Sustainable Accessibility Concepts

Pre-investment Study on Rail Access to Airports

Thanet Parkway Business Case

GSA


Airport

Thanet Parkway

Business Case

On behalf of

Project Ref: 28470/001 | Rev: AA | Date: September 2013

Office Address: Caversham Bridge House, Waterman Place, Reading, Berkshire RG1 8DN
T: +44 (0)118 950 0761 F: +44 (0)118 959 7498 E: reading@peterbrett.com

Document Control Sheet

Project Name: **Thanet Parkway**
Project Ref: **28470**
Report Title: **Business Case**
Doc Ref: **28470/BC001**
Date: **September 2013**

	Name	Position	Signature	Date
Prepared by:	Helen Bowkett / Alastair Mackie	Senior Associate/ Associate		16 Sept 2013
Reviewed by:	Adam Coleman	Senior Engineer		16 Sept 2013
Approved by:	Scott Witchalls	Partner		23 Sept 2013
For and on behalf of Peter Brett Associates LLP				

Revision	Date	Description	Prepared	Reviewed	Approved

Peter Brett Associates LLP disclaims any responsibility to the Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence within the terms of the Contract with the Client and generally in accordance with the appropriate ACE Agreement and taking account of the manpower, resources, investigations and testing devoted to it by agreement with the Client. This report is confidential to the Client and Peter Brett Associates LLP accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

© Peter Brett Associates LLP 2013

Contents

Figures

Tables

1 Introduction

1.1 GSA Project

This report into improving rail access to regional airports, using Manston as a case study, has been commissioned by Kent County Council as part of the wider Green Sustainable Airports (GSA) Project, which is in turn part of the Interreg IVB North Sea Region (NSR) Programme within the European Union.

Small and medium sized regional airports are considered essential for regional accessibility and competitiveness and it is therefore important that surface access enables the airports to function efficiently as part of the wider transport system. Airports have a concentration of activity that has the potential to achieve significant modal shift in favour of public transport.

Both air passengers and airport workers generate carbon from their journey to/from the airport if they travel by car or public transport. However, carbon emissions are generally lower if the trip is made by public transport although the exact size of the saving depends on a number of factors such as the car that would otherwise have been used and the occupancy of the car and the public transport alternative. The provision of attractive public transport services to an airport makes it possible for passengers and workers to reduce their carbon emissions.

Rail can provide a relatively fast form of transport and extends the effective catchment area of a regional airport to public transport users. Some airports have the benefit of being sited close to an existing railway line, such as London Southend, and so can be connected into the rail network by the provision of a station at the airport. Others, such as London Heathrow have sufficient passengers to justify the cost of extending the existing rail network into the airport as well as providing a new station. Such a case though is the exception, and rail connectivity is provided by a bus connection from a nearby railway station to the airport. This can be provided either by incorporating the airport into existing local bus services or by the provision of a dedicated airport bus service, such as that provided between Bristol Temple Meads station and Bristol airport.

The overall objective of the GSA Project is to promote the development of small to medium sized airports in an environmentally sensitive way. This study forms part of Work Package 4: Sustainable Landside Accessibility, and aims to examine the financial implications of options for providing access from the rail network to regional airports. In particular it seeks to identify the threshold level of passenger numbers at which alternative methods of providing connectivity from the rail network to Kent International Airport (Manston) would become financially sustainable.

1.2 Key Findings from previous studies

This study builds on the findings from two previous workstreams undertaken by Kent County Council which were reported in 'Public Transport Accessibility to Small and Medium Sized Regional Airports' September 2011 and a 'Study on Innovative Bus Services to Small and Medium Sized Regional Airports' completed in November 2012.

The first study aimed to identify the deficiencies in public transport surface connectivity at small to medium sized airports in the North Sea Region of Europe and produced recommendations for solutions to the deficiencies in public transport surface connectivity to these airports. The study focused on two airports in Kent: Manston (Kent's International Airport) and Lydd (London Ashford) Airport.

The study looked at the current public transport provision at Manston and Lydd and a further six airports which provided a North Sea Region context:

1. London Southend Airport
2. City Airport Bremen, Germany
3. Sandefjord Lufthavn Torp Airport, Norway
4. Groningen Airport Eelde, The Netherland;
5. Billund Airport, Denmark and
6. Kortrijk-Wevelgem International Airport, Belgium.

The study concluded that "rail represents a fast and convenient form of transport to both staff and passengers. However, in many cases, the links between the airport and the rail station would benefit from improvement". The most efficient option was identified as being the provision of a direct rail link to the airport such as has been achieved at London Southend Airport, where the advantage of close proximity of the existing railway line to the airport had been exploited by the construction of a new station with direct access to the terminal building. However, this is not always a cost effective solution and London Southend benefitted from its very close proximity to the rail network.

For airports which are not so close to an existing railway line, the cost of building a new link would be extremely expensive. The study team therefore recommended that the development of a shuttle bus service which links into the flight times could prove to be a more cost effective and yet still efficient method of providing public transport access to a regional airport.

The study on innovative bus services to small and medium sized regional airports in November 2012 investigated further the options of providing bus services to airports, including links from railway stations to the regional airports in the North Sea Region.

The study again focused on Kent's two airports at Manston and Lydd. It identified a set of recommendations based on three scenarios:

1. Short-term - improvements which might be justified by current demand levels
2. Medium-term - improvements which might be justified by forecast demand levels and
3. Long-term - improvements which would only be justified as a result of significant further airport expansion.

The recommendations arising from the study were to investigate the potential to provide demand responsive services in the short term which could address key gaps in the public transport accessibility to both airports. It drew attention to the longer term benefits of linking Kent International Airport (Manston) to the high speed rail network by providing a new station close to the airport.

1.3 Study Aims

The objective of this study is to use Manston, Kent's International Airport, as a case study to investigate the level of passengers numbers needed to provide a financially self-sustaining connection to the rail network. In particular it seeks:

- to identify the threshold, in terms of the number of passengers, at which a new station serving Kent International airport at Manston would become financially self-sustaining
- to examine the options for connecting the proposed new station, known as Thanet Parkway, to the airport and
- to compare this with the threshold number of passengers required to maintain a dedicated bus service to the existing nearest major rail station at Ramsgate.

2 Rail Access to Kent International Airport

2.1 Current Services

The rail network in eastern Kent is shown in Figure 2.1 below. The proposed new station at Thanet Parkway would be located between Ramsgate and Minster and could be served by trains going to or coming from Canterbury West and Dover Priory.

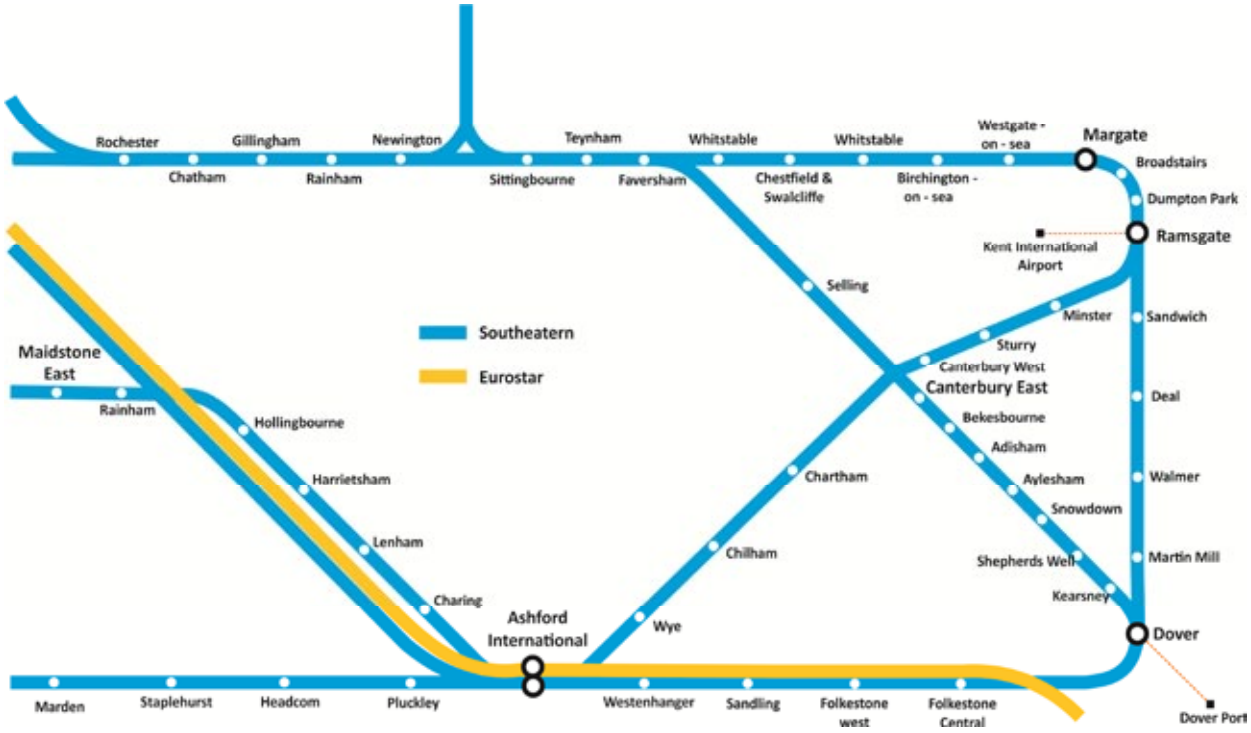

Figure 2.1: Rail network in East Kent

(Source: Network Rail)

The rail operator for domestic services in Thanet is Southeastern. Domestic high speed services in Kent began operation in December 2009 to London St Pancras. There is an hourly service running from Margate to Broadstairs, Ramsgate, Canterbury West, Ashford International, Ebbsfleet International, Stratford International and London St Pancras. The journey time from Ramsgate to Canterbury West is 20 minutes, to Ashford is 36 minutes, to Stratford is 69 minutes and to St Pancras is 76 minutes.

On the non-high speed network there are two trains an hour from Ramsgate which join at Ashford International to form a single service into London Charing Cross. One service calls at all stations from Ramsgate to Ashford via Sandwich, Dover and Folkestone. The other service calls at most stations from Ramsgate to Ashford via Canterbury West. There are also two trains per hour from Ramsgate to London Victoria which call at most stations via Chatham and Bromley South.

2.2 Planned Line Speed Improvements

The current journey time from Ramsgate to Ashford is 36 minutes. Network Rail is expecting to improve the line speeds in the area in two phases, the second of which should be completed by

2018/19, reducing the journey time by 6 minutes to 30 minutes. The current and planned travel times are shown in Figure 2.2 below.

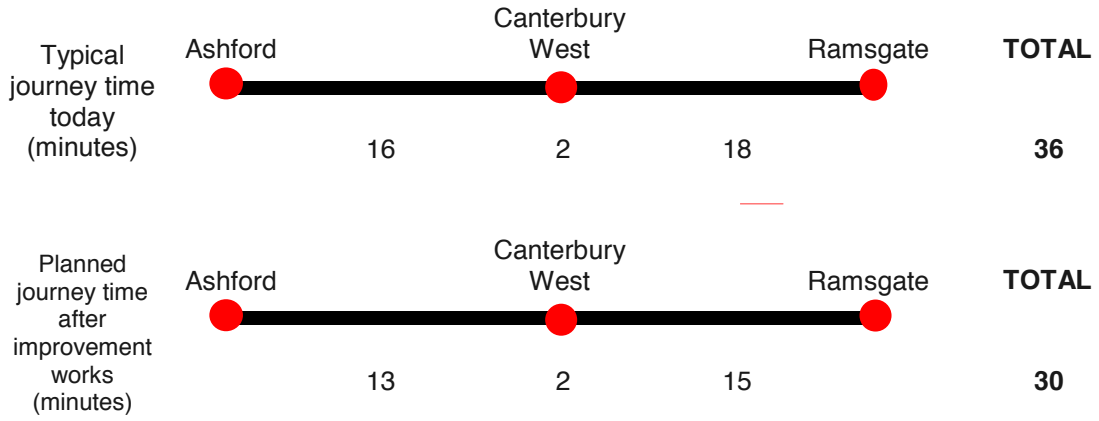

Figure 2.2: Planned journey time improvements between Ramsgate and Ashford

(Source: Network Rail)

2.3 Thanet Parkway Station

The current proposal for Thanet Parkway is to locate the station between Minster and Ramsgate on the railway line that runs from Ramsgate to Canterbury West. The station would be served by the high speed domestic services which run from Margate to St Pancras via Ramsgate and Ashford International.

The proposed site of the new station, Thanet Parkway, is shown in figure 2.3 below. The station site can be easily reached from the East Kent Access Road which opened fully in May 2012 and is close to the airport.

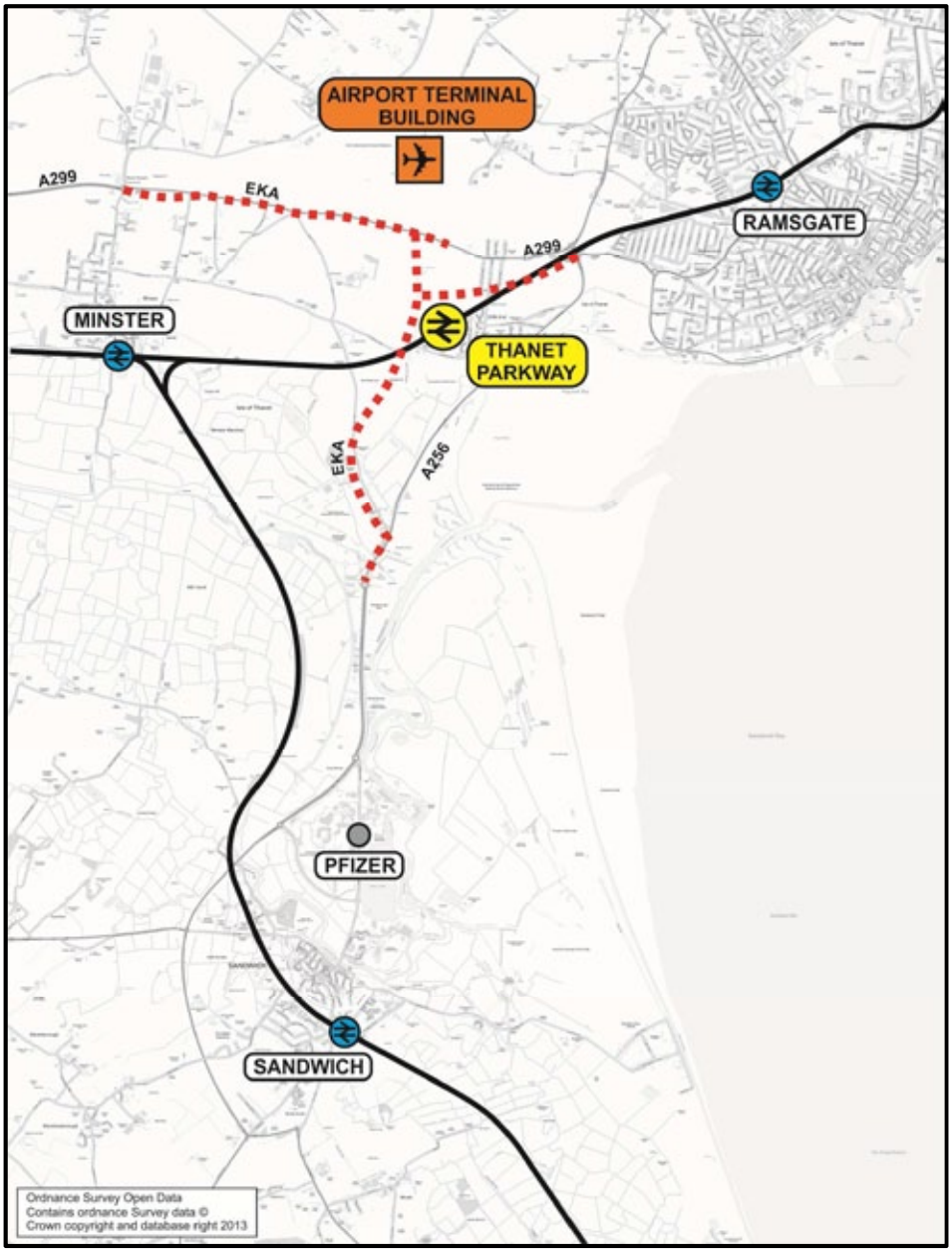

Figure 2.3 . Proposed location of Thanet Parkway Station

If Thanet Parkway station is built the journey time from the station to Ashford, with the planned line speed improvements, would be 33 minutes. There is a possibility that a faster journey time of 29 minutes could be achieved but this is not guaranteed at this stage in the scheme design. This faster time would provide a journey time from Thanet Parkway to Canterbury West of 13 minutes, to Ashford International of 26 minutes and to London Stratford of just under an hour at 59 minutes. These journey times are shown in Figure 2.4 below.

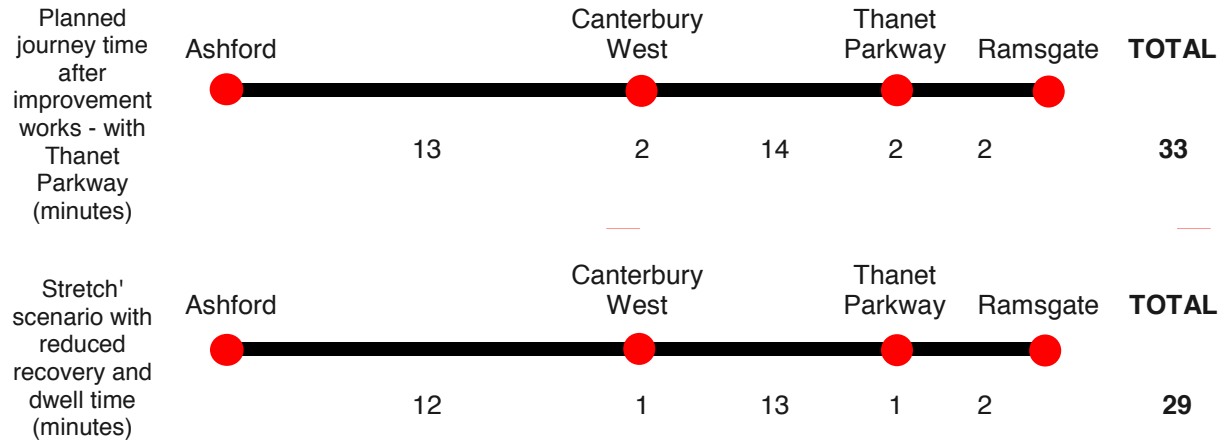

Figure 2.4: Journey times with Thanet Parkway station

(Source: Network Rail)

3 Public Transport Access to Kent International Airport

3.1 Introduction

This chapter presents a review of the available options for providing public transport access to Manston, Kent's International Airport, from the rail network in Thanet. It considers first the option of adapting and upgrading local bus services to serve the airport and then the option of providing dedicated connecting bus services to the airport from the existing nearest major railway station at Ramsgate. Finally it considers the options for connecting to a new station on the network closer to the airport.

A bus costing model for rail-air links has been developed in order to gain an insight into the threshold number of passengers that would make a dedicated rail-air from a nearby rail station to an airport financially self-sustaining. The costs of operating such a service depends on the frequency of the service provided, the daily operating hours of the service and the distance between the rail station and the airport.

Any bus service designed to connect the rail network to the airport should have a minimum frequency of 2 buses an hour in each direction.

Ideally the service would operate sufficiently extended hours to serve all flights from the airport. Currently the first flight leaves Kent International Airport at 6.20 and the last flight arrives at 20.45. This would suggest operating hours for a bus connection running between 4.00 and 22.00 hours.
For a bus service aimed at connecting to local rail services there is an additional influence on the operating hours chosen, the start and finish times of the train services. The first train arrives at Ramsgate from Ashford International at 6.39. The last train leaves Ramsgate for London at 22.24.

This suggests that, with the current rail timetable, the start of the bus service could be delayed to start at 6.45 or 7.00 which would enable it to be used for passengers taking the second flight of the day. Depending on the shift times of staff they would not be able to use rail/bus combination to reach the airport at the start of their shift owing to the lack of trains running at that time in the morning.
The analysis in this chapter has therefore used two scenarios, a bus service running from 4.00 to 24.00 as it is possible that with an increase in the number of flights at the airport, early morning and late evening train services might be introduced to serve the airport, and a more constricted bus service running from 7.00 to 22.00 hours.

3.2 Upgrade Existing Bus Services

The first option considered for providing a link from the rail network to Manston (Kent International Airport) is to increase the frequency and extend the hours of operation of the existing bus services that serve the airport. Kent International Airport (KIA) is currently served by local bus services 11 and 38. Service 11 provides a link to Minster station and service 38 provides a link to Ramsgate station.

Local bus service 11

The route of service 11 is shown in figure 3.1 below and the service details are given in table 3.1.

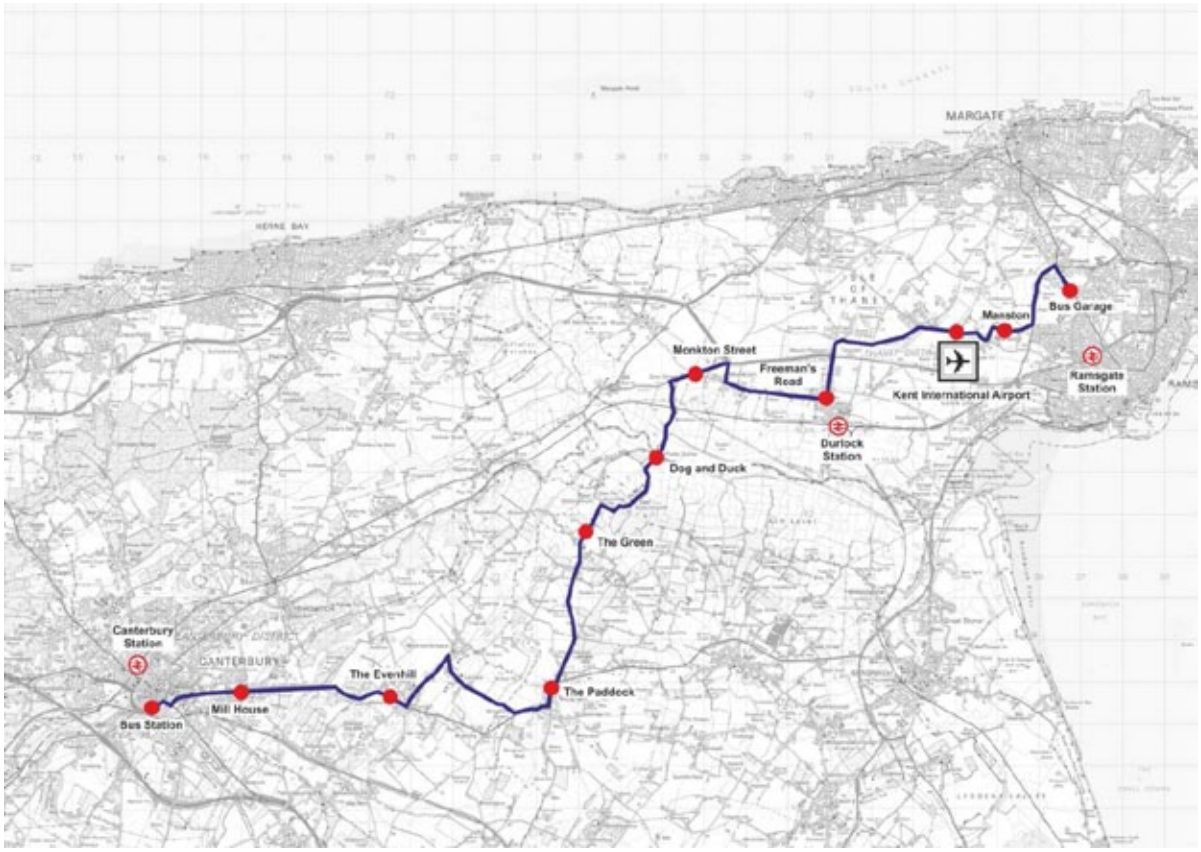

Figure 3.1: Route of bus service 11

Service 11		
Terminal points	Canterbury	Broadstairs
Places served	Littlebourne, Wingham, Minster, Minster railway station, KIA, Westwood (continues via Broadstairs and Ramsgate as service 9)	
First Bus from Minster	Mon – Fri 1043	Sat 1043
Last Bus to Minster	Mon – Fri 1407 schooldays 1607 (holidays)	Sat 1607
Frequency	Every 2-3 hours	Every 2-3 hours
Journey time	Minster to KIA 8 minutes	KIA to Minster 9 minutes

Table 3.1: Service 11 route details

The service is extremely limited with a span over the day of only four to six hours and an infrequent service. The connection to Minster station provides access to the national rail network, but this station is not served by the high speed services. The access to other rail services is at Broadstairs which is 30 minutes away.

This current service is so infrequent that it is unsuited to the needs of an international airport. It is not recommended that this frequency of this service is increased to say every 30 minutes in each direction as demand is low on the route and it would be very expensive to run extra buses along the whole route.

Local bus service 38

The route of service 38 is shown in figure 3.2 below and the service details are given in table 3.2

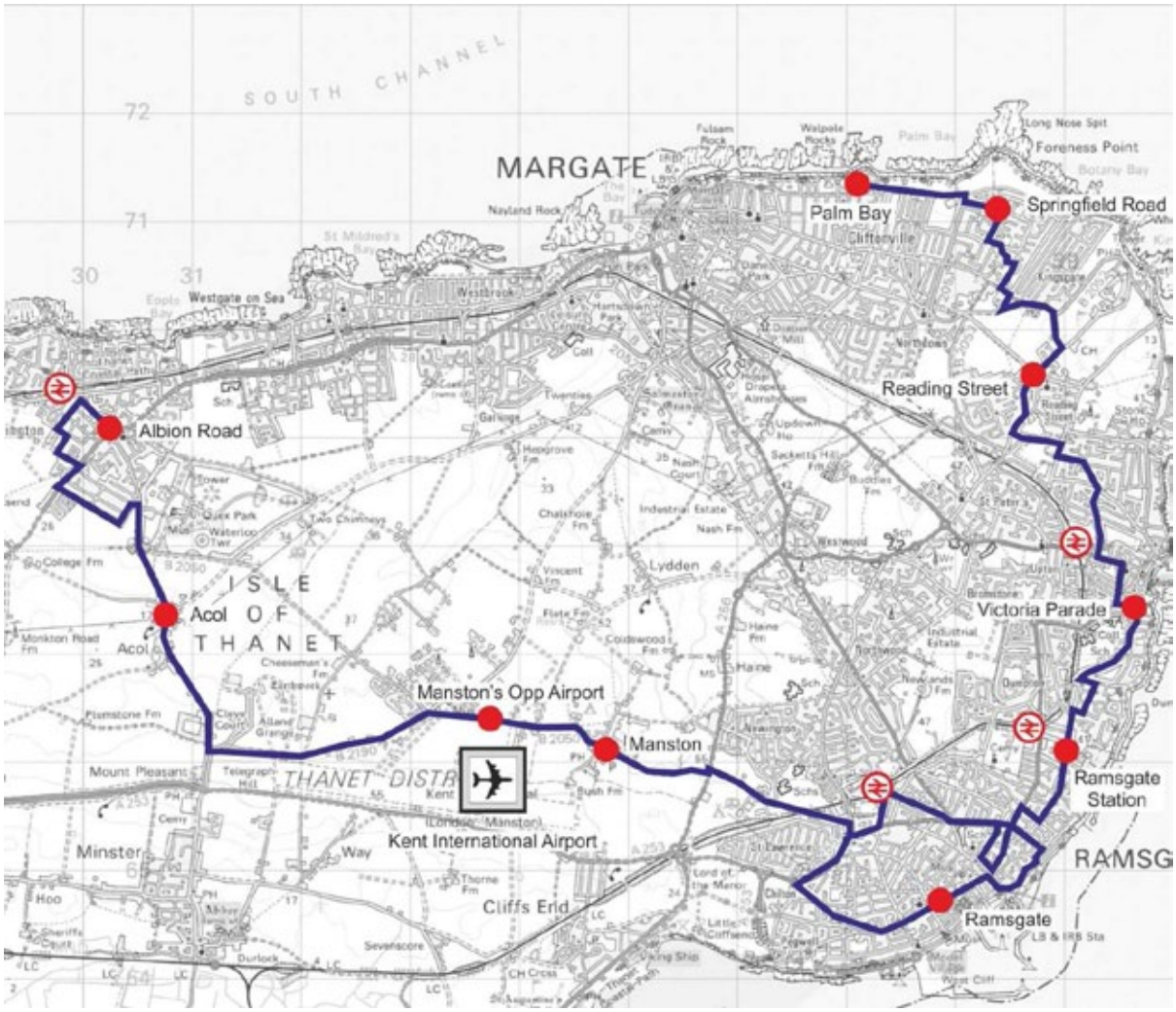

Figure 3.2: Route of bus service 38

Service 38		
Terminal points	Birchington, railway station	Palm Bay
Places served	Birchington, KIA, Manston, Ramsgate railway station, Ramsgate town centre, Broadstairs, Palm Bay	
First Bus from Ramsgate	Mon – Fri 0739	Sat 1005
Last Bus to Ramsgate	Mon – Fri 1744	Sat 1343
Frequency	Approx hourly	Approx hourly
Journey time	Ramsgate to KIA 8 minutes	KIA to Ramsgate 9 minutes

Table 3.2: Service 38 route details

As table 3.2 above shows, the hours of operation for the service 38 are longer than those for the service 11. The service operates between 8am and 6pm on Monday to Friday and from 10am to 2pm on Saturdays. There is no service on Sundays or Bank Holidays.

This service has the advantage of serving Ramsgate railway station which means there are connections, by rail and bus, to all of the principal settlements of Thanet and East Kent. However, the hours of operation are unsuited to the demands of an international airport: no services cater for early morning, evening and most weekend flights, or for airport shift workers.

The current service cycle is very tightly scheduled with a recovery time of only one minute every two hours. This cycle is insufficient to cope with the time required to load and unload air passengers and their luggage. In order to maintain reliability, either the route would have to be amended to save time elsewhere or an additional vehicle would be needed to add into the cycle.

The resources required to upgrade the service to serve the airport properly would be considerable, both within the present hours of operation where an additional vehicle would be required and to extend the hours of operation to 18 hours /7 days. It is therefore recommended that this option is not pursued.

3.3 Rail Plus Connecting Bus to Ramsgate

An alternative strategy would be to design a new service directly tailored to the needs of the airport and offering greater potential to attract passengers and workers. Table 3.3 below develops the specification that would be required for such a service:

Service feature	Requirement	Comments
Hours of operation	Potentially 0400 – 2400, 7 days per week	Dependent on flight times and including check-in/security etc
Destinations served	Ramsgate railway station ✓	Access to national rail network and local bus services
	Canterbury ✖	Not required as journey time would be uncompetitive with rail
Timetable frequency	Minimum of every 30 minutes	Dependent on flight times but needs to recognise airport arrival profile of outbound passengers. Ideally timed to match rail timetable. 60 minute frequency (or less) would be unattractive and may lead to peaking of demand
Vehicle capacity	25 seats	Dependent on demand forecasts but needed to cope with spikes in demand

Table 3.3: Service specification for a rail/air bus link for Kent International Airport.

An indicative timetable is shown below in table 3.4, although the version implemented would depend on the pattern of flight arrivals and departures and airport staff working hours.

Running time has been calculated based on the existing service 38 with a reduction to reflect the non-stop nature of the new service. The suggested running time is seven minutes in each direction. If only one vehicle was used to operate the service on this basis on a 30 minute frequency, there would

not be sufficient time to allow for loading and unloading at the station and airport and it would be hard to maintain reliability. This means that the service would require a second vehicle in order to provide a reliable 30 minute service.

Daily			
Ramsgate Rail Station	04:00	& every 30 minutes	00:30
Kent International Airport	04:07	Until	00:37
Kent International Airport	04:30	& every 30 minutes	01:00
Ramsgate Rail Station	04:37	Until	01:07

Table 3.4 Indicative timetable for rail/air link from Ramsgate station

The cost of this option has been estimated using a bus industry costing model. This applies contemporary cost rates to the resources (drivers, vehicles and mileage operated) that are required to deliver the service. The results are shown in table 3.5 below (please note that the profit margin costs in the following tables are proportional to the level of revenue and are not a fixed figure).

COSTS (£'000)	
Variable Costs	
Driver payroll	194
Fuel, Tyres, Oil	41
Sub Total: Variable Costs	235
Semi Variable Costs	
Depreciation	18
Insurance, Licences	5
Finance	4
Maintenance and cleaning	9
Sub Total: Semi Variable Costs	36
Contribution	
Overheads and profit margin	30
TOTAL COSTS	301

Table 3.5 Bus operating costs for rail/air link from Ramsgate

The estimated annual cost of the service is £301,000 based on current year prices (2013). In order to determine the number of passengers required for the service to be self-financing, an average fare has been identified. This has been calculated in comparison to local taxi rates: a party of two would typically pay £7.80 for a taxi and a party of four with holiday luggage would pay £8.60 to £9.00. This suggests that a competitive bus fare would be around £2.00 per person for a single trip. This gives the target demand shown in table 3.6 below.

Cost of service	£301,000
Required revenue for break-even	£301,000

Assumed average fare	£2.00
Number of passengers	150,500

Table 3.6 Target demand for a financially sustainable rail/air link from Ramsgate

Therefore, the bus service would require to carry 150,500 passengers per year to break even. If the hours of operation were reduced to match the rail service, i.e. a service running from 07.00 to 22.00, then the timetable, costs and target demand would be as shown in tables 3.7 to 3.9 below.

Daily			
Ramsgate Rail Station	07:00	& every 30 minutes	21:30
Kent International Airport	07:07	Until	21:37
Kent International Airport	07:30	& every 30 minutes	22:00
Ramsgate Rail Station	07:37	Until	22:07

Table 3.7 Indicative timetable for rail/air link from Ramsgate station, reduced operating hours

COSTS (£'000)	
Variable Costs	
Driver payroll	136
Fuel, Tyres, Oil	29
Sub Total: Variable Costs	165
Semi Variable Costs	
Depreciation	18
Insurance, Licences	5
Finance	4
Maintenance and cleaning	9
Sub Total: Semi Variable Costs	36
Contribution	
Overheads and profit margin	22
TOTAL COSTS	223

Table 3.8 Bus operating costs for rail/air link from Ramsgate, reduced operating hours

Cost of service	£223,000
Required revenue for break-even	£223,000
Assumed average fare	£2.00
Number of passengers	111,500

Table 3.9 Target demand for a financially sustainable rail/air link from Ramsgate, reduced operating hours

The bus operating cost model shows that 111,500 passengers would be required to achieve break-even assuming an annual cost of operation of £223k.

3.4 Rail Plus Connecting Bus to Thanet Parkway Station

If the proposed station at Thanet Parkway is delivered, the final link of the journey from the station to the airport would be best provided by a new bespoke bus service. A suggested timetable is shown below in table 3.10 below.

Daily			
Thanet Parkway	04:00	& every 30 minutes	00:30
Kent International Airport	04:06	Until	00:36
Kent International Airport	04:15	& every 30 minutes	00:45
Thanet Parkway	04:21	Until	00:51

Table 3.10 Indicative timetable for rail/air link from Thanet Parkway

The running time is based on observed traffic speed from the 2011/12 Trafficmaster data which suggests that a six minute journey time would apply in each direction. This would leave sufficient time in a 30-minute cycle for loading and unloading and the service could therefore be provided with one vehicle.

The costs of this option are shown in table 3.11 below.

COSTS (£'000)	
Variable Costs	
Driver payroll	97
Fuel, Tyres, Oil	48
Sub Total: Variable Costs	145
Semi Variable Costs	
Depreciation	9
Insurance, Licences	3
Finance	2
Maintenance and cleaning	4
Sub Total: Semi Variable Costs	18
Contribution	
Overheads and profit margin	18
TOTAL COSTS	181

Table 3.11 Bus operating costs for rail/air link from Thanet Parkway

The estimated annual cost of the service is therefore £181,000. Applying the same calculation as in the Ramsgate example to estimate target demand gives the results in table 3.12 below which shows that the bus service would require to carry 90,500 passengers per year to break even.

Cost of service	£181,000
Required revenue for break-even	£181,000
Assumed average fare	£2.00
Number of passengers	90,500

Table 3.12 Target demand for a financially sustainable rail/air link from Thanet Parkway

If hours of operation were reduced to match the rail service, i.e. a service running from 07.00 to 22.00, then the timetable, costs and target demand would be as shown in tables 3.13 to 3.15 below. These show that 68,500 passengers would be required for a service that matched the current rail timetable to break-even, assuming an annual cost of operation of £137k

Daily			
Thanet Parkway	07:00	& every 30 minutes	22:00
Manston Airport	07:06	Until	22:06
Manston Airport	07:15	& every 30 minutes	22:15
Thanet Parkway	07:21	Until	22:21

Table 3.13 Indicative timetable for rail/air link from Thanet Parkway, reduced operating hours

COSTS (£'000)	
Variable Costs	
Driver payroll	70
Fuel, Tyres, Oil	35
Sub Total: Variable Costs	105
Semi Variable Costs	
Depreciation	9
Insurance, Licences	3
Finance	2
Maintenance and cleaning	4
Sub Total: Semi Variable Costs	18
Contribution	
Overheads and profit margin	14
TOTAL COSTS	137

Table 3.14 Bus operating costs for rail/air link from Thanet Parkway, reduced operating hours

Cost of service	£137,000
Required revenue for break-even	£137,000
Assumed average fare	£2.00
Number of passengers	68,500

Table 3.15 Target demand for a financially sustainable rail/air link from Thanet Parkway, reduced operating hours

3.5 Rail Plus Connecting Demand Responsive Transport

Ramsgate

Demand levels, at least initially, may not be sufficient to support the costs of a scheduled all day service such as that proposed in the previous section. An alternative would be to provide a demand responsive service, which would operate when required by users. Vehicles would be stationed at the railway station and airport terminal to meet trains and flights respectively, but would only operate when required.

It would also be possible, in this scenario, to have the vehicles available on an on-demand basis to cover a wider area such as all of Thanet. In this case, a booking system would be required similar to a taxi operation. However, there is a risk that in extending the area covered, vehicles would not be available at the station when required. To overcome this could require additional vehicles and consequently a greater cost of operation.

The proposal set out below is therefore to restrict pick-ups to Ramsgate railway station and the airport, as the optimum balance between service availability and cost. The service could be operated by smaller vehicles (12-16 seats) and an indicative cost profile is shown in table 3.16 below.

COSTS (£'000)	
Variable Costs	
Driver payroll	165
Fuel, Tyres, Oil	20
Sub Total: Variable Costs	185
Semi Variable Costs	
Depreciation	12
Insurance, Licences	4
Finance	3
Maintenance and cleaning	7
Sub Total: Semi Variable Costs	26
Contribution	
Overheads and profit margin	17
TOTAL COSTS	228

Table 3.16: Cost of a demand responsive service at Ramsgate

The estimated annual cost of the demand responsive service is therefore £228k using two vehicles. Again applying a £2.00 fare, the number of passengers required for break-even would be 114,000 per year.
If hours of operation were reduced to match the rail service, i.e. a service running from 07.00 to 22.00, then the cost profile would be as shown in table 3.17 below.

COSTS (£'000)	
Variable Costs	
Driver payroll	116
Fuel, Tyres, Oil	14
Sub Total: Variable Costs	130
Semi Variable Costs	
Depreciation	12
Insurance, Licences	4
Finance	3
Maintenance and cleaning	7
Sub Total: Semi Variable Costs	26
Contribution	
Overheads and profit margin	13
TOTAL COSTS	168

Table 3.17: Cost of a demand responsive service at Ramsgate, reduced operating hours

These show that the estimated annual cost of the demand responsive service is therefore £168k. The number of passengers required for break-even would be 84,000 per year.

Thanet Parkway

Applying a similar model to Thanet Parkway, the service would only require one vehicle, with the cost profile as shown in table 3.18 below.

COSTS (£'000)	
Variable Costs	
Driver payroll	83
Fuel, Tyres, Oil	20
Sub Total: Variable Costs	102
Semi Variable Costs	
Depreciation	6
Insurance, Licences	2
Finance	1
Maintenance and cleaning	3
Sub Total: Semi Variable Costs	13
Contribution	
Overheads and profit margin	9
TOTAL COSTS	124

Table 3.18: Cost of a demand responsive service at Thanet Parkway

The estimated annual cost of the demand responsive service for Thanet Parkway is £124,000. Using a £2.00 fare, the number of passengers required for break-even would be 62,000 per year.

If hours of operation were reduced to match the rail service, i.e. a service running from 07.00 to 22.00, then the cost profile would be as shown in table 3.19 below.

COSTS (£'000)	
Variable Costs	
Driver payroll	60
Fuel, Tyres, Oil	17
Sub Total: Variable Costs	77
Semi Variable Costs	
Depreciation	6
Insurance, Licences	2
Finance	1
Maintenance and cleaning	3
Sub Total: Semi Variable Costs	13
Contribution	
Overheads and profit margin	7
TOTAL COSTS	97

Table 3.19: Cost of a demand responsive service at Thanet Parkway, reduced operating hours

These show that the estimated annual cost of the demand responsive service is therefore £97k. The number of passengers required for break-even would be 48,000 per year.

A summary of all the options mentioned above is detailed in table 3.20 below.

Option	Hours of Operation	Annual Cost	Break-even Revenue	Breakeven Passengers
Bus from Ramsgate	04:00 - 00:30	£301k	£301k	150,000
Bus from Ramsgate	07:00 - 21:30	£223k	£223k	112,000
DRT from Ramsgate	04:00 - 00:30	£228k	£228k	114,000
DRT from Ramsgate	07:00 - 21:30	£168k	£168k	84,000
Bus from Thanet	04:00 - 00:30	£181k	£181k	90,000
Bus from Thanet	07:00 - 22:00	£137k	£137k	68,000
DRT from Thanet	04:00 - 00:30	£124k	£124k	62,000
DRT from Thanet	07:00 - 22:00	£97k	£97k	48,000

Table 3.20: KIA summary table of options

3.6 Conclusion

The costs of operating a bus service linking the rail network to Kent International Airport (Manston) depends on the frequency of the service provided, the daily operating hours of the service and the distance between the rail station and the airport.

The bus operating cost model has shown that providing a railway station closer to the airport than the existing major station at Ramsgate would reduce the cost of providing a linking bus connection. Such a service from Thanet Parkway would require just one vehicle, as opposed to the two required from Ramsgate.

It is important to mention here that the above analysis is presented for a typical year after opening the station. The break-even number of passengers may be different for the initial couple of years after station opening as it sometimes takes longer to achieve the desired level of passengers.

4 Business Case for New Station at Thanet Parkway

4.1 Elements of the Case for a new station

Before a new railway station can be opened in England the proposal needs to have the support of three organisations; that is at least one train operating company whose trains will call at the station, Network Rail, who are responsible for the track, and the Department for Transport (DfT), who manage the letting of the franchises to operate services to the train operating companies. These organisations each has different criteria that need to be met before they will approve a new station. In addition, a new station will require planning permission therefore approval is also required of the local planning bodies.

The prime concern of the train operating companies will be financial. They make a payment to the station operator in return for the right to stop at the station. They will want to be sure that the additional revenue they achieve from calling at the station exceeds the cost of this charge. The additional revenue will come from fares paid by passengers who would not otherwise have used the rail services provided by that train operating company. For example, for Thanet Parkway any passengers who divert from Ramsgate would not produce additional rail revenue. However new passengers such as those who choose to use rail to reach the airport who would otherwise have used a non-rail mode would generate revenue for the train operating company.

The train operating company also makes an allowance for the loss of revenue from any existing passengers who switch away from rail if their journey becomes longer as a result of the train calling at an additional station. For example, rail would become less attractive for people travelling from Ramsgate to Canterbury if there is an additional stop at Thanet Parkway.

The train operating company also has to make an allowance for any increase in operating costs, for example from the increased energy used in stopping and starting a train. They will also want to be sure that the extra stop can be accommodated within the timetable and will not require extra train sets or crew. The latter does not apply in the case of Thanet Parkway so the main consideration for the train operating company is whether the net revenue impact of calling at Thanet Parkway is greater than the charge for calling at the station.

The station operator is usually the main train operating company that uses the station. In the case of Thanet Parkway this would be Southeastern. The station operator will wish to be sure that the station access charge exceeds the annual payment they have to make to Network Rail, which covers items such as long term maintenance and the additional costs of running a station such as electricity and water bills and regular cleaning and maintenance. The charge for calling at the station paid by the train operating company has to exceed all these costs.

Network Rail will want to be sure that the station is financially viable and that calling at the station does not jeopardise the reliability of the rail service in the area. They will be particularly concerned that the construction of the station does not unduly interfere with the running of the railway, especially given the presence of a major depot at Ramsgate. They will also consider how the station can be incorporated into the railway regarding issues such as signalling.

Finally the Department of Transport (DfT) will want assurance that the station covers its operating costs so that it does not become a drain on the railway's finances. This is now DfT policy as it ensures that the price offered in the future by bidders for the rail franchise in the area is not reduced by the requirement to serve the new station.

In addition, if central government funds are required to contribute towards the cost of building the station, the DfT will require that the station has a strong economic case as well as a strong financial case. The economic case for the station will include items such as the value of reduced journey times and the value of a reduction in car kilometres driven if people transfer from car to rail. For the DfT the assessment of the railway station will need to be made in accordance to the five cases model. This model, as it applies to new railway stations, is described in the following section.

4.2 Five Cases

The five cases approach shows whether schemes:

- are supported by a robust case for change that fits with wider public policy objectives – **the 'strategic case'**;
- demonstrate value for money – **the 'economic case'**;
- are commercially viable – **the 'commercial case';**
- are financially affordable **– the 'financial case'**; and
- are achievable – **the 'management case'**. (The Transport Business Cases, DfT, 2011).

The DfT guidance in 2013 for applications to the New Stations Fund applies the five cases model to new stations and shows the issues that need to be addressed under each of the five headings.

Strategic Case – what are the objectives and criteria selection of this proposed new or re-opened station and why it is considered the best way of meeting local transport objectives and addressing transport issues in the area.

Economic Case – the economic business case for the station is stated in terms of the benefit cost ratio and the net present value of the station. The station should be appraised over 60 years and the resulting socio-economic benefit cost ratio should be greater than 1.5.

Financial Case – any new station should comply with DfT policy that it should cover its on-going costs from newly generated income. This evidence is provided by comparing generated income against operating costs (including station access charge), revenue abstracted from neighbouring stations, and revenue lost through longer journey times, for 30 years. Details are also required about the repair, maintenance and ongoing operational costs that will be attributable to the station.

Commercial Case – this case covers details as to how the station will be procured and built and information on the sources of funding for the construction costs of the station. Details are also required on the revenue streams which will cover the operation, maintenance, repairs and renewals required for the station.

Management Case – this includes evidence that the station can be delivered in engineering, operational and planning terms and that it has the full support of Network Rail, the train operating company whose trains are planned to call there and whichever train operating company will operate the station.

4.3 Threshold Number of Passengers for Thanet Parkway

The financial case for Thanet Parkway station therefore requires that the annual generated revenue exceeds the annual operating costs. The standard annual cost of operating an unmanned railway station in the UK is around £200,000.

The single rail fare from Ramsgate to London is £39.90 on the high speed services. If a similar fare is charged from Thanet Parkway, each of the new passengers travel to London, and all the generated revenue comes from new passengers associated with the airport, the annual number of rail/air passengers required to cover the operational costs of the station would be just over 5,000 or 17 per day (excluding Sundays). In reality, not all passengers would travel as far as London which would increase the number of passengers required in order to cover the station operating costs.

However there is plenty of available land around the station to provide sufficient car parking at the new station to meet the demand for parking. Currently parking is very limited at the nearby stations of Ramsgate and Minster so the provision of the car park is likely to result in new passengers who live in the Thanet area and are currently not using the railway due to the lack of parking at Ramsgate station. The station is well situated on the East Kent Access Road. The station may also attract passengers from the current and new employment sites in the area.

Taxis

Given that the station would become financially viable with around 5,000 rail/air passengers a year, the station may well be constructed before passenger numbers are sufficient for a connecting bus or demand responsive link to be financially viable. This suggests that a short term measure based on the use of taxis should be considered. Arrangements could be made by the airport with local taxi companies to ensure that taxis are always available in a taxi rank at the airport and station. A dedicated taxi telephone line is available at the airport already and an additional line could be provided at the station. In addition advertisements carrying the telephone number of local taxi operators could be displayed at the station and on the trains so that passengers could call ahead and book a taxi while on the train. The train manager could be requested to announce on the train that taxis can be booked to meet the train.

4.4 Conclusions

Provided grant funds were obtained for building the new station so that no interest repayments were required, Thanet Parkway would be financially viable if it generated around 5,000 new rail passenger trips a year to/from London. These passengers could be users of Kent International Airport (Manston) as well as local residents and workers. While passengers numbers at the airport are built-up, the connecting link to the airport could be most economically provided by a co-ordinated and well publicised taxi service.

5 Comparisons with Other Regional Airports

5.1 Introduction

This chapter presents a review of the access arrangements to the rail network at the study's comparison regional airports in Europe. It also presents a review of the arrangements at all regional airports in the UK with between 2.7 million and 100,000 passengers a year. These two comparisons provide a context to the bus financial modelling exercise which suggests that a rail/air bus link from Thanet Parkway would require 68,500 passengers a year to be financially self-sustaining.

5.2 Rail Access at the Study Comparison Airports

The access arrangements to the rail network for the six comparator airports are presented in table 5.1 below. London Southend Airport is the only airport adjacent to the rail network. A new station was built adjacent to the terminal and opened to passengers in July 2011. There are three trains an hour into London Liverpool Street with a journey time of around 55 minutes and a single fare of £14.90. The number of people using Southend airport has risen dramatically from 42,400 in 2011 to 617,000 in 2012, but it is unclear how much of this rise is due to the railway station.

Airport	Number air passengers, 2012	Distance from rail network	Access arrangements to rail network
London Southend Airport	617,000	0km	Railway station adjacent to airport terminal
City Airport Bremen, Germany	2,560,000 (2011)	3.5km	Tram no. 6 to Bremen railway station. Every 10 minutes.
Sandefjord Lufthavn Torp Airport, Norway	1,345,700 (2011)	3km	Shuttle bus to airport. Bus times linked to train times. Bus ticket included in rail fare.
Groningen Airport Eelde, The Netherlands	208,700	9km	Regular bus line 2 to Groningen station and Airportliner links with Vueling and Ryanair flights
Billund Airport, Denmark	2,734,800 (2011)	30km	Nearest railway station is Vejle. Bus 907X or 244 from airport to Vejle Bus Station. Airport bus to Aarhus, 100 km.
Kortrijk-Wevelgem International Airport, Belgium.	100,000	n.a.	No bus services

Table 5.1 Comparison airports in the GSA Project (North Sea Region of Europe)

The City Airport at Bremen is connected by a regular tram service to the rail network and Sandfjord Lufthavn Torp airport in Norway has a regular shuttle bus linked to the train times. The latter airport has over 1.3m passengers a year and it is likely that there would be enough rail passengers to make the connecting bus service financially viable. The cost of the bus ticket is included in the rail fare. Groningen Airport Eelde has around 210,000 passengers and it has a bus service to the nearest railway station but Kortrijk-Wevelgem International Airport in Belgium, with only around 100,000 passengers a year does not have any bus service. This suggests that the threshold for providing such a service lies between 100,000 and 200,000 air passengers a year.

5.3 Rail access at UK comparison airports

The range of passenger numbers at the comparison airports in Europe shown in table 5.1 above is between 100,000 to 2.7m. The Civil Aviation Authority publishes the number of air passengers in the UK and was used to identify the airports in the UK with similar passenger numbers. The access arrangement to the rail network for all airports in the UK with a similar range of passenger numbers is shown in table 5.2 below.

The smallest airports in terms of passenger numbers are served by taxis rather than buses. These include Dundee airport and airports on the Isle of Scilly and the Scottish Islands. The next group of airports starting with Durham Tees Valley (165,000 passengers/ year) have enough passengers to be served by local buses but not sufficient to justify a dedicated shuttle service between airport and rail station. By around 700,000 passengers a year it seems to become worthwhile to provide a dedicated link with Bournemouth (689,755) and Doncaster Sheffield (693,129) being the smallest airports having such services. All the larger airports, with the exception of Exeter, then have dedicated rail/air links.

Airport	Number of air pax 2012	Buses per hour to station	Access arrangements to rail network
Belfast City (George Best)	2,246,202	Regular	Shuttle bus runs to Sydenham, with trains every 30 minutes to central Belfast from 6.00 to 23.00. Ten minute walk from airport to station.
Southampton	1,693,350	n.a.	Station adjacent to airport (covered walkway)
Prestwick	1,066,917	n.a.	Station adjacent to airport (covered walkway)
Cardiff Wales	1,013,386	3	Airport Shuttle services to Rhoose and Cardiff central station (from August 2013).
Exeter	694,963	1	Existing Service 56 from Exmouth to Exeter calls at the airport and Exeter St David's railway station
Doncaster Sheffield	693,129	2	Dedicated shuttle bus and regular services link to Doncaster station
Bournemouth	689,755	1	Airport Shuttle service to Bournemouth station
London Southend	616,974	n.a.	Rail station adjacent to terminal
Inverness	601,550	2	Stagecoach Jet 11
City Of Derry (Eglinton)	398,209	0	Buses run hourly to the bus station, walk or get connecting bus to rail station
Norwich	396,646	4	Service 603 Norwich Airport Park & Ride
Scatsta (Shetland)	304,426	0	No main line rail service on Shetland. bus services
Blackpool	235,191	4	Served by local bus services on Squires Gate Road
Humberside	233,589	1	Stagecoach "Humber Flyer" hourly service from Cleethorpes to Hull via Grimsby
Newquay	166,272	1	Service 556 Newquay – Padstow
Durham Tees Valley	164,826	1	Arriva 12 from Trees Park Village to Hurworth via Darlington, airport served by Trees park village stop
Sumburgh (Shetland)	148,861	0	No rail service on Shetland. 6 buses a day to Lerwick.
Kirkwall (Orkney)	132,235	0	No rail service on Orkney.
Stornoway (Isle of Lewis)	115,860	0	No rail services on the island but airport is well served by the local buses
Isles Of Scilly (St.Marys)	97,012	0	No main line rail services on the island. Shuttle buses meet flights and drive to any part of the island (similar to a taxi).
Dundee	54,642	0	Access by rail is by taxi only to Dundee station. Stagecoach X42 passes site but does not stop

Table 5.2: Rail access at small to medium sized regional UK airports (Source: Civil Aviation Authority, Size of UK Airports, 2012)

6 Conclusions

This study has reviewed connections to the rail network at Manston, Kent's International Airport, five European regional airports and 21 UK regional airports. The rail system provides a reliable and often fast mode of public transport that could be used to reduce the carbon emissions from travel to and from the airport.

Where an airport is situated adjacent to an existing railway line, the most cost effective way of providing a rail connection is likely to be by building a rail station at the airport. This solution has been provided at London Southend where a new railway station opened adjacent to the air terminal in 2011. There has been a dramatic rise in passenger numbers at the airport from 42,400 in 2011 to 617,000 in 2012, primarily due to the introduction in 2012 of new flights by EasyJet and Aer Lingus. The provision of a new railway station, with 3 trains an hour to central London in less than an hour may well have encouraged these airlines to serve the airport.

Where there is a railway station near the airport and airport passenger numbers are below around 150,000 a year, then the connection between the airport and the railway station is customarily provided by taxis. With passenger numbers in the range of 150,000 to 650,000 passengers a year, local bus services find it financially viable to call at the airport. Once air passenger numbers rise to above around 650,000 a year, a dedicated bus connection service to a nearby station is usually provided.

This threshold level accords with the results of the bus costing model. This suggested that a dedicated bus service to Manston Airport would become financially self-sustaining at around 68,500 users a year if the station were at Thanet Parkway. If rail were to achieve a 10% mode share this would mean that the dedicated bus link would be viable once Manston Airport reaches annual passenger figures of around 685,000.

This study concludes from the evidence of provision made at the comparator regional airports in Europe and the UK and the bus costing model that, if a regional airport is within around 5km of a railway station, the threshold for providing a dedicated rail/ air link with a 30 minute frequency is around 650,000 passengers a year.

GSA

provincie Drenthe

The Interreg IVB North Sea Region Programme

Investing in the future by working together for a sustainable and competitive region

Contact

Provincie Drenthe: Project Management
Mr. Ben van Os, b.os@drenthe.nl
Ms. Deirdre Buist, d.buist@drenthe.nl
Website: www.greenairports.eu

Graphic design
Docucentrum, provincie Drenthe

ROM&N13101715

October 2013