user charging and increased parking charges;
- Zone-access control and improved public transport;

Improved public transport and road-user charging;

- Increased parking charges and improved public transport. In both Cambridge and Newcastle the two most acceptable packages were improved public transport and road-user charging and increased parking charges and improved public transport (Thorpe et al, 2000).

Research carried out across four European sites (Athens, Como, Dresden and Oslo) investigated the perceived acceptability and effectiveness of a “strong” package and a “weak” package of traffic reduction strategies. The strong package contained measures to charge motorists by implementing a toll cordon, increasing parking charges and increasing fuel taxes as well as allocating the revenue to lower labour taxes and to invest in capacity extension of known bottlenecks. The weak package was designed to be more acceptable and included the same charging mechanisms, but to a lesser extent and used the revenues to lower fixed vehicle taxes, invest in known bottlenecks and improve the quality of public transport. The surveys found that the weak package was significantly more acceptable than the strong package at all four of the case study sites but high levels of acceptance were not found for either package. In terms of perceived effectiveness there was no significant difference between the two packages overall (Schade and Schlag, 2003). The research does not however, enable the perceived acceptability of effectiveness of each element of the package to be identified so the impact of increasing parking charges on their own or with revenue allocation cannot be seen.

Another important element of the package approach is that the finance raised should be used to improve alternative modes and the physical environment (Jones, 1991, Ison and Wall, 2002). This is also recognised by the Government in the 1998 White Paper on the Future of Transport in reference to workplace parking levies. The DETR (1998, p.117) state that “a vital element in the effectiveness of the policy will be the use made of the proceeds to improve transport choice.”

In surveys in Newcastle and Cambridge the level of acceptance when increasing parking charges was much greater when there was a guarantee that the revenue generated was allocated to projects which improved transport. Such projects included improving public transport, improving the urban environment, improving cycling facilities and maintaining and improving existing roads (Thorpe et al, 2000).

Ison and Wall (2002) found that improvements to public transport, including improving reliability, increasing the frequency of provision and reducing fares, formed the three most popular responses when respondents to a survey were asked to hypothetically allocate revenues raised through a workplace parking levy.

Other important uses of revenue from workplace parking charges are related to improving the standard of the car parks at the site, for example through CCTV investment, car park refurbishment, better lighting and signage, barriers and card readers (Rye and Ison, 2005).

Rye and Ison (2005) offer six factors to assist the implementation of parking charges at the workplace. They are:

There need to be clear, site specific reasons for introducing parking charging.

Consultation will take some time but it should not be expected that it will resolve all opposition; however, opposition will reduce, after the scheme is introduced.

Significant investment is required in parking control systems, but this will be recouped through the revenue raised within one to two years.

Charges are low, income related and applied with few exemptions.

Those exemptions that are made are justified by clear and transparent criteria.

The funds raised are ring-fenced for improvements in parking, security and alternative transport to the site.

Linked to Rye and Ison's first point is the situation that parking strategies are often only introduced when there is a problem to be addressed. In terms of a parking charge, the authors add that it appears to be important that there is the existence of a significant catalyst for change for implementing a charge for car parking at the workplace. This is supported by Enoch and Potter (2003), in relation to Travel Plans in the UK, when they state that companies often only begin to consider changing employee travel behaviour when faced with a situation such as congestion or a lack of parking spaces, or indeed when pressured to do so by a Local Authority.

The research identifies that the package approach is both the most effective and acceptable way of introducing a new policy incorporating a measure such as parking pricing. Acceptability and effectiveness can be seen to be related – if a scheme is accepted by the users then it is more likely to work well than a strategy with strong opposition.

2.17 Conclusions

The literature review has shown that surface access at airports is central to overall airport capacity and that any constraint on surface access can impact on the efficient functioning of an airport. Therefore, as airports continue to grow it is important that the surface access system does not hinder their expansion. Airports also need to address surface access issues in order to conform to air quality limits and car parking constraints which may be imposed.

The impact of employees on the surface access system must not be underestimated; the number of trips they make is of the same order of magnitude as passenger trips and a higher proportion of employees than passengers have been found to drive to airports. When addressing surface access issues airports are aware that they exist in a competitive market and need to offer a high level of service to passengers. As such they may be more willing to focus on employees with initiatives designed to reduce car use, not least because employees are 'easier' for the airport operator to target given that they have information on them, can communicate directly with them and their recurring travel patterns are understood.

As was stated in section 2.11, airports use a range of measures to try and reduce the number of employees travelling to the airport by private car but they tend to focus on 'softer' measures such as the promotion of public transport, car sharing and alternative work practices such as teleworking. While such strategies can be successful their impact is often reduced due to the nature of working at an airport in terms of the high proportion of shift workers who need to access the airport at unsociable hours when public transport may not be in operation and the fact that many job functions need to be performed at the airport and cannot be carried out from a remote location. It is only in the non-airport sector where 'harder' initiatives such as car parking charges or financial incentives direct to the user have been implemented and reported in research. As such, airports may be able to learn from the experiences of the non-airport sector.

The literature from the non-airport sector has shown that companies who offer free parking encourage their employees to drive to work and also drive on their own. This was reported to be the case in the airport sector where employers generally absorb the parking charges imposed by the airport operator rather than passing them on to staff.

A number of car parking instruments are available to help manage the demand for car parking including parking pricing, regulatory policies and parking cash out. Parking pricing is regarded as being a 'first-best' solution for reducing the number of people wishing to park and also has some impact on tackling traffic issues such as congestion, but the most effective

solutions can be seen to be when pricing and regulatory measures are used together. Parking cash out can also help to overcome the problems of offering employees free parking if they are designed with flexibility and the amount of money offered is enough of an incentive. Overall parking cash out is regarded as being more effective at reducing the number of people parking when it is combined with other measures.

In terms of acceptability both parking pricing and regulatory measures are perceived as being unacceptable, both by key decision makers and by those who will be affected by the measure. They become more acceptable when combined with other measures to provide a package approach.

One thing which is apparent in many of the examples is that parking strategies are only introduced when there is a problem to be addressed and there is the existence of a significant catalyst for change such as congestion, a lack of parking spaces or the need to address transport issues in order to gain permission for development. The parking instruments addressed in this chapter are best suited to tackling specific parking problems rather than being a solution to wider issues such as network congestion and environmental pollution. Overall, car parking measures can be seen to be an effective way of reducing the number of people travelling by car and they have a direct impact on the number of people parking, something which is of importance to Heathrow Airport given the parking cap of 42,000 spaces of which 17,500 are for employees.

One drawback of the literature was that some of the research into airport surface access is dated. As such a scoping study of four airports was conducted in order to assess the current situation at airports. This scoping study is contained in Chapter 3.

Chapter 3. Employee Car Parking at Airports: A Scoping Study of the Current Issues

3.0 Introduction

This chapter investigates the current situation at four selected airports regarding surface access and car parking. The findings from in-depth interviews conducted with surface access managers at four airports are detailed and cover the current extent of car parking problems at those airports, the important areas surrounding how airports manage employee

car parking and views towards the use of more innovative initiatives to manage staff parking. The scoping study was conducted due to the limited amount of up to date literature on surface access and car parking, particularly related to employees, in the airport sector. This chapter enables the findings from the literature review to be supported and added to by real and current experience from the airport sector. This will assist with the development of the methodology for the original research to be carried out at Heathrow Airport and the non-airport organisations by identifying and further supporting important issues.

3.1 Methodology

In order to assess the issues surrounding airport surface access and car parking, in-depth face to face structured interviews were undertaken between January and May 2004 with surface access managers responsible for all surface access issues at four airports, namely Amsterdam Schiphol, London Luton, Birmingham International and Nottingham East Midlands. Each interview lasted between 60 and 90 minutes and all were recorded. An additional interview was conducted with the Deputy Director of Airport Development at Schiphol which provided some additional information and a discussion group was conducted with the Surface Access Working Group at London Luton which was attended by representatives of five companies located at the airport.

All of the interviews detailed various issues relating to surface access and car parking and were structured around the questions presented in Figure 3.1.

Figure 3.1: Questions Used at Airport Interviews

1. Airport Information a) Car Parking Overview

- How many passengers does the airport handle per year?
- How many car parking spaces do you have for passengers/visitors/employees?
- How are these distributed (long term/short term split etc)?
- Are car parks at or near capacity?
- Roughly, how much revenue is generated from passenger/visitor parking?
- How is this revenue utilised?
- Do you plan to construct any more car parks in the future?

2. Employee Car Parking a) General

- How many people are employed at the airport? (airport and other companies on site)
- What proportion of staff drive to work? (single occupancy/sharing/lift split)
- What is the split for other modes?
- Where are staff permitted to park? Are staff car parks separate to passengers/visitors or combined?
- What proportion of staff car parks are controlled by the airport
- Are any members of staff allocated a reserved parking space?

b) Enforcement

How do you control access to staff car parks?
Is a permit system used? How are permits allocated? Are there different types of permits?
Technology used? If so, what technology?
Have you experienced any abuse of this system?

c) Administration and costs

Roughly, how much does it cost to provide parking for staff?
Capital costs, maintenance costs, administration costs...?
Are any staff dedicated to car parking or travel planning for employees?
Does the airport charge companies on-site for parking? If so, what is the charge and how much revenue is generated?
Do any members of staff pay to park? Do any companies pass on car parking costs to staff

d) Reducing car use

What strategies are in place to reduce car use?
How many commuters car share? How is car sharing monitored?

e) Effectiveness

How effective are your current car parking strategies for staff/ASAS? Is effectiveness measured/targets set? If so how/what targets etc?

f) Future

Are any enhancements/changes planned to the current car parking strategies?
Is there a limit on the number of spaces that can be developed?
Have any targets been set for future progress?
Are any new strategies to reduce car use and car parking under consideration for the future?
Would you consider using disincentives to discourage people driving to work?
What is the likely impact of a second runway on car parking?

Additional questions to incorporate if not covered during interview

What are the main issues facing the airport with regard to car parking (for passengers or employees)?
Do you see any issues becoming more important in the future?
What do you think the staff reaction would be if they had to pay to park? Would this raise any issues for the airport?
Has charging staff directly been considered?

3.2 Characteristics of the Four Airports

Details of the four airports are presented in Table 3.1 and Table 3.2; a range of airport types were visited including a small regional airport, a medium sized regional airport with international operations, a medium sized international airport and a large international airport with worldwide operations. Each airport selected was different in terms of the number of employees, its location, the market it serves, the number of passengers it handles and several other characteristics. The inclusion of Amsterdam Schiphol Airport allowed for international experience to be investigated; Schiphol was of particular interest due to the innovative parking cash out scheme operated by KLM, as mentioned in section 2.11.1.

Airport	Passengers	Employees
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Table 3.1: Passenger and Employee Numbers at the Four Airports

Nottingham East Midlands	4 million +	6,600 employees on site. 10 core tenants employ 95% of all employees
London Luton	7 million +	8,000 employees on site. 450 of all staff are employed directly by the airport company 80-100 other companies on site.
Birmingham	8 million +	6,200 employees on site. 700 of all staff are employed directly by the airport company 50-80 other companies on site.
Amsterdam Schiphol	42 million +	54,000 employees on site. 2,000 of all staff are employed directly by the airport company

500 other companies on site. Source: Interviews with Surface Access Managers

Table 3.2: Parking Provision at the Four Airports

Airport	Passenger & Visitor Parking Spaces*	Employee Parking Spaces
Nottingham East Midlands	9,000, of which 4,000 are long term, 4,000 are medium term and 1,000 are short term.	600 (not including a large cargo handling facility).

London Luton 10,500, of which 9,400 are long term 1,300 + and 1,100 are short term.

An additional 2,200 off-site spaces are managed by a private operator. Birmingham 10,200 1,800 Amsterdam 18,500, of which 10,000 are long term 13,500, of which 7,000 are in remote Schiphol and 8,500 are short term. locations.

* Passenger parking at all of the airports use a tiered system of short and long term parking and the price mechanism to ensure passengers and visitors use the most appropriate car park.

Source: Interviews with Surface Access Managers

3.3 Key Issues Arising from the Interviews

This section assesses the role of parking as a means of addressing the issue of employee surface access, based on the responses from the surface access managers. It also deals with the issues that would need to be addressed if the implementation of an employee parking charge or financial incentive were to be enacted. It is argued that *“it is much simpler to control employee surface access [than passengers] but it is still difficult”* (Luton). It is however perceived as *“one of the most emotive subjects there possibly is in employee relations”* (Luton). The structure of the findings is derived from the key issues raised during

the interviews and is detailed in Table 3.3.

Table 3.3: Issues Surrounding Employee Car Parking at Airports

Area:	Issues:
Airport context	The extent of the problem Shift working Alternative strategies for bringing about a mode shift
Employee car parking	Dedicated employee car parking Permits system Use of a parking charge Passing on the charge Ring fencing the revenue
Introducing a direct car parking	Consultation charge Vision

3.3.1 Airport Context

The Extent of the Problem

The extent of the employee parking problem varies between the four airports. London Luton and Schiphol both have capacity issues; Luton to the extent that it is not currently allocating any new parking permits to employees. Not all the surface access managers interviewed as part of the research, however, perceived their airport as currently having a major problem in terms of employee car parking. At Nottingham East Midlands, in spite of a growth from 2.4 million passengers per annum in 2001 to 4.2 million passengers per annum in 2004, together with the fact that one new low cost service can generate an additional 250,000 passengers and in the region of 30 additional staff, parking did not appear to currently be an issue. It was stated that *“510 years growth can be contained within the current planning approval”* and airport car parking facilities could be accommodated on land currently approved for the development of new car parks. At Birmingham, car parking was also not seen as a significant problem although it was stated however that *“passenger demand peaks in August and September when there is significant holiday travel (in August) and a combination of significant business travel and holiday travel (in September). In 2002 it was getting critical and some of the long stay passenger parking was reallocated to staff parking.”*

Regarding the future growth in the aviation sector, the expendable nature of car parks as a land use was highlighted, *“You can be sure as the airport expands it’s going be one of those land uses that comes under most pressure.”* (Luton).

Shift Working

Shift working can create difficulties for the airport authorities particularly where shift changeovers are concerned; it was stated that, *“In a 400 space car park, we have about 1,500 permits registered to that car park which as a rule works, but on the change of shifts it*

can cause some problems sometimes.” (Luton). Other problems with shift workers were highlighted, *“Some employees don’t have any choice because they are starting a shift when there is no public transport. It’s difficult because we require most of the concessions to open at five in the morning now and there are no buses at that time”*. (Luton). There is therefore a need to provide these employees with permits for the use of staff car parks.

Before parking policy is considered in more detail the alternatives are briefly outlined in the following section.

Alternative Strategies for Bringing about a Mode Shift

There are a number of strategies in place at the four airports. On the whole it was stated that *“we are very much in the “carrot” area and we don’t have any explicit “sticks” to stop people using their car”*. (Birmingham). On the carrot side the airports aim to make the alternative modes of transport more attractive. It was also considered that the roll of the Surface Access Manager was *“to co-ordinate and encourage people to use alternative modes”*, (Nottingham East Midlands) rather than try to stop people from parking. It was stated that the only “slightly stickish” instrument was charging companies for car parking passes and the fact that the car park is more remotely located.

The various initiatives in place at the airports include investment in new infrastructure in order to make public transport more attractive to staff, promotion of public transport through discounted ticketing schemes, facilities to encourage cycling and the development and promotion of Demand Responsive Transport, the aim of which at Birmingham is to get people into work who otherwise wouldn’t be able to because they have no transport.

With the exception of Schiphol, there did not appear to be an official car sharing scheme at any of the airports. At Birmingham this has been thought about but not given a high priority because:

Lots of people establish car sharing schemes but the use tends to be minimal because there is no incentive involved. It was considered that any incentive needed to *“either make parking expensive or give a benefit for car sharing.”* It was stated at Nottingham East Midlands that there is no real disincentive because parking is free and there is no problem with space availability. Therefore there is little reason for people to want to car share. Equally, the staff car park is relatively close to the airport, therefore it is difficult to give people who car share the benefit of closer allocated spaces (within the staff car park).

The modal share target is related to public transport use and car sharing doesn’t help with achieving the target.

3.3.2 Employee Car Parking

Table 3.4 provides an overview of how each airport manages employee car parking and the following paragraphs explore the management techniques in greater detail,

Table 3.4: Employee Car Park Management at the Four Airports

Airport	Employee Parking Management
Nottingham East	<ul style="list-style-type: none"> The car parks are managed by the airport company but operated by a Midlands contractor. Permits are sold to companies at a standard rate, regardless of location. A small number of companies are known to pass the charge onto employees, but the majority do not.
London Luton	<ul style="list-style-type: none"> The airport company manage and operate the three main employee car parks (1,300 spaces). There are also an undefined number of spaces within leased sites outside the control of the airport company. Permits are sold to companies with the price varying depending on the proximity of the car park to the terminal building. Car parks are currently at capacity with no additional permits being allocated. There is only one known example of a company passing the charge onto their employees. 2 car parks are close to the terminal building and one is in a remote location on the airport boundary served by shuttle buses.
Birmingham	<ul style="list-style-type: none"> The car parks are managed by the airport company but operated by a contractor. Managed to accommodate peaks in demand in the summer and passenger long stay car parks are reallocated if required. Currently there is spare capacity. Senior managers park closer to the terminal building. Car parks are on the airport boundary served by shuttle buses. Permits are issued free to employees of the airport company and sold to other companies for £165 per year. The cost is rarely, if ever, passed onto the employee. There is additional uncontrolled parking at some outlying locations such as a maintenance base.
Amsterdam Schiphol	<ul style="list-style-type: none"> 7,000 spaces are managed by the airport company and 6,500 are owned by separate companies. Permits are allocated to staff for a specific car park based on the company they work for and their job role. Most employers pay for the parking permit, although KLM and Martinair pass some of the charge onto employees. It was also believed some of the handling companies may pass charges on to staff. A planning regulation also exists in The Netherlands which allows only one car parking space per 70 square metres of office building. Organisations have to manage their parking within this constraint.

Source: Interviews with Surface Access Managers

Dedicated Employee Car Parking

At all four airports staff have dedicated car parks, some conveniently located and others more remote. The more remote sites are generally near to the passenger long stay car parking provision or on the airport boundary with shuttle buses being used to transport employees to the terminals. In general no staff are allocated a reserved parking space although at Birmingham senior members of staff are provided with preferential parking, the “*argument being that they need their cars for business use*”.

Permits System

A car park permit system is in use at all four airports. At Nottingham East Midlands and Birmingham car parking permits are relatively easy to obtain. At Nottingham East Midlands the reason for this is primarily because *“there is a lack of alternatives to get to the airport, and the airport and airlines can’t afford to have staff not being able to park.”* At Luton, however, the situation is somewhat more critical in that *“we are at a situation where we’re saying all car parks are full so at the moment we’re not issuing new cards and what you get is the churn in business, and because car parking passes are such valuable commodities now if a staff member leaves invariably the company continue to pay for it rather than hand it back and not potentially have one to give to a new employee. They are almost a currency in themselves.”*

At Schiphol, employee parking is managed entirely by the airport operator, including the allocation of parking permits to companies at the airport and the setting of permit prices. Nottingham East Midlands and London Luton (from April 2004) retain control over the permit price but the permit allocation and management of car parking is contracted out. At Birmingham the issuing of permits is handled by the airport operator and a third party is contracted to run a bus service from the car parks to the terminal and man the barrier system.

At Luton Airport the surface access manager stated, *“What I would like us to move to is a three tier system, where you have your essential user such as people with kids, non-essential user and then your non-essentials would go in the remote car park or wouldn’t get a permit at all”* and at Schiphol there was consideration of a scheme whereby employees working night shifts had permits which enabled them to park in passenger car parks nearer to the terminal building due to the spare capacity at that time.

Use of a Parking Charge

The price of a permit varies from airport to airport, and from car park to car park at some of the airports. Depending on the airport they range from £165 to £440 with the price related to the proximity of the car park to the terminal building. At Birmingham the airport company staff obtain their passes for free. At Luton the price of permits is increased above the RPI on an annual basis and the additional revenue generated is hypothecated, promoting public transport and travel cards. The Surface Access Manager at Luton stated, *“Interestingly, the policy we’ve adopted in the last few years of significantly increasing prices has dampened down demand, so price has worked for us.”*

The introduction of a direct car parking charge for employees is seen to be an interesting idea and is discussed in more detail later, but has been essentially put to one side because of difficulties, not least in terms of the issue of recruitment and staff relations. It was stated that *“In terms of transport it does make sense to charge people because you’ve then given them a choice. The trouble is although we could do that conceivably for our own staff, it’s what you do for all the other people who don’t work for the airport company.”* (Birmingham). As such an issue with the introduction of a direct car parking charge is that it is not possible to do this for the vast majority of people who do not work for the airport company. In addition

“parking charges are a possibility but it’s not yet become a big enough issue for the senior managers to decide something needs to be done about it – but this may change.” (Birmingham).

Passing on the Parking Charge

A small number of companies are thought to pass parking charges onto their employees but on the whole, with the exception of the innovative scheme used by KLM at Schiphol described below and in section 2.11.1, employers generally absorb the permit costs. *“Essentially, the vast majority of people don’t pay for their parking”.* (Birmingham). In fact the overriding philosophy has been *“it’s up to you whether you want to pass that cost on or not.”* (Luton). One of the main reasons given for companies not passing on parking charges, at Luton at least, is the fact that a number of the larger more traditional companies on-site are still quite heavily unionised. In addition it was stated that *“the problem lies in the whole issue of recruitment and staff relations”* (Birmingham).

On the whole surface access managers interviewed would favour the charge being passed on to employees. One airport surface access manager stated that *“ideally they would like to move away from an annual scheme to a daily charging scheme using swipe card/smart card technology. This would make people realise that car parking is part of the cost of running a car. However, there needs to be a strong business case for this and there has been management opposition in terms of cost.”* (Nottingham East Midlands). It was stated by another surface access manager that *“the ideal position would be we [the airport operator] could put our money where our mouth is and lead by example. At this stage it’s not going to happen because we have the same issues with recruitment and retention as other companies.”* (Luton).

At Schiphol Airport, the largest employer, the airline KLM operate a financial incentive scheme to encourage employees to travel by modes other than the car.

“They said to the employees, “we will charge you 65 Guilders each month for a permit, but at the same time we will increase the money you get for transport to and from the airport to 65 guilders.” It’s then up to the employee to say “well then I’ll bring my pass back.”.”

This meant that employees continuing to drive were in a finance neutral situation, until car park charges were increased at least, while those who switched modes were able to benefit financially. Approximately five percent of employees were thought to have given up their parking passes. In addition to KLM it was thought that Martinair and some of the cargo handling companies may operate similar schemes.

At Schiphol the idea of a mobility budget for all employees was raised, whereby employees were given money to use on transport, *“that is what we would like to do maybe later with our staff, to give them a mobility budget then they can choose whether they use it to come in by public transport, to park in remote spaces or to park nearer to the office.”* In a similar fashion to the KLM scheme, depending on the level of the mobility budget, the prices of public transport and the charges for different car parks would mean that those using public transport benefited financially while those choosing to park would lose out.

Similarly, at Luton the surface access manager suggested a scheme whereby charges were passed onto employees but at the same time they were given a financial incentive, *“I’ve suggested that we give people money not to drive to work here but got short shrift. What I would like is for the first year we give a one-off payment to all staff and those that choose to spend it on car parking spent it on car parking and those that choose to spend it on public transport spend it on public transport and from then on in you pay for it yourself whatever your choice.”*

There is also an issue where staff are concerned that while the *“obvious solution would appear to be to concentrate on staff and make parking less attractive”*

(Birmingham), there are a number of problems with doing so. The following list of issues relates to Birmingham International Airport, but several of the underlying factors are consistent with all of the airports:

The airport exists in an extremely competitive employment market and in an area with relatively low unemployment. The employment market surrounding the airport is buoyant and there is a lot of competition for jobs.

The Airport is adjacent to a shopping development and is competing in the same

market for jobs, but working at the airport can be seen as less attractive than these other developments with working hours (retail and catering starting at 5am whereas in the retail sector it starts at 9am)

Accessing the airport is more difficult by public transport than other places of work, especially at the hours some people have to work.

There are also security issues which are much more important since September 11th 2001. The Government has tightened up on the issuing of passes, particularly airside passes and applicants need a 5 year employment history to get an airside pass, something which takes time and can result in the applicant finding another job in the mean time.

Therefore, and crucially to surface access issues, the one thing the airport can offer as an enticing factor is free car parking.

Ring Fencing the Revenue

At all of the airports revenue from car parking all goes into general airport revenue and any public transport or car park improvements are funded from this; no revenue is ring fenced. It was stated that *“All the income of airport goes into one big pot and is spent on whatever needs to be done.”* (Birmingham) and *“It is all general gross income, there’s no ring fencing.”* (Schiphol).

3.3.3 Introducing a direct charge

In interviewing the surface access managers the question was asked as to what they perceived to be the main issues if the implementation of a direct charge for employee parking was to be considered. Two main issues were raised, namely the need for consultation and vision. One of the surface access managers said that it was important to *“sell the idea to senior management and get the HR department on board as well as the union. So the aspiration is there but unfortunately we haven’t put our money where our mouth is just at this stage, but I’m sure it will come.”*

(Luton).

Consultation

Consultation on the implementation of an employee car parking charge is no different was regarded to be important. At Luton, it was stated that the Airport Transport Forum or Surface Access Working Group is seen as an effective forum with respect to consultation, *“We talk about anything from a minor change to a footpath on site to major schemes on a regional or national level that are being brought forward and impact on the airport. We talk about all those issues and in addition, employee parking is always the big issue on the agenda.”* (Luton).

Vision

In terms of employee car parking charges it was suggested that there needs to be vision at the top. *“Top level management needs to be targeted before any change will occur. There needs to be a business case for staff charging.”* (Nottingham East Midlands). If change is to take place then the airport authority themselves need to lead by example. The opinion at Luton Airport was that ultimately a charge will

come because if it doesn't then the Council will introduce a measure, such as a workplace charge which will also apply to the airport. It is therefore seen as being in the airports interest for them to be somewhat more proactive by introducing a charge in advance so as to get people into the habit of having to pay for their space. Overall it was stated that *“We've got a little bit of a way to go before we can persuade senior manager or director level that there's any benefit in directly charging employees, but it will come. It will have to.”* (Luton) and, *“The aviation sector is still quite heavily unionised and quite traditional in some ways; many people view parking as a right and a lot of people have been working here a long time and if that right is taken away it could cause difficulties.”* (Luton).

3.4 Conclusions

The interviews conducted at the four airports support many of the findings from the literature review and offer some new insights. Some airports, such as Birmingham and Nottingham East Midlands, are not yet experiencing any major problems in the area of employee car parking but it is likely that as they continue to grow it will become more of an issue, as it is at Schiphol and London Luton.

Alternatives to a car parking charge are in place at all of the airports, but they tend to be based primarily on incentives rather than disincentives, encouraging the use of public transport, walking and cycling, and car sharing rather than discouraging car use directly. All of the airport authorities impose a charge for staff parking, but this is a charge to obtain a permit to park and in the majority of cases this is not passed on to the employee. As such, there is no change in employee travel behaviour which reflects many of the problems of offering free parking to employees explored in section 2.15. Shift patterns of work mean that employee car parking however is somewhat of a necessity, not least given the provision of public transport at certain times of the day and thus a direct charge in such a situation is more problematic. While some of the surface access managers would like to move towards

directly charging employees, there are a number of barriers slowing any progress in this area, namely; recruitment and retention factors; having suitable alternatives in place and at unsocial hours; a lack of control on non-airport companies on-site, gaining support from top level management, and staff acceptance.

The original research in these areas will be undertaken through the use of benchmarking methodology and the benchmarking process which is explored in detail in Chapter 4. The findings from the original research will then be used to conduct a benchmarking analysis, the outcomes of which will allow for recommendations to be made to BAA, based on the experience of good practice organisations, should they decide to introduce a 'harder' employee car parking measure such as a direct charge or a financial incentive.

3.5 Aims and Objectives of the Research

The literature review contained in Chapter 2 and the case studies carried out in Chapter 3 provide a strong basis for further original research in the area of employee car parking at airports. As such the aims and objectives are set out as follows:

The overall aim of the research is:

To explore the issues surrounding the potential introduction of a direct employee car parking financial incentive or disincentive measure at Heathrow Airport, drawing on best practice from specific non-airport organisations.

The research focuses on the issues that need to be addressed when considering the implementation of 'innovative' car parking measures, namely a financial incentive or disincentive direct to employees, within an airport context. A detailed case study of Heathrow Airport has been conducted along with three case studies of organisations with an established car parking strategy from the non-airport sector in order to provide best practice experiences. A benchmarking comparison has been undertaken in order to allow BAA Heathrow to learn from the best practice examples. The objectives of the research are to:

- investigate the current issues facing airports with respect to car parking;
- determine the measures currently in operation at Heathrow Airport to reduce car use and the demand for car parking by employees;
- explore the issues that need to be addressed if implementing a financial incentive or disincentive employee car parking measure at Heathrow Airport;
- investigate the innovative strategies being used in the non-airport sector in order to

manage the demand for employee car parking;

 explore whether good practice in the non-airport sector can be transferred to an airport context and in particular Heathrow Airport.

 recommend good practice from the non-airport sector that could be implemented at airports and in particular Heathrow Airport.

This chapter and the literature review have addressed the following objective as set out above:

 investigate the current issues facing airports with respect to car parking;

 investigate the innovative strategies being used in the non-airport sector in order to manage the demand for employee car parking.

The findings from this chapter, together with the literature review have enabled key areas relating to employee surface access and car parking to be highlighted which will be used when conducting interviews and focus groups at Heathrow Airport and the non-airport organisations. These key areas form the basis for the questions contained in Figures 5.1, 5.2, 5.3, 5.4 and 5.5 and focus on the issues of implementation, consultation, staff acceptance, management support and leadership as well as the actual elements of the parking strategies being investigated in terms of what incentives and disincentives are used. The original research to be conducted will fulfil the following research objectives as set out in section 3.5:

 determine the measures currently in operation at Heathrow Airport to reduce car use and the demand for car parking by employees;

 explore the issues that need to be addressed if implementing a financial incentive or disincentive employee car parking measure at Heathrow Airport;

 investigate the innovative strategies being used in the non-airport sector in order to manage the demand for employee car parking.

Chapter 4. The Concept and Methodology of Best Practice Benchmarking

4.0 Introduction

The literature review and scoping study have highlighted that as airports grow, congestion becomes a major problem with pressure placed on the surface access system and car parking. Chapters 2 and 3 have shown that while passengers pay for car parking, it is rare for employees to pay, with most employers absorbing the charges imposed by the airport authorities. Offering free parking to staff creates problems, not least because it means that employees do not calculate the true cost of driving to work. In the non-airport sector, certain organisations have begun to introduce more innovative measures to manage the demand for

employee car parking. Examples include charging employees to park, restricting the number of spaces available and offering a financial incentive not to drive to work. As airports have not yet begun to introduce such measures there are lessons that they can learn from the non-airport sector.

Best practice benchmarking is a tool which can help provide a link between the airport sector and the non-airport sector. It is a performance improvement technique that allows businesses to improve by comparing processes with other organisations, both between industries and within the same industry. This chapter is split into three sections as follows:

Part 1 - Defines best practice benchmarking. The types of benchmarking, namely internal, competitive, functional and generic, are described in detail together with relevant examples.

Part 2 - Explores the potential applications of benchmarking by asking the questions ‘why use benchmarking?’ and ‘who uses benchmarking?’ This section also includes an investigation via literature of where benchmarking has been used in the airport sector.

Part 3 – Details the methodology associated with benchmarking. The link between the research and functional benchmarking is explored and the process used when carrying out a benchmarking exercise is examined. The relevance of these adaptations to this research is discussed. Other important considerations when conducting a benchmarking exercise, which are relevant to the original research, are explored and the limitations of benchmarking are detailed to highlight areas which have to be carefully considered when planning how to undertake the benchmarking exercise. The way in which these issues will be overcome in this thesis is also considered. In the research, a benchmarking exercise will be conducted between BAA Heathrow and three non-airport sites identified as demonstrating best practice in the area of employee car parking. The chapter concludes with the development of a benchmarking process, based on the chapter findings, which reflects the aims and objectives of the research. Appendix 1 also contains vignettes of how organisations have adapted the steps of the benchmarking process in practice to best suit their needs.

PART 1: Overview and Introduction to the Concept of Benchmarking

4.1 Definitions of Best Practice Benchmarking and Justifications for its use in the Research

4.1.1 Definitions of Best Practice Benchmarking

Best practice benchmarking is a performance improvement technique “through which organisations continually review the outputs from their operations and identify ways to make changes in their processes so that better outputs result” (Holloway et al., 1998, p.1). The essence of benchmarking can be traced to the Japanese word *dantotsu*, which means striving to be the “best of the best” (Camp, 1989).

Camp (1989, p.10) suggests a formal definition of benchmarking derived from his experience and successes of applying benchmarking techniques in the manufacturing sector:

“Benchmarking is the continuous process of measuring products, services and practices against the toughest competitors or those recognised as industry leaders.”

This definition can be broken down and explained further. To be truly effective, benchmarking should be a continuous process to reflect constantly changing industry practices. Only organisations who pursue benchmarking with discipline will achieve superior performance. The term benchmarking implies measurement which can be accomplished by either comparing internal and external practices and documenting the significant differences to highlight the best practices that must be implemented to achieve superiority. Benchmarking can be applied to basic products and services and to the processes that make up the products and services. It can be applied to all process practices and methods that support getting products and services to customers and meeting their needs, but as well as revealing what the industry best practices are it helps to give an understanding of how best practices are used. Benchmarking should be directed at functions within firms who are regarded as industry leaders and not just at sole product competitors. The company serving as a benchmark partner is not always obvious and careful investigation is needed when selecting other organisations. (Camp, 1989)

The critical characteristic of best practice benchmarking is the examination of processes (Francis and Holloway, 2006). Improved performance can only be pursued effectively once there is an understanding of how the inputs are transformed into outputs (Holloway et al, 1999). For example, having a league table of results does not enable an organisation to understand how a better performer achieved their higher position and hence how to move up the table (Francis and Holloway, 2006). Targets are an integral part of benchmarking but the concept that there is a best way to do something and once a target has been achieved no

further changes are needed, is at odds with the dynamic nature of benchmarking (Holloway et al, 1999, Francis et al, 2002). Benchmarking results rather than the processes behind them may be the right approach for the earliest applications of benchmarking. Camp (1995, p.15) states, “benchmarking is used to improve performance by understanding the methods and practices required to achieve world-class performance levels. Benchmarking’s primary objective is to understand those practices that will provide a competitive advantage; target setting is secondary.”

Holloway et al (1999, p.1) offer the following definition which goes further and focuses on the importance of examining processes:

“The pursuit by organisations of enhanced performance by learning from the successful practices of others. Benchmarking is a continuous activity; key internal processes are adjusted, performance is monitored, new comparisons are made with the current best performers and further changes are explored. Where information about these key processes is obtained through a cooperative partnership with specific organisations there is an expectation of mutual benefit over a period of time”. (Holloway et al, 1999, p.1)

The UK Government definition from the Department of Trade and Industry for benchmarking is:

“A systematic approach to business improvement where best practice is sought and implemented to improve a process beyond the benchmark performance”. (Partnership Sourcing, 1997, p.7 cited in Holloway et al, 1999, p.2)

Benchmarking can help organisations to improve strategically important processes in theory, in practice the efforts are often directed to operational processes which may be easier to change, or perhaps even to simply comparing results without considering the processes behind them. This may be a reflection of traditional work practices where the financial “bottom line” is the most important factor, as well as a lack of appreciation from managers on how to maximise the benefit from benchmarking. (Francis et al., 1999)

The purpose of benchmarking is to:

Analyse the operation – organisations who benchmark must assess the strengths and weaknesses of their current work processes and spot areas for improvement.

Know the competition and industry leaders – organisations who benchmark must find out who is the ‘best of the best’.

Incorporate the ‘best of the best’ – organisations who benchmark must learn from leaders, uncover where they are and where they are going, learn from the leaders superior practices to understand why they work and emulate the best practices.

Gain superiority – organisations who benchmark must try to become the new

benchmark. (Camp, 1995) Benchmarking has many characteristics which are

summarised into five points to show “what benchmarking is” and “what benchmarking is not” shown in Table 4.1.

Table 4.1: What Benchmarking Is and Is Not

Benchmarking is:	Benchmarking is not:
A continuous process	A one-time event
A process of investigation that provides valuable information	A process of investigation that provides simple information answers
A process of learning from others; a pragmatic	Copying or imitating search for ideas
A time-consuming, labour-intensive process	Quick and easy requiring discipline
A viable tool that provides useful information for	A buzzword or fad improving virtually any business activity

Source: Spendolini (1992, pp. 33)

Zairi and Leonard (1994) state that benchmarking is the best tool for introducing improvements in the strategic planning aspects of an organisation. Benchmarking links well with the ethos of continuous improvement; it can be deployed at all levels within an organisation with differing focuses and enables a company to regularly review its effectiveness and competitiveness.

Benchmarking is not only relevant to those companies who wish to become number one in their industry. Depending on factors such as the learning curve, the resources committed and the pace of achievements, benchmarking can lead to incremental improvements in existing performance standards, large improvements by implementing new practices or it can plan an important role in the “road to excellence” and “creating a learning organisation”. (Zairi, 1994)

A benefit of benchmarking is that it involves a systematic set of steps (described later in section 4.6) which appeals to managers who like clear answers. This systemised approach can make strategy formulation and deployment easier. A benchmarking project, however, must also consider other factors such as organisational interactions before any changes are proposed. Organisations must be careful to manage the entire process of benchmarking and the area of the business in which it is being conducted and not just focus on following the correct series of steps in the process. Successful use of benchmarking within organisations in areas of difficult activity can lead to wider benefits in terms of change management and organisational learning. (Zairi, 1994, Francis et al, 1999)

The notion of “learning” in benchmarking is regarded as important. The basic objectives of learning something new and introducing new ideas into an organisation are fundamental to

benchmarking always lie behind the planning, organising and analysing activities that define the benchmarking experience (Spendolini, 1992). Organisations using benchmarking should also have a culture where there is comfort with the notion of comparison and also with using the information from benchmarking to understand rather than judge (Trosa and Williams, 1996). Hinton et al (2000) state that this culture should be characterised by a desire to change processes as well as outputs and there should be a willingness to look externally for ideas.

4.2.2 Justifications for Using Benchmarking in the Research

The decision to use best practice benchmarking as a methodology for the research was linked to the aims and objectives, as set out in section 3.5. It was important to find a technique that allowed for Heathrow Airport to compare and learn from the best practice of organisations in other sectors. Detailed information on processes within the selected non-airport case study organisations and BAA needed to be gathered. As such, the more traditional methodological techniques used in transport policy studies such as stated preference models and surveys were not applicable because they did not meet these requirements. MacLean (2004) states that surveys rarely reveal the richness of information that may be available and that they do not probe and question in the same way that a benchmarking exercise does.

An organisational performance improvement technique was required, of which benchmarking is one of a number, particularly in strategic areas and in terms of competitive advantage (Francis et al, 1999). Benchmarking is regarded as one of the most effective performance improvement approaches currently available (Marie et al, 2005). It is often part of a wider quality improvement programme within an organisation and can give such programmes more impetus. For example, Xerox, one of the pioneers of benchmarking have a quality programme called “leadership through quality” which consists of the three processes of quality, problem-solving and benchmarking. Such programmes, often referred to as “Total Quality Management” (TQM) are considered to have helped the development of benchmarking because of their focus on the process and the consumer (Zairi, 1994).

Successful performance measurement should focus on the means and the results, in other words, the processes and the outcomes (Zairi, 1994). Focussing purely on results can be

detrimental as an understanding of why different areas of the organisation are successful or unsuccessful can not be attained. Benchmarking allows managers to ask questions about results, the performance and the behaviour of process whereas other performance improvement techniques do not always allow for this level of depth. In addition, Francis et al (1999) state that benchmarking is less threatening than other approaches to performance improvement but do not, however, give any reasons for this statement.

Table 4.2 outlines the reasons for selecting the benchmarking approach as a methodology for the research, as opposed to other potential techniques.

Ian Straker – Airport Car Parking Strategy: Lessons from the Non-Airport Sector Chapter 4: The Concept and Methodology of Best Practice Benchmarking

Table 4.2 Justification for Selecting Benchmarking as a Methodology for the Research

Benchmarking	Rejected Approaches
<p>Justification for using best practice benchmarking • Focuses on processes and not just results • Allows for specific processes to be investigated in depth • Allows for comparisons to be made between organisations • Regarded as less threatening than other performance improvement techniques • Focuses on finding best practice examples</p>	<p>Other performance improvement techniques – e.g. performance management, performance measurement • May only focus on results rather than processes • Does not focus on finding best practice examples “Traditional” transport policy techniques – e.g. stated preference modelling, surveys • Does not allow for the same depth of investigation into processes • Does not readily allow for comparisons between organisations • Does not focus on finding best practice examples</p>

In addition, benchmarking is also the most widely used performance improvement technique in airlines and airports (as explored further in section 4.4.1) although its use tends to focus on results rather than processes. That it is used within the aviation industry already, however, helps to justify its use.

4.2 Types of Benchmarking

Benchmarking covers a range of activities and the purpose and effectiveness of these varies between organisations. This range of practices means that a number of typologies exist. The most commonly used and accepted typology is that of internal, competitive, functional and generic benchmarking (Zairi and Leonard, 1994, Camp, 1995, Francis et al, 1999, Holloway et al, 1999, Hinton et al, 2000). These four categories have subsequently been expanded upon by other authors and a wide range of typologies now exist. These include 'results' and 'process' benchmarking (Trosa and Williams, 1996), 'problem-based' and 'process-based' benchmarking (Camp, 1995), 'compulsory' and 'voluntary' benchmarking (Helgason, 1997 and Bowerman et al, 2002) and 'strategic' and 'operational' benchmarking (Camp, 1995). Francis and Holloway (2006) state that a range of further typologies and terminologies also exist including 'lateral' benchmarking, 'implicit' benchmarking and 'co-operative' benchmarking. They surmise, however, that:

“The proliferation of typologies is of limited use in helping us understand the purposes held for benchmarking, because it tends to lag behind practice. Indeed sometimes it is possible to gain the impression that writers are competing to provide the ultimate definition or approaching the field from completely separate viewpoints that are incapable of integration.” (Francis and Holloway, 2006)

4.2.1 Internal, Competitive, Functional and Generic Benchmarking

The commonly accepted typologies of internal, competitive, functional and generic benchmarking are defined below along with brief examples of where each has been used:

Internal – a comparison among similar operations within one's own organisation. Centre Parcs, an organisation who run holiday parks, internally benchmark their different sites against each other on criteria such as occupancy rates.

Competitive – a comparison to the best of the direct competitors. Fairgrounds swap safety information, as an accident on a ride at one park could lead to negative publicity for the whole industry.

Functional – a comparison of methods to companies with similar processes in the same function outside one's industry. BAA (British Airports Authority) undertook a benchmarking exercise against Wembley Stadium and Ascot Racecourse as they had the shared activities of needing to park, move and feed large volumes of customers.

Generic process – a comparison of work processes to others who have innovative, exemplar work processes. Southwest Airlines in the USA wanted to improve their 40 minute aircraft refuelling time but found they were already industry leaders. They looked to exemplar processes in other industries and

benchmarked against Formula 1 motor racing, which led to refuelling times being cut to 12 minutes. (Murdock, 1997, Francis, 2003)

Surveys conducted by the Open University (Holloway et al., 1999) showed the percentage of

companies using each of the benchmarking typologies. The findings are shown in Table 4.2 and highlight that competitive benchmarking is the most widely used of the four typologies, while generic benchmarking is used the least. This is because when looking to improve, companies will naturally look to their competitors to attempt to close the performance gap. As they are in the same industry their process are more readily transferable.

Table 4.3: Nature of Benchmarking Activity

Nature of benchmarking activity	Percentage
Internal 25% Competitive 42% Functional 25% Generic 8%	

Source: Holloway et al., 1999

The following four subsections give more detail on each of the four types of benchmarking, along with examples of where and how they have been used.

4.2.2 Internal Benchmarking

Internal benchmarking is when an organisation benchmarks against similar operations within the organisation and is often a starting point for any benchmarking project. Internal benchmarking assumes that there are different work practices within different parts of an organisation and that some departments' practices may be more efficient and effective than others. It can be particularly useful in large multi-national organisations where the same company in one country may be performing better than a sister company elsewhere. Internal benchmarking also aids in documenting an organisation's own work processes and can act as a baseline for any further investigations that may be done as competitive, functional or generic benchmarking. The advantages of internal benchmarking are that data can be easily obtained, it is reliable and there are no issues surrounding confidentiality, thus it is easier to gain cooperation of other departments. These factors contribute to making the benchmarking exercise both effective and efficient. However, the practices found within one's own organisation may not be best practice and care must be taken that any organisational bias does not affect the findings. There may be internal problems if certain departments are unwilling to share information and data because they believe they have an edge over other departments. It may also be difficult to adopt a totally objective comparison through internal benchmarking and cultural differences between departments, customers or companies in different countries for example, may make comparisons more difficult.

(Spendolini, 1992, Zairi and Leonard, 1994, Camp, 1995, Cox and Thompson, 1998, Francis 2003)

TNT Express (UK) are a distribution company with approximately 8,000 staff and 350 locations in the UK who have used internal benchmarking. Performance measurement is widely encouraged within the various depots on things such as invoice queries, credit notes issued, debtor weeks outstanding and sales ledger with the information being published in league tables. There is a culture of competition at TNT Express and so league tables are regarded as the best way to encourage continuous improvement. Within the company good performance is rewarded and crucially, from the perspective of best practice benchmarking, processes producing bad performance are improved through inspiration from the best depots. Once a depot becomes the benchmark they are given one star per item measured. When a depot achieves five stars they are rewarded with small financial incentives and if they sustain the performance over an unbroken period they are given a further incentive. The use of internal benchmarking has contributed to TNT increasing the proportion of deliveries on time, reduced the volume of copy notes and reduced the number of misroutes. (Zairi, 1998b)

Shorts, an aircraft manufacturer, represent another organisation who introduced internal benchmarking to improve internal work processes and improve cross-functional communication. Benchmarking enabled the best aspects of different business units to be emulated throughout the company. Shorts also used internal benchmarking as a stepping stone to further competitive and generic benchmarking as it helped increase familiarity with the concept within the company. (Zairi, 1998a)

The Nationwide Building Society in the UK began to use internal benchmarking when surveys revealed low customer satisfaction ratings in certain areas of the business and severe gaps in some of the process flows as its branches. Best practices within the organisation were located and catalogued and best practitioner managers were seconded to other branches to help bring about changes. The improvements to the company's processes resulted in savings of £17 million as well as benefits across the business in operational, financial and strategic areas. (Zairi and Whymark, 2000b)

4.2.3 Competitive

Competitive benchmarking is when products, services, activities and processes are benchmarked against the best of direct competitors in the industry. Ultimately an organisation wants to know its position in relation to its competitors and an understanding of work practices in other organisations can help to improve those work practices which do not measure up. Within an industry, competing organisations may have many things in common, such as the technology used, access to marketing channels, foreign suppliers and so on, and so any lessons learned from competitors can be easily translated from one organisation to another. Competitive benchmarking is easier to carry out when information is readily available, but when it is not then it becomes dependent on the willingness of competitors to share information which may potentially damage their competitive advantage. (Spendolini, 1992, Zairi and Leonard, 1994, Camp, 1995)

Often, the biggest barriers to competitive benchmarking lie within the organisation wishing to carry out the project and the fact they view competitors as untrustworthy when it comes to providing data. Many companies realise however that competitiveness depends on carefully structured co-operation. Co-operation between competitors on issues of safety is a particularly good example of why competitive benchmarking can be beneficial for a whole industry. A drawback of competitive benchmarking is that other organisations may not have practices worth emulating or learning from and therefore care needs to be taken when selecting suitable comparator companies and processes. Benchmarking in this instance will identify the competitive gap but to look for superior processes and innovative ideas, experience from other industries should be sought. With competitive benchmarking, if another organisation's processes are simply copied then breakthrough actions might not be achieved. (Spendolini, 1992, Zairi and Leonard, 1994, Camp, 1995, Cox and Thompson, 1998, Francis 2003)

Britannia, a charter airline based in the UK, represent an example of an organisation who have begun to benchmark in both an internal and competitive manner. The example also represents some of the concerns that organisations may have over indulging in competitive benchmarking. Britannia introduced benchmarking to its maintenance division when it was realised there was a problem in controlling major costs. Initially, an internal benchmarking database was established to compare current costs to historical costs and this provided a starting point for further benchmarking activity. Britannia considered talking to direct competitors in the UK to be too commercially sensitive so they looked to foreign airlines. While Britannia recognised that they did not carry out best practice benchmarking by

comparing against “best in class” they claimed they learned valuable lessons from the process. They state one of the reasons for not carrying out best practice benchmarking is because they do not know who the best in class are. In Britannia’s case, internal benchmarking has provided a useful learning experience and a starting point for further benchmarking. (Francis et al., 1999)

Further examples of competitive benchmarking can be seen in the public sector. The Court Services, an executive agency of the Lord Chancellor’s Department in the UK, used competitive benchmarking and found that they focussed on targets rather than those who delivered them and their customers, that there was a lack of communication and that managers needed to improve their leadership skills to inspire and motivate staff. All of the points were taken into consideration and long term strategies were devised along with an action plan. Prince Charles Hospital in Merthyr Tydfil, Wales, used competitive benchmarking to improve the quality of their patient discharge process by comparing processes with four other hospitals to identify best practice. Reorganisation following the benchmarking project saved time for patients and their families and allowed resources to be used more efficiently. (Magd and Curry, 2003) Within the air cargo industry, high growth rates and the development of integrated carriers has meant that the airline/freight forwarder partnership has been unable to keep up as pressure for faster delivery times has increased. Lobo and Zairi (1999a, b and c) undertook a benchmarking survey which looked at seven airlines and two integrators. Criteria were set up to assess each company in the areas of leadership, strategic quality planning, human resources management, process management, quality results and customer satisfaction. The survey established the leading companies in the different areas and some of the key practices used and offered a starting point for the companies involved to improve their processes.

4.2.4 Functional

Functional benchmarking is when a comparison is made to practices at organisations with similar processes in the same function but outside the industry. With functional benchmarking it is the nature of the actual process or activity which is matched, rather than the organisation’s business. Benchmarking with organisations from another industry overcomes any problems surrounding sharing information with competitors so long as the activity is properly introduced and approached in a professional manner with discipline. Searching for benchmarking partners to share information within other industries is intensive

because it is in this class of organisations that the most innovative practices are found. By examining practices with a fresh perspective from other industries, new solutions can be found to old problems and new innovative approaches can be developed. New practices found in other industries may also be easier to implement because their discovery is non-threatening and they do not reflect badly on the organisation because they were unknown prior to benchmarking. Functional benchmarking may also lead to two-way partnerships being forged with other organisations, further increasing the opportunities for learning. As functional benchmarking focuses on specific functions, however, then a wider benefit to other areas of the business may not always be seen. Care should be taken when selecting companies as the nature of the comparison can be complex, for example cultural or demographic factors may have an impact. (Camp, 1995, Zairi and Leonard, 1994, Cox and Thompson, 1998, Francis, 2003)

One of the most famous examples of benchmarking is the comparison at Xerox of its practices to those of L.L. Bean, a company who made outdoor clothing and equipment. The example highlights the role of functional benchmarking. Xerox benchmarked against L.L. Bean because it was found to be a leader in terms of the picking process for assembling customer orders. Although operating in a different industry, L.L. Bean was judged to have a similar process to Xerox because the products handled varied widely in shape, size and handling requirements. Research into other companies as suitable benchmarking partners revealed that L.L. Bean's order picking process was three times faster than that at Xerox, so they began to benchmark and learn about L.L. Bean's warehousing and ordering processes. The comparison allowed Xerox to realise that the items would have to be picked manually and the process could not be automated as had been originally thought. It also highlighted the way L.L. Bean located items within their warehouse to best match the random fashion in which they received orders. This is something which Xerox did not do and which accounted for the productivity differences. (Spendolini, 1992, Camp, 1993 and Camp, 1995)

Kodak use a mixture of functional and competitive benchmarking in a range of areas, for example:

- Achieving excellence in Quality Leadership Process deployment – Eastman Chemicals
- Achieving ISO 9002 Accreditation – Arkansas Eastman
- World class packaged goods marketing – Lehn & Fink

- Articulation of the strategic framework – Sterling Pharmaceuticals. Kodak also benchmark with a number of other companies including Toyota, Dulux, Ford, BHP and

Comalcos for specific purposes which range from the concept of “infull, on-time, accurately” to briefing processes through multi-layered organisations. The benchmarks aid in goal setting and planning. (Zairi, 1996)

Other organisations who have used functional benchmarking include Post Office Counters Limited, who benchmark internally first across their seven regions in the UK, before looking to external best practice organisations. Post Office Counters Limited have developed a database of “best of breed” internal processes, “best of breed” external companies, benchmarking partners and benchmarking studies. Another example, Northern Telecom, had a primary corporate target of achieving the benchmark in customer satisfaction. It embarked on a functional benchmarking project which surveyed 23 companies from a wide range of different industries including aviation, car rental, electrical goods manufacturing and packaging. The survey covered issues of company culture, customer satisfaction policy, customer involvement, communications, organisation and people involvement, impact on performance and measurement of customer satisfaction. The survey responses highlighted a number of areas where Northern Telecom could seek to improve its processes and more in depth work was carried out with three of the companies originally surveyed to develop a new method of working to help improve customer satisfaction levels. (Zairi, 1996)

At IBM, the Havant site chose benchmarking partners from other industries who manufactured similar electrical assembly products, who were recognised for their expertise in areas such as just-in-time production, quality, cost management and feature mix. Problems were encountered in selecting the partners, a lack of preparedness on the part of the partners and the data used for comparisons. IBM was still able to gather some useful data, however, and the benchmarking exercise helped to improve customer satisfaction as well as preventing complacency within the organisation. (Zairi, 1996)

4.2.5 Generic

With generic benchmarking there is no search for direct comparability, instead an attempt is made to learn from others who have innovative and exemplar processes. The concentration of the benchmarking activity is strictly on the process. The approach is to consider that organisations are run on their processes and that many of these processes must have similar requirements, no matter what type of operation the company performs or the industry it is in.

Selecting benchmarking candidates requires thinking outside of the box and innovation when searching, thus “the process” has to be considered in its broadest sense. A difficulty with generic benchmarking is that without some creativity and willingness to try and adapt new practices, they will be passed off as not readily transferable. In some instances, competing companies from one industry may conduct joint benchmarking projects outside of their industry. This applies to functional as well as generic benchmarking. (Camp, 1995, Francis, 2003)

Zairi and Leonard (1994) state that generic benchmarking is related to the processes at the very heart of a business and that until an organisation has gone through an evolutionary process of understanding and gaining experience from competitive, functional and internal benchmarking then it is unlikely that it’s mind set is capable of maximising the benefit that generic benchmarking can offer.

An example of generic benchmarking can be seen in the Remington division of DuPont, a large US organisation operating in several markets. The team from the Remington division were acting upon customer requirements for “smoother, shinier shells” for ammunition for their leading product, shotguns and rifles. The benchmarking team developed some good candidates in the internal, competitive and functional fields, but decided to concentrate on the “smoother and shinier” aspect and highlighted the manufacturers of lipstick containers as being the leaders. As well as being leaders in terms of smoother and shinier, the lipstick shells were similar in shape to those produced by Remington. The team was then able to benchmark against lipstick case manufacturers to respond to the customers’ requests. (Camp, 1995)

PART 2: Why do Organisations use Benchmarking?

4.3 Reasons for Using Benchmarking

“Benchmarking is emerging in leading companies as an information tool to support continuous improvement and to gain a competitive advantage.” (Bhutta and Huq, 1999, p.259)

A number of reasons exist as to why organisations use benchmarking. These include: to aid

strategic planning and develop short- and long-term plans; to aid forecasting and predict trends in relevant business areas; to help develop new ideas and enable thinking “outside the box”; to allow product and process comparisons and comparisons with competitors or best-practice organisations, and; to aid goal setting and establish performance goals in relation to state-of-the-art practices. (Spendolini, 1992)

A survey by Coopers and Lybrand (1994) revealed that three quarters of large organisations regarded benchmarking projects to be successful and gave the following reasons:

- Sets meaningful and realistic targets;
- Improves productivity;
- Helps gain new insights;
- Gives an early warning of competitive disadvantage, and;

- Motivates staff by showing what is possible. As stated by Holloway et al (1998a, p.12), “it highlights areas where others are more efficient and gives added impetus to improve because others have shown what can be done.”

Zairi and Leonard (1994) state that organisations win through innovation, uniqueness, teaching and through a culture of continuous improvement and learning. They suggest that the concept of benchmarking can act as a catalyst to success and superiority. Anderson and Petterson (1995) add that benchmarking emphasises achieving “breakthrough” improvements. These accelerations in improvement and change are usually accomplished by introducing new practices to an industry or organisation.

Benchmarking can be applied to almost anything that can be observed or measured.

Spendolini (1992) highlights the most commonly explored areas for benchmarking as being:

- Products and services – focused on the finished goods, product and service features of competitors.

- Work processes – focused on how a product or service is produced or supported, rather than what the product or service is.

- Support functions – focused on indirect labour not directly involved with actual production of products or services offered to consumers, such as finance or human resources.

- Organisational performance – outcomes such as costs, revenues, production and quality indicators which define an organisation’s bottom line success.

- Strategy – companies may benchmark organisational or functional strategies to understand how other companies gain competitive advantage.

A number of reasons are cited as to why benchmarking is preferred to other performance improvement techniques. Benchmarking can reveal a richness of information, particularly when face to face interviews are used. Compared to other data collection methods such as

surveys, benchmarking interviews can probe further, extract more sensitive information and identify problem areas. In some cases the best information from a benchmarking study can be the lessons learned from failures (MacLean, 2004).

In this thesis, there are two areas which will be involved in the benchmarking exercise. The first is the actual nature of the car parking strategy being used at Heathrow and the non-airport case studies in terms of which instruments are used to reduce the number of people driving to work. There will also be a focus on how the non-airport organisations have implemented employee car parking initiatives and how they have gained staff acceptance. Including these issues within the benchmarking exercise will allow Heathrow to learn from other organisations who have successfully introduced such strategies. In this way the benchmarking exercise could be viewed as having two streams – one of ‘practice’, focused on the actual measures used in the strategy and one of ‘principle’, focused on the process of change, the reasons for the implementing the strategy and how it was implemented. The organisations selected will be those identified as ‘leaders’ in terms of the car parking measures they have introduced and overall travel planning, although not necessarily as leaders in terms of implementing change. It is believed that by selecting organisations who have proved successful in terms of their car parking strategy and travel planning, however, that they will provide valuable lessons to learn from not least in the areas of implementation and staff acceptance.

4.4 Where Benchmarking Is Used

Benchmarking has been used in a wide range of business sectors. Surveys conducted by the Open University revealed the percentage of organisations claiming to be using benchmarking in the UK. The findings, split by sector, are given in Table 4.3. The figures reveal that 43 per cent of organisations in the transport sector claim to use benchmarking, which is just below the UK average. This shows that benchmarking can be considered to be a suitable approach to take for the research as it is being used by other companies in the transport sector. It can also be viewed as suitable because benchmarking cannot be seen to be an exhausted practice within transport, particularly when compared to a sector such as utilities and therefore provides an opportunity for original research.

Table 4.4: Percentage of UK Organisations Claiming to be Benchmarking per Sector

Sector	Percentage claiming to be benchmarking
Government	58%
Education	62%
Health	69%
Manufacturing and construction	50%
Transport	43%
Financial services	33%
Services and retailing	36%
Utilities	78%
Other	49%
Average across all sectors	48%

Source: Holloway et al., 1999

Smith (2000) argues that the adoption of benchmarking techniques has been slower in the service sector. The figures in Table 4.3 confirm this to some extent with sectors such as transport and retail having the lowest take up of benchmarking. Other service sectors, however, such as health, education and government can be seen to have above average take up of benchmarking. It may be that these sectors are influenced by the regulatory environment in which they operate and are required to produce league tables of results which would impact on the number using benchmarking (Holloway et al, 1998b). Within these figures it must also be remembered that the distinction between benchmarking and best practice benchmarking must be considered. While an organisation may state that they use benchmarking, they may just be comparing results rather than processes. Holloway et al (1998a) confirm this, as their survey finds that many organisations place a greater emphasis on results rather than process benchmarking.

When compared to manufacturing firms, service organisations have a number of differences which has made it harder to develop comprehensive quality management programmes. This may explain why the take up of benchmarking has traditionally been slower in transport and other service industries. These differences include characteristics in the service sector such as simultaneous production and consumption, heterogeneity, perishability and the intangibility of the output. (Smith, 2000)

Table 4.4 shows the relationship between the size of an organisation and the use of benchmarking. The figures reveal that the larger the company, the more likely it is to engage in benchmarking activities. This finding supports the use of benchmarking at BAA Heathrow, which has approximately 3,000 employees. Other research has shown that more than 70 percent of the Fortune 500 companies use benchmarking on a regular basis (Bhutta and Huq, 1999).

Table 4.5: Benchmarking Activity as a Function of Organisational Size

Number of employees	Percentage benchmarking
<25	11%
26-99	25%
100-250	42%
251-999	53%
>1000	78%

Source: Holloway et al., 1999

4.4.1 Benchmarking in the Airport Sector

Francis and Humphreys (2005, p.99) state that in civil aviation, benchmarking may “offer the potential of:

- providing information to meet the needs of managers and planners in a volatile market environment;
- offering possible solutions drawn from best practice elsewhere in the industry;
- offering a means of improving efficiency through learning both within organisations and between organisations; facilitating effective economic and environmental regulation; and maintaining and improving air transport safety through sharing information and knowledge.”

In the airport sector, performance management techniques have long been used to measure efficiency, allow alternative strategies to be evaluated and to allow governments to regulate airport activity. They are also used to enable managers to monitor operational performance and identify areas for improvement. The techniques used are wide ranging and often quantitative with focus on cost performance, productivity and revenue (Humphreys and Francis, 2000). In many cases they allow only for comparisons to be made rather than for the underlying processes to be investigated. For example, Lobo and Zairi (1999a and b) carried out a benchmarking exercise with cargo airlines which used qualitative comparisons to highlight key benchmarks the industry could use to compare performance. The use of best practice benchmarking can allow airports to understand how better performing airports are achieving their superior status.

Graham (2005) states that it is only within the last 15 to 20 years that benchmarking in the airport industry has begun to be accepted as an important management tool. This relatively recent take up is because of the increase in business pressures since privatisation and because benchmarking was previously viewed as a difficult undertaking due to the range of inputs, outputs and the operational environment. Airports no longer regard themselves as

providers of infrastructure and recognise now the necessity for a wider range of business tools, which has led to a growing use of continuous performance appraisal and the use of benchmarking.

Francis et al (2002, p.239) state that benchmarking “is of potential importance to airports because of the challenges they face...airport privatisation, commercialisation, congestion of airport infrastructure, rapid growth in traffic, the formation of global airport groups, airline market deregulation and alliances.” The challenges posed by the congestion of airport infrastructure is an area being addressed in this research and, as such, the fact it has been considered by other academics provides justification for the use of benchmarking in this area.

Research into the use of benchmarking by airports was conducted by Fry et al (2005) who identified benchmarking as the most commonly used technique for improving performance with 72 percent of airports revealing they used benchmarking. Other techniques being used included quality management systems, balanced scorecards, activity based costing, business process engineering, total quality management, environmental management systems, value based management and business excellence models. As benchmarking allows organisations to look at processes rather than just results, this makes it more suitable to the research than other performance improvement techniques which would only allow BAA to compare results with other organisations and not the processes behind the results.

The same survey found that the larger the airport, the more likely it was to use benchmarking; all responding airports with more than five million passengers per annum were almost twice as likely to use benchmarking than those with less than five million passengers per annum. There was a stronger focus on performance measurement rather than process improvement with 65 percent using it for this reason. An even balance was found between whether benchmarking was used for the comparison of particular tasks and activities, or for more general business-wide comparisons.

It was found that airports almost exclusively benchmarked with similar organisations, almost invariably other airports and that some stated that it was difficult to identify suitable and willing partners. It was recommended by the authors that they should look to exemplar processes at dissimilar airports or other industries to extract full benefit from benchmarking (Fry et al, 2005). In other research there are few examples of airports engaging in best

practice benchmarking with organisations outside the airport sector. BAA, however, did undertake an exercise by benchmarking car parking processes and passenger throughput with similar processes at Wembley Stadium and Ascot race course (Francis et al, 2002). In the airline industry, the “putting people first” strategy adopted by British Airways in the late 1980’s is a well-documented use of benchmarking to achieve service improvement across different divisions of the airline (Francis et al, 1999).

The use of benchmarking by airports against other airports at a strategic level has been reported. Ratings published by the International Air Transport Association allow cross-airport performance to be compared in a range of airport service performance indicators. These ratings offer a starting point for airport management to begin analysing the processes generating the figures. In Europe, the FLAP group (comprising representatives from the Frankfurt, London, Amsterdam and Paris airports) have used benchmarking to explore the performance measures which cover retail activity (Humphreys and Francis, 2000). These comparisons tend to focus on results rather than processes however. Research has also been undertaken to assess the potential to use benchmarking techniques in the design of major airports worldwide, although it again focused on quantitative data and measurements rather than processes (de Neufville, 1998).

The use of benchmarking in the airport sector lends support and justification to using it as a basis for this research. It is a well established performance improvement tool in the industry. The finding that most airports look for comparator organisations within their own industry means that the use of non-airport organisations as comparators in this research is a relatively innovative approach.

PART 3: Applying Benchmarking to the Research

4.5 The Use of Functional Benchmarking

Functional benchmarking is the most suitable approach to benchmarking the processes surrounding employee car parking at BAA with the processes and experiences of non-airport organisations. The organisations chosen from the non-airport sector represent examples of best practice in terms of travel planning and car parking strategies. As the processes being examined are within the same function of the business but the organisations are from another industry they fit the definition of functional benchmarking. It could be argued that the non-airport sites selected demonstrate innovative and exemplar processes and hence the nature of

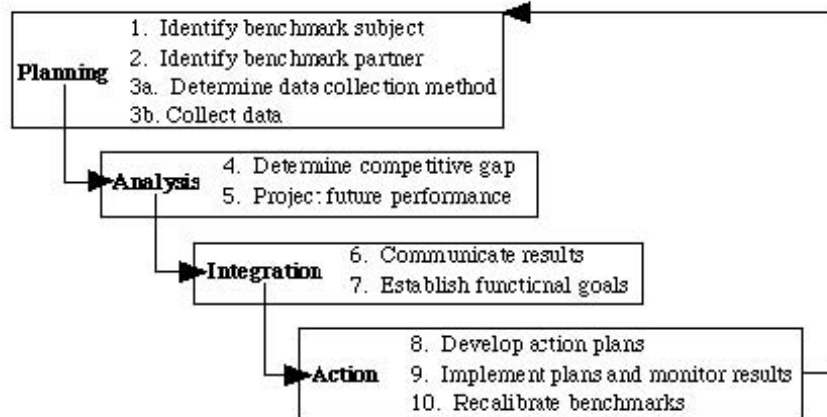
the benchmarking may be generic. The distinction between functional and generic benchmarking is not always clear; some authors such as Spendolini (1992) consider them together.

The use of functional benchmarking removes fears about sharing information with competitors and also allows for a wider range of organisations to be considered as potential partners (Holloway et al, 1998b). This means that there is a greater chance at gaining access to the best companies and those that it is ideal to compare processes with.

4.6 The Benchmarking Process

This section explores the process of steps to be followed when conducting a benchmarking exercise. A ten step process, which is split into four phases, is described by Camp (1995). This is shown in Figure 4.1.

Figure 4.1: The Formal, Ten-Step Benchmarking Process



Source: Camp (1995) The ten steps in Camp’s model can be summarised as follows:

Decide what to benchmark – identify the largest opportunity to improve performance by identifying the key work processes and prioritising them;

Identify whom to benchmark – determine which companies have superior work practices that can be adopted or adapted;

Plan and conduct the investigation – determine the data needed and how to conduct the investigation. Superior practices should be observed first hand and best practices documented;

Determine the current performance gap – decide how much better the observed work practices are than current practices;

Project future performance levels – determine the amount by which the performance gap will narrow or widen in the near future and the repercussions for the organisation;

Communicate benchmarking findings - to all those who have a need to know to gain acceptance and commitment;

Revise performance goals – convert findings into operational statements describing what is to be improved based on implementation of the best practices;

Develop action plans – develop implementation plans, measurements, assignments and timescales for acting on the best practices;

Implement specific actions and monitor progress – and report to key process owners and management;

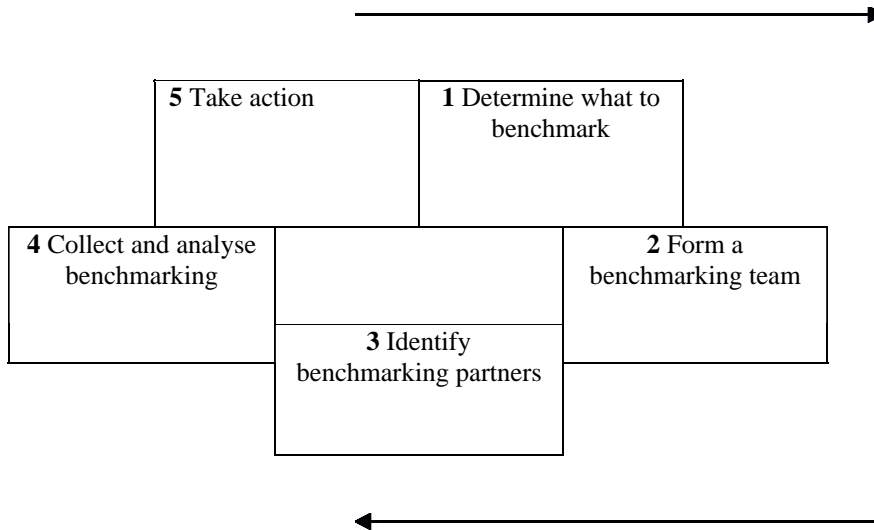
Recalibrate the benchmarks – continue benchmarking and update work practices to remain up to date. Determine the organisations position in its quality pursuit and how this impacts on benchmarking activities.

Of the ten steps, Camp considers the first three to be the most important: identifying what to benchmark; who to benchmark, and; where to get the data and information. In order to identify what to benchmark and how to go about it an organisation must first have a detailed knowledge of their own processes and what they wish to achieve (Lee, 2004). Although the benchmarking exercise for this research is being conducted from an ‘outside perspective’, the work carried out at Heathrow and other airports has led to a detailed understanding of the issues surrounding employee car parking and the area to be focused on when benchmarking. The final step of Camp’s process is ‘recalibrating’ which is important because over time the benchmark will change and organisations must adapt to this. Other benchmarking processes follow a similar pattern, but may not incorporate the 10 specific steps. The number of steps is not important as long as a simple, logical sequence of activity is followed, a heavy emphasis is placed on planning and organisation, the benchmarking is customer focused and it is consistent within an organisation (Spendolini, 1992, Bhutta and Huq, 1999).

In Spendolini’s (1992), 5-stage model, shown in Figure 4.2, he includes a step ‘form a benchmarking team’ to assign roles and responsibilities to team members so that each person is clear on the objectives and project milestones. While this is not a specific step in Camp’s process, it is important at a strategic level to ensure that everything is done to enable benchmarking to be pursued effectively. Members of the team should also ideally have benchmarking experience, as should members of the organisation being benchmarked (Holloway et al, 1998b). Vasilash (1994) conducted interviews in which it was revealed that two or three was the optimum number of people to conduct a benchmarking exercise. Within this research it was not possible to have a whole team dedicated to planning, data collection and analysis. This does not mean that the benchmarking exercise is discredited but care must be taken to be open and perceptive when collecting information. Indeed, it may add consistency to the benchmarking exercise which could be lost by having a number of researchers.

Spendolini places more emphasis on the planning, collecting and analysing stages of benchmarking and his fifth stage “take action” encompasses all of Camp’s steps from 6 through to 10 at once. Both models emphasise that once the final stage is reached the benchmarking process begins again.

Figure 4.2: The Five Stage Benchmarking Process



Source: Spendolini (1992, p. 48)

A large number of organisations have followed Camp’s 10 step model when carrying out benchmarking. Xerox (the company for which Camp was employed and which is recognised as the pioneer of benchmarking) and Kodak both used the same 10 step process as described by Camp. Many other examples including Post Office Counters Limited, the National Roads and Motorists Association, Royal Mail, Texas Instruments, IBM UK and BP Chemicals have used slight variations of Camp’s model (Zairi, 1996). In some cases, such as BP Chemicals, the order of the steps is a little different to that suggested by Camp and in others, such as Post Office Counters Limited and NRMA, more steps are allocated to the planning stages. Westland Helicopters used an eight step process when benchmarking which was a hybrid of both Camp and Spendolini’s models.

The process followed when conducting benchmarking is not as simple as copying what another company has done or adopting the same methodology. Despite the development of models such as Camp’s and Spendolini’s it is important to recognise that benchmarking involves a number of factors such as good interdisciplinary working, top management commitment and realistic resources, as detailed in section 4.7, rather than a rigid adherence to a list of ‘instructions’ (Francis and Holloway, 2006). The benchmarking process should be

adapted to each company's style by considering circumstances specific to them (Bhutta and Huq, 1999). Some companies conducting benchmarking seem to place emphasis on following the correct steps according to the textbooks, when more consideration should be given to elements such as the organisational culture, communications, personalities and competing priorities (Francis et al, 1999).

Appendix 1 contains four example vignettes of benchmarking exercises all of which have been selected because they have relevance to this research. Examples are chosen from the service sector and in one case from the aviation industry. The examples help to highlight where organisations have adapted benchmarking models to best suit their own needs and where outside consultants or researchers have aided the benchmarking exercise.

4.7 Aiding the Success of a Benchmarking Exercise

In addition to the benchmarking processes detailed in section 4.6, there are a number of factors which aid the success of a benchmarking exercise, as explored below.

4.7.1 Data Collection

MacLean (2004, p.14) states, "The best benchmarking studies are those that use an initial screening technique and then face to face interviews with individuals at the highest and lowest levels within organisations." This allows the views of top level managers and directors, who may put some political spin on their responses, to be contrasted with the views of the "ordinary" workers. It is also important to be able to deliver questions which follow up previous answers and then questions which subsequently follow up those answers in order to probe the subject area successfully.

Gathering consistent data across all of the benchmarking visits is important. Developing a questionnaire to use during interviews is seen as a good way of ensuring consistent data (Anderson et al, 1999). This is something that was carefully considered when planning the benchmarking exercise and conducting the visits to the case study organisations and is explored in greater detail in Chapter 5..

4.7.2 Consideration of the Organisation Being Benchmarked

There are a number of factors to consider about the company being benchmarked, known as the benchmarkee, when planning and conducting a benchmarking initiative. Benchmarkees have to devote time and resources if they are to host a benchmarking visit. Therefore, they need to gain sufficient value from the exchange. There are several benefits that an organisation can exploit from hosting a visit including:

- Improved relationships – where benchmarking partners are customers, suppliers or business associates, benchmarking exercises can promote relationships;

- Process audit – being benchmarked allows the benchmarkee to validate the quality of its processes or identify areas for improvement;

- Opportunity for reciprocity – hosting a benchmarking visit can lead to a reciprocal visit in the future;

- Promotion of benchmarking – people inside the company being benchmarked are able to witness successful benchmarking in action, and;

- Morale booster – morale can be increased by being considered as a leading organisation. (Langowitz and Rao, 1995)

Langowitz and Rao (1995, p. 58) state that, “Gaining access is undoubtedly the biggest hurdle in the benchmarking exchange.” Exploiting one of the areas listed above is a good way of delivering value to the benchmarkee and gaining access. Holloway et al (1998a, p.23) conducted surveys and interviews with organisations who had conducted benchmarking, in which one manager stated, “What we’ve found is that you’ve got to go prepared to trade information, in other words it can’t be a one way issue.”

In the research, it is not possible to exploit all of the areas listed above, or offer any detailed exchange of information because of the outside viewpoint that is being taken. For example, it would not be possible to arrange a reciprocal visit to BAA and the opportunities to develop business relationships are somewhat limited. Feedback was however given to participants in the research. Other factors such as the promotion of benchmarking, boosting morale and facilitating a process audit could play a part in gaining access to organisations. These issues are discussed in more detail later in the chapter.

4.7.3 The Importance of Consumers

In the service sector particularly, the input of consumer perceptions to the benchmarking process is important. Unlike a manufactured product, which can be seen and examined, the quality of a service is determined by the consumers perception of it (Smith, 2000). In the case of the benchmarking exercise in this research, the consumers are the car park users at

Heathrow and the non-airport case study sites. Some may choose to drive and use the car parking facilities, while some may choose other modes of transport. Therefore their views are valuable to the benchmarking exercise and as such must be included.

4.7.4 The Importance of a Benchmarking Champion and a Benchmarking Culture

In an organisation it is regarded as essential to have a knowledgeable and enthusiastic person who represents support from top management for the benchmarking initiatives. This person should also have the necessary resources and authority to enable all stages of the benchmarking exercise to be completed (Holloway et al, 1998b). This is supported by Miller (2004, p.63) who states, “above all, managers must have heart for the work being done”. In terms of the research, there is no true product champion from within BAA, but there is strong support for the research being carried out and there will be opportunities to gain access to as much relevant data as required.

This can be extended to the notion of a benchmarking “culture” within an organisation. Successful benchmarking is often aided by such a culture, the desire to change processes as well as outputs and the willingness to look externally for ideas. (Hinton et al, 2000)

It is also argued that benchmarking must show direct support for an organisation’s objectives, priorities and mission that make up its *raison d’être*. If this is not present then the benchmarking activity is wasted effort and so early in the planning process for benchmarking, the company’s goals should be considered. The benchmarking efforts should also be prioritised to show that it is focused on the vital few processes that will have greatest impact on the company goals. (Zairi, 1994, Camp, 1995)

Within the research it is difficult to discuss the importance of a benchmarking culture due to the outside viewpoint taken by the research. It will, however, be possible to ask questions at BAA when conducting the benchmarking exercise to ascertain whether there is a willingness to look elsewhere to improve the processes related to employee car parking within the company. The benchmarking exercise will show support towards the objectives of BAA, with specific attention being paid to the company’s need to reduce the number of people who travel to the airport by private car, specifically in the employee sector.

4.7.5 The Importance of Employees

It is important to involve employees in the benchmarking process as they are the ones who will ultimately use the information gathered (Bhutta and Huq, 1999). This is something that can often be overlooked. Francis et al (1999) conducted surveys which reported staff resistance to benchmarking as being an issue, particularly among larger organisations. In the research it is not possible to include employees in the benchmarking process as it is being conducted from an outside perspective, but it will be possible to examine employee views when conducting the exercise.

4.8 Limitations of Benchmarking

Benchmarking covers a broad range of activities and it is possibly for this reason that its popularity has been sustained. Some, however, see it as just another management fashion with little to indicate why they should adopt it. Several limitations of benchmarking are argued to exist. These are detailed in this section along with discussion of how they will be overcome or minimised in the research.

There are a number of generic risks, which relate to whether benchmarking is appropriate or inappropriate. They are:

- Misunderstanding the appropriateness of benchmarking;
- Selecting an inappropriate set of performance measures;
- Selecting the wrong benchmarking partners;
- Failing to gain access to appropriate benchmark data;
- Misunderstanding the contingent circumstances which support benchmark data;
- Inability to implement someone else's best practice;
- Failing to establish top management support;
- Potential loss of control of information to competitors;
- Over-reliance on quantitative data and misunderstanding the underlying reasons for the performance measures, and;
- The benefits derived from playing "catch up" are less than the costs of the

benchmarking exercise.

(Cox and Thompson, 1998)

The risks listed above and potential ways to overcome them are discussed throughout this section. Most of the risks can be overcome with careful planning of the benchmarking

exercise. For instance, “selecting the wrong benchmarking partners”, “over-reliance on quantitative data” and “selecting an inappropriate set of performance measures” are all problem areas which can be addressed before conducting a benchmarking visit to another organisation.

Surveys conducted by Holloway et al (1998a) asked why some organisations had decided to reject benchmarking as a potential performance improvement technique. The problems cited included issues of comparability, resource constraints, access, staff resistance and confidentiality. Hinton et al (2000) cite the main reasons as being resource constraints and comparability of data. They also found that those who had rejected benchmarking had made informed decisions based on their own unique circumstances and not because of the concept in itself.

4.8.1 Finding “Best” Practice

Cox and Thompson (1998) question the validity of benchmarking as a rigorous theoretical concept, arguing that “best practice” differs for each organisation depending on their individual commercial circumstances. Similarly, by simply describing what companies are doing at a particular moment in time, there is no way of knowing whether what they are doing is indeed “best practice”, compared to what would constitute best practice in an ideal world. They add that the questions of “what to benchmark” and “who to benchmark” do not address the more fundamental issues of “what is it that is wanted in terms of business improvement and which tools and techniques are most appropriate to deliver the improvement.” Miller (2004) adds that unquestioning acceptance of ‘best practice’ is potentially dangerous and demonstrates a neglect of professional responsibility.

It may be the case that some companies may not wish to partake in a benchmarking exercise and hence the “best” organisations cannot always be benchmarked against. For this reason the search for benchmarking partners may be focused on “better practice” rather than “best practice.” Finding benchmarking partners can often be difficult particularly if searching for companies who are comparable in terms of size, market conditions and industry, while at the same time are sufficiently better to have something to teach others and are willing to share the information (Anderson et al, 1999). In the Britannia Airways example discussed in section 4.2.3, Britannia stressed that they had not done “true benchmarking” in terms of

comparing against best in class because they did not know who the best in class were (Francis et al, 1999).

In the benchmarking exercise undertaken in this research “best practice” organisations will be sought by consulting best practice guides in the area of travel planning and by talking to experts in the field. It may be that the very best organisations cannot be used because it is not always possible to know who they are or because they are unwilling to take part. It is expected, however, to be possible to find organisations demonstrating “better” practice than BAA from which BAA can learn. The use of three non-airport case studies will also allow for a range of information to be gathered, thus reducing any potential problems if it is not possible to benchmark with the “best” organisations.

4.8.2 Control of Sensitive Information

Benchmarking is regarded as inappropriate in some circumstances because it carries risks such as the inability to control effectively against losing sensitive data to competitors. Surveys have found, however, that this is not viewed as a common problem, mainly because experienced benchmarkers are aware of the need to address such issues early in the process (Hinton et al, 2000). From the viewpoint of the company conducting the benchmarking visit, it can be difficult to gain access to certain data, particularly sensitive information such as finances. Many also see benchmarking as a mixed metaphor in that it may involve cooperating with competitors and if one organisation has an advantage then what is their motivation to share information (Cox and Thompson, 1998, Anderson et al, 1999). This is something that will have to be carefully considered in the research. By explaining that the benchmarking exercise is part of a research project not directly related to BAA, it should be possible to overcome such issues. The fact that non-airport organisations are being targeted should also reduce any potential problems.

4.8.3 Implementing Best Practices

Once the data collection is complete and analysis has taken place there is still the risk of failure in implementing somebody else’s “best practice” effectively, usually at a financial cost. In reality it does not always follow that processes in one organisation will be readily

applicable to another. Benchmarking often assumes that this is the case and may go to the extreme of saying if something has worked in one instance, it will work in all circumstances (Cox and Thompson, 1998). Hinton et al (2000a) conducted surveys which discovered that comparability of data was viewed as a common problem and that it was not always possible to know whether the data being collected would be easily transferable to one's own company. One respondent stated "are we comparing apples with apples, or apples with pears?"

4.8.4 Playing Catch Up

It may be the case that when a company attempts to close the gap on current best practice they may succeed in catching another organisation in the short term but in the long term they fail to stay ahead of the competition because they are unable to innovate or demonstrate continuous improvement. The leading organisation may then improve further and hence the company using benchmarking is always in a position of catching up. Zairi and Leonard (1994, p.6) state "True leaders never rest. They believe that the more they learn, the more they realise how naïve they were." McAdam and Kelly (2002) add that innovative companies thrive on change and the attitude that change is healthy is a key difference between leaders and followers. In this sense, market leadership and sustainable competitive advantage cannot be gained from benchmarking, it can only ever offer second best. As benchmarking may unwittingly draw companies towards imitation and homogeneity, managers have gradually let the importance of operational effectiveness increase over strategy.

There is an argument, however, that looking outside the boundaries of an organisation and comparing processes with others enables companies to acquire implied as well as explicit knowledge. When integrated with previous internal knowledge of one's own organisation this creates new knowledge which can lead to improvements, creativity and innovations, perhaps not even directly related to the benchmarking area.

4.8.5 Resources

Elnathan et al (1996) suggest that benchmarking has hidden costs such as the time and effort

required to coordinate the process and participants so that a comparable set of data is gathered and the costs relating to issues such as cultural change or resistance to change by those affected or involved. Such costs may be hard to measure and understand. Time is considered to be the greatest factor causing resistance to benchmarking (Hinton et al, 2000). In addition there are direct costs such as travel which can make a benchmarking exercise expensive (Bhutta and Huq, 1999).

If company directors do not fully understand the time, money and resources associated with benchmarking and the benefits it can offer then it may be hard to justify using benchmarking. Similarly, the benchmarkee may not be willing to devote lots of resources into hosting a benchmarking visit. This can lead to problems where process are not investigated thoroughly enough, for example if interview time is restricted. (Anderson et al, 1999)

Costs can be controlled if benchmarking is approached one step at a time with focus being directed at narrow areas rather than wide ranging studies. If benchmarking visits are well planned, there is a detailed understanding of the organisation's own problem areas and it is clear what is wanted from the visit then costs can also be managed more efficiently. (Bhutta and Huq, 1999)

In the research any issues with getting the benchmarkee to devote resources to the exercise will be minimized by explaining to them what is required before conducting the visit. Careful planning of the data collection, structure and timing of the visit will further facilitate getting the benchmarkee to devote some time to the benchmarking exercise.

4.8.6 Is Benchmarking the Appropriate Technique To Use?

It is argued that for benchmarking to be the appropriate management technique to use, there must be an understanding of why somebody else's processes are appropriate to one's own organisation. Benchmarking detractors state that the circumstances that make benchmarking appropriate are rarely present and any general rules for benchmarking are unlikely to exist because all companies are distinct in their culture and standard operating procedures. As most comparative studies do not study similar companies operating within the same industrial context, they normally take cases with very different competitive forces in

operation and where the business drivers are dissimilar (Cox and Thompson, 1998). This limitation can be overcome with careful planning and selection of appropriate organisations at the outset of the benchmarking process by basing the selection on appropriate criteria.

Benchmarking assumes that all organisations want to be the best, when in practice this may not always be the case. Best practice also assumes that there is “a single best way” to improve, rather than looking for the most appropriate way depending on an organisation's circumstances and characteristics (Cox and Thompson, 1998). As has been mentioned, this limitation can be minimized by studying three non-airport organisations to give a wider range of findings than focusing on one company.

On its own, benchmarking does not tell organisations what customers actually want. If a product or service becomes obsolete, then no amount of improvements in the production processes will make it competitive (Bhutta and Huq, 1999). This is a limitation which does not really affect the research as the demand for employee car parking spaces is likely to remain for many more years.

4.8.7 Specific Risks of Benchmarking

In addition to the areas discussed thus far, there are specific risks of inappropriate benchmarking which may carry a greater severity than the generic risks. These can be summarised as being:

- The exercise fails to generate the desired business improvements.

- Competitors play “catch up with you”.

- Business “fads” are adopted.

- Potential long term business decline, loss of market share and risks of succession by competitors.

- Loss of credibility with senior management. (Cox and Thompson, 1998)

4.8.8 General Solutions to Benchmarking Limitations

Anderson et al (1999) offer some general approaches to overcoming the challenges posed by benchmarking, namely:

- Applying a systematic procedure to scan a large number of potential partners for relevance;

- Seeking support from sources and institutions such as industry associations or the media that may be able to help highlight potential partners;

- Making sure the offer made to companies is attractive, for example by informing

about processes the benchmarkee is good at and offering return visits, and;

Requesting initial performance information about the processes in question before selecting partners to ensure that the performance will be sufficiently good enough to offer new insights.

Where relevant, these approaches will be considered. Selection of organisations by scanning at a large number of companies and seeking support from “experts” is important and will be adopted. It is also a sensible approach to gather information on the benchmarkee before making a final selection decision or visit. It may not be possible to offer attractive reciprocal visits, but it is thought that the outside perspective from which the benchmarking exercise is being conducted will remove many barriers in terms of gaining access to organisations.

4.9 Conclusions

Best practice benchmarking is a performance management technique which allows organisations to learn from other organisations, regarded as best practice, either in the same industry or in unrelated industries. An advantage of best practice benchmarking over other performance improvement techniques is that it focuses on the processes which lead to better results. Within the context of the research it is processes associated with the introduction of a financial incentive or disincentive car parking measure for employees which are explored. This chapter has shown that the concept of benchmarking is being used within the research to learn from “best” or “better” practice elsewhere in similar areas and processes. The chapter helps to achieve the following objective as set out in section

3.5 from a methodological perspective:

- explore whether good practice in the non-airport sector can be transferred to an airport context and in particular Heathrow Airport. Further original research and the benchmarking discussion and analysis contained in Chapter 8 with further address this objective.

Best practice benchmarking can be seen to be more suited to the area being studied than other performance improvement techniques as it looks at processes rather than just results. Benchmarking as a technique has been used in the airport and wider transport sector, but at the same time its use has not been exhausted and there is still scope for original work. In the airport sector specifically it has been stated that airports could learn from benchmarking with dissimilar airports or organisations from a different industry.

Several benchmarking typologies exist, most notably the distinction between internal, competitive, functional and generic. It is considered that functional benchmarking, whereby processes are compared between the benchmarking organisation and the best practice organisation, is the type most suited to the research being conducted.

Additional considerations when conducting a benchmarking exercise have been discussed including data collection, consideration of the benchmarkee and the importance of benchmarking champions, culture and employees. These will all need to be considered when conducting the benchmarking exercise. Issues surrounding data collection are discussed in more detail in Chapter 5 which addresses the more specific methodology for conducting the exercise. Benchmarking has also been shown to have a number of limitations all of which will have to be carefully considered to achieve the maximum benefit from the benchmarking exercise. These limitations are possible to overcome and should not restrict the findings of the research.

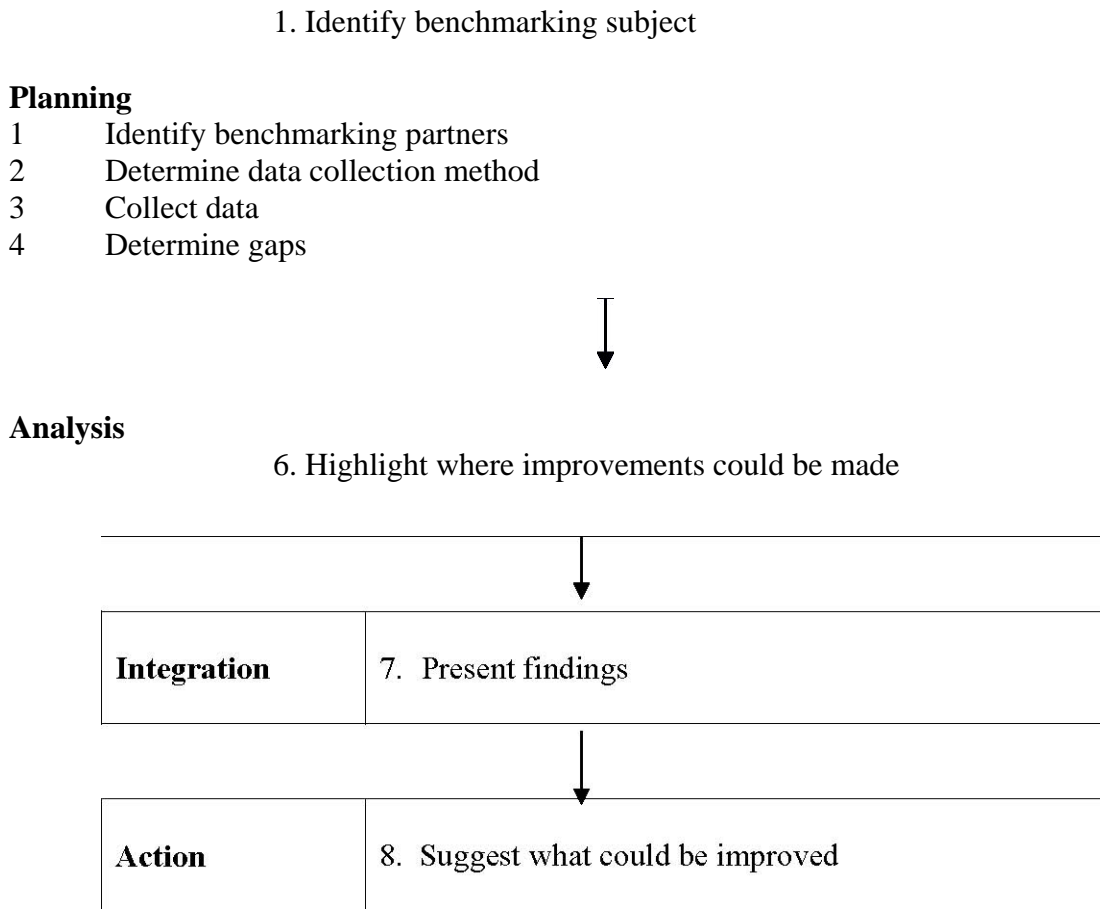
Camp's ten-step benchmarking process has been highlighted as a suitable base model. This model has been used by several organisations when benchmarking and has also been shown to be adaptable to individual circumstances and characteristics. This is important for the benchmarking exercise in the research and as such a model has been developed based on Camp's ten-step process, as described below in section 4.10. The nature of the thesis means that the latter stages of Camp's benchmarking process cannot be completed. Recommendations can be made to BAA based on the findings of the benchmarking exercise, but then the subsequent stages of the benchmarking process cannot be followed through within the scope of the research.

4.10 Developing a Benchmarking Process for the Research

The model developed by Camp, and variations of it, has been shown to be the most commonly used of the benchmarking processes. A range of companies have taken Camp's model and adapted it to best suit their own needs and individual circumstances. Camp's model contains more detail than other models, such as that developed by Spendolini, and the individual steps in the process appear more clear. For these reasons, Camp's model forms the basis of the benchmarking process used to conduct the benchmarking exercise in this research. Holloway et al (1998a, p.5) "reject the notion that there is a 'single best way' of developing processes. This further helps to justify the adaptation of Camp's model. The

adaptation of Camp's model is shown in Figure 4.3.

Figure 4.3: The Benchmarking Process Used for the Research



This benchmarking process can be seen to run through the whole thesis. A great deal of emphasis is placed on the planning stages. As has already been stated, Camp (1995) regards this phase to be the most important. Step one, “identify benchmarking subject” has already been addressed in the literature review and findings from the work carried out at selected airports. The area of employee car parking and more specifically looking at the use of a financial incentive or disincentive measure direct to employees has been highlighted as the subject. The next sections of the thesis, which looks at the choice of case studies and the methodology used to conduct them encompasses steps two and three. The case study chapters will detail step four, “collection of data”, and will begin to help determine the gaps and highlight improvement areas, which are steps five and six. Further analysis of the findings and analysis between the non-airport case study sites and Heathrow will further support steps five, six and also seven as it becomes possible to establish what could be improved. The final recommendations and conclusions chapters will communicate the results and make suggestions to BAA, as seen in step eight.

One thing that cannot easily be covered by the research is the “recalibration” step that usually forms the last part of the benchmarking process and includes activities such as monitoring benchmarking over time, conducting further exercises and keeping the organisation aware of developments elsewhere. The nature of the research means that it can only be suggested that BAA follow this course of action after implementing any changes recommended due to the results of the benchmarking exercise; it cannot be carried out in the research itself due to time, resource and access constraints.

Chapter 5. Research Design and Methods

5.0 Introduction

Based on the findings from the literature review and the scoping study at the four airports together with the process of steps developed from the concept and methodology of benchmarking it is possible to develop a research design to address the aim of the research. As stated in section 3.5, the research aim is:

- To explore the issues surrounding the potential introduction of a direct employee car parking financial incentive or disincentive measure at Heathrow Airport, drawing on best practice from specific non-airport organisations.

The research objectives are to:

- investigate the current issues facing airports with respect to car parking;
- determine the measures currently in operation at Heathrow Airport to reduce car use and the demand for car parking by employees;
- explore the issues that need to be addressed if implementing a financial incentive or disincentive employee car parking measure at Heathrow Airport;
- investigate the innovative strategies being used in the non-airport sector in order to manage the demand for employee car parking;
- explore whether good practice in the non-airport sector can be transferred to an airport context and in particular Heathrow Airport.
- recommend good practices from the non-airport sector that could be implemented at airports and in particular Heathrow Airport.

In this chapter various research designs are compared and justification is presented for the selection of a multiple case study approach using multiple units of analysis. The issues of quality, validity and reliability within case studies are addressed and the methods used to ensure all of these areas are maximised within the research is discussed.

Details of the chosen cases, Heathrow Airport, Addenbrooke’s Hospital in Cambridge, The

University of Bristol in Bristol and Pfizer in Sandwich and are presented and their selection is justified. Heathrow is selected because of its position as the largest UK airport, as well as one of the largest in the world, coupled with the constraints it is facing in the areas of passenger growth, the car parking cap and air quality targets all of which are anticipated to create car parking problems in the future. The three non-airport case studies against which Heathrow Airport will be benchmarked have been selected because of their recognised position of demonstrating best practice in terms of car parking policy and travel planning in general.

The selection of semi-structured interviews and focus groups as data collection methods is discussed, the interview and focus group questions are presented and the selection of the interviewees and focus group participants is described, both in terms of the individuals and the methods of selection. The data collection methods are also reflected upon to highlight potential drawbacks of the research design and it is stated as to how these have been overcome.

The links between the benchmarking process described in Chapter 4 and the research design is considered and the various steps of the data collection phase are stated with regard to the benchmarking process. This is followed by a section describing how the collected data will be coded and analysed using an interpretative analysis approach, which then allows for the findings to be presented and the benchmarking analysis to be undertaken in the subsequent chapters of the thesis.

5.1 Research Design

5.1.1 Purpose of the Research Design

The purpose of the research design is to help avoid the situation in which the evidence does not address the initial research question (Oppenheim, 1992). It is the basic strategy of the research; a logical framework that guides the investigator in the process of collecting, analysing and interpreting observations (Yin, 2003). The research design is concerned with making the problem researchable by setting up the study in a way that will allow for specific answers to specific questions. It also defines whether the findings can be generalised to a larger population or to different situations (Bryman, 2001).

A number of different research designs exist and choosing the best design is a matter of appropriateness (Oppenheim, 1992). Research designs differ from research methods, which are focussed on the data collection techniques. The research methods used are discussed in section 5.4.

Yin (2003) states that the various research designs can all be used for exploratory, descriptive or explanatory purposes. The most appropriate design to use is determined by three conditions:

- the type of research question posed;
- the extent of control an investigator has over actual behavioural events, and;
- the degree of focus on contemporary as opposed to historical events.

Each of the main research designs identified by Yin is shown in Table 5.1 in relation to these three conditions. Action research, not selected by Yin but widely accepted as another design type, is also included in the table. They are then explored in greater detail along with an assessment of the appropriateness of each design to the research.

Table 5.1: Relevant Situations for Different Research Designs

Strategy	Form of Research Question	Requires control over behavioural events?	Focuses on contemporary events?
Experiment	How, why	Yes	Yes
Survey	Who, what where how many, how much	No	Yes
Archival analysis	Who, what where how many, how much	No	Yes/No
History	How, why	No	No
Action Research	How, why	No	Yes
Case study	How, why	No	Yes

Source: based on Yin, 2003

5.1.2 Rejected Strategies

Experiments are typically conducted to test specific hypotheses about causal relationships between different phenomena (Orum et al, 1991). An experiment requires the researcher to manipulate an independent variable in a direct, precise and systematic manner in order to determine whether it has an influence on the dependent variable. The use of experiments was not considered to be suitable for the research because the research question requires an investigation into how and why certain actions were taken, or need to be taken, within the organisations being studied without the researcher having any direct control over those

actions. In reality, organisations may not readily permit intervention within their processes. Experiments also take a bounded view of phenomena (Fellows and Liu, 1997) which could restrict the ability to view the organisations being studied in a manner consistent with the research question.

Surveys are methods of collecting data from large numbers of people who represent a population, or a random sample of a population, and generally rely on a standardised set of questions (Orum et al, 1991). The data is usually collected at a single point in time and is then examined for patterns of relationships between variables (Bryman, 2001). Within the research a high degree of understanding of the processes related to car parking and the introduction of a car parking charge is required to enable findings to be transferred from non-airport organisations to Heathrow Airport. Due to their focus on “what” and “how many” type questions it was felt that a survey would not allow this depth of understanding to be generated or a diverse set of factors to be fully explored. It was also assumed that there would be relatively few people within Heathrow Airport and the non-airport organisations with a sufficiently great knowledge of the issues addressed by the research question to enable survey results to be of any real meaning.

The analysis of archival records is advantageous when the research goal is to describe the incidence or prevalence of a phenomenon, or when it is to be predictive about certain outcomes (Yin, 2003). It was considered unsuitable as a research design for the thesis as it does not allow ‘how’ and ‘why’ questions to be readily addressed.

Histories rely on primary and secondary documentation as well as cultural and physical artefacts for evidence and are a preferred method of research design when there is virtually no access or control. Their contribution lies mainly in dealing with the “dead” past when there are no relevant people alive to report what happened. The use of histories was not considered applicable to the research being conducted because of the lack of focus on contemporary events.

Action research is an approach in which the researcher and a client collaborate in the diagnosis of a problem and the subsequent solution to the problem (Bryman, 2001). The researcher becomes part of the field of study and so action research can help to overcome any confidentiality issues. The use of action research to address the research question would prove difficult, firstly because of gaining access to work within an organisation and secondly

because it would require participation in multiple organisations all included in the research.

5.1.3 Case Study

Case studies allow an investigation to maintain the holistic and meaningful characteristics of real life events (Yin, 2003). It entails the detailed exploration of a case and can contain many methods of data collection (Orum et al, 1991; Bryman, 2001). Case studies are often associated with a location, such as a community, organisation, city or a role (Orum et al, 1991; Bryman, 2001). Exponents of case studies generally favour qualitative methods as they are regarded as useful in developing a detailed and intensive examination of the case (Bryman, 2001). To this end, Orum et al (1991) define case studies as using only qualitative research methods, although do recognise that quantitative modes can play a useful role. Case studies can either be single-case or multiple-case (Bryman, 2001; Yin, 2003); this is discussed in section 5.2.3.

As stated earlier, three types of strategy can be distinguished between with all the research designs: exploratory; descriptive, and; explanatory (Yin, 2003). In terms of case studies, the descriptive case study is an attempt to describe something which has happened. It is often considered a less prestigious strategy as it is merely a matter of observation and reporting, but is also argued that there is no description without analysis and interpretation. Exploratory case studies are subject to the same arguments. Explanatory case studies are viewed by some with extreme scepticism but can be extremely useful when studying processes in companies (Gummesson, 2000).

The case study approach was selected as an appropriate research framework because of the following strengths:

Case studies have a high exploratory potential and allow “how” and “why” questions to be posed (Yin, 2003). This is important for the research being conducted with regard to understanding the reasons for change in employee car parking at Heathrow Airport, likely impacts of a change and the way in which changes to car parking strategy have been made at the non-airport organisations.

Their holistic approach allows for real life contemporary events and natural everyday events to be focussed upon (Orum et al, 1991; Cavaye, 1996; Yin, 2003).

They do not require control over behavioural events (Yin, 2003).

A case study allows for highly descriptive and in-depth investigations of situations and processes. This is essential when focussing on the issues at Heathrow Airport and seeking to address them by analysing organisations in the non-airport sector.

They allow a range of data collection methods to be used to contribute to the overall

case study and can be conducted over a period of time (Orum et al, 1991; Gummesson, 2000; Bryman, 2001). This aids the research because it allows the processes and issues under investigation to be fully explored and a more holistic study to be conducted. Decisions and the effect of the decisions over time can be observed.

Case studies, in a similar way to other qualitative research, lend themselves to theoretical generation as well as generalisation. They allow new interpretations and concepts to be suggested and can generate new ideas and theories (Orum et al, 1991; Cavaye, 1996). The benchmarking approach taken in the research and its integral use within the case studies is supported by the theory generation advantages of case studies.

Case studies are not without their disadvantages however and there are some criticisms of this research design. Case studies are sometimes regarded as having a lack of rigour and care has to be taken not to allow equivocal evidence or biased views to influence the findings (Yin, 2003). This criticism is addressed in section 5.2, along with concerns over the validity of case study research. They are often regarded as providing very little basis for scientific generalisation; this is particularly the case when there is only a single case study (Orum et al, 1991; Cavaye, 1996; Yin, 2003). The use and merits of single- and multiple-case studies are addressed in section 5.2.3. Like experiments, case studies are generalisable to theoretical propositions but not to populations or universes. Case studies also take long periods of time and can result in large unreadable documents, although this does not have to be the case (Yin, 2003). Orum et al (1991) raise the concern that case studies may not cast light on propositions derived from prior research. The use of case studies in this research is not intended to test theory however, it is to facilitate a comparison of processes.

5.2 Case Study Research Design

This section explores in more detail the case study as a research design. The influence of benchmarking on the research design is also documented.

5.2.1 General Approach to Designing Case Studies

As stated in section 5.1.1 the research design is a logical framework that guides the investigator in the process of collecting, analysing and interpreting observations. For case studies, five components of a research design are particularly important:

- A study's questions;
- Its propositions, if any;
- Its unit(s) of analysis;
- The logic linking the data to the propositions; and
- The criteria for interpreting the findings. (Yin, 2003)

The nature of the study questions have already been addressed throughout section 5.1, with ‘how’ and ‘why’ questions highlighted as the most relevant to the research overall. The case study’s propositions direct attention to the areas that should be examined and begin to tell the researcher where to look for relevant evidence (Yin, 2003). Table 5.2 provides an overview of the case study propositions for both Heathrow Airport and the non-airport case study organisations. These propositions facilitate the development of specific and more detailed interview and focus group questions presented in Figures 5.1 to 5.5. The propositions also help to highlight the benchmarking process in that the situation at Heathrow Airport is to be compared to that at non-airport organisations. The unit(s) of analysis is related to defining what the “case” is, whether it be an individual, and organisation or a process (Darke et al, 1998). The tentative definition of the unit of analysis is related to the way in which the initial research questions have been designed (Yin, 2003). The initial questions for this research are related to the implementation of a car parking charge for employees and so the unit of analysis is the process surrounding such an implementation within the organisations being examined. The choice of organisations to be examined and the individuals within those organisations are discussed in section 5.3 and 5.4. Within this research the use of best practice benchmarking helps to shape the case studies and interpret the findings. Similar areas are examined in a number of case studies which allows for an understanding of the best practices and ultimately their relevance to the situation at Heathrow Airport. Finally, there are no set criteria for interpreting the findings of case studies but patterns arising from the case studies should reveal similarities and differences which allow for overall conclusions to be drawn (Yin, 2003).

Table 5.2: Case Study Propositions

Heathrow Airport	Non-Airport Organisations
Why is there a car parking problem? What is the current car parking situation?	Why does the car parking situation need to be improved? change in strategy?
What is currently being done to rectify the situation?	What was the original problem which required a change in strategy? How was the situation rectified?
What new strategies could be implemented? How was the new strategy implemented?	How could new strategies be implemented? What problems had to be overcome?
How could new strategies be implemented? What problems had to be overcome?	What impact would new strategies be likely to have? strategy? What was the impact of introducing the new strategy?

5.2.2 Judging the Quality of a Case Study Research Design

The quality of a research design can be assessed according to some logical tests. Four common tests are used to establish the quality of any empirical social research (Bryman, 2001; Yin, 2003). Three of the four tests relate to issues of validity which can be thought of as the extent to which researchers are able to use their method to study what they had sought to study (Gummesson, 2000). The other relates to reliability which is the ability to repeat the study using identical procedures and obtain similar results; the main aim is to minimise the biases and errors in a study (Orum et al, 1991; Gummesson, 2000; Yin, 2003). Yin (2003, p.34) summarises these four tests as follows:

Construct validity – establishing correct operational measures for the concepts being studied.

Internal validity – establishing a causal relationship, whereby certain conditions are shown to lead to other conditions, as distinguished from spurious relationships (for explanatory or causal studies only and not for descriptive or exploratory studies).

External validity – establishing the domain to which a study's findings can be generalised.

Reliability – demonstrating that the operations of a study, such as the data collection procedures, can be repeated, with the same results.

Case studies have some distinct advantages over other research designs in terms of validity. They enable the investigator to assemble complementary and overlapping measures of the same phenomena meaning that cross checks can be made to validate observations. This is known as triangulation (Orum et al, 1991; Stake, 1995). Triangulation can take the form of data triangulation, investigator triangulation, theory triangulation and methodological triangulation (Fielding and Fielding, 1986). Within the research the triangulation of data sources is the primary type used and includes asking different interviewees the same question, incorporating alternative and independent sources of information such as external reports and by observing first hand some the areas under investigation. Ultimately, triangulation increases the researchers confidence in the findings and helps when imparting information to a final audience (Fielding and Fielding, 1986).

External validity, also referred to as generalisability, is one of the main concerns of case study research and questions surround the issue of how can one case study lead to general findings (Bryman, 2001). This issue and the use of multiple cases studies in the research is addressed later in this section.

Each of the tests is shown in Table 5.3 along with recommended tactics and the measures that were used for this research. A case study database was developed to catalogue all data and communications to enable the case studies to be managed efficiently. This has not been

formally included in the thesis as it was a mechanism to personally manage information rather than to be presented for any analysis. Confidentiality issues regarding the names of interview respondents and focus group participants also determined that this information did not need to be presented.

Ian

Table

Tests	Case-Study Tactic	Phase of Research in Which Tactic Occurs	Specific Measures of
Construct Validity	<ul style="list-style-type: none"> • Use multiple sources of evidence • Establish chain of evidence • Have key informants review draft case study report 	Data collection Data collection Composition	<ul style="list-style-type: none"> • Multiple sources of evidence (section 5.4.2) • Focus on triangulation and supplementation (section 5.4.3) • Focus on triangulation for factual errors (section 5.4.4)
Internal Validity	<ul style="list-style-type: none"> • Do pattern matching • Do explanation-building • Address rival explanations • Use logic models 	Data analysis Data analysis Data analysis Data analysis	<ul style="list-style-type: none"> • Selection of cases (section 5.4.1) • Tactics suggested (section 5.4.2)
External Validity	<ul style="list-style-type: none"> • Use theory in single-case studies • Use replication logic in multiple case studies 	Research design Research design	<ul style="list-style-type: none"> • Replication logic design applied to each case study undertaken within bench
Reliability	<ul style="list-style-type: none"> • Use case study protocol • Develop case study database 	Data collection Data collection	<ul style="list-style-type: none"> • Case study action plan • Case study records rigorously documented (section 5.4.5)

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5.2.3 Types of Case Study

Yin (2003) identifies four types of case study, differentiated depending on whether they are single- or multiple-case and embedded or holistic, as depicted by Table 5.4.

Table 5.4: Basic Case Study Designs

	Single-Case Designs	Multiple-Case Designs
Holistic (single unit of analysis)	Type 1	Type 3
Embedded (multiple units of analysis)	Type 2	Type 4

Source: Yin, 2003

Single and Multiple Cases

Distinguishing between single- and multiple-case design is the primary decision to be taken in case study design before any data is collected (Yin, 2003). A multiple-case study approach is most suited to the research being carried out in the thesis. In total there are four organisations involved in the research. The reasons for this and the selection of the four case study organisations is discussed in section 5.3. The evidence generated by multiple-case designs is often considered to be more compelling, thus making the overall study more robust and providing greater analytic benefits. They overcome the problem of “putting all your eggs in one basket” which is often levelled at single-case designs. In studying more than one case, the external generalisability of the findings is far greater than with single-case designs (Darke, 1998; Bryman, 2001; Yin, 2003). In addition every case should have a specific purpose within the overall scope of the investigation; this is discussed throughout section 5.3.

Holistic and Embedded Case Studies

Each individual case study may involve one unit of analysis, known as a holistic case study design, or it may involve multiple units of analysis, known as an embedded design. A unit of

analysis is a subunit, or subunits, within a case which is given specific attention. A holistic design can be advantageous when no logical subunits can be identified, but can also lead the investigator to conduct the case study at an abstract level and the entire nature of the case study can shift during its course without the researcher realising. Embedded designs overcome such problems but problems can arise if only the subunit level is focussed upon, without an appreciation for the overall case. (Yin, 2003)

At Heathrow Airport the reasons for requiring a change to the current car parking strategy are being investigated along with an examination of potential strategies and their likely impact. These areas are the units of analysis and so the case study can be seen to be embedded. At the three non-airport case studies, the focus is on how and why a new parking strategy was introduced, its impacts, with attention to areas such as consultation, the implementation strategy and staff acceptance. This again highlights that the case studies are embedded.

Overall, the basic design of the case study approach in the thesis is Type 4, as identified in Table 5.4. There are multiple cases, involving multiple units of analysis.

5.2.4 Replication Logic for Case Studies

Each case should be selected so that it either predicts similar results or predicts contrasting results, but for predictable reasons (Yin, 2003). The three non-airport case studies selected to provide best practice lessons to Heathrow Airport were chosen because the output of each was similar, in terms of achieving a reduction in the number of employees parking their cars at the site, but the specific details of the strategies used at each site were different. The identity of each individual case was rigorously maintained throughout the research, although the final recommendations will draw upon all case studies. The use of best practice benchmarking within the research means that an in-depth cross-case comparison between the non-airport case studies is not necessary because their role within the thesis is to provide best practice suggestions to airports based on their individual experiences.

In terms of replication logic, each individual case study consists of a “whole” study in which convergent evidence is sought regarding the facts and conclusions for the case.

The conclusions are then considered to be the information requiring replication by other

individual cases (Yin, 2003). The framework utilised for conducting each individual case study in the research was the same in all cases to ensure that the same areas were investigated at each site to the same level of detail. This is described further in section 5.2.6.

The number of case studies to conduct in a multiple-case design is a matter of discretionary and judgemental choice (Yin, 2003) and depends firstly on how much is known about the phenomenon after studying a case and, secondly, on how much new information is likely to emerge by studying further cases (Cavaye, 1996). The selection of Heathrow Airport and the specific three organisations chosen as non-airport case studies is discussed and justified in section 5.3. It is worth considering at this point, however, why three non-airport case studies were selected. It was felt that three investigations into how organisations had dealt with employee car parking issues would allow for a range of lessons to be gathered and possibly to begin to show similarities in terms of the approaches taken. Yin (2003) states that multiple-case designs facilitate more powerful conclusions because of replication logic. Selecting just one or two organisations may have led to the recommendations simply reflecting the strategies suitable for those particular organisations in isolation, but selecting three organisations revealed elements of commonality, or indeed demonstrated that there was no commonality at all and hence no overall recommendations of good practice. Within the resource constraints of the thesis, any more than three non-airport case studies would have presented financial, physical and time difficulties which would have outweighed the benefits of conducting the additional research.

5.2.5 Case Study Research Design Flexibility

While the design of a case study and the decisions to be taken at the outset are important, a case study can be modified by new information and discoveries during data collection without threatening the rigour with which procedures are followed. Where necessary this can allow for the original design to be altered as long as the nature of the alteration is understood; is it simply a selection of different cases or a more fundamental change to the original theoretical objectives.

5.2.6 Case Study Action Plan

The issues surrounding replication together with the tests for validity and reliability, as explored in section 5.2.2 and Table 5.3, necessitated a case study action plan to be devised.

The structure of the plan, based on the literature and research propositions helped to focus the data collection and analysis within each case. It ensured that the format, type and methods used between cases was consistent, so that any generalisation was more powerful and so that the benchmarking exercise was carried out in a fashion which reflected the benchmarking process developed. By explicitly specifying the methods used in data collection, the action plan addressed concerns about repeatability and reliability.

The plan was devised at the outset of the field work, although minor changes were made to it to reflect the actual course of events. An outline of the plan is shown in Table 5.5. Creswell (2003) highlights the importance of the initial approach and seeking the acceptance of a ‘gatekeeper’. Discussions with this main contact person should focus on why the site was chosen, what activities will occur at the site during the research period, how results will be reported and what they will gain from the study. The selection of the interviewees and the ‘gatekeeper’ at each organisation is detailed in section 5.4.2

Table 5.5: Outline of Case Study Action Plan Developed for the Research

	Action Plan Elements Content / Actions
Initial Contact •	Make contact with individuals to enquire about the possibility of undertaking research within their organisations.
Data Sources	<ul style="list-style-type: none"> • A “main” contact was generally highlighted. • Target the individuals within the organisation who were of interest to the study and approach them to gain their participation. The main contact was often central to this contact.
Timetable •	<ul style="list-style-type: none"> Establish a timetable for conducting interviews. • Establish a timetable for conducting focus groups (Heathrow Airport only).
Main Interviews / Focus • Groups	<ul style="list-style-type: none"> Checklist of questions to be covered during the interview. Checklist of questions and areas to be covered in the focus groups (Heathrow Airport only). Documentation • Suggested documents to be sought from the interviewees.
Source Material Log •	Cataloguing and handling of all collected data to make them available for analysis.

5.3 Research Cases

This section details the selection of the case studies. Four cases studies were chosen for investigation; Heathrow Airport and three non-airport organisations. It is argued there are no ideal number of cases (Darke et al, 1998) although it is suggested that more replications give greater certainty (Yin, 2003). While the three non-airport organisations were studied separately, the findings will be compiled so that Heathrow can use the benchmarking process to learn from a range of experiences. Within each case study several interviews were conducted and at Heathrow Airport, focus groups were also conducted. The selection

of interviewees is detailed in section 5.4.2.

When approaching the organisations highlighted as potential case studies, the aims and objectives of the research formed the basis of the discussion as to what the study would entail. Creswell (2003) states, “the idea behind qualitative research is to purposefully select participants or sites that will best help the researcher understand the problem and the research question”. It was also recognised that the research questions need to be interesting to the participant organisations (Darke et al, 1998) and so this was also considered to some extent when selecting.

5.3.1 Selection of Heathrow Airport

As was detailed in the introduction to the thesis, Heathrow Airport is the UK’s largest airport and the world’s busiest in terms of international passengers. It is also facing an ever increasing problem of demand outstripping supply for car parking. This, combined with the Government imposed parking cap associated with the development of Terminal Five, the environmental pollution limits placed upon the airport and the pressure to grow, both from a business perspective and for the benefit of the national economy, means that the problems facing car parking are greater than at any other UK airport. Therefore, it was the prime airport for study. Heathrow was also selected for some pragmatic reasons, namely that there was awareness of the problem among certain BAA managers and it was an area in which they were interested in research being conducted. It was also important to consider financial limitations, due to the numerous visits that were required to conduct the research. As such a UK airport was more suitable than an overseas choice. Even without this willingness for research to be conducted and financial restraints, however, Heathrow would have been a primary choice for this area of research.

5.3.2 Selection of Non-Airport Organisations for Case Studies

The literature review in Chapter 2 and scoping interviews in Chapter 3 revealed that other airports had not seriously addressed any issues to do with employee car parking. Therefore, three non-airport organisations that exemplified best practice in terms of car parking policy or travel planning were selected as case studies. The decision to investigate three case

studies was taken so that a range of experiences could be explored, but without the original research becoming too large and unmanageable. Criteria were drawn up to enable a structured selection as listed below. These criteria were informed by the Department for Transport (DfT, 2000) for the selection of good practice case study sites and by advice from academic experts in the field of travel planning. Department for Transport employees and publications, academic experts in the field and industry publications “Travel Plan News” and “Parking Review” were consulted when selecting the non-airport organisations. The criteria developed stated that the organisations needed to:

- Have monitored travel plan/parking strategy effectiveness;
- Have achieved a reduction in car use;
- Exemplify aspects of best practice in travel planning;
- Have experience that is relevant to others;
- Be comparable to BAA Heathrow, in terms of:
 - o Confined space on site;
 - o Shift workers;
 - o Range of car park users;
 - o Size of organisation (employees);
 - o Commitment to travel plans.
- Where possible be recognised as being leaders, through:
 - o Awards gained;
 - o Inclusion in guides and document detailing best practice organisations.
- Encompass a range of measures in their travel plan/parking strategy.

Based on these criteria Addenbrooke’s Hospital in Cambridge, The University of Bristol and Pfizer in Sandwich were selected as suitable case study organisations. All of the organisations are regarded as examples of best practice by the Department for Transport and both academic and non-academic experts in the field. The three organisations also represent different approaches to dealing with their specific car parking issues, namely a direct daily charge to employees at Addenbrooke’s Hospital, a permit allocation system based on need coupled with a daily charge related to salary at Bristol and a financial incentive scheme at Pfizer. All three of the selected case study organisations have different approaches to their car parking strategy and so having this range allowed for various measures to be investigated. Pfizer was also regarded by the aforementioned experts to be the outstanding leading example in the UK in terms of its approach to travel planning and so from the perspective of learning from best practice it was regarded as a highly desirable comparator organisation. When approaching the organisations it was clearly stated that the research being carried out was for the purposes of an academic thesis so as to help overcome any issues surrounding the control of sensitive information.

Table 5.6 explores in detail the similarities and differences between each of the three organisations and BAA Heathrow.

Table 5.6: Organisations Selected and their Similarities and Differences to Heathrow Airport

Similarities to BAA Heathrow	Differences to BAA Heathrow
Addenbrooke's Hospital	
<p>Constrained location High proportion of shift workers High proportion of relatively low paid "blue collar" employees Range of users – staff, patients, visitors, suppliers Range of different employers on site Not footloose in terms of location Time critical operation Union representation of employees Large number of employees Operates in a competitive market</p>	
The University of Bristol	
<p>Located in a residential area with good walking and cycling opportunities Required by Government to introduce an employee parking charge, rather than voluntary decision Public sector organisation</p>	
<p>Constrained location Planning constraints Lack of car parking spaces led to action being required Union representation of staff Large number of employees Not footloose in terms location Different users – staff, students Operates in a competitive market Private sector organisation</p>	
Pfizer	
<p>Only one major employer Located in city centre with good walking and cycling opportunities Only staff allowed to park Staff working hours are relatively flexible Low proportion of shift workers and "blue collar" workers Operation is not time critical</p>	
<ul style="list-style-type: none"> • Relatively constrained location • Large number of employees • Site has a large impact on the surrounding area and road network • Congestion and pressure on the transport network led to action being required • Requires transport for most employees to reach site • High proportion of "blue collar workers"? • Operates in a competitive market • Private sector organisation 	<ul style="list-style-type: none"> • Only one employer • Operation is not time critical • Union issues not so prominent • Employees account almost entirely for all parking provision

5.4 Research Methods and Data Collection

Research methods are the techniques used for data generation and collection (Oppenheim,

1992). Within case study research there are those who view them as essentially qualitative studies (Orum et al, 1991) and those who highlight the mixture of both quantitative and qualitative data that cases can produce (Yin, 2003). Qualitative methods are an array of interpretive techniques which seek to describe, decode, translate and come to terms with the meaning, rather than the frequency, of phenomena (Easterby-Smith et al, 1991).

5.4.1 Choice of Methods

Table 5.7 outlines the range of research methods available within organisational research. Orum et al (1991) states that the instruments used should be appropriate, valid and reliable.

Table 5.7: Main Research Methods in Organisational Research

Methods

- Self administered questionnaire
- Interview – structured, unstructured and semi-structured
- Participant Observation
- Structured Observation
- Documentation and archival records
- Other minor methods e.g. simulation and physical artefacts

Source: Adapted from Easterby-Smith et al, 1991; Bryman, 2001; Yin, 2003

Self administered questionnaires and structured interviews were rejected on similar grounds to those presented for surveys in section 5.1.2 in that they would not allow for an in-depth understanding of issues or the ability to allocate more attention to specific areas during the interview. Participant and structured observation was not feasible, as the issues being investigated required an understanding of the car parking processes specific to four organisations which would have been demanding on time and financial resources Heathrow Airport and the three non-airport case study organisations.

Semi-structured interviews and documentation were identified as the main methods for providing relevant data. The semi-structured interviews allowed for the flexibility required while also ensuring that the specific areas of interest were fully explored. This (see section 5.2.2) enhanced the internal validity of the research. Focus groups were also conducted at Heathrow Airport (see section 5.4.3) although not at the non-airport organisations as it was felt that the interviewees were able to give a comprehensive account of the staff reaction and feelings towards the car parking measures and because of pragmatic reasons, namely that

BAA Heathrow were prepared to offer resources to assist in conducting focus groups at the airport.

Documentation was used to provide scene setting information, statistics and to aid in the verification process. Ethnography, broadly defined as interpreting data from understanding the viewpoint participants at a site assign to a phenomenon (Cavaye, 1996), was not used in an analytic way. Although site visits occurred there was not any prolonged period of working alongside participants which could potentially have biased the objective position taken and hence the overall findings.

A research diary was kept throughout the study, recording calls to contact persons and interviewees, interview and focus group bookings, dates and times of interviews. All data collected, whether interview, focus group or documentation was catalogued.

5.4.2 Interviews Semi Structured

Interviews

The interviews were semi-structured in nature. In a semi-structured interview the interviewer has a list of questions or fairly specific topics to be covered and hence some control, but the interviewee has a great deal of leeway in how to reply. Questions do not have to follow the exact way they are laid out in the interviewer's schedule and additional questions may be asked throughout the course of the interview. Generally all of the questions the interviewer has on their schedule will be asked and they will be fairly consistent from interviewee to interviewee. (Bryman, 2001; Creswell, 2003)

Semi-structured interviews differ from unstructured interviews where the interviewer may have a brief set of prompts or perhaps just one question and the respondent answers freely with the interviewer picking up on new avenues for questioning as they progress. Structured interviews are more similar to a questionnaire or survey style approach whereby the respondent has relatively little leeway to discuss beyond the boundaries of specific questions (Easterby-Smith et al, 1991, Bryman, 2001).

The reasons for conducting semi-structured interviews were threefold. Firstly because there was a clear focus on what should be investigated, as derived from the research objectives. Therefore specific issues needed to be addressed and a semi-structured approach allowed for

them to be covered in a logical fashion within the course of the interview. The second reason was because the interviewees needed to be allowed a certain amount of freedom to discuss certain areas and to elaborate on factors and discuss what they felt was most important. Finally, a multiple-case approach was being used and hence comparability across cases was required. Cross case comparability also reflects the nature of benchmarking, whereby the same processes need to be examined within each comparator organisation.

The interviews were all conducted face to face at the interviewees place of work, which also allowed for a visit to the site. Creswell (2003) states that qualitative research that takes place in the natural setting allows the researcher to develop a level of detail about the individual or place and to be more involved in the experience of the participants. Interviews were recorded onto minidisc, this is discussed in section

5.4.4. All lasted approximately one hour, the shortest was 45 minutes and the longest one hour and 20 minutes, and were split into various sections to be covered. The same schedule of questions was used at each of the case study sites, with minor modifications being made to suit the individual characteristics of each site and the interviewees area of expertise. The interviews were conducted by first introducing the research and its aim. The interviews began with some introductory questions about the respondents personal travel to work preferences and their role within the organisation, followed by more in-depth questions on specific themes. These tended to be both direct and indirect in nature depending on the information requirement and were usually then supplemented with follow up, probing and specifying types of question (Bryman, 2001). The interviews and meeting were conducted in a way which allowed for some social interaction, rapport and trust to be developed with the interviewee which enabled questions to be answered more freely and openly. This is regarded as important by Jones (2004) who states that the interviewee should be able to trust the interviewer if they are to provide high quality data. Care was taken to avoid bias when asking questions, often regarded as crucial in interviewing, although it was recognised that due to the complicated and shifting process that exists between two individuals there can never be exact replication between different interviews (Easterby-Smith et al, 1991; Jones, 2004). Where respondents had expertise in specific areas, more attention was given to these topics. The interview questions for Heathrow Airport are shown in Figure 5.1, Addenbrooke's Hospital in Figure 5.2, The University of Bristol in Figure 5.3 and Pfizer in Figure 5.4.

Figure 5.1: Interview Questions for Heathrow Airport

Travel to Work Questions

General introductory questions about interviewees travel to work choices.

1) Current Employee Car Parking Situation

What are your views on the current employee car parking situation at Heathrow? (with regard to capacity, congestion, security, permit allocation)

What do you perceive to be the main problems (if any) with employee car parking?

2) The Future – Is there a need to change?

Do you think more needs to be done to reduce the number of employees driving to work? Why?

Do you think action needs to be taken to change the current employee car parking practices? Why?

What are your views on the statement “the problem will sort itself out”?

What are the main drivers to changing the current employee car parking strategy?

What would you perceive to be the main barriers to any change?

If there were no stringent restrictions on environmental pollution or an imposed parking cap, what do you think the airport would do?

3) Parking Charge

Do you think the introduction of a direct car parking charge for employees would be successful in reducing the number of people driving to work?

What factors would contribute to its success or failure?

Do you think the introduction of a parking charge would have any negative impacts?

Do you think employees should have to pay directly for their car parking? Why?

Do you think the current system, whereby most employers absorb parking charges, is sustainable?

Do you think this system is equitable? (e.g. non-drivers do not get the same benefits)

Would a charge have a big enough impact in order to achieve the T5 cap, and environmental pollution limits?

What do you think would act as a greater deterrent to driving to work – a charge or a lack of available spaces?

Are there any other measures you think would be effective in reducing the number of employees driving to work? Would a combination of measures work?

4) Staff Acceptance

What do you think the staff reaction would be if they had to pay to park?

Do you think that the introduction of a parking charge would impact on recruitment and retention?

Staff focus groups revealed that the high proportion of shift workers was likely to be a large barrier to any changes to the current car parking due to the lack of alternatives available, particularly at inconvenient times - how do you see any problems in this area being overcome?

Do you think revenue hypothecation from employee car parking would help to gain staff acceptance?

Do you think the alternatives in place at present are good enough to support the introduction of a direct parking charge? If no, how much improvement is required and in which areas?

5) Implementation

What would you regard as being the most effective way of introducing an employee parking charge at Heathrow? (e.g. gradual or big bang, all staff or only a selection of staff etc)

Do you think it is possible for Heathrow to learn from “best practice” elsewhere? (either airports or non-airport companies, for example hospitals and universities)

What factors have to be considered that are specific to Heathrow?

If a strategic change such as the introduction of an employee car parking charge was decided upon, what would your role be in its introduction?

How important do you think it is that top-level managers and directors fully support any new strategy?

6) Consultation

If an employee parking charge was to be introduced, how would the consultation process be organised?

Who would need to be involved?

Are there any similar examples of such policies that have required airport wide consultation? How have these worked?

Are there any established bodies to aid with such consultation?

7) The Way Forward

What do you think is the way forward in terms of the airport's need to reduce the number of employees driving to work?

Figure 5.2: Interview Questions for Addenbrooke's Hospital

Travel to Work Questions

General introductory questions about interviewees travel to work choices.

1) The Travel Plan a) Overview of the travel plan:

What is the main aim of your travel plan?

What are the key elements of the travel plan?

What is the scope of the travel plan? (i.e. does it include staff, visitors, patients, deliveries)

When was the travel plan introduced?

Was there any formal strategy in place before?

What prompted you to develop a formal travel plan?

b) Implementation of the travel plan:

Were the different elements introduced all at once or in stages?

If implemented in stages, in what order were they introduced?

What was the reason for this approach?

Who drove the introduction of the travel plan (top down)?

2) Incentives – Sustainable Transport Modes

What provision has been made as part of your travel plan for the following sustainable transport modes?

a) Public Transport b)

c) Walking d) Car

sharing

What methods are used to encourage car sharing? (i.e. preferential treatment)

Currently how many staff are involved in the scheme?

How is the car sharing scheme regulated?

Have you experienced any difficulties in regulating the scheme?

How have these difficulties been dealt with?

How are these sustainable transport modes funded?

3) Disincentives - Car Parking Charges a)

Overview of the car park system:

How many people do you currently employ?

How many staff parking spaces do you have?

Where are staff permitted to park? Are staff car parks separate to visitors/patients, or combined?

Are any members of staff allocated a reserved parking space?

b) Parking charges:

Why was it decided to use charges to manage the demand for car parking?

Were other techniques considered?

What is the actual charge and has it increased since it was first introduced?

Is there an annual review of the charge amount?

Does every member of staff pay the same? Or does it vary? (e.g. income related?)

Is anybody exempt from the parking charge?

How is the charge paid (e.g. cash, payroll deduction) and is it based on daily, weekly, monthly or annual usage?

c) Revenue:

How much revenue is generated through the parking charges and how is this money used?

d) Enforcement:

How do you control access to staff car parks? Specifically what technology is used?

How is this technology used to enforce the parking charges?

Have you experienced any abuse of this system?

Are there penalties for non-payment of charges? What are they?

e) The level of consultation involved:

Who was consulted prior to the charge being introduced? How long was the consultation period?

Chapter 5: Research Design and Methods

Is there any on-going consultation?

f) Acceptance:

What was the staff reaction to the idea of parking charges prior to their introduction?

What was the staff reaction to parking charges when first implemented?

Did you encounter any unexpected issues? (e.g. off-site parking)

How were any problems overcome?

What is the staff reaction now?

Are managers included in the scheme - do they support it?

Can individual members of staff be monitored?

Is this an acceptance issue? If so, how was it overcome?

g) Administration and costs:

How is the parking charge scheme administered?

How much time does this take?

How much does the scheme cost to administer each year?

Capital costs, maintenance costs, administration costs...?

Are there members of staff devoted to administering the parking strategy/travel plan?

What are the staff time costs in terms of planning and implementation?

4) Effectiveness

How is the effectiveness of the travel plan measured? e.g. modal shift

Since the introduction of the travel plan, what targets have been set?

Have these targets been achieved?

If the targets have not been achieved, what do you think the reasons for this are?

If the targets have been achieved, do you know how much is attributable to parking charges, and how much to the introduction of other measures (e.g. improved public transport, car sharing etc)?

Do you believe there still to be an issue of too many employees travelling to work by car?

5) Future

Are any enhancements/changes planned to the current travel plan elements?

e.g. Are there any plans to reduce the number of staff car parking spaces? If so, when will this occur and by how many?

What targets have been set for future progress?

Do you have any recommendations that you would make to other organisations considering introducing parking charges?

Figure 5.3: Interview Questions for the University of Bristol

Travel to Work Questions

General introductory questions about interviewees travel to work choices.

1) Parking Overview

Can you give a brief outline of how car parking permits are allocated, and the distinction between the different categories?

Roughly what proportion of staff are included in each of the three categories?

Are any members of staff allocated an individual/reserved space?

Are all staff entitled to at least a category C parking pass?
In terms of category B, how does the point system work whereby staff are judged on set criteria?
Have you experienced any problems with the point system approach? (e.g. appeals)
If so, how have these problems been overcome?
Are these dealt with in an individual basis?
How do other businesses/residents in the area fit in with your parking management?
Do you share any car parks with other organisations?

2) Parking charges and permits

Why was it decided to use charges to manage the demand for car parking?
Were other techniques considered?
Is anybody exempt from the parking charge? (i.e. disabled) Why are these groups exempt?
Why was a salary based charge adopted?
How is the £10 annual charge paid? (cash or payroll deduction)
Can you explain how the daily scratch card system works?
Where are the scratch card permits bought from, and how are they paid for? (cash, payroll deduction - weekly, monthly, annually.)
In what quantity can permits be bought?
How are the scratch cards delivered to staff?

3) Enforcement

Do you control access to staff car parks in any way (e.g. barrier equipment)?
How is the parking charge system monitored (e.g. manually – check correct parking category and proof of payment)?
Have you experienced much abuse of the system?
How are university staff found to be abusing the system dealt with?
Do you have any issues with non-university staff parking in university car parks?
If yes – how is this dealt with?
Have you experienced any issues with off-site parking? Is this a major problem?

4) Consultation

What process of consultation did you go through prior to the charge being introduced? Who was consulted?
How long was the consultation period?
Is there any on-going consultation?
What role does the Travel to Work Implementation Group (TWIG) play?
How useful was the consultation process in gaining acceptance? Is there anything you would have done differently in hindsight?
What was the most valuable outcome of the consultation?
Did you experience anything unexpected?
What recommendations would you give to other organisations introducing the charge in term of consultation?

5) Implementation and Acceptance

What was the staff reaction to the idea of parking charges prior to their introduction?
What was the staff reaction to parking charges when first implemented?
What were the advantages of a 'big bang' approach to introduction?
in terms of its acceptance
in terms of its ease of implementation

Chapter 5: Research Design and Methods

Were alternative modes of transport in place before the charge was introduced? How important was this to gain acceptance?
What is the general staff reaction to the charge now?
Do you believe the parking charge to be an issue for recruitment and retention?
How have any negative attitudes been overcome?
Do you think the salary based charge is more acceptable than a standard charge?

What are the main factors in gaining acceptance from staff?
Is the scheme supported by top-management? How important do you regard this to be?
How important is the role of a 'project champion' in gaining acceptance?

6) Targets and Progress

What methods are used to conduct the staff travel survey? How often does this take place?
Do you have to achieve targets as part of your travel plan?
What are these targets? How are they set?
Have these targets been achieved?
If the targets have not been achieved, what do you think the reasons for this are?
If the targets have been achieved, do you know how much is attributable to parking charges, and how much to the introduction of other measures (e.g. improved public transport, car sharing etc)?
Are the car parks currently at or near capacity?
If parking spaces are in short supply, what acts as the greater deterrent to driving – lack of space or parking charges?
Do you believe there still to be an issue of too many employees travelling to work by car?

7) The Future

Are any enhancements/changes planned to the current car park strategy?
Are there any plans to reduce the number of staff car parking spaces?
Will the percentage charge amount be reconsidered in the future?
What targets have been set for future progress?

Do you have any recommendations that you would make to other organisations considering introducing parking charges?

Figure 5.4: Interview Questions for Pfizer

Travel to Work Questions

General introductory questions about interviewees travel to work choices.

1) The Travel Plan a) Overview of the travel plan:

What is the main aim of your travel plan?
What is the scope of the travel plan? (i.e. does it include staff, visitors, patients, deliveries)
When was the travel plan introduced?
Was there any formal strategy in place before?
What prompted you to develop a formal travel plan?

b) Implementation of the travel plan:

Were the different elements introduced all at once or in stages?
Which elements of the travel plan were introduced first?
What was the reason for this approach?
Who drove the introduction of the travel plan (top down)?

2) Incentives – Sustainable Transport Modes

What provision has been made as part of your travel plan for the following sustainable transport modes?

a) Public Transport b) Cycling c) Walking d) Car Sharing

What methods are used to encourage car sharing? (i.e. preferential treatment)
Currently how many staff are involved in the scheme?
How is the car sharing scheme regulated?
Have you experienced any difficulties in regulating the scheme?
How have these difficulties been dealt with?

e) Other Strategies

Local recruitment drives Home working/compressed working week Video conferencing Cash payments instead of company cars

How are these sustainable transport modes funded?

3) Parking Cash Out

a) Overview of the car park system:

How many people do you currently employ?

How many staff parking spaces do you have?

Where are staff permitted to park? Are staff car parks separate to visitors/patients, or combined?

Are any members of staff allocated a reserved parking space?

b) Parking cash out:

Why was it decided to use cash out to manage the demand for car parking?

Were other measures considered? (e.g. parking charges?) If so, why were they discounted?

How does the parking cash out scheme operate?

Does every member of staff receive the same amount of money?

Does the scheme differ for shift workers?

Is anybody not included in the cash out scheme?

c) Administration and costs:

How is the parking cash out scheme administered?

How much time does this take?

How much does the scheme cost to administer each year?

Capital costs, maintenance costs, administration costs...?

Are there members of staff devoted to administering the parking strategy/travel plan?

What are the staff time costs in terms of planning and implementation?

d) Enforcement:

Chapter 5: Research Design and Methods

How do you control access to staff car parks? Specifically what technology is used?

Does the car parking pass use the same technology as staff ID/security passes?

How is this technology used to enforce the parking cash out scheme?

Have you experienced any abuse of this system?

Are there penalties for abuse? What are they?

e) The level of consultation involved:

Who was consulted prior to the cash out scheme being introduced?

How long was the consultation period?

Is there any on-going consultation?

How is the staff travel survey conducted?

How often are they carried out and how are the results used?

f) Acceptance:

What was the staff reaction to the idea of parking cash out prior to its introduction?

What was the staff reaction to cash out when first implemented?

Did you encounter any unexpected issues? (e.g. people parking in town then using shuttle buses?)

How were any problems overcome? How was the scheme marketed?

What is the staff reaction now?

Are managers included in the scheme - do they support it?

Can individual members of staff be monitored?

Is this an acceptance issue? If so, how was it overcome?

4) Effectiveness

How is the effectiveness of the travel plan measured? e.g. modal shift

Since the introduction of the travel plan, what targets have been set?

Have these targets been achieved?

If the targets have not been achieved, what do you think the reasons for this are?

If the targets have been achieved, do you know how much is attributable to parking charges, and how much to the introduction of other measures (e.g. improved public transport, car sharing etc)?
Do you believe there still to be an issue of too many employees travelling to work by car?

5) Future

Are any enhancements/changes planned to the current travel plan elements and the cash out scheme in particular? (e.g. cash for home working)

Is the cash out scheme being extended to satellite sites?

Are there plans to develop a parallel system for contractors to the site? If so, how?

Are there any plans to reduce the number of staff car parking spaces? If so, when will this occur and by how many?

What targets have been set for future progress?

Is it intended at some stage to introduce car parking charges on site?

Do you have any recommendations that you would make to other organisations considering introducing parking cash out?

Selection of Interviewees

Table 5.5, the Case Study Action Plan, detailed the elements involved in conducting the case studies. The first two stages were to approach a “main” contact at each organisation and then target the individuals within each company who were of significance to the study. At each of the case study sites the individuals listed below were selected to be interviewed. The codes after their positions are to allow for attribution of quotes in Chapters 6 and 7.

BAA Heathrow:

Head of Change & Communication, Planning & Environment (main contact) (*BAA 1*);

Interim Human Resources Director (*BAA 2*);

General Manager Commercial Transport Team, Retail (*BAA 3*);

Planning & Environment Director (*BAA 4*);

Head of Group Accommodation, Property (*BAA 5*).

All of these five individuals were considered to be central to the introduction of any new parking scheme at Heathrow and covered a range of key decision makers from different departments within BAA. All of the interviewees, excluding the Interim Human Resources Director were involved in the current operation of car parking at the airport.

Addenbrooke’s Hospital:

- Service Development Manager (main contact) (*Add 1*).

The Service Development Manager at Addenbrooke’s Hospital heads the Service Development team, within the Estates and Facilities Department, and is responsible for site’s strategic access planning. He also originally wrote the Hospital’s Travel Plan.
The University of Bristol:

Assistant Director – Facilities (main contact) (*UoB 1*);
234 Car Share Manager (*UoB 2*);
Security Office Administration Clerk (*UoB 3*);
Energy and Environmental Manager (*UoB 4*);
Payroll Manager (*UoB 5*).

The main contact at The University of Bristol is responsible for delivering the Travel Plan and its associated car parking strategy. The other four interviewees all play an important role in this delivery including security, administration and finance.

Pfizer:

Consultant on Travel Planning (main contact) (*Pfi 1*);
Parking Cash Out Administrator (*Pfi 2*);
Community Relations Manager (*Pfi 3*).

The main contact was previously employed full time by Pfizer to produce and deliver their Travel Plan and its associated car parking strategy. He now works as a consultant to the company in this area. The other interviewees roles include dealing with the day to day operation of the car parking scheme and with the local communities, councils and authorities to deliver the Travel Plan and parking strategy.

Supplementary Staff Travel Interviews

At the non-airport organisations, wherever possible, shorter interviews with staff were conducted to briefly discuss their travel to work habits and see what impact, if any, the introduction of a new car parking strategy had had upon them. Again these interviews were semi-structured in nature, allowing some flexibility. They comprised of only a few short questions and were conducted over the telephone or in person, taking approximately three to four minutes each. While these discussions proved insightful, they must be treated with some caution. For example, at Pfizer the discussions were prearranged by the main contact and there was a strong respondent bias towards non-car modes of transport.

It was not necessary to conduct such interviews at Heathrow as more formal focus groups were organised and covered similar issues in much greater depth.

5.4.3 Focus Groups

Focus groups are a method of interview which involves a group of interviewees. They often emphasise a specific theme which is explored in great depth (Punch, 1998; Kitzinger, 2004).

They allow the interviewer to see how individuals respond to other responses from the group, follow up areas of interest and allow the group to discuss interviews amongst themselves. This gives focus groups certain advantages over normal interviewing as respondents can be queried or supported by other group members and views may change throughout the course of the session as topics are discussed by the participants. Focus groups allow the interviewer to see how individuals collectively make sense of a phenomenon (Bryman, 2001). They also allow large amounts of data to be collected from numerous respondents quickly and they are very flexible in their ability to cover a range of topics with a variety of individuals (Stewart and Shamdasani, 1990).

Focus groups should have some structure, but be more like a steered conversation. The interviewer's skill as an initiator, facilitator and moderator is important when conducting discussions. The task of the group moderator is not to conduct interviews simultaneously, but to facilitate a comprehensive exchange of views in which all participants are able to speak their minds and respond to the ideas of others. It should be remembered however that social pressures may affect the responses given and some participants may not be comfortable (Easterby-Smith et al, 1991; Punch, 1998). Prior to the focus group being undertaken an opportunity was taken up to observe "travel to work" focus groups being conducted at Heathrow Airport.

Focus groups are not without their disadvantages however. They give the researcher less control than in an individual interview situation and there can be problems with extracting the views of reticent speakers, particularly when compared to those who are more dominant. Focus groups also produce a large amount of data which can be difficult to firstly transcribe and secondly analyse. They can also be difficult and time consuming to organise and there is no guarantee that participants will turn up (Bryman, 2001). The generalisability of results can also be restricted by the focus group method, firstly because having a small number of respondents limits the applicability to a larger population and secondly because the responses of different individuals are not independent of one another and the group can be biased by some members (Stewart and Shamdasani, 1990).

The aim of the focus groups was to investigate staff opinions on the current car parking situation at Heathrow, whether they were aware of the pressures facing the airport and to explore their opinions on some potential new strategies to help resolve car parking problems.

Focus Group Timetable and Arrangements

Easterby-Smith et al (1991) state that care should be taken when choosing a venue and that it should be relaxing for participants so that they are fully able to air their views. As stated in section 5.4.2, conducting qualitative research in the natural setting allows for the researcher to develop a greater level of detail (Creswell, 2003). The “Airport Commuter” bus, a refitted double decked bus, was made available for a period of two days by BAA for use when conducting the focus groups. The bus allowed for up to 12 people to be seated and for refreshments to be served. It also added a “novelty” value to the focus groups which was thought to help a little when recruiting and was especially useful when explaining to participants where the groups would take place. Using the bus also meant that focus groups could easily be conducted in different areas of the airport, thus helping to attract more people at times and locations when it was convenient for them. The bus, its timetabling and locations were all organised by BAA.

Over two days, seven focus groups were arranged, which was felt to be suitable to gain a wide appreciation of the main issues, while at the same time being a manageable number. There is also a view about focus groups that once it is possible to predict what the next group is likely to say then enough focus groups have been conducted (Stewart and Shamdasani, 1990; Bryman, 2001). Six of these took place on the bus and a further focus group was conducted at Heathrow Point West with only BAA office staff. This group was conducted in a comfortable and relaxing medium sized meeting room. Each group lasted between 60 and 75 minutes.

Selection of Focus Group Participants

Participants for the focus groups conducted on the bus were selected from a list of names provided by BAA which they collected while carrying out ongoing survey work for other purposes shortly before the focus groups were conducted. In the survey, respondents were asked if they would be willing to participate in focus group discussions in the future. It was considered that these people would be a good population from which to draw participants because they had shown interest in taking part and because they had already answered initial questions in the survey on similar topic areas.

Those who expressed an interest in participating were contacted by telephone three weeks before the focus groups were conducted. Each person was contacted up to three times over the space of a week until a response was obtained. A reminder telephone call was made two

days before the focus group was scheduled. Incentives were offered to those who attended in the form of £10 vouchers provided by BAA to be used in the shops at the airport as a method of increasing participation.

It is stated that the typical focus group size should range from six to twelve participants (Stewart and Shamdasani, 1990; Morgan 1997; Bryman 2001). It was the aim over the seven groups to attract an average of eight participants to each group. To allow for those who could not make it or forgot to attend, the aim was to enrol 16 participants for each group in the belief that approximately half would attend. In total 98 people were signed up to attend the groups, of which 48 attended, an average of 7 per group. The smallest group comprised four people and the largest group ten.

The members of each group are shown in Table 5.8 and the codes assigned to each group are to allow for the attribution of quotes in Chapter Seven. Focus group members represented a range of organisations and professions across the whole airport site including BAA staff, both office based and front line, security companies, airlines, retail outlets, police, traffic wardens, passenger services and cargo. The six focus groups conducted on the bus consisted of five groups for car users and one group specifically comprising public transport users. The groups were split in this way so that different opinions could be explored in greater depth. Having one group dedicated to public transport users reflected the modal split of those who responded to the questionnaires. The focus group with BAA office staff at Heathrow Point West were recruited using internal email.

Table 5.8: Focus Group Participants' Job Role or Company

Focus Group 1 (<i>FG 1</i>) – 6 participants	
GB Airways	Swissport (JAL Cargo)
Emcor	Dixons
British Airways	Initial Aviation (Security)
Focus Group 2 (<i>FG 2</i>) – 10 participants	
Market Research	Globe – Ground
British Airways	Metropolitan Police Traffic Warden
Amadeus	A.A.S.
International Passenger Services	Swissport
Initial Aviation	One person did not state role or company
Focus Group 3 (<i>FG 3</i>) – 4 participants	
Passenger Services	LAS (Security)
LAS (Security)	BAA Airside
Focus Group 4 (<i>FG 4</i>) – 7 participants	
Shared Services	London Borough of Hillingdon
Information Desk	Nuance
Security	Metropolitan Police
British Airways	
Focus Group 5 (<i>FG 5</i>) – 6 participants	
Cargo (British Airways)	Virgin
World Duty Free	Aviance
International Passenger Services	British Airways (Arrivals)
Focus Group 6: Bus Users (<i>FG Bus</i>) – 5 participants	
Capitol Projects	Amadeus Services
Alstec	Security
Eurest Airport Services	
Focus Group 7: BAA Heathrow Point West Office Workers (<i>FG HPW</i>) – 10 participants	

IT (x2) Finance (x2)

Planning Property (x2)

Airport Commuter One person did not state role or company

Human Resources

The discussion questions used in the focus groups are shown in Figure 5.5. A small number of questions were used in order to stimulate discussion and to allow the participants to fully explore each issue. When necessary there was additional input from the facilitators to either move the discussion forward or to further investigate certain opinions and statements.

Figure 5.5: Focus Group Discussion Areas for Heathrow Airport

1a) Are you aware of BAA's efforts to reduce car use?

1b) For what reasons do you think Heathrow are trying to reduce car use?

2a) What are your views on the current employee car parking situation at Heathrow?

2b) Who pays for staff car parking provision at Heathrow?

3) What is your perception of the following options that have been successful at other organisations in reducing employee car use?

i) Financial incentives for leaving your car at home?

ii) Car parking charges for employees?

iii) Reallocation of parking permits based on employee need?

It was decided not to conduct focus groups at the non-airport organisations because they had already gone through the process of introducing a new parking strategy while the main aim of the focus groups was to investigate the likely reaction to new parking schemes. The opportunity to conduct focus groups also presented itself at Heathrow as BAA were looking to do research with employees in this area at the same time and so there was financial and administrative support from BAA. At the non-airport organisations similar support was not available and the short staff travel interviews with individual employees were felt to complement the Heathrow focus groups.

5.4.4 Reflections on the Data Collection Methods

All research has options in terms of the methods and methodology used, as well as constraints of time, financial resources and the single researcher. A selection of issues relating to the practical problems in research design and methods encountered in this research are discussed below.

Research Design

Although it is preferable that each case is conducted in identical fashion (Yin, 2003), in reality this is difficult. The selection of cases, each displaying varying characteristics, results in inherent differences which do not allow for identical data collection. Within this research, factors which altered the strategy between cases included; the size of the organisation; the parking strategy adopted by the organisation; the rapport between the researcher and the interviewees, and; the setting in which the interview was conducted.

At some organisations there were fewer members of staff suitable for interview but these few informants were generally better equipped to comment on the full process being studied than the interviewees of other organisations where individuals may only have had responsibility for certain areas. Therefore, fewer interviewees does not mean that there is a compromise in the quality of data collected. The range of parking strategies used by the case study organisation means that different types of data are available. The structuring of the interviews, however, allowed for the areas investigated to remain common. The rapport with the interviewees is dependent on the context of the meeting, characters and etiquette amongst other factors, and differs for each interview which can affect the flow of information. Establishing an initial main contact who was then able to introduce other

interviewees assisted in improving rapport with all interviewees. The setting of the interview can also influence the gathering of information. All individual interviews were conducted in private at the interviewees place of work, which helped to reduce any problems in that area. Focus groups were conducted in a hostile free setting which allowed the participants to freely express their views and the other short supplementary staff travel interviews were conducted either in person or over the telephone, both at times when it was convenient for the respondent.

Bias and Interpretation of Data

Bias on the part of the researcher is a concern in any case study or qualitative research. One way to reduce bias on the part of the investigator is to use teams to conduct the research (Orum et al, 1991). The same is said of benchmarking (Spendolini, 1992). Within the constraints of the research, however, it was not possible to employ a team of investigators but an objective stance was firmly taken throughout the data collection and analysis. This constraint is recognised by Darke et al (1998) who state that researchers must exercise judgement to ensure that an appropriate balance between the constraints and the research objectives is maintained.

Key informants at each case study organisation were asked to review the written material to allow for any factual errors to be corrected. This is often referred to as “member-checking” (Creswell, 2003). The researchers interpretation and analysis of the data was not affected by this review process.

Cases and Respondents

The most enthusiastic interviewees were generally those who were the main contact at the organisation. As more preparatory time had been spent liaising with these interviewees they were more aware of the research objectives and so sometimes better prepared to provide information. A similar phenomenon was witnessed in the focus groups with some participants leading discussions and others taking a more subdued role. Time restrictions imposed by work pressures limited the depth to which some interviews could be taken in a small number of cases. Respondent perspectives and focus were important issues which impacted on the responses, for example at Heathrow Airport, the BAA Human Resources Director was able to give detailed answers when discussing employee reactions, but had much less detailed knowledge on the current car parking issues.

Recording and Transcription of Interviews and Focus Groups

All of the interviews and focus groups were recorded onto minidisc and transcribed. Recording in this way allowed for greater concentration when conducting the interviews and focus groups, rather than expelling effort trying to write everything down, ensuring that nothing was missed (Bryman, 2001). Audio recording also allows for a much greater level of reliability and accuracy when the interviews are analysed (Perakyla, 2004). Notes were also taken during the interviews to act as a backup should the minidisc recorder have failed.

A downside of recording interviewees is that they may not relax when faced with a microphone, or may be more cautious about the information they provide, hence the quality of the information may not be so great. All interviewees were first asked if they consented to the interview being recorded and only one respondent declined. In this instance, comprehensive notes were taken. The rest of the interviewees were recorded and it was not felt that any displayed characteristics to suggest the microphone presence was off putting. In addition, poor quality recordings can affect the analysis (Perakyla, 2004). This was not an issue with the research as all audio recording were clear.

The transcription of the minidisc recordings were all done by the researcher, allowing for a greater grasp of the data and the meaning in the interviewees responses (Perakyla, 2004). Highly detailed transcription conventions were not used, rather a simpler but accurate practice was adopted and because all recordings were transcribed and analysed first hand by the researcher, there was felt to be no compromise in the understanding of the data.

5.5 Considerations of the Research Design with regard to Benchmarking

In terms of terminology it should be reiterated that benchmarking generally takes place between organisations. In the research the benchmarking organisation is BAA, who are responsible for car parking at Heathrow Airport. The focus groups, however, were conducted with employees from a range of organisations at the airport. The terminology reflects this.

The nature of the benchmarking process shows that in order for BAA to learn from the experiences of best practice organisations then the processes and issues at Heathrow Airport

must first be understood. To this end an initial meeting was held at BAA with the “main” contact. Literature relating to Heathrow Airport was also used to understand the current situation and initiatives in place at the airport regarding car parking and commuting. This information is presented in Chapter 6 and gives a clear overview of the issues present at Heathrow in the area of the research.

This initial information, together with the findings of the literature reviews and the scoping study at the four airports detailed in Chapter 3 were used to develop interviews to be conducted with key decision makers at BAA and a series of focus groups to be conducted with Heathrow Airport staff members. It also enabled the development of interview questions to be conducted at the best practice non-airport organisations, based on the areas found to be of greatest interest to BAA and Heathrow Airport in general in terms of introducing a new car parking strategy. The steps of the data collection are shown in Figure 5.6.

The interviews at the non-airport organisations were undertaken first to investigate the reasons why the organisation had changed its car parking strategy, the details of the new scheme that was introduced and issues surrounding staff acceptance, implementation and consultation. These interviews were followed by staff focus groups and interviews at BAA, which explored in depth the current parking situation, the challenges facing the airport and attitudes towards the potential introduction of strategies similar to those witnessed in the non-airport organisations. Several aspects surrounding these strategies including implementation, consultation and staff acceptance were discussed in the interviews. The staff focus groups concentrated more on employee perceptions of current car parking and travel to work situation, whether they thought action was required and their thoughts on new strategies as used at the non-airport organisations.

The comparison of the findings from the interviews and focus groups provides the basis for the discussion chapter and the lessons that BAA could learn from the non-airport sites. Conducting the interviews and focus groups at Heathrow Airport after those at the non-airport organisations allowed for a more thorough investigation of the likely impacts of parking strategies similar to those used by the non-airport organisations.

Figure 5.6: Steps of the Data Collection

Initial meeting with Main Contact at BAA
Scoping exercise to highlight key issues regarding car parking at Heathrow.



Interviews at non-airport organisations

Range of interviews at the three non-airport organisations to elicit in-depth information on the car parking situation at the site, the introduction of a charge and its implementation, consultation, staff acceptance and other associated issues.

Several shorter interviews with staff to explore reactions to the strategy implemented at that particular site.



Focus groups at Heathrow

Seven focus groups with employees drawn from different airport organisations to elicit detailed information about staff views on the current car parking situation, whether there was a need for change and attitudes towards different strategies, including direct employee parking charges.



Interviews with key decision makers at BAA

Five interviews with BAA staff to elicit detailed information on current car parking situation, whether there was a need for change, parking charges, implementation of a parking charge, staff acceptance issues and consultation.

5.6 Analysis and Representation of Data

Qualitative data from interviews and focus groups often take the form of large unstructured textual material and hence can be complicated to analyse. Unlike quantitative data, defined rules and approaches to analysis have not been developed (Bryman, 2001). Searle (2004) states that researchers often feel obliged to identify and name the analytic method they are using, when in fact the main focus should be on looking for interesting things in the data. It is suggested that the term “qualitative content analysis” or “interpretative analysis” is better suited to the ultimate aim of analysing qualitative data. Such qualitative analysis begins with

the coding of data.

5.6.1 Interpretative Analysis

Assuming that the problem is already established and relevant data have been collected, the general process of steps for conducting the analysis and interpretation stages in qualitative research are:

- 1 Organise and prepare the data for analysis, including arranging and transcribing;
- 2 Read through the data to develop a general sense of the overall meaning;
- 3 Code the data (see section 5.6.2) to generate themes, categories and concepts;
- 4 Explore relationships between categories in such a way that hypotheses about connections between categories emerge;
- 5 Describe and discuss in detail the themes and categories using a narrative passage;
- 6 Interpret the data with reference to the research question (see Chapter 8). (Bryman, 2001; Creswell, 2003)

5.6.2 Coding of Qualitative Data

When developing codes, the researcher is looking for general categories and topics that items of data can be assigned to, identifying what is represented by items of data, what questions the data raises about topics, what answers they suggest as well as looking at what people are doing, what they say they are doing and what events or happenings there are. (Punch, 1998)

Taking the following steps are suggested when coding:

- 1 Read through the set of transcripts, field notes, documents and other relevant data and jot down general notes at the end about initial significant and interesting points;
- 2 Select one document, which may be the most interesting, the shortest, or simply the one at the top of the pile and work through asking “what is the meaning?”, rather than the actual substance of the information;
- 3 Read through again making as many marginal notes about significant remarks or observations as possible;
- 4 Repeat the task for several informants and cluster together similar topics;
- 5 Return to the data and use the topics to code the data
- 6 Review the codes and look for similar areas which can be combined under one code, link codes back to the literature where relevant and look for links between the codes;
- 7 Assemble the information belonging to each highlighted category and perform a preliminary analysis;
- 8 Consider more general theoretical ideas in relation to codes and data, outline connections between codes and categories, consider in more detail how codes relate to the literature and develop hypotheses about any linkages. (Bryman, 2001; Creswell, 2003)

It should also be remembered that any one item of data can and often should be coded in more than one way. Bryman (2001) states that in the first instance it is possible to think too

many codes have been generated but this can be tidied up at a later time; it is more important to be imaginative and inventive. Coding should also be kept in perspective; while it is an important part of analysis, it is not analysis itself and should be considered as a mechanism for thinking about the meaning of the data and helping to break it down.

There is no one correct approach to coding qualitative data. Strauss and Corbin (1998) distinguish between three types of coding:

Open coding – this is the process of coding which generates concepts, which are later grouped and turned into categories. Open coding is done by breaking down, examining, comparing, conceptualising and categorising data.

Axial coding – a set of procedures following open coding that allows data to be put back together in new ways by making connections between categories. It is done by linking codes to contexts, to consequences, to patterns of interaction and to causes.

Selective coding – this is where the core category is systematically related to other categories to validate their relationship and filling in other categories which require further refinement and development. The core category is the central issue around which the others are integrated.

Bryman (2001) suggests different levels of coding. The first level is very basic coding which picks out some main points. The second level has greater awareness of the content of what is said, the language the interviewee uses and focuses more on key issues of importance to the interviewee. The third level looks at broader analytic themes rather than close association with exactly what the interviewee is saying.

5.7 Conclusions

The aim of this chapter has been to describe the research design selected for collecting and analysing original data.

It has explicitly documented the selection, planning and execution of the research design. The basis for selection of the multiple case study design was justified and it can be seen that a “Type 4” case study as defined by Yin (2003) will be used. The selection of the cases within the research was also justified, with Heathrow’s car parking problems and the widely recognised best practice position of the three non-airport case studies providing a strong rationale for their choice.

The collection of data within each case study was documented, along with an action plan for conducting the research which was adhered to throughout all of the case studies and data collection. Attention was paid to ensuring the validity of the results. Detailed information on

the selection of interviewees and focus group participants, together with how the information was gathered from respondents was provided. The design of the analysis procedures to be used were presented and the process of benchmarking followed within the research was considered. This analysis and the process of benchmarking will be followed through Chapters 6, 7 and 8.

Chapter 6. Heathrow Airport Case Study

6.0 Introduction

This chapter investigates the current situation at Heathrow Airport with respect to employee car parking and surface access in general, drawing on a scoping interview, interviews with five key decision makers and focus groups with 48 employees.

Chapter 1 of the thesis presented an overview of Heathrow Airport and the issues facing the airport in terms of growth, car parking cap constraints and air quality targets, as well as detailing the current strategies in place at the airport to reduce car use. The focus of car reduction strategies on employees was also discussed and supported by the literature review in Chapter 2 and findings from the airports contained in Chapter 3. These issues are explored further in the first part of this chapter drawing on findings from an initial scoping interview with the Head of Communication and Change at BAA, as discussed in section 5.5.

The aim of the first part of the chapter is to set the scene for parts 2 and 3 which more fully explore the issues relating to employee car parking at Heathrow airport based on interviews with key decision makers within BAA and airport-wide staff focus groups. Part 2 seeks to analyse the key issues arising from interviews undertaken with five key decision makers within BAA. Key areas, derived from the coding and analysis of the interview transcripts as detailed in section 5.6.2 are explored. Part 3 seeks to analyse the key issues arising from the focus groups conducted at Heathrow Airport and key areas derived from the coding and analysis of the focus group transcripts are explored.

PART 1: Heathrow Airport: Background Literature and Scoping Interview

6.1 Current Car Parking Provision at Heathrow

There are a total of 22 car parks at Heathrow, including 13 dedicated staff car parks, four dedicated public car parks and five shared use car parks, including shared use of four of the terminal multi-storey car parks.

BAA has an overall car parking strategy objective which is “to ensure that car parking facilities are used as efficiently as possible by passengers and employees who are not able to take advantage of public transport services or other alternatives to the car. This objective is consistent with the airport’s approach to sustainable development.” (BAA, 2004b).

A number of car parking spaces are controlled by Heathrow Airport Limited and administered by BAA, while others are tenanted to other organisations at various locations around the airport. BAA market research conducted in 2003 revealed that Heathrow Airport Limited controlled a total of 34,603 spaces of which 17,556 were for the public and 17,047 were for staff. A further 11,411 spaces were tenanted. (BAA, 2004a)

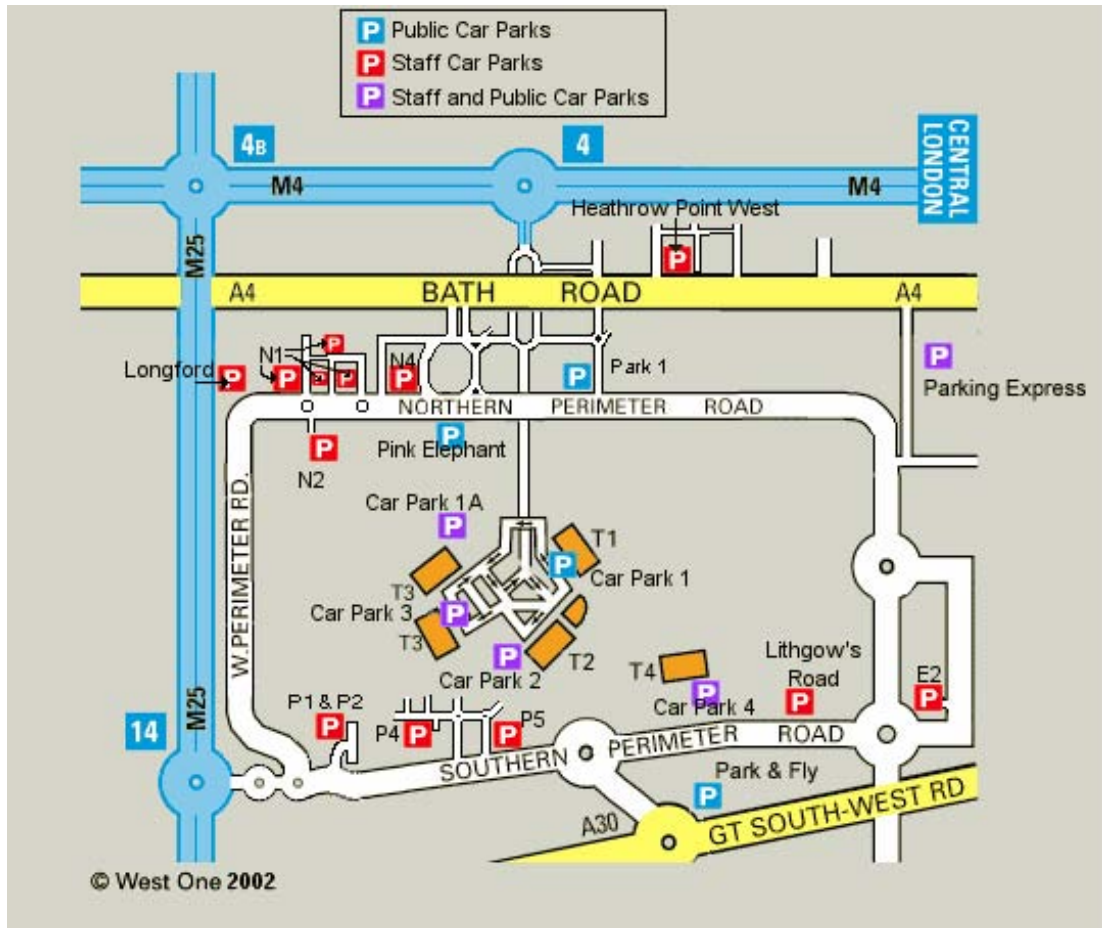
In addition there is parking available at hotels surrounding the airport and a presence of off-airport car parks not controlled by Heathrow Airport Limited. These car parks do not contribute to the total number at Heathrow, and are not knowingly used by any employees. (BAA Head of Communication and Change)

Data from 2000 shows that approximately 37,000 employee car park passes were issued to 450 companies for 12,000 spaces, a ratio of approximately three to one, and that the annual income generated from staff parking permits is approximately £13 million.

Currently, BAA charges employers for each car parking permit they require, at the rates shown in Table 6.1. Almost all employers absorb the charge and only a very small number pass it on to staff. The identity of these companies is not known by BAA; once they have issued passes they do not control what each individual company does with them. Anecdotal evidence, however, suggests that some of the private security firms charge employees (BAA Head of Communication and Change). BAA recognise that the consequence of employers paying for parking is that most employees are unaware of the real cost of car parking (BAA, 2004b).

Staff car parking at Heathrow is a “specified activity” due to the Competition Act and the subsequent regulated nature of the business. As such it must be operated on a financially neutral basis.

Figure 6.1: Map Showing all of the Public and Staff Car Parking Areas at Heathrow Airport



Source: BAA, 2004c

Table 6.1: Staff Car Parking Permits at Heathrow Airport

Area of Airport	Cost of Parking Permit (excluding VAT)
Perimeter	£491
Central Terminal Area	£780
Group 60*	£1008
Group 50**	£1298

* Group 60 is a “Heathrow Rover” which allows access to multi-storey car parks 1B and 4. It does not form part of the “specified activity” calculation.

** Group 50 is a “Heathrow Rover” which allows access to multi-storey car parks 1B, 2, 3 and 4. It does not form part of the “specified activity” calculation.

Source: BAA, 2004a

6.2 Pressures Facing Car Use and Car Parking

6.2.1 Terminal 5 Parking Cap

In November 2001, the UK Government approved the development of a fifth terminal at Heathrow Airport. Terminal Five will open in March 2008 and accommodate 30 million passengers per annum by 2016 (Caves and Humphreys, 2002). As a condition of the development of Terminal Five, Heathrow is subject to a parking cap of 42,000 spaces. This is currently active and must also accommodate the additional car parking demand when Terminal Five opens. Within this cap, there is a limit of 17,500 spaces for employees (ODPM, 2001).

The meeting with the BAA Head of Communication and Change revealed that if growth was to continue with no constraint then the 42,000 spaces would be hit in 2008. By 2016, there would be a shortfall of 4,600 staff car parking spaces with no growth constraints. BAA publicity aimed at employees states, “this cap allows for 8,500 more spaces – as you can imagine with the additional passengers this leaves no room for growth in staff spaces. In fact, it requires us to reduce the amount of spaces allocated to staff on airport.” (BAA, 2004d).

6.2.2 Sustainable Development and the Environment

Heathrow is in an Air Quality Management Area, designated by the London Borough of Hillingdon, to manage the levels of nitrogen oxide and particulate matter. Cars in particular contribute a substantial amount to the levels and as such are a target area to reduce the airport’s impact on local air quality (BAA, 2004b). This was reflected by the BAA Head of Communication and Change with reference to high car usage, “*The sustainable development of Heathrow will be damaged if nothing is done.*”. BAA Heathrow currently produces a comprehensive sustainability strategy and a range of associated documents, such as the “Sustainability Report 2003/04” (BAA Heathrow, 2004) and “Air Quality Strategy and Action Plan 2001 – 2006” (BAA Heathrow, 2002), which detail their work to meet sustainable development targets.

The Government’s Aviation White Paper (DfT, 2003 p. 122) also demonstrates the importance of managing air quality, “compliance with air quality limits for NO₂ will require a concerted effort by the airport operator and the aviation industry to identify ways of

reducing emissions from aircraft, from other airport activity and from airport-related road traffic.” A particular challenge for Heathrow will be complying with the mandatory air quality limit values for NO₂ that will apply from 2010. The White Paper also stipulates that air quality issues need to be resolved before a third runway is considered.

6.3 Focus on Employees

In the meeting with the Head of Communication and Change at BAA, the issue of BAA focussing efforts to reduce car use on employees, rather than passengers, was discussed. The reasons stated were that it was easier to target employees because of the information BAA hold on them and because they made regular repeating journeys, unlike passengers. BAA is a customer focussed business which was regarded as another important consideration and financial impacts were also highlighted as very important; it was explained that it cost approximately £2.5 million to generate a one percentage point decrease in passenger car use and £800,000 to generate a one percentage point decrease in employee car use.

With reference to congestion on the roads surrounding Heathrow the Terminal Five Public Enquiry report stated “bearing in mind that these problems would inevitably be greatest in the peak hours, employees should be encouraged to make greater use of public transport.” (ODPM, 2001, pp 240).

6.4 Future Strategies

The meeting with the BAA Head of Communication and Change also highlighted some of the current thinking within BAA. It was considered that forward thinking and planning for the future was generally not good within BAA. Current strategies to reduce car use were thought of as “*all carrot, no stick*” and that a new strategy incorporating both incentives and disincentives was required. Incentives were considered to be high cost but low impact while disincentives were considered to be cost neutral with a larger impact. It was also regarded that any new strategy should be as equitable as possible.

PART 2: Heathrow Airport Interview Analysis

6.5 Introduction

This section seeks to analyse the key issues that arose from the five interviews undertaken with key decision makers within BAA. Fourteen key areas are explored which arose both from the direct questioning of interviewees and from the coding and analysis process which followed.

Sections 6.6 and 6.7 are an account of the current situation at Heathrow Airport in terms of car parking and public transport. Sections 6.8 to 6.19 are generated as a result of scrutinising the data in accordance with the coding and analysis process described in section 5.6 and investigate the various issues which arose throughout the interviews. External influences, most notably the parking cap associated with the development of Terminal Five, were regarded as having a major impact on the car parking situation and arose on several occasions in all interviews. Such influences were seen as both positive and negative. Communication was regarded as a core construct because of the importance of needing every employee at the airport to understand the current situation and the need for a change in car parking strategy. Communication was also regarded as a key element in gaining acceptance for the introduction of an employee car parking initiative such as a parking charge or financial incentive. Attitudes to change were addressed in three areas: the interviewees' attitudes; attitudes of organisations within Heathrow, and; the attitudes of employees. There was a positive attitude to change amongst the interviewees as they were aware of the situation and the need for a more radical approach to changing travel behaviour, but attitudes elsewhere were considered to be much more negative. It was recognised that such attitudes needed to be changed for new parking initiatives to be introduced successfully and hence it was a key theme arising throughout the interviews. Linked to attitudes is a key theme of culture, both within BAA and with individuals. Cultural factors were seen to be crucial by the interviewees and an area that needed to be carefully considered due to the bearing they could have on the introduction of any new parking strategy. Interviewees discussed at length the merits of various financial incentive and disincentive measures associated with car parking strategies. This was central to the analysis as it would be likely to form the core of a new parking strategy. Four further themes which arose out of the analysis were a focus on individuals, recruitment and retention, equality and fairness, and flexibility and choice. These four themes all represented a focus by the interviewees on those who would be most affected by a new parking strategy and a view that the impact should be as minimal as possible. This focus was regarded as important in terms of the mindset of the

organisation. Implementation, consultation and learning were three constructs which were investigated predominantly by direct questioning but which also elicited strong and varied views by the interviewees. Implementation and consultation were seen as central to the introduction of any new parking strategy and as such were important areas upon which to focus. Investigating the area of learning and benchmarking assisted in demonstrating BAA's attitudes towards looking at other organisations to seek improvements which is integral to the methodology of the thesis. All of the issues investigated form the basis for the benchmarking exercise to be undertaken with the non-airport organisations.

The codes associated with quotes throughout the interview analysis are as follows:

Head of Change & Communication, Planning & Environment (BAA 1);
Interim Human Resources Director (BAA 2);
General Manager Commercial Transport Team, Retail (BAA 3);
Planning & Environment Director (BAA 4);
Head of Group Accommodation, Property (BAA 5).

6.6 The Current Car Parking Situation and the Need to Change

6.6.1 Congestion and Pressure on Car Parks

All of the interviewees stated that the car parks at Heathrow, and the road surface access system in general, were being placed under increasing pressure, *"we're just hanging in there to be honest"* (BAA 1), *"we just about get by although we do go bust on a number of occasions"* (BAA 5), *"it's a pressure cooker in terms of car parking."* (BAA 2). At present the system is considered to be coping but there are times when congestion becomes a problem, *"it's being pushed to the limit and there are days when you get heavy rain and the car parks are chocablock, but most of the time people seem to be able to get a space."* (BAA 1).

The reasons for this pressure on the system were made clear by the interviewees, *"we've got too much demand for being able to park outside your place of work and that's a huge behavioural issue. Essentially we just don't have the physical space."* (BAA 3). The interviewees said that as a result BAA is not able to provide the right number of spaces for the right number of people in a certain area and is having to fragment employee parking all around the airport. This is recognised as a sensitive issue because many employees have to drive around the airport and past their place of work to park, before being bussed back to their final work destination.

The creation of several projects around the airport site, most notably the current Terminal 5 construction, generates a requirement for large numbers of contractors to be able to park. In addition, the preference of most airlines to operate into Heathrow, and the subsequent movement of airlines to Heathrow when opportunities arise, further increases the requirement for car parking space.

Car parking can also be a particular problem at certain times of the day, *“I would hate to be in that position of someone who gets in after half past eight every day because I think it’s just a lottery” (BAA 1), “there’s times where if you go out for a meeting and come back in that period between ten o’clock and two o’clock in the afternoon where everyone seems to be in the office it’s very very hard to find a space.” (BAA 3)*. Similarly, shift work patterns are seen to have a major impact on car park usage, particularly at changeover times when there is an overlap between the incoming and outgoing shift.

These problems with car parking can be seen to have had some direct bearing on individual behaviour, *“I know one person who used to get in at nine, that was her routine and then she just had enough of it because she couldn’t get a parking space, so she changed her routine; she now gets in early and doesn’t have any problems” (BAA 1), “Ten years ago if you got in at half past eight the car park would be virtually empty, if you come in now at eight o’clock the car park is probably three quarters full.” (BAA 1)*.

With reference to the car parking cap at Heathrow, currently the airport is *“around the low 30,000 mark.” (BAA 3)*. The respondents said that this means there is capacity to build more spaces within the limit of the cap, but the decision has been taken not to increase car parking provision at present until maximum benefit has been extracted from controlling parking behaviour in other ways. The expected growth in parking demand that will occur when Terminal 5 opens *“means that we won’t have enough spaces to meet overall demand. So clearly it’s something that is quite serious.” (BAA 4)*. Other factors such as the general increase in the number of people flying and the introduction of larger aircraft were cited by the respondents to argue that the pressure on car parks would only increase over time.

The allocation of permits can restrict demand management to an extent because of the legacy of the system, *“essentially we have all these official or unofficial waiting lists for employees who want to park in our multi-storey car parks, certainly within the Central Terminal Area. We find there is a pecking order of the types of passes we*

authorise.” (BAA 3). Respondents said there is also a downside with issuing passes to company names rather than individuals, particularly larger organisations, because each company then sets up their own in-house allocation system which can undermine the central allocation system. On a more general level, it is considered by some that getting a car parking pass is too easy and with the current pricing structure, even if individuals were paying directly for parking it would be unlikely to have much impact in terms of reducing car use.

6.6.2 Targeting Employees for Change

In order to reduce the demand for car parking spaces, respondents said the airport has taken a decision to target employee parking, as opposed to passenger parking. One reason stated for this decision is that public car parking is a commercial entity and a large source of income for BAA. One interviewee said that in an extreme situation, if the income from passenger parking was to decrease significantly then airlines would be charged more and there would be less investment in the infrastructure and services requested by the airlines which would then lead to a “*downward spiral*” (BAA 3).

It was also recognised that it is easier to control employees because the condition of employment is that you are at a certain place at a certain time and hence movements are known. With passengers, there are many more people with whom to communicate and influence. The respondents also said that passenger journeys are not repetitive like those of employees and hence it is harder to provide alternatives to the car.

The interviewees feared that restricting passenger parking could lead to a growth in off-airport parking provision and “fly parking” in residential streets near to the airport, although they recognised this could also be a problem with employees. They considered it would also be likely to lead to an increase in the number of people accessing the airport by taxi or being driven by friends or relatives which increases the number of trips being made to the airport, adding to congestion and pollution.

At the same time it is recognised that a reasonable approach should be taken, “*I don’t think you can push it too far, people have to come to work and it doesn’t have to be an impossible process either, but obviously you need to try and make as much change before you go to the public.*” (BAA 2).

6.6.3 Efficiency Improvements to Current Car Park Operations

There was a strong feeling by the respondents that there are many improvements that can be made, particularly in terms of efficiency. One such area for improvement is technology and information gathering to allow BAA to understand more accurately who is using the car parks and when. It is seen as important to more fully understand the current patterns of car park use before any new initiatives are introduced.

There was a recognition that the times when passenger car parks are at their most busy is not the same time as when staff car parks are busy, but because the two types of parking are accommodated separately, the best use is not being made of parking space as a collective resource. Linked to this is a consideration of the times when car parks are being used by shift workers or office based employees and the impact this has, *“arguably it’s not the shift workers that are causing a lot of our problems. If you’re starting at five in the morning the roads are clear so your vehicle isn’t sitting still polluting as much and there isn’t a car parking shortage. Obviously by the time you’re ready to leave and colleagues are coming in there’s a knock on effect, but if we were to tackle the day workers then I think it’s much easier and could potentially be beneficial.”* (BAA 1).

The interviewees said that certain initiatives, such as the free bus service are currently in place and reduce the need for people to move about the airport during the day by car. Another strategy mentioned was that BAA often arrange meetings with third parties at local hotels within walking distance.

The planning of car parking is also regarded as an area needing improvement, *“we’ve got to get smarter about planning, we’ve got to get smarter about the right people in the right car park with the right pricing but we’re restricted by the physical capacity we have at certain geographical locations.”* (BAA 3). The pricing structure is one specific area of planning interviewees said needed to be addressed, particularly the dynamics between the ‘employee preference’ multi-storey car parks and the perimeter car parks. Currently the difference is seen to be too close, thus making it attractive to keep the waiting list for the preference car parks very long.

6.7 Public Transport and Alternatives

Alternative modes of transport to the car, referred to by some interviewees as “*soft issues*” were regarded as being well publicised within BAA and across the airport as a whole, “*we’re putting a lot of money into developing public transport links, we’ve done some really good things to incentivise use with travel cards and carnets and we’ve done lots on car sharing, video conferencing and that sort of thing.*” (BAA 4). Car sharing in particular was highly regarded at BAA. It was also noted that a number of the interviewees were actively involved in using other modes to the car or working from home on a regular basis.

While the alternative modes of transport are “*good enough in some parts*” (BAA 4) they are “*not enough on their own to tip the balance*” (BAA 4) in terms of generating a substantial decrease in car use. There are many factors which mean that public transport is not suitable for all employees. Heathrow was regarded by some as being “*relatively inaccessible*” (BAA 2) and inconvenience is cited as a major problem, with not enough areas being served by public transport to an acceptable level. A particular problem seemed to exist with public transport provision for shift workers arriving or leaving very early in the morning. In addition, it was recognised that employee destinations at Heathrow are widely dispersed so while there may be options which get people to the Central Terminal Area, there is then a further leg of the journey to reach the workplace. Time was cited as another major factor; in many cases public transport substantially increases the duration of journeys when compared to the car. The flexibility of the car, particularly for those with commitments outside of work and the need to travel during the day had an important bearing. Price, particularly in comparison to the car and comfort factors such as waiting in the rain were also regarded as having an impact on the attractiveness of public transport.

It was considered that even though alternative modes of transport are strongly supported by BAA, more effort could still be put into researching the most suitable way to exploit public transport opportunities and promoting them, “*I think the alternatives in place at present, if they were used effectively, would make a substantial difference and I think we use as an excuse that we don’t have sufficient routes...there needs to be another push on public transport in appropriate places.*” (BAA 1).

6.8 External Influences

Heathrow’s car parking situation is affected by a number of external factors. The two most influential are imposed by Government and are the parking cap associated with the

development of Terminal 5 and “The Future of Air Transport” White Paper. The parking cap is regarded as having both positive and negative impacts. From a negative perspective it means that BAA has to invest time and resources into car reduction initiatives in order to operate effectively within the limits of the cap, *“the T5 cap is paramount because we can’t exceed it and it would cause all sorts of problems for BAA if we were not seen to be taking it seriously.”* (BAA 5). From a positive perspective the cap means that BAA is being pushed into addressing the problem before it escalates, *“I think we are fortunate in that we’ve been given a ‘burning platform’ of 42,000 spaces. I think if we hadn’t been given that we would just continue to flounder and it would become an enormous problem that we wouldn’t recognise.”* (BAA 3). When set against a trend of increasing passenger numbers there is recognition that even without the cap there would still be problems and the cap is actually helping to highlight them at an earlier stage.

Even with external influences such as the parking cap it was still felt by some of the interviewees that another external driver is required to promote the importance of the car parking problems. It was considered that this driver had to be something which directly affected BAA or their key customers, such as the opportunity to develop a third runway or sixth terminal. “The Future of Air Transport” White Paper is regarded as tentatively offering Heathrow such opportunities to expand on the condition that issues such as air quality, car parking and road congestion are tackled first. If these opportunities were to become more real then it is considered that the issues that need attention would become much more important to top level management. It was felt by one interviewee that improvements to such areas would also lead to good publicity for Heathrow.

Other external factors also have a bearing on car parking management. One is that employee car parking is a *“specified activity”* (BAA 3) at BAA and as a regulated business no profit can be returned on it. The interviewees stated that this causes some problems in managing employee car parks because if the price of passes is raised in the Central Terminal Area for example, then they have to be lowered by a proportionate amount in the perimeter parking areas. The other factor is employee contracts; as most employers currently absorb the parking charges set by BAA as opposed to passing them onto staff, there is a concern that any change to the way charges were imposed would meet large barriers in terms of inflexible personal contracts. For instance if employees were directly charged, and this was not explicit in their contract, then there is a concern that they may need to be compensated in some way, perhaps through an increase in salary or a one-off bonus written into the contract.

6.9 Communication

Communication was a recurring theme throughout all of the interviews and can be seen to split into three areas: the communication of current alternatives to staff; the communication of change to staff should a new radically different strategy for car parking be introduced, and; the communication within BAA and between BAA and other organisations at the airport. Many of the communications issues relating to the introduction of a new scheme are specifically related to consultation and so are briefly outlined in this section and more thoroughly examined in section 6.18.

Communication is considered central to achieving higher usage levels of alternative modes to the car and it is recognised that this may not have always been the case, *“I think for a while we put a lot of emphasis on subsidising bus routes and that sort of thing, but not actually communicating it to people so we’ve been trying to redress the balance.”* (BAA 1). There is now a stronger focus on telling people what alternatives are available, including stronger promotional drives on things such as car sharing and cycling as well as the development of ‘Airport Commuter’¹ and the updated Travel Plan. An individual to individual approach is seen as a key way of achieving improved use of alternative modes to the car. Employees are the main target for this improved communication because they are seen as a relatively easier group to target and affect behaviour due to their travel patterns, as mentioned in section 6.6.2.

Communicating any new parking strategy incorporating an incentive or disincentive measure to employees is regarded as very important so that they fully understand what is proposed and the reasons for it. It was suggested in one interview that the message communicated was *“this is about how we attempt to give equity to people in the choices that they make given the difficult situation that we’re in, in terms of our car parking.”* (BAA 2). As parking is viewed as an individual and emotive issue, it is considered important that it is ultimately communicated to individuals rather than through more general measures. While the initial communication would have to be initiated by BAA, there is a keenness for other more suitable people to spread the message, *“I think that the people who do it need to be the real business owners; your terminal managers and all those people have to take responsibility for this, we can’t go “here’s a nice package, we’re just going to do it now”.”* (BAA 1). There is also an appreciation that talking behind closed doors is one thing but the real issues will have to be faced once any scheme begins to be communicated more openly.

A final strand of the communication issue is that which exists within BAA. It was apparent

from the interviews that communication in some areas was good, *“we work closely to keep up to speed with where other teams are with those type of new initiatives”* (BAA 5), but in other areas there was a lack of communication, *“I couldn’t believe that we weren’t increasing the car park charges...the financial people have either not realised what we’re doing and seen the opportunity or alternatively we’ve*

¹

Airport Commuter is a BAA initiative offering employees information and advice on travel options as well as discounted public transport fares.

increased in other areas to such an extent that they thought this was a sacrifice worth making.” (BAA 1).

6.10 Attitudes to Change

6.10.1 Interviewee Attitudes to Change

Amongst the interviewees there was a positive attitude towards change and a strong sense that something needs to be done to address the car parking problems being faced at Heathrow, both for the good of the airport and the overall benefit of the environment. Comments included, *“I don’t underestimate that we have to start working towards a better solution for the airport”* (BAA 3), *“the reality is we just cannot not intervene, we have to”* (BAA 3) and *“you can’t just create acres of car parking space, there has to be some other thought brought to the process.”* (BAA 2). In one interview the issue of appealing against the Terminal 5 parking cap was raised and the response demonstrated the positive attitude towards dealing with the parking problems, *“I would hate to think that we would appeal it and I wouldn’t be very happy. It would make me doubt the whole environment in which I work to be honest.”* (BAA 1).

Several potential initiatives were highlighted by the interviewees; throughout the interviews all respondents were receptive to new ideas and displayed a high degree of forward thinking in terms of appropriate solutions to help address the situation,

“we’re keen on alternatives but equally some practical solutions like financial incentives for people to give up their car parking spaces” (BAA 5) and *“I think it needs to be balanced...various incentives, disincentives, better route planning, better provision of how*

we get to work.” (BAA 3). New solutions such as more flexible working policies, a restructuring of the permit allocation procedure, matching car park location to where employees entered the airport and a restructuring of the pricing mechanism were suggested as potential solutions, or partial solutions to the car parking problems. At the same time, it was recognised that emotive factors could impact upon finding the most straight-forward solutions, *“I think if you were to take the emotive side out of it the answers are quite simple.”* (BAA 3).

There was also a feeling amongst the interviewees that BAA had to lead by example, put more effort in and build up some initial momentum to support any change before other companies could be expected to put more effort and resources into changing employee travel habits. In a similar fashion it was felt that as landlords, BAA had to lead any change, *“where you have a big site like this where you the company own the land then it’s down to you to sort out the problems.”* (BAA 4). At the same time there was recognition that with a workforce of 68,000 across Heathrow changing from one system to another would not be an easy task.

6.10.2 Third Party Companies’ Attitudes to Change

A few of the interviewees said that some companies at Heathrow are beginning to show signs that they are interested in a new parking strategy to reduce the amount of money they have to spend on parking passes for their employees. This is particularly the case with larger employers such as British Airways and American Airlines, who have approached BAA to discuss working together. Respondents explained that at present, the way parking permits are allocated is a ‘take it or leave it’ system and organisations like American Airlines are keen to move to a more flexible system based on daily rather than annual charges, which means employees can drive when they need and use alternatives at other times. At the same time as being positive towards changing to the current system, such companies are looking to BAA to lead its implementation so that BAA can be used as a scapegoat when communicating it to staff, due of the human and industrial relations sensitivities. Achieving a change is considered to be affected by the engagement and willingness of each company.

Many companies, however, are not so keen to see any change in the way employee parking is managed, *“companies are reticent to do anything that might put people off coming to work at the airport.”* (BAA 1). As well as recruitment and retention fears, there are other

human resource concerns including employee unhappiness and the potential for industrial action, such is the emotive nature of car parking. In some cases, companies were not felt to fully understand the car parking issues present at the airport and do not have a sense of urgency, or are simply avoiding the issue. This reflects some similar views within BAA as explored in section 6.11.1. Another possible reason cited for this unwillingness to change is that because car parking monies have been apportioned anyway, they are almost a sunk cost to the company and regarded as money that will be spent regardless. Some companies have historical passes in the Central Terminal Area which poses particular problems for BAA because of the sensitivity of taking them away in such a desirable location.

6.10.3 Employee Attitudes to Change

Employees are considered by the interviewees at BAA to be very unreceptive to change and it is expected they would react negatively to any new parking system being introduced. In general, the idea of change is not favoured by people and car parking is an extremely emotive issue, even regarded to be as important as pay. Long serving employees who have been used to parking for several years are highlighted as a particular group that would be very hard to communicate a change to. Even within BAA, where it may be considered that a greater understanding of the car parking pressures should exist, there is evidence of some employees who are of the attitude *"I won't allow anyone to take my car parking space"* (BAA 3) indicating that employee attitudes are not just particular to third parties where there could be expected to be a lesser understanding. There was also a feeling that when confronted with a survey or focus group, employees would often say they were willing to try alternatives but then never followed it up, or they would say *"well I would if I could"* (BAA 1) but without ever investigating the options that were available to them. Therefore it was viewed that people displaying some willingness to change, but then did not actually put their willing into practice.

The introduction of a direct parking charge to employees was regarded as an especially unfavourable measure in terms of staff reaction, *"a charge would be seen as very negative because it's almost like a tax on your job."* (BAA 2). It was suggested that the reaction to such a charge would be uproar for two reasons, firstly

"I'm not paying that, it's not in my contract, I refuse to pay, what are you going to do, I'm going to strike" (BAA 3) and secondly an attitude of *"BAA just wanting to make money out*

of us.” (BAA 3).

6.11 Culture

6.11.1 BAA Company Culture

Large amounts of time in the interviews were spent discussing cultural issues and specifically the culture within BAA. The interviewees felt that at present BAA was avoiding the issue where car parking was concerned, *“I think there’s an element of sticking heads in the sand because it’s such a difficult issue and people are hoping it will go away, but it won’t”* (BAA 5), *“I have to say the company is nowhere near accepting it’s got a problem at the moment...I think a lot of people in the company think that it will just sort itself out.”* (BAA 4). In terms of dealing with the car parking problems across the whole airport site, it was considered important that BAA first *“live and breathe”* (BAA 1) the chosen solution before they could realistically get other companies involved. At the same time there was recognition that BAA was a small proportion of the overall population and had not even got it’s own company *“on board”* (BAA 4) as yet, thus making the cooperation of a further 350 companies appear a large task.

It was felt that serious attention would only be given to the problem when a *“crisis point”* was reached, *“when the car parks get fuller and we start to have problems then I think we might take this issue more seriously...I think we’re shying away from some of these issues that will become business critical soon but because they’re not business critical we’re not dealing with them.”* (BAA 1). It was also considered, however, that the cap of 42,000 spaces has helped to focus some thinking on car parking and made people more aware of the issues.

These issues raised concerns with the interviewees about the companies *“lack of preparedness”* (BAA 1) for dealing with the car parking problems it was facing, *“what worries me is that we don’t realise how big a job it is.”* (BAA 1). Part of the reason for this lack of preparedness is thought to be that the company has in the past warned of imminent car parking problems which have subsequently not materialised and so current warnings are not taken so seriously, *“I think in some ways we’ve created an environment that allows people to be comfortable because I think maybe we’ve cried wolf unintentionally.”* (BAA 1). A further reason cited for the lack of preparedness was that the car parking is currently managed by a small group of people and the main responsibility is not seen to be with the airport at large. Until that situation is resolved there it is contemplated there will continue to

be an avoidance of tackling car parking problems.

A major cultural factor was the lack of support that the interviewees felt was being provided by top level management in the area of car parking, *“nothing seems to be moving quickly in those areas because it is a struggle to obtain buy in from the leadership.”* (BAA 5). Questions which were not aimed at investigating cultural issues were often answered in terms of the lack of support and understanding from the top level. It was considered crucial that to progress with any new parking strategy would require total support from the top managers and directors of BAA and also from other key companies at Heathrow such as British Airways, *“it’s absolutely vital. They shouldn’t be just fully behind it, they should live and breathe it as well and this is where I get nervous because unless you’ve got your MD, your Chairman, your Directors who are not bringing their cars two or three days a week, who are supporting teleworking, who are videoconferencing and all these things to support car use, unless they actually do it then you haven’t got a hope”* (BAA 1), *“it’s essential, I think in this day and age the idea you can tell people what to do is nonsense...the top people will need to change their own behaviours if you want other people to change theirs.”* (BAA 4). It was also felt that if one person from the senior management level, ideally the Managing Director, was to support the parking initiatives being proposed then it would make wider acceptance and support easier to gain, *“you have to be leading by example to get change effected through the company”* (BAA 5), *“getting organisations to do things is quite hard work. It’s easy if the top man thinks it’s a good idea because then it happens, it’s much harder if they don’t acknowledge that they’ve got a problem.”* (BAA 4). It was anticipated that gaining this support could be slow, but would happen. In certain cases it was considered that external factors such as the Government White Paper “The Future of Air Transport” and the potential development of a third runway or sixth terminal may be the factors required to make senior managers think more specifically about parking issues.

Other general cultural issues within BAA were also explored. It was considered that there was an overall lack of ‘joined-up’ thinking which was recently seen in a car parking context when charges were not increased at the end of the financial year, even though there was a drive to reduce car commuting. Similarly, BAA has a company car policy, *“it’s certainly not a disincentive is it!?”* (BAA 4). There were also cultural issues surrounding the way people worked and whether it was necessary to always be at the office. This was something that was recognised as changing with more people working from home, but further progression was considered necessary to promote a more flexible working culture which would relieve some pressure on car parks.

There was also regarded to be a negative culture around the idea of change, as explored in section 6.10, with BAA not wishing to “*rock the boat*” (BAA 5) by introducing something that would require a change to the way people traditionally do things, “*there is resistance internally of making these things happen because it’s a significant change and the company is focussed on a large number of other priorities so doesn’t really have the time or resources to deal with this.*” (BAA 5).

6.11.2 Culture of Individuals

The general culture of individuals was expected to have a bearing on the introduction, and subsequent success or failure, of a new car parking strategy. The lifestyle culture in Britain was considered to be one where people worked hard but also liked to make the most of their free time “*and people just want their lives absolutely ordered so that they can fit in everything they want to do.*” (BAA 1). To this end, the private car was regarded as the mechanism that allowed for this to happen. For example, it was appreciated that a large number of people took their children to school before coming to work, a factor that would make shifting to other modes of transport difficult. This precious nature of free time was further emphasised by one of the interviewees, “*if it took ten minutes more by public transport it would be OK, but when it’s such a dramatic difference the impact of that on my quality of life would be so significant that it’s unattractive.*” (BAA 2). The role of the car in people’s lifestyle balance was considered to be becoming more and more important, particularly when looking for a prospective employer, “*the flexibility you have in your role, other things like pension, car parking, IT infrastructure, they’re equally part of the decision process now as what your basic pay will be.*” (BAA 5). It was thought that other lifestyle factors such as increased affluence have allowed most people to afford cars, which they then do not think about the cost of using and more generally, “*there’s personal issues, organisational issues, Government issues, environmental issues, there’s so many things that are stopping people behaving differently.*” (BAA 1).

The issues of status and expectations were also raised by the interviewees with respect to the culture toward car parking. There is considered to be a “*pecking order*” (BAA 3) in terms of car park permit allocation at Heathrow, particularly for the Central Terminal Area. Longer serving and senior members of staff, from all organisations, often feel they deserve the more

conveniently located spaces. The development of Heathrow over time was regarded by one interviewee to have been “*quite car centric*” (BAA 2), suggesting that Heathrow itself may be partly to blame for the expectations surrounding the car. Regarding the introducing of a parking charge there was a widespread belief that because direct charging of employees was so radically different and new, then the cultural change would be a difficult hurdle to overcome.

There is also regarded to be a general lack of effort on the part of many people to make any change to the way they do things. One interviewee stated that BAA surveys often reveal that people state they can not use public transport because it is regarded as taking too long and being too expensive, but other questions in the same survey reveal that they do not know the timetables or fares. Another specific issue was highlighted as being that staff often drive from the Central Terminal Area to BAA’s Heathrow Point West office complex and take up parking spaces, even though there is a free bus service.

6.12 Use of Financial Incentives and Disincentives

When thinking of potential alternative measures that could be used to address the car parking problems at Heathrow, there were a wide range of potential solutions suggested by the interviewees. This highlights the complexity of the problem and that there is no one straight forward route to take, but also that there is a substantial amount of thinking being given to the problem. The views ranged from making more effective use of the current alternatives and the way they are managed, through to more radical financial incentive and disincentive measures. Consideration was also given to the impact that certain approaches might have and how to approach introducing different measures.

Overall there was a widespread view that the greatest deterrent to driving to work would be a physical lack of spaces available to people. This, however, is not a position that BAA want to be confronted with and there is a determination on the part of some of the interviewees to find a solution to the car parking problems so that they will never reach a situation where those who wish to drive to work are not able to because of a lack of spaces, “*I have worked at places where they’ve literally run out of parking spaces and it causes massive internal problems because they become quite highly prized thing...bartering spaces and using favours such as “well I’ll take the job if you give me a parking space” is a very*

unattractive route to take.” (BAA 2).

There was unanimous agreement from the interviewees that some sort of intervention was needed and that the problem would not “*sort itself out*” (BAA 2). There was also a view that employees needed to be closer to the decision making process in terms of personally experiencing a parking charge or financial incentive if it was to have any real impact on their behaviour.

6.12.1 Direct Parking Charges for Employees

Parking charges paid directly by employees were considered by some of the respondents to be essential to finding a solution to the car parking problems at the airport, “*fundamentally there has to be a charge built in.*” (BAA 1). Other interviewees who were not so in favour of a charge also recognised that one may have to be incorporated at some stage, “*I suspect at some point there’ll be a disincentive...there will come a time if passenger numbers keep increasing where this is going to be quite an acute problem.*” (BAA 2). It was also considered that the charge had to be set at a level which deterred driving to work to a great enough extent to make people think about their commuting options. The level of the charge was

something that all respondents regarded to be fundamental to the success of a charging scheme, whether they agreed with the principle of charging employees or not. Some interviewees discussed in broad terms how the charge should be set, “*it has to be sufficient that it does act as a disincentive to people to drive to work*” (BAA 2), although there were also views such as, “*I don’t think it would have a huge effect...it will have to be a substantial cost to deter people.*” (BAA 4). There was also a feeling by some respondents that it should be done in a fair way, “*I assumed that if you put a charge in it would be the same for everybody but then that is not fair at all is it. It’s a much higher proportion of a junior member of staff’s salary than a more senior member of staff’s salary.*” (BAA 2).

It was also realised by the respondents that a reasonable approach had to be taken and that the charge could not just be continuously increased to enable continual management of the demand for car parking spaces, “*if we’re still having lots of people driving and insufficient spaces then we’ve probably got something wrong with the mechanism.*” (BAA 1). If parking was to be charged directly to employees then BAA recognise that they would need to turn it

into more of a customer driven product. This is regarded as a positive aspect as it will increase the quality of the car parking and place greater focus on providing the “*right services*” (BAA 3).

The idea of charging employees daily rather than annually was discussed and seen as an important characteristic to include in any charging scheme because of the increased flexibility and choice it gave. Charging employees on an annual basis was regarded as encouraging them to drive everyday so as to extract maximum value from the permit.

There was strong opposition to the introduction of direct employee charges from some of the respondents, “*I don’t think there is anything that would facilitate employees being charged individually for their car parking.*” (BAA 5). Employee reaction to any proposed charge was expected to be negative, “*they would see it as a cut in salary I guess*” (BAA 5), “*it would be seen as very negative because it’s almost like a tax on your job and that would be quite detrimental from an employee relations point of view.*” (BAA 2). In addition to this view it was felt that if charged, employees would expect an increase in their wages. It was anticipated that current contracts would be inflexible to such a change and compensation would have to be offered either in the form of a one-off payment or an increase in salary. The inflexibility of contracts, particularly in the airline industry was seen as a barrier to introducing a charge. A potential negative impact of a parking charge was highlighted by some interviewees as being “*fly parking*” (BAA 4) by employees in nearby residential streets.

Rather than directly charging employees, it was suggested by one interviewee that a change in the current system, namely an increase in the prices companies were charged for parking permits, could encourage some companies to make different decisions in terms of how many passes they bought. Although the current regulation does not allow BAA to return any profit on employee car parking, it was thought that even a change to the price differential between perimeter parking permits and Central Terminal Area parking permits would discourage companies from buying permits in the Central Terminal Area. The concept of charging companies daily as opposed to annually, in a similar fashion to charging employees in this way as discussed earlier, was also a favoured approach.

The notion of hypothecation was discussed in relation to parking charges and whether reinvesting parking revenues into alternative modes of transport would increase staff

acceptance of the charge. There were mixed views in terms of ring-fencing the revenue. The majority of respondents thought that it would be wise to hypothecate revenues as it would reflect positively on the scheme, *“from a perception point of view it’s great”* (BAA 3), it would show it not to be for the purpose of generating profit and *“it might actually help to alleviate the argument with staff.”* (BAA 2). If hypothecation was conducted transparently it was expected to further increase acceptance levels. Other respondents were not so favourable, stating that nothing could facilitate employees being charged and also that it could result in further disputes if it was felt the monies were being reinvested unfairly.

6.12.2 Financial Incentives

There was a positive response amongst the interviewees to the use of financial incentives, *“if there was a significant financial alternative then I would seriously consider it”* (BAA 5) and *“you have to make it as positively attractive for people to stop using their cars, so there’s some sort of cost benefit to them to do it.”* (BAA 2).

It was considered by the respondents that a successful financial incentive scheme should include a high level of flexibility and be based on daily payments, rather than permanently taking away people’s parking permits for a one-off as had previously been trialled by BAA with limited success. This attempt at *“buying back parking spaces”* (BAA2) was ended as it was not cost effective and had tax implications. This increased flexibility was expected to encourage take-up of the scheme as it would help to assure people they could still park when they needed to or if their circumstances changed. It would also need to be communicated clearly so that people understood how it worked and what the benefits were.

Negative issues associated with offering a financial incentive were also highlighted. The cost of running a scheme, particularly over a period of time was contemplated, *“I suppose you implement it and it’s fine, there’s a cost for the first year or second year but then it just becomes a big lump of money sitting on the balance sheet every year and after the emotion has worn off people start to question why it is being paid out every year.”* (BAA 2). A further issue was that if large amounts of money had to be paid out to fund an incentive scheme then there may be fewer funds to improve alternative modes. In some cases the use of incentives in isolation was not regarded as being effective enough to resolve the problems, *“I don’t think it works if you just do a pure incentive.”* (BAA 1).

6.12.3 Adopting a Package Approach

In many cases, it was considered that a mixture of incentives and disincentives should be used, *“intuitively I’ve felt for a long time that a mixture of some sort of payout and some sort of charge would appear to be the best option because of the culture here”* (BAA 1) and *“I really favour a mix and match approach, you pay when you use it, you don’t pay when you don’t, maybe you get money back and you don’t.”* (BAA 4).

There was a feeling throughout all of the interviews that the first steps of any scheme should be to make more efficient use of the current resources available. This included better management of current car parks and, in particular, making better use of public transport alternatives and initiatives such as car sharing, *“there needs to be something to say “have we really exhausted all of that” before we move on to other things”* (BAA 2). It was considered unfair to *“...just slap a charge on and give nothing in return, I think that would be dangerous and I wouldn’t advocate it. I think the downside would be that it would be achieved in such an unacceptable way that unless you had all the other balances in place to make the charge something that employees could swallow.”* (BAA 1).

Shift patterns are regarded as posing a particular problem on change over periods and also in terms of providing public transport at unsociable hours; therefore a greater understanding of shifts and perhaps even some timetabling rearrangement were considered good initial approaches. Another interesting area was that while there is a high proportion of “front line” employees at Heathrow, not everybody who works at the airport needs to be on the site everyday. Therefore, some type of flexible working policy for non site-essential could go a long way to reducing the number of car commuters.

Some interviewees thought that whatever scheme Heathrow undertook should link with other employers in the area so as to decrease overall road congestion in the surrounding catchment, as well as Heathrow’s specific car parking problems, *“you have to take into account that we sit in a world around us and as a big entity it’s going to be very difficult for us to do one set of things if the local council, the town council, Stockley Park don’t change their ways too.”* (BAA 4). To this end, the concept of area wide road user charging was mentioned as a potential strategy.

It was also recognised that a greater level of information was needed to fully assess who was

currently using car parks and when they were being used. An increased level of control over permit allocation was also suggested.

6.12.4 Additional Issues Raised Regarding Financial Incentives and Disincentives

There were a number of universal factors associated with introducing a new strategy containing a financial incentive or disincentive, which the interviewees considered to be important. There was an appreciation of the likely impacts of making large changes to the car parking strategy, *“trying to highlight that there is no more space is really hard because people don’t believe you”* (BAA 3), *“fundamentally there has to be a charge built in and that is going to be a big shock to the airport.”* (BAA 1). There was also expected to be resentment towards the introduction of a parking charge and concerns, based on previous experiences at other places of work, that the emotions involved were so great as to cause arguments and staff unrest. The large workforce of approximately 70,000 was expected to make change a difficult process.

Stating clear reasons if introducing a charge was regarded as extremely important *“the ultimate is getting employees to understand very clearly that we are not doing this to make commercial gain for the airport, we’re doing it to keep Heathrow growing.”* (BAA 3). Flexibility in any design was another important consideration so that employees did not feel pressured in terms of their travel decisions and could use whatever mode was most suitable for them on a given day. There was also recognition that advances in technology were required if any scheme involving a financial element directly linked to employees was to be introduced.

A potential side effect of any new strategy was mentioned, in that the political kudos would be considerable. It was thought that the Government would strongly favour a scheme such as employee charging or financial incentives and that Heathrow could be used as a leading example, which would in turn generate further public relations benefits.

Whatever solution is favoured, it was considered that BAA had to look carefully at the population and determine which group they were trying to sway in order for any new strategy to be effective. In a similar fashion, it was suggested that certain groups who had better access to public transport could be targeted with different strategies.

Throughout the interviews some of the respondents discussed the fact that BAA and

Heathrow still had to operate efficiently and make money. Therefore, while addressing the car parking problems and all of the factors associated with that, there is also the pressure of making Heathrow as commercially successful as possible. It is for this reason that BAA has decided to focus on employee parking rather than passenger parking. Without the employee parking regulations it is considered that BAA would be charging much more for parking permits.

6.13 Focus on Individuals

Throughout all of the interviews the respondents placed a strong focus on individuals. Much of this focus was on the emotive nature of car parking, *“car parking is up there, it’s as high as how much someone gets paid”* (BAA 3), *“I think it plays a big part in people’s general state of happiness”* (BAA 2) and how the implementation and consultation of any new scheme had to be done with a great deal of care so as not to create difficult human resource and industrial relations problems, *“if it becomes a big issue for them then I think it can be damaging to harmony amongst the workers.”* (BAA 2). It was also considered that car parking was something that would be *“highly emotive while you’re in the mess”* (BAA 3) but then once a change was introduced the opposition and bad feeling would decrease. Shift workers and front line workers were thought to be those individuals who were likely to be most strongly opposed to a new scheme and that it was also these individuals who were likely to be most disadvantaged if a poorly designed strategy was implemented because they either would not have access to alternatives at unsociable hours, or the finances to pay for either car parking or alternative modes.

Linked to this recognition of the emotional factors involved in car parking was a general understanding of the impact any new scheme would have on individual employees. It was felt that as much effort as possible should be made to make the scheme fair and reasonable to individuals, *“I think what you want to do is tie it to the way people feel comfortable living their lives”* (BAA 4), while at the same time effectively tackling the issues facing the Airport. In some cases it was considered that different approaches could be used with different sections of the employment population, or a mixture of options that allowed increased flexibility and choice could be used. Those in favour of parking charges thought that a non-discriminatory approach should be used as far as possible, perhaps with permit priority being given to those assessed to have the greatest need and parking charges based on

salary.

It was considered by the interviewees that employees should be central to the operation of any new strategy and also the process of introducing a new parking strategy, to ensure that acceptability was as high as possible and because it is the individuals who make the ultimate decision about whether they drive to work or use alternative means, *“I think organisations can help us do what we’re currently doing but the real change does come from the individual”* (BAA 1), *“I think once you divorce the individual from the individual decision you lose impact.”* (BAA 4). In terms of the planning of the new strategy then it is felt that employees should be heavily consulted and each individual should feel they have had the opportunity to feed in their views, thus a comprehensive communications strategy is regarded as being necessary.

6.14 Recruitment and Retention

Questioning on the likely impact of any new parking scheme on recruitment and retention, especially a parking charge direct to employees, extracted mixed responses from the interviewees. Retention was regarded as being more of an unknown quantity because of the difficulties in knowing exactly how people will react to situations. Some interviewees felt that for front line staff who make up the majority of Heathrow’s workforce, and for whom salary levels were marginal, then the introduction of a parking charge could force many to consider working elsewhere. Managerial staff on higher salaries were not expected to be so affected by a parking charge and would realise they would struggle to get such good jobs and benefits elsewhere, but it was anticipated they would use collective bargaining to make their voice heard. The other view was that many staff enjoyed working at the airport and loved the environment. Therefore there was a lot more to weigh up than just car parking when making a decision about potentially changing jobs. In addition to this was the consideration that changing jobs is a big upheaval; many factors have to be traded off, particularly if somebody has worked in a specific role at the airport for a long time. The view that people are resilient was also aired. Such viewpoints still recognised that some people might be put off, but that the impact may not be so large. It was considered that current employees would seek compensation in one form or another should a major change be introduced.

Recruitment was seen as much easier to manage because newer staff wouldn't know any different other than to accept the situation. People interested in applying for a job were seen to be able to weigh up the situation they were presented with and then make a decision on whether to apply. While this does not entail the emotional issues surrounding changing the car parking strategy that would be experienced by the current employees, it was recognised that there is the issue that a car parking charge could act as a deterrent and increase the difficulties of recruitment. Whichever way forward is chosen by BAA, there is a clear view that any impact on recruitment and retention must be reduced.

6.15 Equality and Fairness

The issues of fairness and equality were apparent in many areas covered by the interviews, from the fairness of the current system through to ensuring any new scheme was as equitable, transparent and reasonable as possible. This attitude was often seen to come from the respondents' own personal outlook, as opposed to them saying what they believed to be the politically correct response. It was noted that the female interviewees in particular had stronger views that any scheme should be fair and even handed.

Regarding the development of a new scheme, and specifically a parking charge direct to employees, there were strong views that its introduction should be done in as reasonable a way as possible which would in turn increase acceptance, *"I don't think you can push it too far, people have to come to work, it doesn't have to be an impossible task to come to work either."* (BAA 2). Adopting this approach was a widespread opinion with consideration of individuals being high on most agendas.

Staff were considered to be *"reasonable people"* (BAA 1) and hence the approach taken by BAA should also be reasonable, *"people don't actually mind stuff as long as they know and I think be fair, open and honest and it will be ok."* (BAA 1). This quote also highlights the perceived importance of communication and the need to be transparent. General staff welfare was also considered, *"if you want to retain your attractiveness as an employer then you owe it to your workforce to be reasonably careful about their quality of life and working environment."* (BAA 4). In addition it was thought that if employees were made to pay for their own parking then it would have to be viewed much more as a product, *"you might not be happy about paying for it, but you would be willing to pay for it."* (BAA 3).

It was also considered important to show that whatever scheme was decided upon, was the same for everybody, although it was recognised that this was not easy,

“whatever route you take is going to be discriminatory in some way, I think it’s better to do one which isn’t status driven, but then you could end up in a situation where people work very long hours didn’t get a permit and that wouldn’t be desirable either...but doing it on a time served basis is also tricky so I think there are no straightforward answers.” (BAA 2).

While this comment highlights some issues of fairness, it also highlights a level of confusion in terms of determining how a new parking strategy should work. This considered approach and questioning of how best to approach the problem was typical throughout many of the interviews and highlights some of the complexities in trying to find a suitable balance of all the contributing factors and ensure the solution is even handed.

A transparent approach to introducing a new strategy was regarded as being an important part of its implementation, *“I think the ultimate is actually getting all the employees to understand very clearly that we are not doing this to make commercial gain for the airport, we’re doing it to keep Heathrow growing.” (BAA 3).* It was considered that this clarity in approaching any implementation should also be matched with clearly stated reasons and spelling out the problem that there are simply not enough spaces while also explaining that as equitable a solution as possible was being sought.

There were mixed views when discussing whether the current system, whereby employers were paying for car parking, was equitable, particularly when considering that those who choose not to drive to work don’t receive a comparable benefit. Some interviewees considered that there was equity because everybody was entitled to apply for a parking permit and those that chose to drive incurred petrol and maintenance costs, whereas non-car commuters did not. It was also considered by some interviewees to be unreasonable to charge for parking at work, particularly in more inaccessible locations. Others thought that the scheme was not equitable and car drivers were getting a benefit that non-car commuters were not.

6.16 Flexibility and Choice

The issues of flexibility and choice recurred throughout the interviews and covered many different aspects of the areas discussed. The flexibility of the private car was regarded as a major factor in people’s decision of how to get to work. In some cases it was regarded as

central to a person's ability to carry out their job effectively and it was also recognised that some people had no option but to use the car to travel to work for a number of reasons including where they lived, their start and finish times and public transport availability. Employee work lifestyle balances were also considered to be increasing in their importance, with the flexibility contained within a role becoming a larger part of the decision making process when considering where to work. Issues such as car parking were regarded as making up a part of this flexibility.

Incorporating a large amount of flexibility into any new parking strategy was seen as crucial by the interviewees. This had to be apparent in terms of the ability to opt out of a financial incentive or disincentive scheme when required, *"you're more likely to get buy in if people feel they have the flexibility to get the space back if they need it"* (BAA 5), and also in terms of other transport options being available to complement the core element of the scheme and offer a real alternative to the car, *"there would need to be other solutions in place that would give me and others as close to as much flexibility as I have now."* (BAA 5). According to the interviewees, some other companies at the airport are starting to talk to BAA about introducing more flexible systems, for example American Airlines have approached and said *"we'd rather have a system where we could buy people a travelcard and pay for some of their parking rather than the whole thing."* (BAA 1). Under BAA's current scheme the respondents said that there was not the flexibility available to do this.

6.17 Implementation

There were strong views from all of the interviewees that whatever strategy was chosen as the most suitable way forward for the airport to solve its car parking problems, BAA should lead by example, pilot the new measure and be the first organisation to adopt it. This was considered to be beneficial in persuading other companies at Heathrow to support the scheme, *"you'd have to start with BAA first, that would then enable or facilitate buy in of some of the larger organisations. You need to get a little bit of momentum...we have the power to make ourselves do these things and then start to get other people on board."* (BAA 5). It was also considered that BAA could then help other companies out with their implementation, *"we can go to other companies and say "this is what we've done, this is the hardship we went through, these are the lessons we learnt, we can help you here"."* (BAA

3).

Certain areas of BAA in particular were seen as offering good pilot opportunities. The “BAA Heathrow Point” complex of offices was regarded as a good pilot exercise location, *“round here where you’re dealing with a management population in what is clearly a very attractive parking arrangement right next to the office is probably a good place to pilot it. It also has the advantage when you roll it out to other people of saying “we started with the most cosseted group of staff before we moved on to anybody else”.*” (BAA 2).

Human resource issues were also raised in relation to implementation. It was clear in the minds of the interviewees that the introduction of a new car parking strategy, especially one including some direct financial elements, could be difficult to implement, *“we’d need to ensure that whatever was decided could be implemented without causing too many repercussions.”* (BAA 2). Staff communication was regarded as very important and it was also felt, *“the important thing if you’re doing anything like this is you’ve got to make the employees feel like they’re part of it and that it’s not being done to them.”* (BAA 5). It was considered that the more time people were given to come to terms with the change, coupled with a *“fair, honest and open”* (BAA 1) approach, then the more staff would begin to accept the change.

Other implementation related issues discussed included who should be responsible for the roll out and introduction of a new strategy. The general consensus, and the way the current structure is intended to be, is that BAA should develop and lead the strategy but then the *“real business owners, terminal managers and those sort of people”* (BAA 1) should take the responsibility for the actual administration of it. The way any strategy would be phased in was also raised which generated two different viewpoints; some interviewees regarded a gradual implementation as being the most suitable way to progress in order to retain the support of the workforce whereas others favoured a meaningful initial change to create a larger impact, *“give people loads of warning but on day one “this is what it is”.*” (BAA 1). A gradual approach is already believed to be underway, according to the views of one of the respondents, *“there’s been lots of gradual things, buses and car share, heightening the profile of Airport Commuter, “European Car Free Day”, “Bike to Work Week”, all those things have been happening. We’re doing survey work so people are now talking about it, we’ll soon be talking to the Unions so I think it’s all a very soft build up to start with, but there comes a point where you have to make it clear that this is real and begin a countdown*

to a time two years down the line when something will happen.” (BAA 1).

6.18 Consultation

The interviewees regarded the process of consultation associated with introducing any new parking strategy to be very important and also complex. There were clear and unanimous views on who should be consulted, starting with top level management, then individual companies and finally employees. For an issue as emotive as car parking it was regarded as important to ultimately target every individual employee. Suggestions for achieving this included the use of forums, presentations, focus groups, newsletters and mail shots to each employee. It was considered that *“in an ideal world all the employees would feel as though they had been consulted” (BAA 5)* and *“it needs to be so in your face that no one has the excuse to say “I didn’t know” or “I’ve not been asked.” (BAA 1)*. The groups to be initially consulted were considered to be major airlines and employers at Heathrow with assistance from the “Airline Operators Committee”, at the executive level in the first instance and then at a broader level. This high level of consultation and communication was felt to be important so that everybody understood the benefits of a new parking strategy, even if they felt uncomfortable with some of its components. Various ways of achieving this were suggested and their appeared to be a structure in place which would enable such consultation to take place, *“we’ve got the change management framework in place so whatever scheme was proposed, the framework and template is there...it starts from identifying the stakeholders, then depending on the stakeholder groups what is the appropriate means of communication.” (BAA 5).*

It was also recognised that the consultation would require a lengthy time frame, although estimations varied between respondents from six months to *“at least two years, maybe three” (BAA 1)*. The perceived requirement for a long consultation was because of the likely negativity towards it from staff and the fact that several issues will have to be resolved before it can proceed, *“the consultation process will be very very long, it will almost become a negotiation.” (BAA 3)*. It was thought that over time and as people began to understand the benefits then opposition and initial unhappiness would be overcome. In one instance it was suggested that the consultation process should be approached in a different way, *“what you want is people to actually volunteer in. Maybe the consultation process would be saying “we’ve got a problem, how do you want it solved?” (BAA 4).*

The interviewees were also asked if there were any other experiences of similar consultation at Heathrow which could be drawn upon. The only comparison made was with Terminal 5 because of the impact it has on the community at large but overall the response was that there were no examples where something had been introduced that affected every company and every employee. It was also considered that BAA and Heathrow could perhaps learn from the way other companies had approached the consultation process when introducing new strategies

6.19 Learning and Benchmarking

Interviewees were asked for their opinions on whether they considered BAA as being receptive to learning from other companies and whether the company was currently engaged in any activities that could be referred to as benchmarking, learning or best practice. The overall consensus was that BAA was definitely open to learning from other organisations, whether they be other BAA departments, other companies at Heathrow, other airports or from an unrelated sector.

In some cases it was considered crucial that BAA looked to other companies to learn how they had tackled car parking problems, *“I think it would be essential to learn from best practice elsewhere”* (BAA 2) and there was real positivity towards the whole idea of learning from others, both to solve the problem and for the good of the Airport in general, *“I see how many companies are dealing with this issue very seriously. They are companies doing it for the benefit of themselves and I wish I could find a way to help Heathrow to understand that this is for its own benefit.”* (BAA 1). Some initial work has already started at BAA in terms of seeking out best practice in other organisations to deal with the car parking issues.

Different stages of the process of introducing a new car parking strategy were considered with reference to learning from elsewhere, from the design of the scheme

“I think that every company outside of BAA will have a piece of the answer to the car parking jigsaw but no one company has yet put the pieces together into one holistic strategy that works and that’s the challenge, identifying the pieces and implementing it” (BAA 5) to its implementation and consultation *“or we could learn from examples of consultation that have been done within organisations or other parts of the airport. I don’t know if anything’s ever happened in cargo for example, so I’m sure there’s things we could learn from.”* (BAA 1).

There was evidence of current benchmarking activity at BAA. Examples included learning from colleagues at other BAA airports when writing documents such as Travel Plans and working with the nearby Stockley Park Business Park, Vodafone and Glaxo SmithKline Beecham on travel planning issues. Such links are considered as important rather than *“reinventing the wheel”* (BAA 5) on similar transport issues. It was also considered that BAA should work together with neighbouring companies on commuting and parking strategies so that the whole area was benefiting.

A downside of benchmarking within BAA was highlighted as being a lack of resources, particularly in terms of time, to fully understand what other companies were doing. This applied to both carrying out any initial learning and then taking the ideas, developing and using them, as well as a general lack of focus and priority given to such initiatives by top level managers.

The concepts of uniqueness and arrogance were raised with interviewees, in the sense that because Heathrow was a one-off situation and also much bigger and more advanced than many other airports, then the situation at other organisations may not be transferable. On the issue of arrogance there was one opinion that Heathrow considered itself to be above other companies, but on the whole it was felt that the airport was willing to learn from others. There was some feeling that the situation at Heathrow was fairly unique in some ways, *“there certainly isn’t another Heathrow out there that we can copy from”* (BAA 1), particularly in terms of the size of the campus, the range and number of organisations on site and the number of employees. Other factors such as the large number of shift workers and a feeling that Heathrow was relatively inaccessible by public transport, were considered problems, but not problems that were just unique to Heathrow. Overall, while there was recognition that there are some factors which make Heathrow different to other organisations, there was also considered to be several areas where Heathrow shared characteristics with organisations and hence could learn from them. Some interviewees stated that they had originally considered that Heathrow was completely different to any other organisation, but after more consideration and research in the area of car parking they had realised that there were several similarities with other organisations, *“if you’d have asked me a year ago I could have listed a whole load of things...but there is much more similarity than I had previously thought.”* (BAA 1).

The following statement sums up much of this, *“We’re not unique but there are unique*

factors and that's why I don't think you'd pick up a template from one company and just move it here, you're going to mix and match." (BAA 4).

PART 3: Heathrow Airport Focus Group Analysis

6.20 Heathrow Airport Focus Group Analysis

The findings from the focus groups are presented in a similar way to those from the interviews. The analysis below is based on the range of discussion questions posed to the groups as shown in Figure 5.5 with key issues being picked out from the groups via the same method of coding used in the interview analysis. Due to the nature of the focus groups predominantly comprising 'shop floor' employees, certain areas were covered in different levels of detail compared to the interviews. For example, greater emphasis was placed on employee attitudes towards the current parking situation and their opinions on potential new strategies. Overall, attention was targeted on perceptions of the current situation, whether there was a need to change and on attitudes towards strategies incorporating financial incentives and disincentives. The respondents were also encouraged to discuss those strategies they felt would be more effective.

The codes used with quotes throughout the focus group analysis are as follows:

Focus Group 1 – 6 participants (*FG 1*)

Focus Group 2 – 10 participants (*FG 2*)

Focus Group 3 – 4 participants (*FG 3*)

Focus Group 4 – 7 participants (*FG 4*)

Focus Group 5 – 6 participants (*FG 5*)

Focus Group 6: Bus Users – 5 participants (*FG Bus*)

Focus Group 7: Heathrow Point West Office Workers – 10 participants (*FG HPW*)

6.21 The Current Car Parking Situation and the Need for Change

The Current Situation

The focus group participants displayed a wide range of views regarding the current car parking situation at Heathrow. In general most people were happy with the level of car parking provision and had no difficulty finding a space, "*I can't complain really, the car park is conveniently located and there's never any problems with finding a space.*" (*FG 3*). Some respondents stated that their place of work was close to the car park which made it convenient to drive and there was praise for a scheme that allowed night shift workers to park in the Central Terminal Area at the weekend. Overall, it was felt that certain car parks

were better situated than others, for example the Terminal Four employee car park was frequently referred to as being “good” (FG 1/2/4), with quick journey times into the terminal, but people who worked in the Central Terminal Area were generally less happy, having to endure longer journey times to get from car parks to their place of work. The most common criticism was that employees often had to drive past their place of work to their designated car park and then get a shuttle bus to their final destination, adding what they felt to be unnecessary time to their journey, “*my only issue is that from the car park to my place of work is three quarters of my journey time and driving to the car park is a quarter of my journey time.*” (FG 3). Arriving at work on time was seen as a crucial factor, especially for front line staff, and something which managers would not tolerate. To this end the shuttle bus service was not regarded to be sufficiently reliable at present, it was often overcrowded meaning it drove straight past stops and could not always be depended upon, particularly at peak times.

In the group comprising BAA office workers more specific issues were discussed relating to the limited car parking outside the Heathrow Point West building. The majority of participants in this group were dissatisfied with the lack of parking provision, often leading to problems finding a parking space. The ‘three days in, two days out’ policy was also mentioned, whereby all staff are permitted to park in the HPW car park for three days per week and for the other two days they have to park at the visitors centre car park over the road. The majority of participants did not think this was solving the problem because the visitor car park is often at full capacity as well. One participant also thought that it was a safety concern when staff are asked to park elsewhere, firstly in terms of having to walk alone at night and secondly the security of cars being parked in car parks without CCTV.

General congestion on the roads was often regarded to be more of a problem than the physical capacity of car parks, “*on Monday mornings at 5:30 or 6:00 it’s very hard to get through the tunnel as traffic solid.*” (FG 1).

There was also a feeling that car parks were often abused in terms of who was using them and it was questioned whether parking permits were actually being monitored. Some participants said that the sharing of entry passes occurred between employees and that it was easy to obtain multiple passes for different car parks or vehicles.

Almost all participants were aware that their employer paid for their car parking, although there was far less understanding of how much parking permits cost. It was felt by the

majority that their employer should be responsible for paying for their car parking. In focus group 6 there were two participants who had to pay for their own car parking, charged at £38 per fortnight, and as a result they commuted by bus. Members of the bus user group thought it unfair that employers paid for car parking for their staff but did not offer any benefit to those that travelled by public transport.

The Need to Change?

When discussing the reasons as to why there was a need to reduce car use at Heathrow, the majority of participants were aware of the overriding issues of congestion, a lack of parking spaces as the airport grew and environmental issues such as air pollution. A minority of group members were aware that Heathrow was subject to a parking cap, but the details of this were generally unknown. Some people thought that the cap applied only to passengers and not employees, while others thought the cap was only for traffic related to Terminal Five. There was also a lack of awareness that the cap was imposed by National Government and not BAA itself. Another reason cited for why there was a need to reduce car use was to allow for future expansion. Amongst some participants there was suspicion surrounding BAA's motives for reducing car use and they believed that the environment was being used as an excuse to hide financial objectives within the business, *"it's so BAA can make more money by renting parking spaces out to other companies"* (FG Bus) and *"it's all about cost, if they can reduce staff car use they don't have to pay out as much for passes."* (FG 5). A small number of participants also voiced the view that BAA was appearing to be *"anti-car"* (FG 1).

In one group there was a comment that they did not think there would be a change to the current car parking strategies until the problem reached a critical level, *"I don't think there is a big enough problem yet. At the moment I think the car parking is okay and until it gets not-okay then you are not going to change people...people will keep their head in the sand until it gets really bad."* (FG 4). A further supporting statement was, *"when it becomes painful for individuals it will focus the minds."* (FG 4).

6.22 Perceptions of Current Car Reduction Initiatives

A large amount of time in the focus groups was spent discussing car alternatives, which reflected the relevant importance of these issues to employees at Heathrow. Overall, there

was an awareness of the efforts BAA was making to reduce car use; in particular car sharing, the free on-site travel service, the Airport Travelcard and the promotion of cycling were mentioned by focus group participants. The role of public transport was recognised, “*public transport has the potential to be of great benefit because it can go straight to our place of work and stop outside the terminal, but it doesn’t do that.*” (FG 1), but there was a general feeling that currently these efforts did not really meet the needs of many employees, particularly where car sharing and public transport were concerned.

There was a strong focus on the need for improvements to public transport throughout all of the groups and many said if public transport was better they would consider using it. Those who worked on shift patterns raised specific issues about a lack of public transport options at the times they needed to travel, “*it’s non-existent at four in the morning, even if you live relatively close, there is nothing to get you to work at that time.*” (FG 1). Many people perceived central London to be well served but it was suggested that the majority of employees do not live there; they live in towns surrounding the airport.

The issues of reliability and the non-tolerance of lateness were raised with respect to public transport. People wanted, “*alternatives that are as reliable as I am. If you can find that then I would certainly look at it*” and “*we need an alternative that’s solid, reliable and guaranteed.*” (FG 3). The consensus was that current options were not good enough to meet these criteria. Overall, the time taken by public transport was its main downside, particularly when compared to driving into work. Faster public transport links were regarded as a necessary improvement to encourage more people to use it, “*I’m quite happy to add 20 minutes onto my journey and leave my car at home, but when it’s more than 20 minutes it becomes a non-starter.*” (FG 1). In addition, it was felt by some that the buses and trains were dirty, uncomfortable and felt unsafe, all of which were large negative influences.

Other issues with public transport on-site at the airport were raised. It was seen as “*not very encouraging*” (FG 1) that staff were not entitled to free transport between the Central Terminal Area and Terminal Four, even though for some this was a regular journey they had to make.

Problems with car sharing were discussed by several participants. The principle behind sharing lifts was thought to be a good one, but the reality of car sharing was felt to be more difficult, “*the problem with car share is the shift workers, my neighbours work at the airport*

and we all park in the same car park but our shifts never coincide” (FG 1) and “I’m shared up with two others but it’s maybe only once a month that we are on the same shift. And in my job we get a lot of double shifts offered to us so you might come in with someone then all of a sudden you’re doing a double shift and have to get yourself home.” (FG 2). High turnover of staff in some jobs at Heathrow also posed problems for finding regular partners and another highlighted problem was that it was too easy for single drivers to still park in designated car share bays without any repercussions. Some group members also said they were unwilling to share a lift into work with someone they did not know.

Other alternative options such as cycling and walking were generally regarded as dangerous around the airport site, particularly on the dual carriageway and through the tunnel to the Central Terminal Area, *“I’ve cycled myself and it’s lethal.” (FG 1).* While a small number of participants did cycle to work, the majority said it was something they would not consider. It was agreed between participants that greatly improved cycle priority and safety was required both on-site and off-site to generate an increase in cyclists. Improved shower and changing facilities were also regarded as essential, *“I know probably 15 guys who would want to cycle in but there’s no shower facilities when you get here.” (FG Bus).*

6.23 Proposed Strategies and Attitudes towards Change

There was an overwhelming negativity in all focus groups towards any proposed measure such as direct employee charging, financial incentives or permit allocation; specific responses to each of the initiatives discussed are below. Another general finding was that many people perceived their travel to work as an ‘all or nothing’ scenario, with no medium in between; they either always drove to work or always came by another mode.

6.23.1 Financial Incentives

The majority of participants stated that a financial incentive, whether implemented as a daily payment or as a lump sum to give up parking permits, would have little effect on their decision to drive to work. The main reasons for this were the perceived lack of viable alternatives, *“I don’t need an incentive, you don’t have to give me any money, if the bus was there I would use it.” (FG 4),* and the increased time it would take to use public transport, *“It’s not all about money, my time is more important. The way public transport is at the moment you could offer me £20 a day and I still wouldn’t use it, it just takes too long.” (FG*

HPW).

Public transport was, however, viewed by many as being expensive and respondents said any financial incentive would have to be greater than the cost of public transport to begin to have any impact, *“to get to work by bus costs £2 on the way and £2 on the way back so if the financial incentive was £2 per day for example, I’d be worse off.”*. Others said the level of the incentive would have to be very high, *“enough to get a taxi to work every day.”* (FG 1).

Also considered important was reliability, something which participants thought the car gave a higher degree of when compared to public transport. The lack of tolerance for late arrival was cited as a major factor when considering whether a financial incentive would encourage employees not to drive to work and it was concluded that employees would prefer to have the certainty of arriving at work on time, rather than risking being late by public transport, but receiving a financial payment. Safety, security and comfort were also highlighted by group members as important factors that would not allow a financial incentive to encourage them to change using their car. Throughout the discussions on financial incentives, there was a tendency for respondents to revert to the problems with public transport, rather than focus singularly on the impact the incentive could have. It was suggested by some that the only way a financial incentive could work was if other modes of transport were improved, *“it’s one bite of the apple, you need to introduce other improvements as well.”* (FG 3).

Participants in the bus user group were much more strongly in favour of a financial incentive scheme whereby those who did drive to work were rewarded. For current public transport users this was seen as a way of subsidising their transport costs. A small number of people did comment, however, that they felt a *“stick”* approach would be more likely to cause people to stop driving than a *“carrot”* approach, *“I think it’s best to stay clear of the carrots and make it more expensive for people to drive their cars in – this is likely to have a much bigger impact.”* (FG Bus).

There was some awareness of a scheme once adopted by BAA whereby staff were able to sell their car parking permit for a fixed price. Take up of this scheme was considered to be low because of the value of car parking to employees. It was also felt that many people who had accepted the money in return for their car parking permits, still drove to Heathrow but parked in surrounding streets. As mentioned in section 6.12.2 this scheme was ended by BAA due to it not being cost effective and its tax implications.

6.23.2 Parking Charges

There was strong negativity towards the idea of directly charging employees to park at Heathrow, *“you pay enough road tax, MOT, insurance, it’s not right to have more costs”* and *“there’s no level that would be acceptable.”* (FG 3). In general there were two main responses to the concept of direct employee charging.

Firstly, a number of participants stated that a charge would have little impact on whether they drove to work. They said they would have no option but to pay the charge because there were no public transport options that would provide the level of service required. For this reason, one person stated that the charge would have to be very high to make him change and if it got to a certain level then he would instead park in the long stay passenger car parks and expect a much higher standard of service. It was also thought that introducing direct parking charges would impact on the surrounding area because people would continue to drive and park in nearby streets rather than pay the charge, thereby simply moving the problem elsewhere and creating further problems in the process, *“people would park just across the road and walk through...all of a sudden people can’t park outside their own houses anymore.”* (FG 1).

The second response was that employees would not accept the charge and would seek employment elsewhere, *“that would be a non-starter for a lot of people and they’d probably look for other jobs. The airport would no longer be an attractive employment point...I’m not paying to come into work, you’re paying me to be here.”* (FG 1). In other cases, participants said they would expect to be reimbursed in some way by their employer, *“a lot of our workforce would be looking to be compensated because they are already low paid so every pound you add on makes it almost unviable for them to come in here.”* (FG 1).

As with discussions about financial incentives, the importance of public transport was raised several times by group members, with participants stating that suitable alternative modes would have to be in place before any charge could be introduced to encourage greater modal shift and acceptance of the scheme.

In the bus user group there was a more positive view taken towards direct parking charges and support shown towards the concept of using generated revenue to pay for public transport improvements. The other groups were more circumspect with respect to

hypothecation and said they would want noticeable improvements to both public transport and car parking facilities, *“if I’m paying £3 a day what am I getting for it? I would want a better service.”* (FG 3). There was also concern that if a small charge was initially introduced then it would gradually increase to unacceptable levels.

At the focus group comprising BAA office staff there was more willingness to discuss the prospect of a direct car parking charge in more detail. Some participants said that a car parking space at work was not necessarily something they felt should be guaranteed, *“it is not your employer’s responsibility how you get to work”* (FG HPW). Some also considered that with a parking charge *“you are penalising those that cannot afford to park and it doesn’t really affect the others.”* (FG HPW). To this end the idea of a “fairer” parking charge based on income was raised as an approach which may be more easily accepted.

The idea of a congestion charge was raised by some groups and many could relate it to car parking. It was the general view that if a congestion charge was introduced it was likely that staff would be exempt from it and if this was not the case they expected their employer to pay for it.

6.23.3 Parking Permit Reallocation

As with the other proposed solutions there was a general negativity towards a different method of permit allocation. Some participants considered it would be difficult to enforce and would have to be reviewed annually generating high administrative costs. In some cases group members said that if their parking permits were taken away then they would look for work elsewhere, park in surrounding streets or even pay to park in passenger car parks. Participants in one focus group thought that BAA may not have the power to take away parking permits, *“if you’ve had something for quite a while isn’t it classed as a perk? I’ve had parking for 14 years so doesn’t that mean you can’t take it away?”* (FG HPW). While still opposed to a new permit strategy the focus group participants were more willing to discuss different criteria they felt would make the scheme “fairer”.

Shift workers were perceived to have a greater need for car parking than non-shift workers and should therefore take priority in any allocation procedure, *“I think all of us who are shift workers need parking allocation at different times of the day and night”* (FG 1), *“it sounds awful but office workers should be targeted first because*

they work regular hours...people who start really early in the morning need a car, there's no other way of getting to work." (FG 1). There was a feeling from some people that those with caring responsibilities *"I have to drop my son off at school so I need my car for that."* (FG HPW), and those that lived a long way from the airport should be treated as priority groups, but others disagreed, *"we're 24/7 here and you can't say "you can't have one because you only live ten miles down the road"; how am I supposed to get in at four o'clock in the morning then?"* (FG 1). It was also widely agreed that status should have no bearing on permit allocation as it traditionally has done within some organisations at Heathrow. At the group comprising BAA office workers there was a greater level of receptiveness towards a "fair" method of permit allocation. Travel time and distance were seen as important criteria which could form the basis of a system based on "acceptable" levels access to public transport.

The issue was raised in two focus groups that BAA could stop allocating permits to new recruits. It was thought that if potential employees were informed they would not receive a permit when applying for the job, they could make a decision whether or not to work at Heathrow based on this knowledge and were therefore likely to accept it, *"if people are coming in with the perception that they are not going to get car parking, then they have nothing to complain about – they know from day one they need to get to work some other way."* (FG 5). A minority of participants believed there to be some problems associated with preventing new recruits from having access to car parking, particularly as recruiting staff for some areas of the business is difficult and because it could create tension between new recruits and current staff.

Parking permits which only allowed access on a certain number of days per week were also discussed. This approach was thought to have some potential if it was possible to select on which days you didn't travel by car, *"it would be nice to choose which days. What if I have to leave my car on a Friday then when Friday comes it's pouring with rain and I get a call asking if I can come in to work an early shift but I have to say "no I can't because my car park pass isn't valid today"."* (FG 4).

6.24 New Approaches and Solutions to Heathrow's Car Parking Issues

The focus group participants were asked how they personally would go about resolving the car parking problems facing BAA and Heathrow, given the constraints of a car parking cap

and environmental pollution targets together with the growth of the airport. This generated a large amount of discussion.

Many participants said that dedicated works buses, which ran to the same timetable seven days a week and covered all shift patterns would be a good solution and they would be willing to use them' *"We could introduce dedicated commuting buses and use our staff ID to get on...like the old works buses which were excellent, they were on time and direct, the stops were very good...you'd expect the company to contribute to that if they're not contributing to parking spaces."* (FG 1). Further to this thought, it was suggested that BAA set up their own bus company and ran services to targeted areas. Off airport park and ride schemes were also a popular solution with dedicated shuttle buses or light rail links between the car parks and airport. Some participants suggested that some more careful planning of where individual employees parked their car together with buses to certain terminals would work well. Others, however, who worked in multiple locations across the Heathrow site said this could be problematic for them.

Reallocation of Central Terminal Area parking space was suggested by many of the groups. One suggestion was to move all parking out of the CTA and use shuttle services to the terminals, another was to move all staff out of the CTA and only house passenger parking as they are the airport's priority while a more radical suggestion by one participant was to only allow employees to park in the CTA and have all passengers park in remote locations.

A number of participants suggested that the airport should reconsider exactly which companies and departments needed to be located at the airport site and relocate nonessential groups, *"With some of the cargo companies and freight forwarders, they obviously need to be close to the airport, but many are taking cargo to all the airports round here so they don't actually need to be on site."* (FG 2). In the group containing BAA office workers, several of the participants said that there was no real requirement for them to be based at the airport. In a similar area, it was considered that home working should be encouraged where possible, *"I could rearrange my diary to fit all site visits into two days, then for the other three I could work in an office anywhere or at home"* (FG 3), *"remote working is the way forward, there is often the perception that if you work from home you are skiving, but there are electronic methods that can overcome that."* (FG 3).

Where public transport was concerned, the participants regarded those living closest to the

airport as the employees most likely to be attracted to public transport, because of the shorter journey times. Therefore it was thought that providing targeted public transport in the five miles surrounding the airport would be a beneficial strategy to pursue. The expansion and further promotion of car sharing was also considered to be a useful way of persuading more people not to drive to work on their own.

6.25 Conclusions: Developing a Benchmarking Template

This chapter has addressed the following two objectives of the research as stated in section 3.5:

- determine the measures currently in operation at Heathrow Airport to reduce car use and the demand for car parking by employees;

- explore the issues that need to be addressed if implementing a financial incentive or disincentive employee car parking measure at Heathrow Airport.

This section seeks to summarise the key elements of the interviews while also developing a benchmarking template to be used in the discussion and analysis contained in Chapter 8 where the findings of the non-airport case studies are benchmarked against Heathrow Airport.

It was clear from the interviews at BAA that the respondents recognised the scale of the impending issues facing car parking and were positive towards introducing a measure incorporating a financial incentive or disincentive direct to employees. This was highlighted by the range of potential options that were discussed, all of which were seen to have advantages and disadvantages. This wide range of thinking, however, means that BAA still has a considerable amount of work to carry out to define the most suitable way forward in terms of how the introduction of such a measure would operate.

Within the focus groups, there was an overall lack of understanding regarding the issues facing car parking at Heathrow and a high degree of negativity towards any potential measure such as an employee direct parking charge or financial incentive. Similarly, the interview respondents also said that top level management within BAA was currently not appearing to recognise the car parking problem with any seriousness. This would suggest that gaining acceptance is another key area where BAA has to devote effort.

It can be seen from the focus groups that the alternative modes of transport and strategies in place to reduce car use are regarded to be lacking. At the same time, there is a reluctance on the part of employees to change and as a result it is likely that more proactive measures are required if BAA are to resolve the car parking problems facing Heathrow Airport.

Overall, it is apparent that the key decision makers in terms of car parking at BAA are aware that action is required. Exactly what that action should be and how to go about gaining acceptance for it, however, are areas which have not yet been fully considered within BAA. For these reasons, establishing a benchmarking template which has a focus on these two key areas will help to structure the learning from the non-airport organisations and will assist BAA in determining how best to proceed to address their car parking issues. It is also important to consider the implementation process and for Heathrow to learn from other organisations in this area; while this has some elements which are linked to gaining acceptance it is also an area which should be considered in its own right.

The benchmarking template provides a set of areas which can be used to benchmark BAA against the experiences of the best practice non-airport organisations in order to learn from how these organisations have addressed their car parking issues and gone about implementing measures such as employee direct parking charges and financial incentives.

The components of the benchmarking template are those areas discussed in the following sections and it is these areas that will be investigated in Chapter 8 when conducting the benchmarking exercise with the non-airport organisations. Four key areas are highlighted, namely:

- selecting the most suitable measures to deal with the car parking problems;
- management support;
- gaining acceptance;
- implementation.

6.25.1 Selecting the most Suitable Measures to deal with the Car Parking Problems

A crucial element of addressing the car parking problems is determining the measures with which to do it. In the interviews the respondents displayed mixed opinions regarding what they believed to be the most suitable approach for Heathrow Airport. In all cases, however, they said that a solution which drew on a number of measures would be the most likely suitable solution. In the focus groups, while there was strong negativity towards any major

change to the current system parking provision, there were some instances where participants stated that the most effective way of dealing with parking at Heathrow was to use a range of different measures in combination as a 'package approach'.

At the centre of this package there was felt to be a need for a 'core' element such as a financial incentive or disincentive. The issues surrounding this core element will form an important part of the discussion and benchmarking exercise. Adopting a package approach was also considered by the interviewees to include 'soft' measures such as public transport improvements and initiatives such as travelcards, improved cycling facilities and car share. By looking at the components of the strategies used at the non-airport organisations the aim is to determine which could be transferable to BAA and hence allow it to address the car parking issues at Heathrow with the knowledge of how others have gone about it.

Both the interviews and focus groups highlighted that flexibility and choice would be important to any car parking measure introduced. The current parking strategy at Heathrow Airport offers little incentive for employees not to drive once they have a parking permit. The key decision makers at BAA were keen to move to a more flexible system whereby employees could drive when they needed to, but use alternative measures when convenient. They also said that other employers at Heathrow were approaching them to build more flexibility into the parking strategy. Although opposed to the introduction of measures such as direct employee charges or financial incentives, some employees in the focus groups also favoured a more flexible approach to car parking and said that it would make them more likely to try alternatives when possible.

A flexible approach was also considered important in terms of whether certain employees needed to be at the airport site every single day. It was thought that some people could effectively work from home or remote locations on some days, which would help ease parking congestion.

It is anticipated that BAA decision makers could learn as to how best to build flexibility and choice into their parking strategy by looking at what the non-airport organisations have done in this area.

In both the interviews and focus groups, there were strong opinions that whatever solution was favoured it should be as 'fair' and 'even handed' as possible and should not force

people to have to either stop driving to work, or consider working elsewhere. Flexibility was thought to be an important way of achieving a fair solution. Others included charging based on salary, if a charging approach was adopted, or setting clear criteria for permit reallocation if that solution was favoured. Exemptions to any measures introduced were considered; in the focus groups there was a great deal of discussion on who should be exempted from schemes such as parking charges and in the interviews the majority considered that exemptions should be kept to a minimum.

Introducing a scheme which is seen to be fair and equitable is likely to help in gaining acceptance for it, which is discussed in more detail in section 6.25.3. The best practice non-airport organisations could provide a number of lessons in the area of designing a fair and equitable scheme from which BAA and Heathrow can benefit.

6.25.2 Management Support

The consensus amongst the interviewees at BAA Heathrow was that top level managers did not yet fully appreciate the car parking problems facing the airport and their potential impact. It was felt that managers were not willing to address the problem currently and it would be necessary for a major development at the airport, such as a third runway or a sixth terminal, to be granted planning permission before any serious consideration was given to addressing car parking problems via the use of measures such as financial incentives or disincentives. It was also considered that convincing one senior manager of the problems may be useful in others also taking notice, but it was recognised that overall if there was not support from the top level then it would be very difficult to change the current parking strategy. Therefore, it will be of benefit for BAA Heathrow to look at the level of support that was obtained from top level management at the non-airport organisations.

6.25.3 Gaining Acceptance

Perhaps more problematic than actually determining how best to address car parking problems is gaining the acceptance of those who will use it, in Heathrow's case approximately 70,000 employees. In the first instance the measures to be introduced will determine how acceptable or unacceptable they are perceived to be. Several different

strands exist within the overarching theme of acceptance.

A current problem faced by those working in the area of car parking is the lack of recognition of the impending problem and any support in trying to address it. The lack of support from top level managers was raised earlier. Within the focus groups there was a clear view that in general the current parking situation was adequate and there were no major problems, particularly in terms of capacity. This made it difficult for employees to recognise any future problems. Within the interviews in particular, there was a feeling that nothing substantial would be done until a “crisis point” was reached. In the focus groups there was also a large amount of confusion or even ignorance regarding the parking cap imposed by Government and what the details of it were.

To this end, a greater level of communication is required, both with ordinary staff, top level managers in BAA and other major employers at Heathrow. This is required to increase understanding of the impending problems and to gain support from top level managers, the latter of which was considered essential by the BAA interviewees.

The interviews revealed an expectation that there would be difficulties in getting people to accept a parking measure such as a direct employee car parking charge or financial incentive because of cultural factors, predominantly the reliance people had on their cars and also a general dislike of change. These feelings were confirmed in the focus groups by the strong negativity towards any proposed initiative. The BAA interviewees also perceived there to be a general culture within BAA, and the airport at large, of not wanting to do anything which could potentially upset employees. At the same time, however, it was felt by some that while the initial reaction was extremely negative, once a change had been introduced, the opposition to it would subside.

Overcoming such widespread barriers, particularly across the whole airport site will prove a difficult task for BAA, but one which must be overcome if they are to implement an employee direct parking charge or financial incentive. As such, it will be useful for BAA to look at the experiences of the non-airport organisations in terms of how they overcame any similar barriers and attitudes.

In the focus groups a common reaction to discussions around parking initiatives such as financial incentives, financial disincentives or parking permit reallocation was that respondents said they would seek employment elsewhere. In the interviews retention of employees was seen by some to be a concern, whereas others felt that there were many more

factors to consider other than parking that would determine whether an employee would consider working elsewhere. Recruitment of new staff was not seen as so much of a problem as applicants would be aware of the parking situation from an early stage. There was, however, some concern that recruitment would become more difficult. Overall, the impact a harder hitting parking initiative would have on recruitment and retention is a relatively unknown quantity at Heathrow, but BAA should be able to gain some indication of the likely reaction from the three non-airport organisations who have introduced such measures already.

Communication was an issue which arose in the interviews on several occasions and was regarded as an area where improvements needed to be made. In some areas communication was good, for example, almost all employees in the focus groups were aware of the different initiatives in place to reduce car use, although in some cases the details of how these initiatives worked were not fully understood. In other areas, communication was poor and was a problem within BAA, with other companies and also with employees. Poor communication with employees was clearly highlighted in the focus groups as almost all participants were unaware that the parking cap at Heathrow was imposed by Government, or what the details of the parking cap were. There was also a feeling in the focus groups that BAA was only trying to reduce car use because of other financial drives within the business. This is a perception that BAA needs to rectify if acceptance is to be gained.

It is recognised that communication is vital to the introduction and subsequent success of any newly introduced car parking measure. In the interviews it was apparent that the respondents thought that any new initiative should be explained to employees across the Heathrow site using clear and specific objectives and that the approach should be as transparent as possible so as to increase acceptability and trust. To this end, BAA decision makers should be able to learn from the non-airport organisations in terms of how they went about communicating the change to staff.

The interviewees at BAA recognised the importance of a lengthy and detailed consultation period, which ultimately included every employee. This was seen as important so that staff were aware of the change and could see the reasons for it, even if they did not like it. A lengthy consultation period was also regarded to help increase acceptance. There appeared to be a structure in place that would allow for this consultation to take place starting with top level management and forums such as the "Airline Operators Committee". There were also methods mentioned to allow for consultation with employees including road shows, forums,

individual mail shots and focus groups, but at present no thorough consideration has been conducted to work out the details of this due to the early planning stages of dealing with the parking problem. Therefore, BAA management could learn from looking at how the best practice non-airport organisations have gone about consulting with staff over the introduction of parking initiatives.

6.25.4 Implementation

There were clear opinions from the interviewees at BAA that implementation should be led by BAA itself introducing the new scheme and then rolling it out to the rest of the airport. At Heathrow this will be a difficult task due to the number of employees and organisations at the site. The interviews also revealed that nothing had been implemented at the Airport on such a scale before or which personally affected each individual employee.

Therefore, benchmarking against organisations who have been through the implementation process when introducing a new parking strategy could provide many valuable lessons for BAA decision makers.

Figure 6.2 shows the four main elements of the benchmarking template and sub-issues within each as have been discussed in section 6.25.1 to 6.25.4.

Figure 6.2: Template of Areas to Facilitate the Benchmarking of BAA against the Non-Airport Organisations

Selecting the most Suitable Measures to deal with the Car Parking Problems

- A Package Approach
- The Core Element of the Strategy
- Direct and Daily Charging
- The Level of a Parking Charge or Cash Payment
- Parking Permit Allocation
- Alternative Working Practices
- Availability of Car Parking Spaces
- Flexibility and Choice
- Equity, Fairness and Exemptions

Management Support

- Management Understanding
- A Desire to Change
- The Importance of a Project Champion

Gaining Acceptance

- Employee Recognition of the Problem

Overcoming Cultural Barriers and Attitudes to Change
Parking Hierarchy
Recruitment and Retention
Communicating Clear and Transparent Objectives
Consultation

Implementation

The Process of Implementation
Implementation of the Core Element of the Strategy

Chapter 7. Non-Airport Organisation Case Studies

7.0 Introduction

This chapter presents the findings from the three non-airport organisations: Addenbrooke's NHS Trust, the University of Bristol and Pfizer. Information is presented from the interviews conducted with the key personnel described in section 5.4.2, from short staff interviews carried out during site visits and from documents relating to each organisations Travel Plan and parking strategy.

The categories used in this chapter follow, wherever possible, those used in Chapter 6. This allows the areas highlighted as being important at Heathrow Airport to be explored at the 'best practice' non-airport organisations and hence allow for an investigation into how similar issues were approached and addressed. This directly facilitates the benchmarking comparison of the same processes at different organisations.

The case studies begin by giving an overview of each organisation. They then explore the reasons why a change to the parking strategy was necessary, including the presence of any external factors. The specific details of the car parking measures implemented are investigated along with the reasons why such a change was adopted. Staff attitudes towards the change are explored as well as related cultural factors within each organisation. Next the issues of communication, consultation and implementation are explored in order to understand how each organisation approached these issues with employees. Finally, the effectiveness of the change in car parking strategy is investigated.

Each organisation is considered individually in this chapter. An overall benchmarking

analysis of the three non-airport case studies together with Heathrow Airport is undertaken in Chapter 8.

Case Study 1: Addenbrooke's NHS Trust

7.1 Introduction

Addenbrooke's NHS Trust is located on the southern edge of Cambridge, approximately two miles from the city centre. The site is currently 67 acres, with a greenbelt to the south and west and predominantly residential areas to the north and east. It directly employs over 6,000 staff dedicated to the provision of a wide range of clinical and non-clinical services. (DfT, 2002)

Addenbrooke's is the local hospital for approximately half a million people who live in the Cambridge sub-region and the surrounding district. The Hospital is also a national and regional centre for a number of specialist units as well as a leading international centre for biomedical and medical education. It shares its site with the University of Cambridge, the Medical Research Council, the Wellcome Trust, the British Heart Foundation and GlaxoSmithKline. Altogether, therefore, there are six major employers on site, employing over 9,000 people in total, with approximately two thirds of this total on site at any one time. The number of patient and visitor trips accessing the site per day is approximately 10,000. On site accommodation is provided for some staff groups and students, creating a total of 850 residents currently living on site. (DfT, 2002)

In the following sections, the major issues relating to car parking and the introduction of a car parking charge are explored, based on a detailed interview conducted with the Service Development Manager at Addenbrooke's NHS Trust.

7.2 The Nature of the Problem and Reasons For Change

The introduction of parking management strategies at Addenbrooke's Hospital came about primarily as a means of gaining planning permission in order to expand the site. Due to the location of the site, with a greenbelt on one side and an "*inadequate road network on the other side*" it was recognised that in order to expand, car access and parking would have to be managed better, "*any new development has not got to put any more pressure on the roads*

in terms of cars. So there's a big incentive to actually having a means of access to the site.". Stimulated by their plans to develop the site and the anticipated restrictions that would be placed on access following planning permission, the Trust began travel planning in 1993 and the first publication of a formal Travel Plan 'Access to Addenbrooke's Action Plan 1997-2000' was in 1997.

This is reflected by external influences, particularly from the Government in the form of Public Policy Guidance 14 and Section 106 Agreements² which have meant that for Addenbrooke's to continue to develop they needed to address access issues, "*since the Government has given more direction in planning, PPG14 and that type of thing, it's a lot harder to get what you want without having to give something back.*".

Targets relating to the Section 106 Agreement, signed in 2000, were to reduce the number of staff and visitors coming by single occupancy car from 50% in 2000 to 45% by 2005. In 2003, the Trust signed up to a new target to reduce the number of patients or visitors coming to the site by car from 91% in 2002 to 86% by 2007, a one percent year on year decrease, irrespective of whether car sharing or not, "*a one percent year on year you may think is not a lot, but one percent of 10,000 is a lot. Likewise, one percent of 6,000 staff is a big target to go for.*".

The general congestion problem on the site and its hindrance to how critical departments of the hospital were able to operate was another major contributor to action being taken, "*in 1999 the parking situation was getting so ridiculous, it was a free for all, there was total chaos on site, blue light ambulances couldn't get through...we needed to do something to manage access and the car parks.*". This led to the introduction of 'Access to Addenbrooke's Phase Two' which included the appointment of an Access Travel Manager and the introduction of a new parking management system.

² A Section 106 Agreement is a function of the Town and Country Planning Act 1990 used to ensure the drafting of agreements, or Planning Obligations, between the Council and developers.

The decision to introduce a parking charge as a management tool was based on the need to finance various access initiatives contained within the Travel Plan,

"organisations are very good at writing travel plans but then never deliver them because they've never got any money to...you can't take money out of the clinical side here so we

made a decision that the travel plan had to be self-funding. We are giving incentives and discounts for the alternatives and you've got to fund that somehow. It's only fair that anybody parking on site is subsidising someone else coming in by bus, especially because the bus can be more expensive than parking on-site."

While it does not promote car use, the overall site development plan at Addenbrooke's cannot be said to be anti-car. The Trust has recently launched its '2020' vision; a series of proposals designed to provide for the rapidly expanding population in the surrounding area and to develop Addenbrooke's as a major centre for treatment and research on a European scale. Within the site development plan is a proposal to build a multi-storey car park of 800-1,000 spaces, as well as encouraging alternative modes of travel. Therefore, while a reduction in car use is sought, the importance of the car as an access mode is still recognised.

7.3 The Car Parking Strategy

7.3.1 Overview of the Car Park System

Staff and patient/visitor car parks are separate, with a capacity of 2,100 staff parking spaces, and 900 patient/visitors spaces. Prior to October 1999, a 'pay and display' system was in operation and staff were issued with windscreen permits. From October 1999 staff have been issued with identity smartcards which have a microchip 'purse' that can be credited with money. Each time the card is used to exit the car park a daily charge is deducted from its purse. For those directly employed by the Trust, money is deducted from their salaries. Patient and visitor car parks operate a Pay on Foot system.

Each staff ID card is programmed to permit access into specific designated car parks. There are no reserved spaces for individual staff members on site, although five priority car park groups exist and members of these groups have a greatly increased chance of finding a parking space. The five groups are:

- Members of the Board and consultants;
- Late or extended shift workers;
- Car sharers;
- Special needs (staff with a child aged 7 or under or a dependant relative);
- Business travellers and senior clinical staff.

All staff who do not fit into any of the above categories are entitled to park in any standard

car park on site. There is a restriction on staff who live within two miles of the site, for whom access into any of the car parks is not permitted until after 3.30pm every day. If a staff member lives within two miles but also fits into one of the priority groups, however, they are included in the priority group and permitted to park at any time during the day.

7.3.2 Car Parking Charge

The 'pay and display' parking charge for staff was first introduced in 1992, at a level of 20p per day. Patient and visitor parking charges were also introduced at this time. In 1998 the staff parking charge increased to 30p per day. During the introduction of the new car park management system in 1999, the staff parking charge remained at 30p per day but changed to a seven days per week charge, where previously it had been six days. The staff parking charge is currently set at 60p per day.

The parking charge for residents differs in that it is an annual charge based on the current staff daily charge multiplied by 229, which is the number of working days per year. This was implemented in December 2003. Prior to this residents were charged the daily staff charge.

Parking for visitors and patients is more expensive than for staff and increases with the duration of stay, although outpatients are charged a fixed rate of £2 for each visit and a concession of £20 for a 14 day ticket is made for people visiting patients regularly.

7.3.3 Management and Security

The car parks are managed by an external contractor, whose role includes staffing the car park intercom system and CCTV cameras, collecting and banking the cash from the car parks and dealing with technological problems. Barriers are used to permit entrance and exit to all car parks. The technology is capable of monitoring car park usage and it is used to produce reports on occupancy levels and turnover per space. Security costs approximately £300,000 per year, car park services about £150,000 and access management is about £150,000.

The car park regulations are enforced through the use of fixed penalty notices for rule

breaches such as parking on double yellow lines, parking out of bay and parking illegally in disabled bays. The fine is £25, reduced to £15 if paid within 7 days. The current number of penalties issued per month is approximately 300.

There are a total of seven staff involved with the administration of the car parking scheme and Travel Plan, working in a variety of roles including issuing ID passes, reconciling money and promoting public transport alternatives. Such tasks form a part of the individual's job role, rather than them being completely dedicated to the car parking strategy.

7.3.4 Reasons for Selecting a Parking Charge Strategy

Parking charges, as opposed to other strategies, were the favoured method of managing the access problems at Addenbrooke's because of their ability to fund the alternative modes required, as stated in section 7.6.1. All car parking money, from both visitors and staff is ring fenced and hypothecated for access schemes, security, CCTV and other associated expenses. In 2003, £1.2 million was generated, of which approximately one quarter was from staff parking.

Even though the parking charge was the disincentive introduced to reduce the number of people commuting by car, it is considered that in fact a restriction on parking spaces is the main factor discouraging many staff from driving into work, *"if you provide more spaces, they will be filled, there's no doubt about that, people will always prefer to drive. However, if you take capacity away, people have to adapt, they can always find an alternative way."* This supports the reasoning that the charge is primarily a revenue generator to fund the alternative modes. It is regarded, however, that if the parking charge continues to be increased, it will at some point become a disincentive. The threshold at which this will occur is currently unclear, but it is expected that it will be at a price greater than that of using public transport. At present, the cost difference is regarded to still in favour of driving, for example a return bus ticket on Trumpington Park and Ride costs £1.40, compared to the cost of 60p per day to park on site, although there was recognition that this did not include all the costs associated with running a car. It is expected that in the future the parking charge will become a disincentive to staff driving to work, *"if we continue to discount tickets, which effectively means travel by bus is £1, and then you've got £1.50-£1.70 for parking on site, it is likely to encourage people out of their cars. Management would like to increase charges*

by 40p by the year after next, 40p the year after that, and then whatever it takes to bring it to Cambridge Park and Ride prices the year after that. So the perceived differential between public transport costs and parking on site costs will have gone in three years.”.

7.3.5 Impacts and Problems with the Parking Charge

After implementing the parking charge there were a number of issues which needed to be resolved. There was a time when the late shift car park was also occupied by part time workers that worked in the mornings and it was found that the part time workers were staying longer than they needed to and not vacating spaces in time for the late shift. A decision was taken to move the part time workers out of the car park which meant that large numbers of staff walked past an empty car park every morning. This led to complaints, but it was recognised that, *“you just have to grin and bear it. There’s nothing you can do because as soon as you give an inch, you’ve had it.”*

Off-site parking has become a major problem in the residential areas surrounding the site since the charge was introduced. The Trust has recommended several solutions to this problem to the City and County Council, such as enforcing residents’ parking zones or double yellow lines on the surrounding streets, but none of these have been taken up, *“the problem we’ve got is that once you get off the site, it’s public highway, and we can’t tell anybody what to do – it ends up being a matter for the Local Authorities to deal with... but we are very conscious of it.”*. There is also a problem in that the local residents do not want residents parking as most have driveways with their houses and so do not want to pay for an on-street parking permit, but at the same time they do not want others parking outside their houses.

Introducing the parking charge has not been a straight forward process for Addenbrooke’s as shown by some of the initial attitudes to the change detailed in section 7.6. It was thought that some of these initial uncertainties were unavoidable but that it was important to stick to decisions made and not to make any deviations or exceptions, even if some employees were penalised more than others, as people would take advantage.

The introduction of the parking charge has not resolved all of Addenbrooke’s’ car parking and congestion problems, however, and on some days the site can be gridlocked. *“Even though we’ve been successful in a lot of things we’ve still got issues...however, the number*

of “bad” days are decreasing.”.

It was also considered there could be a time when the hospital could theoretically have no parking, but it was regarded as unlikely to ever happen, “*there’s going to come a time when we will reach the threshold below which we can’t do without parking. Where that will be, I don’t know, but then if you go to a London hospital there’s no parking provided there. So you think, ok, if it happens in London, it could happen elsewhere. Ultimately, somewhere down the line you could get away with not much parking at all, providing you had ways of getting people in.*”.

7.3.6 Focus on Individuals

The planning, implementation and operation of the parking management strategies at Addenbrooke’s and of the Travel Plan overall, have given a significant amount of focus to individuals and the impact the various strategies have upon them. Some of this focus is necessary to ensure that the hospital continues to operate efficiently, particularly where shift workers are concerned, “*the issue is really about the lunchtime changeover over on the wards and the fact that if you don’t get them in on time to park, then you can’t get the shift handover. These are the people that you’ve got to safeguard some spaces for, because they generally finish shifts after public transport have finished running, and the car’s the only option they’ve got.*”.

Employees commuting by public transport have also voiced their opinion that it is more expensive for them to travel by public transport than it costs to park on site, while those using car parks say that while it is cheaper than public transport they will continue to park. In such situations the Trust’s aim is to ultimately make the scheme fair for each individual, which presents an argument for continually increasing the charge.

Other specific actions have been taken to ensure that the scheme is not seen to be unreasonable, for example changing the system of clamping those who did not pay the parking charge to a fixed penalty notice system, “*the advantages of fixed penalty over clamping was that we were finding instances whereby the clamped person would be a mother going to pick a child up from school. It would take an hour to unclamp the car, it gets very heated and stressful and we just had to move away and take out the confrontation.*”.

Another particular challenge to the Trust is to ensure they deliver the promises they make to staff, *“if we don’t have this 15 minute Park and Ride service up and running soon, which has been asked for such a long time, then people will not be happy with any further changes. You’ve always got to have the carrot with the stick.”*. The impact on staff and how they access the site and park is also considered during any expansion to the hospital.

7.3.7 Equality and Fairness

There was a large amount of discussion during the face to face interview surrounding the concept of making the parking scheme as fair and equitable to all employees travelling to the Addenbrooke’s site, *“it’s only fair that anybody parking on site is subsidising someone else coming in by bus.”*. There is still a feeling by the Trust that the differential between car use and public transport use is in favour of car drivers, *“we are in a position now that the modal split is such that people coming to the site by car are now less than half of all staff, and people coming by public transport have voiced their opinion that it’s more expensive for them to come by public transport than to park on site.”*. This is something which the Trust wish to rectify and their future strategy involves reducing the differential and the cost of public transport to the site.

A particular area in which issues of fairness needed to be addressed was that of charging staff who reside at the hospital site for their parking. From December 2003 it was decided to charge residents on the basis of them parking for 299 days per year, equivalent to the number of working days. The charge can be paid annually, six monthly or quarterly. Prior to this date many residential staff would come onto the site on a Monday after being away for the weekend, work on site for the week and then leave on the Friday, but the car parking charge would only be triggered once. The affected staff were opposed to the introduction of the annual charge, *“they didn’t like it, but now it’s fair... it’s all about being equitable, you can’t treat one group different to another.”*.

Also in the area of equity and fairness is the decision by the Trust not to allow reserved parking for anybody other than disabled drivers, *“we’ve made a very conscious decision not to. Some groups have a greater chance of getting a car park space than others, but we were always very clear that we don’t reserve parking spaces for anybody.”*. This decision was made so as not to make some members of staff appear more important than others in terms of parking their cars.

7.3.8 Flexibility and Choice

The Travel Plan allows a wide range of choices in terms of how people access the Addenbrooke's site, as detailed in section 7.4. These choices complement the parking charge by providing alternative means of access to work.

In terms of flexibility, with the exception of those people who reside within two miles of the site, employees are free to choose on a daily basis whether they drive to work and pay the parking charge or select another mode. Only the availability of parking on each particular day will determine whether they are able to find a parking space. There are no exemptions from the parking charge as explained earlier in this section.

Overall on the subject of flexibility and choice within the parking strategy, it was stated that, *“there's always a danger that you are going to wrap people in cotton wool. A lot of people come to me and say “you've taken my parking away, what are you going to do for me?” and I say “sorry, it's your responsibility to get to work, these are the alternatives that we've put in place for you, so in fact we are providing you with a greater choice, by removing a choice.”.*”

7.4 Public Transport and Alternatives

Alternative access modes are clearly important to the functioning of the Addenbrooke's site, although it was recognised that when the parking charge was first introduced very few alternative options were in place, something regarded as being a mistake in hindsight.

7.4.1 Public Transport

A number of initiatives have been undertaken by the Trust to increase public transport usage. It was stated that, as a result, bus currently accounted for 23% of staff journeys to the site, compared to 4% when the Travel Plan was first introduced, *“in terms of people coming here by bus, it provides access to more or less all areas of the city.”.* Full modal split figures are shown in Table 7.1 and Table 7.2.

Addenbrooke's has its own dedicated bus station at the front of the hospital which was developed in conjunction with the County Council, who funded the development. The bus station site was previously a car park but was made available by the Trust to resolve severe congestion problems with buses at the entrance to the hospital site. Addenbrooke's has negotiated with Stagecoach, the largest bus operator in Cambridge, for the provision of a joint subsidised weekly 'MegaRider' ticket which is available to all staff on site. It is subsidised by both the Trust and Stagecoach and permits unlimited travel in Cambridge on any Stagecoach bus for one week, for a discounted price of £5.00. It has proved popular and, *"helps to partly explain why the modal split for buses has increased so much. We've actually increased the number of staff coming to the site by bus by over 800 per day, in two years."* Addenbrooke's is directly accessible from four of Cambridge's existing five 'Park and Ride' sites. The Park and Ride service from Trumpington to the City centre via the hospital is subsidised by the Trust, Cambridge City Council and Cambridgeshire County Council. The Trust Board has recently authorised additional spending to be spent on upgrading this service to every 15 minutes.

While such initiatives are viewed positively, the Trust feels that its working relationship with the bus operators could be improved and they do not feel that they share the same objectives as Addenbrooke's.

The main Cambridge station is located 1.5 miles away nearer the city centre, although buses from the railway station do stop on site. At the time of interviewing, discounted ticket schemes were under development. Another future development includes the Cambridge guided bus system which will call at Addenbrooke's.

7.4.2 Cycling and Walking

The site is accessible by bicycle, with on- and off-site cycle paths on all of the main routes feeding into the site. There are currently 1,300 cycle parking spaces on site, which are at or over capacity in peak times. In 2003, 25% of all staff arriving on site cycled. The provision of sufficient cycle parking, therefore, is beginning to become a problem and the Trust is currently considering innovative methods of cycle parking to meet demand. The relatively high amount of cycling to the site can be attributed to the general culture within the Cambridge area. Interest free bicycle loans are offered by the Trust repayable over 18

months and motorcycle loans repayable over 36 months. The loans currently on offer equate to a value over £100,000. A Bicycle User Group was established in 1997, and changing and shower facilities are provided.

There are several footpath networks that pass through or near to the site, although some are discontinuous. CCTV cameras, which cover most of the site, provide some personal security for pedestrians.

7.4.3 Car Sharing

The Trust has had a computerised car share scheme since 1998, which is available to any staff member working on site. Database software is used to match staff using their postcode details and other relevant information. In total there are 320 car share groups registered, which equates to roughly 740 individual staff members actively car sharing, as well as around 200 that are unmatched. Car sharers are granted priority parking in two car parks; one is dedicated and the other is an overflow which is shared with other priority groups. Each car share group is provided with a swipe card programmed to permit access into the designated car parks. Upon exiting, one group member must swipe their individual ID card, enabling the daily parking charge to be collected. There is no formal method for monitoring any abuse of the car share scheme; its operation is based on trust but, *“as with everything else you do on trust, it is abused.”*. Random spot checks are carried out manually at the barriers and if anyone is caught breaking the rules their car share priority parking allowance is withdrawn. There is also a culture within the organisation of staff reporting on others who are abusing the system.

7.4.4 Pool Cars

The Trust currently has a fleet of 16 leased pool cars which can be booked for business mileage. When the stock of pool cars reaches an adequate level the ability of staff to claim for business mileage will be reviewed. This would be advantageous as the costs of running the pool cars are roughly half that of paying private mileage. The opportunity would then also be present to take business travellers out of a priority parking group.

7.4.5 Flexible Working Policies

The Human Resources department at Addenbrooke's promotes flexible working policies, enabling staff to have compressed working weeks. All staff are able to request this practice providing it is not detrimental to service delivery. A trial home working scheme is also in place for a selected number of staff.

7.5 Management and Leadership

There was a strong recognition that management support was important, something which Addenbrooke's feel has been achieved, *"they recognise that if we're going to have this £500 million plus development, we need to make sure we meet our Section 106 targets...unless the senior management support it, or it's a priority for them, you might as well forget it."*

7.6 Attitudes to Change, Culture and Acceptance Issues

When first introduced staff were reluctant to accept the new parking charge, *"there were six months worth of near rioting when the charge was introduced at 20p, the car park management didn't know what to do."* Subsequent charge increases have also been fairly negatively received, *"there was a protracted period of anger and attrition when the barrier control system was introduced in 1999 and the staff car parking charges were increased to 30p a day, it was an uncomfortable period for all involved."*

Staff opinions towards the parking charge are now much more balanced than at the outset, particularly since car users are now in the minority, *"we recently had a meeting with the Unions to discuss the next charge increase and few issues were raised. We are in a position now that less than half of all staff are coming to the site by car, and people coming by public transport have voiced their opinion that it's more expensive for them to come by public transport than to park on site."* New staff coming to the hospital to work are not thought to have any strong attitudes regarding the introduction of the charge as they do not know any different.

A factor regarded as important in generating more positive attitudes is to clearly state and communicate the objectives of introducing a parking charge; this is discussed further in section 7.7.

Although not discussed at length during the interview, it was made clear that there were no problems when gaining support of other organisations on site for the introduction of the parking charge.

7.6.1 Hypothecation

It was felt that a major factor in obtaining staff acceptance of the charge is the hypothecation of parking revenues. It was thought that staff are more willing to pay the charge if they can see where the money is going, and where it will benefit,

“you’ve got to be upfront as to where the money is going...a lot of hospitals collect money for car parks and it goes straight into meeting the bottom line, because they are so heavily in debt. If you are going to implement a charge, you have to ring-fence it.”.

7.6.2 Culture

The overall opinion relating to the staff culture at Addenbrooke’s is that, *“experience tells me that if we had enough parking on-site for everybody, everybody would drive.”*. It was considered that many people had an ingrained culture of coping with situations which required them to adapt. Even though the introduction of a charge, the restriction on some employees driving to work and the removal of some spaces during development were unpopular events, staff found solutions to their travel problems. This was highlighted via examples, *“during the previous on-site change associated with the development of the Addenbrooke’s bus station, over 100 spaces were lost from the ‘standard’ car parks and it was interesting to watch how staff adapted to the change. There was a sudden increase in demand for bus tickets and people wanting to car share and that is effectively how people cope with it. They do find another way.”*. In another situation, a particular settlement had no public transport links to the hospital, but was within the two mile cordon which prevented staff members from driving to work, *“they still came to work, I don’t know what they did, they couldn’t park on site during the day, they found a way to deal with it... we just left it and waited to see what happened, and people find an alternative way, like most things. There’s always a danger that you are going to wrap people in cotton wool. A lot of people come to me and say ‘ok, you’ve taken my parking away, what are you going to do for me?’, and I say ‘sorry, it’s your responsibility to get to work, these are the alternatives that we’ve put in place for you, so in fact we are providing you with a greater choice, by removing a choice.”*.

There was also a view raised in the interview that the parking charge had a varying effect on different groups of people. It was considered that some people would pay the charge at almost any level whereas for others even a small charge of ten pence per day was seen as too much. So far Addenbrooke's have not researched in any great detail where the various thresholds are that persuade people to stop using their car to commute. There was an overall feeling that a lack of spaces was more of a disincentive than the actual charge itself.

7.7 Communication and Consultation

Communication with staff is an important consideration at Addenbrooke's Hospital, both when the charge was introduced and as an ongoing process. When introducing the charge, clear reasons for its use were communicated to staff, and while the reaction was not favourable, there could not be said to be any hidden motives. As well as the apparent congestion problem, Addenbrooke's communicated the objectives of the charge as being to maintain car parks to a higher standard and to fund public transport investment. When parking charge increases are planned, staff are first informed approximately one year before the introduction of the charge and then further consultation is held nearer the time. Information regarding getting to the site and the car parking rules and policies are provided on the intranet for staff members to access.

On-going communication of various travel alternatives is seen as important at Addenbrooke's. The Trust has recently run a year long Travel Choice Project, whereby half of all new recruits were targeted with personalised travel information and half were not, the aim being to evaluate the effectiveness of personalised travel information in changing individuals' travel behaviour, *"it's giving people information, and it's making people feel valued because people are going out of their way to actually help them."* The findings of the study were that the project was well received by those taking part but was very resource intensive and as such may not prove to be an efficient way of securing travel behaviour change.

In some instances, because the charge is well established and staff understand the situation, there is a reduced need for communication in some areas. For example, after school holidays there tends to be increased congestion on the roads as people who have taken to driving during the more quiet period initially forget the added congestion of schools reopening. In such circumstances, people now adapt to the conditions and change their travel habits without any need for The Trust to communicate with them.

Consultation with staff is seen as important to the successful operation of the car parking scheme and more general access issues for both car users and public transport users. The value of including staff in the consultation process when introducing the parking charge is clearly recognised, *“we arranged some seminars for staff to come forward and provide their own solution to the problem. Once everyone started going through the process they realised it’s not as easy as just building another car park, we needed to provide some alternatives... but there was a need for a measure of control as well.”*.

Various groups exist which allow for communication and consultation between staff, stakeholders and the Trust. These include the Trust Board Access Steering Group (for members of the Board), the Access Management Working Group (for employers on site), and the Access Management Staff Forum Working Group (for Trade Union Representatives). The Staff Forum was established in 1993, and meets every six weeks. Discussions with the Trade Unions are seen to be balanced, with the Trade Unions fully understanding the situation at Addenbrooke’s regarding car parking,

“they don’t support the charge, but they recognise why it’s done. They will say if they think something is wrong but they don’t object for the sake of objecting”. Individual staff members can either submit their views through the Unions to be discussed at meetings, they can email the Access Office or submit thoughts via an internet form. Any external complaints that come in are then dealt through Patient Advice and Liaison Service which can become formal complaints in some circumstances.

When increases in the parking charge are due to be introduced staff seminars are held approximately one month before the increase and the Trade Unions are consulted a further month prior to that. The announcement of the proposal to increase charges is usually one year before the increase is due to take effect. Such long lead times were seen as important and that employees should be given as much warning as possible, *“never ever surprise them, because you’ll live to regret it.”* Staff consultation is also currently taking place regarding the opening of a new multi-storey car park, which is being built to replace an existing car park being demolished for the development of a new building.

7.8 Implementation

The initial six months following the introduction of the daily charge to staff were the most difficult to manage in terms of the reaction and acceptance of it, as stated in section 7.6. It was considered, however, that this initial *“rocky”* period was somewhat unavoidable and in

Addenbrooke's case that after approximately six months the aggravation subsided, *"you've got to be prepared to go through a period of pain...and once you've made your decision, stick to it, no deviation."* The turning point was seen to be when one of the directors went out to listen to the abuse that car parking staff were receiving and threatened those acting abusively with being disciplined or dismissed.

Stating clear objectives for introducing a parking charge was seen as important in gaining acceptance and implementing a scheme which could then be built upon, *"If you're thinking of introducing a charge, have a very good reason for doing it."*

Additionally, it was regarded as important to be clear about where the money is going and it was for this reason at Addenbrooke's that it was decided to ring-fence all parking revenues and not allow money to be used elsewhere.

It was felt that introducing a low charge was the best way of ensuring a smooth implementation, *"introduce them quite low to begin with just to get the idea introduced. Once they've been introduced and they've been accepted, the issue of increasing them isn't such a problem, but you could go in with 50p or whatever, it just depends how much pain you want to go through"*.

A further important lesson that Addenbrooke's learnt was not to make exceptions to the scheme, something which became apparent during an issue relating to visitor parking when it was agreed to allow fathers of new born babies a concessionary parking allowance, *"within minutes the news was around the hospital on email, and everyone was coming to me saying 'if you're doing it for them, then you've got to do it for all these other groups too', and so I had to go back on my original decision...if you make exceptions, people will take advantage. You have to make a decision and stick to it, even if there are some groups that are penalised by it – it's not the intention but sometimes it happens."*

7.9 Impacts of the Parking Charge

7.9.1 Targets and Effectiveness

The Section 106 agreement signed in 1993 required that Addenbrooke's would have to do an

annual, 100% head count survey of people coming into the site at the same time each year. The surveys are conducted in October of each year and involve a number of research methods in collecting data.

Tables 7.1 and 7.2 show the results of the travel surveys carried out between 1993 and 2003 and how the modal shift has been affected by the introduction of the parking charge and the promotion of public transport, for both staff and patients/visitors. For staff, the figures show a large decrease in the number of single occupancy car drivers along with increases in all other modes since 1993.

lan

Table

	1993		1997		1998		1999		2000		2001		2002
Pedal Cycle	697	17%	821	20%	1,066	20%	1,060	22%	815	18%	857	18%	1,092
Motor Cycle	53	1%	21	1%	92	2%	99	2%	64	2%	80	2%	106
Car (single occup)	2,962	74%	2,802	68%	2,487	48%	2,183	45%	2,327	50%	2,189	47%	2,452
Car (multiple occup)					819	16%	718	15%	498	11%	408	9%	407
Bus	144	4%	281	7%	537	10%	498	10%	548	12%	738	16%	1,082
Walk	136	4%	197	4%	209	4%	297	6%	349	8%	359	8%	682
	3,992	100%	4,122	100%	4,813	100%	4,856	100%	4,601	100%	4,631	100%	5,842

Table 7.2: Patient/Visitor Modal Choice for Journeys to Addenbrooke's NHS Trust (1993-2004)

	1993		1997		1998		1999		2000		2001		2002
Pedal Cycle	133	2%	205	2%	184	2%	211	2%	295	3%	184	2%	232
Motor Cycle	114	1%	72	1%	21	1%	17	0%	26	0%	13	0%	22
Car (single occup)	7,224	93%	8,765	91%	3,624	39%	3,886	40%	3,444	34%	3,608	36%	3,522
Car (multiple occup)					4,637	51%	4,790	50%	5,599	56%	5,349	54%	5,322
Bus	259	3%	340	4%	564	6%	612	6%	546	5%	539	6%	342
Walk	91	1%	255	2%	152	2%	199	2%	178	2%	193	2%	152
TOTAL	7,821	100%	9,637	100%	9,182	100%	9,715	100%	10,088	100%	9,886	100%	9,632

Source: Addenbrooke's NHS Trust (2005)

7.9.2 Recruitment and Retention

The issues of recruitment and retention were of some concern to Addenbrooke's when they introduced the parking charge, but overall it was not seen as a major barrier,

"there were people threatening to leave and all that, but our recruitment issues are no different to any other organisation...you might have to go through a rocky period, but once

everything's been introduced, it then slowly becomes accepted. New staff coming in don't know any different anyway."

It was suggested during the interview that recruitment and retention arguments were often used by organisations as an excuse for not sorting out their transport problems,

"the average wage here is lower than the average and yet everybody pays, so the issue about recruitment is absolute rubbish...human resources departments are often the loudest voice unfortunately but it doesn't mean you don't bite the bullet and sort it out, once you've done it then you move on."

7.10 Key Findings

Addenbrooke's Hospital introduced a parking charge based on clear objectives which were the need to address congestion and access problems to the site, to enable better maintenance of car parks and to invest more in public transport and alternative modes to the car. The need to gain planning permission to expand the site was also a key factor and as such a Travel Plan was required to detail what actions were in place to deal with congestion.

Addenbrooke's chose to introduce a pay and display daily charge system. There is also a general lack of parking availability at the site which is regarded as being a major factor in determining what mode of transport employees use to commute.

The daily charging approach was taken because there was a need to fund alternative modes of transport and the hypothecation of parking revenues enabled this.

There is a strong focus on individuals, equality and fairness. Nobody is allocated reserved parking spaces although there are priority car parks for employees who are more dependent on being able to drive to work. Staff living within two miles of the site and not in a priority car park are not permitted to park on site until after 3:30pm.

The parking charge has led to a large number of employees parking in residential streets surrounding the site, something which Addenbrooke's are working with local Councils to rectify. There are also still some days when congestion at the site is particularly bad.

There are a wide range of alternative modes of transport which allow access to the Addenbrooke's site. The human-orientated nature of a hospital means that staff are often unable to work from home and there is a great importance on being able to get to work on time. It is recognised by the Trust that while a number of alternatives have been made available, ultimately it is up to each individual to take the responsibility of getting to work.

Support for the parking charge was present from top level management at the Trust which was seen as important in successfully implementing the charge.

The initial implementation was not well received and the first six months were a very trying time for those involved in the parking strategy. The anger eventually subsided and staff began to cope with the charge, although there is still a negative reaction to each price increase. Overall, there is a more balanced opinion towards the parking charge now; hypothecation of revenues for reinvestment in transport initiatives and car park maintenance have been important in gaining some acceptance of the charge. There is still a feeling, however, that if the space was available then most people would choose to drive.

The need for the charge was clearly communicated to staff based on the specific

reasons of reducing congestion and investing in public transport.

Consultation was extensive and lengthy before introducing the charge and continues to be so when price increases are proposed. There is a good relationship between the Trust and Trade Unions as well as various groups and means of communication between staff and Addenbrooke's. Information for staff is made freely available.

In terms of implementation, a small charge was first introduced to try and gain acceptance and understanding. This charge was then increased over time and the Trust plan to continue increasing it until car parking charges are equal to or greater than public transport charges. Investment in alternative modes of transport did not occur until after the charge was in place, although it is recognised that ideally there should have been improvements earlier.

The parking charge has been effective in generating modal shift, although it is still considered that too many people still drive to the site and it is thought more would do so if the space was available.

The charge is not seen as a major barrier to recruitment and employee retention and it is thought that new staff accept the charge without any problem. It was felt in the interview that some organisations used a recruitment and retention argument as an excuse not to sort out their transport problems.

Case Study 2: The University of Bristol

7.11 Introduction

The main site at the University of Bristol is located within the Bristol city centre in the vicinity of the main shopping areas and offices. This main site, known as 'The Precinct' is the focus of this case study and also of the University's Transport Plan. It contains over 70 buildings, ranging in size from modern multi-storey department buildings smaller town houses with less than 50 staff. The University has additional sites not included in the Travel Plan, in particular Langford School of Veterinary Science, located 15 miles from the centre of Bristol and the Halls of Residences in two key locations within two miles of the precinct. (Department for Transport, 2002)

In total the University employs 5,300 staff, of which 70% work in the main precinct, and has 12,000 students. The University staff profile is evenly balanced between male and females and a majority of staff are aged over 35 years. In terms of distance from home to work, 20% live within one mile, 36% within two miles and 49% within three miles. (Department for Transport, 2002)

Five interviews were conducted at the University of Bristol with members of staff involved in various aspects of the scheme. The codes associated with quotes are as follows:

Assistant Director – Facilities (main contact) (*UoB 1*);
234 Car Share Manager (*UoB 2*);

Security Office Administration Clerk (UoB 3);
Energy and Environmental Manager (UoB 4);
Payroll Manager (UoB 5).

7.12 The Nature of the Problem and Reasons For Change

There are a number of factors contributing to why the University of Bristol created a Travel Plan incorporating a parking charge. Demand for car parking was higher than supply, *“there were too many cars chasing too few spaces”* (UoB 1) and it was recognised that a way of allocating this scarce resource was necessary. Additionally, there were discussions about the creation of a controlled parking zone on the surrounding streets, which would have further increased pressure on the University’s car parks. The cost of providing car parking was also becoming an issue, with income not covering the running costs.

Due to the constrained nature of the University site, the only space available for new developments is on existing car parks. To build on this land, however, required the University to convince the council that a coherent Travel Plan existed which could address the loss of car parking space, *“not just one that was on paper but one that was actually being implemented and having measurable effects.”* (UoB 2). It was recognised, however, that new developments did not necessarily mean more members of staff, *“we’re not a University that’s looking to increase our student numbers so we’re not really thinking we’re going to have a huge boom of staff and students here to put more pressure on the car parking space.”* (UoB 4).

The previous car parking strategy in place at the University was also considered to be unfair and outdated³, *“it was one of those situations where everybody was fed up with it. When you joined the University you had to wait 6 or 7 years to get your own reserved car parking space and otherwise you had to fight it out with the unreserved spaces which meant getting to work at half past 7.”* (UoB 2).

7.13 The Car Parking Strategy

7.13.1 Overview of the Car Park System

The main precinct in at the University of Bristol contains 950 car parking spaces, spread

over 58 car parks which range in capacity from 2 to 70 spaces. The

³ Prior to this there was a two tier system; people who had worked at the University for a long time were charged a percentage of salary which was collected as an annual sum, but the amount was minimal and employees had a guaranteed parking space at all times. The remaining employees could apply for a parking permit which cost £20 per year but it was heavily oversubscribed.

University's Travel Plan was introduced in July 1999 and focuses on employees; students are not included and are not permitted to park at the main precinct. It combines a permit allocation system and daily parking charge for those who drive with a range of incentives for using alternatives. The new permit allocation and parking charge element of the Travel Plan was introduced in January 2001. (Loughborough University and Napier University, 2004)

7.13.2 Parking Permits

Under the new scheme all car parks were divided into three categories:

Category A – for staff or students with a disabled driver's badge or temporary/permanent mobility impairment (medical evidence is required), registered car sharers and departmental vehicles.

Category B – for staff with caring responsibilities, dependants, those who live a long way from the University and those with poor access to public transport. Category B permits are allocated on a "limited oversell" basis which guarantees the holder a space, although not in any single car park.

Category C – known as a "license to hunt", any employee with an annual permit is entitled to park in this category. There is unlimited oversell and no guarantee of a space.

Category B permit eligibility is assessed via an application questionnaire covering the criteria listed above. Poor access to public transport has to be proved by the applicant. Staff applying for a Category B permit are awarded points for these criteria and if the total points is over a required target then they are allocated the permit.

The three category method of permit allocation is explained, "*like many other organisations, the University's car parking is a scarce resource and there are more people who wish to park than there are spaces. We therefore have to allocate that scarce resource. It was identified that there were different categories of users and depending on either individual circumstances or University need, there was a need for priority car parking.*" (UoB 1). Every year the allocation of permits is reviewed because individual circumstances and public transport availability changes.

In addition to the three parking categories each University department is allocated a number

of parking spaces outside their building which are paid for on an annual basis. This amounts to approximately 100 spaces, and departments can use them at their own discretion. 28 parking spaces are also available for visitors and must be booked in advance by the department hosting the visit.

7.13.3 Parking Charge

Vehicles parking at the University have to display a valid permit for the category they are allocated; each permit costs £10 per year. A daily parking charge is then applied which is calculated at 0.007% of gross salary (0.006% prior to 1st August 2004) and paid direct from salary when employees purchase ‘scratch and display’ coupons, which also have to be displayed showing the relevant date. Half-day parking charges are half the cost of full day charges.

Registered car sharers pay the charge based on the lowest salaried member of the team, but are charged annually based on 225 working days to ensure that the allocated spaces are used on a regular basis. Staff who are not salaried by the University (for example if they are paid by a Research Council) pay for coupons by cheque. Visitor spaces are charged at £5 per day or £2.50 per half day which is paid by the department they are visiting.

The number of coupons which can be purchased is limited to ten, although the University does allow an annual coupon to be purchased, *“it costs the equivalent of 225 days parking, so you can lose money on it but some people have done that because they forgot their coupons and kept being fined and it was a hassle factor for them.”* (UoB 1).

Two groups are exempt from the charge – those who are disabled and contractors. Disabled people were felt to have less accessibility to alternative modes of transport and hence it was unfair to charge. The number of contractors parking is monitored closely. *“It was not considered practicable to charge them because we would just get charged back, plus profit, plus VAT.”* (UoB 1).

7.13.4 Management and Security

A comprehensive database system exists to manage the car parking strategy. This includes sections for security staff to check who illegally parked vehicles belong to and to check if there is a history of rule breaking by the individual. The finance department also use the database system to manage the charges paid. There is a lot of pressure placed on staff when permits have to be renewed each year, so much so that the security office, who deal with the administration, are unable to conduct other areas of their job description and are considering contracting the process out to a third party.

Car park controllers and a supervisor are responsible for ensuring that the car parks are secure and the rules of the scheme are not being abused. There is also an element of self policing by members of staff, *“if they see a car that is clearly not authorised to park they will phone security, there’s a definite element of that.”* (UoB 1).

Those caught abusing the car parking rules are warned a number of times before being subject to a fixed penalty fine of £5, which is deducted directly from salary. There are usually only two or three fines administered per month. Having a series of warnings which are stored on the individuals file in the database is thought to reduce the number of complaints should a fine eventually be issued. In the most serious cases, an individual can have their right to park removed, although this is rare. Illegal parkers who are not on the University of Bristol payroll are clamped because it is not possible to trace the individual through the computer system. It is recognised that some members of staff view the fines as an *“occupational hazard”* (UoB 3) and risk collecting them because they can benefit financially based on the number of times they avoid paying the fine compared to if they were to buy parking coupons. Situations like this are considered to be rare.

7.13.5 Reasons for Selecting a Parking Charge Strategy

The reason for selecting a daily charge approach is explained by UoB 1, *“that was the only way we were going to encourage people to really think about whether on a particular day they drove to work. I was also very informed by the staff travel surveys that identified that people were quite multi-modal already and so clearly an annual permit didn’t deal with that issue.”* It was also acknowledged that the decision for a daily charge was intuitive to an extent and it was agreed at the outset that the charge should be related to salary.

Prior to the salary related daily charge being approved, a proposal for a high fixed charge

was presented based on the principle, *“if you could afford to pay you parked and if couldn't afford it you didn't park”*. (UoB 1). This approach was rejected unanimously in favour of a strategy based on ability to pay. It was also recognised that the University had different categories of users and so some type of priority system was required, hence the development of the three tier permit allocation.

7.13.6 Impacts of the Parking Charge

The University recognises that, *“you will always get people who will never pay; all it will do is push people further out”*. (UoB 5). There is free on-street parking on the roads near to the University, which many staff park in and then walk the remaining distance to work. The introduction of a Controlled Parking Zone on such streets is being considered by the City Council and is fully supported by the University. During the course of the interviews it was stated that local businesses and residents had not complained vociferously about University staff parking in the streets surrounding The Precinct. It was also considered that it may be difficult to introduce a parking zone which charged residents because of the high number of students living in the streets and the difficulty of monitoring parking with such a high turnover of tenants.

A concern was also raised about a situation whereby as more parking spaces were eroded by building developments, there would eventually come a time when car parking space could not be reduced any further without hindering the operation of the University. To this end, some initial discussions have begun as to whether an underground car park could be constructed.

It was not considered that the parking charge had had any bearing on where employees chose to live.

7.13.7 Focus on Individuals

It was decided to deduct the parking charge from employees' salary so as to increase the efficiency of how revenues were collected and because, *“it's a lot less emotive, you never see the money as it gets directly deducted form your salary. It also means you never have*

issues with change and hassle.” (UoB 1). A pay and display system was initially considered but ruled out because of the risk of vandalism, potential breakdown of machines, cost effectiveness of having to place them in all of the car parks and because it was considered emotive as stated above. Additional features were incorporated to make the scheme “as painless as possible” (UoB 1), such as the ability to order parking coupons online and then have them delivered through the internal post system. rather than having to pay money. Any fines are also collected directly from salary, “we again tried to reduce bureaucracy.” (UoB 1).

Applications for category B permits are treated on an individual basis but it is felt that many people who attempt to gain a category B permit are not always in need of one. The issues they have are often those faced by several other people who find a way of managing the situation, *“I think “well I can deal with those same things” but we’re trying to be as egalitarian as possible to deal with a system that is so complicated.” (UoB 4).*

The overall situation with regard to focusing on individuals within the parking strategy was summarised as *“you have to be flexible with members of staff, whereas if you’re heavy with them all you do is escalate the problem.” (UoB 5).*

7.13.8 Equality and Fairness

The nature of the scheme has meant that everything is done in an even and fair manner, so there can be no real dissatisfaction from employees about the allocation of permits or the level of charges, *“you don’t just get parking allocation because you’re an important person, it doesn’t work like that. People couldn’t really complain, they couldn’t publicly say, “I earn more than you, therefore it is unfair that I should pay more car parking charges.” Arguably it’s perfect price discrimination.” (UoB 1). As the parking charge is salary based, it increases each year as salaries increase. “I think it’s important that the University treats all car users the same, so even if you’re car sharing you’re still paying for the space but you can split it obviously.” (UoB 2).*

It is considered that in developing the parking strategy the University attempted to detach itself from personal issues for the overall strategy design, but then address the individual issues to ensure that the whole scheme runs effectively. When a problem was discovered then specific measures were taken to overcome that particular problem.

All of these specific problems have been treated as fairly as possible. For instance it was discovered that anybody taking a child to school was being allocated a category B permit, but those caring for adults were not being allocated the same permit because they did not have to take them anywhere. Therefore the points system had to be, *“tweaked, because it was felt that a caring responsibility was a caring responsibility.”* (UoB 3). There is also an appeals committee but it is recognised that some people do not want to have to explain all their reasons and emotional issues to an anonymous committee. Another example is that the number of coupons which can be purchased is limited to ten because they are non-refundable and it is recognised that peoples’ circumstances change. *“If people lose them we have to say “sorry it’s like cash” but there have been a couple of cases where people’s desks have been broken into or bags have been snatched so in those situations you try and be a bit sensible and reimburse them.”* (UoB 5).

7.13.9 Flexibility and Choice

There is some flexibility within the University of Bristol’s parking scheme in that all employees are able to purchase a category C parking permit and park at drive to work when they choose. The use of a daily charge means that individuals can decide their commuting mode on a daily basis, *“it’s all about perception of need and because we have a daily rather than an annual charge for almost all of these categories, it means that that preference changes depending on what people are doing on a particular day.”* (UoB 1). Due to the lack of spaces, however, there is not complete flexibility as driving in at certain times makes it very difficult to park. A number of public transport options are available, although as described in section 7.14.1, these are not regarded to always be suitable. Overall, the University of Bristol have *“steered very clear of nannying staff, the choice is up to individuals and one hopes they make an informed decision.”* (UoB 1).

7.14 Public Transport and Alternatives

7.14.1 Public Transport

Several bus routes from the city centre pass close by the main University precinct with some offering staff discounts. Interest free loans are available to aid staff in purchasing bus and rail season tickets. Perceptions of public transport are not high, however, and it has been described as “adequate”, “fairly flaky” and “useless”. The University also fund the Hospital

and University Bus Shuttle (HUBS) in conjunction with the United Bristol Healthcare Trust, which is free for employees and visitors to the hospital and University.

The local bus operator, First Group, are considered difficult to co-operate with due to their business-case orientated approach with every decision being made on a cost basis. This makes it difficult for the University to suggest improvements to services without having a large number of employees requesting the change.

Travel information is made available via the University's website and timetables for the HUBS service are distributed to all staff. The University are also trying to find out more about perceptions of bus use via its travel surveys which ask questions about what specific problems are encountered and what could be improved.

7.14.2 Cycling and Walking

Cycling and walking are regarded as key target areas due to the number of people who live in close proximity to the main precinct. Secure cycle parking spaces have been provided, as well as freestanding spaces and improved shower and changing facilities. The University offers interest free loans to purchase bicycles, discounts in local shops, and several groups and workshops are offered. A mileage allowance for cycling in the course of work is available at a rate of 10p a mile. Pedestrian access to the main precinct has been improved with better on-site lighting and footpaths. Walking has been promoted using health messages and branded umbrellas.

7.14.3 Car Sharing

The University has developed its own web-based car share matching service, 234car. Registered users are matched with other users who live on the same route to work, rather than just by area of residence and the system allows other companies to sign up to the scheme, increasing the potential number of matches. There are approximately 120 car share teams at the University, accounting for 250-300 members of staff. Car sharers are given priority parking and guaranteed a space at the main precinct. They are also guaranteed a ride home for unforeseen emergencies, which is assessed by the team administering the scheme. The annual spend on taxi fares is in the region of £100 to £150, revealing that paying for taxi

fares is a rare occurrence.

7.15 Management and Leadership

The University of Bristol established the Travel To Work Implementation Group (TWIG) so oversee the development, consultation, implementation and on-going guidance of the Travel Plan and parking strategy. TWIG also play a role in approving the apportionment of monies generated by the parking charge. The members of TWIG are nominated and the whole group represents a cross section of grades, transport users, ages and those with caring responsibilities. The nature of the group is considered to have made implementation of the parking scheme smoother and helped acceptance to be gained, *“nobody could really question their motives because they were representative.” (UoB 1)*. TWIG have the authority to make decisions on the parking scheme which are then ratified by more specific committees at the University. Departments involved with the management of the Travel Plan and parking strategy report to TWIG on a quarterly basis regarding progress.

It is considered that the system of having a representative group to drive the scheme works well for the University; the arrangement allows the strategy to be run in a way the whole University community want to see it operated, rather than following the objectives of an individual. It was considered by the interviewees that it was still important to have a strong leader however. To this end the Chair of TWIG is chosen to be somebody who can articulate the scheme to a wide range of individuals and who is an individual of standing within the University. Senior management at the University were not heavily involved in the development of the scheme but supported the objectives of both the parking charge and the Travel Plan.

In one of the interviews there was some brief discussion about the potential to introduce a new role of a Travel Plan Co-ordinator who would focus on developing alternative modes of transport. This was mainly due to the amount of time and resources it demanded from the Energy and Environmental department who currently dealt with such transport issues. The appointment of a position would have to be approved by TWIG and the funding would have to come from hypothecated parking revenues. and that having a single position to co-ordinate the parking charge and Travel Plan initiatives would not be so successful.

7.16 Attitudes to Change, Culture and Acceptance Issues

There was a conflict of views when discussing the staff reaction to the new parking scheme.

Some consider the charge to have been well accepted, particularly after the lengthy consultation process, *“by the time the new scheme actually started everyone had accepted it.”* (UoB 1). Others, however, state that it was unpopular, *“it changed from £20 a year to £20 in two weeks in some cases. The cost implications were horrendous, and that’s why it was so unpopular.”* (UoB 05).

Overall, the reaction of staff was expected to be varied and a unanimous show of support or objection was anticipated to be unlikely, *“it’s the same with everything, some people get on and accept it, some people will never accept it. The only people who will always accept it are those who have never known any different, they take it on board and that’s it.”* (UoB 5).

There was also regarded to be an acceptance of the principles of the scheme, *“it is an issue in a sense that if you spoke to members of staff they would say “I object to the pay”, “sometimes I can’t park when I want too”, “there aren’t enough car parking spaces”, but people won’t say it doesn’t work.”* (UoB 1). Subsequent loss of parking spaces at the University due to building developments are now accepted without opposition.

Some members of staff who previously had found it difficult to park were positive towards the scheme as it greatly increased their chances of finding a space, particularly those car sharing or those who were eligible for category B permits. Amongst the toughest members of staff to achieve acceptance from were those who had worked at the University a long time with a guaranteed parking space and those who felt that their position entitled them to parking priority. *“If you get an individual who is 60 years old and they’ve been here for 30 years, then they are suddenly told they’re only going to get a category C space, then it’s hard.”* (UoB 5). *“When the charge was introduced there were a group of people that thought status should count for something and they can still be quite vociferous.”* (UoB 3).

When the charge was introduced, the staff administering the scheme experienced some abuse via telephone calls. A certain amount of abuse had been expected during the initial introductory period, but it carried on longer than anticipated. There is recognition of some of the potential reasons for this, *“many people were very stressed and offloaded a lot of it over the telephone. There was a lot of emotion which was hard to be prepared for.”* (UoB 3). The situation was rectified by installing recording equipment on the telephone lines.

7.16.1 Hypothecation

The hypothecation of parking revenues is considered to have been an important factor in generating acceptance for the introduction of a car parking charge. Up until 2009 all revenues from the car parking charge will be ring fenced and used exclusively on transport related issues including alternative modes of transport, maintaining the car parks and providing staff to administer the Travel Plan. Prior to the charge being introduced, car parking cost the University approximately £100,000 per year although it was recognised that, *“it’s very difficult to say what the costs of just car parking are because there is a lot wrapped up in it, for example there are three secretaries within Security Services who deal with car parking, but all of their time isn’t devoted to just car parking.”* (UoB 3).

The overall revenue generated by the car parking charges is in the region of £250,000 per year. Initially, there was a fear that charges were being introduced as a money generating scheme but that was shown not to be the case. A key finding from the consultation process, discussed in more detail in section 7.17.1 was that employees wanted to see where the parking revenue was being spent. Now that the parking charge has been in operation for approximately five years and employees have been able to see the improvements made from the ring fenced money, it is regarded that people can clearly see the benefits.

7.16.2 Culture

During the interviews it was stated that he believed the overall culture of people in general was one of a reluctance to change of any type. This impacted on the way in which the parking charge was implemented at the University, as explored in section 7.18. It was also considered that people had a “change curve” in terms of adapting to new circumstances. For this reason, a lengthy consultation process was devised, as explored in more detail in section 7.17.

The introduction of a daily charge rather than an annual one is considered to have been important in changing culture to some extent as it gave the system a degree of flexibility and enabled individuals to make a decision on a daily basis about how they travelled to work, *“gradually as the system has been refined people have become more to use the method of transport which suits them on that particular day whereas in the past you felt “well I’ve paid for my parking space, I’m going to use it”. That’s no longer the case.* (UoB 2).

There is a recognition, however, that some people are very reluctant to pay to park and will choose to park for free further away and walk in. This even applies to some members of

staff who are directly involved with the scheme, *“I don’t pay where I park at the moment. If a controlled parking zone was introduced around here I think I’d play it by ear to see how far it extended. I’d keep trying to park for free and walk before taking up a permit, but if it got to the point where I had to walk for 20 minutes then it defeats the point of why I come in so early so I might as well just accept it and pay up.”* (UoB 5).

It is considered that employees now understand the pressures facing the University in terms of car parking and the lack of any other available space to expand. This culture change became apparent when a car park was closed to enable the development of a new sports centre and no complaints were received by TWIG about the loss of spaces.

7.17 Communication and Consultation

The reasons for the parking charge at the University have always been communicated with a strong focus on the lack of car parking availability at The Precinct, *“success has come from dealing with it holistically and transparently; we articulated we had a problem and that we needed to solve it.”* (UoB 1). For this reason the parking charge does not apply to other sites owned by the University which do not have car parking problems.

Care has been taken not to focus on environmental concerns as it was felt it could cloud the main issue of resource allocation, *“we can’t all park, that’s just the way it is and to be honest I think that’s a lot easier to accept.”* (UoB 1). It was also considered that using environmental arguments could have a detrimental impact on other environmental initiatives at the University if people decided not to comply with these in protest of the parking charges.

The University of Bristol do not regard the parking charge to be anti-car and have avoided the use of the term “deterrent” in communicating the parking charge. Rather, they focus on encouraging alternatives. It is argued that people will make the most appropriate choice based on the options available and that the parking charge *“cajoles them into making the most informed decision”* (UoB 1).

Communication in terms of the day to day operation of the scheme is conducted mainly via the internet and telephone. Employees can access their own user area via the internet where they can change personal details, purchase parking coupons and view any fines they may have incurred. There is also a formal complaints procedure although generally problems are

rectified before this stage.

Communicating the availability of alternative transport modes is done in a number of ways. Public transport timetables are available on the internet and also around The Precinct. The car share scheme is administered over the internet and information has been sent out with all pay slips to promote it.

Information from staff is also communicated to the University via travel surveys which allow for modal split figures to be assessed and for staff to put forward any suggestions about public transport and other alternative modes. Staff are also able to put forward suggestions via the internet and some user groups exist for pedal cycles and motorcycles. These suggestions can then be acted upon if appropriate although it is recognised that in many cases they are one off initiatives and a consensus of opinion is required to make an implementation worthwhile. The University also operate mailing lists for various types of public transport, for example users of the HUBS.

7.17.1 Consultation

The process of developing the Travel Plan began in August 1998 with the formation of a University Working Group, over two years before the new parking initiatives were introduced. During this time 15 open meetings were held and attended by approximately 1,000 staff members.

In March 1999, a first draft Travel Plan was presented following a staff travel survey and fact finding trips to other Universities. At this early stage a parking scheme was proposed which would cost employees an average of £400 per annum, with no assessment of need and would generate approximately £75,000 annual profit for the University proposed. This scheme was strongly opposed by staff, but because it aroused opinions it is considered to have helped ensure a high level of participation in the consultation process that followed. Between March and May of 1999, public meetings were held and the minutes were posted on the University website. Staff were also encouraged to post their views on the draft travel plan via an electronic bulletin board. This input allowed for revisions to be made to the Travel Plan before it was approved by University Council in July 1999. One key finding, as reported earlier was that people wanted to know that all of the money they were paying was being reinvested into transport.

TWIG were central to the consultation process; their role was to determine the workings of the scheme, based on its main principles. *“TWIG were critical to the success of the scheme, because they were truly independent. They had been given certain parameters but fundamentally they had to say how car parking charges were related to salary, the permit allocation rules and how parking income should be spent, so it meant we were able to demonstrate it was transparent...it was very effective, nobody could really question their motives because they were representative.” (UoB 1).* TWIG continues to play an active role and consultation is on going. *“TWIG is really driving it all, everything has to go through TWIG.” (UoB 4).*

Extensive consultation was regarded as extremely important in implementing the scheme effectively and in gaining acceptance from staff. Ensuring transparency and information flow at all stages of the consultation process is also considered to have helped in introducing the new parking scheme, as has the use of lengthy timescales, totalling almost two years. *“If you are going to get meaningful change that is going to stick then you need to give staff sufficient warning that it’s going to happen and doing it in three months wouldn’t have worked here, it would have been rejected. I also think being transparent was critical, all the papers, minutes and finances went up on the web and everyone could see there was no hidden agenda.” (UoB 1).*

7.18 Implementation

The University of Bristol introduced a relatively high parking charge because it was felt it would be more likely to generate a change in travel behaviour. The University call this the “big bang” approach and explain the reasoning, *“if they see a little fence they will jump over it, but if they see a brick wall that they can’t possibly break through then they will change...I think humans don’t really like the idea of change, although the reality is quite different, therefore if you are going to make a small change then the dissatisfaction with that may actually be as great as with a big change and therefore why have that continual thorn in your side if you can get it out.” (UoB 1).* As well as generating a meaningful modal shift the charge had to be at a level whereby the scheme was self financing and there was enough additional money to invest in alternative modes of transport.

Many of the public transport initiatives, car sharing and improvements to cycling and walking facilities were in place before the parking charge was introduced. There was a gap

of approximately 16 months between the implementation of the Travel Plan and associated travel initiatives before the introduction of the parking charge. This strategy of implementation was not initially planned but the initial administration of the parking charge and the allocation of permit categories took a little longer than expected and so there was more time for other initiatives to be developed. This delay in implementing the charge is thought to have been beneficial, however, from the perspective of allowing people more time to accept and understand the changes.

The introduction of the charge was fronted by TWIG rather than being driven by a top level management team, which was regarded as being less bureaucratic due to the representative nature of the group.

7.19 Impacts of the Parking Charge

7.19.1 Targets and Effectiveness

Table 7.3 shows modal split figures for employees who “usually” use each mode of transport from staff travel surveys carried out in November of 1998, 2001 and 2003. The Travel Plan and new parking scheme were both introduced after the 1998 survey but before the 2001 one. The figures show a decrease in the percentage of people travelling to work by car and an increase in the number pedal cycling and walking to work. Car sharing also accounts for 6% of all journeys to work, where previously a formal scheme had not been in place. Public transport usage has remained fairly stagnant over the duration of the three surveys.

Table 7.3: University of Bristol Travel Survey Results: Percentage of Staff who “Usually” use each Mode of Transport

Mode of Transport	1998 (%)	2001 (%)	2003 (%)
Bus	12	12	11
Train	2	3	1
Hospital and University Bus Shuttle	-	2	2
Car Driver	44	32	33
Car Passenger	6	4	2
Car Sharer (formal)	-	6	6
Park and Ride	0.5	1	1
Motorcycle/Moped/Scooter	2	2	2
Pedal Cycle	7	8	13
Walk	19	23	28

(- denotes no data available because mode of transport not in operation)

Source: University of Bristol, 2004

Employees who changed their travel behaviour were asked what had influenced this change. The four most important factors were “increases in the cost of car parking”, “introduction of different categories of permit”, “ease of being able to park at the University” and “daily rather than annual charge” demonstrating that the new parking strategy has been instrumental in generating change. It was also recognised that it was necessary to have alternative modes in place in order to make the change in travel behaviour possible.

Travel surveys have also revealed, however, that more people state that the charge has not changed their travel behaviour than those who have changed. It is also felt that the opportunity to change behaviour has now reached a saturation point and further modal shift will require more work to be done in “*personal terms*” (UoB 4) rather than physical incentives such as installing better facilities. “Personal terms” was said to include liaising with bus companies over routes and the Council over cycle routes. Short staff interviews conducted at the University also demonstrated that several people had not changed their travel mode due to the parking charge. Some staff were existing public transport users from before the charge and others arrived early to park in nearby streets for free.

The University of Bristol is not subject to achieving any targets. There were some mixed views about this in the interviews; one respondent thought it was surprising but welcomed it and another view was that the scheme achieved its objective of addressing the car parking problem and generating modal shift, so there was little point in introducing targets. It was also regarded that since the University was making such positive steps in terms of travel planning, local councils and authorities would not feel obliged to impose any targets, for example when granting planning permissions.

7.19.2 Recruitment and Retention

Issues of recruitment and retention were not thought to be affected in any major way by the introduction of the parking charge. The overall consensus was “*car parking is an issue but are people really going to make decisions about whether they were going to come and work here based on car parking?*” (UoB 1). The University’s position as a leading UK academic institution was regarded to far outweigh the potential drawbacks that the parking situation generated.

There was a recognition that some individuals such as parents or carers may be more impacted by not being able to park. Those with a need, however, are able to apply for category B parking permits so it was not considered to be a problem in terms of recruitment and retention.

Interviewees said that the fear of a negative impact on recruitment and retention had been raised a number of times as a drawback of the scheme both during consultation and afterwards. There was a recognition that it was not possible to tell if somebody had chosen not to apply for a position because of the parking charge, but there did not appear to have been any decline in the number of people applying for jobs. Employee exit surveys conducted by the University revealed that car parking was periodically cited as a reason for people leaving their jobs, but that it was usually one of a number of factors.

There was also a view raised that several large businesses located in Bristol city centre had far less parking availability for staff than the University and did not appear to suffer recruitment or retention problems.

7.20 Key Findings

The University of Bristol introduced a parking charge and permit allocation system because the demand for parking spaces was higher than supply, car parking cost too much to provide and there was no space for future developments other than on existing car parks. An active Travel Plan was required in order to gain planning permission and there was a need to update the existing car parking strategy which was considered to be outdated.

The car parking strategy combines a daily parking charge which is related to salary with a permit allocation system assessed on individual need. The charge is deducted from salary for efficiency reasons but primarily because it is less emotive than making people pay cash on a daily basis. Applications for parking permits are considered on an individual basis.

A parking charge was chosen because it was considered to be the only way of encouraging employees to really think about their journey to work. Introducing a daily charge allowed for decision about travel mode to be made on a daily basis and the University has tried to make the scheme as flexible as possible to cope with each person's individual circumstances.

The scheme is considered to be fair and equitable in that no employees are allocated a reserved space and as the charge is a percentage of salary it is the same for everybody in relative terms.

A number of public transport initiatives are in place but in general they are not considered to be very good. The University has provided improved facilities for cyclists and walkers and offers interest free loans on cycle purchase and public transport season ticket purchase.

A representative group was formed to direct the new parking strategy. This helped to gain acceptance from employees and within the TWIG group a strong leader was also chosen to articulate the scheme to staff. Senior management were not heavily involved in the

planning and implementation of the parking strategy but supported its objectives.

- When introduced there was a mixture of those who supported the scheme and those who did not, although this varied reaction was expected as some people benefited from the change while others lost out. The principles of the scheme are generally considered to have been accepted even though not all employees like it. The transparent approach adopted by TWIG and the hypothecation of revenues are regarded to have increased acceptance.

Clear reasons were communicated for the implementation of the charge which focussed on the specifics of why it was required. Issues such as the environment and green travel were not focussed upon as they were not considered to be important factors. Adopting this approach has been more transparent and accepted by employees as they can relate to the issues first hand.

The consultation process was lengthy and there was a high level of employee participation who had numerous ways of stating their opinions. This extensive consultation was seen as important in gaining both acceptance and understanding.

The implementation of the charge was a “big bang” approach with charges being set at relatively high levels, which is considered to have generated considerable modal shift. The culture of people in general was considered to be one which was adverse to change and so this approach allowed the University to only deal with the negative staff reaction once, rather than several times if they had chosen to gradually increase a parking charge.

The new parking strategy has been successful in reducing the number of single occupancy vehicle trips to the site. The charge has been seen to be a major contributing factor to those who have changed their mode of travel but in many cases it has not changed employees’ travel mode and they continue to commute by car. It is felt that further work is required to develop the use of alternative modes.

The parking strategy is not thought to have had a major impact on recruitment and retention although it is often cited as one of a number of reasons for those who have left their employment at the University. Overall, the University of Bristol consider that the benefits of working for a leading UK University outweigh any disadvantages of having to pay to park.

Case Study 3: Pfizer

7.21 Introduction to Pfizer

Pfizer is a global, research based pharmaceutical company; the focus of this case study is their site in Sandwich, Kent, a large site of 352 acres located in rural surroundings approximately one mile from Sandwich town centre. The site’s operations are split between Pfizer’s Research and Development and Manufacturing Divisions. There are approximately 7,000 staff employed on site, of which roughly 3,000 are contract staff. About 5,000 use the site each day and approximately five percent of the workforce are part time.

The workforce is well-paid, generally well above average salaries for the East Kent region. They are also relatively young and academically well qualified, with 35% aged between 25-34 and 35% aged 35-44. Figures from 2002 revealed that approximately 16% of staff live

within five miles of the site (Department for Transport, 2002).

Pfizer have developed a Travel Plan which covers their site at Walton Oaks in Surrey as well as the Sandwich site. Walton Oaks has approximately 400 members of staff on site and houses the Pfizer Head Office and UK Sales and Marketing Division.

In the following sections, the following references are used for quotations from the interviews:

- Consultant on Travel Planning (Pfi 1)
- Parking Cash Out Administrator (Pfi 2)
- Community relations Manager (Pfi 3)

7.22 The Nature of the Problem and Reasons For Change

The development of a new parking strategy within its Travel Plan at Pfizer was largely a result of an increasing congestion problem on the local road network, particularly to the north of the site, in the late 1990's, "*people queued all the way back to Ramsgate and it just wasn't moving*". (Pfi 1). This led to staff complaints over long journey times and a lack of parking (Parking Review, 2002). It was recognised that building roads was not a viable option and so alternative measures were required.

Another major reason for change at Pfizer was linked to gaining planning permissions, "*if you can't develop a site because you can't get planning requirements then you've got to do something about it and so that was it.*" (Pfi 1). A planning proposal for a major development on site was granted by Dover District Council in 1998, on the condition that a Travel Plan was produced and regular reports on its progress and implementation were given. The Travel Plan gained further importance in autumn 2000 when a new planning application was given permission on the condition that certain modal shift targets were achieved. The Travel Plan also played a key role in obtaining planning permission to build the new site at Walton Oaks.

Other reasons cited for the need to develop a Travel Plan included the perceived requirement for influential companies such as Pfizer to "*tow the line*" (Pfi 1) taken by Government. It was felt that it was beneficial for Pfizer to support the UK Government's integrated transport plan. Issues such as sustainability, pollution, global warming, making efficient use of the site and movement of staff and wider community issues were regarded as important. The

document entitled “The Future of Transport at Pfizer” (Pfizer, 1999) also states that a reduction in road accidents was an important factor in deciding to develop a Travel Plan.

7.23 The Car Parking Strategy

7.23.1 Overview of the Car Park System

There are 13 car parks on site containing 3,800 car park spaces in total. Staff are permitted to park in any of these car parks, except for the visitor car park. Access and egress to car parks is controlled by barriers activated by staff ID proximity cards.

Some members of staff including top directors, the site nurse and disabled people are allocated a reserved parking space, accounting for approximately 60 spaces in total. The reasoning behind this was that, *“it’s pretty difficult to take things away from people” (Pfi 1)*. ‘Green travel bays’ are also made available for car sharers as it is thought they offer an extra incentive to share.

7.23.2 Parking Cash Out System

In June 2001 Pfizer introduced a ‘parking cash out’ scheme; prior to this date there was no formal demand management of car parking. Staff are credited using a daily points system with points being turned into money and added to the employees’ salary each month. When staff access the building each day and swipe their ID badge they are credited with 20 points and for each day they use the car park 20 points are deducted. 20 points is equivalent to £2 before tax, which is approximately £1.40 after tax had been deducted from the salary. The scheme costs Pfizer approximately £0.5 million per year in financial payments to employees.

All Pfizer employees are automatically registered for the scheme, although everybody has the option to opt out. At the time of interviewing, two employees chose not to take part in the scheme, the reasons for which were not known. Those people with reserved parking spaces are automatically disqualified from the scheme. No financial incentive is given for working at home as it is believed that the benefits in terms of zero travel costs is sufficient. In addition, contracted staff, who at times can account for approximately 40% of the workforce at Pfizer are not included in the scheme because they are not on the organisation’s payroll. Employee’s who work at Pfizer satellite sites around Sandwich are not included in

the parking cash out system, but if they visit the main site then manual adjustments can be made so that they receive the money.

The parking cash out scheme gives an incentive for people to car share as only one person needs to use their ID card to exit the car park and the other employees in the car retain their 20 point credits. The more people who car share, the more financially beneficial it is. Car share groups tend to rotate who uses their ID card so as to evenly distribute the financial benefits. If contract staff car share with Pfizer employees then the contracted employee can use their card to exit the car park and the Pfizer employee can benefit.

7.23.3 Management and Security

All car parks are managed by Pfizer which requires cooperation between a number of departments including Human Resources (for the employee code), Security (for the badge number), Payroll (for payments with salary) and the department dealing with the direct administration of the scheme. There are, however, no staff devoted entirely to administering the scheme. The car park barrier technology and ID card access system has proved effective in enforcing and administering the parking cash out scheme, resulting in low administration costs. The most labour intensive administration elements of the scheme are enrolling new employees and contract staff who subsequently become full time staff. Further administrative problems can arise when temporary badges are issued, for example if an employee has forgotten their pass the temporary pass can sometimes remain in the system rather than converting points to the original pass number of the employee. These problems and the manual changes they require are “*manageable, but inconvenient.*” (Pfi 2).

Security staff play a role in managing and policing the car parks, “*they used to do a very good job when I first arrived because they used to own the car parks and the barriers but that ownership got taken away. Ownership is a key issue in Travel Plans in a large organisation.*” (Pfi 1).

Abuse of the parking cash out scheme is minimal. Car park barriers are monitored by video cameras and are alarmed if a barrier fails so that a member of staff can attend. The computer system has formulas built in which can check whether the system is being abused; employees found to have a monthly points total above a predetermined level are highlighted

and their case is investigated. The computer system also highlights any cards being used in quick succession to exit the car park, for example in a situation where one person swipes their car to let others out. Any individuals recognised to be abusing the system can be penalised by having their points zeroed for that month, or in extreme cases they can be deactivated completely from the PCOS. Employee's cannot, however, be penalised with negative points. In practice, action has only been taken in a very small number of cases and due warning is always given.

7.23.4 Reasons for Selecting a Parking Cash Out Strategy

The philosophy behind introducing the parking cash out system was to deliver an incentive that could target every individual employee. The basic concept is straight forward, *“if you're giving people a free parking space when they drive, why don't you give the people that don't park a free parking space?”* (Pfi 1). The parking cash out system is seen as the central part to the company's Travel Plan, *“it cements the whole lot together”* (Pfi 1).

Rather than offering specific incentives such as providing free bus travel, it was considered that parking cash out could *“work on all of them, car share, pedestrian, cyclist, everything else. We're not fussed if you do it every day but we want a little bit of a change. A small change delivers traffic reduction targets; you're not going to change people to get 100% out of cars like that but just down a bit.”* (Pfi 1).

The £2 per day bonus was based on the cost of providing a car parking space, which included factors such as capital cost, maintenance, security, planting and lighting amounting to approximately £500 per year. A level of £2 was also considered substantial enough to impact on behaviour. There was an argument raised that 25% of staff were already commuting by non-car modes and introducing the cash out payments was rewarding people who did not need to be rewarded. This was countered with the argument that if those people started to drive then there would be an even greater problem.

The report prepared by Eco-Logica in 1998 had also ruled out the possibility of parking charging as a viable alternative. The reasons stated for this decision were that Pfizer wanted to be seen as a caring employer and the potential staff backlash was too big a risk to take. It was also considered that a parking charge would have to be set at a relatively low level to

gain acceptance and hence may not deliver any change in behaviour.

7.23.5 Impacts and Problems with the Parking Cash Out System

The £2 paid to employees for each day they do not drive to work is taxed, meaning that employees only receive approximately £1.40. Pfizer have, and continue to campaign for a tax change, but as there is no full time champion of the parking cash out scheme any more it is proving difficult to pursue. *“We’ve had some meetings with high places but I understand it’s difficult for the treasury to say “this is another way of a company paying people more money untaxed. I think they could seal the loopholes up but it is a bit complex.” (Pfi 1).* It was regarded by Pfi 3 that the parking cash out system works well but requires some changes on the taxation side to increase the amount of money paid out in order to maintain its effectiveness.

The tax issues also pose problems for including contract staff in the parking cash out scheme because the employee is not on Pfizer’s direct payroll. If the parking cash out payment were tax free then it would be much easier to give contract staff direct cash payments. It was also considered that including contract staff could prove too expensive for the organisation. A view was also raised that Pfizer may be *“unwilling to award contractor staff cash incentives as they are not their employees.” (Pfi 2).* Contract staff, on the whole, were regarded to be *“greener than full time staff anyway because a lot are secretaries and poorer people. Overall we found that the car:people ratio was better than for staff of ours.” (Pfi 1).*

There is also an issue with the monitoring of shift workers’ car usage which can result in inaccurate calculations of parking cash out points. If, for example, a single occupancy car driver starts a shift on Thursday afternoon, finishes early on Friday morning and then comes in to work again on Friday evening. As the car park software only registers the car as it drives out of the car park the driver would be classified as not driving on Thursday and driving on Friday when in fact they drove on both days.

Relatively few issues have been experienced with staff parking off-site. A controlled parking zone was introduced in Sandwich before the parking cash out scheme became operational. Pfizer also communicated the message that “travelling green” did not include parking in the town and actively encouraged the local Council to report those found to be doing so. There were also *“myths that people were parking ten miles away then sharing cars*

to come in” (Pfi 1) but this was found not to be the case due to the inconvenience factor of doing so.

7.23.6 Other Applications of the Parking Cash Out System

Although not used in this way, the points awarded and deducted by the scheme could be altered to allow different car parks to be run with differential rewards, for example if an off site car park was developed then it’s users could have 10 points deducted when they exited, rather than 20, or different levels could be set at different times of the day to reward people who did not drive during the most heavily congested periods.

The parking cash out system has the capability to enforce negative charging if required, “*the idea of parking charges is being batted about*” (Pfi 2), mainly due to the financial impact of the scheme on the organisation, “*there is no intention to introduce parking charges at the moment but it is realised parking cash out is a drain.*” (Pfi 1). Currently it is considered that negative staff reactions would decrease any chance of a charge being introduced, together with the fact that people living in many of the surrounding rural areas may feel punished if they were unable to commute realistically by other modes. A potential solution could be for the scheme to run on a cash neutral basis.

7.23.7 Focus on Individuals

The parking cash out scheme is targeted at individual employees in the sense that the aim is to encourage a decision making process on the part of every employee. This then brings about individual behaviour change. The level of £2 per day was considered a sufficient level by those designing the cash out initiative to make this decision making process a worthwhile one, whereas a lower level may not have had the same impact.

7.23.8 Equality and Fairness

Offering the cash alternative to each employee means that all employees are entitled to receive the same benefit, rather than specific incentives being targeted at individual modes

of transport or groups of employees.

No problems have arisen with contract staff who feel they should also benefit financially from the scheme. Similarly, no complaints have been raised by shift workers, who work longer hours but spread over four days per week. Certain allowances are made in some situations, *“for instance if you have somebody that’s on call out and they have come in by an alternative mode during the day and earned their points, but then have to come again that night to fix something it’s only reasonable they should be able to drive in.” (Pfi 1)*. There is a manual points adjustment process in such situations.

A small number of staff have reserved spaces, as detailed earlier in section 7.23.1, but these staff are automatically excluded from the parking cash out scheme. Those with reserved spaces have the option of giving up their space and taking part in the scheme, but very few choose to do this. It is also considered that excluding those with reserved spaces from receiving the cash incentives reduced the number of people who apply for disabled spaces when they do not really need one.

Anybody found to be abusing the scheme can be excluded from it and disciplined for fraud, although such cases are extremely rare. So far only one person has been removed from the scheme for abuse, around the time it was first introduced.

7.23.9 Flexibility and Choice

As it is calculated on a daily basis, the parking cash out scheme is extremely flexible in allowing staff to decide whether they drive to work or travel by other means. Any member of staff is free to opt out of the parking cash out scheme if they so desire although there appear to be no benefits in doing so. A wide range of alternative modes of transport to the car are available to choose from and are discussed below.

7.24 Public Transport and Alternatives

7.24.1 Public Transport

A number of bus services provide access to the Pfizer site. At the time of interviewing 23 services stopped on site between eight and nine o’clock every morning, most of which are

contracted by Pfizer from Stagecoach or Hayden Logistics. Passengers pay fares of which the contractor retains 30% and the rest is paid to Pfizer. This helps fund up to half of the cost of contracting the services. Pfizer also operate a free shuttle bus service from Sandwich town centre and train station to the site. Pfizer has a bus user group which enables discussion to take place regarding the provision and quality of bus services.

At the time of interviewing Pfizer were in the process of changing their contracted service from Stagecoach to Buzz Lines, a coach company, *“the service offered by Stagecoach was poor – the Pfizer contracted services were alright but in general the whole of the network needed large improvements.”* (Pfi 3).

Work is ongoing in partnership with Kent County Council to widen the local road between Ramsgate and Sandwich to a dual carriageway with one lane reserved for buses and high occupancy vehicles. Progress is relatively slow however. An increase in the number of bus routes is also regarded as being a key way of encouraging greater modal shift, *“currently the buses only cover 3 main corridors from the site to Thanet, Dover and Canterbury. We need improvements to the bus services in terms of route extensions and new routes.”* (Pfi 3).

Bus shelters on site have increased the quality of public transport and timetables are made available both on the intranet and in paper form in reception areas. Visitors to the site are provided with public transport information ahead of their visit.

There is one train station in Sandwich which offers some level of access. The station is on a branch line and poorly served, however, thus limiting its impact.

The response received when interviewing staff members about their views on public transport were that alternatives offered were good and it would be difficult to improve them, although one or two stated that the service offered by Stagecoach was poor.

7.24.2 Cycling and Walking

A number of cycle lanes from the major surrounding residential locations feed into the Pfizer site. Pfizer have contributed finances to develop some of these routes and have

worked in conjunction with Dover District Council and Kent County Council. The company also involves itself in campaigns such as “Cycle to Work Week”. Cycle racks and shower facilities are provided on site and a Cycle User Group has been formed.

On site walking facilities have been improved by offering zebra crossings and direct routes between buildings to reduce the number of people driving around the site. The pavements between Sandwich and the Pfizer site are also being improved to increase safety levels.

7.24.3 Car Sharing

Pfizer operates a car sharing service over their intranet, which allows registered users to find partners. Registered car sharers then obtain a green permit allowing them to park in designated car share bays closer to the buildings. Checks are also made to ensure that registered car sharers in the bays are actually car sharing and employees tend to be willing to report any abuse that they witness. There are 740 registered car sharers, although it is apparent that not all car sharers are registered; the exact number of “unofficial” car sharers is unknown.

Shift workers are considered to be good car sharers because their colleagues have exactly the same start and finish times. In the interviews with staff members, however, one person commented that car sharing was difficult as it was sometimes necessary to work late and start and finish times could vary considerably on a daily basis.

7.24.4 Other Demand Management Policies

Cash payments are offered instead of company cars and employees with company cars are allowed to make business trips by train. Staff are offered the option of a compressed nine day fortnight working week, *“it was an aside line and not part of a main core. People valued the informal contact and presence.”* (Pfi 1). Video conferencing is promoted, particularly for communications with colleagues in North America. Staff are also provided with public transport information during the recruitment and retention process and there is some advice available to staff about where they could consider living.

7.25 Management and Leadership

Management support was considered crucial to the success of any scheme, *“if you’ve got full level support, the world is everything.” (Pfi 1)*. This management support was gained from the very outset of the planning process for the parking cash out scheme and the Travel Plan, *“a key thing happened at my interview; they asked if I had any questions and I asked, “are you right behind the strategy?” and a supplementary “what will you personally do to set examples to everyone else?” and I had satisfactory answers from all eight who interviewed me and I knew that was a fundamental to do the job and I think that’s what made it successful.” (Pfi 1)*.

This support from the UK was not reflected by top level management in the United States. At Sandwich it was originally planned to create off-site parking, but the Vice President of Pfizer in the USA insisted that parking was provided on site. *“That shot away the ground from people completely here and I think we haven’t finished paying the costs of that, its brought traffic in at all the wrong places. It was almost a decision taken before I even had a chance to speak to him, all I did manage to convince him was that we had to do a lot more work and spend a lot more money on trying to mitigate the effects of that decision.” (Pfi 1)*. It was felt that if parking had not been provided so conveniently close to the buildings then more people would have switched to other modes, or used a park and ride service, thus reducing congestion on the local road network.

7.26 Attitudes to Change, Culture and Acceptance Issues

Staff reactions to proposal of the parking cash out scheme and its subsequent introduction were extremely positive. The lack of complaints from ordinary employees was such that individual negative responses can be recalled, *“I got an email saying “why have you removed some spaces in car park A”, because we’d previously squeezed some in but for safety reasons I thought we’d better take them out again. He wrote letters to the top directors but he got short shrift.” (Pfi 1)*.

In terms of ensuring that the attitudes to change of the senior management were positive, the following core business reasons for implementing the Travel Plan were strongly emphasised:
Efficiency of movement of staff and goods;

Responsibility to community values;
To make better use of the land on site, and;
Planning requirements.

Convincing some more senior members of staff proved a little difficult, although they were again isolated incidents. One example is related to the initial plans to remove reserved parking spaces, where views such as, *“I’ve climbed the greasy pole, this is my perk”* and *“I work all hours, I should be entitled to a reserved space”* (Pfi 1) had to be contended with. As a result, reserved spaces were maintained by Pfizer.

The attitudes towards the parking cash out scheme and the Travel Plan overall are supported by a strong communications strategy which is explored in section 7.27. As well as providing information about how the scheme would work and on alternative modes available, the communications strategy focussed on changing attitudes towards car use.

7.26.1 Culture

As has already been discussed in section 7.23.4, the £2 per day payment was selected in part because it was considered a sufficient level to impact upon behaviour. In addition it was aimed to achieve a change in the general culture of driving to work, to ultimately reach a position where employees were of the opinion, *“you mean to say you drove to Pfizer today? How selfish of you!”* (Pfi 1). It was recognised that the company was nowhere near to achieving such a culture change, but parallels were drawn to the culture changes which have taken place in terms of drink driving and smoking and it was considered that driving could potentially be viewed in the same way if the correct message was communicated.

It was also recognised that advances needed to be made in terms of the general culture of using alternative modes of transport. Where cycling was concerned, a member of senior management voiced an opinion to Pfi 1 that *“I couldn’t be seen walking around in shorts and a t-shirt.”* It was felt that if senior management were to whole heartedly adopt changes then a respect would be gained and others would follow.

After large amounts of initial success, the parking cash out scheme has more recently lost some of its impact. Part of the reason for this is that the top level managers who originally supported the scheme have either retired or been replaced by new managers who do not afford it the same level of importance. Additionally, the fact that there is no longer a

'Project Champion' Pfizer (Pfi 1 now only works one day per week as a consultant to the organisation) is a clear reason why the parking cash out scheme and Travel Plan has lost impetus. At the time of interviewing, however, it was felt that another recent change in top level management would lead to an increase in support for the scheme.

The changes in management and the lack of support from Pfizer in the United States is felt to have restrained the full potential of the parking cash out scheme and Travel Plan, *"I do not think we'd have had any trouble getting our car:people ratio down to 50% under the old management and certainly if we'd have off site parking as we were planning."* (Pfi 1).

7.27 Communication and Consultation

Communication of the parking cash out system and alternative modes of transport was a crucial part of the scheme's introduction. Communication is constantly ongoing. The core message communicated by Pfizer is a colour coded hierarchy of various transport modes:

Green – walk, public transport and bicycle
Amber – car share and motorcycle

- Red – single occupancy car This hierarchy is included in all Travel Plan promotional material and gives a clear message to employees regarding the various transport modes that are available to them, *"the message here is not quite subliminal but it's "red – full stop", "amber – ok", "green – go."* (Pfi 1).

Information is provided to all new recruits about the scheme and alternative travel options available to them. Additionally, all public transport timetables are provided both on the Pfizer intranet and in the reception areas of buildings. During the introduction of the parking cash out system a road show travelled around to the different sites promoting and explaining the scheme.

A key part of Pfizer's communication strategy is focussed on changing attitudes and the general culture towards travelling by modes other than car. The overall aim is to convey a message that *"the pedestrian, or public transport user, is up on a platform and cars are outcast."* (Pfi 1). The issue of health is strongly promoted by Pfizer, an area they feel staff are aware of due to the business the organisation operates in. Non-car modes are promoted on the strength that people who walk or cycle further are benefiting their health and that

exercising while travelling to or from work negates the need to go to the gym outside of work hours. Time re-use is also promoted; the message communicated is that if travelling by bus or train you have the opportunity to read, write, relax or catch up on sleep, whereas if you are driving then it is “*dead time*” (Pfi 1). Finally, Pfizer promotes initiatives such as cycle and motor cycle training which are communicated and advertised with a focus on safety.

The press associated with the Pfizer Travel Plan was strong, particularly for the parking cash out system as it was something new and different. It is now, however, regarded as an “old” initiative and the public relations value is waning. It is felt that something new is required to “*kick start*” the Travel Plan. (Pfi 3).

Prior to the parking cash out scheme being introduced extensive meetings and focus groups were held with various stakeholders and regular presentations were made to senior staff and other groups of employees. This consultation lasted approximately two and a half years, from the approval of the scheme in January 1999 to its implementation in June 2001. On-going consultation takes place through the company’s intranet, where all staff members have the opportunity to email their comments to those involved in managing the scheme. Feedback is also available from bicycle and bus user groups. An estimated 40% of employees have attended some kind of meeting about travel plan initiatives (Department for Transport 2002b).

7.28 Implementation

The various initiatives contained in the Travel Plan were introduced in stages coordinated by Pfi 1. This began with public transport alternatives, initially the free shuttle bus to Sandwich and the rail station. Once these alternatives were in place the parking cash out scheme was introduced, “*there was a view there must be everything in place first to make it easy.*” (Pfi 1).

7.29 Impacts of the Parking Cash Out

7.29.1 Targets and Effectiveness

Pfizer last undertook a Travel Survey in April 2001. These results are displayed in Table 7.4 with a comparison to the previous travel survey conducted in April 1998. The initial travel survey conducted in 1998 identified 67% of staff were single occupancy car drivers and 18% were car sharers, accounting for an overall car:people ratio of 75:100. It was identified at this time that for the local road network to work effectively with the predicted growth of the site, a traffic reduction target of 10-20% was necessary over five years. At the time of the Second Travel survey in April 2001, before parking cash out was introduced, there was a reduction of 9% in total car use of which single occupancy car use had reduced by approximately 12%, accounting for an overall car:people ratio of 68:100.

No subsequent travel surveys have been carried out because the parking cash out computer system provides daily figures on car park usage. Figures provided during the interview revealed that when parking cash out was first introduced the car:people ratio dropped to 60:100 but soon began to climb again and through out 2002 and 2003 it remained fairly constant at around 67:100, a similar level to that achieved just before the introduction of parking cash out. This level remained at the time of interviewing. Pfizer are required to report the people:car ratio on a regular basis to Dover District and Kent County Council although the current agreed target of 62% is proving difficult to maintain.

Table 7.4: Results from the Pfizer Travel Surveys

Mode	April 1998 (%)	April 2001 (%)	% change from 1998 base level
Bus	6.7	11.8	+76
Bicycle	5.7	5.2	-8.8
Car (SOV)	66.7	58.8	-11.8
Car share	17.7	20.4	+15.2
Foot	1.5	1.4	-6.6
Motorbike	1.6	2.0	+25
Train	0	0.3	>+100

Source: (Department for Transport 2002b).

A number of staff members were interviewed to investigate their views on whether the parking cash out scheme had been effective. On the whole, the people who were arranged for interview represented a biased group; the vast majority were public transport users from before the parking cash out was introduced and so it had had no direct impact on their travel behaviour. The two interviewees who were car users commented that £2 per day was not enough of an incentive to persuade them to change modes.

7.29.2 Recruitment and Retention

The parking cash out scheme is thought to have had no impact on recruitment or retention at Pfizer because it allows each individual to opt in or out and a greater range of alternatives to the car have been provided.

7.30 Key Findings

A wide range of objectives were stated for introducing the Travel Plan and Parking Cash Out Scheme at Pfizer, namely the need to reduce congestion on the surrounding road network, to promote green travel, to support wider community issues and to increase road safety. Gaining planning permission to expand operations was another key reason although this was not focussed up so strongly when communicating the scheme to staff.

The scheme introduced by Pfizer incentivises employees not to drive to work by paying them £2 per day when they do not use car parks.

The Pfizer system was introduced on the principle that people who did not drive to work did not receive a benefit equivalent to that of a free parking space. Hence the price per day was determined based on the daily cost of providing a car parking space. The parking cash out scheme includes all employees and so is considered more effective than targeting specific car reduction initiatives.

The main drawback of parking cash out is that the £2 daily payment is taxed. Pfizer are campaigning for a change in this rule. Contract workers are not included in the scheme due to them not being on the Pfizer payroll, although it was considered that if they were included the company may not be able to bear the additional expenditure.

As the scheme includes all employees directly employed by Pfizer there is equality in terms of everybody being entitled to the same benefit. A small number of staff are allocated reserved spaces but they are not included in the scheme. It also allows each individual employee complete flexibility to opt in and out on a daily basis.

The Pfizer site is well served by public transport although there have been some problems with the working relationship the company have with bus operators. Cycling, walking and car sharing are promoted and various other demand management initiatives are in place.

Management support has varied during the course of the parking cash out scheme being in place. The initial UK management were strongly in favour of the scheme but subsequent changes have led to a loss of impact. Management in the United States were in support of cash payments but undermined the scheme to an extent by insisting that parking must be provided on site.

There is now a lack of a project champion at Pfizer; nobody is driving the scheme forwards and its effectiveness is decreasing.

Staff reactions to the parking cash out system were positive with no opposition. Some senior members of staff were more sceptical and an agreement was reached whereby they retained their reserved parking spaces but opted out of the parking cash out scheme.

The communications strategy associated with the introduction of the parking cash out scheme was comprehensive, focussing on the pedestrian over the car driver and consultation was extensive, beginning two and a half years before it was introduced. The public relations benefits associated with the scheme were also strong due to the unique nature of the implementation.

The introduction of the parking cash out scheme at Pfizer was carried out after alternative modes of transport and access were in place, so as to increase the potential modal shift. The £2 per day payment to employees has remained at the same level as when introduced on 2001.

The parking cash out scheme at Pfizer was initially successful in generating modal shift. Even before the cash out was introduced the promotional activity around its introduction and the provision of alternatives had generated considerable travel behaviour changes. Over time the impact of the scheme has decreased and it is widely felt that something is needed to renew the impact of the scheme. There was also discussion of developing the scheme into a parking charge at some stage due to the current financial drain on the company.

There was not considered to have been any impact on recruitment and retention as a result of the parking cash out scheme being implemented.

7.31 Conclusion

This chapter has fulfilled the objective of investigating the innovative strategies being used in the non-airport sector in order to manage the demand for employee car parking. It has used in-depth interviews to demonstrate all aspects of how Addenbrooke's NHS Trust, The University of Bristol and Pfizer have sought to address their car parking problems. The findings have ranged from the details of the day to day operation of the scheme through to the more strategic considerations such as communication, consultation and implementation. Focus has been placed on the issues seen to be most important to BAA Heathrow in terms of their need to address their employee car parking issues allowing a comparison and analysis based on benchmarking methodology to be undertaken.

Chapter 8 utilises the concept and methodology of benchmarking detailed in Chapter 4 to undertake a discussion of the lessons BAA Heathrow could learn from the non-airport best practice cases studies detailed in Chapter 7. The relevance of the literature (see Chapter 2) to this discussion is explored.

Chapter 8. Benchmarking BAA Against the Non-Airport Organisations: A Discussion

8.0 Introduction

The previous two chapters have explored in detail the current employee car parking issues at Heathrow Airport, the potential ways of addressing these issues as perceived by both key decision-makers and employees and the way in which three best practice non-airport organisations have sought to address their car parking issues. The aim of this chapter is

twofold; first to draw together the findings of the previous two chapters and undertake a comparison based on benchmarking methodology and, second, to relate the findings to the literature review, as detailed in Chapter 2, in order to determine whether the findings support or refute the literature.

This chapter follows the structure set out in the design of the benchmarking template detailed in section 6.25. The template was developed from the areas considered to be of importance at Heathrow Airport in terms of issues that would need to be addressed should it be decided to develop the current employee car parking strategy to include a financial incentive or disincentive measure. In this chapter each area is considered in turn, exploring the situation at Heathrow Airport and how the non-airport organisations have sought to address the similar issue. In each section a table is presented in order to provide an overview of the issues followed by a discussion of how the findings from the non-airport case studies relate to those from Heathrow Airport. Findings from the literature review are included to support the case study findings or to identify where it is perceived there is a gap in the knowledge base. Throughout the chapter the non-airport case studies are considered holistically, essentially forming a single case of best practice knowledge. The template of areas to facilitate the benchmarking of BAA against the non-airport organisations is presented in Figure 8.1.

Figure 8.1: Template of Areas to Facilitate the Benchmarking of BAA against the Non-Airport Organisations

Selecting the most Suitable Measures to deal with the Car Parking Problems

- A Package Approach
- The Core Element of the Strategy
- Direct and Daily Charging
- The Level of a Parking Charge or Cash Payment
- Parking Permit Allocation
- Alternative Working Practices
- Availability of Car Parking Spaces
- Flexibility and Choice
- Equity, Fairness and Exemptions

Management Support

- Management Understanding
- A Desire to Change
- The Importance of a Project Champion

Gaining Acceptance

- Employee Recognition of the Problem
- Overcoming Cultural Barriers and Attitudes to Change

Parking Hierarchy
Recruitment and Retention
Communicating Clear and Transparent Objectives
Consultation

Implementation

The Process of Implementation
Implementation of the Core Element of the Strategy

8.1 Conducting the Benchmarking Comparison

The benchmarking methodology explored in Chapter 4 stated that the same processes should be compared between the comparator organisations, which in the case of this research is BAA Heathrow and the non-airport organisations. These processes have been defined as those areas which are most important to BAA Heathrow in the area of employee car parking. It is important to remember, however, that while the benchmarking exercise is being conducted between BAA Heathrow and the non-airport organisations, many of the issues relate to Heathrow Airport as a whole and not just BAA Heathrow. For this reason the terminology used in the chapter refers to BAA Heathrow when the benchmarking exercise is discussed and Heathrow Airport when wider implications are considered. This chapter uses the topic areas defined in the benchmarking template detailed in section 6.25 as the processes around which the comparison is conducted. There are four main areas addressed, with sub-areas as listed in Figure 8.1 above.

The benchmarking process followed was detailed in Chapter 4 and is displayed again below in Figure 8.2. Throughout the thesis this process has been adhered to and this chapter concentrates on stages five, six, seven and eight of the process. To this end, the analysis conducted in each section of this chapter will allow for the gaps in performance and understanding between BAA Heathrow and the non-airport organisations to be better understood, for improvement areas to be highlighted and for provisional findings and conclusions to be drawn as to how the situation at Heathrow Airport could be improved in terms of introducing an employee car parking measure such as a direct parking charge or financial incentive.

Figure 8.2: The Benchmarking Process Used in the Research

1. Identify benchmarking subject

Planning

1 Identify benchmarking partners

- 2 Determine data collection method
- 3 Collect data

Analysis	5. Determine gaps 6. Highlight where improvements could be made
Integration	7. Establish what is to be improved 8. Communicate results
Action	9. Develop action plans

The Benchmarking Comparison and Discussion

8.2 Selecting the most Suitable Measures to deal with the Car Parking Problems

Table 8.1: Issues Surrounding the Selection of the most Suitable Measures to deal with the Car Parking Problems

Issue	Findings from BAA Heathrow / Heathrow Airport	Approach taken at non-airport organisations
A Package Approach	Feeling that a package approach should be adopted.	New parking strategies introduced as a package of measures.
The Core Element of the Strategy	Unsure what to pursue but recognised that a core incentive or disincentive necessary.	A core element used in all cases whether a parking charge or parking cash out.
Direct and Daily Parking Charges or Cash Payments	Currently employers pay for an annual permit. Individual charging complicated by the large number of employees.	Charges or cash payments administered on a daily basis.
The Level of a Parking Charge or Cash Payments	Levels constrained due to employee parking being regulated. Interviewees said a direct employee charge should be sufficient to generate a meaningful modal shift.	High charges (University of Bristol) and high cash payments (Pfizer) to generate more meaningful modal shift. Low charges (Addenbrooke's NHS Trust) to gain initial acceptance.
Parking Permit Allocation	No real restrictions on permit allocation. The high proportion of shift workers was expected to have a bearing on any potential scheme.	Both organisations who charge employees to park incorporate permit allocation strategies.
Alternative Working Practices	Alternative modes and working practices are regarded as being successful at Heathrow Airport.	Alternatives are important as part of a package approach but a core element is required to deliver greater modal shift.

Availability of Car Parking Spaces	Expected to have an important bearing on travel choices.	Regarded as being a major contributor to changing travel mode choice.
Flexibility and Choice	Any new strategy should contain flexibility in terms of allowing employees to make a decision on how they travelled to work.	Employees can make a decision on a daily basis about how to commute.
Equity, Fairness and Exemptions	Any strategy should be as 'fair' as possible and exemptions should be minimised.	Equitable approach taken overall. Exemptions minimised, although Pfizer retained some reserved parking spaces.

8.2.1 A Package Approach

The interviews conducted at BAA Heathrow revealed a mixed response regarding what was believed to be the most suitable approach to resolving the car parking problem. A parking strategy already exists with BAA charging employers for parking permits. An overall 'Travel to Work' strategy also exists alongside the parking strategy including a wide range of incentive measures such as public transport, promotion of cycling and walking, promotion of alternative working policies and car sharing. A range of views existed as to whether a parking charge or financial incentive should be incorporated into the strategy or not. There was a consensus, however, that any solution should involve a combination of measures if it was to be successful in reducing the number of people driving to work. Such a package approach was also considered to be the most suitable solution by participants in the staff focus groups, although they were strongly opposed to the introduction of a financial incentive or disincentive related to car parking as part of the strategy. Overall there was no definitive position on what should be included in any car parking strategy.

The employee car parking strategies in use at the non-airport organisations adopt a package approach with either a financial incentive or disincentive forming the core of the strategy. A package designed to reduce car commuting can be seen to currently exist at Heathrow Airport but without there being a core incentive or disincentive aimed directly at employees. The measures in place at Heathrow Airport are aimed at a more general reduction in car commuting rather than any specific initiatives targeted at encouraging employees not to park their cars. All three case study organisations have achieved a reduction in employee car use whether they have utilised a parking charge or financial incentive and there have been a wide range of supporting strategies, ranging from promotion and subsidisation of public transport travel to the development of flexible working policies and teleworking.

A key finding from the literature review was that a package approach to implementing a new traffic restraint strategy incorporating pricing, be it a road user charge or parking charge, was the most suitable way forward and significantly increased willingness to contemplate traffic restraint (Jones, 1991, Thorpe et al, 2000, Ison and Wall, 2002). Jones highlighted three main elements to the package approach as being: a simple but fair method of vehicle restriction; improvements in public transport, and; some re-allocation of road space to modes such as cycling and walking. In all of the non-airport organisations this approach has been followed and aided the implementation and acceptance of the strategy, highlighting that it could be a suitable model to adopt as the basis of a strategy at Heathrow Airport.

8.2.2 The Core Car Parking Measure

A key consideration for BAA Heathrow is whether a financial incentive or disincentive should form the core of their employee car parking strategy or whether further development of the 'soft' measures currently in place will achieve the objective of reducing car parking so that it is within the constraints of the 17,500 space employee car parking cap. It was widely accepted by the interviewees at BAA that something had to be done and that doing nothing was not a viable option, although there was no definitive view on what type of incentive or disincentive measure should be introduced; some favoured a parking charge while others did not agree with the principle of charging employees to park at work.

Heathrow has approximately 70,000 employees and, by comparison, the scale of the schemes implemented at the non-airport organisations is relatively small. This does not, however, preclude the principles of the non-airport organisation schemes from providing useful lessons. All three of the non-airport organisations have shown that their respective strategies, whether a fixed rate low daily charge, salary related daily charge or daily payment to employees, can achieve results in terms of reducing the number of employees commuting solo by car. The large number of employees at Heathrow Airport may, however, make some schemes more suitable than others. Perhaps the most simple in design is that operated by Addenbrooke's NHS Trust whereby all employees pay the same daily rate. The measures implemented at Pfizer and the University of Bristol would require more careful thought in terms of their implementation at Heathrow Airport because they require employees to be charged based on individual income or for each individual employee to be credited when they do not use a car park. At Heathrow Airport the large number of organisations and

employees would make the administration of either of these schemes a difficult undertaking. Parking cash out payments could also have major financial implications on many companies at Heathrow Airport, particularly if they were to amount to more than the current charges for annual parking permits. Some companies have already approached BAA Heathrow about wanting to reduce car use; actions which have been driven by their financial need to reduce the amount spent on parking permits each year. Introducing parking cash out which resulted in a higher financial outlay could pose difficulties.

The literature review on the strategies that have been used to manage the demand for car parking and commuting more generally was discussed in section 2.14 and explored the merits of each. Parking charges were regarded as a first-best solution for dealing with the allocation of a scarce number of spaces (Verhoef et al, 1995), as is the case at the University of Bristol and Addenbrooke's NHS Trust where the introduction of charges can be seen to have been effective in reducing the number of single occupancy vehicles. The impact of parking charges upon reducing congestion on the local road network is mixed (Button and Verhoef, 1998), although it must be remembered that the ultimate aim at both the Trust and the University was to deal with a specific car parking problem, rather than to reduce congestion on the road network per se. At Heathrow Airport, such are the numbers of employees who commute by car, that a reduction in the numbers parking could also result in a positive impact on localised network congestion.

Offering free parking to employees, as is currently the case with the majority of employers at Heathrow Airport, has been shown to significantly increase the probability of solo driving. When a charge is introduced, however, the number of solo drivers decreases while car sharing and public transport usage increase (Shoup and Willson, 1992, Willson, 1992). This would lend support to the use of a direct employee parking charge at Heathrow Airport. Research has also revealed that parking charges have a positive impact on the urban environment and a significant impact on promoting public transport and encouraging car sharing (OECD, 1994), something which has been seen at the non-airport organisations. Parking charges have also been seen to shift travel during the peak hour and trips away from congested zones. While this may be the case in urban applications, it is less likely that travel times or routes will be shifted at Heathrow Airport, or indeed at the non-airport sites, due to the requirement for employees to be at work on time and at a specific location.

The literature review highlighted that in the airport sector there are a number of ways of

improving parking efficiency using existing measures, of which one was to modify parking rates (FHA and FAA, 1995). Other suggestions included building more car parks, something which is not feasible at Heathrow Airport and to redesign existing car parks, a strategy which again is not wholly feasible for BAA given that the main issue is capacity rather than efficiency. Reallocating spaces from passengers to employees is a potential option but would create problems with passenger parking. Off-airport car parking for employees was also considered a potential solution to car parking problems at an airport. At Heathrow, much of the employee car parking is already located at the airport perimeter and BAA are unable to develop more car parks on site beyond the 42,000 limit or off the airport site. No detailed work existed on the implementation of new strategies except for the system of cash payments by KLM to its employees at Schiphol Airport (Schreffler and de Vreede, 2000).

Parking cash out schemes are shown by the literature to be successful in reducing the number of people driving solo to work and that it has a greater impact than providing subsidies to public transport and car sharing when parking continues to be subsidised. This was seen to be the case at Pfizer to a certain extent, although the introduction of public and alternative transport improvements also generated a large decrease in car commuting before the parking cash out scheme was introduced. While the introduction of parking cash out at Pfizer did generate some additional modal shift, it was not much greater than that achieved by the transport improvements, although it is recognised that there was a great deal of promotion of public transport and other alternative modes which was based on the impending introduction of cash payments. Parking cash out is regarded by the literature as being suitable for solving site specific problems but not for wider scale congestion issues (Enoch, 2002). The situation at Heathrow Airport is specific to the site and so this potential drawback is not a major concern. Parking cash out is also regarded as being considerably cheaper than constructing new car parks. Again, this is of limited concern at Heathrow Airport due to the limit on the number of spaces that can be constructed and it is likely that parking cash out payments would outweigh the costs of developing new car parks due to the number of employees at the site.

8.2.3 Direct and Daily Parking Charges or Cash Payments

While targeting employees individually with charges or payments has proved possible at the non-airport organisations it would be a much larger undertaking at Heathrow Airport. At the

non-airport sites car parking spaces are owned by the organisation and any other companies on site are generally small in size, meaning that the management of car parks and the administration of parking permits is relatively straight forward. This is not the case at Heathrow Airport where BAA own the majority of car parking spaces and sell annual permits to companies on site. It is therefore made more difficult for BAA to control parking spaces once they have sold permits to another organisation. In the interviews at BAA Heathrow the concept of charging companies and not individuals on a daily basis, rather than annually, was discussed and considered that it could encourage more organisations to become proactive in reducing commuting by car. At Heathrow Airport such an approach, focussed on organisations, could overcome some of the administrative problems of having to deal with 70,000 employees. There is a possibility, however, that adopting this approach could result in employees not thoroughly considering their choice of transport mode as they are not directly impacted financially. This is supported by a view from one of the BAA Heathrow interviews that once the individual is divorced from the decision making process then impact is lost. Therefore the strategy may not be as successful in reducing commuting by car compared to direct employee car parking charges although it could form a useful interim step to direct charging.

8.2.4 The Level of a Parking Charge or Cash Payments

A further key consideration with a parking charge, or indeed a financial incentive, is the level at which it is set. Interviewees at BAA Heathrow regarded this as being fundamental to the success of the scheme and that the monetary value has to be substantial enough to deliver a meaningful modal shift. At both the University of Bristol and Pfizer, this too was an important consideration. The University related the charge to salary and set it at a level whereby it immediately made employees consider their mode of travel to work. At Pfizer, the parking cash out payment was set at a level which reflected the cost of providing a parking space, therefore those who chose not to park received the same benefit in financial terms of those who chose to park. At Addenbrooke's a lower charge was introduced initially but the plan was to increase this to a level above public transport fares.

A potential drawback of introducing a direct employee parking charge at Heathrow Airport is that employee parking is a regulated activity and as such BAA are not allowed to return a profit on it. This would mean that employees could not be charged any more than companies

are currently charged to park. For the majority of parking spaces this cost is still significant and would prove a large cost to employees, but the situation does somewhat restrict the ability BAA would have to alter charges. If parking revenues are to be ring-fenced and reinvested in public transport initiatives, as well as car park management and maintenance, then it may allow BAA a greater level of flexibility; the interviewees were unsure how monies reinvested in public transport and alternative modes would impact upon the financial calculations for parking as a specified activity and whether reinvestment could be accepted as a cost.

Rye and Ison (2005) advocate the use of low, income related parking charges. At the non-airport organisations, the charge at Addenbrooke's is relatively low but it is a fixed charge for everybody, while at the University of Bristol the charge is considered to be relatively high and is related to salary. The University support their relatively high charge with the argument that it enabled a meaningful shift to be generated from the day of introduction and that, because it naturally increases with salary, it removes future periods of unrest when charges need to be increased. Supportive of this is the fact that at Addenbrooke's NHS Trust there is staff opposition every time a charge increase is proposed. The Trust stated, however, that a major reason for their charge was to generate revenues to fund alternative modes and not just to directly reduce the demand for parking.

8.2.5 Parking Permit Allocation

Addenbrooke's NHS Trust and the University of Bristol both incorporate a system of permit allocation into their car parking strategies; the University's is based on a number of factors (see section 7.13.2) and the Trust's is based on the distance employees live from the site. Introducing a strategy such as the one at Addenbrooke's NHS Trust, whereby some employees are effectively barred from parking, requires a range of alternative modes to be in place. It is feasible to think that some strategy of parking permit allocation could be introduced at Heathrow if the alternative transport links in place were strong enough. A key outcome of the focus groups was the finding that a large number of jobs at the airport are time critical, as is also the case at Addenbrooke's NHS Trust, and rely on employees being able to arrive on time. Therefore, any restriction in terms of permit allocation would have to be very carefully designed to ensure the operation of the airport did not suffer.

8.2.6 Alternative Working Practices

In addition to further developing public transport links as discussed earlier in this section, a potential option is for BAA Heathrow to concentrate on improving the alternative working practices currently in place at Heathrow Airport to reduce car use. Both the interview and focus group findings highlighted a number of improvement areas and it was considered that if BAA was to invest resources into such initiatives then reductions in car use could be achieved.

At the non-airport organisations some alternative working practices have been implemented but they do not form a major part of the car parking strategy. The strategies introduced include teleworking, compressed working weeks and cash payments instead of company cars. Addenbrooke's NHS Trust is most comparable to Heathrow in the sense that they have a large proportion of shift workers who undertake jobs which require them to be at their place of work in order to perform their function. In such situations, alternative working policies are extremely difficult to implement.

BAA Heathrow already has a range of alternative working policies in place which are more advanced than those at the non-airport organisations and so the development of these policies and a wider expansion to other companies on site at the airport may be a more suitable route to pursue than following the initiatives from the non-airport organisations.

The non-airport organisations have demonstrated, however, that having a financial disincentive or incentive as the core of the whole strategy is beneficial in generating a modal shift. All believed that without this central part of the strategy they would not have achieved the same level of car reduction.

8.2.7 Availability of Car Parking Spaces

Experience from the non-airport organisations suggests that a major contributor to changing employee travel mode choices is the availability of car parking spaces. At Heathrow Airport too this was considered to be a factor which would have an important bearing on travel choices. This is the case at both Addenbrooke's NHS Trust and the University of Bristol and at each organisation it is felt that the physical lack of available spaces can encourage people to travel by a mode other than car. At Heathrow Airport, the focus groups revealed that there was a lack of appreciation of any parking problems at present. As the airport continues to grow however and the parking cap is approached, it is likely that the added

congestion and difficulty in finding a parking space may generate modal shift. It was felt by the interviewees that this was a situation they did not wish to occur and that a more favourable approach was to address parking problems directly before a gridlock situation was encountered.

The literature raised the issue of regulatory parking policies whereby the number of spaces is restricted (see section 2.14.2). This is the case at Heathrow Airport with the 42,000 space car parking cap associated with the development of Terminal Five. At Addenbrooke's NHS Trust and the University of Bristol, the number of spaces is also restricted, but through issues concerning availability of space rather than external regulation. Verhoef et al (1995) and Ison and Wall (2002) state that where parking restrictions are in place they are usually found to be complemented by charges. This can be seen to be the case at the University of Bristol and Addenbrooke's NHS Trust. It is also considered in the literature that a restriction on spaces without an associated parking policy is likely to lead to the emergence of a chaotic situation (Verhoef et al, 1995). This finding which is of crucial importance to Heathrow Airport, given the high numbers of commuters by car and supports the claims by the interviewees that the situation will not simply sort itself out and needs to be addressed before car parking problems deteriorate. Research also suggests that as regulatory parking policies only impact upon terminating traffic it can lead to road space being filled by through traffic. While there is the possibility of this at Heathrow Airport, it is likely to be only marginal due to the local road network being used primarily to serve the airport.

8.2.8 Flexibility and Choice

At Heathrow Airport there was a strong focus, both from the interviewees and the focus group members, on introducing a strategy which allowed for flexibility and choice. The current car parking strategy at Heathrow Airport does not encourage people to vary their commuting modes; once an individual has a parking permit it grants access to the car parks for a full year. It was considered by the interviewees that a strategy which encouraged the use of different modes on a regular basis was favourable. Likewise, focus group participants stated that a more flexible approach to car parking would make them more likely to try alternative modes where possible.

All of the non-airport organisations introduced schemes which allow the individual

employee to decide on a daily basis how they travel to work. This was most strongly emphasised by the interviewees at the University of Bristol who saw 'flexibility' as a key advantage of their scheme. It was felt that by giving people the freedom to decide their travel mode every day then there was a greater chance of an employee deciding not to use the car on a day when they did not need to. At Pfizer it was felt that it was easier to encourage people to change their travel mode on one or two days a week than five days a week, a view reflected by all three of the non-airport organisations. The current annual permit scheme at Heathrow Airport is more likely to encourage employees to drive every day once they have a permit and therefore requires a change if employees are to be encouraged to introduce more flexibility to how they commute.

At Addenbrooke's NHS Trust, however, a degree of the flexibility and choice is taken away from some employees who are not permitted to park until after 3.30pm each day if they live within two miles of the site. Unless they are in a group deemed to be deserving of priority parking then any member of staff who needed to use their car on a particular day would not be able to park it at the hospital site. While the University of Bristol also operate a system of permit allocation, it is used to determine who is entitled to priority parking. Those not qualifying are still able to park in the remaining staff car parks if space is available and therefore the decision making process surrounding how to travel to work is retained for each individual. The development of a priority parking scheme at Heathrow Airport is a possible recommendation, especially as it is considered that some groups of staff, such as those working nightshifts, have less access to public transport than office workers. Introducing such a scheme could have complications however due to the large numbers of employees and the wide range of circumstances and requirements present. Heathrow Airport and Addenbrooke's NHS Trust are similar in the respect that many employees are in customer facing and time critical jobs. Both sets of employees work on shift patterns and need to be on site at the time required which can, in some cases, increase the dependence on the private car and being able to park. A parking priority scheme could prove to be extremely unpopular at Heathrow if such considerations were not taken into account. The pursuit of such an initiative would require large improvements to public transport, particularly at unsociable hours, or the devotion of priority parking to shift workers as is the case at Addenbrooke's NHS Trust.

At Heathrow Airport, the issue of flexibility was also considered in terms of job role and which employees actually needed to be on site every day as was discussed earlier in this

section. There was a feeling that many staff, particularly those based in offices, could work from home on certain days. Similarly, it was considered that if a financial disincentive or incentive measure was to be introduced at Heathrow Airport then it would be important to ensure that alternative modes of transport were first in place to enable the modal shift to occur. At both Pfizer and the University of Bristol work began on improving and promoting public and alternative forms of transport before the central element of the parking strategy was introduced. At Addenbrooke's NHS Trust the charge was introduced first, but it was considered during the interview that developing alternative modes before the charge's implementation would have been advantageous. All three organisations have continued to develop alternative modes over time through a range of initiatives, something which also needs to continue progressing at Heathrow Airport.

8.2.9 Equity, Fairness and Exemptions

Linked closely to the components of any car parking strategy was the belief by both interviewees and focus group participants at Heathrow Airport that it should be 'fair' in its design. Car parking is regarded as a highly emotive subject and so it was felt important that any new strategy was equitable, while at the same time effective in achieving its objectives. Ideas discussed included charging employees based on salary and a system whereby those with the greatest need to park were given priority. Who should be exempted from the rules of any car parking measure introduced was also discussed, with interviewees believing exemptions should be kept to a minimum.

In principle that parking cash out initiative at Pfizer is equitable as it offers those who do not drive to work the same benefit in financial terms as those who do drive to work. When raised with interviewees at BAA Heathrow, some agreed with the principle that non-car users should be entitled to the same benefit, while others argued that users of public transport did not incur the same costs as car drivers and so there was already equality. From a charging perspective, the University of Bristol's scheme is more equitable than that at Addenbrooke's NHS Trust as it is based on salary and hence more closely linked to each individuals' ability to pay. Therefore, if BAA Heathrow decided to introduce either a parking charge or cash payment system, the experiences of Pfizer and the University of Bristol both offer good examples of the two different approaches they could consider in terms of ensuring a degree of equity.

The three non-airport organisations have ensured that exemptions from their parking strategies have been kept to a minimum. At Pfizer there were complications with certain managers who wanted to retain their reserved parking spaces and it was also felt that certain critical members of staff, such as the site nurse, should be allocated reserved spaces. Both Addenbrooke’s NHS Trust and the University of Bristol exempt only disabled drivers from their parking charges; the Trust chose not to exempt others because they did not want any particular group to be deemed more important than another and the University exempted only disabled drivers because it was felt they did not have the same opportunity to use public transport as able bodied people. Contractors are also exempted at the University of Bristol for financial and administrative reasons. Rye and Ison (2005) state that exemptions should be kept to a minimum but those which are made should be justified by clear and transparent criteria. This is seen to be the case at all of the non-airport organisations and should also occur at Heathrow should they introduce a scheme requiring any exemptions.

8.3 Management Support

Table 8.2: Issues Surrounding Management Support for Changes to Current Car Parking Strategy and the Potential Introduction of an Employee Direct Financial Incentive or Disincentive Measure

Issue	Findings from BAA Heathrow / Heathrow Airport	Approach taken at non-airport organisations
Management Understanding	Top level managers do not recognise the problems facing the airport and are unwilling to address them.	Management support was total and considered crucial to the success of the scheme.
A Desire To Change	It is felt that a crisis point or major development is needed to bring about a desire to change.	Clear ‘drivers’ for change existed.
The Importance of a Project Champion	There is no Project Champion.	All had a Project Champion.

8.3.1 Management Understanding

The consensus amongst the BAA Heathrow interviewees was that there was a lack of understanding by top level managers as to the car parking problems facing the airport and their potential impact. It was felt that managers were not currently willing to address the problems, that there was a lack of preparedness and that many believed that any problems

would sort themselves out.

All of the non-airport organisations stated that having management support was crucial to the success of the parking scheme and that there would have been little point in proceeding with an implementation had top level managers not fully supported the strategy. Each of the three non-airport organisations had differing experiences on the issue which is beneficial from BAA Heathrow's perspective as it allows a range of situations to be explored. At Addenbrooke's NHS Trust, managerial support was strong as they recognised the need to achieve Section 106 targets in order to develop the site. At the University of Bristol, the support was not so direct but managers fully supported the objectives of the scheme and the representative Travel To Work Implementation Group was formed to oversee the development, consultation, implementation and on-going guidance of the Travel Plan and parking strategy. At Pfizer, UK management support for the parking cash out scheme was gained from the outset of the Travel Plan's development. Support from the Head Office in the United States undermined the objectives of the Travel Plan to an extent, however, by insisting all parking was provided on site. Subsequent managerial changes at Pfizer have led to a decreased impact of the parking cash out strategy, as the new managers do not support the scheme so strongly. This emphasises the importance of managerial support to the success of any newly introduced employee car parking measure and as something that needs to be achieved at BAA before any new initiative is proposed.

Management support for a new parking strategy, initially from BAA Directors, would prove a positive step towards implementing a measure such as an employee direct car parking charge or financial incentive. Support would then have to be gained from management at other organisations on site in order for an airport wide implementation to be successful. A small number of companies have already approached BAA regarding reducing the number of employees parking at work, demonstrating that there is some willingness to change.

8.3.2 A Desire To Change

In all of the non-airport organisations a major driver for a new employee car parking strategy was the desire to expand the site and the knowledge that any planning permission to do so would contain requirements to address transport access. This mirrors the expected situation at BAA Heathrow where it was considered that it would be necessary for a crisis point to be reached or for a major development at the airport, such as a third runway or a sixth terminal,

to be granted planning permission before any serious consideration was given to new car parking strategies. It may be that in terms of the process of expanding, the non-airport organisations were at a more advanced, and certain, stage of gaining planning permission than currently is the case at Heathrow Airport. If BAA Heathrow becomes more certain of expanding the airport site then that may be the trigger for car parking issues to be taken more seriously. A concern of some of the interviewees, however, is that action needs to be taken now before the current problems with car parking can escalate further. It can be argued, however, that a condition of the Terminal Five development was the parking cap of 42,000 spaces and that has not thus far generated a change in thinking from directors.

Rodier and Johnston (1997) stated that in the USA, local governments were sometimes unwilling to implement new programmes of traffic reduction because of the negative political impact it could have. A similar phenomenon can be seen within BAA Heathrow's management who are regarded as not wanting to implement anything which may upset staff and in turn make BAA appear in a negative light. It was pointed out by one interviewee, however, that the political kudos associated with introducing a strategy such as a parking charge could be significant for BAA. Both of these factors will have an impact on the desire to change within BAA.

8.3.3 The Importance of a Project Champion

All of the non-airport organisations had a 'Project Champion' who oversaw the implementation of the scheme. At Bristol this took the form of the TWIG group although the 'Assistant Director – Facilities' (UoB 1) was a major influence on the development of the Travel Plan and parking strategy. At Pfizer the Project Champion no longer works full time for the company and has not been replaced which has led to a loss of impact, again emphasising that strong leadership is crucial. Currently BAA Heathrow has no Project Champion or any group to figurehead the scheme, something which would need to be addressed should they proceed with the introduction of a financial incentive or disincentive measure as part of their employee parking strategy. During the interviews some consideration was given to who should figurehead the scheme and it was generally agreed that the company would have to lead by example from the very top levels of management.

8.4 Gaining Acceptance

Issue	Findings from BAA Heathrow / Heathrow Airport	Approach taken at non-airport organisations
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Table 8.3: Issues Surrounding Gaining Acceptance for a Car Parking Measure such as a Financial Incentive or Disincentive

Recognition of the Problem by Employees	Lack of recognition of any parking problems or awareness of the parking cap.	Different situation to Heathrow Airport as there were more clear operational issues.
Overcoming Cultural Barriers and Attitudes to Change	Adversity to change meant that reactions were expected to be negative should a new strategy be introduced.	Initial negativity which subsided after a period of time. Consultation helped achieve acceptance in some cases.
Parking Hierarchy	Potentially difficult to overcome hierarchies which have been in place for several years.	Two of the organisations removed all reserved spaces, and one retained them as it was regarded as being too sensitive an issue.
Hypothecation of Parking Revenues	View that revenues accrued from a charge should be reinvested in transport initiatives.	All revenues arising from parking charges are hypothecated.
Recruitment and Retention	Strong view from employees that they would look for work elsewhere if incentive or disincentive measures were introduced to car parking. More mixed views from interviewees.	New parking strategies had minimal impact on recruitment and retention.
Communicating Clear and Transparent Objectives	Large number of organisations makes communication difficult and many employees were unaware of all current initiatives or the car parking pressures facing the airport in the future.	Clear reasons for change communicated to employees. On-going communication channels also available to employees.
Consultation	Recognised that extensive consultation target at individuals was required. A structure is in place at the airport for this.	Extensive and transparent consultation conducted with focus on employee involvement.

8.4.1 Recognition of the Problem by Employees

There was a lack of awareness of the car parking problems at Heathrow Airport amongst staff who attended the focus groups; most believed the current situation to be fine from their personal experiences, except for a small number of minor operational complaints. The focus

group participants were also largely unaware of the 42,000 space car parking car associated with the development of Terminal Five and while they were aware of the presence of air quality limits, there was no knowledge of what these limits were and how they impacted on the airport. On the whole, the interviewees at BAA Heathrow appreciated the car parking problems facing the airport.

In terms of recognition from employees, the non-airport organisations differ from Heathrow Airport because at all three there was a clear problem that there was either not enough car parking spaces for staff or there were high levels of congestion on the local roads. Therefore, staff were aware of the problems and even though they were not supportive of the parking charge at either Addenbrooke's NHS Trust or the University of Bristol, it is thought that they generally understood the underlying reasons for change. At Heathrow Airport, while there is some car park congestion at certain locations and times, there is not yet any major perceived problem, meaning that staff are less likely to understand the need for change as was highlighted by the focus groups.

8.4.2 Overcoming Cultural Barriers and Attitudes to Change

The general adversity to change in human beings and the reliance on the car that people have were expected to be attitudinal barriers to introducing a new car parking strategy at Heathrow Airport. Some interviewees thought that while initial reaction to a new parking strategy may be negative, the opposition would reduce over time.

Research into the acceptability of different measures revealed that the instruments regarded as being the most effective at reducing congestion and the demand for parking, such as road pricing, parking charges and restraints on the number of spaces were also those most opposed, making the measures more difficult to introduce (Thorpe et al, 2000, Schade and Schlag, 2003). People were also found to be far more opposed to measures of restraint than they were to public transport improvements.

At the University of Bristol some interviewees considered that acceptance was gained during the consultation stage whereas others stated that there was still a great deal of negativity towards the charge when it was implemented. At Addenbrooke's NHS Trust there was a six month period of unrest when the charge was first introduced and the Trust still face negative

responses each time a charge increase is proposed. At both sites this initial negativity has now subsided considerably and a much more balanced attitude is apparent, reflecting the view of the BAA interviewees. At Pfizer, attitudes towards the change were positive due to the cash payments being made available to those who did not drive to work. This is interesting as it is in contrast to the views of focus group participants at Heathrow Airport who were strongly opposed to the idea of cash incentives not to park. Rye and Ison (2005) emphasise the highly emotive nature of an employee parking charge. The focus groups conducted at Heathrow Airport also indicate that there would be a great deal of unhappiness should a new parking strategy be introduced, particularly one that included a measure of restraint. It is expected that at Heathrow too, initial unrest would subside, something which was commented on by a number of the interviewees.

Consultation is believed to have helped in gaining acceptance towards the new strategies introduced; even if charges were still not well accepted, the consultation process and transparent communications used by the University of Bristol and Addenbrooke's NHS Trust reduced the level of negativity and helped in generating an understanding of the strategies by employees. Consultation and communication are discussed in more depth later in this section.

An interesting point raised in the Addenbrooke's NHS Trust case study, but equally applicable to the other case studies is that even though people may not like the idea of change in general, they also have an ability to cope with situations which require them to change. In situations where employees are prevented from driving to work, as is the case with some of the Trust's staff members, they still find a way to commute. In some respects this may give credence to the argument that if BAA Heathrow were to do nothing about their car parking problems then the situation may simply sort itself out. Perhaps more realistic, however, is the view from the University of Bristol that people will make the most informed choice based on the situation they are faced with, but that sometimes they need to be cajoled into making an appropriate choice through the use of a measure such as a parking charge. At BAA Heathrow it was felt that action needs to be taken soon so that car parking problems do not escalate further and the airport is in a better position to deal with the increased pressure that will be placed on parking when Terminal Five opens.

A further important factor is that it is unlikely to be possible to change all members of staff and that a parking charge or financial incentive will have different impacts on different

groups of people; some will pay a charge at any level or refuse to accept a financial payment at any level, whereas others will refuse to pay a charge at any level or will accept a financial incentive no matter how small. There are also likely to be differing opinions depending on how individuals are impacted by the charge, for example there may be some people who are currently unable to park, perhaps because their shift starts at a time when car parks are already full, but who would be willing to pay to park if it increased their opportunity of finding a space.

The presence of “captives”, those people who are unable to use alternative modes due to their personal circumstances, is considered by Gantvoort (1984). The number of captives has an impact on the success of any strategy and would have to be carefully considered by BAA Heathrow. Indications from the non-airport organisations are that most people are able to cope with change and that the impact of captives has not been large. At Heathrow Airport, however, there are a large number of shift workers, many of whom stated in the focus groups that there were no realistic public transport alternatives available to them, particularly at unsociable hours. Therefore, significant investment in appropriate modes of travel may be needed to cater for those people who feel they are in a situation where the car is the only option. Captives are different to those people who refuse to stop using their car through personal choice.

8.4.3 Parking Hierarchy

The view was raised that a hierarchy of permit allocation currently existed at Heathrow Airport which would have to be overcome. There was also perceived to be a culture within BAA of not wanting impose anything which could potentially upset employees.

In terms of any parking hierarchy, at both the University of Bristol and Addenbrooke's NHS Trust reserved parking spaces were taken away. This was greeted with some negativity but did not prove to have any lasting impact due to the fair and open approach. At Pfizer, the unrest it would have caused to remove reserved spaces was considered to be too large and so they were retained for those senior managers who wanted them. At Heathrow Airport much of the current hierarchical structure is out of BAA's control and it would depend on what measure was introduced as to how it would be impacted upon. The evidence from the non-airport organisations suggests that it is possible for a new strategy to be introduced without too much negative backlash.

8.4.4 Hypothecation of Parking Revenues

The interviewees at BAA Heathrow favoured the idea of ringfencing any revenues generated by a parking charge for reinvestment in car parking and alternative modes of transport. It was considered that such an approach could help increase acceptance should a parking charge be introduced at the airport. The literature review agreed that an important part of the package approach to strategy implementation is regarded as being the need to hypothecate revenues, something which has been found to increase the acceptability of new schemes. The ringfenced money should be spent on initiatives such as improvements in parking, security and alternative transport to the site (Jones, 1991, DETR, 1998, Thorpe et al, 2000, Ison and Wall, 2002, Rye and Ison, 2005). Hypothecation of parking revenues at Addenbrooke's NHS Trust and the University of Bristol is considered to have generated acceptability amongst employees as they were seen to respond well to being able to see where their money had been invested, particularly when able to experience the changes first hand. At Pfizer, there is no income from parking but money is still spent on providing alternatives so that people who do not wish to use the car have other options.

As mentioned in section 8.2.4, however, there are issues surrounding charging for employee car parking at Heathrow Airport and the fact that it is a specified activity and, as such, the costs of providing employee parking must equal the income.

8.4.5 Recruitment and Retention

The Heathrow Airport focus group participants strongly expressed that the introduction of financial disincentives or incentives related to parking, or parking permit reallocation, would force people to look for work elsewhere. The interviewees had more mixed opinions; some agreed with the employee view that recruitment and retention would suffer while others considered that there were several other factors which contributed to why somebody worked at the airport.

The findings from the non-airport organisations were that recruitment and retention had not been seen to suffer after the new parking strategy had been introduced. This was expected to be the case at Pfizer as those who continued to drive were no worse off financially as a result of the parking cash out payments. Employee exit surveys at the University of Bristol

identified that the car parking charge was a commonly cited reason for those leaving employment at the University, but that it was always in combination with other factors. Similar figures were not available for Addenbrooke's NHS Trust but it was not felt that there had been any detrimental impact as a result of the charge. Indeed, at Addenbrooke's it was regarded that a number of organisations with car parking problems used recruitment and retention fears as excuses not to introduce rectifying strategies. This may be the case at Heathrow Airport; indeed it was mentioned in some of the interviews that recruitment and retention were often over emphasised as an argument when any strategy requiring change was proposed.

At Addenbrooke's NHS Trust and the University of Bristol there was a recognition that it was difficult to tell whether recruitment had suffered as those who chose not to apply for jobs due to the parking charge did not communicate this information. A view was also raised at the University of Bristol that as a leading UK University then car parking would be unlikely to have a major bearing on whether somebody chose to apply for a job there. At Heathrow Airport, however, salaries are generally not as high and there are a large number of workers who could potentially apply for employment elsewhere. Addenbrooke's NHS Trust, however, with lower paid workers and a high proportion of shift workers did not appear to have suffered any negative effects on recruitment from the parking charge.

A concern was raised during the BAA interviews that it may not be straightforward to introduce parking charges direct to employees due to contractual issues. The full extent of this concern was not known but it was not raised as having been a problem at any of the non-airport organisations.

8.4.6 Communicating Clear and Transparent Objectives

Communication at Heathrow Airport can be difficult because of the large number of companies and employees on site. It was considered by the interviewees that while some of BAA's communications were good, there was room for improvement. This included communicating within the company, to other companies and to employees. Many employees did not understand some of the current public transport and alternative mode initiatives implemented by BAA and there was a feeling that a new car parking strategy was under consideration because of financial motivations, rather than wanting to reduce car use for

other reasons. Employing a clear and transparent approach to communicating any new parking strategy and the reasons for it was considered crucial by the interviewees.

The non-airport organisations all regarded communication to be important when introducing a new parking measure. This began with a clear communication of the reasons for why a change was necessary. Adopting a transparent approach was a strategy adopted by all three with the main reasons for the change being emphasised as a lack of parking spaces and congestion on the surrounding roads. This approach is believed to have helped gain some acceptance with staff as it focused on the problems they witnessed every day. At the University of Bristol and Addenbrooke's NHS Trust care was taken to avoid the use of environmental reasons which were not believed to be major factors and which may have decreased the message about the need for a charge. At Addenbrooke's NHS Trust there was a clear message communicated by explaining to staff that additional revenue was required to fund public transport alternatives and to maintain car parks better.

There is limited literature on the need for communication but Rye and Ison (2005) do list as one of their six factors to assist implementation of a workplace parking charge as being the need to communicate clear site specific reasons for introducing parking charges. Enoch (2001) also states that any scheme should be as simple as possible to understand and that as much information as possible should be supplied to help educate people. Both of these points have been demonstrated by the three non-airport organisations and require consideration by BAA should they introduce such a measure.

At Heathrow Airport communicating the objectives of the need for a new parking strategy is complicated by the fact that there is not yet recognition of the problem, as explored earlier in this section. In order for staff and top level managers to understand the impending problems and the need for a change then a clear and transparent communication of the key reasons needs to be maintained. Experience from the non-airport organisations suggests that BAA should concentrate on the key issues of the 42,000 space parking cap and the air quality limits. As these are externally imposed on BAA it may be easier to deflect negative feedback from staff. It is likely that the constraint on spaces will be the most readily understood reason because it is something which directly impacts upon staff, whereas air quality limits are further removed from employees' day to day activities. BAA should also stress that changes are not being made for financial gain; adopting a transparent approach in this area via an explanation of the figures could prove beneficial. Should the option to

further expand the airport progress further then this could also form a key reason to communicate to staff, although it may not be so readily accepted due to the perception that it is a financial decision.

On going communication is maintained by the non-airport organisations. All of the sites have methods of allowing staff to leave their views of raise queries, mainly in online format or via the telephone. Travel surveys are conducted whereby employees can input views which will be acted upon if necessary and information about alternative travel modes to the car is made available in a number of formats. Various groups also exist at the organisations to allow for communication and consultation between staff and stakeholders. Only at Pfizer has this on-going communication subsided somewhat, although information is provided online and in reception areas for staff. Similar communication modes are currently in place at Heathrow Airport and should continue if any change to the parking strategy is made.

Communication with Trade Unions was raised as an important area at Addenbrooke's NHS Trust and is also likely to be of high importance at Heathrow Airport due to the unionised nature of the workforce. At Addenbrooke's NHS Trust the relationship with the Trade Unions is regarded as being good and while they do not fully support the parking charge they recognise the reasons for it and do not raise complaints for insignificant reasons. At Heathrow a similarly good working relationship with Trade Unions needs to be found if the introduction of a new parking strategy is to be done so effectively.

8.4.7 Consultation

Linked to the need to clearly communicate any new strategy was a recognised importance of conducting an extensive consultation process prior to any new strategy being introduced. It was considered that this process needed to reach each individual employee so they were aware of the need for change, could see the reasons and were able to feed in their opinions. BAA Heathrow have a structure in place for airport-wide consultation although it was considered that the introduction of a new parking strategy would require a consultation process greater than any other used before at the airport.

Rye and Ison (2005) highlight consultation as one of a number of factors to assist parking charge implementation at the workplace, stating that it will take some time and that it should not be expected to resolve all opposition. They add that once the scheme is introduced then

opposition will reduce. This was seen at both the University of Bristol and Addenbrooke's NHS Trust, although the period of reduction took some time at the Trust. It is expected that opposition to a charge would be large at Heathrow and that consultation would need to be a long process.

All of the non-airport organisations conducted lengthy consultation processes, some in excess of two years, prior to introducing the core element of their parking strategy. The use of detailed consultation is advocated by Beroldo (1990) who considers that it is important to look beyond factual information such as commute patterns when implementing a demand management strategy and to explore personal opinions, attitudes and preferences so that the scheme is more positively accepted. This emphasises the need for extensive consultation and a careful consideration of the views of those directly impacted by any new strategy.

The findings from all three organisations are similar and the consultation included meetings at a high level between key stakeholders initially, followed by a much wider undertaking of staff forums, discussion groups, meetings and road-shows. Staff at the sites were also able to feed in their views via online forms, bulletin boards and email. Conducting a long, thorough and transparent consultation process, whereby all information was made available to employees, was considered by all the non-airport organisations to have been important in the overall implementation of their parking initiatives and, in the case of the University of Bristol in particular, it is regarded to have generated a much higher level of staff knowledge and acceptance which aided the implementation considerably. Consultation is also on-going at the non-airport organisations; for example at Addenbrooke's NHS Trust a series of meetings and seminars are conducted before parking charge increases are introduced.

In some ways the interviews carried out at BAA Heathrow and the focus groups conducted with staff can be viewed as the beginning of a consultation process as they represent the first real investigation at the airport into the views surrounding the car parking situation and any potential strategies to address recognised problems. BAA appear to have a structure in place that would allow for a successful and well thought out consultation process should they decide to implement a new car parking measure such as an employee direct charge or financial incentive.

8.5 Implementation

Table 8.4: Issues Surrounding the Implementation of a Car Parking Measure such as a Financial Incentive or Disincentive

Issue	Findings from BAA Heathrow / Heathrow Airport	Approach taken at non-airport organisations
The Process of Implementation	Felt that BAA should lead implementation then roll out to rest of airport. Implementation should be led by “real business owners”.	Alternative modes introduced before the core element, although not the case at Addenbrooke’s NHS Trust. Non-airport organisations did not have the same issues with multiple employers.
Implementation of the Core Element of the Strategy	Mixed views over whether a ‘gradual’ or ‘big bang’ approach was most suitable	Mixture of ‘big bang’ and ‘gradual’ approach. Big bang seen to have more initial impact and reduce future unrest.

8.5.1 The Process of Implementation

The interviewees at BAA Heathrow felt that the most suitable way of implementing a new parking strategy was to do so within BAA first and then expand the scheme to the rest of the airport. In doing so this would enable BAA to lead by example and demonstrate to the rest of the Heathrow site how the new car parking measure would operate. It was considered that the implementation in other companies should be led by the ‘real business owners’ such as terminal managers. It was also considered that alternatives to driving should be provided before a financial incentive or disincentive was introduced. It was regarded that nothing had been implemented at the airport on such a scale before.

Implementation is an area where the experiences from the non-airport organisations may differ slightly from Heathrow Airport due to the huge scale of the Heathrow implementation that would be required and the wide range of organisations which would need to be included. There are, however, several overriding principles regarding the format of the implementation which are transferable.

The three non-airport organisations have all pursued different implementation strategies, although they also share similarities. In all cases, implementation of the strategy did not begin until extensive consultation and communication has been carried out. In the case of Pfizer and the University of Bristol, public transport and other alternative modes were improved before either the parking cash out or parking charge elements were introduced. In

doing this, when the core element of the strategy was implemented employees had a range of options they could switch to if they desired. At Pfizer, modal shift was achieved even before the parking cash out element was introduced purely through the improvements made to alternative modes of transport and the associated promotional activity. At Addenbrooke's NHS Trust public transport improvements were not made until after the parking charge was in place although it was recognised that in hindsight doing so would have been a better approach.

8.5.2 Implementation of the Core Element of the Strategy

In the BAA Heathrow interviews, views were split over whether the core element, if one was to be used, of the employee car parking strategy should be implemented gradually or more suddenly.

In terms of the implementation of the strategy's core element, different approaches were taken by the three non-airport organisations all of which were successful in generating modal shift. The University of Bristol adopted a "big bang" approach whereby parking charges were set at a relatively high level from the first day of implementation. The reasoning behind this approach is that as people do not like the idea of change then it is more worthwhile to introduce something which achieves its objective quickly, rather than the University having to increase charges over time and having to deal with a negative reaction on every occasion. The parking charges increase relatively as salary increases, although a small increase in the percentage of salary charged for parking was made in 2004. At Addenbrooke's NHS Trust a low daily charge was first implemented and has been gradually increased over time with further increases planned. The Trust adopted this approach as they felt it was important to initially introduce a charge to help gain an understanding from staff and then more gradually achieve their ultimate objective over a longer time frame. The Trust have found that each price increase is greeted with a great deal of discontent and negative reaction from employees. At Pfizer the implementation was generally more straight forward as there was no negative reaction from staff. At Pfizer no subsequent increases or decreases in the parking cash out payments have been made since its introduction.

As mentioned in section 8.2.4, Rye and Ison (2005) stated that low parking charges should

be implemented as a way of generating acceptance and understanding from employees. The evidence from Addenbrooke's NHS Trust and the University of Bristol suggest that this may not necessarily be the case. The University's "big bang" approach to implementation generated a meaningful modal shift from the outset and also removed the potential future unrest caused by charge increases, whereas at Addenbrooke's NHS Trust there is a period of unrest with each charge increase. Other than this literature which is specific to parking charges, there is little published on how parking strategies should be implemented.

At Heathrow Airport, overall the most suitable approach to implementation would have to be based upon the overall strategy selected and its components, combined with the findings of the consultation process. Experience from the non-airport organisations would suggest that public and alternatives modes of transport should be improved first. It is expected that BAA would introduce the new strategy in its own company first to generate an understanding and appreciation of how it would work, before rolling it out more widely across the airport. The involvement and support of some large companies at the airport, such as British Airways, in the early stages could also prove beneficial.

8.6 Conclusion

This chapter has presented a discussion of the findings from the case study conducted at Heathrow Airport in comparison to those conducted at the University of Bristol, Addenbrooke's NHS Trust and Pfizer. The discussion has been structured around a benchmarking template which addressed the issues found to be of importance to BAA Heathrow and Heathrow Airport more generally in terms of designing and implementing a car parking measure incorporating a financial incentive or disincentive. The chapter has addressed the objective, as set out in section 3.5 to:

- explore whether good practice in the non-airport sector can be transferred to an airport context and in particular Heathrow Airport.

Four main areas were addressed: selecting the most suitable measures to deal with the car parking problem; management support; gaining acceptance, and; implementation. Within each section the findings from the interviews conducted at BAA Heathrow and the focus groups conducted with members of staff from across the whole airport were presented and compared to the findings from the non-airport organisation. This allowed for differences in

each area of interest to be identified. This discussion helps to formulate the suggestions made to BAA should they decide to introduce a financial incentive or disincentive car parking measure direct to employees and the conclusions contained in Chapter 9.

The literature review contained in Chapter 2 has also been referred to in the discussion contained in this chapter where relevant. Attention has been given to whether the findings from the original research and subsequent discussion support the literature or refute it and vice versa. It has been found that the literature is focussed on two main areas: the elements of a parking strategy and; the acceptance of different strategies. There appears to be a dearth of literature in other areas which has been reflected throughout the discussion.

Chapter 9. Conclusions

9.0 Introduction

This chapter presents concluding remarks on the research and aims to fulfil the objective set out in section 3.5 to:

- recommend good practices from the non-airport sector that could be implemented at airports and in particular Heathrow Airport.

The problem faced by Heathrow Airport is reviewed with regards the expected future growth, the car parking cap, air quality targets and the current situation in terms of addressing the problem is detailed. The issues which would need to be addressed by BAA and Heathrow Airport, should they decide to introduce an employee direct financial incentive or disincentive car parking measure are then considered in the key areas of adopting a package approach, a requirement for management support, gaining acceptance from employees and the implementation process. The suggestions draw on the findings from the case studies and discussion chapter. The relative importance of each of the key areas is considered.

The chapter also aims to explore the areas in which the research has contributed to the existing body of knowledge on benchmarking and research in the field of airport car parking. In the research, benchmarking has been used as a tool to facilitate the comparison of Heathrow Airport to organisations in the non-airport sector. Contributions are considered

first and it is argued that a contribution has been made through the use of functional benchmarking in the airport sector. Benchmarking has also been applied with a subtly different approach to more traditional implementations, suggesting that it has a potential wider application. The potential extension of the research to airports other than Heathrow is also highlighted. It is recognised, however, that some limitations may exist in terms of how the benchmarking exercise has been conducted, including the comparability of the non-airport organisations to BAA Heathrow and the situation at Heathrow Airport. Finally, potential areas for further research are highlighted.

9.1 The Issues at Heathrow Airport

The research carried out at BAA and Heathrow Airport has shown that there are issues in the area of surface access and in particular car parking which need to be addressed. There are three main factors that contribute to the problem being faced by the airport, namely the expected growth in air transport in future years which will generate more surface traffic, the car parking cap of 42,000 spaces for passengers and employees imposed as a condition of the Terminal Five development and the air quality targets which have to be met, of which surface access is a major contributor. A review of academic, Government and BAA literature, alongside interviews at BAA Heathrow has revealed that targeting employees is likely to be an effective approach to addressing the problems given the repetitive peak hour nature and frequency of employee trips and the relative ease by which employees can be targeted.

A wide range of initiatives are currently in place at Heathrow airport including public transport provision, a free public transport service on site, interest free loans on public transport ticket purchase, cycling and walking facilities, a car sharing scheme, pool cars, teleworking facilities and promotion of alternative working practices, all of which are communicated to employees. These initiatives can all be regarded as being 'soft' in nature and while they have had some impact in terms of encouraging employees to use cars less there is a need for a greater amount of modal shift in order for the airport to continue to function efficiently and for air quality targets to be met as the airport grows.

A number of more direct measures to bring about a reduction in employee car commuting have been explored, namely the introduction of direct employee car parking charges, often

with an element of parking permit allocation, and a parking cash out scheme. The research has been undertaken through the use of a literature review and in-depth case studies at three best practice non-airport organisations and interviews and focus groups at BAA and Heathrow Airport. These focussed on the potential introduction of such measures at the airport. The findings revealed that at present it would appear Heathrow Airport may not be at a stage where it is necessary to introduce a policy option such as a direct financial incentive or disincentive measure for employee car parking. A key reason for this is that top level managers do not currently appear to regard the surface access situation as being in crucial need of any change and there is a feeling that the current 'soft' initiatives have not yet been fully exhausted. Employee unrest at the introduction of a more direct measure is also a concern for BAA, along with any impact it may have on employee recruitment and retention.

It would appear to be the case, however, that before long a 'harder-hitting' approach may be required as the airport continues to grow. If a third runway at Heathrow Airport was to be approved then it is expected that it would be accompanied by stringent surface access and car parking requirements and, as such, could provide the catalyst for the introduction of an employee car parking measure such as a financial incentive or disincentive. If such a measure was to be introduced then there are a number of areas which would be of importance to the airport:

- The need for a package approach and the core element;
- A requirement for top management support;
- A need to gain acceptance from employees;
- Issues surrounding the process and structure of implementation to be followed.

These four areas are detailed below. While the particular issues covered thus far in this chapter are specific to Heathrow, it is by no means the only airport which is facing challenges in terms of surface access and as detailed in Chapter 3, relatively smaller UK airports such as London Luton are also in need of addressing surface access problems, perhaps through the use of financial incentive or disincentive measures. Heathrow is 'at the forefront' in UK and possibly world-wide terms, given its location, passenger and employee numbers and expected growth, in the need to address surface access via more stringent car parking policies. The overall growth in air transport from both a UK and worldwide perspective, however, means that other airports are likely to experience similar problems in the near future.

9.2 Issues to be Addressed by BAA and Heathrow Airport should they

decide to Introduce a Financial Incentive or Disincentive Employee Car Parking Measure

9.2.1 A Package Approach and the Core Element

At Heathrow Airport it was considered that the introduction of any financial incentive or disincentive measure for employee car parking should be just one element in a wider package or measures that made up the strategy, something supported by the findings from the non-airport organisations. This allows for a greater level of flexibility and choice when employees are making travel decisions. At Heathrow Airport there is already a package of measures in place to provide alternative options to the private car, including various public transport initiatives, cycling and walking facilities, car sharing and alternative working practices. If a direct employee financial incentive or disincentive car parking measure was to be introduced then it would form part of this overall strategy, with other elements supporting the new measure and providing options for those who wished to change their mode of travel.

The BAA interviewees were unsure as to what the most suitable solution would be in terms of a financial incentive or disincentive measure. It was felt that the financial cost associated with introducing a parking cash out scheme including approximately 70,000 employees would be so great that it would prove unviable. Several companies at Heathrow Airport have already approached BAA Heathrow with concerns over the cost of their employee car parking and so any additional financial outlay is likely to be problematic.

A system of car parking permit allocation currently exists at Heathrow Airport although there is no formal structure to it; BAA issues permits to any company who pay for them and the individual organisations then allocate those permits to their employees. A more structured process of permit allocation could perhaps be introduced at the airport although there are several issues, most notably the high number of shift workers who require punctual access to the airport, often at unsociable hours when public transport is not so well provided. Additionally, the current annual permit at Heathrow Airport does not encourage flexibility in making travel decisions as the permit allocation system operates on an annual basis.

The introduction of a direct parking charge to employees is an option BAA could consider in

the future at Heathrow Airport. As outlined above, BAA currently charge employers for parking permits on an annual basis and the majority of employers do not pass this charge onto their employees. It is therefore made more difficult for BAA to control parking spaces once they have sold permits to another organisation. A direct charge to employees would give each individual a personal financial decision as to whether to drive to work or not. It would also remove the financial strain which some organisations at the airport are facing. Evidence from the non-airport organisations suggests that charges should be made on a daily basis, as it allows for a greater level of flexibility in each individual's travel mode decision.

The interviewees at BAA considered that any parking charge should be significant enough to generate a meaningful modal shift. Employee parking charges are currently regulated at Heathrow Airport, however, meaning BAA cannot make any profit on them. The implications on how employee direct parking charges would impact on this regulation was unknown and would need to be investigated by BAA. In terms of setting the level of a parking charge, in order to take account of equity issues it was suggested that salary related charges could be a potential solution, as is the case at the University of Bristol; whether they are set at a high or low level depends on the objectives of the parking strategy. High charges and cash payments exist at the University of Bristol and Pfizer although Addenbrooke's NHS Trust adopted a relatively low charge in order to elicit initial acceptance. In addition, it was regarded that any exemptions to the scheme should be kept to a minimum so that it was as fair and equitable as possible.

It must be remembered, however, that Heathrow has 70,000 employees which would make the administration of individual charges or cash payments significant in terms of resources. In the interviews at BAA Heathrow the concept of charging companies, rather than individuals, on a daily basis instead of annually was discussed and considered that it could encourage more organisations to become proactive in reducing commuting by car. At Heathrow Airport such an approach focusing on organisations could overcome some of the administrative problems of having to deal with 70,000 employees. There is a possibility, however, that adopting this approach could result in employees not thoroughly considering their choice of transport mode as they are not directly impacted financially.

The large number of employees present at Heathrow Airport can be compared to those in a large town or small city and, as such, benchmarking against a town or city council who have to deal with a similar number of people wishing to park and a similarly wide range of

organisations could have been a suitable approach to take, rather than benchmarking against other organisations.

9.2.2 A Requirement for Top Level Management Support

The general consensus amongst the interviewees at BAA Heathrow was that surface access and car parking issues needed to be addressed. While those interviewed are key decisions makers within BAA a major reform such as the introduction of a financial incentive or disincentive car parking measure for employees would require permission and support from the top level management and ultimately the Chief Executive. Currently within BAA, the top level managers do not appear to fully recognise surface access car parking as an area in need of such a major reform and, as such, are unwilling to consider more radical solutions at this point in time. This is in contrast to the non-airport organisations researched where, on the whole, top level management support was considered to be crucial to the success of the scheme. Proceeding with the implementation of a financial incentive or disincentive measure related to employee car parking at Heathrow Airport would prove more difficult without support from top level management and thus some intermediate steps are possibly required in order to make those managers more aware of the impending problems and the likely consequences if action is not taken.

In order to bring about recognition of car parking issues and surface access in general, it was felt by the interviewees that a major development at the airport, such as seeking permission to develop a third runway, is required to act as a catalyst for change in this area. At the non-airport organisations clear reasons for change existed, often related to the desire to expand and the related need to show that transportation issues were being addressed in order to gain planning permission. There was also a clear problem at the non-airport sites in terms of car parks having reached capacity or congestion on the local road network. The 42,000 car parking cap at Heathrow Airport could be regarded as being a catalyst for change which is already in place, but at present the problems it presents do not appear to be severe enough for a policy such as a financial incentive or disincentive to be considered by top level managers.

Currently there is no 'Project Champion' within BAA Heathrow in terms of highlighting the need for a more radical policy with relation to employee car parking. It was stressed by the

interviewees that the impact of an employee direct financial incentive or disincentive car parking measure would have on the airport population would require a strong leader, such as a senior member of staff, potentially the Chief Executive. This was expected to assist in achieving the required level of interest and importance from all employers and employees across the Heathrow site. The non-airport organisations demonstrated that a strong leader was important whether it was in the form of an individual or a representative group of people as was the case at the University of Bristol. As such, the designation of a Project Champion, whether in the form of an individual or a representative group, would appear to be of importance should BAA Heathrow consider the introduction of a direct financial incentive or disincentive measure as part of an employee car parking strategy.

9.2.3 Gaining Acceptance from Employees

The majority of focus group participants at Heathrow Airport displayed a lack of recognition of any parking issues facing the airport. There was limited knowledge of the 42,000 space parking cap or the implications for car use of air quality limits. All three non-airport organisations had clear problems, either in terms of a lack of car parking spaces or congestion on the surrounding road network, which were witnessed on a daily basis by employees. Therefore, at Heathrow there is a need for the likely future problems to achieve recognition and acceptance at the present time, through education and communication to employees, otherwise it could prove more and more difficult for employees to begin to consider using alternative modes or accept a new car parking measure such as a financial incentive or disincentive. Should it be decided to introduce such a measure for employee car parking then there are a number of issues which need to be considered, as discussed throughout this section.

The non-airport organisations who introduced a daily employee parking charge found that there was initial negativity towards it, but that over time the opposition subsided. The BAA interviewees expected a similar situation to occur at Heathrow Airport should a charge be introduced as it was considered that individuals had a natural aversity to change. This was reflected in the focus groups where there were strong views that either a parking charge or financial incentive scheme would be negatively received. Conversely, at Pfizer the parking cash out payments were welcomed by employees and it was unclear why this was not mirrored by the BAA focus groups, except that they may have been adverse to a change of

any kind.

At the non-airport organisations, both communication and consultation were regarded as important when introducing the financial incentive or disincentive element of the parking strategy and in gaining acceptance for it. A clear structure of conducting consultation is in place at Heathrow Airport and it was considered by the BAA interviewees that should it be decided to introduce a charge or financial incentive, then there was a need for it to be focused on individual employees. Similar consultation processes were seen to have taken place at the non-airport sites and it would appear suitable for BAA to follow their already established approach to consultation, which a view to ultimately targeting individuals. Following the implementation of the charge or financial incentive on-going communication channels were in place at each of the non-airport organisations to continue collecting employee opinions and feedback. At Heathrow Airport communication is recognised to be more difficult due to the large number of organisations and employees on-site; if a financial incentive or disincentive measure is to be introduced at Heathrow Airport, however, it would seem important that clear and specific reasons for the change are communicated to all stakeholders.

An important finding from the non-airport organisations where a charge has been introduced was that ring-fencing all generated revenues for reinvestment into car parking and public transport improvements was considered to increase acceptance for it, particularly if tangible improvements could be seen. The BAA interviewees also stated that they believed any revenues from car parking should be hypothecated. The notion of hypothecation needs to be explored as a key way of generating acceptance were BAA to introduce a parking charge.

A number of focus group participants at Heathrow Airport strongly expressed the view that should a financial incentive or disincentive car parking measure be introduced then they would seek employment elsewhere. While the interviewees were also concerned about recruitment and retention issues, there was a view that many more characteristics than car parking determined why a person chose to work somewhere. This view was mirrored at the non-airport organisations where all three organisations noted little or no impact on recruitment and retention. At Heathrow Airport, should a financial incentive or disincentive measure be introduced then consideration should be given to the high proportion of shift workers and the alternative modes available to them. It may not be the case that large numbers of employees would seek work elsewhere as there are many factors which

determine choice of employment, but it is an issue for Heathrow Airport nevertheless.

9.2.4 Issues Surrounding the Process of Implementation

At BAA it was felt by the interviewees that BAA should be the first in terms of any implementation of a financial incentive or disincentive measure for employee car parking, effectively 'leading by example' and that the new initiative could then be extended to other organisations across the airport by those managers who have a closer link to the day to day running of the airport, such as terminal managers. It was also regarded that improvements to alternative modes should ideally be made before the central financial incentive or disincentive measure was introduced. Improving alternative modes before introducing the core element was an approach followed by Pfizer and the University of Bristol, while Addenbrooke's NHS Trust introduced their charge first, but considered that improving alternatives would have been a more suitable approach. Heathrow Airport, however, already has a wide range of public transport and alternative working practices in place so it would not be necessary to make wholesale changes to these before a financial incentive or disincentive measure was introduced.

At the non-airport organisations either 'big bang' and 'gradual' approaches were initiated in introducing the financial incentive or disincentive measure. The 'big bang' approach, as used at the University of Bristol, was seen to generate a greater level of initial modal shift and considered to reduce potential future resistance from employees, whereas the more gradual implementation, as used at Addenbrooke's NHS Trust, did not generate such a large initial modal shift and when price increases are proposed there is unrest amongst employees. It is difficult to quantify whether a 'big bang' approach generates a greater level of negativity in the first instance, however, and there is likely to come a time in such schemes where it is not possible to maintain the level of modal shift required, resulting in either the scheme losing effectiveness or a requirement for the charge or payment to be increased again. In the BAA interviewees there was a mixture of opinions over the most suitable way forward; overall the implementation strategy will depend on the measures to be included and whether the main objective is to create a meaningful initial modal split or just to get a new measure 'in place' in the first instance.

9.3 The Relative Importance of the Issues to be Addressed by BAA and Heathrow Airport

This section aims to allocate some relative level of importance to the various issues detailed in section 9.2, based on both the characteristics of BAA Heathrow and Heathrow Airport and the findings from the non-airport organisations. The areas regarded as being most important are focussed upon. The selection of these factors is not to suggest that the other factors are unimportant, but rather these areas should be given priority as they are likely to have a greater bearing on the effectiveness of a new implementation in achieving its aim and objectives. It is considered that these areas of key importance are likely at some level to be applicable to other airports and organisations in other sectors. Three key areas of importance are regarded to exist:

- Management support and the presence of a Project Champion;
- Communication and consultation, and;
- Flexibility and choice in determining travel mode, in terms of encouraging a decision by individuals on which mode to use on a daily basis and in terms of having a range of alternative modes present.

Crucial to the success of any scheme is support from senior managers and a strong desire to achieve the ultimate aim and objectives of the overall parking strategy. The evidence from the non-airport organisations was that without support from the top level there would have been little point in proceeding with the implementation of a financial incentive or disincentive measure. At BAA Heathrow no new radical measures could be introduced without top level managers sanctioning it. In addition to management support the presence of a Project Champion, whether an individual or group, is important to lead the scheme and drive its implementation. Having this focused approach is likely to allow for greater progress to be made and the aim and objectives to be met more effectively.

Communication is an important consideration when introducing a car parking measure such as a financial incentive or disincentive, particularly one which could be unpopular and will impact on every employee. Extensive and transparent communication via a range of media can assist in achieving understanding and acceptance from employees, as was found from the non-airport sites. This is a large undertaking at Heathrow Airport due to the number of organisations and employees, perhaps making it even more important an issue. Communication should cover specific reasons for change, along with the new initiatives being introduced and how they will directly impact on individuals. Linked with

communication is the issue of consultation, which should also be approached in an extensive and transparent manner, targeting individuals and allowing for as much feedback as possible if it is to be done so successfully.

Finally, any financial incentive or disincentive car parking measure should allow for a flexibility and choice on the part of the individual employee. Charges or cash payments are likely to be more effective if they are daily and direct to the employee so that the decision whether to drive to work or use an alternative mode can be made on a daily basis and directly by the individual. Supporting measures in the overall parking strategy such as public transport and alternative working practices should also allow for as much flexibility and choice in the decision making process as possible.

9.4 Contributions of the Research

Throughout the research benchmarking has been used as a tool to facilitate the comparison between Heathrow Airport and the non-airport organisations. This section details the contributions made by the research to the application of benchmarking techniques, particularly in the airport sector. Five areas are covered: functional benchmarking in the airport sector; the number of organisations in the exercise; the comparison of new processes; the objective viewpoint taken while benchmarking, and; the potential wider implications of the research.

The following academic papers and conference proceedings have been published as a result of conducting this research:

Aldridge, K., Carreno, M., Ison, S., Rye, T. and Straker, I., 2006. Car Parking Management At Airports: A Special Case?, *Transport Policy*, vol. 13, no 6. (Forthcoming)

Straker, I.A., Aldridge, K.T., Humphreys, I.M., Ison, S.G., Carreno, M and Rye, T., 2005. Car Parking: What Can Airports Learn From Universities?, *TRB 2005* (CD-Rom).

Straker, I.A., 2005. Airport Car Parking: Lessons From The University Sector. Proceedings of the UTSG Conference, Bristol, January.

Straker, I.A., 2004. Airport Car Parking Strategy: Lessons From The Non-Airport Sector. Proceedings of the UTSG Conference, Newcastle Upon Tyne, January.

9.4.1 Functional Benchmarking by Airports

Research into the use of benchmarking in the airport sector revealed that it was widely used as a performance improvement technique but that airports almost exclusively benchmarked with similar organisations, almost invariably other airports. It was stated by Fry et al (2005, p. 135) that “further benefits from benchmarking may be realised if airport managers consider looking for exemplar practices of the processes they are trying to manage and improve at dissimilar airports or even generic examples within other industries”. This is a key contribution of the research as it provides a rare in-depth example of benchmarking being conducted by an airport with non-airport organisations and therefore adds to the knowledge base in the area.

9.4.2 The Number of Organisations

The approach taken to benchmarking in the research differs to the traditional approach in that it drew together the findings about certain processes from three organisations rather than a traditional benchmarking approach which compares process in one organisation directly with those in another individual organisation. The use of three non-airport organisations allowed for a range of best practice experiences to be explored by BAA Heathrow, something which is especially important in a field where they do not yet know the approach they wish to take to address their car parking problems. Due to the wide range of issues apparent from conducting the interviews and focus groups at Heathrow Airport, the use of three non-airport organisations allowed for those areas regarded as being important to be benchmarked as thoroughly as possible at the comparator organisations.

9.4.3 The Comparison of ‘Innovative’ Processes

Several of the areas highlighted as being important at Heathrow Airport were those which the airport had limited experience of in the area of car parking. Examples of this include the processes surrounding how best to consult upon, gain acceptance for, communicate and implement the introduction of direct financial incentive or disincentive measures to the employee car parking strategy. The non-airport organisations had extensive knowledge in such areas and as such they could be considered to exemplify innovative process from

BAA's point of view as they allowed BAA an insight into processes they had little experience of, in terms of employee car parking at least. Generally benchmarking occurs when an organisation wishes to improve upon a current process and so they look to best practice organisations to facilitate the improvement. To this end, some processes addressed in the benchmarking exercise in this research could be considered to use generic benchmarking, rarely used in the airport sector.

9.4.4 Conducting Benchmarking from an Objective Viewpoint

The benchmarking exercise was conducted from an objective viewpoint in that it was carried out by a researcher not employed by the benchmarking organisation, BAA. This helped to remove any bias which may have existed had a similar benchmarking exercise been conducted by a member of BAA's management. It can be argued that this may be a limitation because a member of staff from the benchmarking organisation would have a greater understanding of the processes being benchmarked. In the case of the research undertaken for the thesis, however, a great deal of time was spent at BAA Heathrow, and the airport more generally, to understand the issues and processes that were of importance. Additionally, time was spent conducting original research at four other airports, as explored in Chapter 3, and conducting an extensive literature review, as detailed in Chapter 2, which helped in gaining a wider understanding of the salient issues. It was found that the introduction of a financial incentive or disincentive employee car parking measure at Heathrow Airport would require for a wide range of issues to be addressed by BAA. Therefore the involvement of an impartial researcher may well have facilitated the benchmarking exercise due to being equipped with an in depth knowledge of all the various and wide ranging relevant issues, potentially in excess of that held by some managers at BAA Heathrow. Therefore the approach taken suggests that best practice benchmarking does not have to be conducted by employees from the organisation wishing to learn and that an objective approach may prove beneficial in some circumstances if the individual, or individuals, conducting the benchmarking exercise have a wider knowledge base and an unbiased viewpoint.

9.4.5 Wider Implications

Due to the constrained nature of the site at Heathrow Airport, the constraints placed on it in

terms of air quality limits and the Terminal Five parking cap, its position as the UK's largest airport and the growth in passenger numbers, the airport is in a unique position, particularly in UK terms, of facing car parking problems before other airports, particularly on a large scale. Therefore the research offers an initial insight to the potential strategies which could be used by Heathrow Airport to resolve the problems it faces with employee car parking. As other airports continue to grow it is likely they too will be faced with similar problems and so the research could hold valuable lessons for them in the future. Indeed, some airports such as London Luton Airport, as explored in Chapter 3, are already beginning to face problems with car parking capacity; although the size of the site and the number of employees and passengers is smaller than Heathrow Airport, the findings of this research are likely to be of interest. In more general terms, the thesis provides an addition to the under researched area of surface access to airports and more specifically employee car parking. The approach of best practice benchmarking with non-related organisations may also assist a wider array of organisations who are facing car parking problems.

9.5 Limitations of the Research

This section explores the potential limitations of the way in which best practice benchmarking was conducted in the research. Five areas are addressed: the continuous nature of benchmarking; the issue that benchmarking only allows an organisation to catch up to another; target setting; the team approach to conducting benchmarking, and; the comparability of the selected non-airport organisations to BAA and the issues at Heathrow Airport.

9.5.1 The Benchmarking Process: A Continuous Cycle

An adaptation of the benchmarking process has been used throughout the research due to the presence of conditions which have meant it is not possible to conduct the complete benchmarking cycle, as discussed in section 4.10. These conditions include the limitations on the resources available both in terms of time and money and the nature of the research as a PhD rather than a full benchmarking exercise as would be undertaken by an organisation. The full benchmarking process is a continuous cycle and after recommendations are made and implemented then the process of comparison begins again to allow the organisation to

investigate whether the new implementations are successful and whether the performance gap with the best practice organisations has been closed. The benchmarking process in the research is also incomplete because it is only possible to recommend actions to managers at BAA Heathrow, but not to implement those recommendations. The next immediate stage of any further research would have been to return to BAA with the final results and gather opinions on these.

Spendolini states “benchmarking is not a one-time event” (1992) but in the case of this research it is argued that certain elements of the benchmarking exercise do not conform to the position of benchmarking as a continuous activity. Areas such as implementation of a parking charge or a cash payment system are likely to be singular activities and once the implementation has occurred there is a reduced need to continue benchmarking the process of how best to conduct such an implementation.

9.5.2 Benchmarking Only Allows Imitation

The theory and nature of best practice benchmarking is regarded by some authors to be lacking in the sense that it only allows the benchmarking organisation to catch up to the best practice organisation in the short term and it does not encourage the benchmarking organisation to innovate (Zairi and Leonard, 1994, McAdam and Kelly, 2002). There is also a concern that processes from one organisation may not be applicable to another (Cox and Thompson, 1998, Hinton et al, 2000). The research has sought to overcome these concerns; the suggestions to BAA made earlier in the chapter do not simply take the processes from one organisation and directly recommend them to BAA Heathrow, rather recommendations and potential solutions are stated based on the findings from a range of comparator organisations. The research has been focussed on facilitating ideas for an implementation at Heathrow Airport rather than allowing Heathrow Airport to ‘catch up’ with the non-airport organisations.

9.5.3 Target Setting

An important area of benchmarking is to set targets for improvement which can then be measured against best practice organisations to determine any changes in the performance gap. This is an area which has not been possible to address in the research because the various elements of a parking strategy containing a financial incentive or disincentive

measure have not been developed and implemented by BAA Heathrow, hence it is not possible to set any meaningful targets for comparison. Should a financial incentive or disincentive be implemented as part of the employee car parking strategy at Heathrow Airport then the development of targets would be important and would help in measuring performance.

9.5.4 Team Approach

Some authors, most notably Spendolini (1992) and Vasilash (1994) state that benchmarking achieves the best results when conducted by a team of investigators. This is something which has not been possible in the research due to the nature of PhD research.

9.5.5 Comparability of Case Studies

As explored in section 4.8.1, finding ‘best practice’ has been questioned by some authors, most notably Cox and Thompson (1998), who argued that ‘best practice’ differs for each organisation depending on their individual circumstances and the particular point in time. It was also stated that the ‘best’ companies may not wish to take part in the benchmarking exercise (Anderson et al, 1999). While this potential limitation is important, it is considered that the selection of the organisations was justified on sound methodological grounds. The comparability of BAA Heathrow to the non-airport organisations was explored in section 5.3 and the approach taken in selecting the non-airport comparator organisations was justified. Table 5.6 was also presented which summarised the recognised similarities and differences between Heathrow Airport and each non-airport organisation. Within the airport sector there are only a limited number of relevant implementations of employee car parking strategies which have been reported, but they tended not to be airport wide, for example the use of parking cash out by KLM at Schiphol Airport reported in section 2.11.1. Additionally, as stated above in section 9.4.1 and earlier in the thesis, airports have been recommended to look outside their sector when conducting benchmarking exercises.

Despite the problems that have been noted with the way in which benchmarking has been conducted in the research, it can still be seen to be a useful tool, particularly when used together with the other methodologies seen in this thesis such as the use of case studies

incorporating interviews and focus groups and the coding and analysis of the data which facilitated the benchmarking comparison.

9.6 Further Research

The research presented in this thesis has focussed on addressing the issues at Heathrow Airport by looking to specific examples of how other organisations have addressed similar issues. A number of areas for further research exist which would widen the potential use of the findings and techniques used.

9.6.1 The Regulated Nature of Employee Car Parking at Heathrow Airport

As stated on a number of occasions throughout the thesis, employee car parking is a regulated activity at Heathrow Airport and as such BAA are not allowed to return a profit on it; all revenues must balance with the cost of providing car parks. The implications of introducing a direct employee car parking charge, particularly if there was a desire to ring-fence revenues for public transport reinvestment, were unclear to the BAA employees interviewed and as such further research in this area is required to see whether reinvesting car parking revenues in public transport would be considered a cost of car parking within the constraints of the regulation.

9.6.2 Wider Range of Organisations

The research has considered Heathrow Airport in depth and Chapter 3 detailed the findings of interviews at four airports with differing characteristics. It is considered that the findings of the research can already provide lessons for a wide range of airports and that further research looking in depth at a greater number of airports would allow for the findings to be of even wider interest. An investigation into the situation at different airports around the world could be of benefit, thus including a wider range of issues in areas such as shift patterns, location and employee mix, thus further increasing the reach of the findings. It should be remembered, however, that each airport's characteristics and issues are unique and so any general recommendations and conclusions would still need to be supported by specific actions for each individual airport.

The non-airport organisations selected for the benchmarking exercise with BAA Heathrow were done so on clearly justified grounds and it may be advantageous for any further research to include additional 'best practice' organisations to uncover a wider range of knowledge on dealing with employee car parking issues. It would be beneficial to look to organisations who had used innovative measures other than those used by Addenbrooke's NHS Trust, the University of Bristol and Pfizer.

9.6.3 Further Interviews and Focus Groups

Conducting selected interviews with top level management at Heathrow Airport would have allowed for more views to be obtained on the issues surrounding employee car parking and in particular the current thinking on the car parking situation at the airport from a top level strategic viewpoint. Additionally, at Heathrow Airport all interviews were conducted at BAA Heathrow. This was beneficial in terms of conducting the benchmarking exercise as it allowed for a direct comparison between the processes in BAA Heathrow with those in the non-airport organisations, but further research which included interviewees from other organisations at the airport would allow for a more detailed airport-wide perspective on employee car parking to be obtained. In terms of focus groups it would be beneficial to conduct groups at the non-airport organisations to gather employee views on the parking strategy in place.

9.6.4 Investigation of Other Strategic Measures

The research has concentrated on the use of an employee direct parking charge or financial incentive. Restrictions on parking and permit allocation have also been considered where they form part of an overall parking or travel strategy at an organisation. There are other measures which could be investigated by further research, most notably a road user charge. The issues surrounding the introduction of such a measure at Heathrow Airport could be explored along with an investigation into the impact of road user charging in other locations.

9.6.5 Implementation of Recommendations

It was not possible to implement an employee direct financial incentive or disincentive car parking measure at Heathrow Airport as part of the research but at some point in the future should such a measure be introduced, a key piece of further research would be to monitor the subsequent improvement or deterioration in the situation with employee car parking. As well as allowing the recommendations to be justified or refuted, it would allow for the benchmarking cycle to be completed. The recommendations put into place could then be investigated further through the use of further benchmarking in order to allow for improvements to be made.

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Appendix 1

The Benchmarking Process: Vignettes

This section examines four example vignettes of benchmarking exercises all of which have been selected because they have relevance to this research. Examples are chosen from the service sector and in one case from the aviation industry. The examples help to highlight where organisations have adapted benchmarking models to best suit their own needs and where outside consultants or researchers have aided the benchmarking exercise.

Benchmarking at Post Office Counters Limited

Of particular interest are the benchmarking activities carried out by Post Office Counters Limited and Royal Mail. Like airports, both organisations are in a service industry rather than manufacturing and so they share a stronger focus on people.

Benchmarking at Post Office Counters Limited has been introduced with a strategic company-wide focus, with the aim of improving quality in areas of the organisation where a need is recognised. After a decision to introduce the concept of “quality”, Post Office Counters Limited launched the “Customer First” initiative in 1987, initially amongst managers before expanding it to Post Offices and Sub Post-Masters. To the organisations, Customer First means managing the business in a way that continually focuses on the customer and harnesses everybody’s commitment. (Zairi, 1996)

The Customer First “Circle Of Improvement” contains a rim, various spokes and a hub. The rim of the wheel highlights the main factors driving the scheme, namely customer focus, management by fact, people based management and continuous improvement. The hub of the wheel represents the quality improvement process which is the engine driving the improvement efforts. The spokes of the wheel, of which benchmarking is one, are the elements that need to be managed, improved and controlled to ensure effectiveness in delivering the objectives of Customer First. (Zairi, 1996)

Post Office Counters Limited consider the benchmarking spoke to be important because it is

the tool for establishing “parameters of competitiveness”. It is used to strengthen Customer First internal improvement programmes and prevent complacency. The benchmarking approach taken at Post Office Counters was not a simple “off the shelf” package, it was introduced after investigation, experimentation, need identification and development. Parallels can be seen with the use of benchmarking for allowing airports to learn from non-airport organisations, where the benchmarking process needs to be adapted to best suit the circumstances it is to be used in, rather than directly using a model such as that developed by Camp or Spendolini.

Initially, benchmarking within the Customer First initiative went no further than company visits and exploratory tours but it was soon realised that a process of structure and discipline was required. It was decided to develop a process for benchmarking which was based on that adopted by leading companies such as Xerox, AT&T and IBM. The approach used by Post Office Counters Limited is also compatible with that used by Royal Mail, another division of the Post Office. A training programme was developed, a key part of which was to thoroughly explain to staff the difference between a benchmark and benchmarking.

The strategy used for benchmarking at Post Office Counters Limited was to first examine best practice internally across the seven regions of the UK and then to look externally, only targeting best practice. The organisation has also developed a database of “best of breed” external companies, “best of breed” internal processes, benchmarking partners and benchmarking studies. This helps to provide data on potential partners and studies and to speed up the project.

Post Office Counters Limited developed a nine-step benchmarking process, containing the following steps:

- 1 Choose the process to be benchmarked and map the process concerned;
- 2 Shortlist potential partners, obtain information and research data, target companies for partnership, identify contact names and initiate discussions;
- 3 Identify known gaps in performance and determine the expected outcome from benchmarking with the target company;
- 4 Form team, appoint members and define roles clearly;
- 5 Communicate with partners on team, determine format of visit and confirm in writing;
- 6 Prepare questions, checklists, a detailed itinerary and reciprocal answers;
- 7 Interact with benchmarking partner, follow systematic route for questions, note new information, clarify any outstanding points and summarise information;
- 8 Team meeting to de-brief, evaluate visit and develop action plan, and;
- 9 Measure and review progress to see if gap is closing. (Zairi, 1996)

While the process is very similar to that developed by Camp, Post Office Counters Limited rewrote it in their own language, something which Zairi (1996) states is important as it can facilitate the process of ownership and make the application much easier. In a similar fashion,

the benchmarking process model developed for the research, as shown in section 4.12, will be written in a way which best suits the needs of the research.

A specific example of where benchmarking has been used successfully at Post Office Counters Limited can be seen in their “Customer Advisor Project”. This project follows a step-by-step approach to benchmarking with a robust methodology. Within the Customer Advisor Project the objective was to find new and better ways of improving the service at retail outlets without incorporating any additional costs. The process was documented to understand all the activities and tasks that took place within a Post Office Counters retail area. The service customers received at the counter was then selected as a sub-process to focus on. Potential partners were selected for benchmarking, including banks and building societies, who were recognized to have similar processes, and fast food retailers who were recognized to be leaders in dealing with customers quickly and efficiently. Information was gathered including: research from local business schools; suppliers’ customers and personal contacts; ex-employees of other companies and currently employees of Post Office Counters Limited, and; professional associates. The data analysis was conducted on a “need to know” basis, focusing closely on uncovered practices in order to establish the gap. Benchmarking visits then took place to gather knowledge and the findings from one of the benchmarking partners were used to redesign the process at the service counter and close the gap. It also enabled Post Office Counters Limited to realize that recruitment and training were areas that needed to be improved.

The new process, whereby customers were greeted as they entered the Post Office was launched at ten offices initially with emphasis being placed on overall communication. Performance was monitored using several measures including recording waiting times and customer satisfaction studies which allowed Post Office Counters to both review the benchmarking project, its impact and also review the robustness of the methodology used. Significant improvements in waiting times and customer perception were found. (Zairi, 1996)

Zairi (1996) states that the Post Office Counters benchmarking project is beneficial in several ways. If the various stages and steps of a benchmarking process are adhered to then the robustness of the methodology is seen to be sound. He also states that focus is very important and the area selected should support a corporate objective. In the case of this thesis it is an objective of BAA to reduce car journeys to Heathrow Airport, not least because of environmental pollution limits and the car parking cap imposed as a condition of Terminal Five being developed. The Post Office Counters Limited benchmarking project also

highlights that in a large organisation it is important to pilot the “first experiment” before launching it more widely. The first attempt must also be seen to be successful. This is advice that may prove to be a useful recommendation to BAA.

Benchmarking at Royal Mail

Royal Mail is the largest component of the Post Office. Like Post Office Counters Limited they also adopted the Customer First initiative in the late 1980's with the objectives being to improve focus within the company, encourage better teamwork, increase commitment and sharpen focus on customers. Royal Mail's overall mission is to be recognized as the best organisation in the world distributing text and packages. A business improvement model has been designed to deliver this mission with benchmarking playing a part. (Zairi, 1996)

Royal Mail became interested in benchmarking in 1990 after directors and senior managers witnessed some companies in the USA that excelled at total quality management. A visit to these companies alerted the directors and senior managers to the importance of benchmarking as a management activity.

Royal Mail state that for benchmarking to be effective the following rules should be observed:

- It needs to be established why benchmarking is to be used;
- The project or process needs to be in line with business objectives;
- Benchmarking itself is used as a process, and;
- Benchmarking is an integral element of a larger process improvement. (Zairi, 1996)

The use of benchmarking for the research in this thesis can be related to some of these “rules”. It has been established that benchmarking is to be used as the tool to allow BAA to learn from best practice elsewhere in the area of employee car parking. Although the benchmarking exercise is being conducted from an outside perspective it is still possible to see some ties with the objectives of BAA, one of which is to meet environmental pollution limits and reduce employee car parking due to the Terminal Five parking cap. Benchmarking is also to be used as a process in the research. In this research, the benchmarking exercise cannot be seen to be an integral element of a larger process improvement because of the nature of the exercise and the outside viewpoint.

The Royal Mail benchmarking process contains eight steps following a similar pattern to Camp's model, which can be summarized into the following phases:

- Steps 1 and 2 – process and target organisation definition;
- Steps 3 to 6 – visit preparation, interaction, debrief and evaluation;
- Steps 7 and 8 – integration of learning points within Royal Mail. (Zairi, 1996)

Royal Mail implement their benchmarking process on a number of levels:

organisational/strategic; business-wide processes, and; group/individual tasks. They also use it to look at improvement opportunities and as an integral part of the improvement process (Zairi, 1996). This highlights that benchmarking can be applied in many different ways and can be adapted to suit individual circumstances, something which supports the way in which it is being used in the thesis.

Royal Mail prefer to use the terminology “good practice” to “best practice” to signify that it is possible for more than one approach to be suitable for addressing a task or problem. They define good practice as “any proven working practice which is far enough ahead of the norm to provide significant performance gains if implemented” (Zairi and Whymark, 2000a, p.66). This approach can be seen in the research at BAA and the non-airport sites, where three “good” or “better” practice organisations will be selected for the benchmarking exercise with BAA and not just one organisation perceived to be “the best”.

Nationwide Building Society

The benchmarking exercise in this research is being conducted from an outside perspective. An approach which is similar in some ways can be seen at Nationwide Building Society where consultants were involved in the benchmarking exercise (Zairi and Whymark, 2000b). Market research at Nationwide had revealed that customer satisfaction fell short in the areas of reliability, speed and quality of advice. The company launched an internal benchmarking exercise to learn from the branches which were better in the three highlighted areas. While the benchmarking exercise was still owned, managed and deployed in-house, consultants were used to provide the framework and offer expertise gained from similar approaches in other organisations. This demonstrates that external personnel can be used in benchmarking exercises and hence goes some way to support the approach taken in the thesis.

Benchmarking in Air Cargo

Lobo and Zairi (1999a and b) conducted a competitive benchmarking exercise with air cargo operators using a questionnaire and interviews. The results were used to allow comparisons to be made and detailed the specific practices used by the different operators. The aim of the research was to select key benchmarks that the industry could use to allow for performance comparisons. While there are some differences to the thesis research it demonstrates that benchmarking has been conducted by researchers from an outside perspective which is

important in justifying the approach taken in.