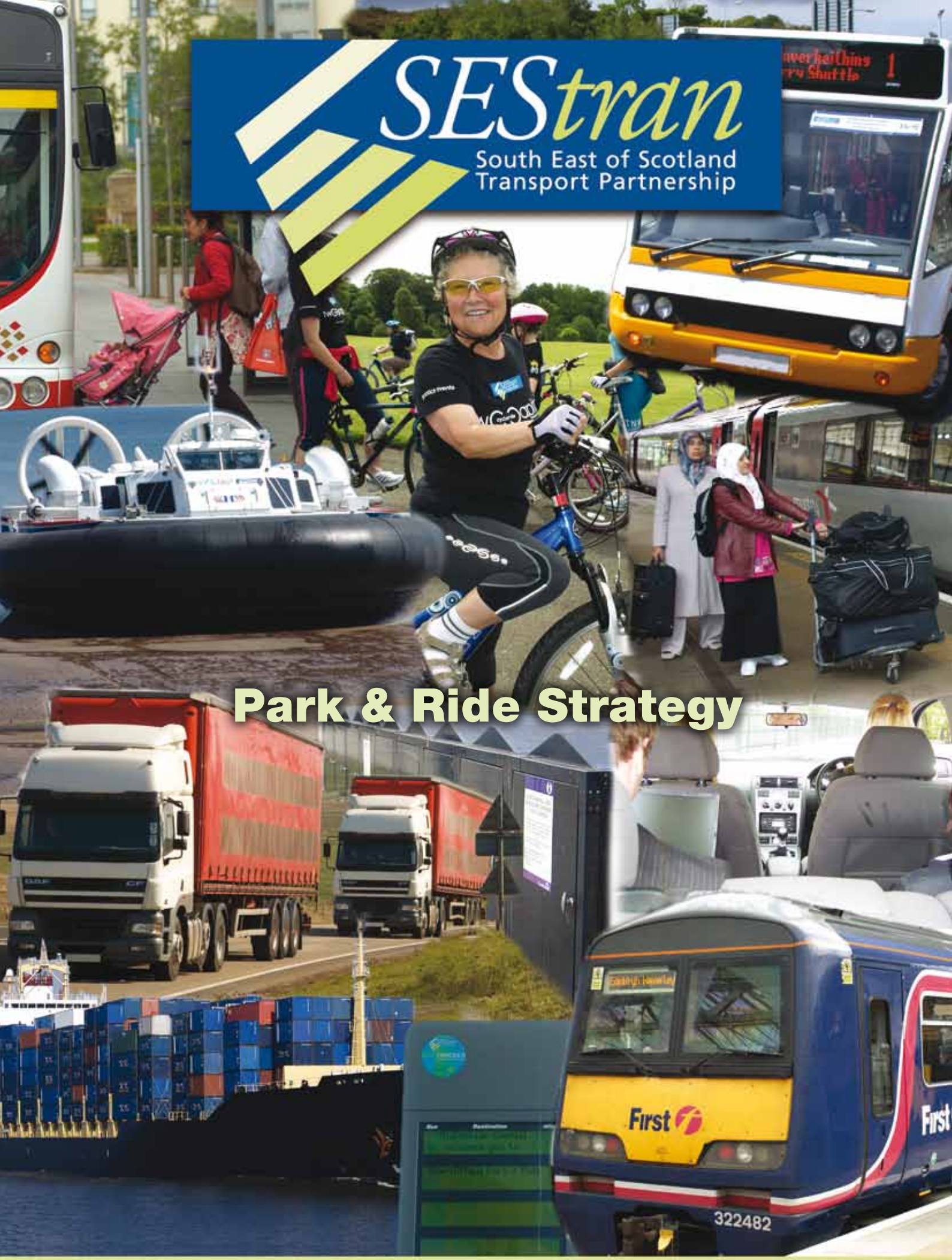


Clackmannanshire Council · Edinburgh · East Lothian Council · Falkirk Council · Fife Council · Midlothian · Scottish Borders Council · West Lothian Council

Figures

Tables

Summary

The SEStran Regional Transport Strategy (RTS) committed SEStran to develop a Regional Park and Ride Strategy which would objectively review present-day park and ride provision and use in the SEStran area, and set a framework for developing and assessing future investment in park and ride. The strategy is nested within the RTS objectives, and the role of park and ride in meeting these objectives has been considered. For the purposes of this analysis, the area has been considered in three broad corridors, North, West and South/East, and has considered park and ride issues relating to travel to all major destinations. An over-arching objective of park and ride should be to minimise the car kilometres travelled in the use of park and ride, whilst maximising the use of public transport. As such, people should in general be encouraged to use their nearest feasible park and ride option.

This study has a number of key analytical elements which are described below:

- **Inventory of Sites:** All sites in the area were visited and their details recorded in an extensive inventory. This inventory focussed on the facilities provided, parking capacity, public transport services etc, and also noted car park occupancy and any parking issues in terms of parking 'overspill'/parking outwith marked bays etc. Each site has also been defined in terms of public transport fares, train/bus frequency and its connectivity to local and strategic road networks.
- **Catchment Area Analysis:** The SEStran Accession™ model has been used to undertake a detailed catchment area analysis of all existing park and ride sites. This has considered the number of resident households within a 15 minute drive of each site, and the number of households for whom each site represents their shortest drive time. Also considered is the number of jobs which can be accessed within a 45 minute travel time using public transport from each site. These three measures of catchment have been compared with the existing parking provision. Where parking provision is low relative to these catchment statistics, and the site is operating at capacity, this provides a justification for considering additional capacity at the site.
- **Economic Analysis:** A spreadsheet-based 'ready reckoner' has been developed which provides an estimate of the economic benefits associated with the provision of park and ride, based on a range of assumptions and the onward car/public transport travel time differentials and fares/parking charges. This has been applied to all existing sites, and provides a proxy measure for the 'attractiveness' of each site.
- **Overview of New Proposals:** Existing proposals for new park and ride sites in the area have been reviewed in the context of the strategic approach to park and ride envisaged, and how they would fit with the requirements of each corridor.

The emerging issues in each corridor are summarised below.

Key Issues by Corridor – North

The key issue for travel from the north is the distorting effect that Inverkeithing and Kirkcaldy stations have on travel patterns. The high frequencies provided at these sites draw users in from a wide area, creating capacity problems – and leaving spare capacity at other stations across the area. As such there is significant unused park and ride capacity in Fife, but it is perhaps not being utilised as efficiently as it might. Fares policy and the nature of the train services in Fife contribute strongly to this distortion and SEStran should seek to influence the relevant parties to move to

a more even distribution of services across Fife – using a combination of fares policy, service patterns and parking policy. Strategic future investment in park and ride at Halbeath and Pitreavie was identified within the Strategic Transport Projects Review. These proposals are supported in the context of a wider review of the management of park and ride provision in Fife.

- Support future STPR (Intervention 8) proposals for Halbeath and Pitreavie.
- Support local car park extensions where practical and merited based on catchment and utilisation – these sites include Burntisland, Dunfermline Town, Ladybank and Leuchars.
- Seek to influence key stakeholders in terms of fares policy and service patterns in Fife to encourage more use of 'local' stations and less concentration on Inverkeithing and Kirkcaldy.

Key Issues by Corridor – West

Within the western corridor, there is substantial demand for park and ride to access both Edinburgh and Glasgow, and there is double the potential commuting demand towards Edinburgh from the west as opposed to the north. As a result, all station car parks on the Edinburgh-Glasgow (E&G) line and the Bathgate line are frequently operating at or in excess of capacity, leading to significant overspill problems in places.

The opening of the Airdrie to Bathgate line will be significant in this context. In addition to providing new connections to the west, it will increase parking provision at Uphall, Livingston North and Bathgate, and provide new stations with parking at Armadale and Blackridge. Analysis of catchment areas suggests that this new line should provide some relief to E&G stations. The impact of the opening of Airdrie Bathgate on the use of park and ride in the wider corridor should be closely monitored, as should the imminent improvements on the Shotts line. However, there would appear to be an opportunity to develop a high-capacity rail-based facility at Uphall – providing links to the east and west with good strategic access off of the M8 at Junction 3. Such a facility could be used to encourage westbound car trips to switch to rail at an early stage, as at present, park and ride facilities to access the west are poor within the M8 corridor. The RTS-defined corridors in the west are also forecast to see the highest growth rates of any of the SEStran corridors. As such the **west should be seen as the main priority** for investment in park and ride in the medium term.

In the west, those sites which are operating at capacity and have a low provision relative to their catchments (and are not currently programmed for expansion) include Linlithgow, Polmont, Camelon, West Calder, and Alloa.

- Monitor impacts of Airdrie Bathgate re-opening and Shotts line improvement on the use of park and ride in the area.
- Pursue funding for M8 J3 bus-based site, but effective bus priority will be essential if this is to succeed and consider further the case for a strategic rail-based facility at Uphall.
- Sites at Linlithgow, Polmont, Camelon, West Calder, Fauldhouse and Alloa are under pressure and have low provision relative to their catchment areas – these either merit expansion, or other measures to relieve them where extension is not possible.
- Further consider the case for Cambus station park and ride as an alternative to Alloa.

Key Issues by Corridor – South and East

The provision of park and ride in the south corridor is the lowest of any corridors, relative to the number of people commuting in this area. Yet, the capacity which exists here does not currently operate at capacity (particularly Straiton) suggesting these sites are not meeting all the needs of the 'market' here, and this should be considered carefully in terms of future investment (e.g. at Lothianburn). Clearly, the construction of the Borders Rail route will mark a step change in provision in the eastern part of Midlothian and the A7 corridor however. Experience elsewhere suggests that the planned parking provision at these stations may be insufficient, particularly in Midlothian. Again, the use of park and ride at these stations should be monitored when the line opens. The site at Wallyford has excellent strategic access from the A1 and should be developed/ marketed to maximise these opportunities, and is assumed to be the site referred to within STPR as 'Tranent'.

- Work with CEC to ensure future park and ride sites here complement the SEStran Outer Orbital bus proposals, and with Transport Scotland to continue to develop Wallyford as a strategic park and choose site.
- Monitor the use of Borders Railway stations once complete – it is likely that demand may exceed supply.
- Sites which are operating at capacity and have a low provision relative to their catchments include Longniddry, Drem and Dunbar – these either merit expansion, or other measures to relieve them where extension is not possible.

Overall approach to Park and Ride

The future of park and ride policy should also be linked with the Regional Parking Management Strategy (and indeed parking enforcement policies). This will be essential if park and ride is to move away from a 'predict and provide' approach to a more demand managed approach, and if its impact on surrounding streets is to be controlled, where this is a problem.

In general, when looking at future park and ride investments, they should have the following characteristics:

- large numbers of residents with short, un-congested drive times to the site;
- access to a large catchment of economic activity/jobs/shops etc from the site;
- good public transport frequency with fares consistent with other competing sites;
- ease of finding a parking space on site – no capacity uncertainty;
- shorter travel times by public transport than car from the site to key destinations;
- good links to existing cycling networks;
- site should be located prior to congestion on network; and
- the site should have an unambiguous location – with little scope for parking on-site for other purposes, or proximity to key developments where free parking could conflict with other local spatial policies.

Any new site should seek to **maximise**:

- the reduction in car kilometres travelled – especially in congested areas – so should be sited to provide new opportunities for people to drive less far to use park and ride;
- catchment areas – from residents, or trunk/major road to jobs/shops etc;
- the impact on relieving other sites with known capacity problems;
- public transport travel time competitiveness to key destinations, using effective bus priority or timetabling (e.g. limited stop services) to the benefit of all public transport users if possible; and
- sites' potential for interchange and walk/cycle access.

It should also seek to **minimise**:

- abstraction from pure public transport – i.e. the creation of additional car trips;
- the inconvenience to other public transport users, e.g. buses deviating off route;
- the impact on surrounding area in terms of local traffic and parking issues; and
- environmental/site impacts.

Next Steps

The utilisation of park and ride, and any associated issues should be monitored on a regional basis annually and a common regional database could be developed and held. This would provide consistent information to all interested parties and ensure all stakeholders report park and ride consistently in their publicity. In addition, emerging problems would then be systematically identified and addressed.

The study has compiled a database of the facilities available at all park and ride sites together with graphical representations of the 'catchment' areas served by the sites within different travel times by public transport. This type of information could be useful in promoting the use of park and ride on websites, and indeed algorithms could be developed to incorporate mixed-mode options more formally within standard 'journey planner' type websites. It is recommended that SEStran continue to develop these ideas in conjunction with other interested parties, and ensure that maximum use is made of emerging technologies on the internet and in telecommunications, going forward.

In terms of considering new proposals and initiatives, a detailed park and ride forecasting model could be developed, building on the analysis undertaken in this study. This model could combine the very detailed spatial detail contained within the SEStran Accession model with the choice mechanisms from existing park and ride modelling techniques. Such a model, or an alternative based within the emerging SEStran Regional Transport model would be invaluable in determining an efficient and best value approach to future investment in park and ride across the SEStran area.

The further development of individual park and ride proposals will require a more detailed analysis to make the case for funding. This analysis should be objective-led, within a broad STAG-based approach. Clear objectives would also provide a means against which the success or otherwise of the site can be unambiguously determined in future.

1.1 Background

1.1.1 The SEStran Regional Transport Strategy (RTS) was developed in 2006-07 and approved by Scottish Ministers in 2008. It sets out a clear framework for the future direction of investment in, and management of, transport in the SEStran area for the next 10-15 years.

1.1.2 An early action outlined in the RTS was to develop a Regional Park and Ride Strategy. The RTS describes the role of the strategy as:

"An on-going programme, where demand at Park and Ride sites across the SEStran area is monitored annually will be established. This will lead to a clear, prioritised programme of car park expansions. New sites will be identified/appraised as part of this strategy to ensure a consistent, regional approach to Park and Ride."

1.1.3 This document is the SEStran Regional Park and Ride Strategy as described in the RTS.

1.2 Definitions

1.2.1 The term 'park and ride' can be interpreted in a number of ways. At its most literal, it can be applied to any journey which involves the use of both a private car and public transport. For the avoidance of doubt, for the purposes of this strategy, we consider the term 'park and ride' to mean:

- *facilities where parking is provided and actively encouraged as a means to access the public transport network*.

1.2.2 This means we are not considering informal on-street park and ride or e.g. town centre car parks adjacent to bus stations which could conceivably be used for park and ride. Instead the focus is on where parking is provided to actively encourage park and ride, and where ideally, this parking provision is not used for other purposes.

1.2.3 A total of 54 sites have been identified within the SEStran area which are defined as the current provision of park and ride in the area. This comprises all railway stations in the area (including those without formal parking provision – but which potentially could have) and the bus-based sites at Ingliston, Hermiston, Straiton, Sheriffhall, Ferrytoll, Falkirk and Kincardine.

1.3 The Need for a Strategic Approach

1.3.1 The provision of park and ride has tended to develop in an evolutionary way in recent years. There have perhaps been three main themes to this development:

- gradual expansion of provision at stations – as capacity at station car parks has been reached and parking has started to 'overspill', car park extensions have been added where possible to meet the demand at these car parks;
- provision of large, bespoke bus-based edge of city sites around Edinburgh covering the main routes into the city; and
- provision and subsequent extension of major southbound cross Forth facility at Ferrytoll.

1.3.2 The development of a regional park and ride strategy allows a more systematic and evidence-led approach to be taken to future investment in park and ride. The main things the strategy is setting out to do are:

- understand current provision and 'market' for park and ride in SEStran;
- identify problems and issues associated with current park and ride;
- set out a strategic approach and more detailed criteria to inform future investment in park and ride; and
- set out a vision for development of park and ride from a regional perspective, including an initial analysis of options for future investment in park and ride.

1.3.3 Park and ride is a truly regional issue in the SEStran context, as the vast majority of park and ride journeys will be undertaken between local authority areas. This means it is particularly suitable for a regional approach which can be provided by SEStran.

1.4 Approach

1.4.1 The approach taken within the strategy is:

- analysis of current provision of park and ride;
  - catchment area analysis: i.e. how many people can access the site within given drive times and how many jobs can be accessed from the site using public transport within given travel times
  - detailed site inventories – to establish site characteristics, use, problems, services etc
  - analysis of cost and frequency of services from sites
  - economic analysis of park and ride journeys
- analysis of demand and potential strategic demand for park and ride in the area, based on established commuter 'corridors' within the SEStran area;
- assessment of proposed new park and ride sites; and
- development of Strategy direction and resulting Actions.

1.5 Structure of Report

1.5.1 Chapter 2 discusses the underlying rationale for investment in park and ride, and outlines the approach taken to analysis of current park and ride in SEStran. Chapters 3, 4 and 5 in turn discuss and analyse the current provision of park and ride in what are broadly defined as SEStran North, SEStran West and SEStran South/East corridors.

1.5.2 Chapter 6 considers park and ride in the context of the Regional Commuting Corridors which were defined in the SEStran RTS. Chapter 7 then looks at issues concerning future provision as well as considering specific proposals for new sites.

1.5.3 Finally Chapter 8 provides the overarching strategic direction for the future of park and ride in the area as well as key actions to be taken forward.

2.1 The Role of Park and Ride

2.1.1 In considering the role of park and ride and hence defining a future investment strategy for park and ride provision, it is important to understand why people use park and ride in the first place. In essence, park and ride allows the user to get the best of both worlds, faster car travel through uncongested areas, followed by faster travel using public transport through congested areas, coupled with an absence of parking costs and availability issues at the ultimate destination.

2.1.2 Some park and ride sites are of course more popular than others and understanding the underlying reasons for this is the key to developing effective park and ride proposals for the future.

So when do people use park and ride?

- when parking supply and costs at the destination are prohibitive – perhaps the key point, the supply and cost of parking in cities, especially for the regular commuter who does not have access to private, non-residential parking – i.e. for whom everyday parking in city centres would be prohibitively expensive;
- when public transport offers faster travel, in general or through congested traffic – via rail or to a lesser extent, bus where a good level of priority is provided;
- to avoid the 'hassle' of parking in town and city centres – for many, particularly shoppers/leisure travellers, park and ride avoids the aggravation and uncertainty associated with finding parking spaces in city centres; and
- when there is ease of parking at park and ride sites – the larger park and ride sites offer virtual certainty in terms of finding a parking space.

And when do people not use park and ride?

- when its faster to drive – people will generally not use park and ride if it quicker to continue to drive to their ultimate destination;
- when its free/cheap and easy to park at the ultimate destination – if parking is not restricted at the destination, either in terms of cost or supply, use of park and ride is highly unlikely;
- when the price of public transport is high – for multi-occupancy cars in particular, the cost of multiple public transport fares via park and ride can outweigh the cost of city centre parking;
- when the frequency offered by park and ride is not attractive – particularly for return trips, if the frequency is restricted, this will be a deterrent;
- for convenience e.g. when carrying goods or when mobility is an issue – for those shopping for bulky goods, or perhaps with mobility difficulties, continuing to drive to the city centre will be the more attractive option; and
- if the standard of the site is poor – park and ride facilities with low levels of security (vehicle and personal) and generally poor facilities will be unlikely to be used.

2.1.3 As such, where park and ride is successful is essentially when it serves travel destinations where parking is restricted in terms of supply, and or parking charges are significant, and when traffic congestion is an issue.

2.1.4 In the SEStran area, these conditions clearly apply primarily to travel to Edinburgh city centre but also some other areas of Edinburgh, such as e.g. around Edinburgh Park. This underlines why current park and ride provision and use is heavily based on services to Edinburgh city centre. As such, it provides convenient access by car to the public transport network for those outwith 'walk-in' catchments of railway stations, and thus fast and convenient access to Edinburgh in particular.

2.1.5 Other towns within the SEStran area do have town centre parking issues, but these are much less significant than is the case in Edinburgh. Without significant parking restraint, in the form of charging or restricted supply, coupled with congested approaches to town/city centres where public transport (through priority measures) can compete, the provision of park and ride is highly unlikely to provide benefits to the user and hence is highly unlikely to be used. An obvious example surveyed as part of this study was the Falkirk park and ride site situated on the A813 east of Falkirk, which provides bus-based park and ride for Falkirk town centre. At the time of visiting, the site was clearly largely unused.

2.1.6 The SEStran Regional Parking Management Strategy, if implemented could provide an important element in the future requirement for park and ride. New park and ride provision would need to be considered as part of plans to extend or introduce new parking management measures on a consistent basis across the area.

2.1.7 From a regional perspective, access to Edinburgh is therefore clearly the key issue, but access to the main urban areas outside the SEStran area is also very important. This strategy therefore primarily focuses on access to Edinburgh, Glasgow, Dundee and Stirling.

2.1.8 There are two, perhaps competing perspectives on park and ride which need to be appreciated. One suggests that drivers wish to drive **as close as possible to their ultimate destination** before parking, preferably at the edge of the congested area and continuing their journey by public transport. This applies in the main to bus-based park and ride.

2.1.9 The other behaviour is seen mainly in the use of the rail network, where the prevailing behaviour is to drive to **the nearest railway station**, rather than the one closest to the congested/urban area. The exception to this is where there are significant differences in train frequency, or perhaps a step change in fares. The most obvious example here is in Fife, where many drive to Inverkeithing for a 'turn up and go' service, rather than using Fife Circle stations where trains are significantly less frequent.

2.1.10 In the analysis that follows, these two aspects of park and ride behaviour are recognised and dealt with separately to some extent.

2.1.11 The existence of a network of railway stations and also a ring of bus based park and ride sites therefore creates something of a tension where both bus and rail based sites exist in a corridor.

2.2 RTS Objectives

2.2.1 The context for this strategy is the SEStran RTS and this provides the background and objectives for the study. The RTS set a number of objectives and the relevance of park and ride in each case is discussed below in relation to each of the main themes: Economy, Accessibility, Environment, and Safety and Health.

1. Economy – to ensure transport facilitates economic growth, regional prosperity and vitality in a sustainable manner;

- *1.1 – to maintain and improve labour market accessibility to key business/employment locations, from all localities and communities.*

2.2.2 This is achieved by providing faster means of mixed-mode access, particularly within congested areas and to destinations with restricted parking. Effective park and ride has a very significant impact on labour market catchments, as the key business and employment locations are often those where parking is at a premium. Good access to these employment sites by public transport coupled with good access to the public transport network allows the maximum number of people affordable access to these sites.

- *1.2 – to maintain and improve connectivity to the rest of Scotland, the UK and beyond.*

2.2.3 Park and ride can provide faster means of mixed-mode access to other areas of Scotland, particularly within congested areas and to destinations with restricted parking, i.e. other urban centres across Scotland. Encouraging an early switch to park and ride in terms of accessing other cities would be efficient for business and would have traffic and environmental benefits.

- *1.3 – to support other strategies, particularly land-use planning, and economic development.*

2.2.4 As outlined above, effective park and ride provision supports economic development strategies in particular, and would also have an impact on strategic land use planning decisions.

- *1.4 – to reduce the negative impacts of congestion, in particular to improve journey time reliability for passengers and freight.*

2.2.5 By taking cars off of the most congested parts of the road network, park and ride can reduce congestion for other road users leading to improved journey time reliability.

2. Accessibility – to improve accessibility for those with limited transport choice (including those with mobility difficulties) or no access to a car, particularly those who live in rural areas:

- *2.1 – to improve access to employment.*
- *2.2 – to improve access to health facilities.*
- *2.3 – to improve access to other services, such as retailing, leisure/social and education.*
- *2.4 – to make public transport more affordable and socially inclusive.*

2.2.6 Park and ride has a lesser impact on accessibility objectives, as it does still require the use of a car to access the public transport network. Nevertheless in mixed-mode terms, it can lower overall journey times and hence improve accessibility. For those who live some distance from public transport networks, accessing key destinations such as employment and hospitals can incur punitive parking charges. Effective park and ride can make these destinations more 'accessible' in that sense. It is also possible that park and ride sites can develop a role as public transport interchanges, which can assist in achieving these objectives.

3. Environment – To ensure that development is achieved in an environmentally sustainable manner:

- *3.1 – to contribute to the achievement of the UK's national targets and obligations on greenhouse gas emissions.*

2.2.7 By taking traffic off congested streets, car kilometres are reduced and this reduction applies to the type of operating conditions in which the vehicles are least efficient. Less fuel burn equates to lower CO^2 emissions.

- *3.2 – to minimise the negative impacts of transport on natural and cultural resources.*

2.2.8 This objective can be achieved if new or extended park and ride sites are chosen with sensitivity to the local environment.

- *3.3 – to promote more sustainable travel.*

2.2.9 Park and ride does promote public transport use, although also car use. It can introduce some travellers to public transport who were perhaps previously infrequent public transport users, and in this sense could create the scope for greater use of public transport. Good facilities for cycle parking at park and ride sites can also encourage sustainable travel. Indeed these sites can also be used as basis for park and cycle trips.

- *3.4 – to reduce the need to travel.*
- *3.5 – to increase transport choices, reducing dependency on the private car.*

2.2.10 Park and ride does provide genuinely new travel choices, albeit car dependent – sites can also be used to encourage interchange between public transport modes.

4. Safety and Health – To promote a healthier and more active SEStran area population:

- *4.1 – to improve safety (accidents) and personal security.*

2.2.11 Good quality park and ride facilities with appropriate security provision can provide a secure environment for travel for vulnerable groups.

- *4.2 – to increase the proportion of trips by walk/cycle.*

2.2.12 This can be achieved to some extent by encouraging walk and cycle to park and ride sites through effective planning and route provision, and indeed onward cycle trips from the sites.

- *4.3 – to meet or better all statutory air quality requirements.*
- *4.4 – to reduce the impacts of transport noise.*

2.2.13 Park and ride does cut vehicle kilometres driven in congested or Air Quality Management Areas, and should improve traffic flow for remaining traffic. Less traffic also equates to less transport noise in affected areas.

2.2.14 The provision of park and ride can therefore clearly have a significant impact on meeting a range of RTS Objectives. In summary though, further, targeted provision of park and ride can assist in meeting these objectives in the following key ways:

- by improving (mixed mode) access to the SEStran area's key economic and congested centres;
- by reducing traffic, and hence congestion, accidents and emissions, within congested urban and regional corridors; and
- by seeking to reduce vehicle kilometres generally by encouraging transfer to public transport at the earliest possible opportunity.

2.3 Park and Ride Strategy Objectives

2.3.1 In the light of the above, some specific park and ride strategy objectives have been developed:

- To maximise the use of park and ride within SEStran as a means to reducing car kilometres travelled in the most congested parts of the network;
- To minimise the car kilometres travelled in accessing the public transport network using park and ride;
  - Provide attractive park and ride options throughout the area which will encourage drivers to use their closest possible site to access the main destination, i.e. Edinburgh;
  - Provide high quality park and ride options for travel between the SEStran area and other Scottish cities, to encourage an early switch to public transport; and
- to encourage and make it possible for car users to switch to public transport as soon as it is advantageous for them to so.

2.4 Current Park and Ride Provision and Strategy Approach

2.4.1 Figure 2.1 below shows the location of current and committed railway stations and bus-based park and ride sites in the SEStran area. All stations are shown as sites with current or potential for park and ride. Some sites such as Wallyford and Newcraighall combine bus and rail based park and ride.

Figure 2.1 *Map of SEStran Area and Park and Ride Sites*

2.4.2 Chapters 3, 4 and 5 present an analysis of the sites shown in Figure 2.1 above. This analysis is focussed on the aspects which can be thought to 'explain' the demand for park and ride at any given location, such as:

- competitive fares;
- frequent public transport services;
- resident drive-in population 'catchment';
- employment destination 'catchment'; and
- competitive public transport versus car journey time.

2.4.3 This analysis focuses on three main aspects.

Basis Facts and Figures

2.4.4 The following data has been collated from site visits, local authorities and travel planning websites:

- parking spaces provided and typical use, allowing the identification of 'over-utilised' sites;
- public transport service frequency;
- cost of travel to Edinburgh; and
- description of the nature of the site, and its connections to the main road network, i.e. its prospective attractiveness to 'passing' or 'strategic' traffic as well as 'local' traffic.

Accessibility Analysis

2.4.5 The SEStran accessibility planning model Accession™ has been used to undertake a comprehensive analysis of the location of the park and ride sites. The analysis used 'full postcodes' as the basis for analysis and is thus highly spatially detailed; it also contains all current public transport services.

2.4.6 This has focussed on:

- resident catchment areas: this analysis identifies;
  - the number of resident households who live within 15 minutes drive time of the site, and
  - the number of resident households for whom a given site is their closest in terms of shortest drive time – this provides the data to determine the 'ideal' use of park and ride, i.e. the use of park and ride which would minimise car kilometres travelled and sees everyone using their closest site.
- catchment areas: 'employment', the number of jobs which can be access with a 45 minute public transport journey from each site – allowing interchange between public transport services within existing timetable structures;
- relative car and public transport travel times: this analysis compares car and public transport journey times to central Edinburgh. Sites where public transport is significantly faster than the equivalent car journey would be expected to be more popular.

Economic Analysis of Park and Ride

2.4.7 In a cost-benefit analysis sense, park and ride as a travel option from a given site can be primarily compared with the option of driving all the way to the ultimate destination. In addition, it can be compared with using public transport for the whole journey.

2.4.8 Switching from **car to park and ride** will have the following impacts for the user:

- reduced vehicle operating costs – i.e. driving less far;
- potentially shorter overall journey times using public transport, translated into a monetary saving; and
- savings in city centre parking charges paid.

2.4.9 For **other travellers** there will be the following impacts:

- reduced congestion due to fewer cars on the network.

2.4.10 For private sector providers, such as **bus and rail operators**, there will be the following impacts:

- increased public transport revenue from users of park and ride; and
- potentially reduced city centre parking revenue (for private sector car park operators).

2.4.11 For **public sector** providers, there will be the following impacts:

- reduced city centre parking revenue at local authority run car parks.

2.4.12 Switching from **Public Transport to P&R** will have the following impacts for the user:

- additional vehicle operating costs – i.e. now driving to park and ride site;
- potentially reduced fares from shorter public transport journey;
- potentially shorter overall journey times using park and ride, translated into a monetary saving.

2.4.13 For other travellers there will be the following impacts:

- additional traffic but likely to be on relatively uncongested roads.

2.4.14 For private sector providers, there will be the following impacts:

- reduced public transport revenue – i.e. people are travelling less far on public transport.

2.4.15 Considering **benefits to the user** only the key issues are:

- relative travel times between car and public transport – to a wide range of key destinations; and
- relative travel costs between car and public transport – parking, fares and vehicle operating costs – to a wide range of key destinations.

2.4.16 The benefits accruing to the user and hence the 'attractiveness' of a site can be broadly measured in these terms.

2.4.17 A spreadsheet 'ready reckoner' model was developed which allows the costs and benefits associated with different park and ride sites to be estimated. This is focussed on the relative costs associated with driving, using public transport and using park and ride, reflecting the travel times and costs at that site. This ready reckoner is used here to provide comparative estimates of the user benefits arising at each site and hence its attractiveness as a site for future investment. The 'benefits' are compared to the typical costs of building and operating park and ride to provide an initial benefit cost ratio in each case.

Key Elements of Park and Ride Economic Ready Reckoner

- User Benefits – savings in generalised cost, for 'commuting' and 'other purposes'
  - switching from car – comparing the times and costs of driving and parking in the city centre with the costs and times of using each park and ride site
  - switching from public transport – comparing the times and costs of driving and parking in the city centre with the costs and times of using each public transport for the whole journey
- Decongestion Benefits – based on assumed proportions in non-free flow conditions (dependent on length of journey) and proportions of switchers from cars;
- change in public transport revenue – balance of increased fares from car switchers and reduced fares from public transport switchers;
- change in parking revenues – split by assumed private and public sector proportions;
- cost of providing and maintaining parking spaces
- all costs and benefits aggregated to provide a BCR for any given number of spaces

2.4.18 This can be summarised as follows:

- Benefits
  - User Benefits – form changes in genaralised cost
  - Reductions in external costs through the removal of traffic (Decongestion benefits – assuming a car trip is removed[1]
- Costs
  - Change in parking revenue (with assumed private/public split)
  - Construction cost
  - Maintenance cost

1 http://www.dft.gov.uk/webtag/webdocuments/3_Expert/9_Major_Scheme_Appraisal_in_LTPs/3.9.5.htm#02

3.1 Introduction

3.1.1 This chapter reports on current park and ride provision in the SEStran North Corridor. Park and ride provision in Fife is split between:

- a comprehensive set of local railway stations, serving local catchments;
- large, 'regional' facilities such as Kirkcaldy and Inverkeithing; and
- the high-capacity Ferrytoll bus-based park and ride site near Inverkeithing.

3.1.2 At present, Fife is served by two main train services:

- *Fife Circle:* North Queensferry, Inverkeithing:
  - North: Rosyth – Dunfermline Town – Dunfermline Queen Margaret – Cowdenbeath – Lochgelly – Cardenden – Glenrothes with Thornton;
  - South: Dalgety Bay – Aberdour – Burntisland – Kinghorn – Kirkcaldy;
  - Fife Circle provides direct access to Edinburgh only – a change is required for services north and west;
- *Perth/Dundee/Aberdeen*[2] *Services:* Inverkeithing – Kirkcaldy – Markinch – Ladybank – Springfield – Cupar – Leuchars, so provides direct access north and south.

3.2 Characteristics of Current Sites

3.2.1 Table 3.1 below contains basic facts and figures covering park and ride sites in the area.

- 0600-0900 services: number of services in this time period (to Edinburgh);
- single fare to Edinburgh (£)/time: standard single fare in late 2008 and modelled fastest journey time to St Andrew Square in Edinburgh (i.e. representative of Edinburgh city centre);
- car parking spaces: based on site visits, published information and local authority data; and
- approximate utilisation (%): i.e. how full is the car park, based on site visit and local authority data.

3.2.2 There are a number of sources of information regarding the provision of parking at station car parks. As part of this study, site visits were undertaken and the number of marked out spaces was recorded. We also received data in some cases from the local authorities, and other websites such as ScotRail also provide information. The figures quoted below are the best/most consistent of the figures available.

2 Aberdeen services stop at Leuchars only.

Table 3.1 *SEStran North – Basic Facts and Figures*

	0600-0900 Services	Single Fare to Edinburgh (£)/time	Car Parking Spaces	Approximate Utilisation (%)
N Queensferry	8	3.60/30	13	100+
Inverkeithing	16	3.90/29	425	100+
Dalgety Bay	7	4.00/37	198	85
Aberdour	7	4.50/42	94	20
Burntisland	7	4.80/46	19	100
Kinghorn	7	5.20/51	0	-
Kirkcaldy	10	5.90/42	633	90
Rosyth	6	4.00/33	135	65
Dunf Town	6	4.00/37	265	100+
Dunf QM	6	4.50/40	86	90
Cowdenbeath[3]	6	4.90/51	138	40
Lochgelly	6	5.60/57	13	50
Cardenden	6	6.40/61	13	40
Glenrothes	6	6.40/71	48	10
Markinch	7	8.30/58	148	40
Ladybank	7	9.10/64	20	100
Springfield	1	9.30/80	0	-
Cupar	7	9.40/61	70	80
Leuchars	7	10.60/69	159	100+
Ferrytoll	18 (buses)	4.50(ret.)/36	1040	70

3.2.3 It can be seen that there is a wide range of service frequencies at the Fife sites. Between 0600 and 0900 there are typically six or seven train services calling at the Fife Circle stations, with a similar number north of Kirkcaldy, the exception being Springfield. However there are 16 services from Inverkeithing and 10 from Kirkcaldy. Fares increase with distance from Edinburgh but there does seem to be a significant step change between Kirkcaldy and Markinch.

3.2.4 There are parking charges at Cupar (£1 per day, £4 per week) and at one of the three Inverkeithing car parks (Chapel Place, 63 spaces, £2 per day).

3 No station car park – figure covers Football Ground and Stenhouse Road car parks.

3.2.5 Stations where parking capacity is currently 100% utilised or exceeded are: North Queensferry, Inverkeithing, Burntisland, Kinghorn, Dunfermline Queen Margaret and Leuchars. Station car parks near capacity are Kirkcaldy and Dunfermline Town. Sites with the greatest amount of 'surplus' capacity are: Ferrytoll, Markinch, Rosyth, Cowdenbeath, Dalgety Bay and Aberdour.

3.2.6 A very clear picture therefore emerges regarding the use of park and ride in Fife. Around 2/3 of all park and ride trips are made from Kirkcaldy, Inverkeithing or Ferrytoll. High frequency is the common factor uniting these three sites, with Ferrytoll and Inverkeithing in particular essentially offering a 'turn up and go' service. Frequency is perhaps even more of a factor for return journeys, where there can be less certainty of catching a particular train.

3.2.7 In general, around 75% of current potential Fife park and ride capacity is currently utilised, so there is significant capacity available across the area.

3.2.8 Utilisation of parking provision on the north Fife Circle stations beyond Dunfermline is generally low, although south Fife Circle station car parks are more highly utilised. The new facility at Markinch, opened in 2007, does not appear to be well used at present, as is the case with all stations north of Kirkcaldy with the exception of Leuchars. The significant jump in fares between Kirkcaldy and stations north may explain this in part.

3.2.9 This suggests that the trend of driving beyond ones local station to one of these 'regional' sites, where there are much higher frequency services, is widespread in Fife. This has obvious environmental implications and is clearly an issue for the strategy to address. In short, the current service and pricing regime in Fife means that there is significant surplus capacity in some places at the moment (e.g. Dalgety Bay, Rosyth, Markinch) and a lack of capacity in others (Inverkeithing).

3.2.10 There are no committed plans for new, or significantly expanded sites in Fife.

3.2.11 Table 3.2 below describes current sites in the context of their local catchment areas and their access to the main inter-regional road network.

Table 3.2 *SEStran North – Existing Sites' Characteristics*

	Nature of Site	Main Local Catchment – Nearest	Observed Catchment	Strategic/Trunk Road Access
N Queensferry	Village station – residential area – small car park plus on street on approach	North Queensferry		Poor Via Ferrytoll junction and local roads
Inverkeithing	3 car parks – Admiralty Rd (200) on A921, 1 at station (Chapel Pl) and 1 in village (King St)	Inverkeithing	Inverkeithing, Dunfermline, Dalgety Bay, Rosyth, Dispersed Fife	**Very Good (Admiralty Road)** A921 from A90 & Fife coast
Dalgety Bay	Edge of low density residential area and industrial area	Dalgety Bay	Dalgety Bay only	Good Adjacent to A921
Aberdour	Village centre – residential area	Aberdour		Adequate Accessed of A921
Aberdour	Village centre – residential area	Aberdour		Adequate Accessed of A921
Burntisland	Adjacent to docks on south edge of town	Burntisland		Poor In urban area away from A921
Kinghorn	Village centre	Kinghorn, Pettycur		Adequate Accessed of A921
Kirkcaldy	2 car parks on town centre site	Kirkcaldy town	Kirkcaldy, Glenrothes, Buckhaven/Leven, East Neuk	Poor In town centre urban area some distance from A92
Rosyth	Rural setting, between Rosyth and Dunfermline	Rosyth, Dunfermline South, Limekilns, Charlestown	Dunfermline South	**Excellent** Located off A823(M) M90 J2
Dunf. Town	Town centre – residential/park	Dunfermline town and villages to the north west	Dunfermline town and villages to the north west	Adequate Adjacent to A823 but in town centre
Dunf. QM	North east edge of Dunfermline – rural/low density setting near hospital	North Dunfermline area between A823 and M90, Halbeath	North Dunfermline area between A823 and M90, Halbeath	Good M90 J3 the A907 and B912

	Nature of Site	Main Local Catchment – Nearest	Observed Catchment	Strategic/Trunk Road Access
Cowdenbeath	Town centre built up area	Cowdenbeath, Hill 'o Beath, Kelty		Adequate From A92
Lochgelly	Edge of village – residential & industrial area	Lochgelly, Lochore, Ballingry		Poor Station is north of town which is north of A92
Cardenden	Edge of village – residential & industrial area	Cardenden, Auchterderran		Poor Not easily accessed from A92
Glenrothes with Thornton	Thornton village – low density setting	Thornton		Poor Not easily accessed from A92
Markinch	Edge of village – residential/rural New interchange facility	Glenrothes, Leven/ Methil/Buckhaven	Glenrothes, Leven/ Methil/Buckhaven	Poor* (north, west) Good (south, east) A911 from A92 (counter-flow)
Ladybank	Village location, residential area	Ladybank – villages to Auchtermuchty and Newburgh		Adequate In village close to A92
Springfield	Rural location to east of village	Springfield		Adequate From A914
Cupar (P&D)	Town centre location – retail and residential area	Cupar to East Neuk coast and north west to Tay		Good Adjacent to A914 in urban area
Leuchars	Edge of village rural New interchanges facility	Leuchars, Crail, St Andrews		Adequate Some distance from A92
Ferrytoll	Custom build large scale park in ride in non urban location	None	Locally Rosyth, Dunfermline and Dalgety Bay Widely dispersed including Perth and Dundee[4]	**Excellent** Direct access off A90

* Access across the A92 is unpredictable in peak hours

4 The Ferrytoll user survey suggest that over 80% of users have driven from the immediate Dunfermline/Dalgety Bay area, with 15% coming from the wider Fife area and 5% from further afield. Over 95% of Ferrytoll users are going to the Edinburgh area.

3.2.12 A number of current sites have good access from trunk and strategic roads.

- Rosyth – good access to A90 and in a prime trunk road location if Rosyth Bypass plans (new route from A823(M) to the A985/A994 junction) were realised;
- Inverkeithing – although in the village, it has good access from M90 J1 and A921 from east, although this is not currently signed from the A90 as a park and ride option;
- Ferrytoll – signed and promoted with access straight from A90, although being close to the bridge, traffic may have to queue prior to accessing the site;
- Dunfermline Queen Margaret – access from M90 J3; and
- Markinch – good access from east Fife via A911, but less good from west.

3.3 Catchment Area Analysis

Resident Catchment

3.3.1 Figure 3.1 below shows the resident population households within a 15 minute peak hour drive of each of the existing SEStran North corridor park and ride sites. These figures are disaggregated by local authority area.

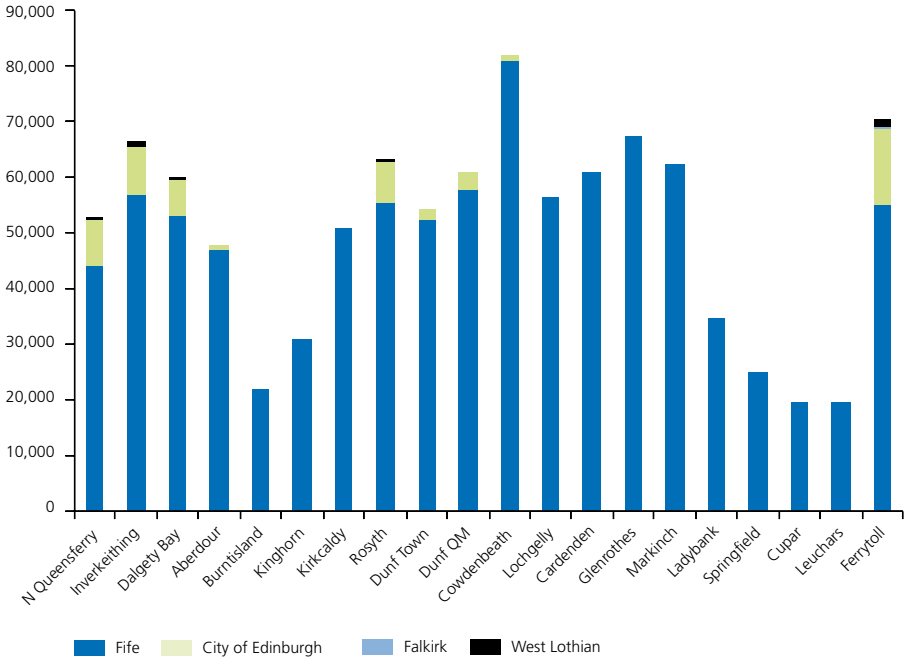


Figure 3.1 *SEStran North – Resident Catchments (Households, 15 Minute Drive)*

3.3.2 The chart shows the resident catchment data for the Fife stations and Ferrytoll in terms of the number of households who could drive to each site in 15 minutes, so in theory this shows the most accessible existing station/potential park and ride sites in Fife. One approach would be to aim to provide park and ride capacity broadly on this basis.

3.3.3 The figures range widely from around 20,000 to over 80,000 households (there are a total of around 155,000 households in Fife). Cowdenbeath's central location is reflected in having the highest catchment by this definition, although this is somewhat misleading as this catchment will include many living west of Cowdenbeath. Glenrothes and Markinch have the next largest catchment resident population. Burntisland, Cupar and Leuchars all have the smallest catchments by this definition. Sites nearest the Forth Road Bridge are also accessible for Edinburgh, West Lothian and Falkirk residents – giving them some potential for northbound park and ride.

Nearest Station Catchment

3.3.4 In Figure 3.2, each postcode area has been allocated to its nearest station in terms of shortest drive time. The resulting number of households per site is the number of households for whom this is their closest (shortest drive) station. The figure also shows the number of households within an illustrative 15 minute 'walk in' catchment.

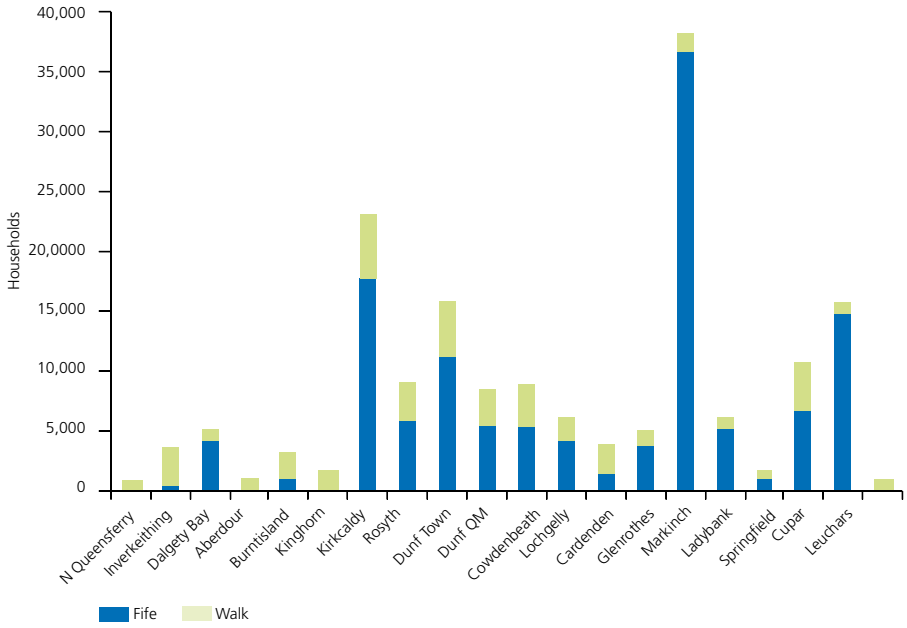


Figure 3.2 *SEStran North Sites – 'Shortest Drive' Catchments (households)*

3.3.5 If all Fife households used their closest stations for accessing the rail network (or Ferrytoll), it could be anticipated that the distribution of station car parking across Fife would broadly follow this pattern, albeit with a reduction moving away from Edinburgh, as volume decreases. In a sense, this represents the 'ideal' scenario as vehicle kilometres travelled accessing the rail network would be minimised.

3.3.6 Under normal circumstances, parking provision is not aimed at those who live within a 15-minute walk-in catchment area, so for example on this basis, no parking provision would be required at North Queensferry, or indeed Ferrytoll, although Ferrytoll is clearly designed to serve a different market.

3.3.7 This data shows a very wide range of catchments. Fife Circle (south) stations have very low catchment populations on this basis and the large majority of this catchment lives within a 15 minute walk of the station, the exception being Dalgety Bay. Markinch is the nearest drive-to station for around 30% of Fife households, with Kirkcaldy accounting for 14% and Leuchars 12%. If households were to use their closest station, it can therefore be seen that the greatest demand would be found at Markinch, Kirkcaldy, Leuchars and Dunfermline Town.

3.3.8 Kirkcaldy, Dunfermline Town and Cupar have the largest walk in catchments of these sites.

Employment Catchment

3.3.9 Figure 3.3 below shows the number of jobs which are accessible in 45 minutes travel time by public transport from each site, split by local authority area. This applies to services arriving by 0900. The figure of 45 minutes was selected as a 'reasonable' commuting time.

3.3.10 Employment catchments reflect the geographical positions of the stations and also the speed of the train services serving each station.

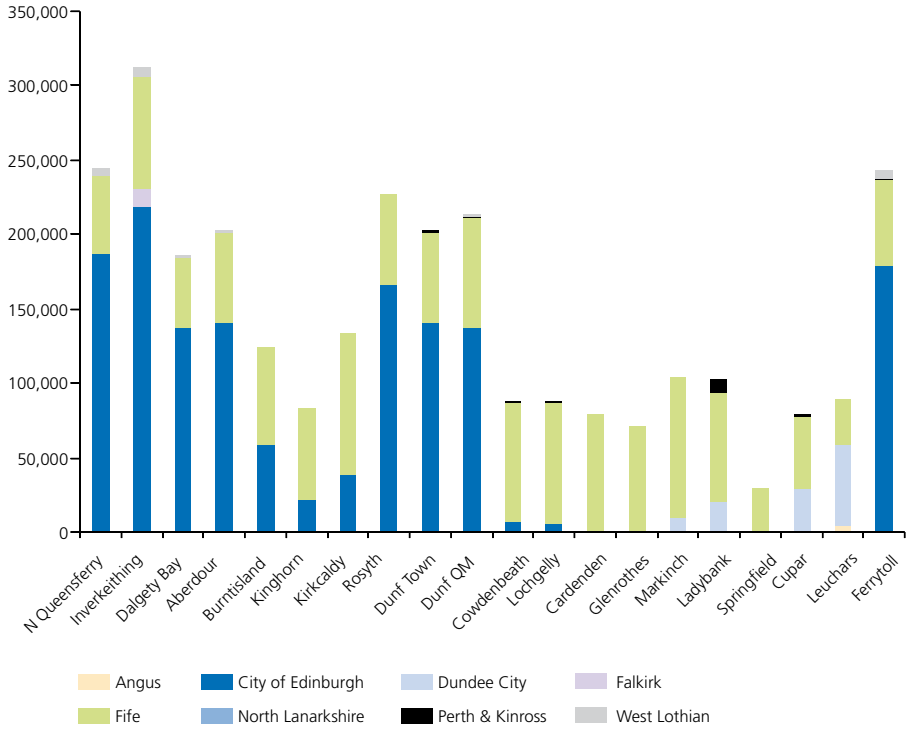


Figure 3.3 *SEStran North, Employment Catchment (Jobs within 45 Minutes)*

3.3.11 In general, the total employment catchment naturally reduces with distance from Edinburgh. Here, Ferrytoll, with its relatively wide range of destination catchments and Inverkeithing, with its fast services into Edinburgh, have the highest employment catchments. If only Edinburgh destinations are considered, it can be seen that Inverkeithing has the largest employment catchment by some margin. Some destinations in Falkirk and West Lothian can also be reached from Inverkeithing. There is a large drop-off in this employment catchment between the Dunfermline stations and the rest of the north Fife Circle, coinciding with Edinburgh destinations going beyond 45 minutes of these relatively slow services.

3.4 Current Parking Provision & Catchment Analysis

3.4.1 Figures 3.1, 3.2 and 3.3 showed the catchment resident households (within 15 minutes, and nearest site) and employment catchment areas respectively. These catchment figures can be analysed in the context of the number of spaces currently provided – this highlights sites where provision is relatively generous, or perhaps there is insufficient provision.

3.4.2 Table 3.3 below shows the ratio of spaces to catchment area figures for:

- 15 minutes resident catchment households, i.e. spaces per 1,000 households within a 15 minute drive time to each site;
- nearest station catchments, i.e. spaces per 1,000 households for who that site is their nearest park and ride options; and
- employment catchment, i.e. spaces per 1,000 jobs which can be accessed using public transport from the site within 45 minutes, in Edinburgh, Glasgow and Dundee local authority areas.

3.4.3 Each provision is labelled as 'very low', 'low', 'medium' or 'high'. These ratings are made with reference to provision at all sites across the SEStran area.

3.4.4 There is currently no parking at Kinghorn or Springfield.

Table 3.3 *SEStran North, Site Catchment Analysis*

	Provision for 15 minute drive resident catchment (spaces/'000)		Provision for nearest resident catchment (spaces/'000)		Provision for employment catchment (spaces/'000)	
N Queensferry	0.3	*very low*	130.0	*high*	0.1	*very low*
Inverkeithing	7.5	*high*	914.0	*high*	1.9	*medium*
Dalgety Bay	3.7	*medium*	47.4	*medium*	1.4	*medium*
Aberdour	2.0	*low*	940.0	*high*	0.7	*low*
Burntisland	0.9	*very low*	21.3	*medium*	0.3	*very low*
Kinghorn	0.0	*very low*	0.0	*very low*	0.0	*very low*
Kirkcaldy	12.5	*high*	36.0	*medium*	16.5	*high*
Rosyth	2.4	*low*	23.4	*medium*	0.8	*low*
Dunf Town	5.1	*medium*	23.8	*medium*	1.9	*medium*
Dunf QM	1.5	*low*	15.8	*low*	0.6	*low*
Cowdenbeath	1.7	*low*	26.2	*medium*	21.1	*high*
Lochgelly	0.2	*very low*	3.2	*very low*	2.2	*medium*
Cardenden	0.2	*very low*	8.7	*very low*	260.0	*high*
Glenrothes	0.7	*very low*	12.7	*low*	-	*high*
Markinch	2.4	*low*	4.1	*very low*	15.4	*high*
Ladybank	0.6	*very low*	3.9	*very low*	1.0	*low*
Springfield	0.0	*very low*	0.0	*very low*	-	*high*
Cupar	3.6	*medium*	10.4	*low*	2.4	*medium*
Leuchars	8.2	*high*	10.8	*low*	2.9	*medium*
Ferrytoll	18.9	*high*	10400.0	*high*	5.8	*high*

3.4.5 This analysis highlights sites where current parking provision is low in the context of the catchment areas served. Sites which are classed as 'very low' or 'low' and are currently at capacity should be prioritised over sites which are classed as 'high' and at capacity, if investing in additional capacity.

3.5 Travel Time Differentials

3.5.1 In addition to catchment areas and train frequencies, the relative journey times between car and public transport are a key issue in park and ride.

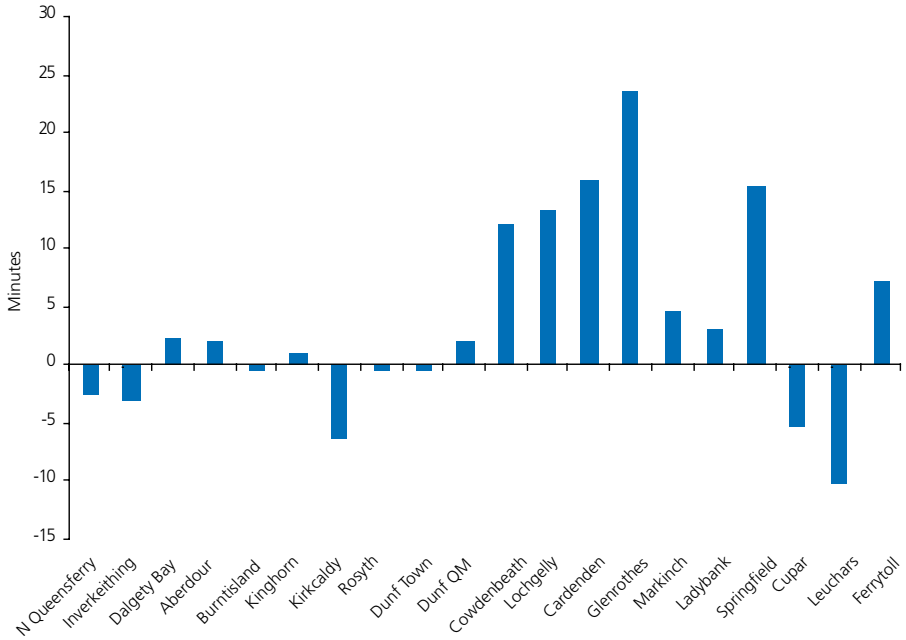


Figure 3.4 *SEStran North, Car/Public Transport Travel Time Differentials*

3.5.2 Figure 3.4 shows the comparative journey times between the SEStran North park and ride locations and central Edinburgh. It can be seen that:

- north Fife Circle train services offer much slower relative journey times than the car; and
- Inverkeithing, Kirkcaldy, Cupar and Leuchars have significantly quicker times using public transport, and
- Ferrytoll times are rather less competitive with car.

3.6 User Benefits

3.6.1 The relative costs and times of travel from each park and ride site to central Edinburgh have been encapsulated in a 60-year 'user benefits' estimate of providing a single new space at each site, assuming this is subsequently occupied. This reflects the relative journey times and costs from each site to central Edinburgh. High levels of user benefit can be taken as a proxy for the attractiveness of each site – i.e. the higher the user benefit, the greater the difference in the generalised cost of travel is between public transport and car.

3.6.2 Reductions in the external costs arise from a switch from car to park and ride. The figures below are primarily related to the reduction in car kilometres travelled. Also shown is an estimate of the benefit cost ratio in each case.

3.6.3 The results are shown in Figure 3.5 below.

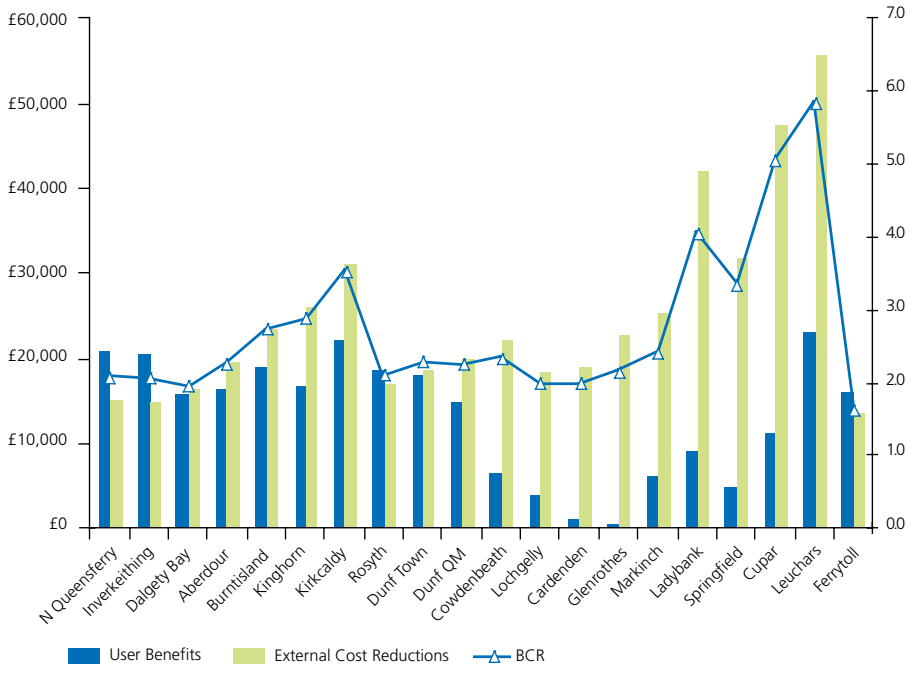


Figure 3.5 *SEStran North – User Benefits by Site*

3.6.4 On this basis, the five most attractive sites (in terms of estimated user benefits) are Leuchars, Kirkcaldy, North Queensferry, Inverkeithing and Burntisland. The least attractive sites on this basis are Glenrothes with Thornton, Cardenden, Lochgelly, Markinch and Cowdenbeath. In this case, the estimate of user benefits strongly reflects the observed use of park and ride in Fife.

3.6.5 The external benefits will only arise if a car is removed from the equivalent journey – the user benefits can be thought of as a proxy for the likelihood of this.

3.7 Summary Table & Implications

3.7.1 Table 3.4 below summarises the existing sites in terms of:

- observed parking issues at each site;
- observed current utilisation;
- current parking provision – in terms of the 'score' reflecting origin and destination catchments; and
- the estimated user benefits.

3.7.2 It also indicates whether some specific action is required, in terms of whether additional capacity is required and/or justified at that site.

Table 3.4 *SEStran North Corridor – Summary*

	On-Site Problem	Off-Site Problem	Utilisation (%)	Provision – catchments (15m/nearest/emp)	Nearest Site Catchment	User 'Benefits'	Specific Action required?
N Queensferry	✓		100+	vl/h/vl	100	20,700	✗
Inverkeithing	✓	✓	100+	h/h/m	465	20,200	✗
Dalgety Bay			85	m/m/m	4,177	15,600	✗
Aberdour			20	l/h/l	100	16,100	✗
Burntisland	✓		100	vl/m/vl	894	18,700	?
Kinghorn			-	-	243	16,700	✗
Kirkcaldy			90	h/m/h	17,594	21,800	✗
Rosyth			65	l/m/l	5,776	18,400	✗
Dunf Town	✓*		100+	m/m/m	11,155	17,900	✓
Dunf QM			95	l/l/l	5,440	14,600	?
Cowdenbeath[5]			40	l/m/h	5,265	6,400	✗
Lochgelly			50	vl/vl/m	4,095	3,900	✗
Cardenden			40	vl/vl/h	1,490	900	✗
Glenrothes			10	vl/l/h	3,777	300	✗
Markinch			40	l/vl/h	36,511	5,900	✗
Ladybank	✓		100	vl/vl/h	5,083	8,900	✓
Springfield			-	-	961	13,100	✗
Cupar			80	m/l/m	6,706	11,200	✗
Leuchars	✓		100+	h/l/m	14,736	23,000	✓
Ferrytoll			70	h/h/h	100	15,800	✗

* St Margaret's Drive reportedly over-capacity

3.7.3 None of the Fife sites suffer from the degree of overcrowding seen in other parts of the SEStran area, with the possible exception of Inverkeithing. There is a degree of local overspill at e.g. Leuchars and Ladybank but this is confined to a small area adjacent to the station.

5 No station car park – figure covers Football Ground and Stenhouse Road car parks.

3.7.4 The bigger issue for Fife is the dominant role played by Inverkeithing and Kirkcaldy, reflecting the high user benefits and services frequency at these sites. Note that on this analysis, current provision at Inverkeithing is 'low' such is the influence of the high number of peak hour services – i.e. Inverkeithing needs more parking capacity on the basis of its current services. This is considered further below.

3.7.5 Additional parking capacity should be considered though at locations where current provision is low and demand currently exceeds supply. In this category, **Leuchars** (high user and external benefits), the **Dunfermline** stations and perhaps **Ladybank** and **Burntisland** should be considered.

Strategy for Park and Ride from the North

3.7.6 The pattern of park and ride use in Fife is therefore clear enough. There is a large mismatch between nearest station and actual station used, with a resulting mismatch in parking provision and parking use. A clear choice is therefore faced for the future provision of park and ride in Fife:

- Option 1 – Continue to cater for current demand by adding parking capacity at the high-frequency 'hot-spots' such as Inverkeithing and Kirkcaldy; or
- Option 2 – 'Manage' the demand for park and ride by encouraging more people to use their local site as opposed to Inverkeithing and Kirkcaldy. This would have the advantage of:
  - reducing traffic levels in more congested areas; and
  - reducing the total vehicle kilometres travelled.

3.7.7 Despite the presence of a large number of village stations potentially serving local Fife catchments, the distorting effect of high train frequency, generous free parking and low fares at **Inverkeithing** is apparent, with evidence of many travellers driving past local stations to use Inverkeithing. This brings a significant amount of traffic into the area, and arguably reduces rail revenues to the operator as people are driving past other (more expensive) stations.

3.7.8 A similar issue affects **Kirkcaldy**. The high frequency and relatively low cost of trains draws many cars into the town's station car parks from the surrounding areas. The station is located to the west of the town which adds to traffic issues for those travelling from the north or east. However, at **Markinch**, demand is low, despite a significant recent investment in this high quality transport interchange. Its nearest catchment includes the Leven/Methil/Buckhaven area accessed from the A911, and Glenrothes, which gives it by far the largest catchment area in Fife. The East Neuk villages also have good access to Markinch.

3.7.9 However, fares to Edinburgh from Markinch are 40% higher than from Kirkcaldy. Although Kirkcaldy is slightly further from Leven/Methil/Buckhaven than Markinch, it is also of course closer to Edinburgh. In addition, coming from Glenrothes involves travelling initially east across the busy A92. As a result many in Glenrothes and Leven/Methil/Buckhaven are driving to Kirkcaldy in preference to using the new facility at Markinch. Frequency is also significantly higher at Kirkcaldy than at Markinch.

3.7.10 The Kirkcaldy and Inverkeithing issues therefore:

- add to congestion in the town and bridgehead areas respectively; and
- increase car traffic and vehicle kilometres associated with the use of park and ride with resulting increased emissions and potential air quality issues.

3.7.11 There are a number of ways in which this imbalance could be addressed. Fares policy is one method to address this issue. The jump in fares between Kirkcaldy and Markinch seems disproportionate, as shown in Figure 3.6 below. If this disparity were reduced, a switch from Kirkcaldy to Markinch could be anticipated. A 'premium' fares policy at Inverkeithing could also perhaps be used encourage a switch to more local stations.

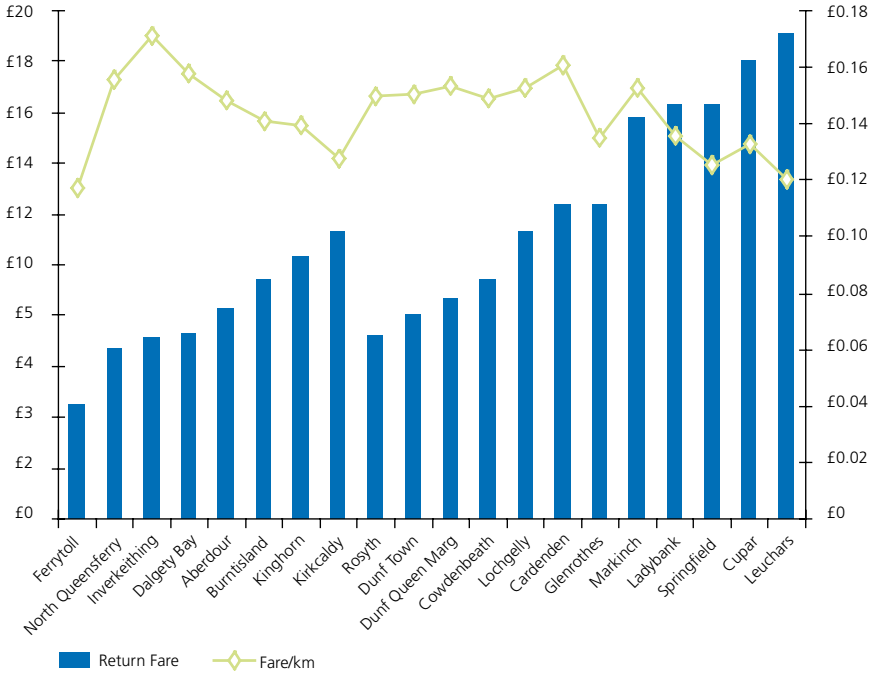


Figure 3.6 *SEStran North – Return Fares to Edinburgh and Fares/km*

3.7.12 **Parking charges** are clearly a further measure which can be used to manage or distribute demand more efficiently. Charges at Kirkcaldy, or further charges at Inverkeithing could encourage more use of local stations. **Service changes** would also assist in this redistribution. Increasing frequency on the Fife Circle services and/or perhaps reducing frequency at Inverkeithing would further redistribute demand for park and ride. An option would be to stop some of the 'direct' trains at perhaps one more of the 'intermediate' stations and/or make further use of the northern side of the Fife Circle.

3.7.13 However, any move to reduce train frequency at Inverkeithing or Kirkcaldy, or make these stations unattractive in other ways such as through ticket pricing or parking charges would clearly be potentially unpopular with the travelling public, unless accompanied by other measures such as reduced fares elsewhere.

3.7.14 A wider 'zonal' based fares system in Fife may be useful in this respect where fares from all stations in say Inverkeithing and Kirkcaldy zones were equalised.

3.7.15 Kirkcaldy and Inverkeithing could then be promoted as a more 'regional' facilities – freeing up capacity (and providing certainty of capacity) for early interchange to rail, for travel north as well as the south.

3.7.16 Ferrytoll offers a comparable but significantly cheaper option than Inverkeithing together with guaranteed parking and a somewhat wider range of destinations, but with longer and perhaps less predictable journey times.

Proposed Main Strategy Actions

- Do not invest in further parking supply at Inverkeithing and Kirkcaldy – this will simply exacerbate existing trends and further increase vehicle kilometres travelled;
- Add incremental capacity at the other stations identified – to cater for some 'redistribution' of park and ride demand;
- Aim to redistribute Inverkeithing park and ride traffic to Rosyth and Dalgety Bay in the first instance;
- Aim to redistribute suitable Kirkcaldy park and ride traffic to Markinch; and
- Continue to strive for higher frequency on Fife Circle.

3.7.17 Options for potential new sites in Fife are considered in Chapter 8.

4.1 Introduction

4.1.1 This chapter consider current and committed park and ride provision in the western SEStran area. Regional park and ride provision in this area is split between:

- Edinburgh & Glasgow Line (E&G): Linlithgow, Polmont, Falkirk High – includes destinations to Glasgow;
- Edinburgh – Stirling Line: Linlithgow, Polmont, Falkirk Grahamston, Camelon, Larbert – includes destinations to Stirling;
- Edinburgh – Bathgate Line: Uphall, Livingston North, Bathgate – destinations to Edinburgh only at present, but also North Lanarkshire and Glasgow once the Airdrie to Bathgate line is re-opened, scheduled for 2011;
- Shotts Line – Curriehill, Kirknewton, Livingston South, West Calder, Addiewell, Breich, Fauldhouse – destinations to Edinburgh and Glasgow but typically long journey times to the west – there are existing proposals to improve services on this line;
- Stirling to Alloa Line – connecting Alloa directly to Stirling and Glasgow, a new service starting in May 2009 also links Alloa directly to Edinburgh (although given the initial service, only a small minority of users were travelling to Edinburgh from Alloa by rail);
- Dalmeny station on the Fife line, providing a station for South Queensferry; and
- High capacity bus-based sites at Ingliston[6] and Hermiston serving Edinburgh only.

4.2 Characteristics of Current Sites

4.2.1 Table 4.1 below contains basic facts and figures covering park and ride sites in the area.

- 0600-0900 services: number of services in this time period (to Edinburgh);
- Single Fare to Edinburgh (£)/time: standard single fare in late 2008 and modelled fastest journey time to St Andrew Square in Edinburgh (i.e. representative of Edinburgh city centre)
- Car Parking Spaces: based on site visits, published information and local authority data
- Approximate Utilisation (%): i.e. how full is the car park, based on site visit and local authority data

6 The site at Ingliston will also be served by a planned tram stop.

Table 4.1 *SEStran West – Basic Facts and Figures*

	0600-0900 Services	Single Fare to Edinburgh (£)/time	Car Parking Spaces	Approximate Utilisation (%)
Linlithgow	13	3.90/25	189	100+
Polmont	12	4.80/32	188	100+
Falkirk High (P&D)	10	5.00/37	282	100+
Falkirk Grah. (P&D)	6	5.00/47	380	50
Camelon	5	5.20/49	28	100
Larbert	8	5.20/52	285	95
Uphall	5	3.50/29	140	100
Livingston North	5	3.90/34	166	100+
Bathgate	5	4.00/40	185	100+
Curriehill	4	2.20/25	40	80
Kirknewton	4	3.40/30	30	95
Livingston South	3	3.80/36	120	80
West Calder	3	4.00/42	27	100+
Addiewell	2	4.60/44	12	15
Breich	1	4.80/49	0	-
Fauldhouse	2	5.30/51	9	100+
Dalmeny	9	3.40/24	140	100+
Alloa	2	7.20/66	65	100+
Kincardine	>20	NA	67	60
Hermiston (bus)	20	1.20/29	495	90
Ingliston (bus)	19	1.20/26	1080	50

Linlithgow – Back Station Road, Edinburgh Road overflow car park, Regent Centre; Polmont – 2 car parks plus small car park by platform; Falkirk High – 220 in main car park, the rest accessed via Albert Road (residential); Larbert – figure includes both car parks; Alloa – additional non-station parking nearby is excluded

4.2.2 It is therefore immediately clear that there are significant park and ride capacity issues in the SEStran West corridor area. In particular, all current parking supply on the E&G and Bathgate lines is fully taken up on a regular basis with plenty of evidence of overspill and/or illegal parking around stations. The only significant spare parking capacity is on the Stirling line, at Falkirk Grahamston in particular, and at the recently expanded Ingliston site.

4.2.3 In aggregate, there are around 660 spaces at E&G stations and around 500 on the Bathgate line stations but only around 240 on the Shotts line, where there is also some surplus capacity.

4.2.4 In terms of services, at Linlithgow, Polmont and Falkirk High trains are more frequent than on the other lines and Linlithgow and Polmont are unique in providing direct access to Edinburgh, Glasgow and Stirling. The service frequency at stations on the Shotts line is less and tends to deteriorate with distance from Edinburgh.

4.2.5 It can be seen that the journey times to Edinburgh are significantly shorter from E&G stations than is the case with the other lines. For example, Linlithgow, Bathgate and West Calder are similar distances to Edinburgh, yet the journey times above are 25, 40 and 42 minutes respectively. Also, journey times from Falkirk Grahamston are typically 10 minutes longer than from Falkirk High.

4.2.6 There are parking charges in place at Falkirk High (£2.50 per day, £6 per week or £75 per annum) and Falkirk Grahamston (£1 per day or £4 for seven days). All other sites offer free and unrestricted parking.

4.2.7 Kincardine is a bus-based park and ride site which provides links to Glasgow, Falkirk, Stirling and Dunfermline.

4.2.8 Where parking at given sites is at capacity, this can have the effect of increasing vehicle kilometres travelled by forcing people to drive further to a site with greater parking provision. This is seen in some of the observed behaviour reported in Table 4.2 below, which describes each site in terms of:

- Its location and type – what type of site is it?;
- Its local catchment – areas for whom this is their nearest station; and
- Its strategic access – how is the site accessed from the strategic road network, i.e. is this a 'good' site for strategic, rather than local, park and ride.

Table 4.2 *SEStran West – Existing Site Characteristics*

	Nature of Site	Main Local Catchment – Nearest	Observed Catchment	Strategic/Trunk Road Access
Linlithgow	Constrained town centre – car parks at various sites	Linlithgow town, Bo'ness	Linlithgow, Bo'ness, South Queensferry, Bathgate, Uphall, villages south, Fife	Poor J3 or J4 on M9 to A803 into town centre
Polmont	Modern car parks in residential urban area	Polmont, Grangemouth	Polmont, Grangemouth	Poor J4 or J5 on M9 to A803 into town centre, then B810
Falkirk High	Modern car parks in residential urban area	Falkirk and rural areas south	Falkirk, Stenhousemuir, Bonnygridge, Denny	Poor M876 J1 or M9 J6 through Falkirk, B803
Falkirk Grah	Town centre – large local authority car parks	Falkirk	Falkirk	Poor M876 J1 or M9 J6 through Falkirk, B902
Camelon	Within Industrial & Leisure estate	Camelon, Bonnybridge, Denny	NA	Poor M876 J1 or J2, A9 or A883 No practical access from M9
Larbert	Modern car park within residential area	Larbert, Denny, Stenhousemuir	NA	Poor M876 J2, A9, B905 No practical access from M9
Uphall	New car park in area between M8 and residential area	Broxburn, Uphall, Dechmont, Pumpherston	Uphall, Broxburn, Livingston	**Excellent** M8 J3, A89, B8046
Livingston North	Residential/Retail Area – new car park under construction	North Livingston area	All Livingston	Poor M8 J3 or J4 Local distributors

Table 4.2 *SEStran West – Existing Site Characteristics –cont*

	Nature of Site	Main Local Catchment – Nearest	Observed Catchment	Strategic/Trunk Road Access
Bathgate	2 * town centre station car parks	Bathgate, Boghall, Armadale, Blackridge	Bathgate, Armadale, Whitburn, Blackburn, North Lanarkshire, Livingston	Poor M8 J4 – A801 – B7002 M8 J3a – A89
Curriehill	Small car park at rural site north of Currie	Local Currie only	NA	Poor Residential street from A70 & Narrow rural road from A71
Kirknewton	Small station car park at rural site near village	Kirknewton, East Calder	NA	Adequate B Road from A70 and A71
Livingston South	Low density residential area	South Livingston area	NA	Adequate Local distributors from A70
West Calder	Edge of village centre – no real car park and on street parking	West Calder, Polbeth	NA	Adequate Good access off A71
Addiewell	Very small car park on edge of small village	Addiewell, Loganlea, Blackburn	NA	Adequate Minor route Access off A71
Breich	No car park – Rural location	Longridge, Whitburn	NA	Adequate Minor route Access off A71
Fauldhouse	Informal car park on edge of village, with on street parking	Fauldhouse	NA	Adequate B7010 from A71
Dalmeny	Modern car park in residential & Industrial area	Dalmeny, South Queensferry	NA	Poor Via South Queensferry or B924 from south
Alloa	Retail area in town centre Recent facility	Alloa, All Clackmannanshire towns	NA	Good Access off A907

Table 4.2 *SEStran West – Existing Site Characteristics –cont*

	Nature of Site	Main Local Catchment – Nearest	Observed Catchment	Strategic/Trunk Road Access
Kincardine	Residential area Recent facility	Kincardine	NA	Good Located adjacent to A876
Hermiston (bus)	Custom built large edge of city site	No significant local catchment	Currie, Balerno, Livingston, Calders, South Lanarkshire	Excellent New junction on A71
Ingliston (bus)	Custom built large edge of city site	Kirkliston, Newbridge	Broxburn/Uphall, Bo'ness plus widely dispersed across SEStran area (inc Fife), Stirling & Glasgow	**Excellent** Off of Airport 'dumbells' junction on A8

4.2.9 It's clear that the E&G stations provide attractive park and ride locations for a significant catchment area across West Lothian and indeed further afield. Access to Glasgow and the frequency of services is the key factor. However, these three stations are situated in town centre or residential locations and are not easily accessed from the motorway or main road network. Compared to the Fife case however, the use of nearest stations (certainly to access Edinburgh) is more widespread given the similar levels of service offered on the E&G and the Bathgate lines. However, capacity issues at some stations leads to people travelling to 'quieter' stations which themselves fill up and this knock on effect continues.

4.2.10 The Stirling line stations also have relatively poor access from the motorway network. On the Bathgate line, Bathgate is in the town centre and Livingston North is accessed via local distributor roads within the town. Uphall stands out in terms of strategic road access, being located adjacent to the M8 with near direct access via Junction 3 – A899 – A89 and B8046.

4.2.11 Shotts line stations are generally village/edge of village locations, accessed from the A71. There has been no significant investment in these stations in recent years, and the quality of the facilities reflects the current status of services on this line. The car parks tend to be small and somewhat informal.

4.2.12 Survey data from Ingliston and Hermiston bus park and ride sites shows a very dispersed catchment for these sites. At Ingliston, this catchment extends across the central belt. The site is signed and accessed straight off the main road network, and actively promoted. Unlike many of the West Lothian railways stations, there is certainty of getting a parking space and good frequency. The pattern at Hermiston is also very dispersed, with people mainly coming from Currie/Balerno, and Livingston but also from further across the southern half of West Lothian and also extending to South Lanarkshire to a small extent.

4.3 Future Committed Proposals

4.3.1 A further car park is currently being added at Falkirk High providing an additional 70 spaces.

4.3.2 The re-opening of the Airdrie-Bathgate Line will have a significant impact on park and ride provision in the area. Together with the new train services where four trains per hour will be provided rather than the current two between Bathgate and Edinburgh, parking capacity will be significantly increased as follows:

- Uphall – Expand to 275 spaces;
- Livingston North – Expand to 322;
- Bathgate – Expand to 395;
- Armadale – new station with 188 spaces; and
- Blackridge – new station with 50 spaces.

4.3.3 To simplify the analysis which follows, the Airdrie-Bathgate proposals are assumed to be in place, i.e. any decisions for future investment should be based on the assumption that these facilities have been constructed.

4.4 Catchment Area Analysis

Resident Catchment

4.4.1 Figure 4.1 below shows the approximate present day resident households within a 15 minute peak hour drive of each of the SEStran West corridor park and ride sites, split by their local authority of origin.

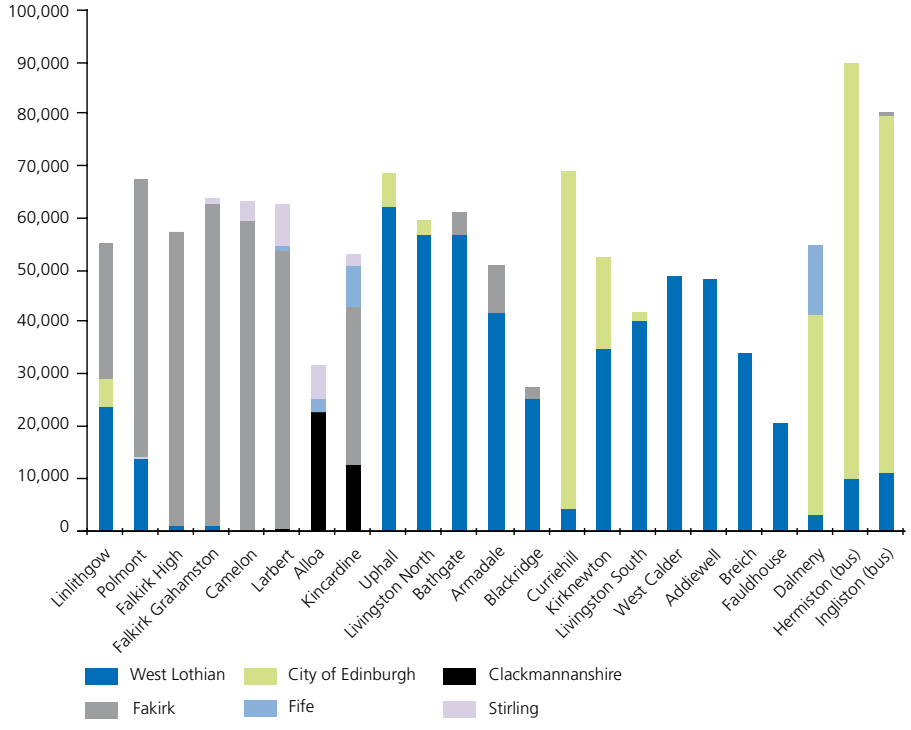


Figure 4.1 *SEStran West – Resident Catchments (Households, 15 Minutes Drive)*

4.4.2 The largest drive in population catchments are found at the sites closest to Edinburgh, but these are dominated by Edinburgh residents and, since Ingliston and Hermiston offer 'inbound' services only, these figures can be largely discounted. Of the remaining sites, Uphall and Polmont have the highest catchments.

4.4.3 The Shotts line population catchments are typically smaller, decreasing significantly with distance from Edinburgh and reflecting the more dispersed nature of the population along this route. The three Stirling line stations have very similar catchments, as they are located quite close together.

Nearest Station Catchment

4.4.4 Figure 4.2 shows the total number of households for whom each site is their nearest in terms of drive time, as well as the walk in catchment in each case. Again the data is split at the local authority level.

4.4.5 Note that this analysis included park and ride sites in the Stirling Council and Perth and Kinross areas.

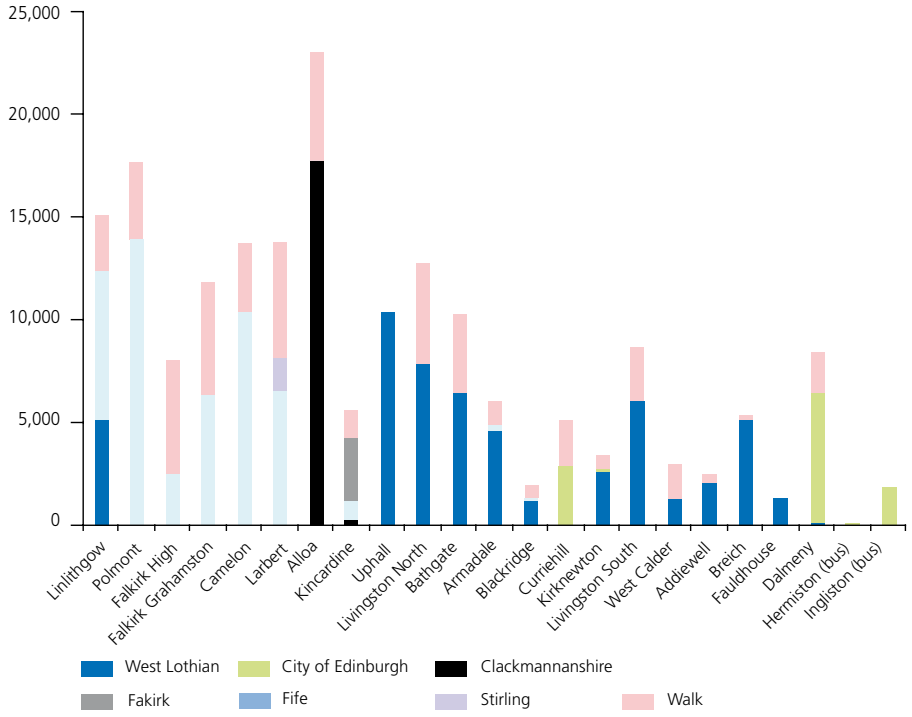


Figure 4.2 *SEStran West – 'Shortest Drive' Catchments (Households)*

4.4.6 When nearest station catchment is considered, Alloa is seen to have the largest household catchment by some distance. This reflects its relative lack of 'competition' – i.e. Alloa is the closest option for virtually all Clackmannanshire residents (around 98%). Of the others, Polmont and Linlithgow have the most substantial nearest station catchments, followed by Camelon and Uphall (when 'walk-in' catchment is excluded). Stations on the Shotts line again generally have lower local catchments. It can be seen that Hermiston and Ingliston are the nearest park and ride options for very few, non-City of Edinburgh households.

4.4.7 In fact, if West Lothian residents were to use their closest (present day) park and ride options, 36% would use Shotts line stations, 54% would use Bathgate Line stations and only 10% would use the E&G line at Linlithgow. Similarly, for Falkirk Council residents, 45% would use E&G stations and 55% would use Stirling Line stations. This picture is not reflected on the ground.

4.4.8 Falkirk Grahamston, Alloa and Livingston North have the largest walk-in catchments.

Employment Catchment

4.4.9 Figure 4.3 below shows the number of jobs which are accessible in 45 minutes travel time by public transport from each site in an AM peak period, split by the local authority in which these jobs are located.

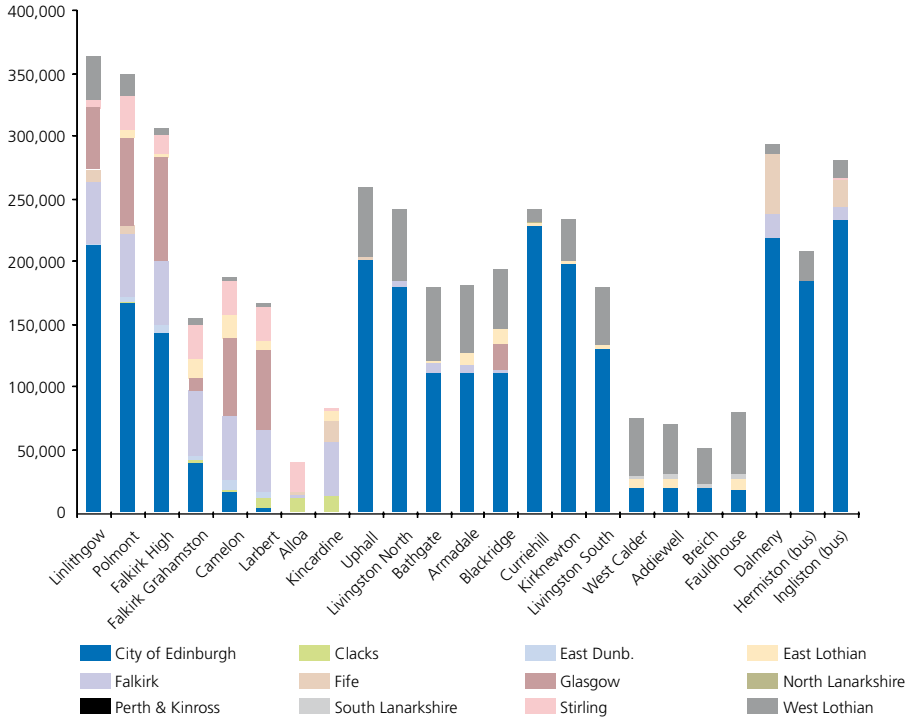


Figure 4.3 *SEStran West, Employment Catchment (Jobs within 45 Minutes)*

4.4.10 So for example, from Linlithgow, you can get to around 210,000 jobs in the City of Edinburgh area, 50,000 in Falkirk and also 50,000 in Glasgow within 45 minutes using public transport within 45 minutes.

4.4.11 Linlithgow, Polmont and Falkirk High have access to the largest number of jobs, as all three also provide access to a significant number of jobs based in Glasgow. The contrast in figures between Falkirk's two stations is also clearly demonstrated here reflecting the nature of the services available at each. Indeed very few Edinburgh jobs are accessible from the Stirling line stations within 45 minutes.

4.4.12 Of the bus sites, Ingliston provides access within 45 minutes to a greater number Edinburgh-based jobs than Hermiston.

4.4.13 There is a big drop off in accessible jobs on the Shotts line beyond Livingston South and stations between West Calder and Fauldhouse, along with Alloa and Kincardine give access to the fewest jobs within this travel time.

4.5 Current (and committed) Parking Provision and Catchments

4.5.1 Figures 4.1, 4.2 and 4.3 showed the catchment resident households (within 15 minutes, and nearest site) and employment catchment areas respectively. These catchment figures can be analysed in the context of the number of spaces currently provided – this highlights sites where provision is relatively generous, or perhaps there is insufficient provision.

4.5.2 Table 4.3 below shows the ratio of spaces to catchment area figures for:

- 15-minutes resident catchment households, i.e. spaces per 1,000 households within a 15 minute drive time to each site;
- nearest station catchments, i.e. spaces per 1,000 households for who that site is their nearest park and ride options; and
- employment catchment, i.e. spaces per 1,000 jobs which can be accessed using public transport from the site within 45 minutes, in Edinburgh, Glasgow and Dundee local authority areas.

4.5.3 Each provision is labelled as 'very low', 'low', 'medium' or 'high'. These ratings are made with reference to provision at all sites across the SEStran area.

4.5.4 There is currently no parking at Breich.

Table 4.3 *SEStran West, Site Catchment Analysis*

	Provision for 15 minute drive resident catchment (spaces/'000)		Provision for nearest resident catchment (spaces/'000)		Provision for employment catchment (spaces/'000)	
Linlithgow	3.8	*medium*	15.3	*low*	0.7	*low*
Polmont	2.8	*low*	13.6	*low*	0.8	*low*
Falkirk High	6.1	*medium*	140.2	*high*	1.6	*medium*
Falkirk Grah.	6.0	*medium*	60.7	*high*	7.7	*high*
Camelon	0.4	*very low*	2.7	*very low*	0.4	*very low*
Larbert	4.5	*medium*	28.9	*medium*	4.4	*high*
Uphall	4.4	*medium*	26.7	*medium*	1.4	*medium*
Livingston N	5.6	*medium*	40.8	*medium*	1.8	*medium*
Bathgate	6.4	*medium*	61.8	*high*	3.5	*high*
Armadale	3.7	*medium*	38.8	*medium*	1.7	*medium*
Blackridge	1.8	*low*	38.1	*medium*	0.4	*very low*
Curriehill	9.1	*high*	14.0	*low*	0.2	*very low*
Kirknewton	0.9	*very low*	11.1	*low*	0.2	*very low*
Livingston S	3.0	*low*	20.2	*medium*	0.9	*low*
West Calder	0.6	*very low*	19.6	*low*	1.4	*medium*
Addiewell	0.2	*very low*	5.7	*very low*	0.6	*low*
Breich	0.0	*very low*	0.0	*very low*	0.0	*very low*
Fauldhouse	0.4	*very low*	7.3	*very low*	0.5	*very low*
Dalmeny	8.6	*high*	21.8	*medium*	0.6	*low*
Alloa	2.1	*low*	3.7	*very low*	-	*high*
Kincardine	1.3	*low*	16.2	*low*	-	*high*
Hermiston Bus	41.3	*high*	4901.0	*high*	2.7	*medium*
Ingliston Bus	94.7	*high*	586.6	*high*	4.6	*high*

4.5.5 This analysis highlights sites where current parking provision is low in the context of the catchment areas served. Sites which are classed as 'very low' or 'low' and are currently at capacity should be prioritised over sites which are classed as 'high' and at capacity, if investing in additional capacity.

4.6 Travel Time Differentials

4.6.1 Figure 4.4 below shows the differentials between the car and public transport journey times from each site to a location in central Edinburgh.

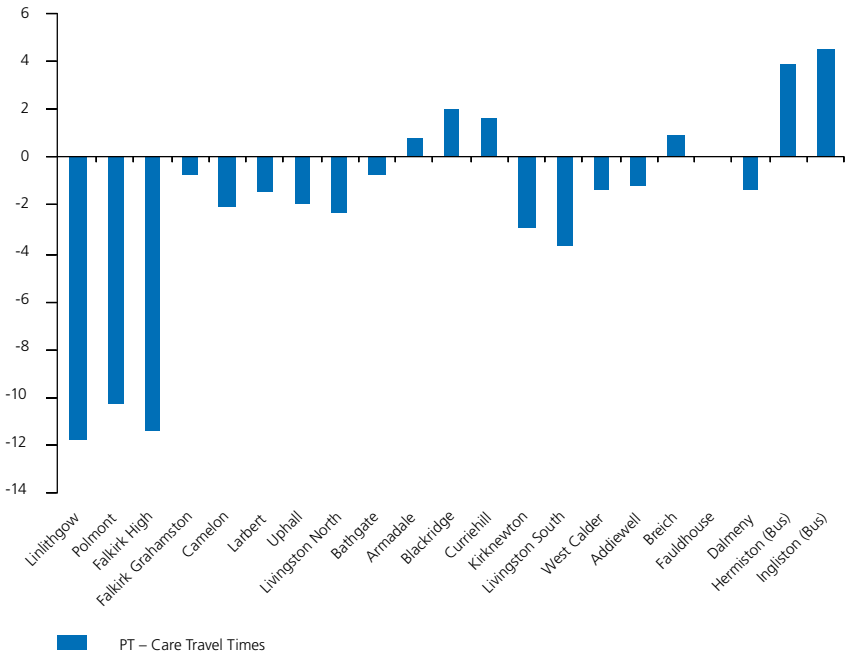


Figure 4.4 *SEStran West – Car/PT Transport Travel Time Differentials*

4.6.2 These data underline the attractive nature of the three E&G stations from which travel by public transport is significantly quicker than by car. The other stations provide journey times much closer to car times, and the two bus sites still provide slower journey times compared to the car, despite the presence of bus priority measures on these corridors.

4.7 User Benefits

4.7.1 The relative costs and times of travel from each P&R site to central Edinburgh have been encapsulated in a 60-year 'user benefits' estimate of providing a single new space at each site, assuming this is subsequently occupied. This reflects the relative journey times and costs from each site to central Edinburgh. High levels of user benefit can be taken as a proxy for the attractiveness of each site – i.e. the higher the user benefit, the greater the difference in the generalised cost of travel is between public transport and car. Reductions in the external costs arise from a switch from car to park and ride. The figures below are primarily related to the reduction in car kilometres travelled. Also shown is an estimate of the benefit cost ratio in each case.

4.7.2 The results are shown in Figure 4.5 below.

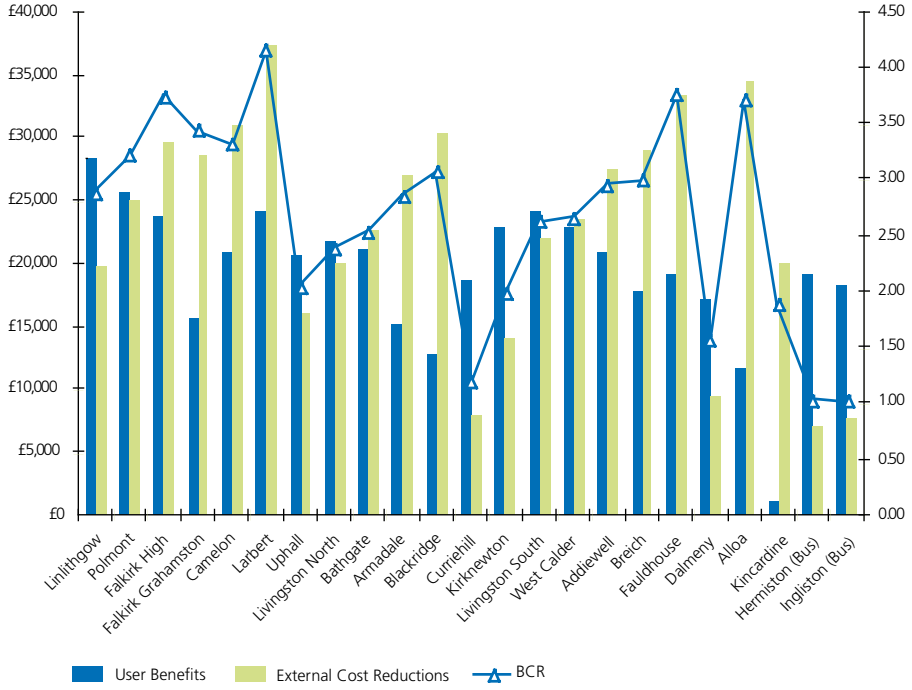


Figure 4.5 *SEStran West – User Benefits by Site*

4.7.3 On this basis, the five most attractive sites (in terms of estimated user benefits) are Linlithgow, Polmont, Livingston South, Larbert and Falkirk High. Benefits at Falkirk High would be greater still without parking charges. Falkirk Grahamston which also has charges and slow journey times gives the lowest level of benefit to the user.

4.7.4 Note that this user benefits calculation does not readily apply to Kincardine and Alloa, as these sites are not primarily aimed at public transport trips to Edinburgh.

4.7.5 An important factor in the user benefits calculated above, in addition to the journey times, is the public transport fare paid. Figure 4.6 below shows the approximate fares and cost per kilometre of a return journey between these sites and Edinburgh. Linlithgow is significantly cheaper than all stations Polmont – Larbert which have very similar fares, and has free parking. Both of these factors put additional pressure on parking at Linlithgow.

4.7.6 In general, it be also seen that the costs per kilometre decreases with distance although this is not the picture consistently. Dalmeny has a particularly high fare on this basis.

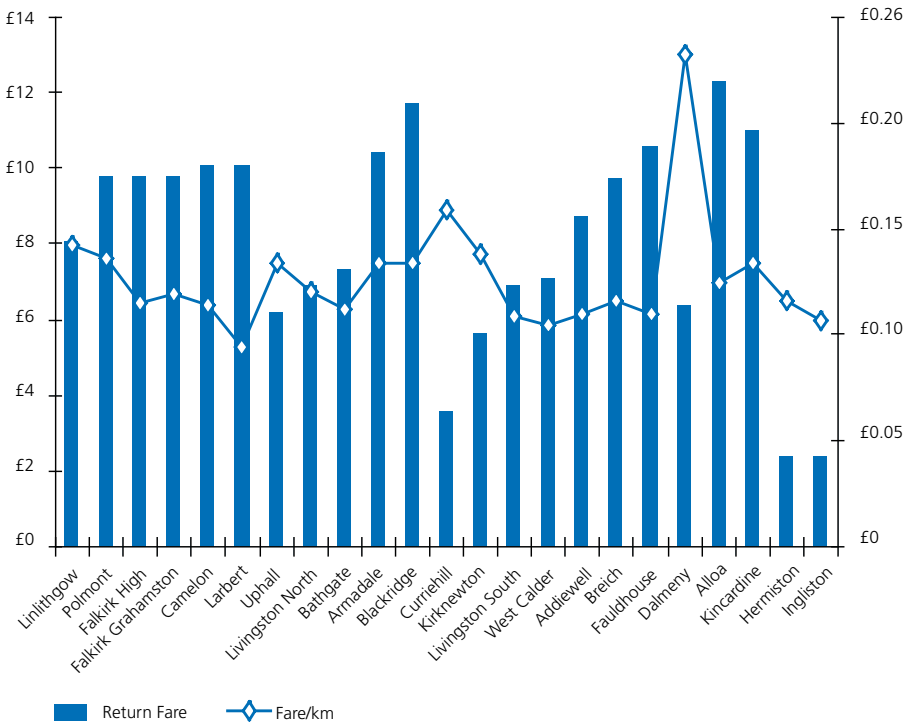


Figure 4.6 *SEStran West – Return Fares to Edinburgh and Fares/km*

4.8 Summary Table & Implications

4.8.1 Table 4.4 below summarises the existing sites in terms of:

- observed parking issues at each site;
- observed current utilisation;
- current parking provision – in terms of the 'score' reflecting origin and destination catchments; and
- the estimated user benefits.

4.8.2 It also indicates whether some specific action is required, in terms of whether additional capacity is required and/or justified at that site.

Table 4.4 *SEStran West Corridor – Summary*

	On-Site Problem	Off-Site Problem	Utilisation (%)	Provision – catchments (15m/nearest/emp)	Nearest Site Catchment	User 'Benefits'	Specific Action required?
Linlithgow	✓	✓	100+	m/l/l	12,400	21,900	✓
Polmont	✓	✓	100+	l/l/l	13,800	25,800	✓
Falkirk High	✓		100+	m/h/m	2,500	23,700	✗
Falkirk Grah.			50	m/h/h	6,300	15,600	✗
Camelon	✓		100	vl/vl/vl	10,400	21,000	✓
Larbert			95	m/m/h	9,900	24,200	✗
Uphall			100	m/m/m	10,300	20,700	?
Livingston North			100+	m/m/m	7,900	21,800	?
Bathgate	✓	✓	100+	m/h/h	6,400	21,100	✗
Armadale	*NA*	*NA*	*NA*	*m/m/m*	*4,800*	*15,300*	✗
Blackridge	*NA*	*NA*	*NA*	*l/m/vl*	*1,300*	*12,800*	?
Curriehill			80	h/l/vl	2,900	18,800	✓
Kirknewton			95	vl/l/vl	2,700	22,900	✓
Livingston South			80	l/m/l	5,900	24,300	✗
West Calder	✓	✓	100+	vl/l/m	1,400	22,900	✓
Addiewell			15	vl/l/vl	2,100	20,900	✗
Breich			-	-	5,100	17,900	✗
Fauldhouse	✓	✓	100+	vl/vl/vl	1,200	19,100	✓
Dalmeny	✓		100+	h/m/l	6,400	17,200	✓
Alloa	✓		100+	l/vl/h	17,700	11,800	✓
Kincardine			60	l/l/h	4,100	1,100	✗
Hermiston (bus)			90	h/h/m	100	19,200	✗
Ingliston (bus)			50	h/h/h	1,800	18,300	✗

4.8.3 Those sites where current or planned provision has been classed as 'very low', and potentially most in need of action are: Linlithgow, Polmont, Camelon, Curriehill, Kirknewton, and some of the smaller stations on the Shotts line.

4.8.4 The most severe observed parking problems have been identified at **Linlithgow**, **Polmont** and **Bathgate**, where there is both parking outwith marked bays and parking off site. Bathgate station is being relocated as part of the Airdrie-Bathgate proposals and parking capacity expanded – this has given a 'medium-high' classification in terms of provision, so it is assumed problems with Bathgate will be resolved.

4.8.5 Polmont has a higher 'nearest station' catchment and offers greater user benefits so should be prioritised over Linlithgow, however the severity of the problem at Linlithgow is arguably greater. Tackling the problems associated with Polmont and Linlithgow are probably the biggest issues for park and ride in this corridor. However both sites are not located in optimal locations in terms of strategic road access. Increased capacity on site is therefore not necessarily the solution here.

4.8.6 Smaller scale off-site problems were found at West Calder and Fauldhouse on the Shotts line. Fauldhouse and West Calder are both in need of extended, modern car parks, with West Calder as a higher priority based on the benefits arising. West Calder does actually have a 'medium' provision despite its utilisation and this may indicate a high number of short car journeys to the site. Also in the Shotts line, the stations at Curriehill and Kirknewton have 'very low' provision, and are approaching or at capacity, so these should be considered for extension, as a lower priority.

4.8.7 Parking is also over capacity at **Falkirk High**, **Camelon**, **Dalmeny** and **Alloa**. Falkirk High a planned expansion which has resulted in a 'medium' provision score here so no further immediate action should be required. Camelon and Dalmeny have 'very low' current provisions and the higher catchment and benefits should prioritise Camelon for expansion.

4.8.8 Although plans are in place to extend Uphall, Livingston North and Bathgate, even taking this into account, it is estimated that provision at **Livingston North**, **Uphall** and **Blackridge** is 'low' in relation to their potential catchments. The potential to extend these sites further should be investigated in this context.

Future Opportunities

4.8.9 The re-opening of the Airdrie-Bathgate line, together with service improvements on the Shotts line do present significant opportunities in the medium term, and in the longer term, park and ride provision should be seen in the context of the EGIP (Edinburgh and Glasgow Improvement Programme) proposals as they emerge which may offer faster Edinburgh-Glasgow services but could alter service frequencies and journey times at existing intermediate stations.

4.8.10 Recent proposed timetables for Airdrie-Bathgate suggest that some trains will stop at fewer stations in the eastern approaches to Glasgow than had originally been planned. This will provide a journey time from say Uphall to Glasgow of around 45 minutes which will be broadly competitive with E&G services. In addition, four trains per hour will be provided between Bathgate and Edinburgh, so there will be a step change in the services offered on this line heading east. This development could have a significant impact on demand at Linlithgow and Polmont, and there should be a review of facilities here following the opening of the Airdrie-Bathgate line.

4.8.11 At Uphall, the near direct access offered from the M8 at J3 prior to meeting congestion eastbound or indeed westbound, would seem a major opportunity to create a rail-based **regional park and ride facility** in this corridor. Four trains per hour eastbound and westbound would provide a good service frequency and high capacity. This site could be developed in a significant way to the north of the M8, with the potential for connections to the station via a new over-bridge, although this would clearly be at significant cost.

4.8.12 Other stations on this line, at Livingston North, Bathgate, Armadale and Blackridge are also being created/expanded as part of these proposals, but these do not offer the same opportunities in terms of scope for expansion and access to the strategic road network. In addition, existing E&G line stations suffer from relatively poor access from the motorway network.

4.8.13 Survey evidence has shown that users of both Ingliston and Hermiston bus-based park and ride come from a very dispersed catchment via the strategic road network. A regional rail-based site such as Uphall would potentially encourage the more time-sensitive current bus-based park and ride users to transfer to train at an earlier stage offering further benefits, although such a switch could potentially undermine Ingliston and Hermiston bus services.

5.1 Introduction

5.1.1 The southern and eastern areas of SEStran have been combined into one corridor in this chapter, essentially covering the Midlothian, East Lothian and Scottish Borders areas.

5.1.2 Park and Ride provision in the south and eastern SEStran area is rather more modest in scope at present and is currently split between:

- North Berwick Line: Musselburgh, Wallyford, Prestonpans, Longniddry, Drem, North Berwick – destinations to Edinburgh;
- East Coast Main Line: Dunbar – destinations to Edinburgh and beyond, and to the south;
- Edinburgh 'Crossrail': – Newcraighall – local trains to Edinburgh and frequent buses; and
- High capacity new bus-based sites at Sheriffhall and Straiton.

5.2 Characteristics of Current Sites

Table 5.1 *SEStran South and East – Basic Facts and Figures*

	0600-0900 Services	Single Fare to Edinburgh (£)/time	Car Parking Spaces	Approximate Utilisation (%)
Newcraighall (P&D)	6[1]	2.20 (1.20 bus)	600	65
Musselburgh	5	1.90	125	80
Wallyford	5[1]	2.50 (1.20 bus)	421	60
Prestonpans	5	3.00	176	85
Longniddry	4	3.60	76	100+
Drem	4	4.10	78	100+
North Berwick	4	4.80	99	100+
Dunbar (P&D)	2	8.60	89	100+
Sheriffhall (Bus)	22	1.20	560	70
Straiton (Bus)	19	1.20	600	25

1 trains – regular bus service too

5.2.1 There have been significant changes in the provision of park and ride in this area in recent years. Newcraighall opened in 2002, but its relatively infrequent trains and location perhaps too close to Edinburgh has meant that it has never operated at capacity. There is also a small parking charge of £0.50, but a frequent bus service compensates to some extent. New spaces have recently been added at Musselburgh and the extent of their use is not yet clear. Similarly, further capacity has recently been added at Prestonpans, on the south side of the railway line. At Wallyford, a major 'park and choose' site has been added adjacent to the existing station car park which has significantly added to capacity. It is only at Longniddry and beyond that there is now evidence of parking demand exceeding supply.

5.2.2 Straiton and Sheriffhall have also opened recently. These large, custom build sites provide park and ride opportunities for those travelling to Edinburgh from Midlothian and the Scottish Borders. Neither is yet operating at capacity, with Straiton operating at only around 25% capacity

5.2.3 Parking charges are also in place at the station car park and approach at Dunbar. The cost is £4 per day, £15 per week or less than £2 per day if bought as part of an annual season ticket.

5.2.4 Table 5.2 below describes each site in terms of:

- Its location and type – what type of site is it?;
- Its local catchment – areas for whom this is their nearest station; and
- Its strategic access – how is the site accessed from the strategic road network, i.e. is this a 'good' site for strategic, rather than local, park and ride.

Table 5.2 *SEStran South and East – Existing Sites' Characteristics*

	Nature of Site	Main Local Catchment – Nearest	Observed Catchment	Strategic/Trunk Road Access
Newcraighall	Purpose built facility	None	Very dispersed across all East Lothian, and A68 Corridor	Excellent Via A1 Newcraighall junction
Musselburgh	Edge of low density residential area, adjacent to new University site	Local Musselburgh only	Local Musselburgh	Very Poor Via residential area
Wallyford	Edge of village location Purpose built park and choose	Wallyford	Wallyford, Musselburgh, Pencaitland	Very Good From the A1 east and westbound
Prestonpans	Edge of village – residential/rural area	Prestonpans Tranent Cockenzie	Prestonpans, Cockenzie, Port Seaton	Adequate Poor junction from A1 the via A198, B1361
Longniddry	Edge of village – residential/rural area	Longniddry Aberlady	Longniddry, Haddington, Gullane, Aberlady	Adequate B6363 from A1
Drem	Village centre	Drem Gullane East Linton	East Linton, Gullane	Poor Winding B Roads from A1
North Berwick	Town centre site Residential area	North Berwick	North Berwick, Dirleton	Poor Some distance from A1
Dunbar (P&D)	Town centre site Residential area	Dunbar & areas south east	Dunbar, areas south and east, some east of Dunbar	Adequate From A1 into town centre via residential streets

5.2.5 In general, as the quality of service offered across East Lothian is broadly similar, people tend to drive to their local station. Dunbar is perhaps now the station under the most pressure in part due to the large amount of housing development in recent years. The infrequent nature of the trains here also means there are distinct peaks in terms of local parking demands. Newcraighall and Wallyford have very good access from the A1. Musselburgh has particularly poor local access.

Future Committed Proposals

5.2.6 The re-opening of the Borders Railway to Tweedbank will clearly have a major impact on the provision of park and ride for Midlothian and the Borders. The following stations, together with associated parking will be constructed.

- Shawfair – 60 spaces;
- Eskbank – 167 spaces;
- Newtongrange – 71 spaces;
- Gorebridge – 103 spaces;
- Stow – 44 spaces;
- Galashiels – 0 spaces; and
- Tweedbank – 270 spaces.

5.2.7 This amounts to around 700 additional spaces. Note that there are significant local development proposals for these areas which could boost these figures.

5.2.8 For the purposes of the analysis which follows, it is assumed that the Borders Railway is in place.

5.3 Catchment Area Analysis

Resident Catchment – East & South

5.3.1 Figure 5.1 shows the number of resident households within 15 minutes drive time of each site, split by local authority of residence.

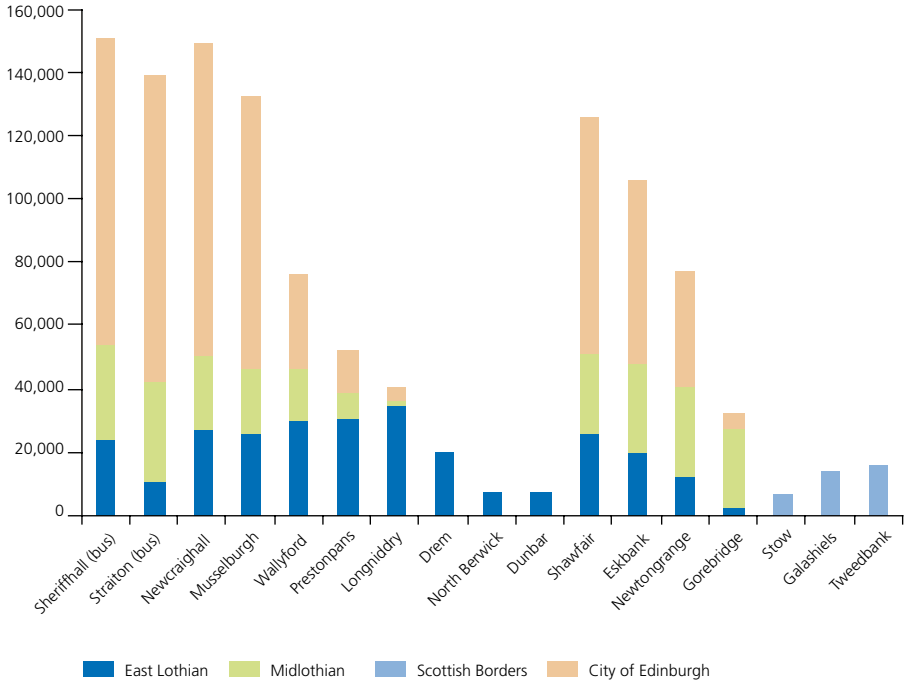


Figure 5.1 *SEStran South and East – Resident Catchments (Households, 15 Mins)*

5.3.2 Sheriffhall, Straiton, Newcraighall and Musselburgh all have very high drive in catchments. Around 2/3 of this catchment in each case is in the City of Edinburgh area though, so can be discounted, as these sites are offering essentially inbound services. Otherwise, 15 minute drive in catchment tails off significantly with distance from Edinburgh as population density decreases.

5.3.3 If City of Edinburgh residents are discounted, the highest catchments are found at Sheriffhall, Newcraighall and Shawfair. North Berwick, Dunbar and Stow have the smallest drive in catchments in the area.

5.3.4 Figure 5.2 shows the number of households (again by local authority area) for whom each station is their closest station in terms of drive time (which can be greater than 15 minutes). It also shows the walk-in catchment, i.e. the number of households within a 15 minute walk of each station.

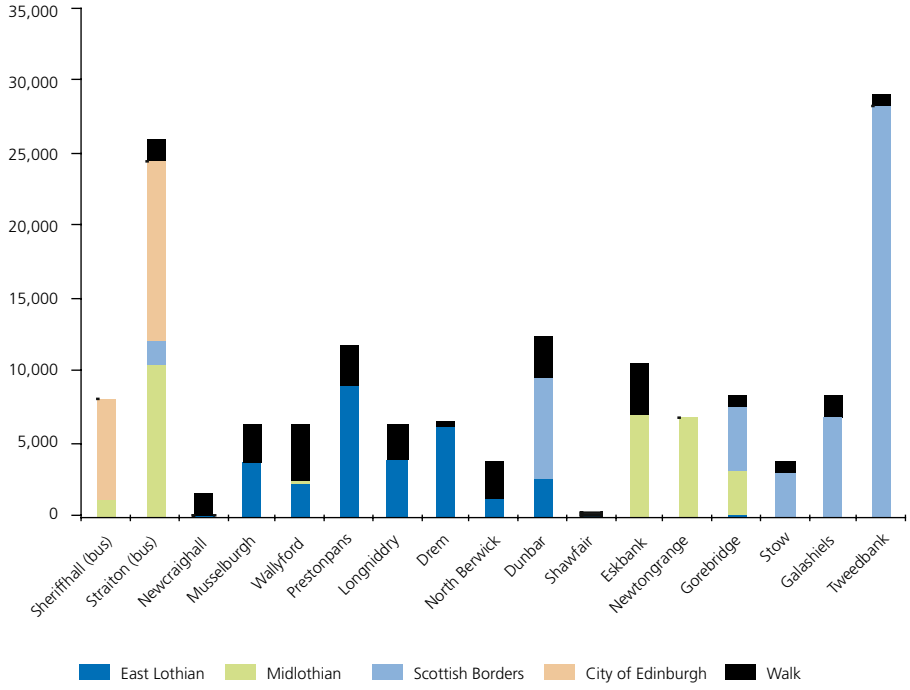


Figure 5.2 *SEStran South and East – 'Shortest Drive' Catchments (Households)*

5.3.5 Looking at the shortest drive catchment to nearest station, Tweedbank has the largest catchment, serving as it does a very wide hinterland across the southern Scottish Borders including Jedburgh and Kelso. Discounting City of Edinburgh residents and walkers, Straiton, Prestonpans and Dunbar have the next highest catchments.

5.3.6 All sites except Drem and Sheriffhall have substantial walk in catchments.

Employment Catchment

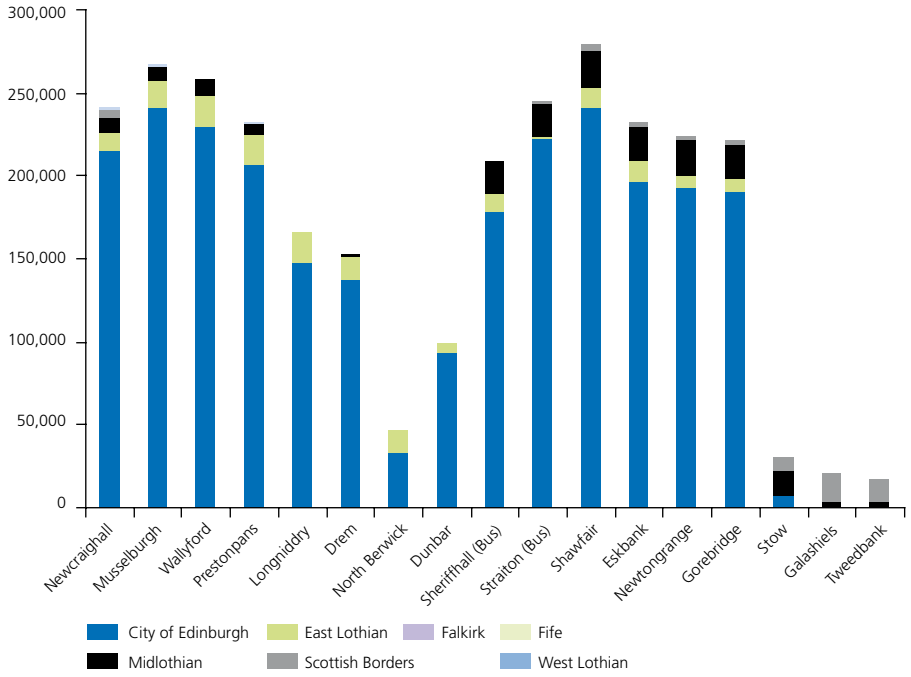


Figure 5.3 *SEStran South and East, Employment Catchment (Jobs within 45 Mins)*

5.3.7 Figure 5.3 shows the number of jobs which are accessible in 45 minutes travel time by public transport from each site, split by local authority area. The 45 minute threshold leads to a significant drop off in catchment beyond Prestonpans then Drem, and Gorebridge on the Borders Line. Closer to Edinburgh, all sites have similar catchments.

5.4 Current Parking Provision and Catchments

5.4.1 Figures 5.1, 5.2 and 5.3 showed the catchment resident households (within 15 minutes, and nearest site) and employment catchment areas respectively. These catchment figures can be analysed in the context of the number of spaces currently provided – this highlights sites where provision is relatively generous, or perhaps there is insufficient provision.

5.4.2 Table 5.3 below shows the ratio of spaces to catchment area figures for:

- 15-minutes resident catchment households, i.e. spaces per 1,000 households within a 15 minute drive time to each site;
- nearest station catchments, i.e. spaces per 1,000 households for who that site is their nearest park and ride options; and
- employment catchment, i.e. spaces per 1,000 jobs which can be accessed using public transport from the site within 45 minutes, in Edinburgh, Glasgow and Dundee local authority areas.

5.4.3 Each provision is labelled as 'very low', 'low', 'medium' or 'high'. These ratings are made with reference to provision at all sites across the SEStran area.

Table 5.3 *SEStran South and East – Site Catchment Analysis*

	Provision for 15 minute drive resident catchment (spaces/'000)		Provision for nearest resident catchment (spaces/'000)		Provision for employment catchment (spaces/'000)	
Sheriffhall Bus	10.4	*high*	450.9	*high*	3.1	*high*
Straiton Bus	14.0	*high*	49.2	*medium*	2.7	*medium*
Newcraighall	11.7	*high*	6000.0	*high*	2.8	*medium*
Musselburgh	2.7	*low*	33.8	*medium*	0.5	*low*
Wallyford	9.0	*high*	172.3	*high*	1.8	*medium*
Prestonpans	4.5	*medium*	19.5	*low*	0.9	*low*
Longniddry	2.1	*low*	19.4	*low*	0.5	*low*
Drem	3.9	*medium*	12.2	*low*	0.6	*low*
North Berwick	12.7	*high*	75.2	*high*	2.9	*medium*
Dunbar	11.0	*high*	9.4	*very low*	1.0	*low*
Shawfair	1.2	*low*	600.0	*high*	2.4	*medium*
Eskbank	3.4	*medium*	23.8	*medium*	0.8	*low*
Newtongrange	1.7	*low*	10.5	*low*	0.4	*very low*
Gorebridge	3.7	*medium*	13.5	*low*	0.5	*low*
Stow	6.2	*medium*	14.5	*low*	6.1	*high*
Galashiels	0.0	*very low*	0.0	*very low*	0.0	*very low*
Tweedbank	17.1	*high*	9.6	*very low*	1698.1	*high*

5.4.4 This analysis highlights sites where current parking provision is low in the context of the catchment areas served. Sites which are classed as '*very low*' or '*low*' and are currently at capacity should be prioritised over sites which are classed as '*high*' and at capacity, if investing in additional capacity.

5.5 Travel Time Differentials – South & East

5.5.1 Figure 5.6 below shows the difference between car and public transport journey times as represented by the Accession model. A negative values means that public transport is faster than car and *vice versa*.

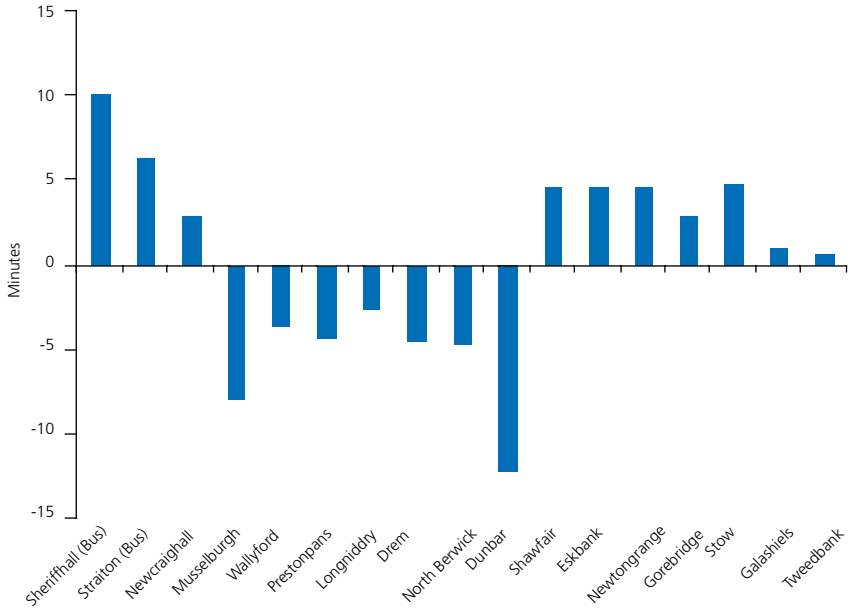


Figure 5.4 *SEStran South and East, Car/Public Transport Travel Time Differentials*

5.5.2 All the railway stations in the area except Newcraighall provide faster journey times than the car equivalent to Edinburgh city centre. The train from Dunbar is significantly quicker than the car equivalent, although this differential will have reduced in recent years with the dualling of the A1. On this analysis, journey times on the Borders Railway, as taken from the proposed timetables, do not look very competitive with the car.

5.5.3 As with the other bus-based sites though, Sheriffhall and Straiton both provide slower times than that of the car.

5.6 User Benefits – South & East

5.6.1 The relative costs and times of travel from each P&R site to central Edinburgh have been encapsulated in a 60-year 'user benefits' estimate of providing a single new space at each site, assuming this is subsequently occupied. This reflects the relative journey times and costs from each site to central Edinburgh. High levels of user benefit can be taken as a proxy for the attractiveness of each site – i.e. the higher the user benefit, the greater the difference in the generalised cost of travel is between public transport and car. Reductions in the external costs arise from a switch from car to park and ride. The figures below are primarily related to the reduction in car kilometres travelled. Also shown is an estimate of the benefit cost ratio in each case.

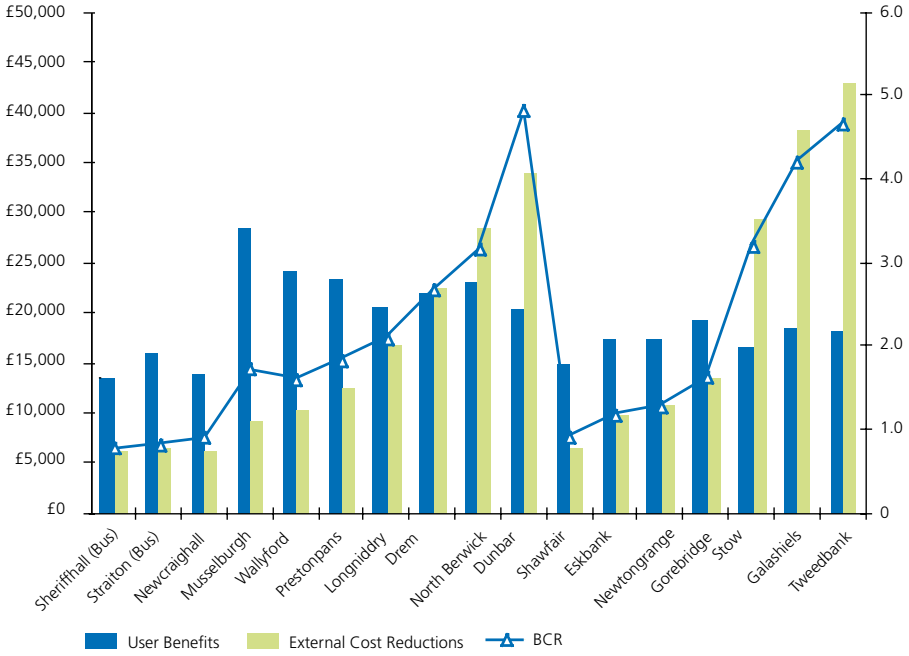


Figure 5.5 *SEStran South and East – User Benefits by Site*

5.6.2 On this basis, the five most attractive sites (in terms of estimated user benefits) are Musselburgh, Wallyford, Prestonpans, North Berwick and Drem. Those with the lowest user benefits are Sheriffhall, Newcraighall, Shawfair and Straiton. User benefits at Dunbar would be higher without the parking charge. Of the new stations, Gorebridge offers the highest user benefits.

5.6.3 Turning to fares, Figure 5.6 below shows the fares for the south and east corridors. There is a small anomaly in that travel from Musselburgh is actually cheaper than rail travel from Newcraighall.

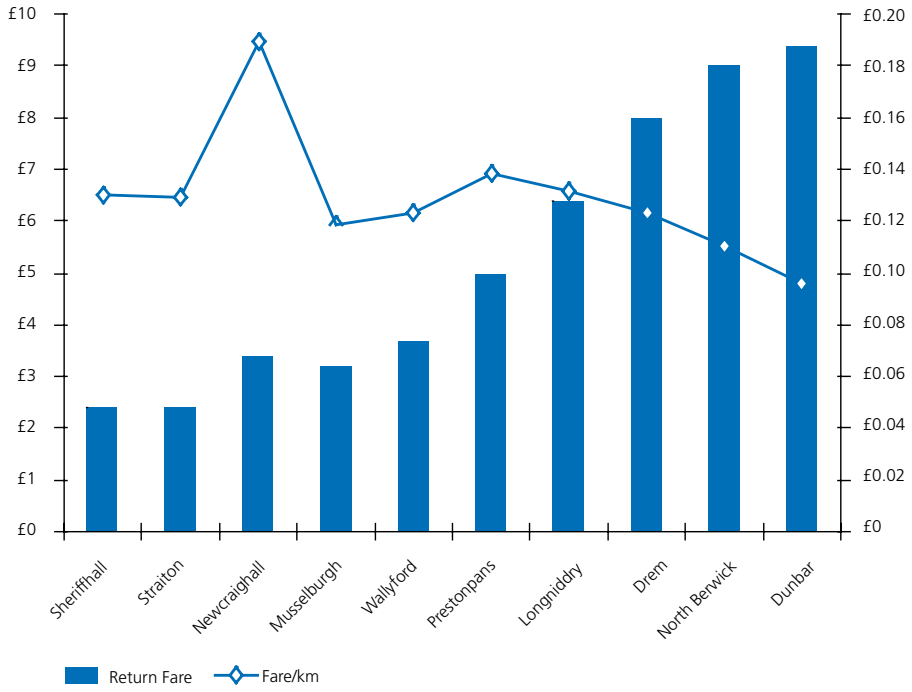


Figure 5.6 *SEStran South and East – Return Fares to Edinburgh and Fares/km*

5.7 Summary Table & Implications

5.7.1 Table 5.4 below summarises the existing sites in terms of:

- observed parking issues at each site;
- observed current utilisation;
- current parking provision – in terms of the 'score' reflecting origin and destination catchments; and
- the estimated user benefits.

5.7.2 It also indicates whether some specific action is required, in terms of whether additional capacity is required and/or justified at that site.

Table 5.4 *SEStran South and East Corridor – Summary*

	On-Site Problem	Off-Site Problem	Utilisation (%)	Provision – catchments (15m/nearest/emp)	Nearest Site Catchment	User 'Benefits'	Specific Action required?
Sheriffhall (Bus)			70	h/h/h	1,242	13,700	✗
Straiton (Bus)			25	h/m/m	12,206	16,100	✗
Newcraighall			65	h/h/m	100	13,800	✗
Musselburgh	✓		80	l/m/l	3,694	28,600	✓
Wallyford			60	h/h/m	2,443	24,300	✗
Prestonpans			85	m/l/l	9,040	23,500	✗
Longniddry	✓		100+	l/l/l	3,915	20,700	✓
Drem	✓		100+	m/l/l	6,376	22,100	✓
North Berwick			100+	h/h/m	1,316	23,300	✗
Dunbar		✓	100+	h/vl/l	9,504	20,600	✓
Shawfair	*NA*	*NA*	*NA*	*l/h/m*	*100*	*15,100*	-
Eskbank	*NA*	*NA*	*NA*	*m/m/l*	*7,017*	*17,500*	-
Newtongrange	*NA*	*NA*	*NA*	*l/l/vl*	*6,780*	*17,400*	-
Gorebridge	*NA*	*NA*	*NA*	*m/l/l*	*7,614*	*19,500*	-
Stow	*NA*	*NA*	*NA*	*m/l/h*	*3,031*	*16,600*	-
Galashiels	*NA*	*NA*	*NA*	-	*6,806*	*18,400*	-
Tweedbank	*NA*	*NA*	*NA*	*h/vl/h*	*28,267*	*18,300*	-

5.7.3 None of the east and south sites has been defined as having a generally 'very low' provision. Of those classed 'low', **Longniddry**, and **Drem** are operating beyond their designated capacity, and of these two, Drem should be prioritised.

5.7.4 **Musselburgh** station car park has recently been extended and its use should be monitored. There is also an issue of students using the car park to access the adjacent Queen Margaret University campus (hence the 'tick' above). In any case, Musselburgh really only serves neighbouring housing estates, potentially giving rise to short car journeys, and has very poor strategic road access. As such it is not an obvious candidate for further extension.

5.7.5 At **Dunbar**, cars park beyond the charged area on Station Road and in the station car park causing some nuisance locally. Dunbar provides fast direct train links to Edinburgh and indeed Glasgow, and there have been long-running campaigns to improve the service frequency, either by stopping more East Coast main line trains or introducing a new ScotRail stopping service. With a growing population, the situation at Dunbar is only likely to get worse, leading people to drive further to e.g. Drem or Wallyford. The potential to expand parking provision at Dunbar should be investigated.

5.7.6 The three large sites, **Sheriffhall**, **Newcaighall** and **Straiton** do not operate at capacity. Sheriffhall is potentially being used to some extent as an off-site car park for the Edinburgh Royal Infirmary, where parking is severely restricted and parking charges are high. This was possibly not the intention when the site was planned.

5.7.7 Of the new Borders Railway stations, it is estimated that parking provision at **Newtongrange** may be low. There is no parking planned for **Galashiels** station. Tweedbank has a very large catchment area but on this analysis, the number of spaces planned appears to be adequate.

6.1 Introduction

6.1.1 Current and future demand for park and ride was also analysed in the context of Key Commuter Corridors. Key Commuter Corridors was a concept developed during the production of SEStran's Regional Transport Strategy. They formed the basis for the development of mode share targets by corridor reflecting the characteristics of travel within each corridor.

6.1.2 The basis for this analysis was the 2001 Census Travel to Work data, assigned to Transport Model for Scotland (TMfS) networks.

6.2 2001 Census – Overview

6.2.1 Figure 6.1 below shows local authority level Travel to Work data from the 2001 Census.

Figure 6.1 *Overview of 2001 Census TTW*

Council Residence	Clack-mann.	East Lothian	Edin., City of	Falkirk	Fife	Mid-lothian	Scottish Borders	West Lothian
Clackmannanshire	10,974	12	519	1,457	999	12		222
East Lothian	12	21,015	15,683	75	195	1,434	180	417
Edinburgh, City of	129	2,274	179,256	1,038	2,584	4,009	285	5,572
Falkirk	709	39	4,592	43,248	1,110	111	9	3,376
Fife	609	72	10,948	1,341	119,971	243	18	1,838
Midlothian	9	1,110	17,315	75	222	17,043	198	642
Scottish Borders		599	3,329	36	96	831		

6.2.2 The 'Core' potential park and ride demand in the area is to and from Edinburgh. Taking the above figures and aggregating them in broad terms, the headline demand and current and planned park and ride capacity is shown in Table 6.1 below.

Table 6.1 *Park and Ride by Broad Corridor*

Broad Corridor	Regular Commuting	Current P&R Provision	Current Spaces/ Commuter	Current P&R Provision	Planned Spaces/ Commuter
North: Fife	11,000	3,600	0.33	3,600	0.33
West: Falkirk, Clacks, West Lothian	23,000	3,800	0.17	4,400	0.19
South: Midlothian, Borders	20,500	1,100	0.05	1,800	0.09
East: East Lothian	15,500	1,650	0.11	1,650	0.11

6.2.3 These figures suggest that in commute to Edinburgh terms, even post Borders Railway, the southern approaches to Edinburgh will be under-provided with park and ride capacity. However, park and ride in the West corridor do include people travelling to the west so the relatively generous provision will reflect this additional demand. Fife appears generously served by this measure, and this reflects geography to some extent. The channelling of demand over the Forth at Queensferry lends itself well to park and ride compared to the more dispersed travel patterns seen elsewhere.

6.3 RTS Corridors and Growth

6.3.1 The regional commuting corridors defined in the Regional Transport Strategy are shown in Figure 6.2 below, together with their code number.

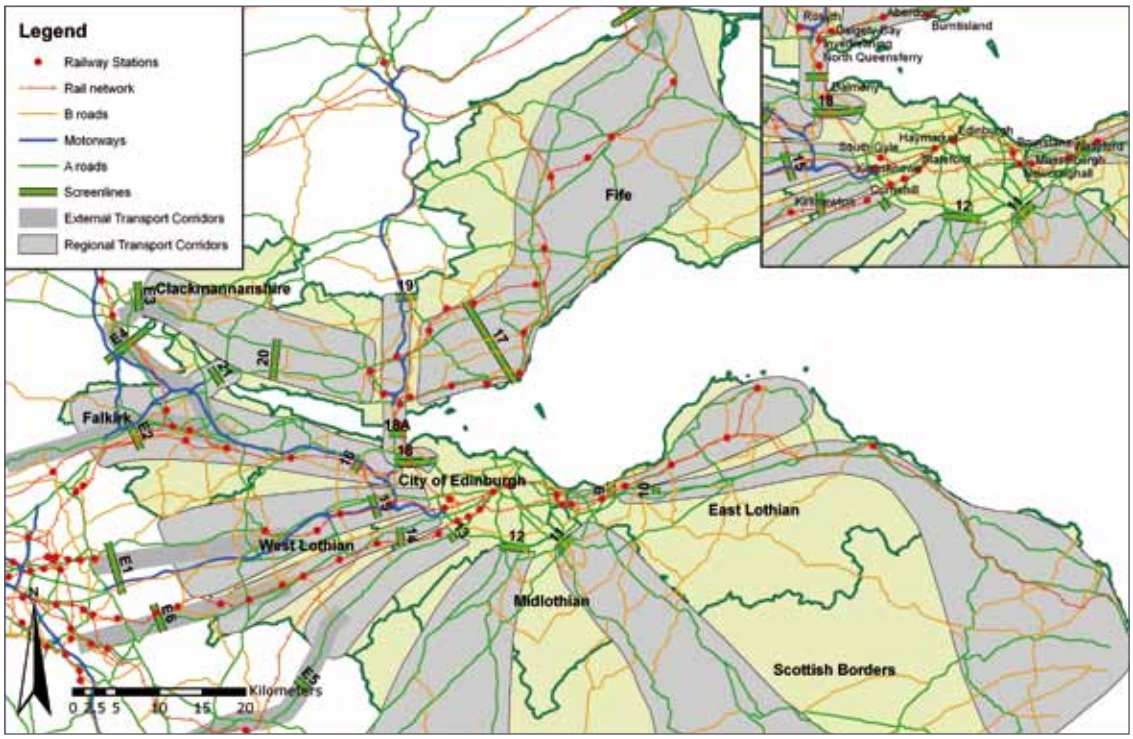


Figure 6.2 *RTS Commuter Corridors and P&R Sites*

6.3.2 Each of these corridors was considered in the context of park and ride in the area as follows:

- a 'base year' AM peak matrix was derived from the Census TTW data for cars and public transport;
- this was assigned to TMfS networks;
- a set of 'screenlines' as shown above were defined and flows extracted;
- forecast year (2022) TTW matrices were derived using zonal population and employment data taken from Transport Scotland's TELMoS (Transport Land Use Model of Scotland) and assigned to the model networks; and
- screenline flows were extracted and broad growth by corridor established.

6.3.3 The key results of this process are shown in Table 6.2 below.

Table 6.2 *RTS Corridors, Park and Ride and Projected Growth*

RTS Corridor	Relevant P&R Sites	Base Year Demand (persons)	Forecast Growth
9. East Lothian Coastal	North Berwick line, Newcraighall	3,900	Low
10. East Lothian A1	Dunbar, Newcraighall	7,400	Low
11. Midlothian East	Sheriffhall, Borders Line Stations	7,700	Medium
12. Midlothian West	Straiton	5,700	Low
13. Lanark (A70)	Hermiston	2,300	Low
14. West Lothian South (A71/ Shotts)	Hermiston, Shotts Line Stations	5,200	Medium
15.West Lothian M8 (M8/A89/ Bath)	Bathgate Line Stations, Ingliston	10,000	High
16. Edinburgh-Linlithgow-Falkirk (M9/E&G)	E&G and Stirling Line stations, Ingliston	7,100	High
17. Fife Central	Fife Circle and Stations North, Ferrytoll	5,700	Low
18. Queensferry	Ferrytoll, Inverkeithing, Dalmeny, North Queensferry	13,900	Medium
19. Perth and North	Kinross P&R	2,300	Low
20. Alloa-Dunfermline	Kincardine P&R	1,400	Low
E1. West Lothian M8 Ext	As per Corridor 15	6,800	Low
E2. Falkirk Glasgow Ext	As per Corridor 16	6,200	Low
E3. Stirling Alloa Ext	Alloa	1,500	Low
E4. Falkirk North West Ext	Stirling Line stations	4,700	Medium
E5. Lanark Ext (A70)	As per corridor 13	100	Low
E6. West Lothian South Ext	E6. West Lothian South Ext	1,500	Low
E7. Tay Bridge	E7. Tay Bridge	1,000	Low
21. Cross Forth Kincardine	21. Cross Forth Kincardine	2,900	Low
18A. Cross Forth Queensferry	18A. Cross Forth Queensferry	3,500	High

6.3.4 The corridors which are therefore forecast to grow most strongly in terms of commuting travel are Corridors 15 and 16, relating broadly to the M8 and M9 transport corridors, and also cross Forth at Queensferry. Corridors to the east are forecast to grow most slowly. These differential growth rates should be considered when planning future park and ride investments.

7.1 Introduction

7.1.1 This chapter considers some general issues and principals relating to park and ride in the SEStran area, before considering some of the sites which have been suggested in the past in terms of future investments.

What are we trying to achieve with investment in park and ride?

- Reduced congestion in congested corridors – i.e. maximise switch to public transport
- Improved connectivity to congested areas from dispersed areas
- More convenient, faster, cheaper travel from strategic network to congested areas
- Minimal impact on local environment at P&R sites/locations

Where are the problems most severe?

- Relieve sites with the most over-spill and hence local impacts.
  - Is this demand all 'local catchment'? – if so expand
  - Or could/should some of these users be using other (local) sites or walking?
    - How can this be encouraged/managed?
      - Improve services/adjust fares & frequencies/parking charges
- Provide capacity for future growth in demand for park and ride

7.2 Park and Ride – General Issues

7.2.1 There are a number of issues which need to be borne in mind when considering new park and ride.

7.2.2 **'Optimum' use of P&R:** Previous surveys have demonstrated that at some sites, parking capacity is taken up by people making very short car trips, over the types of distances which could be expected to be walked in the large majority of cases. Station car parking in this respect can in fact encourage short car trips. Ideally, station car parking, which is costly to provide, should be occupied by those who are unable to walk to the station, and who would otherwise drive further or indeed drive for the entirety of their journey, either due to the distance or perhaps mobility issues.

7.2.3 A modest local parking charge could be used to deter the shortest distance car trips, but would rely on effective and consistent **local parking control and enforcement**. Enforcement is clearly also an issue in terms of dealing with the illegal and inconsiderate parking within and around sites is a regular occurrence across the SEStran area. The site visits identified many sites where yellow lines had been put in place to ensure the safe operation of car parks. At many of these locations, illegal and inconsiderate parking was observed so it is assumed that these parking restrictions are not regularly enforced. Parking charges could also have a wider role in managing demand more effectively, pricing in such a way as to encourage the use of local stations.

7.2.4 The recent development of large scale bus-based park and ride sites in a ring around Edinburgh has undoubtedly been effective in formalising park and ride in line with extensions to the controlled parking area, and encouraging some to switch to public transport. There is however a potential issue with the **use of park and ride sites to access non-city centre destinations**. Examples include:

- **Sheriffhall** – could be used as free, 'off-site' car park for the Edinburgh Royal Infirmary (ERI) (either using the bus or walking the 2km or so to the ERI), when originally planned for trips to and from the city centre;
- **Hermiston** – could be used as free, 'off-site' car park for Heriot Watt University at Riccarton, which borders the park and ride site;
- **Ingliston** – could be used as free, 'off-site' car park for the Royal Bank of Scotland (RBS) at Gogarburn around 1.5km away, or indeed day travel from Edinburgh Airport as the terminal building is little over 1km away; and
- **Musselburgh** – could be used as free, 'off-site' car park for the new Queen Margaret University site, again adjacent to the station car park.

7.2.5 In all four of these cases, these key recent developments (ERI, Heriot Watt, RBS & QMU) have travel and transport policies which discourage the use of the car, and indeed this would have been a condition of their planning consent. It would be somewhat contradictory and ironic if subsequent to this, large free car parks were provided at significant public expanse, which compromise these parking restraint policies to a large degree, i.e. car trips are still made virtually to the front door of these locations. Innovative ticketing solutions could be developed to link the use of the car parks with the use of the bus, but there would clearly be cost and enforcement issues associated with this. In the meantime, on-site observational surveys should be undertaken to determine the nature of the use of these sites.

7.2.6 The extent to which the above issue is regarded as a 'problem' should reflect the **original objectives of providing these park and ride sites**. Short bus trips to the ERI/RBS still create revenue and support the bus route, but arguably, the public perception of park and ride sites is to provide access to the city centre rather than adjacent or nearby major development sites. These issues should be considered when setting objectives and designing future sites.

7.2.7 A further issue associated with the provision of park and ride is that a significant proportion of the use of new park and ride facilities can be derived from people who **previously used public transport for their entire journeys**. At Ferrytoll, around 40% of customers stated that they had previously used train or bus for their journey.[7] For these travellers, they are paying a reduced public transport fare which would reduce revenues and conceivably compromise services. In addition, for these people, switching to park and ride has actually added a car trip to the network, and in the case of Ferrytoll, this is a congested area.

7 http://www.ferrytoll.org/Ferrytoll_results.pdf

7.2.8 Similar to above, it would be instructive to carry out surveys at the new Edinburgh park and ride sites to determine the behavioural change associated with the use of these sites and in particular the previous travel arrangements. This would provide a greater understanding into the impact of providing these large, edge of city sites.

7.2.9 As suggested above, the provision of park and ride does actually **adds car trips to the network**, but overall, there will be a reduction in car kilometres travelled, and more importantly this reduction will be felt most in congested areas, which will have a disproportionate impact on congestion reduction and air quality etc.

7.2.10 A key point for existing users of public transport (bus in particular) is that the provision of new sites can **lengthen journey times** when their bus leaves the main route to call at the park and ride site, which causes an inconvenience and a material disbenefit. This impact could be countered by any new bus priority measures associated with the new site, but the travelling public may not make that link. This issue would also apply to any new station being added to an existing line where additional station stops would add to the journey times of all users.

7.3 What Makes a Successful Park and Ride Site?

7.3.1 Building on the previous analysis and the points discussed above, it can be deduced that the key things which determine the all round 'success' of any park and ride include:

- access to a large catchment of economic activity/jobs/shops etc from the site;
- good public transport frequency with fares consistent with other competing sites;
- large numbers of residents with short, un-congested drive times to the site;
- ease of finding a parking space on site – no capacity uncertainty;
- shorter travel times by public transport than car to key destinations;
- longer travel times by public transport than car to the site;
- site should be located prior to congestion on network; and
- the site should have an unambiguous location – little scope for parking on-site for other purposes, or proximity to key developments, where restricted parking is a deliberate policy, or was a condition of planning consent.

7.3.2 Any new site should seek to **maximise**:

- the reduction in car kilometres travelled – especially in congested areas – so should be sited to provide new opportunities for people to drive less far to use park and ride – i.e. it should maximise 'exclusive' local catchment;
- catchment areas – from residents, or trunk/major road to jobs/shops etc;
- the impact on relieving other sites with known capacity problems;
- public transport travel time competitiveness to key destinations, using priority or timetabling (e.g. limited stop services), to the benefit of all public transport users if possible; and
- sites' potential for interchange and walk/cycle access.

7.3.3 It should also seek to minimise:

- abstraction from pure public transport – i.e. additional car trips;
- the inconvenience to other public transport users;
- the impact on surrounding area in terms of local traffic and parking issues; and
- environmental/site impacts.

7.4 Proposed New Sites in the SEStran Area

7.4.1 This section considers a range of sites which have been proposed in recent years as prospective new sites in the SEStran area.

(1) M8 Junction 3

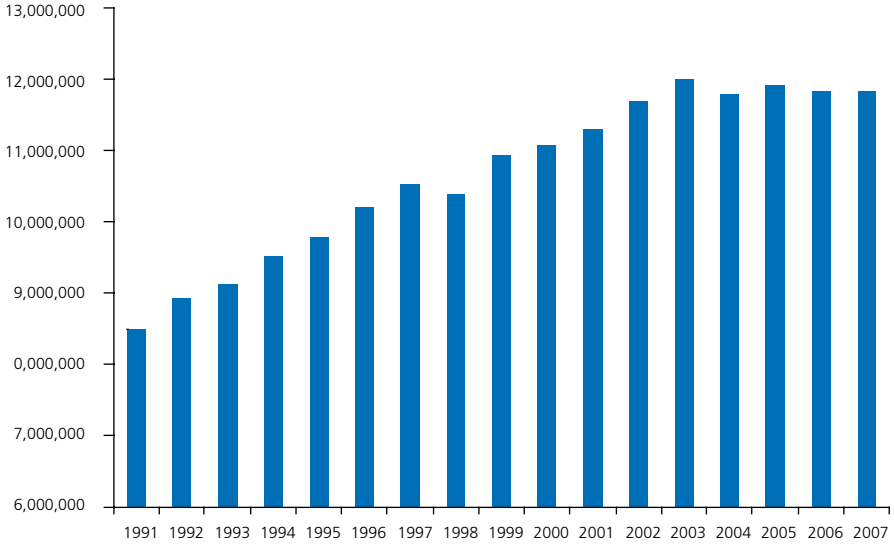
- **RTS Corridor**: West Lothian M8
- **High/Medium/Low Growth**: High
- **Characteristics**: bus-based site situated in the vicinity of M8 J3 – would provide bus/coach P&R to Edinburgh from the west. Served by Edinburgh – Glasgow coaches.
- **Role**: to provide a park and ride site directly on M8 ahead of congested areas, to add significantly to park and ride capacity in this high growth corridor.
- **Potential Local Catchment**: local West Lothian (Livingston, Bathgate, Blackburn, Whitburn etc)
- **Potential Strategic Catchmen**t: High – M8 traffic bound for Edinburgh, and possibly Glasgow
- **'Competitor' sites**: Ingliston (switchers would reduce vkm), Uphall, Livingston North, Linlithgow (mixed impact on vkm)
- **Potential Issues**:
  - would add significantly to bus journey times of services calling at the site
  - requires significant complementary bus priority on M8 (i.e. hard shoulder running) which would be essential to provide competitive journey times and hence a 'better' service than currently available
  - likely to gain the backing of bus operators?
  - can site compete with rail, especially Uphall post A2B at this distance from Edinburgh?
- **Currently overcrowded sites which will potentially be relieved**: Bathgate, Livingston North.
- **Status**: plans well progressed, post STAG – Case Made, no funding.
- **Estimated User Benefits**: see STAG report
- **Estimated BCR**: see STAG report
- **Actions**: Depends crucially on M8 Bus Priority.

(2) A89/A899 – Kilpunt

- **RTS Corridor**: West Lothian M8
- **High/Medium/Low Growth**: – High
- **Characteristics**: Bus-based site situated at the eastern junction of the A89/A899, offering links to Edinburgh and potentially West Lothian locations. Served by First Bus services on A89 corridor. An alternative site would be at the A89/B800 junction – this would have the benefit of being accessible from Kirkliston, but would require traffic from the west to queue on the A89 to Newbridge.
- **Role**: to encourage a switch to public transport more locally, to add significantly to park and ride capacity in this high growth corridor
- **Potential Local Catchment**: Uphall, Broxburn, Dechmont, north Livingston, Boghall, Bathgate
- **Potential Strategic Catchment:** via M8 J3 and A89, but by no means direct access
- **'Competitor' sites**: Ingliston (would reduce vkm), Uphall (probably reduce vkm),
- **Issues**:
  - bus priority east (and west?) along A89 and through Newbridge junction essential as this is currently a major bottleneck for buses. Priority through Gogar would also be beneficial as this is a further significant bottleneck.
  - likely longer journey times compared to rail from Uphall may make this site less attractive
  - would lead to increased bus journey times for those calling at the site without significant priority
  - Virtually all of Broxburn and Uphall are with 1km of the A899 through the settlement, along which there is a good bus service – this site could lead to a switch from public transport to park and ride at the margin from the more dispersed housing estates in Broxburn/Uphall area.
- **Overcrowded sites which will potentially be relieved**: Livingston North, Uphall
- **Status**: early stage, no commitment
- E**stimated User Benefits**: tbc
- **Estimated BCR**: tbc
- **Actions**: worthy of further study in conjunction with bus priority

(3) A904 – South Queensferry

- **RTS Corridor**: Edinburgh-Linlithgow-Falkirk, and Queensferry.
- **High/Medium/Low Growth**: Medium, traffic levels on the Forth Road Bridge have been broadly static since 2002, assumed continuing growth in public transport though



Forth Road Bridge – *Annual Northbound Traffic*

- **Characteristics**: Bus-based site situated around the current toll plaza area of the A90 near the current Echline junction. Located on the public transport corridor route (current Forth bridge) as part of Forth Replacement Crossing proposals. Served by all cross Forth buses. Reached via the current bridge acting as a 'P&R only' access road to the site, and the A904. Buses then have direct access to the A90.
- **Role**: Primarily to provide additional capacity for cross Forth park and ride. However, there are currently around 300 surplus spaces available at Ferrytoll and other surplus capacity at Rosyth, Dalgety Bay etc, and further afield at Markinch. Also to provide park and ride via the A904 and for South Queensferry.
- **Potential Local Catchment**: Queensferry, north east West Lothian villages (A904)
- **Potential Strategic Catchment**: Cross Forth traffic – M9 traffic (from J2) and A904 (not desirable)
- **'Competitor' sites**: Ingliston (could reduce vkm), Dalmeny, Inverkeithing, Ferrytoll and wider Fife (all would increase vkm), Linlithgow (would increase vkm)
- **Issues**:
  - Does this site not simply duplicate Ferrytoll – but with reduced bus revenues and increased vehicle kilometres?
  - Would all buses use existing Bridge in practice?
  - Potential displacement of Fife park and ride leading to increased vehicle kilometres travelled
  - Potential switch from public transport for South Queensferry residents

  - Enforcement of 'access only' use of FRB to access site
- **Overcrowded sites which will potentially be relieved**: Dalmeny, Linlithgow
- **Status**: early stage, longer term Forth Replacement Crossing proposal
- **Estimated User Benefits**: £13,750
- **Estimated BCR**: 1.25

Further Thoughts

The proposed new site would primarily replicate the service offered by Ferrytoll, and undermine other potential future sites at Halbeath and Rosyth – but on the south side of the Forth. It could also provide a new opportunity for P&R from the west, via the A904 and M9 J2.

- It would provides additional cross forth capacity – but significant surplus capacity is available in Fife and cars switching to this site from Fife sites would increase vehicle kilometres travelled
  - Given the surplus capacity in Fife, it would seem unlikely to attract new park and ride from existing car users
  - New bridge will reduce congestion and disruption for cross Forth drivers and provide a better quality service, making park and ride potentially less attractive
- M9 and West Lothian traffic switching from Ingliston would reduce vehicle kilometres but add to traffic on A904
  - Switching from Ingliston is unlikely to be attractive as fares are cheaper at Ingliston (£4.20 from Queensferry, £2.40 from Ingliston) and typical current bus journey times are rather shorter from Ingliston
  - If coming from M9, Ingliston is the cheaper option, although journey times
- M9 and West Lothian traffic switching from West Lothian stations would increase vehicle kilometres travelled
- **Action**: Consider further as part of South Forth Strategic Public Transport study but initial analysis suggest this should not be a priority – not supported

(4) STPR Proposal A702 – Lothianburn

- **RTS Corridor**: Midlothian West.
- **High/Medium/Low Growth**: Medium.
- **Characteristics**: Bus-based green-field site near the junction of the A702 and A720. Served by Lothian buses, some requiring minor service modification.
- **Role**: Plugs remaining gap in terms of main routes to Edinburgh City Bypass. Likely to displace current park and ride in residential areas. Provides new P&R access to western city centre areas via A702.
- **Potential Local Catchment**: Penicuik, West Linton, Loanhead, Roslin traffic heading to western Edinburgh city centre, similarly A703 Peebles traffic.
- **Potential Strategic Catchment**: Trunk road traffic on A702 including long distance traffic from M74.
- **'Competitor' sites**: Straiton.
- **Issues**:
  - no significant competing requirement for parking in the area so site should be unambiguously for park and ride
  - there is peak hour queuing on the A702 and A703 approaching the site from the south, so traffic will have to queue to access the site making its use less attractive
  - additional bus priority could be required on corridor
  - Straiton is a similar site nearby, with better bus frequency, and is currently under-utilised – the reasons for this should be examined further to learn lessons before proceeding
  - sufficient bus frequency envisaged?
- **Overcrowded sites which will potentially be relieved**: None.
- **Status**: Previous SEStran proposal, well progressed to detailed design, post STAG, via SITCoS.
- **Estimated User Benefits**: see SITCoS.
- **Estimated BCR**: see SITCoS.
- **Action**: continue to seek funding complete 'ring' of park and ride sites, re-examine in the light of poor utilisation at Straiton.

(5) STPR Proposal – Halbeath

- **RTS Corridor**: Perth and North, Fife Central
- **High/Medium/Low Growth**: Low-Medium
- **Characteristics**: This proposal appears to involves the construction of a new double track railway line linking at new junctions with Inverkeithing and Halbeath. A strategic park and ride facility would be constructed near the M90/A92 junction. This would presumably offer fast train services to the south and indeed the north and as such would be a major strategic site.
- **Role**: Would allow M90 and A92 traffic to access the rail network ahead of congested stretch of M90/A90 on FRB approaches.
- **Potential Local Catchment**: East and north Dunfermline, Cowdenbeath.
- **Potential Strategic Catchment**: Significant – M90 and A92 southbound
- **'Competitor' sites**: Inverkeithing, Ferrytoll, Dunfermline Queen Margaret, Ferrytoll
- **Issues**:
  - Bus based in short term – if so, much less attractive?
  - Unambiguous P&R site
  - Very ambitious, presumably long-term scheme proposed as part of Transport Scotland's Strategic Transport Projects Review (STPR) study
  - High Cost
  - Resulting major shake up of rail services
- **Overcrowded sites which will potentially be relieved**: Inverkeithing, potential to reduce vehicle kms and congestion in the bridgehead area
- **Status**: STPR proposal – High Uncertainty
- **Estimated User Benefits**: tbc
- **Estimated BCR**: tbc
- **Action**: Consider as part of more detailed study in conjunction with Rosyth proposals.

(6) STPR Proposal – Pitreavie/Rosyth

- **RTS Corridor**: Dunfermline – Alloa, Perth and North
- **High/Medium/Low Growth**: Low
- **Characteristics**: Bus based scheme but high uncertainty. Presumably near existing Pitreavie roundabout and current Rosyth site. Would fit with Rosyth Bypass in terms of providing a strategic facility for A985 traffic.
- **Role**: Provide high capacity bus and rail based park and choose, building on existing rail facility. Would serve the relatively dispersed developments planned for east and south Dunfermline, providing access to Edinburgh-Dunfermline express bus services.
- **Potential Local Catchment**: Dunfermline, Rosyth.
- **Potential Strategic Catchment**: A985, scheme specification seems to suggest M90 but less obvious.
- **'Competitor' sites**: Dunfermline stations, Rosyth, Inverkeithing, Ferrytoll
- **Issues**:
  - Appears to duplicate Rosyth (which is currently under-utilised) and potentially offer inferior service?
  - High uncertainty
- **Overcrowded sites which will potentially be relieved**: Inverkeithing, potential to reduce vehicle kms and congestion in the bridgehead area
- **Status**: STPR proposal – High Uncertainty
- **Estimated User Benefits**: tbc
- **Estimated BCR**: tbc
- **Action**: Consider as part of more detailed study in conjunction with Rosyth proposals.

(7) Levenmouth Station

- **RTS Corridor**: Fife Central
- **High/Medium/Low Growth**: Low
- **Characteristics**: New railway station with new rail services to serve Methil, Buckhaven and Leven and wider East Neuk area.
- **Role**: Could provide new p&r for a significant number of people travelling from East Fife.
- **Potential Local Catchment**: Buckhaven, Leven, Methil, Fife East Neuk.
- **Potential Strategic Catchment**: None
- **'Competitor' sites**: Markinch, Kirkcaldy – would significantly reduce veh km and take traffic out of Kirkcaldy town
- **Issues**:
  - Fares and frequency are key – if high and low respectively, the evidence suggests that many would continue to travel to Kirkcaldy
  - Example of Markinch is not encouraging
- **Overcrowded sites which will potentially be relieved**: Kirkcaldy, potential to significantly reduce vehicle kms and congestion in the area.
- **Status**: SEStran proposal – STAG complete and case made
- **Estimated User Benefits**: see STAG
- **Estimated BCR**: see STAG
- **Action**: Continue to progress but continuing use of Kirkcaldy poses a real threat if fares, frequency and overall journey time are not competitive

(8) M9/Winchburgh

- **RTS Corridor**: Edinburgh – Linlithgow – Falkirk
- **High/Medium/Low Growth**: High
- **Characteristics**: Park and ride facility related to proposed Winchburgh development. The development hopes to secure a new station on the existing E&G line and/or a new junction onto the M9.
- **Role**: could provide a strategic park and ride site ahead of M9/Newbridge congestion
- **Potential Local Catchment**: Winchburgh
- **Potential Strategic Catchment**: potentially near direct access from M9
- **'Competitor' sites**: Linlithgow, Ingliston – would increase/reduce veh-km
- **Issues**:
  - If rail based, and linked to M9 could provide strategic rail p&r in this high growth corridor
  - Any railway station at Winchburgh may not be sited to allow strategic park and ride access
  - Any bus based site catering for M9 traffic would need significant bus priority through Newbridge and along the A8 to offer a benefit to the car
  - High uncertainty regarding proposals, especially rail (also the rail services which would subsequently use any station)
- **Overcrowded sites which will potentially be relieved**: Linlithgow, Polmont, Uphall
- **Status**: development led – high uncertainty
- **Estimated User Benefits**: NA
- **Estimated BCR**: NA
- **Action**: Seek to maximise any opportunities. Rail base strategic P&R could be highly significant if achievable
- A further variant here would be a bus-based site near **Junction 3 of the M9**, to relieve Linlithgow:
  - Significant uncertainty as to how attractive this would be without extensive bus priority measures as journey time will be uncompetitive compared to rail
  - An 'off-site' car park linked by shuttle bus to Linlithgow railway station has been assessed in the past – no definitive business case could be made

(9) Cambus Station

- **RTS Corridor**: Alloa –Dunfermline
- **High/Medium/Low Growth**: Low
- **Characteristics**: New station on Stirling Alloa line west of Alloa
- **Role**: relieve congested parking at Alloa station, taking park and ride traffic out of the town
- **Potential Local Catchment**: Alloa, Tullibody
- **Potential Strategic Catchment**: on A907 for east – west movements (Fife to Stirling)
- **'Competitor' sites**: Alloa, Stirling – increase in veh-km for Alloa based users
- **Issues**:
  - would free up town parking for more 'constructive' purposes
  - new station stop would add to journey times
  - new direct service to Edinburgh could increase attractiveness
  - unconstrained site
- **Overcrowded sites which will potentially be relieved**: Alloa
- **Status**: early stage
- **Estimated User Benefits**: tbc
- **Estimated BCR**: tbc
- **Action**: worth pursuing but corridor is low growth and priorities should reflect this

(10) South Tay

- **RTS Corridor**: Tay Bridge External
- **High/Medium/Low Growth**: Low
- **Characteristics**: Bus-based park and ride south of the Tay Bridge in Fife in the vicinity of the A92 and B946
- **Role**: provide high capacity park and ride site for Dundee.
- **Potential Local Catchment**: Cupar, Leuchars, St Andrews
- **Potential Strategic Catchment**: A92 trunk road traffic
- **'Competitor' sites**: Leuchars – increase in veh-km for current Leuchars users
- **Issues**:
  - should relieve Tay Bridge and associated traffic in Dundee city centre
  - parking in Dundee is cheap/free and plentiful – success of site must rely to a large extent on parking policies pursued in Dundee
- **Overcrowded sites which will potentially be relieved**: Leuchars
- **Status**: well progressed, study complete
- **Estimated User Benefits**:
- **Estimated BCR**:
- **Action**: Detailed design under way, funding in place?

(11) Other Sites

A number of sites are being considered as part of the Edinburgh Orbital Bus project and other City of Edinburgh aspirations. These include Lasswade Road, Gilmerton Road and Millerhill. The plans for these sites will be considered within the context of the Orbital Bus Study, but the 'design principles' should reflect this strategy.

8.1 Introduction – General Principles

8.1.1 This chapter sets out how SEStran sees the provision of park and ride developing in the area in the coming years. Any new investment in park and ride should:

- demonstrably improve mixed-mode access to key employment sites and other sites with constrained parking (by price or supply);
- seek to maximize congestion relief – i.e. target investment at most congested corridors and corridors identified as high growth, and seek to site investment prior to congested areas where possible;
- sites which offer the largest public transport/car travel time differential to key destinations should be prioritised;
- offer good value for money when weighing benefits against costs.

8.1.2 Future investment should be thought of in two main strands, 'regionally focussed' and 'inter-regionally regionally focussed'. **Regional** sites rely primarily on a local catchment area and are typically characterized by short car journeys. These sites primarily offer access overwhelmingly to Edinburgh. **Inter-Regional** sites should be aimed at both local catchments and strategic traffic. These should offer quality access to Glasgow, Dundee and Stirling as well as Edinburgh.

8.1.3 The evidence suggests that sites which provide rail-based park and ride with frequent train services and short journey times are immensely popular, and 'inter-regional' facilities should try and reflect this.

Regional Investment

- Incremental capacity investment at 'local' rail sites – where local 'drive in' catchment merits further provision;
- Encourage use of local sites – by using pricing structure and service adjustment to minimise vehicle kilometres travelled in accessing the public transport network;
- Tackle known local parking issues;
- Locations operating at capacity with relatively few spaces and a high local catchment should have priority;
- 'Hearts and minds' to encourage walk/cycle rather than short drive, otherwise consider charging?, depending on the future of parking enforcement in SEStran;
- Plug remaining local 'gaps' in provision – e.g. A89, A702 – if appropriate and strengthen bus priority in these corridors; and
- Spreadsheet ready reckoner and corridor analysis will inform local priorities.

8.1.4 The following sites are recommended as early priorities for expansion:

- North: Leuchars, Dunfermline stations, Ladybank, Burntisland
- West: Camelon, Curriehill, Kirknewton, Dalmeny
- South/East: Longniddry, Drem, Dunbar

Inter-Regional Investment

8.1.5 The strategy recommends major, long term development of key 'inter-regional' park and ride/Interchange sites, by broad corridor, as follows:

- rail-based if possible, developed with bus interchange in mind;
- provide high capacity – certainty of getting a space;
- should be easily accessible from Trunk road network;
- should be well signed (real time) and marketed;
- serving Edinburgh, Glasgow and north;
  - encourage shift from car to train/bus at early stage of journey, i.e. well ahead of congestion, possible if rail is the mode.
  - encourage bus/rail interchange for inter-regional travel

East

8.1.6 In the **East**, it is recommended to continue the development and promotion of Wallyford. This site offers excellent access from the A1 and state of the art facilities. This would seem the ideal site for long distance, A1 traffic destined for Edinburgh. In the longer term consider additional train stops e.g.:

- any Berwick-Upon-Tweed stopping service;
- East Coast Main line trains – Wallyford could in the long term be thought of as Edinburgh Parkway (East), offering through trains to Glasgow and south;
- Could then become main link to the south for East Lothian, parts of east Edinburgh and much of Midlothian/Borders in the longer term, as part of a national strategy?

8.1.7 As an alternative, in the shorter term, **Dunbar** provides a link to the south from East Lothian, and its parking provision should reflect this.

South

8.1.8 In the **South**, there is less of a case for a regional 'centre'. There is a heavy dependence on the Borders Railway to produce a step-change in the quantity and quality of park and ride in what has been shown to be an under-provided corridor. The large catchment areas for the new stations and evidence from other new railway lines suggests that planned parking provision may not be sufficient to meet demand and scope for extension should be identified at an early stage.

North

8.1.9 Inverkeithing and Kirkcaldy already provide regional hubs in the **north** for travel north and south. As has been seen though, these sites have a distorting effect on park and ride in the area more generally. Kirkcaldy, as a town centre site is not suitable for such a regional hub. The STPR proposals relating to **Halbeath** would appear to offer a more suitable regional hub, if developed in the ambitious way that is envisaged. This site would pick up strategic road traffic from the M90 and A092, and revised services at Inverkeithing would help encourage more to use local stations in Fife.

West

8.1.10 In the **West**, it has been shown that there is need for significant new capacity serving destinations in the east and west. Current provision on the E&G and Bathgate lines is used and exceeded. This constraint on capacity leads to major uncertainty for users of these stations, and must be a major deterrent for the casual user. As such it would be anticipated that there may be significant suppressed demand for park and ride.

8.1.11 Extended parking provision on the Bathgate line as part of the Airdrie Bathgate proposals will help and the use of these sites, post opening, should be monitored.

8.1.12 Congestion in all the corridors provides a real incentive for transfer to rail. The Airdrie Bathgate reopening scheme provides an excellent opportunity to remodel park and ride in this area. In this context, **Uphall** presents a major opportunity. It provides near direct access from the M8, there is potential to develop the site further and there will be four trains per hour serving Edinburgh, West Lothian, North Lanarkshire, Glasgow and areas west.

8.1.13 The majority of railway station in the area are within constrained, urban sites and are less well suited to major car park expansion. Bus-based park and ride could have an important role to play but is crucially dependent upon significant complementary bus priority. Hard shoulder running on the M8 and M9 and aggressive priority through key junctions such as Newbridge and Gogar would be essential in making bus-based park and ride competitive in these western corridors. SEStran should continue to pursue these bus priority measures, as without these, sites at the M8J3, Kilpunt and the M9 are unlikely to be successful.

8.2 Other Strategy Actions

Maintain database of supply of spaces and use of Park and Ride

8.2.1 This study has highlighted inconsistencies in the data available regarding the number of spaces currently provided at each station and park and ride site, and also the current utilization of these sites. Local Authorities, Scotrail, National Rail Enquiries, SEStran figures and figures obtained from our own site visits have in many cases provided different figures.

8.2.2 SEStran should therefore coordinate a regional inventory of park and ride supply and use, and ensure that other sources in the public domain are consistent with this. There should be a systematic survey programme where each site is visited at least annually (in a neutral month) and the following data collected:

- number of marked out spaces;
- utilization of marked spaces;
- any observed parking outwith marked spaces; and
- the extent of any off-site, illegal or anti-social parking.

Understanding the Use of Park and Ride

8.2.3 The recent National Rail Travel Surveys data provides good information regarding the travel behaviour associated with each station. Data concerning mode of access, true origin and true destination can be extracted for individual stations.

8.2.4 In order to develop more effective park and ride sites in the future, its important to fully understand the use of the current sites, and also understand why some sites are more successful than others. In the past, extensive surveys have been carried out at railway stations across the area. There is less data relating to the use of the new bus-based park and ride sites in the area.

8.2.5 The precise use of these new sites could be established through a small survey programme, including counts and interviews/survey forms. This could establish:

- Ultimate destination, purpose etc;
- Mode of access/egress;
- Previous travel behaviour (i.e. pre park and ride); and
- Alternative behaviour – what if no park and ride?

8.2.6 Surveys are regularly carried out along these lines at Ferrytoll, and it is recommended that similar surveys are undertaken at other sites across the SEStran area.

Links to other Strategies/Policies

8.2.7 It is important that future park and ride investment is linked to other SEStran and local authority plans and strategies. Perhaps most important is the Regional Parking Management Strategy.

8.2.8 A consistent regional parking management policy should extend into considerations of park and ride. In places, charging for parking at certain park and ride locations will be an important element in managing demand and tackling the problems associated with current park and ride behaviour. This would rely on parking management in the surrounding areas and also on effective enforcement. We have seen many examples where existing parking measures are not being enforced.

8.2.9 If parking management is extended into more towns across the area, their could be a requirement for new park and ride facilities as complementary measures.

8.2.10 In general, 'mixed-mode' travel should be considered with all transport planning and regional planning contexts. An effective park and ride strategy can provide economic and environmental benefits, support public transport services, and provide key inter-regional connectivity to congested city centres across the country.

Websites and Information Dissemination

8.2.11 The study has compiled a database of the facilities available at all park and ride sites within the area, together with graphical representations of the 'catchment' areas served by the sites within different travel times using public transport. This type of information could be useful in promoting the use of park and ride on websites, and indeed algorithms could be developed to incorporate mixed-mode options more formally within standard 'journey planner' type websites. It is recommended that SEStran continue to develop these ideas on conjunction with other interested parties, and ensure that maximum use is made of emerging technologies on the web and in telecommunications going forward.

8.3 SEStran Corridor Park and Ride Models – the Next Step?

8.3.1 The analysis undertaken for this regional review has been aimed at putting current park and ride in the area into a systematic context and taking an initial view on future investments. To take this analysis to the next stage, and develop the case for new objective-led investment in park and ride, more detailed analysis of the likely levels of demand for new individual sites will be required.

8.3.2 There are a number of ways in which this demand forecasting can be undertaken, and in the past, SEStran area park and ride proposals have been the subject of varying degrees of analysis prior to approval and construction.

8.3.3 The proposals to extend provision at Wallyford and create a new facility at Lothianburn were for example developed using the park and ride modelling element of Transport Scotland TMfS (TMfS:05) model. The modelling of park and ride in TMfS uses sophisticated choice methods but the spatial detail is limited by the size of the zones and this also affected the validation of the park and ride module.

8.3.4 However, the recently launched TMfS:07 version is rather more aggregate in nature and the modelling of park and ride and, whilst individual sites are represented, the validation is rather more corridor than site based. Also the level of network detail of this national model does not allow for the accurate representation of sites in space together with their local road and public transport network connectivity.

8.3.5 The work undertaken in this regional review has been at a very fine level of spatial detail. There is an opportunity to combine the best features of each eg:

- The Accession model's very detailed representation of transport supply – public transport services & road speeds;
- The choice modelling mechanisms from existing park and ride modelling routines; and
- Demand data from Census Travel to Work, NRTS, and existing transport models, ...to produce detailed Accession/spreadsheet-based park and ride models for the SEStran area.

8.3.6 These models would provide estimates of the level of use of new sites and the economic benefits associated with their use, as input to benefit cost ratio and other Transport Economics and Efficiency calculations.

8.3.7 Three models could be developed based on the north, west and south/east corridors, and could also be developed to be complementary to the emerging 'SEStran Regional Model'.

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