

Surrey County Council  
**Surrey Rail Strategy**  
Surrey Rail Strategy Report

Final | 12 September 2013

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Job number 227787-00

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## Glossary

Acronym	Meaning	Notes
BD	Boroughs and Districts (of Surrey)	
BML	Brighton Main Line	
CP4/5/6	Control Period 4/5/6	5 year periods by which NR is regulated by the Office of Rail Regulation CP4: 2009-2014; CP5: 2014-2019; CP6 2019-2024
DERA	Defence Evaluation and Research Agency	Former Ministry of Defence agency that was located on a large site near Longcross, Runnymede. This site is adjacent to the Longcross railway station and is set to undergo extensive redevelopment.
DfT	Department for Transport	
FCC	First Capital Connect	Train Operating Company
FGW	First Great Western	Train Operating Company
GIS	Geographical Information Systems	
GTL	Greater Thameslink	Future Rail Franchise combining the current operations of FCC and Southern.
HLOS	High Level Output Specification	The HLOS sets out information for the Office of Rail Regulation and for the rail industry about what the Secretary of State for Transport wants to be achieved by railway activities during a given railway Control Period.
HS1	High Speed 1	High speed railway linking London to the Channel Tunnel via Kent
HS2	High Speed 2	Proposed high speed railway linking London and Birmingham
LARTS	London Air Rail Transit System	
LENNON	Latest Earnings Networked Nationally Overnight	Database that collects data relating to every train ticket sale on the UK National Rail network.
LEP	Local Enterprise Partnership	
LTPP	Long Term Planning Process	Network Rail's process for working with stakeholders to predict future demand for rail services, agree priority uses for the capacity available and assess value for money options for investment. Builds on the RUS process.
NDL	North Downs Line	

Acronym	Meaning	Notes
NR	Network Rail	The organisation responsible for maintaining, renewing and enhancing the UK's railway infrastructure
ORR	Office of Rail Regulation	
PDFH	Passenger Demand Forecasting Handbook	Industry-standard framework for forecasting passenger demand on railway services.
PRT	Personal Rapid Transit	
RUS	Route Utilisation Strategy	Documents produced by Network Rail explaining their proposed approach to meeting demand on each part of the network
SBP	Strategic Business Plan	The SBP is NR's formal response to the HLOS and SoFA. It sets out how NR intends to achieve the DfT's requirements, providing details on the schemes that it wants to see taken forward over the course of each Control Period.
SCC	Surrey County Council	
SDO	Selective Door Operation	A system that permits stations to be served where the trains are longer than the platforms.
SoFA	Statement of Funds Available	Defines the amount of subsidy provided by the DfT to deliver the requirements of the HLOS in a given Control Period.
STP	Surrey Transport Plan	The Local Transport Plan for Surrey, the County-wide transport policy document.
SWML	South West Main Line	
SWT	South West Trains	Train Operating Company
TfL	Transport for London	
TOC	Train Operating Company	
tph	trains per hour	Measure of the frequency of train services on a given section of the railway network. Usually refers to trains running in one direction only.

## Executive Summary

### Objectives

Arup was appointed by Surrey County Council (SCC) in November 2012 to undertake the Surrey Rail Strategy study. This document is the **Surrey Rail Strategy Report**, the main deliverable from the study. The Rail Strategy forms part of the Surrey Transport Plan, which is the policy tool for developing transport programmes in Surrey.

In line with SCC's requirements the Strategy provides a framework through which SCC can:

- develop future rail policy, service and infrastructure initiatives;
- respond to consultations (e.g. rail franchises, aviation reviews);
- lobby to influence national rail policy and planning; and
- support wider Council growth initiatives.

We have developed a high-level **strategic approach** to this study. The strategy does not develop detailed options, rather it identifies potential interventions that SCC and partners can either develop directly or can support third parties to develop. From our experience we are confident that this approach provides SCC and its partners with the influential rail strategy that they require.

The four **rail development objectives** for Surrey were identified through review of relevant planning and policy documents and discussions with SCC; they are:

1. Maintain Global Competitiveness;
2. Drive Economic Growth;
3. Reduce impacts on the Environment;
4. Accommodate Sustainable Population Growth.

The objective for the study is to identify proposals for strategic investment that the County Council, working with partners, can plan and deliver.

### Key Issues

The key issues affecting the delivery of the rail development objectives for Surrey, and the gaps remaining were identified in the Issues Paper. Issues were split into two categories:

- **Capacity issues** – related to the size and scale of the rail system (infrastructure and services) to meet the required demand, e.g. train length, number of trains; and
- **Adequacy issues** – related to the capability of the rail system to meet the requirements of passengers and policy, e.g. journey times, frequency, station facilities.

Issues were identified by undertaking extensive stakeholder consultation, and desk research and analysis.

## Capacity Issues

The main capacity issues for rail in Surrey have been identified as:

- **Capacity to Waterloo** – without action, significant overcrowding is forecast to result by 2031 particularly on main line services, with demand growth likely to be suppressed;
- **Capacity on the Brighton Main Line** – some overcrowding is forecast to continue to occur by 2031, even after significant investment; and
- **The North Downs Line** – there is existing overcrowding on peak services between Guildford and Reading.

## Adequacy Issues

The main adequacy issues for rail in Surrey have been identified as:

- **Access to London** - from locations in the Blackwater Valley area, e.g. Camberley and Frimley;
- **Access to main centres in the County** - existing train services are often infrequent and offer poor connections, for example Alton to Guildford;
- **Access to stations** – both lack of car parking and poor connections to other modes of public transport;
- **Links between new developments and stations** – to support sustainable travel choices, and developing appropriate solutions; and
- **Access to international gateways** – particularly Heathrow and Gatwick airports, but also High Speed (HS) 1 & 2, to maintain Surrey's global competitiveness.

## Optioneering

Having identified the capacity and adequacy issues for rail in Surrey, a list of options was identified for service or infrastructure improvements that could address the different issues. This took the form of a **long-list of options** obtained from a range of existing sources, such as previous rail studies, Network Rail Route Utilisation Strategies and stakeholder consultation. A number of options are original solutions proposed by Arup.

An **assessment process** was undertaken to arrive at a short-list of preferred options that would be recommended for inclusion in the Surrey Rail Strategy. Each option was assessed against three criteria: *Suitability*, *Feasibility*, and *Acceptability*. These terms are explained below:

- **Suitability** - How does the option address SCC's objectives, does it support wider plans and strategies and is rail the most suitable mode?
- **Feasibility** - Is the option deliverable and by whom, what are the key risks and obstacles, can funding be obtained?
- **Acceptability** - Does the option have a good business case, does it have stakeholder support?



Options were scored either a Good Pass, a Pass, or a Fail. All options in the categories *Good Pass* and *Pass* were recommended for inclusion in the Surrey Rail Strategy. **Four options in the *Fail* category were rejected:**

- Double-deck trains on South West Main Line (SWML) outer services;
- 16-car trains on SWML outer services (to Waterloo International);
- Reinstatement of the Guildford-Cranleigh railway line;
- Interchange at Frimley to the South West Main Line.

## Rail Strategy

The strategies for each area or topic comprise the committed schemes and the preferred options (those achieving a Pass or Good Pass in the assessment) for the short, medium or long term timescales.

**Committed schemes** are generally those that are included in the Network Rail Strategic Business Plan for Control Period 5 (2014-2019).

**Options** included range from those that are already being developed by the rail industry and just need support and input from Surrey County Council and its partners, to those that are new ideas and are not yet proven, which need further development to determine if they are viable schemes. In all cases, Surrey County Council and partners should be convinced that there is a robust business case for any option before they give their full support and certainly before any funding is committed.

The **main actions** to deliver each option are also considered; to inform the action plan.

The **areas/topics** covered are:

- South West Main Line;
- Windsor Lines;
- Brighton Main Line;
- North Downs Line;
- Access to airports;
- Access to Guildford; and
- Network wide and stations.

These area/topic strategies combine to form the Surrey Rail Strategy.

## Delivery

The recommended actions for Surrey County Council, its partners, and other stakeholders in the short, medium, long term to deliver the rail strategy are presented in the Action Plan.

The Action Plan is split into three tables:

- Short and Short-Medium term
- Medium and Medium-Long term
- Long term

The top priority actions are identified to enable the effort and resources to be focused on the most important issues.

In the **short term action plan** there are actions required to:

- Support committed train lengthening schemes on the South West Main Line and Windsor Lines;
- Continue to work with Network Rail on level crossing issues along the Windsor Lines;
- Commence strong lobbying for further development of the Crossrail 2 regional scheme to deliver more capacity on the South West Main Line, working closely with Transport for London and other key stakeholders;
- Explore options to reduce journey times between Camberley and London;
- Support committed additional platform at Redhill;
- Lobby for train lengthening on the North Downs Line;
- Proactively engage with the Davies Commission on airport capacity;
- Support committed schemes that will benefit Gatwick Airport;
- Work with Kent County Council to consider the feasibility of a Tonbridge-Gatwick service.
- Improve road-based access to Heathrow Airport;
- Lead the development of the station access and station facilities improvement programmes, as well as the standard rail service specification for Surrey;
- Lead review, and where appropriate, the development of rail improvements to support developments.

In the **medium term action plan** there are actions required to:

- Work closely with Network Rail to support the effective use of committed funding to deliver capacity improvements at London Waterloo;
- Lobby for additional train lengthening on the SWML, particularly its inclusion in the next South Western franchise specification;
- Proactively lobby for the inclusion of Surrey County Council and partners in the development of the Crossrail 2 scheme;
- Promote the Sturt Road Chord scheme as an effective use of future additional capacity on the SWML;
- Monitor actual demand growth on SWML Inner Suburban and Windsor Lines services;
- Support committed schemes on the Brighton Main Line and monitor the construction impacts of the Thameslink Programme;
- Work with Network Rail to develop further Brighton Main Line capacity improvements;
- Lead development of the improvement schemes for the North Downs Line, working closely with the Department for Transport and Network Rail;
- Support committed Heathrow Western Connection to Reading;
- Develop options that will benefit Gatwick Airport in future;
- Engage with all options which seek to address access to Heathrow;
- Raise Crossrail extension option in discussions on Airtrack Lite;
- Confirm the business case for Guildford local access schemes, including 2 tph (trains per hour) Alton-Guildford, and new stations at Park Barn and Merrow;
- Engage with the rail industry on demand management measures.

In the **long term action plan** there are actions required to:

- Identify further capacity upgrades on the South West Main Line and enabling schemes for Crossrail 2;
- Secure policy support for a southern rail access to Heathrow Airport through the rail industry long term planning process for delivery in CP6 (linked to expansion at Heathrow Airport, if granted through the Airports Commission).
- Develop the concept of a new, possibly high speed, rail link across Surrey from Heathrow to Gatwick Airport and possibly beyond;
- Develop the business case for the Clapham Interchange option.

There are a number of actions identified above covering many different options. There is a risk of confusion over priorities and dilution of resources across too many activities, particularly if human resources to lead and develop options are limited.

The priority actions should be those which relate to those options which are closely aligned with the Surrey rail development objectives and which have the potential to have a major impact on rail in Surrey, in the short, medium or long term. These **priority options** are considered to be:

- **Capacity on the South West Main Line** – the South West Main Line has significant capacity challenges in future. In the short to medium term the County Council should support committed and planned schemes to increase capacity through train lengthening and additional services. In the longer term, the Crossrail 2 project has the potential to address some of the capacity gap forecast on the line and, depending on the configuration of the scheme, has wider benefits for parts of Surrey in terms of greatly improved access to major employment centres in London and in maintaining Surrey’s global competitiveness by providing better connections to HS1 and in future HS2. It should be a priority of the strategy to implement actions that encourage further development of the Crossrail 2 regional scheme with stakeholders, and also to develop the enabling schemes in the short to medium terms, such as Woking Flyover and plans to relieve the inner area of the South West Main Line;
- **Local Orbital Rail Services** – improvements to the North Downs Line will address capacity issues in the short-medium term, but in the medium long term there is potential to create a really strong orbital link through Surrey, anchored by Gatwick Airport at one end and Reading at the other (for the future employment opportunities in Reading and wider connections, such as the planned Western Connection to Heathrow) and with the major Surrey towns of Redhill and Guildford between the two. There is also potential to link through to Kent on the Tonbridge line. This is an option that Surrey County Council and its partners can step up to and take the lead on, and it should be a priority of the strategy to push forward with this option;
- **Access to Airports** – this is a high profile and political issue in Surrey, and it affects decisions to locate people and businesses in the County. There are a number of options in the short and longer terms to address access to Heathrow and Gatwick, but in the case of Heathrow, there are no easy solutions. It should therefore be a priority for Surrey County Council and its partners to demonstrate leadership on this issue, by defining its position on airport capacity, and taking the lead on improving access to airports from Surrey. Inevitably, a final position will be dependent on the conclusions of the Davies Commission, but it is important that Surrey lobbies strongly for the continued development of Heathrow and Gatwick, because of their contribution to Surrey’s global competitiveness, economic prosperity, and employment.

## Implementing the strategy

Once the Surrey Rail Strategy is approved and adopted by Surrey County Council, it should be implemented quickly to maintain the momentum gained during the development stage of the strategy. In particular the short term options should be developed as a priority to feed into the main rail industry processes. Early engagement should include:

- Engagement with the **Department for Transport** to clearly promote Surrey's requirements for:
  - the 2017 High Level Output Specification (HLOS) and Control Period 6;
  - future franchise specifications and priorities (Thameslink, South Western, Great Western, etc);
- Engagement with **Network Rail** to ensure Surrey's active participation in the Long Term Planning Process (LTPP) particularly the London and South East Market Study and future Route Studies. Conditional outputs should be clearly defined so options for Control Period 6 are developed and agreed;
- Engagement with **Transport for London** to ensure Surrey's active participation in the development of the Crossrail 2 scheme;

Regular engagement should also be held with the **Train Operating Companies** to build relationships around development and implementation of relevant options, and with **Surrey stakeholders**, such as Boroughs and Districts and the business community, to report on progress, build relationships around the rail strategy, and harness local skills and knowledge to support implementation.

There is excellent stakeholder interest and support from both within the County and the rail industry, and this should be harnessed by Surrey County Council and its partners to deliver a successful rail strategy for Surrey that delivers the development objectives for the County.

# 1 Introduction

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## 1.1 Background

Arup was appointed by Surrey County Council (SCC) in November 2012 to undertake the Surrey Rail Strategy study. The objective for the study is to identify proposals for strategic investment that the County Council, working with partners, can plan and deliver.

This document is the Surrey Rail Strategy Report, the main deliverable from the study. The Rail Strategy forms part of the Surrey Transport Plan, which is the policy tool for developing transport programmes in Surrey.

The report is informed by Arup's previous Issues Paper and Options Paper reports, which are referenced in this report and should be consulted for further details on the issues and options considered in the study.

In line with SCC's requirements the Strategy provides a framework through which SCC can:

- develop future rail policy, service and infrastructure initiatives;
- respond to consultations (e.g. rail franchises, aviation reviews);
- lobby to influence national rail policy and planning; and
- support wider Council growth initiatives.

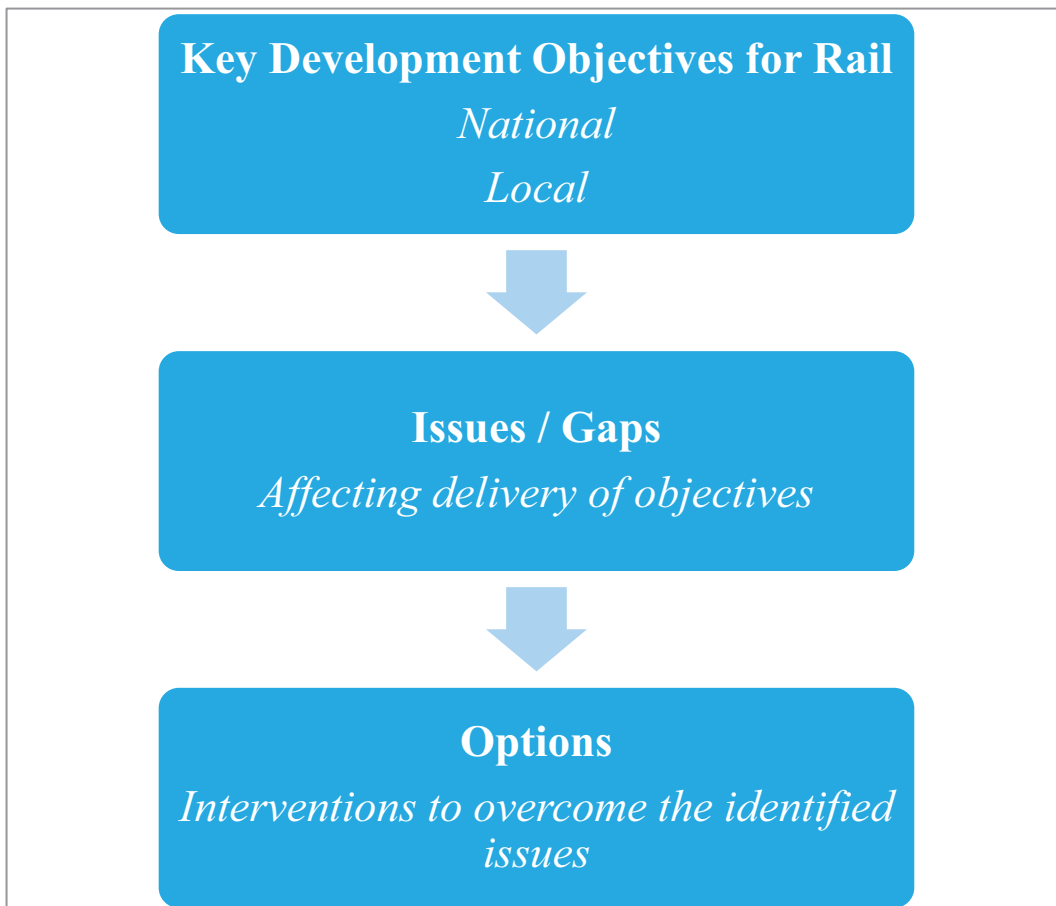
The Rail Strategy covers passenger rail only and does not include freight. Freight issues are covered in a separate Freight Strategy within the Surrey Transport Plan.

## 1.2 Approach

We have developed a high-level strategic approach to this study. The strategy does not develop detailed options, rather it identifies potential interventions that SCC and partners can either develop directly or can support third parties to develop. From our experience we are confident that this approach provides SCC and its partners with the influential rail strategy that they require.

The approach is illustrated in **Figure 1**. The following sections of the report present the findings from each stage of the approach. The Strategy is then constructed from the preferred options identified.

**Figure 1: Study Approach**



## 2 Objectives and Industry Timescales

### 2.1 Rail Development Objectives for Surrey

The initial task of the study was to identify the rail development objectives for Surrey. These were identified through review of relevant planning and policy documents and discussions with SCC. Documents reviewed include:

- The Department for Transport's (DfT) Rail Command Paper (March 2012);
- The DfT's Local Transport White Paper (January 2011);
- Network Rail's (NR) London and South East Route Utilisation Strategy (RUS) (July 2011);
- Surrey Transport Plan (April 2011);
- Surrey Connects' Forward through Smart Economic Growth (August 2011);
- Local Enterprise Partnerships growth strategies (Enterprise M3 and Coast-to-Capital)..

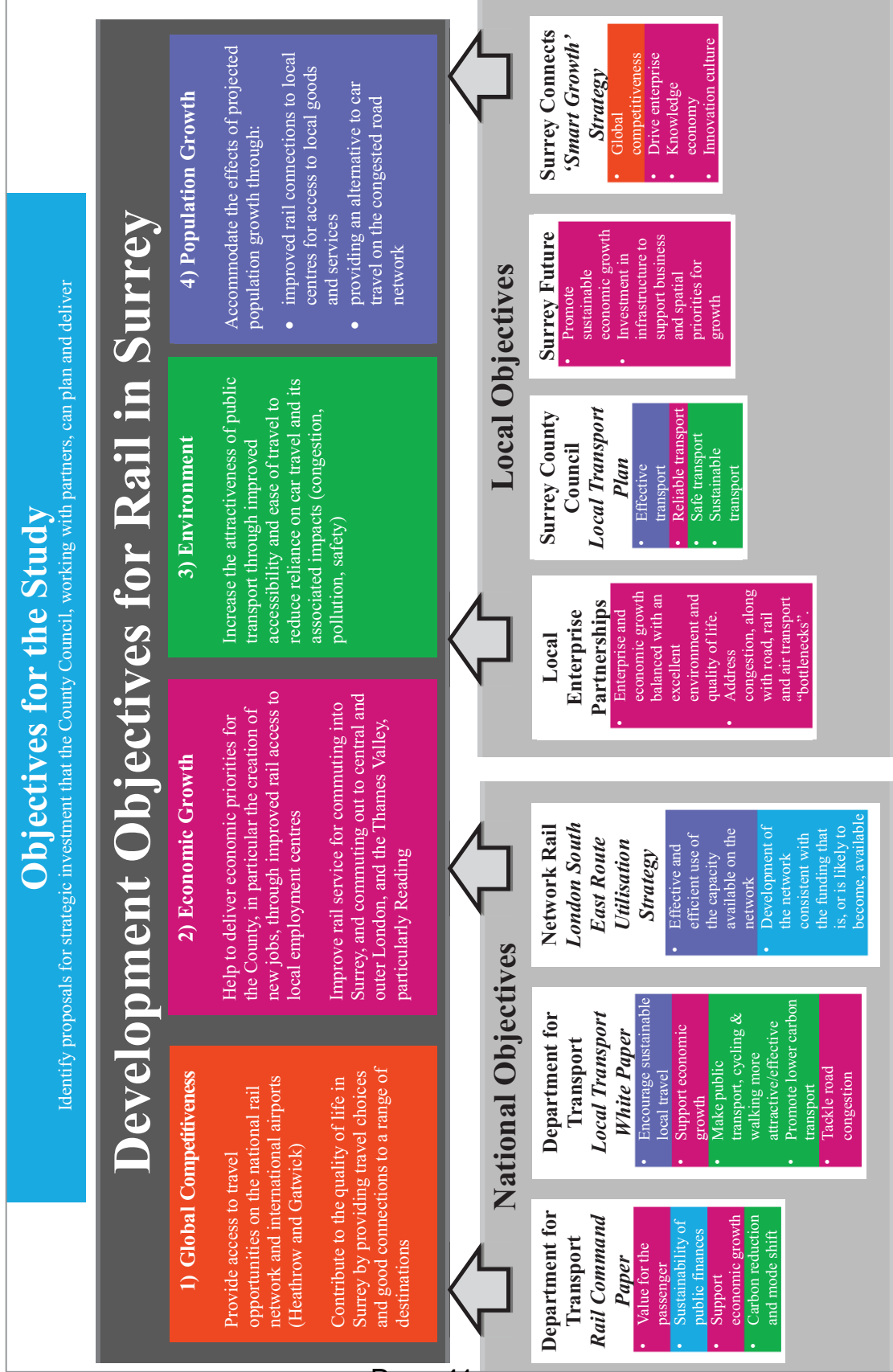
Key themes from these documents were identified to develop the rail objectives for Surrey, as shown in **Figure 2**, overleaf.

The four development objectives for rail in Surrey are:

1. Maintain Global Competitiveness
2. Drive Economic Growth
3. Reduce impacts on the Environment
4. Accommodate Sustainable Population Growth



**Figure 2: Development Objectives for Rail in Surrey**



## 2.2 Rail Industry Timescales

A key element in developing the rail strategy is understanding the rail industry timescales for development of initiatives. A summary of the timescales in the industry is shown in Figure 3, below.

It is important to understand that rail industry planning timescales are long. Each Control Period, the period over which the Office of Rail Regulation sets regulatory targets, income and costs for Network Rail, lasts five years. Whilst this is good for the industry, in that it can plan with some certainty of funding for that period, it means that new infrastructure schemes often have to be planned with more than five year lead times.

For example, the plans for Control Period 5 (2014-2019) are largely fixed now, so any new infrastructure schemes are likely to be implemented in the next Control Period, ie 2019-2024. Planning for this period starts with the Department for Transport's High Level Output Specification (HLOS), which is expected to be published in 2016/17. Consultation and negotiations for the HLOS will therefore start in 2015/16, with the publication of Network Rail's Initial Industry Plans.

There are opportunities to progress smaller schemes and service improvements through the franchise renewal processes, which in Surrey will occur before the end of the next Control Period, for example Great Western in 2016/17 and South Western in 2019/20.

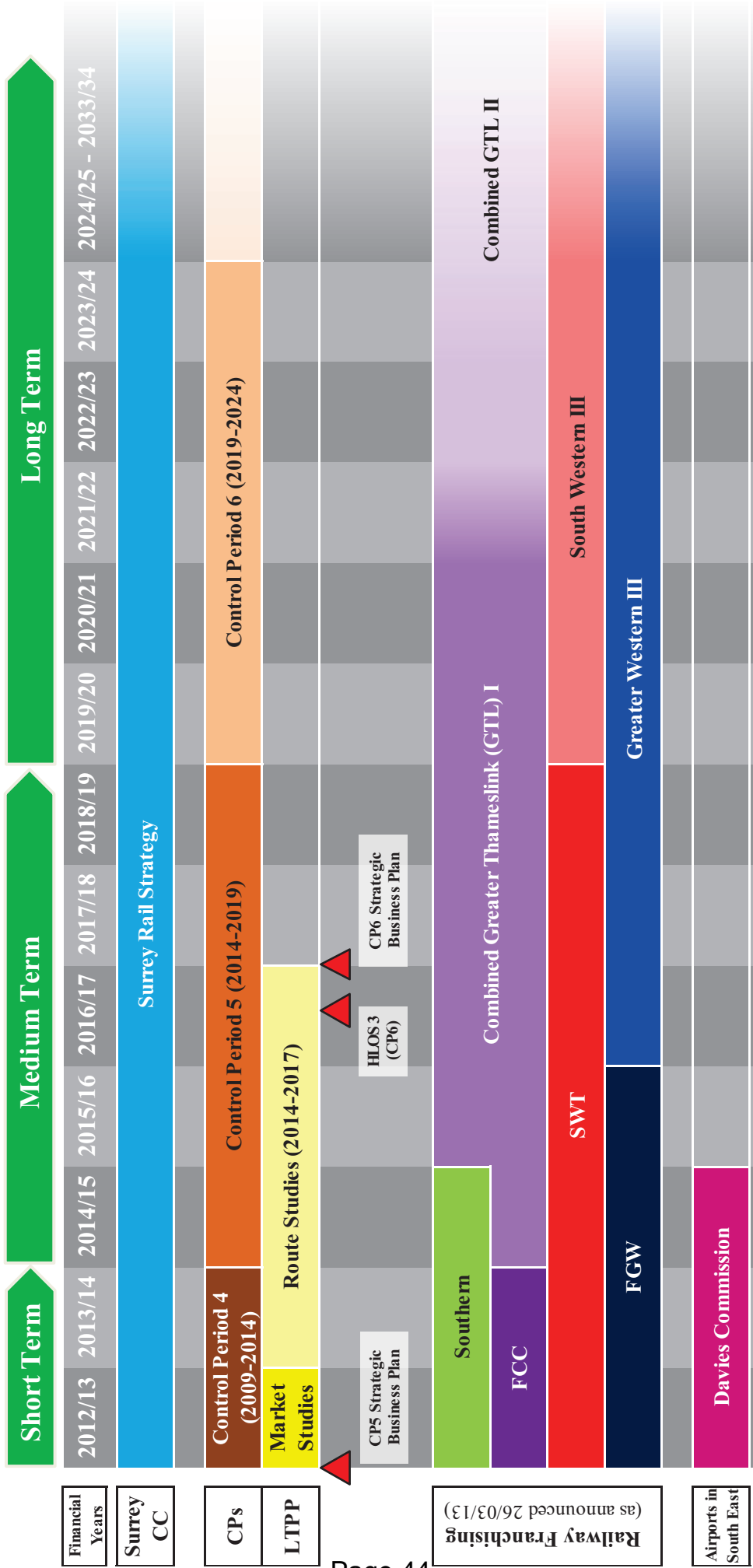
Table 1 provides full definitions for common rail industry terms that are used in the timeline above, and throughout this report.

**Table 1: Definitions of rail industry terminology**

Acronym	Meaning	Descriptions
HLOS	High Level Output Specification	The HLOS sets out information for the Office of Rail Regulation and for the rail industry about what the Secretary of State for Transport wants to be achieved by railway activities during a given railway Control Period. The HLOS is a statutory requirement introduced by the Railways Act 2005. Alongside the HLOS, the DfT also provides a Statement of Funds Available (SoFA) that defines the amount of subsidy available to deliver the requirements of the HLOS.  The HLOS for CP5 (2014-2019) was published by the Department for Transport (DfT) on the 16 <sup>th</sup> of July 2012.
LTPP	Long Term Planning Process	The LTPP is how Network Rail works with stakeholders to predict future demand for rail services, agree priority uses for the capacity available and assess value for money options for investment. It builds on the Route Utilisation Strategy (RUS) programme previously used by NR.

Acronym	Meaning	Descriptions
SBP	Strategic Business Plan	The SBP is NR's formal response to the HLOS and SoFA. It sets out how NR intends to achieve the DfT's requirements, providing details on the schemes that it wants to see taken forward over the course of each Control Period.
CP	Control Period	The 5-year periods over which the Office of Rail Regulation sets regulatory targets, income and costs for Network Rail. They are numbered, e.g. CP4 covers the period April 2009 to March 2014 and CP5 covers the period April 2014 to March 2019.
-	Franchise	<p>A type of contract that the DfT uses to procure train operation services from the private sector. The award of a franchise should generally follow this process:</p> <ol style="list-style-type: none"> <li>1. DfT consults stakeholders on what should be delivered by the future franchise holder.</li> <li>2. The DfT draws up a shortlist of franchise bidders, based on the results of a Pre-Qualification Questionnaire (PQQ).</li> <li>3. Taking into account stakeholder views, the DfT issues an Invitation to Tender (ITT) to shortlisted bidders that specifies in detail the criteria against which the merit of franchise bids will be judged.</li> <li>4. Bids are submitted to the DfT for evaluation.</li> <li>5. The DfT announces the bidder to which they wish to award the franchise (the Preferred Bidder).</li> <li>6. A period of negotiation ensues between the Preferred Bidder and the DfT to agree upon a final contract.</li> <li>7. On a set date the operation is taken over by the winning bidder. Franchises are of fixed length (normally between 7 and 15 years).</li> </ol>

Figure 3: Rail Industry Timescales



Abbreviations: CPs – Network Rail Control Periods, LTTP – Network Rail’s Long Term Planning Process, HLOS – High Level Output Specification, FCC – First Capital Connect, FGW – First Great Western, GTL – Greater Thameslink, SWT – South West Trains.

## 3 Rail Strategy Issues

The next task in the study was to identify the issues affecting the delivery of the rail development objectives for Surrey, and the gaps remaining.

Issues were split into two categories:

- **Capacity issues** – related to the size and scale of the rail system (infrastructure and services) to meet the required demand, e.g. train length, number of trains; and
- **Adequacy issues** – related to the capability of the rail system to meet the requirements of passengers and policy, e.g. journey times, frequency, station facilities.

Issues were identified by undertaking extensive stakeholder consultation, and desk research and analysis. This is reported in detail in the Surrey Rail Strategy Issues Paper (March 2013) and summarised below.

### 3.1 Stakeholder Consultation

A number of key stakeholders were consulted to obtain views on the key issues for rail in Surrey. A list of stakeholders consulted, with consultation format and dates, is included in Appendix A.

Many of the stakeholders provided input to the Surrey Rail Strategy at events organised by Surrey County Council (or other organisations in certain cases). These events are listed in Table 2.

**Table 2: List of stakeholder consultation events**

Event	Date
Drop-in event for SCC Councillors and Officers	26 Nov 2012
Group meeting with Planning/Transport officers from Surrey Districts and Boroughs (1)	26 Nov 2012
Group meeting with Planning/Transport officers from Surrey Districts and Boroughs (2)	30 Nov 2012
Surrey County Council Member Seminar	14 Jan 2013
Meeting of the Enterprise M3 Transport Action Group	24 Jan 2013
Options Workshop	29 Jan 2013
Presentation at Surrey Future Launch Event	6 Mar 2013
Presentation to SCC Transport Select Committee	6 Mar 2013
Strategy Workshop	15 Mar 2013

The issues arising from the stakeholder consultation are included in the research and analysis in the following section.

A formal consultation on the draft Rail Strategy Report was held by the County Council from April to June 2013. This attracted an unprecedented 150 responses, which have informed this final report.

Surrey County Council and Arup would like to thank all stakeholders for their interest and inputs to the study.

## 3.2 Research and Analysis

The work that was undertaken to produce the Issues Paper followed a simple methodology. Factors influencing the *demand* for travel in Surrey were identified and analysed, followed by an appraisal of the current *supply* of transport in the County in terms of service levels and quality. With a clear understanding of both these influences, it was then possible to define a number of issues that the Surrey Rail Strategy would seek to address. As described above, issues were placed in one of two categories: **Capacity Issues** or **Adequacy Issues**.

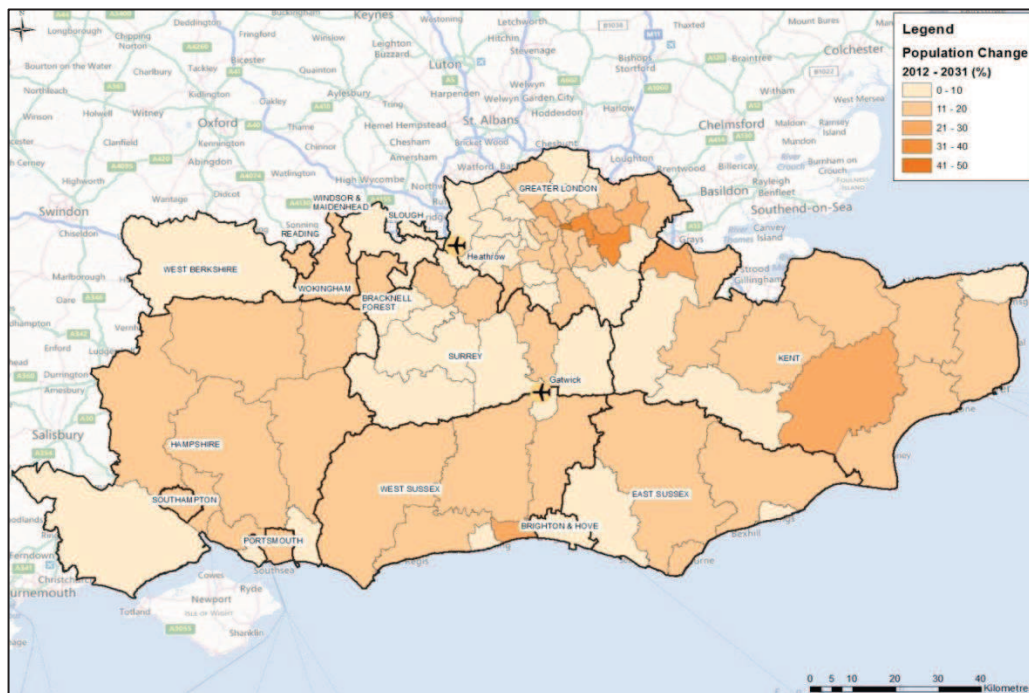
### 3.2.1 Understanding Demand for Travel in Surrey

#### Population and Employment

Demand for travel is generated by the need for people to get from where they live to where they undertake any other activity, such as work, study or leisure. Analysing population and employment trends in Surrey and the surrounding region was therefore vital to understanding patterns of travel demand.

With the aid of Geographical Information Systems (GIS), official projections of population growth were overlaid on maps of the South East to display patterns of growth and how these might affect Surrey (see **Figure 4**, below). A similar map was produced to show jobs growth (see Issues Paper for more information).

**Figure 4: Map of projected population change in London and the South East (2012-2031)**



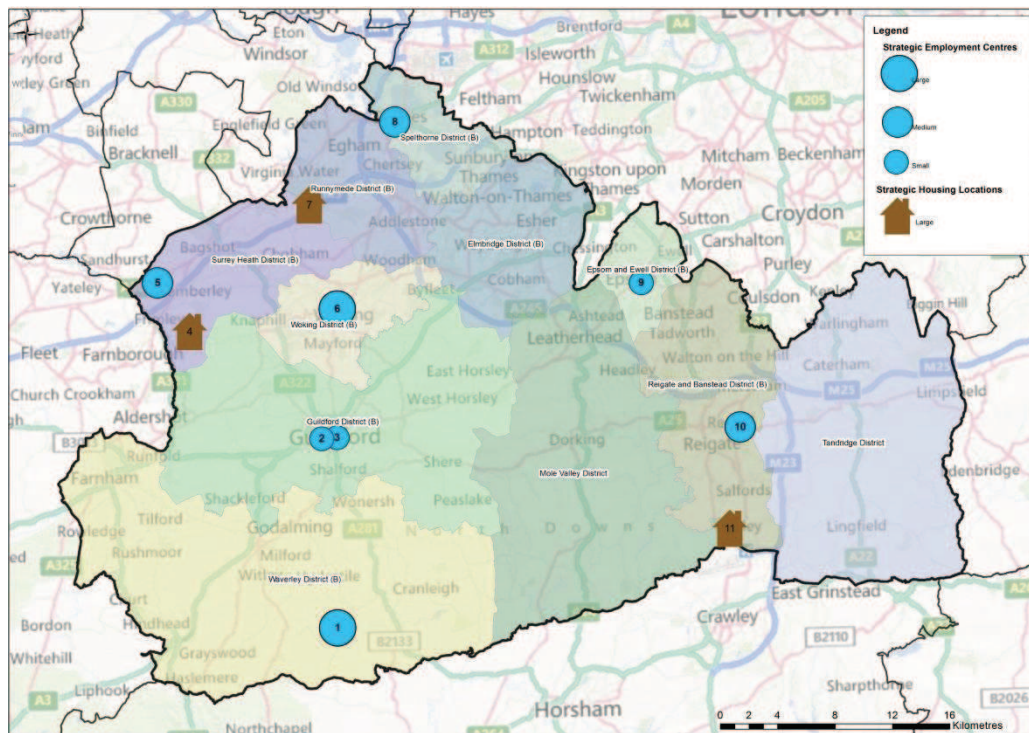
Source: TEMPRO

**Figure 4** shows that population growth will be strongest in inner London boroughs (particularly in the East) and areas further from London in Hampshire, Sussex and Kent. Growth is expected to be weaker closer to London, including in Surrey, perhaps reflecting the constraining effect of the Metropolitan Greenbelt on housing growth.

Within Surrey, overall population is projected to grow by 9% between 2012 and 2031, equating to an average annual population growth rate of only 0.45%. The strongest population growth is projected for the districts and boroughs bordering London, with double-digit growth in Elmbridge (+13%), Epsom and Ewell (+11%) and Reigate and Banstead (+13%). Runnymede is expected to see growth of +14%, while the main centres of Woking and Guildford are both expected to grow by +10%. Growth in Surrey’s rural areas is expected to be limited.

To add detail to these long term population projections, a review of local development plans in the County was carried out to provide a clearer view of where growth in houses and jobs is likely to occur in the short to medium term (see Figure 5).

**Figure 5: Current plans for housing and employment development in Surrey**



Source: Arup research

In terms of new housing major developments are planned for Horley (3,600 homes), Longcross (1,500 homes) and Deepcut (1,200 homes).

Regarding office/commercial developments, significant new floor space is planned for Woking (75,000 m<sup>2</sup> retail), Camberley (41,000 m<sup>2</sup> retail), Guildford (32,500-37,000 m<sup>2</sup> retail), and Longcross (80,000 m<sup>2</sup> office).

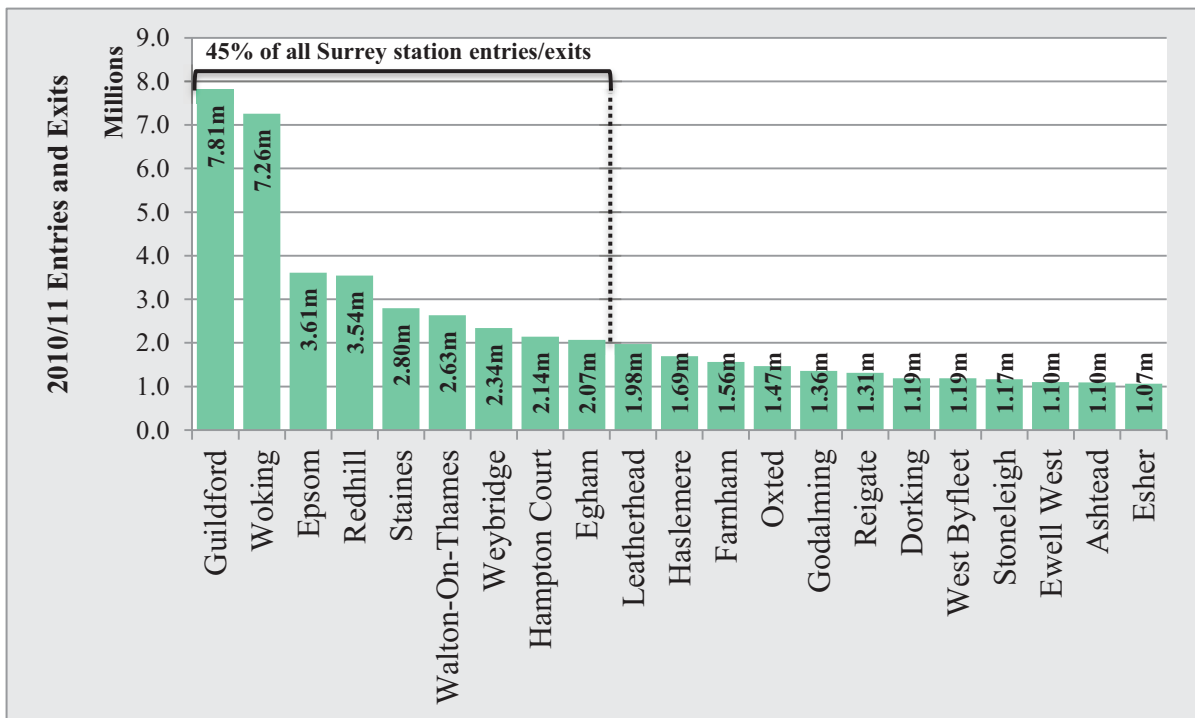
Other major developments are planned for centres located close to Surrey, such as Reading, Basingstoke and Crawley. In Reading there are a number of proposed developments, including Southside (40 hectare mixed use site, including 80,000 m<sup>2</sup> of office space), and Kenavon Drive (550 homes planned), all very close to the rail station, as well as major expansion of the railway station itself.

## Rail Demand

To investigate existing patterns of demand for rail services in Surrey, both station usage data (provided by the Office of Rail Regulation (ORR)) and ticket sales data (provided by South West Trains) were analysed.

Analysis of 2011/12 station usage data (see **Figure 6**) showed that the 9 busiest stations in Surrey accounted for nearly half of all annual station exit/entries in 2011/12. This demonstrated that, although Surrey is served by a comprehensive railway network comprising 84 stations, the majority of passengers' experience of travel by train in Surrey will be based on travelling through a handful of very busy stations.

**Figure 6: Annual station entries and exits at key stations in Surrey (2010/11)**

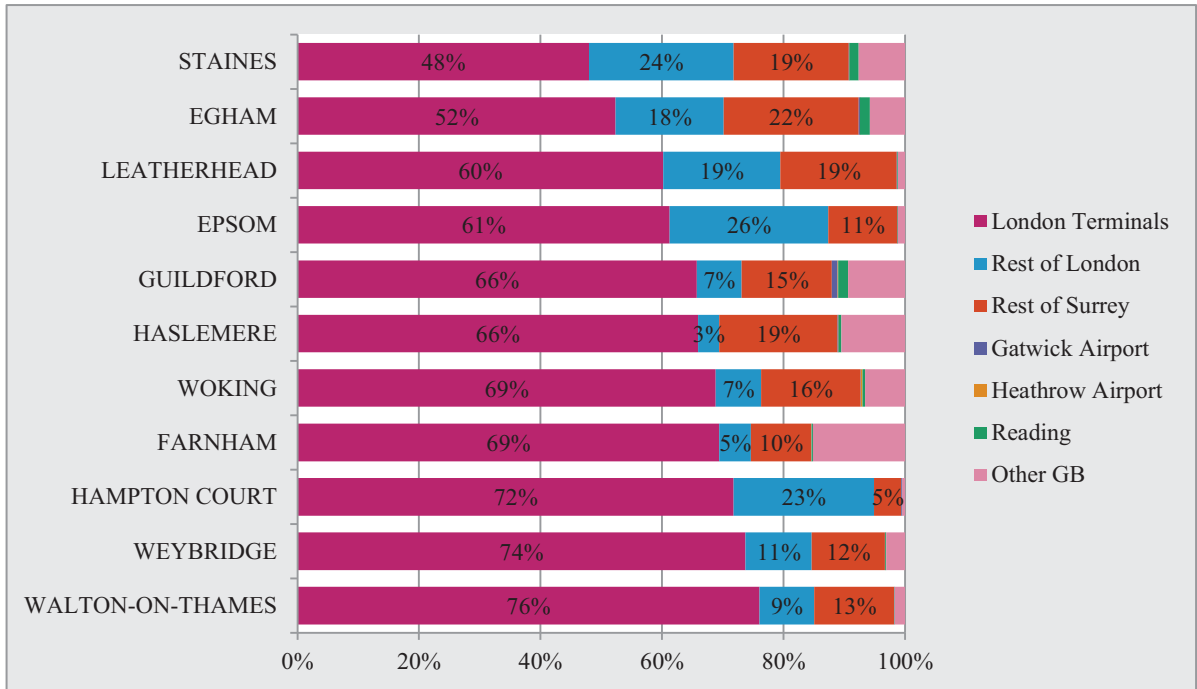


Source: ORR

Ticket sales data from South West Trains provided insight into the types of journeys that Surrey rail passengers take. **Figure 7** shows the destinations of passengers leaving from principal Surrey stations. It can be seen that certain stations are predominantly used for travel into central London (e.g. Walton-on-Thames, Weybridge), while others serve a more diverse market including the rest of Surrey (e.g. Egham). The predominance of London is expected, however, given the popularity of Surrey as a home for London-bound commuters.



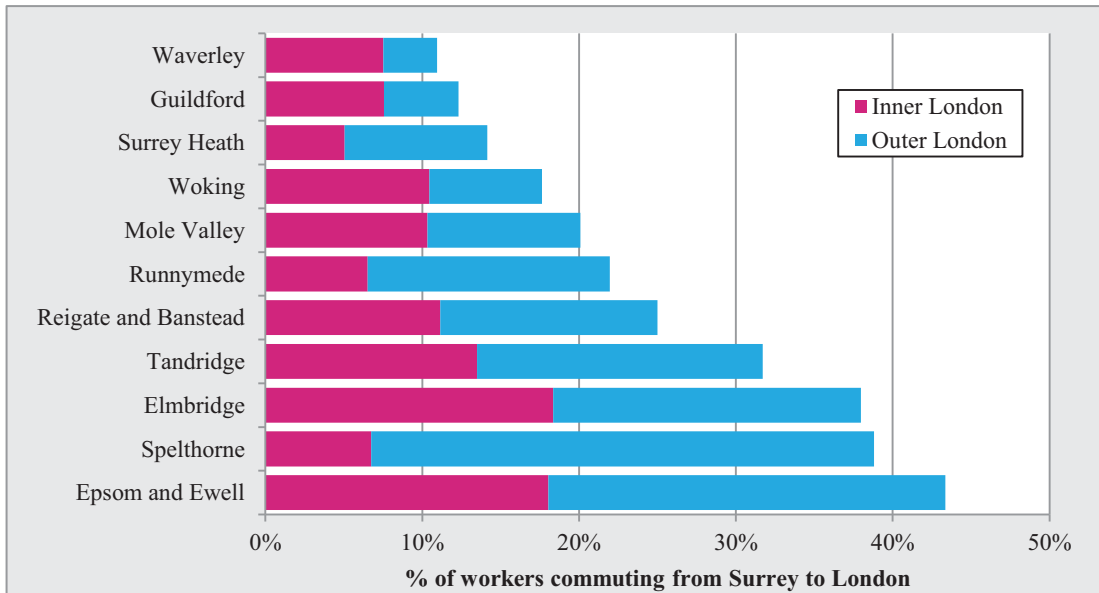
**Figure 7: Destinations of passengers boarding at selected Surrey stations (2011/12)**



Source: SWT/LENNON

The predominance of London revealed in the ticket sales data was supported by Census data that records the work destinations of Surrey residents. According to the 2001 census (2011 travel-to-work census data not yet available), certain Surrey districts see over 40% of workers commuting to London (see **Figure 8**).

**Figure 8: Surrey districts ranked by percentage working in London**



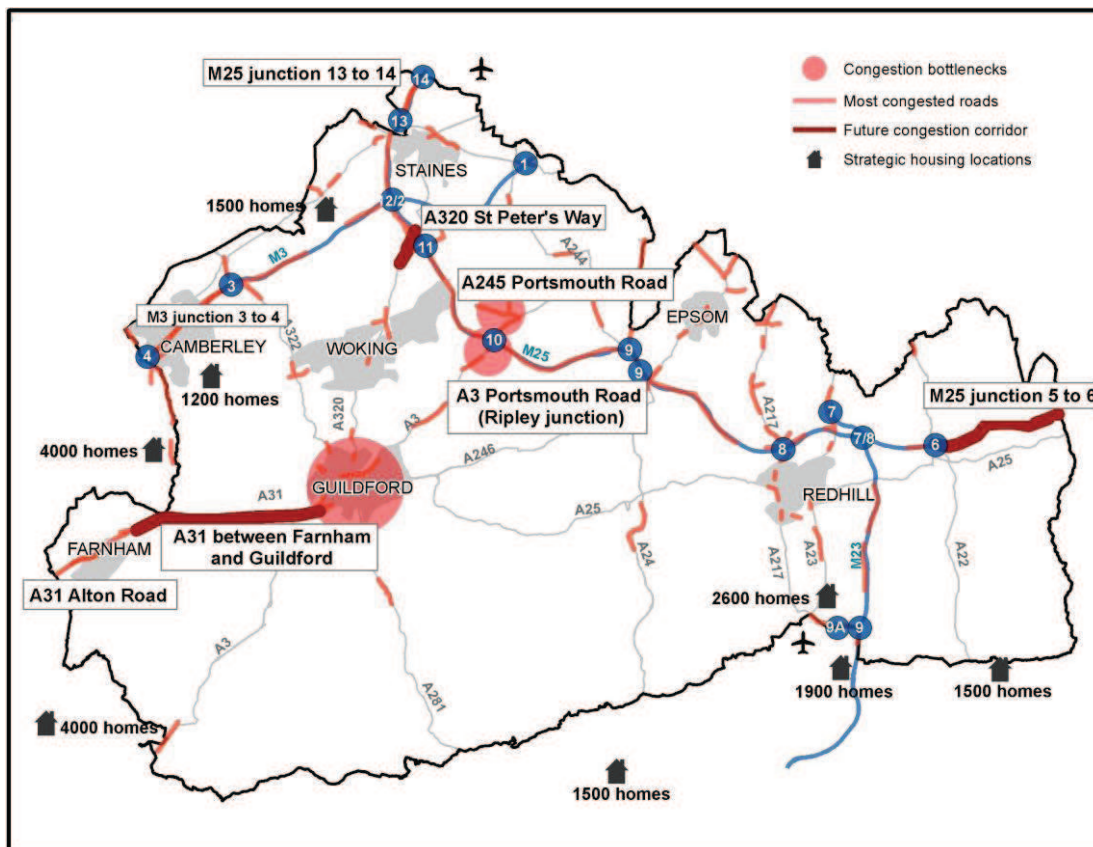
Source: 2001 Census

### 3.2.2 Understanding Transport Supply in Surrey

As defined in the objectives for the Surrey Rail Strategy, one of the roles of rail in the County must be to provide “an alternative to car travel on the congested road network.” For this reason, prior to studying Surrey’s rail services in detail, the issue of road congestion was examined, based on work already carried out as part of the Surrey Future Congestion Programme. The most pressing road congestion issues, as displayed on the map in **Figure 9**, were found to be:

- High levels of traffic congestion on the important A3 corridor;
- Expected worsening of congestion on the A31 between Farnham and Guildford;
- Significant commuting-related traffic congestion on roads at peak times in Guildford, due to the concentration and growth of jobs in the area and relatively poor accessibility by rail (e.g. Surrey Research Park);
- High levels of congestion on the M25 and M23 motorways affecting road access to Gatwick airport and the wider Gatwick Diamond economic zone; and
- Limited provision for orbital movement (e.g. east-west) across Surrey south of the M25 by road.

**Figure 9: Current and future congestion areas on Surrey’s road network**



Source: Surrey Future Draft Congestion Programme

### Railway Capacity

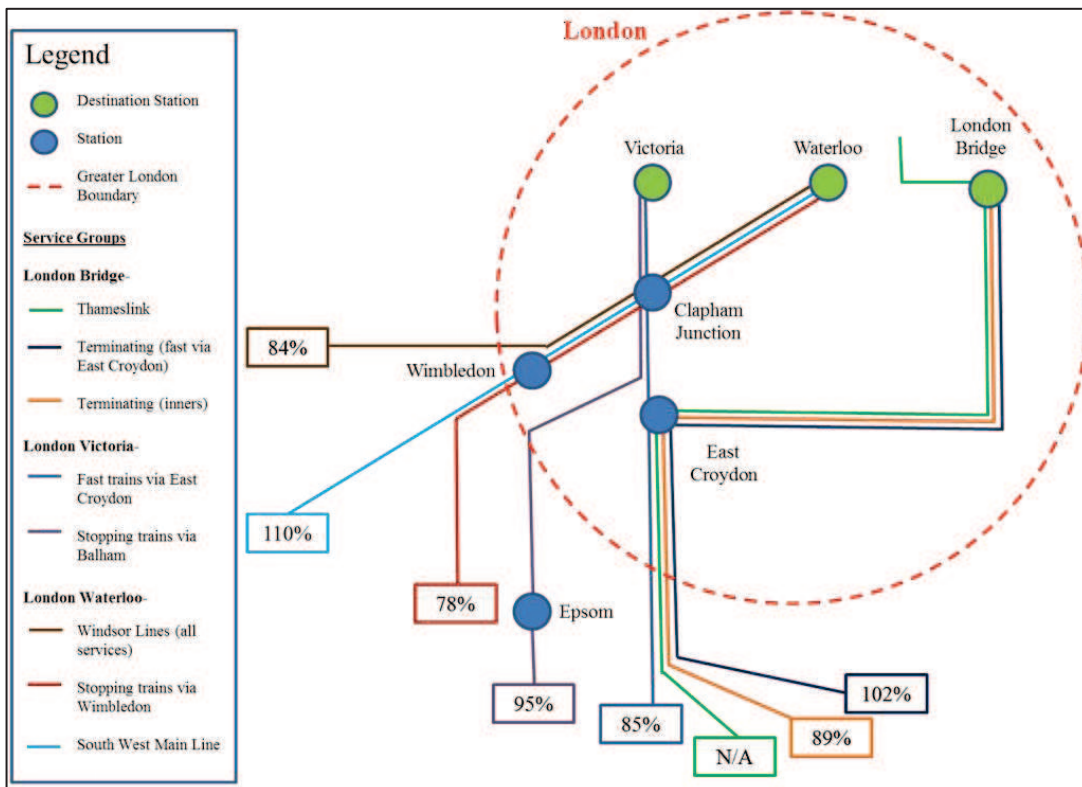
Congestion is not a problem unique to road travel, however. Overcrowding on London-bound trains during the morning peak on weekdays was identified by stakeholders as a major concern for many Surrey residents.

Network Rail’s 2011 Route Utilisation Strategy (RUS) for London and the South East revealed the extent of crowding on the busiest trains travelling between Surrey and the London termini. The NR crowding analysis is summarised in **Figure 10**, overleaf.

It can be seen that in 2010 services on the South West Main Line (SWML) into Waterloo were already operating at 110% of capacity at the busiest point (likely to be Clapham Junction or Vauxhall stations). Note that ‘capacity’ according to official definitions does not refer to seating capacity alone, but seating plus an allowance for standing room (one passenger per 0.45 m<sup>2</sup>).

Other important routes between Surrey and London are also operating close to capacity at the busiest times, such as the Windsor Lines via Staines (84% of capacity), the Mole Valley Line via Epsom (95%) and London Bridge terminating services via East Croydon (102%).

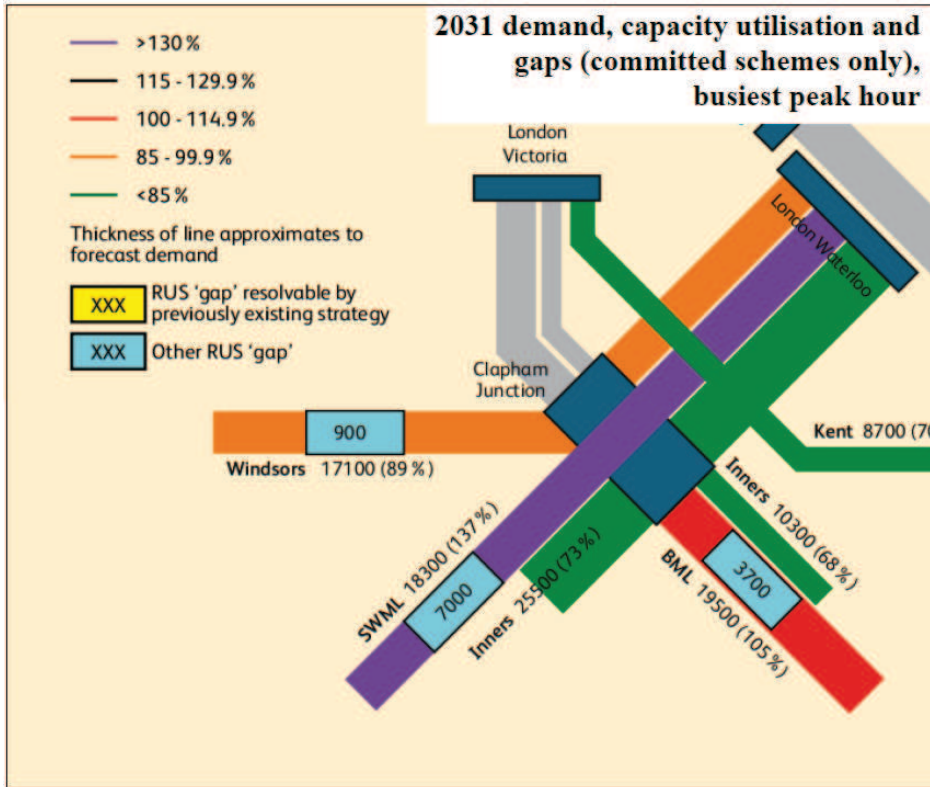
**Figure 10: Train load factors (%) on London-Surrey lines - AM 1-hour peak (Autumn 2010) at busiest point**



Source: Network Rail

The Network Rail RUS also forecasts how demand and crowding in expected to change over the period to 2031, taking account of committed investment. Expected levels of crowding on Waterloo and Victoria bound services in 2031 are shown in **Figure 11**.

**Figure 11: 2031 demand, capacity utilisation and gaps (committed schemes only), busiest peak hour**



Source: Network Rail London and South East RUS 2011

Network Rail forecasts that:

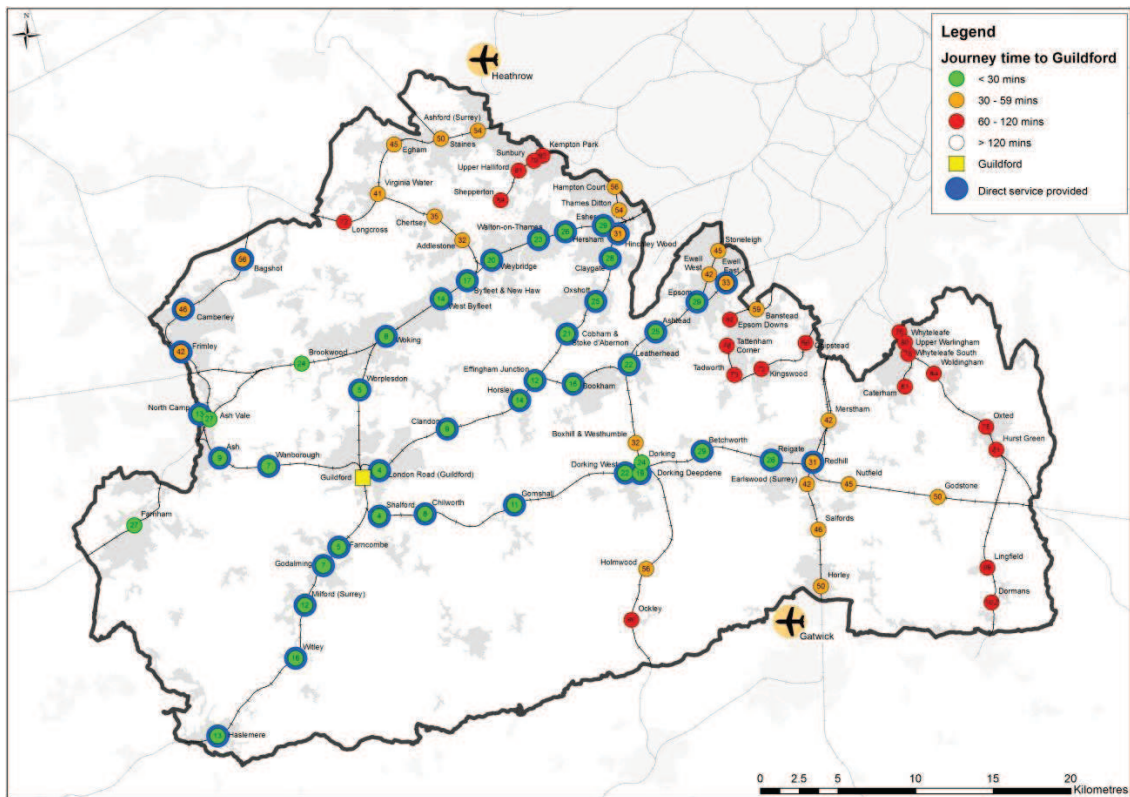
- By 2031 morning peak passenger demand will have grown by around one quarter on the Windsor and South West Main Lines (SWML);
- Use of Brighton Main Line services via Clapham Junction during the morning peak will grow by 37%;
- Taking into account capacity improvement schemes that are already committed, by 2031 the gap between demand and capacity on the SWML will have increased from 10% to 37%;
- Similarly, on Brighton Main Line services usage will exceed capacity by 5%; and
- Other lines will be close to capacity by 2031.

### Existing Train Service Levels

A comprehensive station-by-station review of existing railway services in Surrey was carried out. As with demographic data, GIS mapping was used to present this information in a format that would allow the patterns of provision to be understood.

An example of this is shown in **Figure 12**, where journey times to Guildford from all other Surrey stations have been mapped. Where the journey time is less than 30 minutes, the station is coloured green. Journey times between 30 and 59 minutes are coloured amber and journey times of 60 minutes and more are coloured red. Stations with direct services are circled in blue.

**Figure 12: Map of fastest journey times to Guildford in the morning 1-hour peak from all stations in Surrey**



Source: National Rail Enquiries

From this map it can be seen that Guildford is well served by direct rail services from many stations across Surrey. However, for certain locations in Surrey, particularly in Spelthorne, Runnymede and Tandridge, journey times by rail to Guildford are very long, typically due to the need to change trains in central London. In such cases travel by rail will be an unattractive alternative to the car.

Similar maps were produced for travel from Surrey stations to London and Reading. In addition to journey times, service frequency was also analysed. Full details can be found in the Issues Paper.

## Customer Satisfaction for Rail Services in Surrey

The results of research carried out by Passenger Focus as part of the National Passenger Survey were analysed to gauge levels of satisfaction with rail services in Surrey. Comparisons were made with customer satisfaction levels across the South East region as a whole (see **Table 3**).

For certain aspects of rail travel, Surrey passengers were more satisfied than South East passengers as a whole. This was particularly the case for on-train facilities. However, for some aspects Surrey satisfaction was below the South East average.

**Table 3: Key findings of National Passenger Survey for Surrey passengers compared to South East average (aggregation of Autumn 2010, Spring 2011, Autumn 2011 and Spring 2012 survey waves)**

ABOVE South East Average Satisfaction	BELOW South East Average Satisfaction
Facilities for car parking	Connections with other forms of public transport
Availability of on-train staff	Availability of station staff
Provision of information during the journey	Station facilities and services
Helpfulness and attitude of on-train staff	Value for money for the price of the ticket
Cleanliness of the outside of trains	Ticket-buying facilities
Space for luggage	
Upkeep and repair of the train	

Source: Passenger Focus

### 3.2.3 Identification of Capacity Issues

#### Network Wide

- Rail mode share in Surrey is 10% of work trips. Rail plays a very important role in the economy, with 19% of the working population (about 128,000 people) commuting to London each day (one third commuting out of Surrey in total). This puts a high demand on rail services in the County.
- The population of Surrey is forecast to grow by 9% to 2031, and employment is expected to grow by 11%. London employment, a key driver of rail demand in Surrey, is expected to grow by 11% by 2031, with some areas such as the City and Heathrow area growing in excess of 15%. The Thames Valley and Reading in particular, are also expected to grow in excess of 15%. This will put additional demand on rail services in Surrey.

#### South West Main Line (SWML)

- Network Rail forecasts that passenger usage on the SWML will grow by 24% by 2031 (about 1% per year). It is distinctly possible that growth could be above the Network Rail forecast, particularly in the short term, further exacerbating crowding levels.
- There is limited scope for major capacity improvements on the SWML in the short term, as peak main line trains are generally already operating at full length and no additional timetable slots can be found on the route for extra

trains, regardless of capacity at London Waterloo. Some minor train lengthening on selected services is committed in CP4 (2009-2014) but otherwise no additional capacity is currently committed on the network.

- By 2031, a capacity shortfall on the SWML of 4900 passengers is forecast. This means that services would be operating at 137% of capacity.
- Major interventions are needed on the SWML to address the capacity issues both in the short and long term.

### **Windsor Lines**

- Network Rail forecasts that passenger usage on the Windsor Lines to London will grow by 26% by 2031 (about 1.1% per year). Strong employment growth in Reading will be a particular driver of travel demand on this line in the opposite direction.
- Additional capacity to Windsor is committed through the train lengthening programme in CP4 (2009-2013), which will deliver 10-car operation on Windsor Line services and one additional peak service into London Waterloo.
- With these capacity improvements, no capacity shortfall on the Windsor Lines is forecast by 2031, and services are forecast to operate at 89% of capacity (slightly worse than current).
- Further interventions may be needed if growth is higher than forecast.

### **Brighton Main Line (BML)**

- Network Rail forecasts that passenger usage on the BML will grow by 37% by 2031 (about 1.5% per year).
- Additional capacity on the BML is committed through the Thameslink Programme, which will deliver train lengthening and some increased frequency services in CP4 (2009-2013) and CP5 (2014-2019).
- With these capacity improvements, the BML should operate at 87% capacity by 2031.
- Further interventions will be needed (beyond the Thameslink Programme) on the BML and its branches to address the capacity issues arising from significant growth in this corridor, probably focused on running more services.

### **North Downs Line (NDL)**

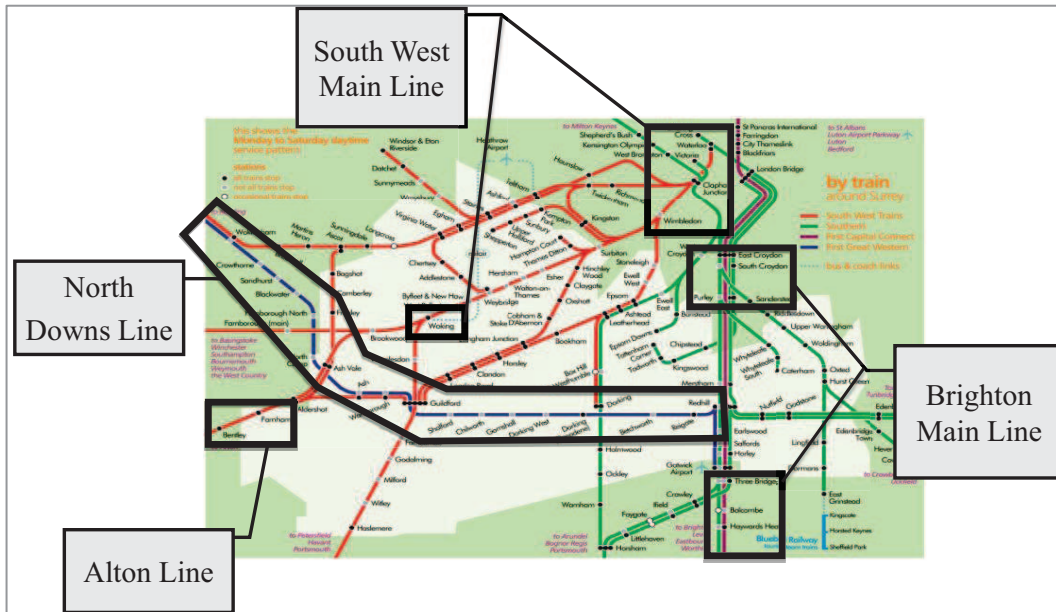
- Passenger demand is expected to increase, with significant employment growth forecast in Reading, Guildford and Gatwick, all key destinations along the line.
- Additional capacity on the NDL is committed in CP5 (2014-2019), as the additional platform at Redhill will enable 2 tph to Gatwick. No further interventions are planned on the NDL.
- Capacity improvements could be needed to address reported crowding on the NDL, particularly in the morning peak between Guildford and Reading, which may involve electrification.

### **Alton Line**

Single track section between Farnham and Alton limits scope for further improvements to service frequency in this corridor.

The capacity issues are illustrated in **Figure 13**.

**Figure 13: Capacity Issues**



### 3.2.4 Identification of Adequacy Issues

#### Network Wide Issues

- Congestion on the Surrey road network is already an issue, and is expected to increase further in future causing longer and more unreliable journey times. There are also the associated wider impacts of congestion and increased traffic levels such as the cost to business, pollution, and safety. Therefore rail will have an increasingly important role to play in maintaining a good level of mobility and accessibility to support local economic growth and providing for sustainable travel in Surrey in future.
- In order to do this, rail services must be competitive with the private car, providing frequent services with short journey times, at a reasonable cost. All major towns in Surrey have a rail station, some with very good service levels, particularly to London. However, many towns have poor frequencies of service or long journey times to key destinations and employment sites remote from stations, which may deter users.
- Given the above, increased traffic congestion and a lack of rail capacity could potentially act as a brake on economic growth in Surrey, if not addressed very soon.

#### Access to London

- Whilst peak hour train frequencies to London are good from the main centres in Surrey (such as Guildford, Woking and Epsom), many stations have a lower frequency service. These stations include Camberley, Bagshot, Frimley, Farnham, Hampton Court, and stations at smaller settlements on the North Downs Line.
- Only a few stations in Surrey are within 30 minutes of London terminus stations, such as Woking, Redhill, Walton-on-Thames. Most other stations are



within one hour, but there are a few notable locations that are more than an hour away, such as Bagshot, Camberley and Frimley (due to their location off the Main Line).

- There are no committed schemes to address these issues.

### **Access to National Rail Network and International Airports**

- Access to the wider national and international (HS1) rail network from Surrey is generally made via London, although Reading is also an important location for connections to the north and west of the UK, and will become more so if the Heathrow Western Extension is built.
- Access to the planned HS2 line to the north of the UK will be via Euston station from Waterloo, or potentially in future via Old Oak Common station from Clapham Junction. TfL is planning to increase frequencies on the West London Line from 4 tph to 6 tph in future, which will improve connections to HS2 from Surrey. However currently no SWML Outer services can stop at Clapham Junction in the peak hours. This needs addressing to ensure good access to HS2 in future.
- There is currently no direct rail access to Heathrow Airport from Surrey. Journey times by road are significantly more competitive than rail. A significantly improved rail service with fast direct links to Heathrow would be needed to be competitive with car and taxi.
- There is direct access to Gatwick Airport from Surrey on the North Downs Line and journey times are generally competitive with road, although frequencies are low (1 tph). Frequency and marketing improvements could make rail an even more attractive prospect for access to Gatwick.

### **Access to Local Employment Centres**

- Reading and Guildford are important employment centres for working residents of Surrey. Improvements to these centres will also improve services for many intermediate towns in Surrey, particularly in the Blackwater Valley which will accommodate the growth from the Aldershot urban extension.
- Direct rail access from Surrey to Reading is provided on the Windsor Lines and North Downs Line, but frequencies are generally below 4 tph and journey times in excess of 30 minutes (45 minutes from Guildford, 47 minutes from Staines).
- Guildford is served by the radial Portsmouth Direct Line and the orbital North Downs Line, but only Woking has more than 4 tph to Guildford in the morning peak. Haslemere has 4 tph and most other stations have 1-3 tph to Guildford.
- A large number of stations in Surrey are within 30 minutes of Guildford by train, with the notable exceptions of Camberley, Frimley, and Bagshot (42-56 minutes).
- There are no committed schemes to address these issues.
- Access between rail stations and key employment centres were cited by many stakeholders as a key issue, for example the Surrey Research Park in Guildford.

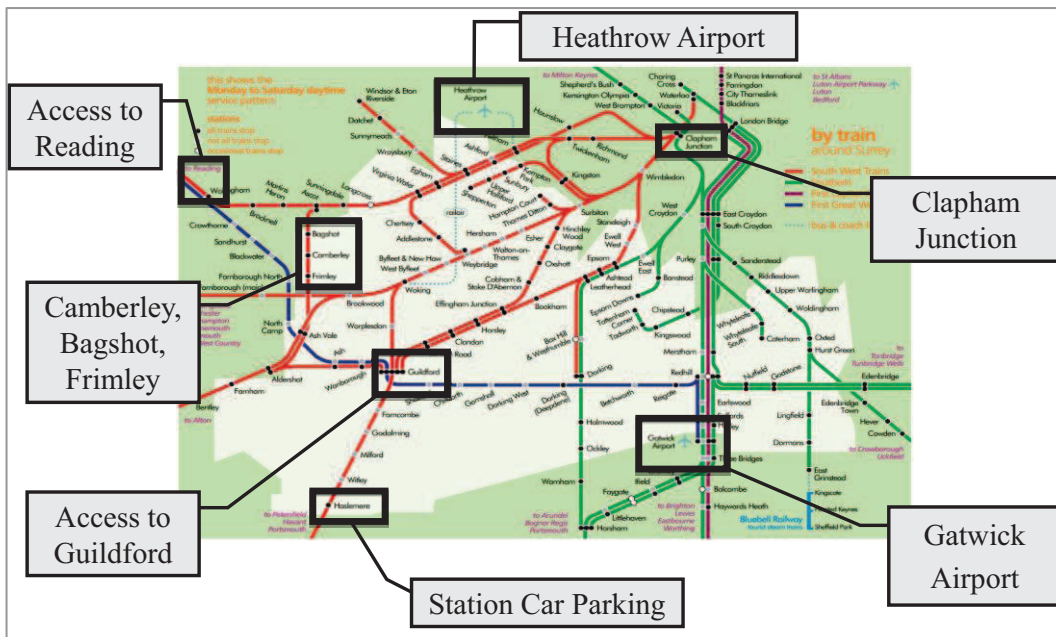
- Access between Guildford and Alton / Farnham to relieve congestion on the A3 and A31 roads.

**Station Access**

- Car parking availability and cost was a major issue in the stakeholder consultation. Whilst plans have been proposed to provide additional car park capacity (e.g. Haslemere), nothing is currently committed.
- There are station facility gaps on the network, where some stations do not have fully accessible stations or are staffed only part-time, or both.

The adequacy issues are illustrated in **Figure 14**.

**Figure 14: Adequacy Issues**



## 4 Options Identification and Assessment

Having identified the capacity and adequacy issues for rail in Surrey, it was then necessary to draw up a list of options for service or infrastructure improvements that could address the different issues. This took the form of a long-list of options obtained from a range of existing sources, such as previous rail studies, Network Rail Route Utilisation Strategies and stakeholder consultation. A number of options were original solutions proposed by Arup.

The options identification needed to take account of the committed schemes in the area. Committed schemes are generally those that are included in the Network Rail Strategic Business Plan for CP5 (2014-2019). These are subject to review by the Office of Rail Regulation (ORR) so could be subject to change. Final determination is expected in October 2013. The committed schemes are listed in **Table 4**.

**Table 4: Committed Schemes**

<b>Committed Scheme</b>
<b>South West Main Line</b>
Train lengthening
Further capacity improvement at London Waterloo (including possibility of 28 tph to Waterloo)
<b>Windsor Lines</b>
10-car train lengthening
<b>Brighton Main Line</b>
Thameslink Key Output 2
Uckfield 10-car lengthening and Caterham & Tattenham Corner 12-car lengthening
<b>North Downs Line</b>
Redhill platform 0 and additional 1 tph to Gatwick from Redhill
<b>Access to Airports</b>
Heathrow Western Connection to Reading

An assessment process was undertaken to arrive at a short-list of preferred options that would be recommended for inclusion in the Surrey Rail Strategy. The methodology used to assess the options is described in this chapter of the report. A full description of each of the options considered can be found in the Options Paper.

## 4.1 Long-list of Options

A total of 26 options were included in the long-list: 12 to address capacity issues (see section 4.1.1) and 15 to address adequacy issues (see section 4.1.2). Options were grouped according to geographical area and/or issue, e.g. 'South West Main Line' or 'Access to International Airports'.

### 4.1.1 Options to Address Capacity Issues

Area	Option
Network-Wide	C-NW-1 - Demand management interventions (e.g. smartcard technology).
South West Main Line	C-SWML-1 - Run all main line trains at maximum length.
	C-SWML-2 - Implement 12-car inner suburban operations.
	C-SWML-3 - Run double-deck trains on SWML outer services.
	C-SWML-4 - Run 16-car trains on SWML outer services into London Waterloo International.
	C-SWML-5 - Run 28 tph SWML outer (4 tph additional) with additional infrastructure at key pinch points (e.g. Woking Flyover).
	C-SWML-6 - Run 32 tph or more SWML outer with additional infrastructure at key pinch points and provision of five tracks between Hampton Court Junction and Clapham Junction.
	C-SWML-7 - Free up SWML main line capacity by running inner services into a variant Crossrail 2 route.
Windsor Lines	C-WL-1 - Run 18 tph at peak times on the Windsor Lines, including two additional trains an hour to Staines throughout the day.
	C-WL-2 - Implement 12-car Windsor Line operations.
Brighton Main Line	C-BML-1 - Provide additional route and platform capacity at East Croydon and grade separation at Windmill Bridge Junction, Stoats Nest Junction and Keymer Junction.
North Downs Line	C-NDL-1 - Train lengthening of some peak North Downs line services.

### 4.1.2 Options to Address Adequacy Issues

Topic	Option
Network-wide	A-NW-1 - Develop a standard service specification for minimum peak and off-peak frequencies (e.g. 4 tph / 2 tph) and minimum journey times to key urban centres (e.g. Guildford).
	A-NW-2 - Develop rail improvements schemes to support development in and around Surrey, e.g. Aldershot Urban Extension, Bordon, Cranleigh, using rail when supported by the Technology Choice Framework.
	A-NW-3 - Clapham Hub
Access to London	A-SWML-1 - Re-instatement of the Sturt Road Chord (or Interchange Station at Frimley).

Topic	Option
Access to Local Employment Centres (Guildford)	A-LECG-1 – 4 tph off peak Woking-Guildford with Worplesdon Park-and-Ride.
	A-LECG-2 – 2 tph Alton-Farnham-Guildford
	A-LECG-3 - New station at Park Barn, Guildford serving Royal Surrey Hospital and Surrey Research Park.
	A-LECG-4 - New station at Merrow, Guildford serving existing and potential new housing and commercial developments.
	A-LECG-5 - Re-opening of Guildford-Cranleigh Line
Access to Local Employment Centres (Reading)	A-LECR-1 - Electrification and Increased Frequencies on North Downs Line. Includes option to transfer line from Great Western franchise to South Western or Southern.
Access to International Airports (Heathrow)	A-AIAH-1 - Airtrack Lite and improved service frequency to Staines, e.g. Surrey Metro concept (and variants of this).
	A-AIAH-2 - High speed rail extension through Heathrow (from HS2) to Surrey and Gatwick Airport.
Station Access	A-SA-1 - Rail station parking improvement programme informed by data collection exercise on current usage and forecast growth.
	A-SA-2 - Station facility improvement programme focused on specific facilities wanted by passengers at different station types.

## 4.2 Option Assessment Methodology

Each option was assessed against three criteria: *Suitability*, *Feasibility*, and *Acceptability*. These terms are explained below:

### Suitability

- How does the option address SCC's objectives, does it support wider plans and strategies and is rail the most suitable mode?

### Feasibility

- Is the option deliverable and by whom, what are the key risks and obstacles, can funding be obtained?

### Acceptability

- Does the option have a good business case, does it have stakeholder support?

These criteria were expanded into a framework against which each option was scored (see **Table 5**). There are 9 separate sub-criteria under the categories of Suitability, Feasibility and Acceptability. For each sub-criterion options received a score of 0, 1 or 2. These scores were added together to generate an overall score. The timescale of the option was also noted: Short, Medium or Long.

**Table 5: Option scoring framework**

Criteria	Low (0 marks)	Medium (1 mark)	High (2 marks)
<b>Suitability</b>			
Alignment with objectives	not aligned with objectives	aligned with 1 objective	aligned with >1 objective
Supports wider plans/strategies	does not support wider plans/strategies	supports 1 wider plan/strategy	supports >1 wider plan/strategy
Suitability of rail	rail not the best mode option	rail one of a number of alternative mode options	rail clearly the best option
<b>Feasibility</b>			
Deliverability	option required entirely new infrastructure	option adds to existing services or infrastructure	option modifies existing services or infrastructure
Delivery organisation	SCC no role in delivery	SCC can support delivery by 3 <sup>rd</sup> party	SCC has influence over delivery
Risk	high risk/uncertainty associated with option	medium risk/uncertainty associated with option	low risk/uncertainty associated with option
Funding	no funding source identified	funding expected to be made available	funding available through conventional sources
<b>Acceptability</b>			
Business case	poor business case proven/expected	marginal business case proven/expected	positive business case proven/expected
Stakeholder support	not generally supported by stakeholders	support from stakeholders	strong support from multiple stakeholders
<b>Timescale</b>			
	Short 2013-2014	Medium 2014-2019	Long 2019 onwards

Each option in the long-list was scored according to this framework. On the basis of total scores, the options were placed in one of three categories: **Good Pass** (score > 12), **Pass** (score ≥ 6 ≤ 12) or **Fail** (score < 7). These are shown overleaf.

## Results of Option Scoring

Good Pass		Pass		Rejected	
Score		Score		Score	
16-M	C-SWML-1 Run all main line trains at maximum length	7-L	C-SWML-6 Run 32 tph or more SWML Outer services	6-L	C-SWML-3 Run double-deck trains on SWML outer services
13-L	C-SWML-2 Implement 12-car inner suburban operations	12-L	C-WL-1 Run 18 tph at peak times on the Windsor Lines, including two additional trains an hour to Staines throughout the day	6-L	C-SWML-4 Run 16-car trains on SWML Outer services into London Waterloo International
13-L	C-SWML-5 Run 28 tph SWML Outer services (4 tph additional) with additional infrastructure at key pinch points (e.g. Woking Flyover)	8-L	C-WL-2 Implement 12-car Windsor Line operations	6-M	A-LECG-1 4 tph off peak Woking-Guildford with Worplesdon Park-and-Ride
13-L	C-SWML-7 Free up SWML main line capacity by running inner services into a variant Crossrail 2 route.	12-L	A-SWML-1 Re-instatement of the Sturt Road Chord (connecting to SWML)	2-L	A-LECG-5 Reinstate Guildford – Cranleigh rail link
13-L	C-BML-1 Provide additional route and platform capacity at East Croydon and grade separation at Windmill Bridge Junction, Stoats Nest Junction and Keymer Junction	11-M	A-LECG-2 2 tph Alton-Farnham-Guildford	2-L	A-SWML-1 Interchange at Frimley to SWML
15-M	C-NDL-1 Train lengthening of some peak North Downs line services	11-M	A-LECG-3 New station at Park Barn, Guildford serving Royal Surrey Hospital and Surrey Research Park		
13-L	A-LECR-1 Electrification and increased frequencies on North Downs Line. Includes option to transfer line from Great Western franchise to South Western or Southern	12-M	A-LECG-4 New station at Merrow, Guildford serving existing and potential new housing and commercial developments		
15-S	A-SA-1 Rail station parking improvement programme informed by data collection exercise on current usage and forecast growth	8-L	A-AIAH-1 Airtrack Lite and improved service frequency to Staines, e.g. Surrey Metro concept (and variants of this)		
15-M	A-SA-2 Station facility improvement programme focused on specific facilities wanted by passengers at different station types	7-L	A-AIAH-2 Possible high speed rail extension through Heathrow (from HS2) to Surrey and Gatwick Airport		
		12-S	A-NW-1 Develop a standard service specification for minimum peak and off-peak frequencies (e.g. 4 tph / 2 tph) and minimum journey times to key urban centres (e.g. Guildford)		
		12-S	A-NW-2 Review rail improvements schemes to support development in and around Surrey, e.g. Aldershot Urban Extension, Bordon using rail when supported by Technology Choice Framework		
		11-M	A-NW-3 Clapham Junction Hub		
		11-M	C-NW-1 Demand management interventions		

## 4.3 Rejected Options

All options in the categories *Good Pass* and *Pass* were recommended for inclusion in the Surrey Rail Strategy. However, four options were rejected:

### Double-deck trains on SWML outer services

This option was rejected because it posed several significant problems that would be challenging to overcome, while providing capacity increases that could be delivered by other, simpler schemes. Upgrading the infrastructure to accommodate double-deck trains would raise several issues:

- Huge cost of a programme of gauge enhancement, requiring numerous bridge and tunnel reconstructions, accompanied by all the risks of such a mega-project;
- Extended period of disruption to services while works along the length of the SWML are carried out;
- The requirement for a separate double-deck sub-fleet would be a new operational constraint;
- Longer station dwell times for double-deck trains would limit their use to services with a relatively small number of station calls to avoid impacting route capacity, offsetting the benefits of additional train capacity; and

Double-deck trains are not recommended by Network Rail due to the anticipated high cost and failure to address the capacity gap (see NR London and South East RUS, 2011).

### 16-car trains on SWML outer services (to Waterloo International)

The main reason that this option was rejected was the cost and disruption associated with the construction of a new two-track flyover at Clapham Junction and major re-modelling of the track layout at Queenstown Road. These infrastructure changes would be necessary to allow 16-car trains on the SWML to transfer onto the tracks on the north side of the railway corridor that lead to the former Waterloo International terminal. Other concerns included:

- Requirement for increased junction margins for longer trains would add new operational constraints; and
- Loading and un-loading of such long trains would require longer station dwell times, impacting route capacity (as with double-deck trains).

### 4tph off peak Woking-Guildford with Worplesdon Park-and-Ride

This option was rejected to reflect stakeholder concerns over potential traffic congestion around the station and issues with the local SSSI<sup>1</sup> designation.

Operational issues were also raised by South West Trains, particularly that any additional stops would affect the pathing of services in the Woking to Waterloo corridor and lead to longer journey times such as between London and Guildford. Capacity is also limited on these trains by the time they reach Worplesdon.

<sup>1</sup> Site of Special Scientific Interest.



### **Reinstatement of the Guildford-Cranleigh railway line**

This option was rejected because of the lack of a viable business case. Previous detailed feasibility studies into the scheme carried out for Surrey County Council have concluded that patronage would be insufficient to justify the significant cost of rail line re-opening. There is no evidence to suggest that the fundamental drivers of demand have changed substantially since these studies were carried out in the 1990s.

It is suggested that improvements to bus services between Guildford and Cranleigh, and measures to address current traffic congestion are developed rather than a rail solution.

### **Interchange station at Frimley to the SWML**

This option was considered as a solution to improving journey times to London from Camberley, Bagshot and Frimley. An interchange station at Frimley could have enabled transfer to fast SWML services into Waterloo. However, the option was rejected because:

- Adding a station and the additional stops onto the SWML at Frimley would have a significant impact on existing users, as train journeys would be extended as a result;
- An interchange would be required between services from Camberley and Bagshot onto main line services to London. This may deter users from using this service, as it provides little advantage over the current arrangement (ie transfer from bus or car to rail at Farnborough or Brookwood);
- There is a preferred longer term solution running direct trains onto the SWML when additional capacity is released through Crossrail 2.

## **4.4 Recommended Options**

The options that passed the assessment and are taken forward to the rail strategy are listed below.

### **South West Main Line:**

- Run all main line trains at maximum length;
- Implement 12-car inner suburban operations;
- Run 28 tph SWML Outer services;
- Free up SWML main line capacity by running inner services into a variant Crossrail 2 route;
- Run 32 tph or more SWML Outer services; and
- Re-instatement of the Sturt Road Chord (connecting to SWML).

### **Windsor Lines:**

- Run 18 tph at peak times on the Windsor Lines, including two additional trains an hour to Staines throughout the day; and
- Implement 12-car Windsor Line operations.

**Brighton Main Line:**

- Provide additional route and platform capacity at East Croydon and grade separation at Windmill Bridge Junction, Stoats Nest Junction and Keymer Junction.

**North Downs Line:**

- Train lengthening of some peak North Downs line services.
- Electrification and Increased Frequencies on the North Downs Line.

**Access to Airports:**

- Airtrack Lite and improved service frequency to Staines, e.g. Surrey Metro concept (and variants of this); and
- Possible high speed rail extension through Heathrow (from HS2) to Surrey and Gatwick Airport.

**Access to Guildford:**

- 2 tph Alton-Farnham-Guildford;
- New station at Park Barn, Guildford serving Royal Surrey Hospital and Surrey Research Park; and
- New station at Merrow, Guildford serving existing and new housing development.

**Network Wide and Stations:**

- Develop a standard service specification for minimum peak and off-peak frequencies (e.g. 4 tph / 2 tph) and minimum journey times to key urban centres (e.g. Guildford);
- Review rail improvements schemes to support development in and around Surrey, e.g. Aldershot Urban Extension, Bordon using rail when supported by Technology Choice Framework;
- Clapham Junction Hub;
- Demand management interventions;
- Rail station parking improvement programme informed by data collection exercise on current usage and forecast growth; and
- Station facility improvement programme focused on specific facilities wanted by passengers at different station types.

## 5 Rail Strategy for Surrey

In this chapter, the strategies for each area/topic are presented. The strategies comprise the committed schemes and the preferred options (those achieving a pass or good pass in the assessment) for the short, medium or long term timescales.

**Committed schemes** are generally those that are included in the Network Rail Strategic Business Plan for CP5 (2014-2019). These are subject to review by the Office of Rail Regulation (ORR) so could be subject to change. Final determination is expected in October 2013.

**Options** included range from those that are already being developed by the rail industry and just need support and input from Surrey County Council and its partners, to those that are new ideas and are not yet proven, which need further development to determine if they are viable schemes. In all cases, Surrey County Council and partners should be convinced that there is a robust business case for any option before they give their full support and certainly before any funding is committed.

The main actions to deliver each option are also considered; to inform the action plan in the following chapter. These area/topic strategies combine to form the Surrey Rail Strategy.

The areas/topics covered are:

- South West Main Line;
- Windsor Lines;
- Brighton Main Line;
- North Downs Line;
- Access to airports;
- Access to Guildford; and
- Network wide and stations.

### 5.1 South West Main Line

This section covers the South West Main Line, but also has implications for the Windsor Lines, as it is not possible to completely separate the two areas, particularly at the Waterloo end of the lines. The Windsor Lines are covered more fully in the following section.

As demonstrated in the earlier chapters, the key issues for the SWML for Surrey are capacity-related. Network Rail forecasts that passenger usage on the SWML will grow by 24% by 2031 (about 1% per year). It is distinctly possible that growth could be above the Network Rail forecast, particularly in the short term, further exacerbating crowding levels.

There is limited scope for major capacity improvements on the SWML in the short term, as main line trains (the most crowded) are generally already operating at full length, and limitations on network capacity mean that no additional timetable slots can be found on the route for extra trains, regardless of capacity at

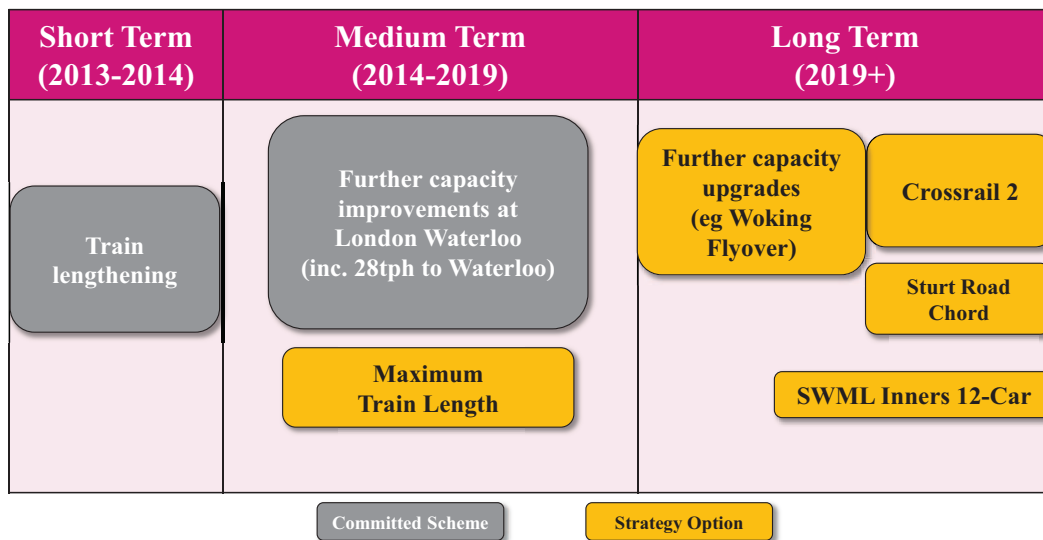
London Waterloo. By 2031, a capacity shortfall on the SWML of 4900 passengers is forecast. This means that services would be operating at 137% of capacity in the busiest peak hour.

Major interventions are needed on the SWML to address the capacity issues both in the short and long term.

In terms of adequacy, whilst peak hour train frequencies to London are good from the main centres in Surrey (such as Guildford, Woking and Epsom), many stations have a lower frequency service. These stations include Camberley, Bagshot, and Frimley, which have journey times in excess of one hour to London due to their location off the Main Line. There are no committed schemes to address this adequacy issue.

The strategy for the South West Main Line is shown in **Figure 15**, which includes committed schemes and preferred options for the short, medium and long term timescales.

**Figure 15: South West Main Line Strategy**



### 5.1.1 Committed Schemes

There are two committed schemes for the South West Main Line:

- Train lengthening; and
- Further capacity improvements at London Waterloo station.

In December 2011, the Government announced funding for South West Trains to lease 60 extra carriages to lengthen trains on services running into London Waterloo station. In May 2012, the Government announced additional funding for 48 extra carriages, making a total of 108 extra carriages to be implemented between May 2013 and December 2014.

The additional stock will be used on services from Guildford, Aldershot, Portsmouth, Alton, Basingstoke, and suburban services, so they will benefit a range of routes. The additional carriages will facilitate an internal rolling stock

cascade which will allow an extra 40 carriages in the morning and 37 carriages in the evening, providing around 8,000 extra peak-time seats into Waterloo every morning. Platform 20 at the former Waterloo International Terminal will come back into use from 2014 as part of the train lengthening scheme.

In the Government's High Level Output Specification (HLOS) 2012, the Secretary of State recognised that major works are likely to be required at London Waterloo and made provision for this. In Network Rail's Strategic Business Plan (Wessex Route) it states that a 'London Waterloo increased capacity and future capability project' was a late addition to the HLOS and the development is therefore not captured within the plan as the scope of the scheme is not yet fully investigated. However, in recent discussions with Network Rail since publication of the Strategic Business Plan, it has indicated that the following schemes are being considered under this project:

- Enabling work – congestion assessment;
- Windsor Lines 20 tph – using the new rolling stock and the re-opened platform 20 at Waterloo International to run additional trains;
- Suburban 10-car – includes works on platforms 1-4 at Waterloo;
- Main Line 28 tph – includes a timetabling solution, power upgrades and renewals work.

These schemes are not confirmed or fully developed at the time of writing, but they are Network Rail's preferred plan for CP5. The Main Line 28 tph scheme is particularly important, as it provides additional capacity on the SWML, by introducing an additional 4 tph in the high peak into London Waterloo, increasing the peak service from 24 tph to 28 tph on the existing fast lines from Surbiton inwards. Network Rail has stressed that the operation of additional trains is subject to the necessary rolling stock being available and the proving of traffic management technology that supports the extra capacity.

The incremental increases identified above are not all mutually exclusive. For example, if a move from 24 to 28 trains per hour happens in CP5 on the Main Lines, this will impact the number of additional paths a longer term intervention will free up without further additional works being required – most likely between Surbiton and the Woking area but possibly beyond.

The exact output of the committed schemes is still unclear, however it is expected that additional capacity will be provided on the SWML in the short-medium term, although this will not completely solve the capacity gap. It is distinctly possible that growth could be above the Network Rail forecast, particularly in the short term, further exacerbating crowding levels.

A number of stakeholders asked why more use could not be made of the disused former International Platforms at London Waterloo. Whilst there are plans, as described above, to make some use of these platforms for the Windsor Lines, to be used for any other service group, for example the Main Line Outer services, a flyover would be required to enable trains to cross over to the International terminal. Also, the route is capacity constrained inwards from at least Surbiton, not just at Waterloo station, so major infrastructure works would be required to

allow a significant number of trains to take advantage of the platforms. Therefore a major infrastructure scheme would actually be required to enable full use of the International station.

The following sections present the recommended options for the SWML strategy, which introduce progressive addition of further capacity in the longer term to address the gap, and the use of this additional capacity to address the adequacy issue at Camberley.

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### 5.1.2 Maximum Train Length

This option provides additional capacity on the SWML through the lengthening of further peak outer suburban trains into London Waterloo to the maximum number of carriages (10- or 12-car), where this is readily achievable without major infrastructure changes. This applies to semi-fast suburban services from Guildford via Cobham and longer distance services from Salisbury on the West of England Main Line.

No further lengthening is possible, as Main Line trains are generally already full length and no additional timetable slots can be found on the route for extra trains, regardless of capacity at London Waterloo.

This option is above and beyond the committed scheme for train lengthening, so would require new funding for an estimated 40 5-car units<sup>2</sup>.

Given the existing committed programme of train lengthening to December 2014, it is expected that this option would be implemented in the next South Western franchise, so after 2017.

Surrey County Council and partners should lobby the DfT and South West Trains to provide the funding and implement this option before the end of the current franchise.

### 5.1.3 Further Capacity Upgrades

Assuming the delivery of the 28 tph to Waterloo option in CP5 (i.e. by 2019) by Network Rail, this leaves a period between this and the implementation of Crossrail 2 or any alternative long term Main Line solution in the late 2020s / early 2030s where demand will continue to grow. Further capacity upgrades will be needed in CP6.

This option provides this further capacity upgrade, but it does not fully address the capacity gap on SWML services identified by Network Rail. It would, however, provide a significant interim step towards addressing the capacity gap.

The following infrastructure improvements are included in this option:

- Grade separation at Woking Junction<sup>3</sup>, also known as Woking Flyover;

<sup>2</sup> Based on informal discussion with South West Trains in March 2013.

<sup>3</sup> Currently the South West Main Line and the Portsmouth Direct Line join together to the south-west of Woking Station at a flat junction. This means that trains towards London from Portsmouth have to cross the path of trains from London towards Weymouth, thus taking capacity out of the system. The Woking Flyover would put the Portsmouth Direct Line on a flyover bridge over the

- Remodelling of throat and approaches at London Waterloo;
- Introduction of enhanced signalling technology to allow trains to operate closer together;
- Remodelling at Queenstown Road and re-introduction of Platform 1;
- Infrastructure improvements to allow further services at Basingstoke.

On their own, the infrastructure schemes listed above do not release significant new capacity. But combined with other schemes and signalling upgrades they enable additional services to be introduced without conflict thus increasing overall capacity. For example, the Woking Flyover could be built tomorrow, but this would not enable significant additional trains to be operated, due to capacity constraints between Woking and Waterloo (particularly on the approaches to Waterloo Station). However, as part of a package of schemes, it enables incremental capacity enhancements to be introduced along the Main Line between Woking and Waterloo.

The exact composition of this option needs to be determined once the Network Rail plans for CP5 are confirmed. However, the option is included in the strategy to ensure that additional capacity improvements can be made in advance of Crossrail 2. It is important to note that any improvements between Clapham Junction and Waterloo would also benefit the Windsor Lines services that run on this section of track.

The option should be developed and delivered in the long term through Network Rail's CP6, i.e. April 2019 to March 2024.

Once defined, Surrey County Council and partners should lobby the DfT to include this option in the next HLOS so the option becomes a requirement for CP6.

### 5.1.4 Crossrail 2

Crossrail 2 potentially provides for a significant capacity increase on the SWML which would address a significant proportion of the forecast capacity gap. Depending on its final configuration, it could deliver wider benefits in terms of journey opportunities between some parts of Surrey and London, access to employment sites, connections to Crossrail 1 and the high speed rail network (HS1 & 2), and it develops Wimbledon and Clapham Junction as key interchange stations. With a favourable configuration, the scheme could meet multiple objectives for Surrey, particularly in terms of global competitiveness and employment growth.

The scheme effectively creates a five/six-track SWML from Raynes Park/Surbiton inwards. Connections off the slow lines of the SWML would run in tunnel towards central London, bypassing Waterloo. The new lines would continue in a north-easterly direction across the city, serving stations such as Clapham Junction, Victoria, Tottenham Court Road (connection with Crossrail 1), Euston St Pancras (connections with HS1&2) and joining the West Anglia line in

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South West Main Line, enabling trains to cross the Main Line without conflicting with trains in the opposite direction.

the Tottenham area. This would potentially enable, for example, travel from Woking to Tottenham Court Road with one interchange at Wimbledon<sup>4</sup>.

To maximise the benefits from Crossrail 2, a wider package of complementary measures, including an additional track(s) between Wimbledon and Surbiton, would also be required. Incremental measures to release additional capacity on the Main Line will also be required to enable the scheme to achieve its full potential, such as Woking Flyover and potentially other works in areas outwards of Surbiton and Woking.

Crossrail 2 would release capacity between Wimbledon and Waterloo but, as indicated above, to maximise use of this additional capacity would require other works outwards of Wimbledon to be realised. The provision of an additional cross-London rail corridor will also relieve pressure on Waterloo; the Underground, particularly the Piccadilly, Victoria and Northern lines; and it is expected to reduce overcrowding experienced by Surrey commuters interchanging at Vauxhall and Waterloo stations.

The wider benefits, particularly the new journey opportunities and connections it brings to central London, make Crossrail 2 preferable to the 32 tph (five tracks from Hampton Court to Clapham Junction) scheme option described in Network Rail's LSE RUS. It is possible that variants of both options could be taken forward as they are potentially complementary, depending on the configuration of Crossrail 2. Network Rail's Wessex Route Study, due as part of the Long Term Planning Process will further examine both these long term options.

There are 'metropolitan' and 'regional' Crossrail 2 options currently under consideration. The regional option includes suburban and regional services in Surrey and is shown in **Figure 16**.

The regional scheme is preferred for Surrey because TfL's Development Study on Crossrail 2 concluded that it 'clearly offers more development benefits both to London and areas to the south west, including major towns in Surrey and Hampshire.'<sup>5</sup> The metropolitan scheme does not have these wider benefits and is not preferred generally by local authority stakeholders.

It should be noted that both the Metro and Regional options are in the very early stages of development and scope and outputs are not fixed, and the Crossrail 2 consultation text does not reference specific train path outputs for the Main Line. There are several trade-offs to be assessed when considering the level of Main Line capacity that might be released in the inner area. One of these trade-offs is with the level of residual service that would operate from the inner suburban area into Waterloo. There are also trade-offs with the outer suburban timetable. Engineering feasibility is also at a very early stage and will have a significant part to play in defining the preferred train service pattern for Crossrail 2.

<sup>4</sup> It is possible that Crossrail 2 trains could run directly to Woking or beyond without the need for an interchange at Wimbledon, but this is not currently indicated as an option by TfL and may not necessarily be any quicker, if the train stops at a number of destinations in between. The service pattern for Crossrail 2 trains will not be confirmed for a long time, certainly not before the infrastructure element of the scheme is further developed and funded.

<sup>5</sup> 'Crossrail 2 – Update to Local Authority Forum', TfL, 12 February 2013.



**Figure 16: Crossrail 2 Regional Option Indicative Routes**

Crossrail 2 is not yet funded, however its profile is increasing following a recent report by London First promoting the scheme<sup>6</sup> and the consultation on options held in mid-2013 by TfL. The cost is estimated in the region of £12-20bn (by TfL). In the Government's Comprehensive Spending Review (June 2013) £2m was announced to study the case for the project.

This is a long term option. The current target for implementation of Crossrail 2 is the early 2030s, but there are calls for accelerated implementation to deliver the scheme by 2026, to coincide with the opening of HS2 Phase 1. The scheme would most likely be implemented through a separate delivery vehicle, along the lines of Crossrail 1, so it is not tied to Network Rail Control Periods.

As this is one of the only options that potentially addresses the capacity gap on the SWML, and delivers many wider benefits for Surrey in addition, Surrey County Council and partners should lobby very hard for further development of the regional Crossrail 2 scheme. The lobbying should consider capacity requirements for Surrey that need to be included in the specification, such as 12-car train operation. This should be done by engaging in the TfL consultation exercise starting in April 2013 and also through proactively lobbying of DfT, TfL, and Network Rail to secure a place on any committees or boards established to develop the scheme.

It is important to note that this lobbying should focus on securing the Regional scheme with a range of service options (eg regardless of whether the trains run directly into Surrey), and securing funding for intermediate measures to enable Crossrail 2 to achieve its full potential (eg Woking Flyover).

<sup>6</sup> 'Crossrail 2: Supporting London's Growth' (London First, February 2013).

Once the scheme is secured, further discussions and lobbying can be undertaken to obtain the preferred train service pattern for Surrey (eg services direct to Woking – if proven beneficial). A good reference example is the current Crossrail 1 scheme, which is currently under construction but there are still ongoing discussions and refinements to the planned train service pattern. The important focus for Crossrail 2 is to secure the Regional scheme; the exact service pattern can be determined in the longer term.

### 5.1.5 Sturt Road Chord

This option addresses the adequacy issue of poor connections to London from the town of Camberley. It provides a direct link between Camberley (including Bagshot and Frimley) to the SWML towards London. It involves re-instatement of the Sturt Road Chord which links the north-south Ascot to Ash Vale line with the South West Main Line to Woking and London, as shown in **Figure 17**. The trackbed embankment at the junction still exists and the site has not been redeveloped since its closure in 1964. For Down services (away from London) a grade-separated flyover (or tunnel) is required.

There is no funding currently allocated to this option. Costs are estimated in the region of £75m.

This is a long term scheme, because major infrastructure works are required and additional services can only be incorporated on the SWML when Crossrail 2 or an alternative long term solution has been implemented, which releases the additional capacity on the inner area of the SWML to enable this service to be operated. Indeed, even if a long term solution is implemented, the business case for providing services on this link would need to be evaluated against providing additional services on the Main Line to destinations such as Basingstoke or Haslemere.

Unfortunately there is no short term rail solution to this issue, as there is no spare capacity on the SWML to accommodate additional services to London even if the chord could be constructed tomorrow. For example, running a shuttle or joining or splitting trains from Camberley at Brookwood or Woking would take additional capacity on the Main Line from Outer Suburban services and is therefore not recommended. And running trains via Ascot to Weybridge via Virginia Water would not improve journey times and would either require an interchange at Weybridge or running onto the Main Line to Waterloo, which is not possible due to existing capacity constraints on the SWML.

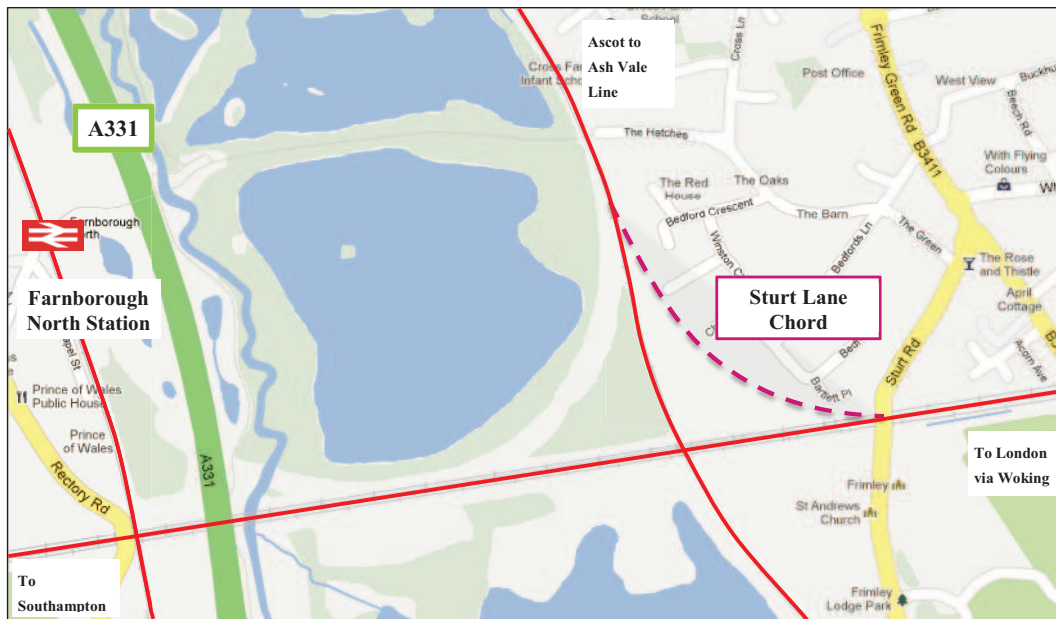
Surrey County Council and partners should lobby the DfT to include the Sturt Road Chord option in the next HLOS so it becomes a requirement for CP6 (or 7, depending on the timing of Crossrail 2), although it should be planned to be delivered after a longer term capacity option. Engagement with TfL is also important to ensure that Crossrail 2 is developed to enable this option.

In the short-medium term, Surrey County Council and partners should explore ways to reduce journey times by rail from Camberley to London. This is very difficult via Ascot, because running faster services from Ascot is constrained by the two track railway towards London and high numbers of trains in this area. However, there may be opportunities via Ash Vale, if connection times could be

improved<sup>7</sup>, and this may be possible if the timetable in the area is significantly revised to accommodate direct trains between Alton and Guildford as recommended in this strategy, although impacts on other connections on the Ascot to Aldershot line will need to be considered and, if necessary, balanced against these improvements.

If none of the above rail solutions come to fruition, we would recommend further improvements to the bus services between Camberley, Frimley and Bagshot and key stations on the SWML to address this adequacy issue.

**Figure 17: Sturt Road Chord**



### 5.1.6 Lengthening of Inner Suburban Services to 12-Car

This option provides additional capacity on the SWML Inner Suburban services over and above the current committed 10-car lengthening in CP4. It applies to stopping services between Waterloo and Hounslow, Weybridge via Chertsey, Shepperton, Hampton Court, Chessington and Epsom.

This option is not yet funded and is only required if actual demand levels on Inner Suburban services grow beyond that forecast by Network Rail. Therefore, although it is a preferred option in the Strategy, it is only recommended if required by higher than forecast demand growth.

The option is only likely to be required in the long term, as the committed 10-car lengthening scheme should provide sufficient capacity until around 2030.

Surrey County Council and partners, in conjunction with Network Rail and the Train Operating Company on the South Western franchise, should monitor demand growth on the Inner Suburban services to identify if and when this option is required.

<sup>7</sup> If the interchange at Ash Vale could be reduced to less than 10 minutes, this could save about 10 minutes on the journey from Camberley to London.

### 5.1.7 South West Main Line Strategy

There is a clear strategy to address the capacity and adequacy gaps on the SWML. It is summarised as:

- Supporting the committed schemes to lengthen trains in the short term and deliver improvements at London Waterloo;
- Working closely with Network Rail to develop incremental improvements to train frequency and length in the medium term, including the 28 tph scheme;
- Lobbying for additional lengthening of remaining trains in the medium term so all trains are operating at maximum length;
- Identification of requirements for further capacity upgrades and enabling schemes, including Woking Flyover, in CP6 before the implementation of a long term capacity solution to relieve the inner area of the SWML, such as Crossrail 2;
- Strong support for further development of the Crossrail 2 regional scheme, and proactive lobbying to include Surrey County Council in the development of the scheme;
- Promotion of the Sturt Road Chord option in the next HLOS, linked to additional capacity released by other options, so it can be delivered later in CP6;
- Exploration of short-medium term options to reduce journey times between Camberley and London via Ash Vale, linked to Alton-Guildford option;
- Monitoring of actual demand growth on Inner Suburban services to determine the requirement for additional lengthening to 12-car in the future.

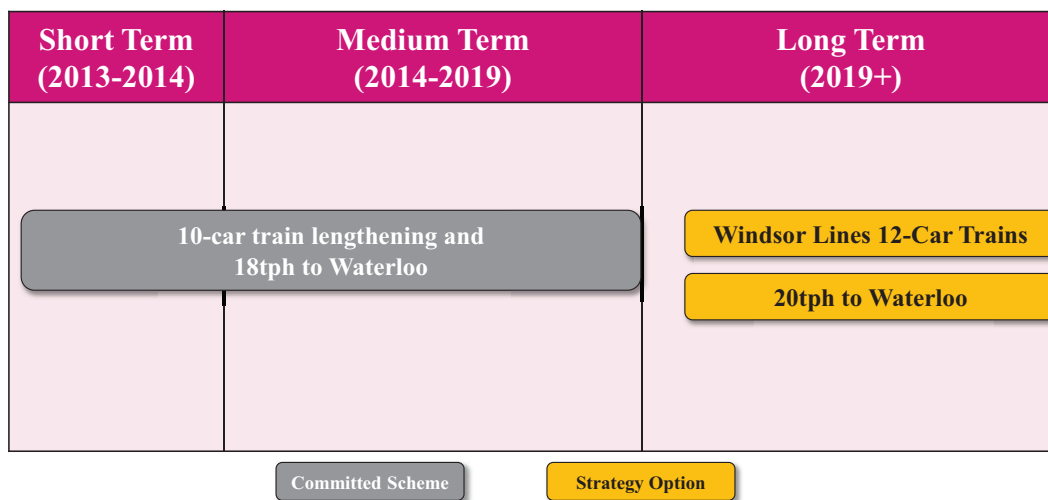
## 5.2 Windsor Lines

This section covers the Windsor Lines, although it overlaps to some extent with the previous section on the SWML, as it is not possible to completely separate the two areas, particularly at the Waterloo end of the lines.

There are no major capacity issues on the Windsor Lines for Surrey. No capacity shortfall on the Windsor Lines is forecast by 2031, and services are forecast to operate at 89% of capacity, just slightly worse than current. Further interventions may be needed if growth is higher than forecast.

No significant adequacy issues on the Windsor Lines were identified in the Issues Paper, although the issue of level crossing impacts on traffic was mentioned extensively in the consultation, with its associated impacts on traffic congestion and air quality. The strategy for the Windsor Lines is shown in **Figure 18**.

**Figure 18: Windsor Lines Strategy**



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### 5.2.1 Committed Schemes

In the short –medium term, there will be significant schemes undertaken to increase capacity on the Windsor Lines.

In CP4 (to March 2014) a programme of enhancement projects is underway to deliver 10-car operation on the Windsor Lines and enable five additional Reading 8-car services per day. This includes the re-introduction of platform 20 at Waterloo International Station. A number of stations will have their platforms lengthened.

In CP5 (2014-2019) works will be undertaken to enable 10-car trains to operate between Reading and London Waterloo, and will include the lengthening of some platforms and the associated power supply upgrades to facilitate the use of lengthened trains. Where platform extensions are not feasible Selective Door Operation (SDO) will be operated.

Additionally, under the CP5 ‘London Waterloo increased capacity and future capability project’ mentioned in the previous section, it is likely that a scheme will be implemented to enable 20 tph on the Windsor Lines through the use of Waterloo International platform 20.

These committed schemes will provide significant additional capacity on the Windsor Lines in the short-medium term, and should solve the capacity gap.

Level crossings on the Windsor Lines reportedly have a major impact on traffic congestion in Surrey, particularly in Runnymede Borough. Ongoing improvements are planned by Network Rail to upgrade and in some cases remove level crossings. It is recommended that Surrey County Council continues to work with Network Rail on the issue of level crossing down-time along the Windsor Lines.

The following section presents the strategy for the Windsor Lines, which provides options for further capacity if demand increases above the forecast.

### 5.2.2 18tph at Peak Periods

This option would provide additional peak capacity on the Windsor Lines if additional demand growth above that forecast in the LSE RUS was experienced. It involves increasing peak service frequency from 15tph to 18tph on the Windsor Lines. It does not provide any additional services in the off-peak.

This option will become operationally viable once the platforms at Waterloo International are re-commissioned. No further infrastructure requirements would be necessary.

Surrey County Council, Network Rail and all key stakeholders should monitor demand growth and crowding levels on Windsor Lines services to determine when this scheme may be required.

### 5.2.3 12-Car Trains

This option could provide an additional 20% capacity on the Windsor Lines, which could accommodate further demand growth beyond the committed 10-car lengthening scheme, if it was above that forecast by Network Rail (it is distinctly possible that growth could be above the Network Rail forecast, particularly in the short term, further exacerbating crowding levels).

This is a long-term option that only needs to be considered in a high growth scenario.

Surrey County Council, Network Rail and all key stakeholders should monitor demand growth and crowding levels on Windsor Lines services to determine when this scheme may be required.

### 5.2.4 Windsor Lines Strategy

There is a clear strategy to address the capacity and adequacy gaps on the Windsor Lines. It is summarised as:

- Continue to work with Network Rail on level crossing issues along the Windsor Lines;
- Supporting the committed schemes to deliver 10-car operation and additional services in the short-medium term;
- Monitoring of demand growth on Windsor Line services to determine the requirement for 18tph and/or additional lengthening to 12-car trains in the future.

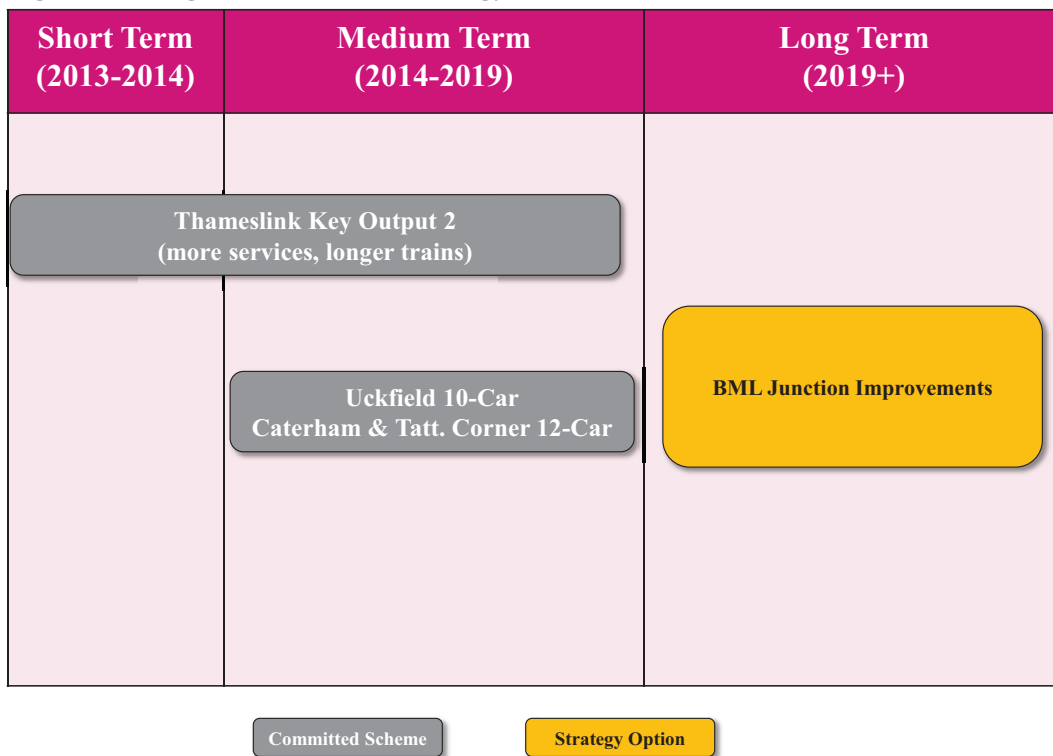
### 5.3 Brighton Main Line

Network Rail forecasts that passenger usage on the Brighton Main Line (BML) will grow by 37% by 2031. Additional capacity on the BML is committed through the Thameslink Programme, which will deliver train lengthening and some increased frequency services in CP4 and CP5.

With these capacity improvements, the BML should operate at 87% capacity by 2031. No significant adequacy issues on the Brighton Main Line were identified in the Issues Paper.

The strategy for the Brighton Main Line is shown in **Figure 19**.

**Figure 19: Brighton Main Line Strategy**



#### 5.3.1 Committed Schemes

There is significant investment in the Brighton Main Line already committed.

The Thameslink Programme is a major upgrade of the rail network through the core Thameslink route, between St Pancras International low level and London Blackfriars via Farringdon, which enables additional trains to be operated and more destinations to be served. There are three stages to the Programme:

- Key Output 0 (delivered in 2009) allowed for services through to Kent;
- Key Output 1 (delivered in 2011) allowed for enhanced capacity and new stations at Farringdon and Blackfriars;
- Key Output 2 (currently planned for delivery in 2018) will allow for more services, longer trains and more destinations.

Key Output 2 specifically includes remodelling of the London Bridge station and the eastern and western approaches, including grade separation at Bermondsey and connections to the new viaduct at Borough Market. Additional trains will operate into the new London Blackfriars bay platforms and capacity will be freed up over Herne Hill Junction by rerouting Brighton Main Line trains via London Bridge which will enable additional local services.

The phased introduction of the Key Output 2 timetable in December 2018 will enable four 12-car trains per hour between Brighton and Bedford throughout the peak via London Bridge, and all services between Horsham/ East Grinstead/ Three Bridges/ Caterham/ Tattenham and London Bridge will be extended through the Thameslink core.<sup>8</sup> This will have significant benefits for East Surrey.

Also on the Brighton Main Line, there is a short term scheme at Gatwick Airport for track layout and additional Platform 7. This scheme reduces the number of conflicting moves between the fast and slow lines and provides additional platform capacity on the fast line side of the station. It will also provide sufficient platform capacity on the slow line side for a future second Gatwick Airport to Reading service in CP5 – see the North Downs Line section for details.

In addition to the Thameslink Programme, in the medium term there are plans for strengthening of peak Uckfield line services to 8-car, and possibly 10-car in the longer term, with platform lengthening on the Uckfield branch for 10-car operation. This provides additional capacity for stations in Surrey on the Uckfield line, such as Hurst Green in Tandridge District. Our understanding, based on Network Rail and ORR Strategic Business Plan reports, is that this would not involve electrification of the line, although it is not clear from the reports where the additional diesel rolling stock required for 10-car operation would come from.

Committed improvements at Redhill station are dealt with separately under the North Downs Line section.

These committed schemes will provide significant additional capacity and new journey opportunities on the Brighton Main Line in the medium-long term. The Thameslink Key Output 2 improvements will also bring very significant challenges to the BML during its construction, which should be a concern for Surrey County Council and partners during the medium term. This is identified as an action in the strategy.

In the long term, the main infrastructure constraint to further growth on the BML is a combination of the series of flat junctions along the route, the existence of a single up and a single down fast line all the way between East Croydon and Battersea Park, and the number and current utilisation of fast line platforms at London Victoria.

<sup>8</sup> ‘Consultation on the combined Thameslink, Southern and Great Northern franchise’ (DfT, May 2012), ‘Sussex Summary Route Plan’ (Network Rail, January 2013).



The following section presents the recommended option for the BML strategy, which provides further improvements in the longer term to address the remaining capacity gap after the Thameslink improvements.

### 5.3.2 BML Junction Improvements

This long term option removes constraints on the BML and enables the provision of additional capacity to address the forecast capacity gap. It will involve some or all of:

- full grade separation of Windmill Bridge Junction to remove conflicts between London Bridge and Victoria services;
- re-modelling (additional platforms) at East Croydon station to permit the pairing of fast lines by direction either side of an island platform;
- adjustment of track geometry at Stoats Nest Junction, where the fast Quarry Lines rejoin the slow lines north of Redhill, to increase junction throughput;
- grade-separation of Keymer Junction, where the Lewes line joins the Brighton Main Line just south of Wivelsfield.

These schemes combined will provide additional capacity on the BML in the long term.

Further improvements are likely to be required to make use of the extra capacity required; for example extra platform capacity could be required at Victoria and/or London Bridge to allow more frequent trains to operate. It is therefore important that an overall strategy is developed by the rail industry for the Brighton Main Line to ensure that the most efficient way of delivering capacity improvements is identified with the right balance of infrastructure enhancements across the route.

There is no funding currently allocated for this option; however the development of options is being considered for a possible CP6 scheme by Network Rail.

This is a long term scheme, because major infrastructure works are required, and would be expected to be implemented after the Thameslink programme is complete.

Surrey County Council and partners should work with Network Rail to develop the option and lobby the DfT to include this in the next HLOS so it becomes a requirement for CP6, although it should be planned to be delivered after the Thameslink programme is complete. This would include discussions on the extent to which the additional capacity would be used to improve performance on the BML as opposed to allowing significant further trains to operate.

### 5.3.3 Mole Valley Line

The Mole Valley Line refers to the line between Epsom and Horsham via Dorking. No options have been developed for the Mole Valley Line in this strategy. The analysis of issues did not identify any major capacity or adequacy issues in this area. Service frequencies to London range from 2tph south of Dorking up to 12tph from Epsom. Journey times to London range from 32 mins from Epsom to 66 mins from Ockley.

Improvements to this line are not considered a priority for Surrey County Council, particularly with the very low and dispersed population south of Dorking. There is potential for improvements through the North Downs Line option, which could improve interchange between the lines, for example to improve access to Guildford, Redhill and Gatwick. Any other proposals for upgrades by third parties should be considered on a value for money basis against Rail Strategy objectives.

### 5.3.4 Brighton Main Line Strategy

There is a clear strategy to address the capacity and adequacy gaps on the BML. It is summarised as:

- Supporting the committed schemes to provide additional capacity through the Thameslink programme, particularly the delivery of Key Output 2, and lengthening on the Uckfield line in the medium term;
- Monitoring the construction impacts of Key Output 2 and working with rail industry partners to ensure that the impacts on Surrey are not unreasonable;
- Working with Network Rail to develop the BML junction improvements and lobbying the DfT to include this in the next HLOS, so it becomes a requirement for CP6 to help address the remaining capacity gap.

The Brighton Main Line stations in Surrey will also benefit from improvements to interchange at Clapham Junction, covered below under the Network-Wide and Stations category. The presence of only a single Up and Down fast platform at Clapham Junction is a major constraint to capacity on the BML and will have to be resolved for more than a small amount of extra capacity to be released.

## 5.4 North Downs Line

No data is available for crowding on the North Downs Line (NDL), but evidence from stakeholders indicates that services are crowded between Guildford and Reading in the morning peak hour.

Passenger demand is expected to increase in future, with significant employment growth forecast in Reading, Guildford and Gatwick, all key destinations along the line. In Reading in particular, there are a number of proposed developments all very close to the rail station, as well as major expansion of the railway station itself. Employment expected to grow in excess of 15% by 2031.

Capacity improvements could be needed in the medium-long term, particularly in the morning peak between Guildford and Reading.

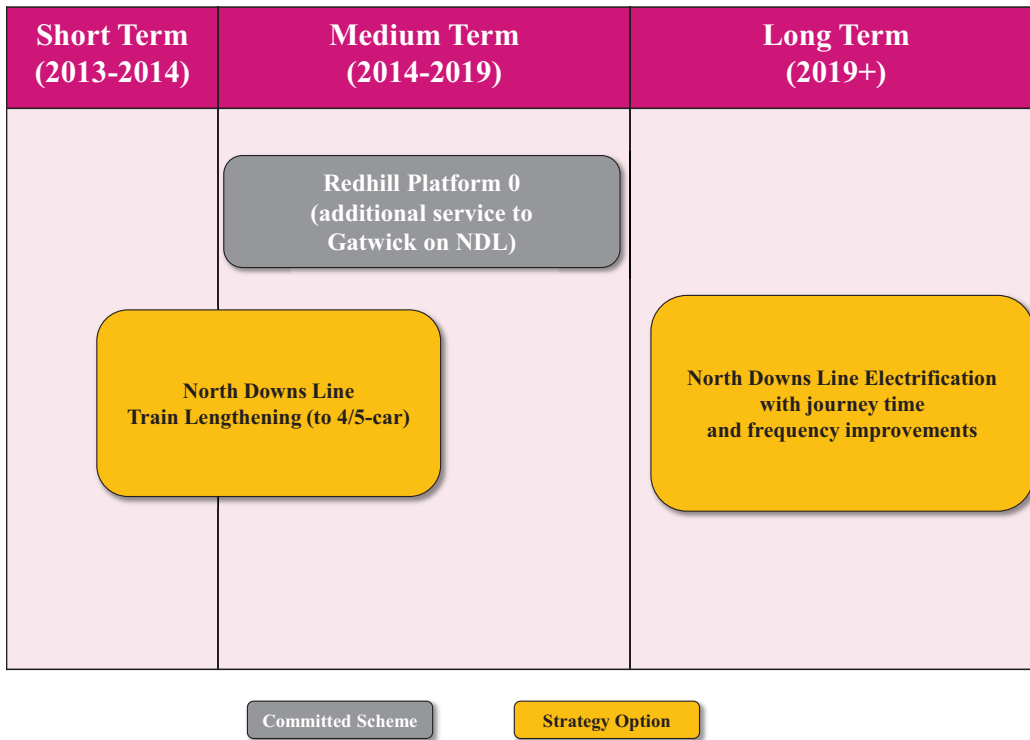
In terms of adequacy, Reading and Guildford are important employment centres for working residents of Surrey. Improvements in access to these centres will also improve services for many intermediate towns in Surrey, particularly in the Blackwater Valley, which will accommodate the growth from the Aldershot urban extension, and in the east of the County in Dorking and Redhill.

For direct rail access from Surrey to Reading frequencies are generally below 4 tph and journey times in excess of 30 minutes (e.g. 45 minutes from Guildford). With faster and more frequent services rail services could be much more competitive with road and more attractive to potential users.

In the stakeholder consultation for this study, a number of people expressed the view that the NDL is not a logical part of the Great Western franchise, and moving it into another franchise should be considered.

There are no committed schemes to address these issues.

**Figure 20: North Downs Line Strategy**



### 5.4.1 Committed Scheme

The High Level Output Specification, published in July 2012, gave approval for some key enhancements on Network Rail’s Sussex Route, including an additional platform at Redhill (platform 0). This provides a capacity improvement and enables the extension of a second Reading train in most hours from Redhill to Gatwick Airport. This scheme will be implemented in the medium term, in CP5.

In the short-medium term, the Reading station area redevelopment will deliver significant additional capacity at the station which could benefit the NDL in future.

There are no other committed schemes that affect the NDL.

### 5.4.2 Train Lengthening

This option addresses the crowding issues on the NDL by lengthening the existing 2- or 3-car diesel multiple unit trains to 4- or 5-car trains, on services between Reading and Redhill/Gatwick along the NDL. Lengthening would be carried out only on selected busy services.

This option should also include a recast of the timetable to ensure that the additional platform at Redhill is used to optimise journey times and stopping patterns along the line and that lengthened trains are deployed on the busiest services.

There is no funding currently allocated for this option. It is expected that additional rolling stock to enable train lengthening would be funded by the DfT through the franchising process.

This is a medium term scheme, which would be targeted for delivery during the next Great Western franchise period. The next franchise was due to start in 2013, but has been delayed due to the current review of franchising at the DfT.

Surrey County Council and partners should lobby the DfT to include this option in the next Great Western franchise specification so it becomes a requirement for the train operating company.

### 5.4.3 Major Improvement Project

This option provides for adequacy improvements on the NDJ through a major upgrade to services and stations. Improvements might include:

- Running two semi-fast services per hour from Gatwick to Reading, as well as a two hourly all stations Redhill to Guildford stopping service;
- Station upgrades and improvements;
- Rolling stock upgrade and improvement.

This option could also include electrification of the NDJ between Reigate and Guildford, and Ash and Wokingham. This would provide for improved connectivity for stations served by the NDJ to central London, Gatwick and Reading.

Electrification of the track provides greater rolling stock flexibility and improved integration with the rest of the network. It also enables faster operating speeds for existing services which would decrease journey times and improve the attractiveness of the line.

Electrification of the line could allow for current Southern and South Western electric services to extend to the North Downs Line. For example the existing London Bridge to Reigate service could be extended to Guildford providing a direct service for stations served by this line to central London, or South West Trains could provide an hourly all station service from Reading to Guildford. Also, services on the Mole Valley Line could be integrated with the NDJ, or at least improvements made to interchange between the lines at Dorking.

These improvements could stimulate the development of improvements around Redhill to better facilitate services to Gatwick and to/from Kent, for example a flyover to enable direct running to Gatwick from the NDJ or a chord to enable direct running from Tonbridge into Gatwick.

The service improvements could be packaged with station and rolling stock upgrades, with strong marketing of the improved NDJ to provide a step change in service provision for Surrey.

A feature of the development of this line should be the linkage with the proposed East-West Rail at Reading, a scheme due to be implemented in the medium term which will see orbital rail services running from Reading to Bedford via Oxford (in the initial western section, and beyond in the long term). An upgraded NDL would extend this orbital service through the new eastern underpass at Reading Station around the south-western quadrant of London via Guildford, Dorking and Redhill to Gatwick, with a longer term potential to expand through Tandridge District into Kent, as shown in the sketch **Figure 21**. The extension into Kent is already subject to development and business case work by Kent County Council.

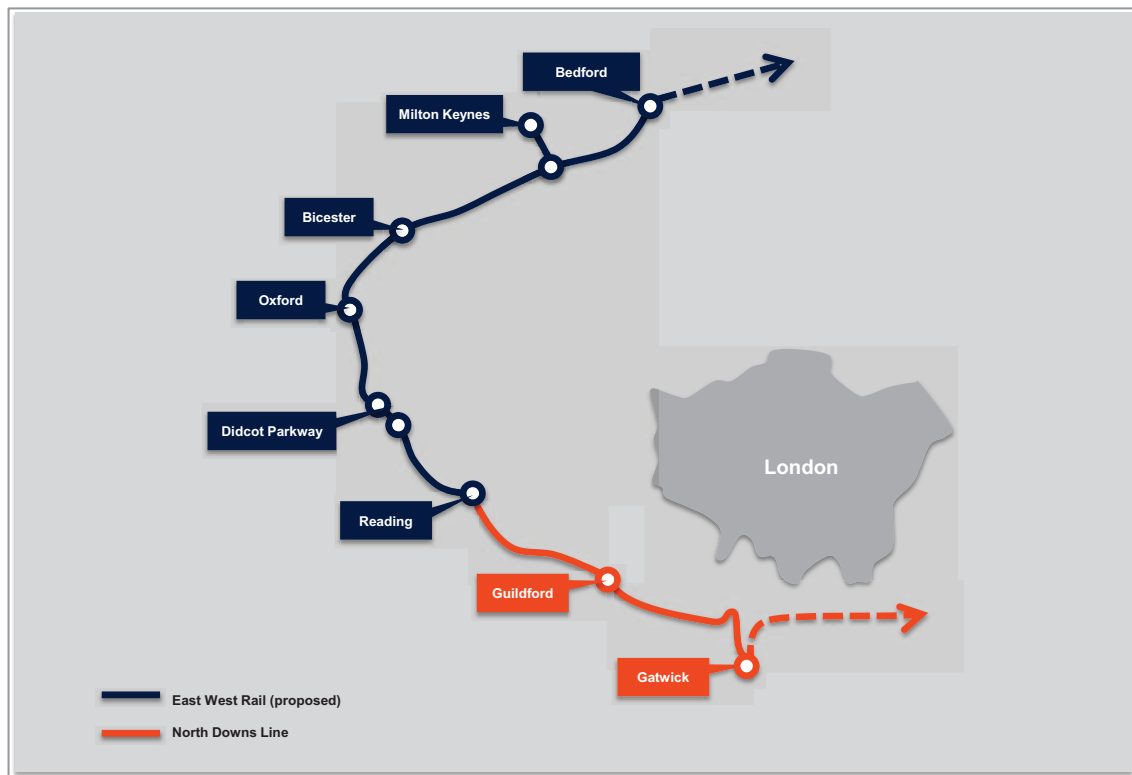
The advantages of this option are not only increased orbital connectivity within Surrey, and between Surrey and neighbouring authority areas to the north and east, but also the relief to London stations as passengers can use this orbital alternative to radial journeys in and out of London.

This option is not yet funded. It would most likely be funded through the franchise process, although funding by Surrey County Council and partners could also be considered.

If significantly new service patterns are operated on the line, the major improvement project and possible electrification of the line could be a stimulus for moving the NDL into a different franchise, either South Western or Southern. The latter will be incorporated into the Greater Thameslink franchise in 2015, which may provide an opportunity to include services in the franchise, which would be logical if there are plans to include Reigate to London Bridge services. If this is not achievable, the line could be incorporated in the new South Western franchise in 2017. This could be raised in the Great Western franchise consultation before franchise renewal in July 2016.

The enhancement is a long term scheme, which would be targeted for delivery during CP6, as part of a future franchise.

Surrey County Council and partners should consult with stakeholders on the future of the NDL and work with the DfT and Network Rail to determine the details of the line upgrade in the long term and the most appropriate franchise to include this in.

**Figure 21: North Downs Line and East West Rail**

#### 5.4.4 North Downs Line Strategy

The NDL strategy provides a great opportunity for Surrey County Council and partners to play a major role in the development and improvement of the local rail service, which would have many benefits for Surrey in terms of access to local employment centres and wider strategic connections to employment opportunities in Reading and for jobs and flights at Gatwick Airport.

There is a clear strategy to address the capacity and adequacy gaps on the NDL. It is summarised as:

- Supporting the committed scheme to provide an additional through service to Gatwick with the completion of platform 0 at Redhill in the medium term;
- Lobbying the DfT to include train lengthening and timetable recast in the next franchise specification in the medium term;
- Leading the development of an NDL major improvement project with general upgrading of the line to provide an improved orbital service offering in Surrey and possible electrification. This would include close working between Surrey County Council and partners and the rail industry, particularly the DfT and Network Rail, to develop the scheme and determine the most appropriate franchise for the line to be included in;
- Working with Kent County Council to consider the feasibility of a service between Tonbridge and Gatwick that would benefit Tandridge District.

## 5.5 Access to Airports

Access to airports was identified as an adequacy issue in the Issues Paper.

There is currently no direct rail access to Heathrow Airport from Surrey. Journey times by road are significantly more competitive than rail, although journey time unreliability and the sustainability of car as an access mode are significant issues. A significantly improved rail service with fast direct links to Heathrow would be needed to be competitive with car and taxi.

There is direct access to Gatwick Airport from Surrey via the Brighton Main Line and interchange at Clapham Junction, as well as the North Downs Line. On the North Downs Line journey times are generally competitive with road, although frequencies are low (1 tph). Frequency and marketing improvements could make rail an even more attractive prospect for access to Gatwick. There is no direct service between Tandridge District in East Surrey and Gatwick Airport using the Redhill-Tonbridge Line. There are no committed schemes to address these issues.

Surrey is significant for travel to both Heathrow and Gatwick airports for passengers and staff and therefore needs a specific strategy.

In 2011, 2.04m terminating air passengers at Heathrow came from Surrey (6% of all passengers) and 2.22m at Gatwick were from Surrey (9% of all passengers)<sup>9</sup>.

According to the Heathrow Airport Employment Survey, in 2008/09 almost 9000 Surrey residents worked at Heathrow Airport (about 12% of the total Heathrow workforce). These workers come mainly from Spelthorne, Runnymede and Surrey Heath boroughs. 77% of Heathrow employees commute by car.

At Gatwick, the Employment Survey indicates that about 14% of employees live in Surrey (about 3200 people). 65% of Gatwick employees commute by car.

The strategy for access to airports is shown in **Figure 22**.

There is currently a major Government review underway (the Airports Commission, commonly known as the Davies Review) to identify and recommend to Government options for maintaining the UK's status as a global aviation hub. The Commission will examine the scale and timing of any requirement for additional capacity to maintain the UK's position as Europe's most important aviation hub; and it will identify and evaluate how any need for additional capacity should be met in the short, medium and long term. The Commission will report in summer 2015, with an interim report due by the end of 2013.

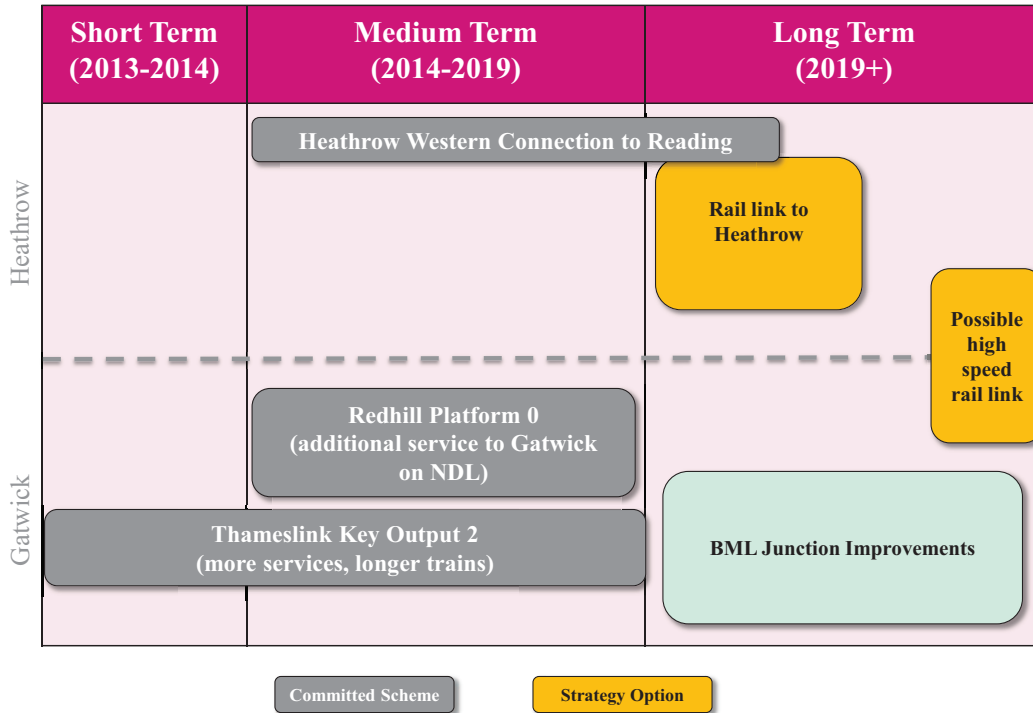
The recommendations of this Commission could have a major impact on Surrey, for example if either Heathrow or Gatwick is targeted for major expansion, or if a new hub airport in the Thames Estuary is developed. At the time of writing there is no indication of the outcome of the Commission, so whilst options are identified in this strategy, they should be reviewed as emerging findings are published by the Commission.

It is not in the scope of this study to advise on airport capacity issues for Surrey, however it is recommended that Surrey County Council and partners consider their position on airport growth in the region and proactively engage with the

<sup>9</sup> Passenger Survey Report (CAA 2011).

Commission in the short term to ensure a preferential outcome for the County, so that the rail strategy for access to airports can be developed with more certainty.

**Figure 22: Access to Airports Strategy**



### 5.5.1 Committed Schemes

There are no committed schemes for airport access in Surrey, although there are committed schemes that will contribute to improvements.

For Heathrow, the Western Connection to Reading was identified in the HLOS as a scheme for development in CP5 for implementation in CP6. A number of options have been proposed and these will be assessed by Network Rail as part of the scheme development to deliver a typical four trains per hour between Heathrow Terminal 5 and Reading.

For Gatwick, the implementation of Redhill platform 0 in the medium term and the Thameslink programme Key Output 2 scheme in the long term will both improve rail access to Gatwick. In particular, the major capacity upgrade delivered by the Thameslink programme will provide additional capacity for commuter services on the Brighton Main Line and dedicated Gatwick Express services.

The following section presents the recommended strategy for access to airports, which considers options for rail access to Heathrow and Gatwick.



## 5.5.2 Heathrow Airport

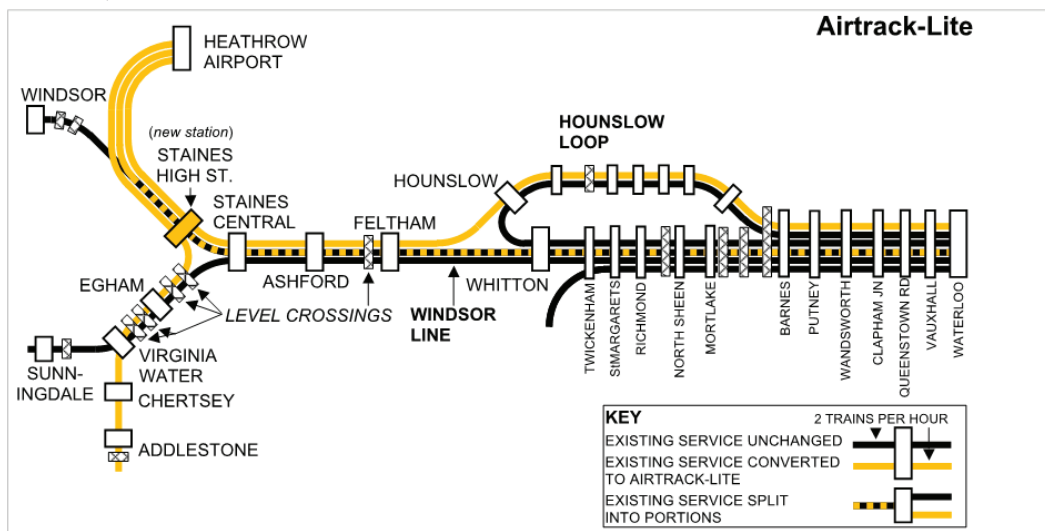
Rail access to Heathrow Airport from Surrey is a difficult issue. To be of value to Surrey, rail access needs to be fast and direct, and serve a number of destinations across the County. Rail also needs to be proven as the preferred choice over other modes, such as bus and coach.

There are a number of schemes that have been developed, or are in development, to provide a southern rail link to Heathrow.

There was a major scheme in development for several years promoted by BAA plc<sup>10</sup>, known as Airtrack, which provided for services from London Waterloo, Guildford, Woking and Reading to Heathrow with new infrastructure including a Staines Chord, a new station at Staines High Street, and a new link from Staines to Terminal 5 at Heathrow. This scheme was abandoned in 2011, with BAA citing lack of funding and other priorities at Heathrow, such as Crossrail and HS2, although the impact on local level crossing down-times was also a major issue.

A new scheme known as Airtrack Lite has since been promoted by Wandsworth Council. Airtrack Lite is a variant of Airtrack, which would divert an existing four trains an hour from London Waterloo to Terminal 5 with stops at Clapham Junction and Putney with a new station at Staines and a new rail link to Terminal 5. The scheme is illustrated in **Figure 23**.

**Figure 23: Proposed Airtrack Lite Scheme (source: Wandsworth Council website)**



Airtrack Lite has the advantage of avoiding routing extra trains through level crossings in Mortlake and Egham, which was a key problem with the original Airtrack scheme. Although some locations in Surrey would gain a direct service to Heathrow, such as Staines, Virginia Water, Chertsey and Addlestone, the service pattern as proposed seems to have limited benefits for wider Surrey towns such as Woking and Guildford.

<sup>10</sup> Now known as Heathrow Airport Holdings.

We recommend that Surrey County Council and partners engage with Wandsworth Council to assess the benefits for Surrey and consider their support for this scheme.

One possible variation on Airtrack Lite would be to use the rail link between Staines and Heathrow to connect Crossrail services to Staines. Crossrail services are already planned to run to Heathrow Central and Terminal 4. This option would extend these through Terminal 5 to a terminus at Staines. The advantage of this scheme is not only the new direct link to Heathrow from Surrey, but the journey alternatives this brings to Surrey, which would divert traffic away from the heavily congested station at London Waterloo. For example, passengers on the Windsor Lines travelling to central London could change at Staines to take Crossrail services direct to Tottenham Court Road, Farringdon, Canary Wharf and Stratford. In the longer term, there could be potential to extend Crossrail services through Staines to stations on the Windsor Lines or via Chertsey to Weybridge or Woking.

This alternative should be raised by Surrey County Council and partners in the discussions on Airtrack Lite, to assess whether this scheme is worth pursuing further as an alternative to the proposed scheme.

There are other proposals for rail access to Heathrow from Surrey. Staines Rapid Rail, part of the London Air Rail Transit System (LARTS) concept, is a proposal to build a new light rapid transit line between Staines and Heathrow Terminal 5, with a park-and-ride site at Stanwell. It has potential to be extended to Heathrow Terminals 1-4, and into Surrey connecting with the South West Main Line at Byfleet.

There is currently no business case for this scheme so the feasibility of the scheme and the benefits for Surrey are unclear. We recommend that Surrey County Council considers the scheme once a business case assessment has been undertaken.

Other options raised for Heathrow in the consultation for this study include extending the existing Ultra Personal Rapid Transit (PRT) system to Staines from Terminal 5. This would require extension of the elevated infrastructure and new service patterns. No formal business case has been proposed for this proposal so it is recommended that Surrey County Council considers the scheme if and when a formal proposal is made and once a business case assessment has been undertaken. In particular, it should be considered whether this is the most appropriate mode for a link to Heathrow.

The disadvantage of all of the above options is that the majority of Surrey passengers beyond the immediate vicinity of Staines would require at least one interchange to get to Heathrow. This may deter staff, who will already have existing travel arrangements in place and may not be attractive enough to switch modes. It may also deter passengers, who are very sensitive to interchange, due to carrying luggage and unfamiliarity with the route<sup>11</sup>.

Analysis in the Issues Paper for this study indicated the un-competitiveness of rail with road-based modes. In the off peak, road journeys to Heathrow from Surrey

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<sup>11</sup> There is good evidence that airport passengers have a 45 minute interchange penalty for long journeys (20 minutes for shorter journeys), as stated in the Passenger Demand Forecasting Council's Passenger Demand Forecasting Handbook (PDFH), version 5, 2009.

can be relatively short (e.g. 20 minutes from Woking). However, unreliability of road journey times in the peak periods and the unsustainability of car as an access mode was an issue cited in the stakeholder consultation. The dispersed demand from Surrey, spread across a number of towns in the County, also makes it difficult for rail to be effective.

It may be that a southern rail link to Heathrow only becomes viable if Heathrow secures permission to build a third runway through the Airports Commission. This could generate significant additional demand for Heathrow Airport and trigger significant investment in infrastructure with the airport expansion.

We recommend that Surrey County Council and partners engage with all options which seek to address access to Heathrow. In particular, they should expend effort in the short-medium term on improving journey time reliability of access to Heathrow by road. They should also undertake research to inform the development of options for improving bus and coach access, for example by providing additional Rail-Air links from other locations (based on the existing Woking model). This will help to address adequacy issues in the short-medium term. In the longer term, and associated with a third runway at Heathrow if granted, secure policy support for a southern rail access through the rail industry long term planning process for delivery in CP6 (or possibly beyond, depending on the timing of airport expansion, if any).

### 5.5.3 Gatwick Airport

Rail access to Gatwick Airport from Surrey is already reasonably good and competitive with road-based modes, with direct services on the North Downs Line and Brighton Main Line.

Surrey County Council and partners should support the committed schemes that will benefit rail access to Gatwick to ensure that this is improved as the airport grows in future. These schemes include the Thameslink Key Output 2 on the Brighton Main Line and Platform 0 at Redhill and additional trains to Gatwick from the North Downs Line.

Surrey County Council and partners should also develop the recommended options that will benefit rail access to Gatwick in the future. These include North Downs Line train lengthening, North Downs Line major improvement project and possible electrification (with possible links into Kent from Gatwick), Brighton Main Line junction improvements, and the Clapham Hub. This will address adequacy issues in the medium-long term.

### 5.5.4 Rail Link to Heathrow and Gatwick

A much longer term option for access to airports is to provide a rail link, possibly higher speed, into Surrey from Heathrow, possibly extending to Gatwick and beyond through Tandridge District into Kent.

Heathrow Airport is expected to be linked to the High Speed 2 line between London and Birmingham with a newly constructed spur<sup>12</sup> in the very long term

<sup>12</sup> In January 2013 the Government announced that it has now paused work on the HS2 Heathrow spur until after the Airports (Davies) Commission has reported and there has been an opportunity

(i.e. 2033 onwards). This option could involve extending this spur south into Surrey, possibly in a tunnel, and probably along the M25 corridor. At least one intermediate station could give Surrey residents access to the new line. This could take the form of an interchange station on the South West Main Line at or near Woking, for example.

This line could be extended to Gatwick Airport, thus providing a connection between the two airports as well as access from Surrey, and many locations beyond. It could also run beyond Gatwick to link back with the High Speed 1 line at Ashford, thus providing an orbital high speed route around London.

This high speed line could provide fast, frequent, reliable and direct rail services between Surrey and both Heathrow and Gatwick, as well as a possible direct link to the North, and possibly the continent via High Speed 1.

With the current HS2 scheme threatening to shift the economic focus of the UK away from the south to the Midlands and North, this is a scheme worth considering for Surrey, as a major long term option. It does however require extensive feasibility work and will be dependent on the outcome of the Airports Commission decision on airport expansion.

Surrey County Council and partners should consider developing this scheme to pre-feasibility level to investigate the major opportunities and challenges, and build stakeholder support. Given the potentially large catchment of the scheme, and the potential benefits of bringing high speed rail to the south and west of London, there could be a large body of support spanning from West Sussex through Hampshire to Dorset, including major towns such as Brighton, Portsmouth, Southampton and Poole / Bournemouth.

### 5.5.5 Access to Airports Strategy

Access to airports is a major issue for Surrey, as having two of the UK's major airports on its doorstep is a major advantage of the County. The future of airport capacity in the South East is uncertain, with the current on-going Davies Commission; however this presents an opportunity for Surrey to proactively engage with the process to ensure the best outcome for the County.

There is a clear strategy to address the adequacy gaps for airport access. It is summarised as:

- Considering Surrey's position on airport growth in the region and proactively engage with the Davies Commission in the short term to ensure a preferential outcome for the County;
- Supporting the Western Connection to Reading committed scheme that will benefit rail access to Heathrow to ensure that this is improved in the medium-long term;
- Actively engaging with Wandsworth Council on the Airtrack Lite scheme to assess the benefits for Surrey and consider its support for this scheme;

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to consider the Commission's recommendations. This scheme would only be possible if the spur goes ahead.

- In the discussions on Airtrack Lite, raising the alternative to extend Crossrail to Staines, to assess whether this scheme is worth pursuing further as an alternative to the proposed scheme;
- Considering scheme proposals such as Staines Rapid Rail and extension of the Ultra PRT to Staines, once these become formal proposals and a business case assessment has been undertaken;
- Expending effort in the short-medium term on improving journey time reliability of access to Heathrow by road, and undertaking research to inform the development of options for improving bus and coach access, for example by providing additional Rail-Air links from other locations (based on the existing Woking model);
- Securing policy support for a southern rail access through the rail industry long term planning process for delivery in CP6 (or possibly beyond, depending on the timing of Heathrow Airport expansion, if any).
- Supporting the committed schemes that will benefit rail access to Gatwick. These schemes include the Thameslink Key Output 2 on the Brighton Main Line and Platform 0 at Redhill and additional trains to Gatwick from the North Downs Line;
- Developing the recommended options that will benefit rail access to Gatwick in the future. These include North Downs Line train lengthening, North Downs Line electrification and improvements, and Brighton Main Line junction improvements, to address adequacy issues in the medium-long term;
- Develop the long term high speed rail link scheme to pre-feasibility level to investigate the major opportunities and challenges, and build stakeholder support.

## 5.6 Access to Guildford

Access to local employment centres was identified as a key issue in the study, particularly to Reading and Guildford, which are both important employment centres for working residents of Surrey.

Improvements to these centres will also improve access for many intermediate towns in Surrey, particularly in the Blackwater Valley which will accommodate the growth from the Aldershot urban extension.

Guildford is an important centre in Surrey; it has the highest population of all towns (74k) and the highest number of jobs (78k). Employment grew by 20% between 2004 and 2011, and is forecast to grow by another 9% by 2031.

Guildford is served by the radial Portsmouth Direct Line and the orbital North Downs Line, but only Woking has more than 4 tph to Guildford in the morning peak. Most other stations have 1-3 tph to Guildford.

A large number of stations in Surrey are within 30 minutes of Guildford by train, with the notable exceptions of Redhill (31 minutes) and Camberley, Frimley, Bagshot (42-56 minutes).

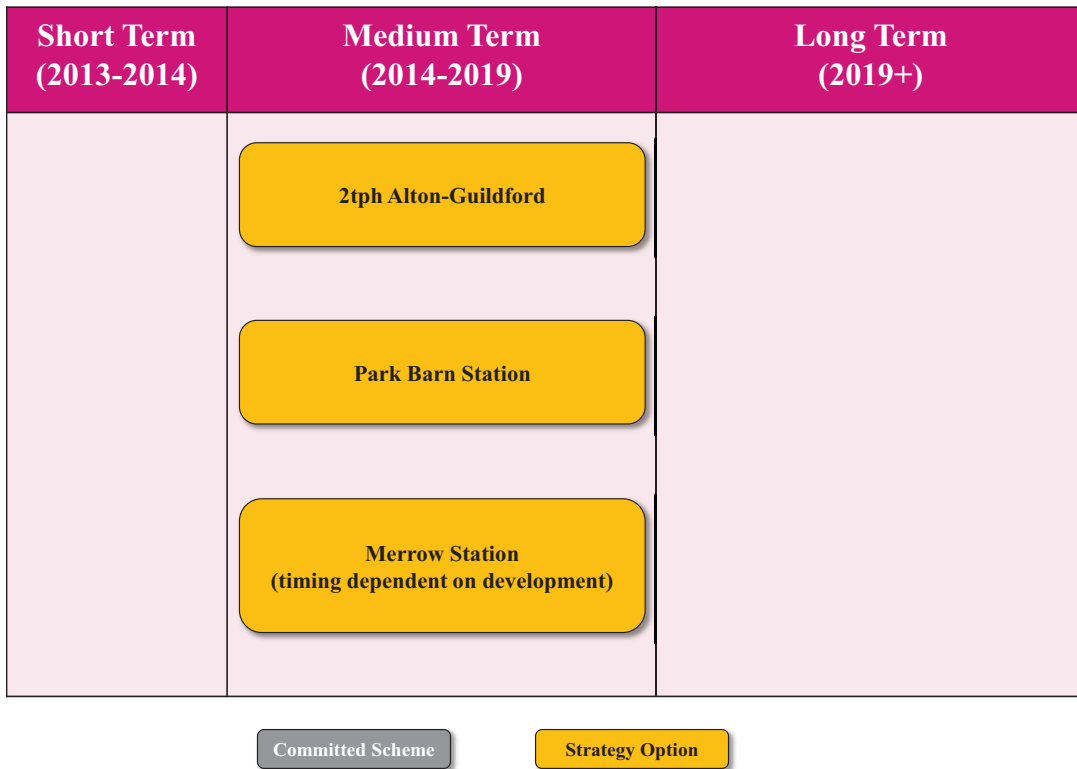
There are no committed schemes to address these issues.

Access between rail stations and key employment centres were cited by many stakeholders as a key issue, for example the Surrey Research Park in Guildford.

Access between Guildford and Alton / Farnham was also identified as an issue, to relieve congestion on the A3 and A31 roads.

The strategy for access to Guildford is shown in **Figure 24**, which includes preferred options for the medium term.

**Figure 24: Access to Guildford Strategy**



### 5.6.1 Committed Schemes

There are no committed rail schemes to improve access to Guildford, except for the train lengthening schemes on the SWML previously highlighted.

The following sections present the recommended options for the access to Guildford strategy, which provide adequacy improvements in the medium term.

### 5.6.2 Two Trains Per Hour Alton-Guildford

This option improves the rail service between Guildford and Alton to attract more users away from the heavily congested A3 and A31 corridors, and to provide better access to employment in Guildford.

Currently the only service between Alton and Guildford requires an interchange at Aldershot. This scheme involves the introduction of a direct service between Alton and Guildford operating twice every hour. It may require the re-introduction of at least a portion of the double track between Farnham and Alton, and the possible development of existing station car parks along Alton line to encourage mode shift, e.g. Bentley.

There is no funding currently allocated to this option. Cost estimates have not yet been made. Surrey County Council and partners should consider providing funding support for this option, as a scheme which potentially has good local benefits, although this should be subject to the usual business case assessment to demonstrate value for money and alignment with Rail Strategy objectives.

This is a medium term scheme, which could be included in the next South Western franchise, currently due for renewal in 2017.

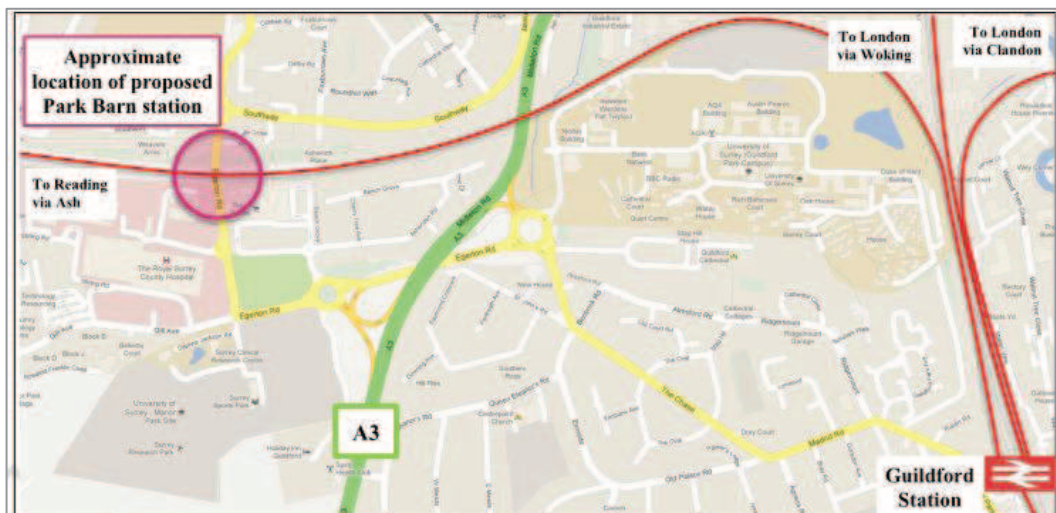
Surrey County Council should develop the scheme with South West Trains and other partners to confirm the business case for this option and lobby the DfT to include it in the next South Western franchise specification.

### 5.6.3 Park Barn Station

This option provides an additional station at Park Barn in Guildford which would improve rail access to employment centres particularly the Royal Surrey County Hospital and Surrey Research Park, and also to events and activities at the Surrey Sports Park.

The option involves a new train station on the Guildford-Reading line in the Park Barn area, as shown in **Figure 25**. Existing Guildford-Ascot and Reading-Redhill services could make additional calls at the station (although the existing service pattern would not support an additional stop in this section), although London-bound passengers would have to change at Guildford. It could also be served by the proposed 2 tph Alton-Guildford service option.

**Figure 25: Park Barn Station**



Costs are estimated in the region of £5m for this option. Surrey County Council and partners should consider providing funding support for this option, as a scheme which has good local benefits.

This is a medium term scheme, which could be included in the next South Western franchise, currently due for renewal in 2017. It would need support from Network Rail to deliver the infrastructure, which would have to be added to the schemes currently planned for CP5.

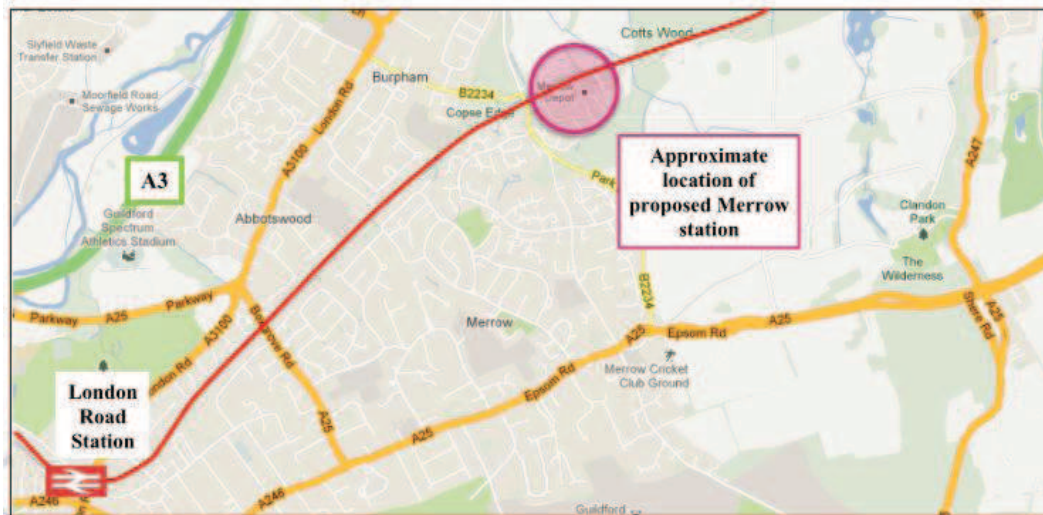
Surrey County Council and partners should confirm the business case for this option and lobby the DfT to include it in the next South Western franchise specification. They will also need to work closely with Network Rail to schedule delivery in CP5.

There is clear stakeholder support for this option to address traffic congestion and parking issues, particularly with the growth of the University, Hospital and Research Park.

### 5.6.4 Merrow Station

This option provides an additional station to the east of Guildford which would improve rail access to potential new housing and commercial developments on the edge of the urban area. Figure 26 indicates a possible location of the new station.

**Figure 26: Merrow Station**



Guildford Borough Council is currently preparing a new Guildford borough Local Plan which will identify strategic sites for potential housing and commercial developments.

The option includes a new train station on the Surbiton to Guildford via Clandon line in the Merrow area. Past proposals have recommended locating the station on the south side of the railway line off Merrow Lane. Existing Guildford-Waterloo via Cobham and Epsom services would make additional calls at the station.

Costs are estimated in the region of £5m for this option. Surrey County Council and partners should obtain developer funding support for this option.

This is a medium term scheme, which is linked to the timing of any development in the Merrow/Burpham areas. At the time of writing this was not confirmed.

The option could be included in the next South Western franchise, currently due for renewal in 2017. It would need support from Network Rail if any infrastructure was required, which would have to be added to the schemes currently planned for CP5.

Surrey County Council and partners should confirm the business case for this option once processes associated with preparing a new Guildford borough Local Plan are complete and the new plan is adopted. They should also lobby the DfT



to include it in the next South Western franchise specification. They will need to work closely with Network Rail to schedule delivery in CP5.

### 5.6.5 Access to Guildford Strategy

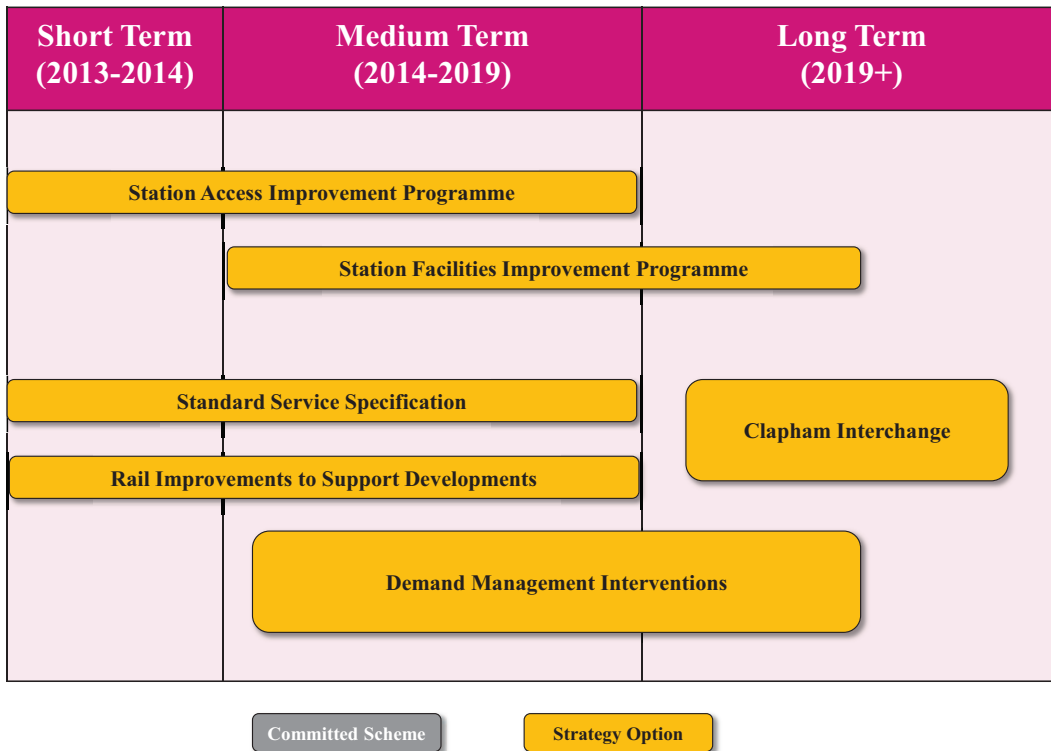
There is a clear strategy to address the adequacy gaps for access to Guildford. This is a strategy that is local to Surrey and could be led by the County Council and its partners. It is summarised as:

- Confirming the business case for 2 tph Alton-Guildford and lobbying the DfT to include it in the next South Western franchise specification;
- Confirming the business case for Park Barn station and lobbying the DfT to include it in the next South Western franchise specification. Also working closely with Network Rail to schedule delivery in CP5;
- Confirming the business case for Merrow station once processes associated with preparing a new Guildford borough Local Plan are complete and the new plan is adopted, lobbying the DfT to include it in the next South Western franchise specification, and working closely with Network Rail to schedule delivery in CP5.

## 5.7 Network Wide and Stations

There are a number of options that were identified in the study that have a network-wide impact and are not specific to any particular area. These options are shown in **Figure 27**, which include the preferred options for the short, medium and long term timescales.

**Figure 27: Network Wide and Stations Strategy**



## 5.7.1 Station Access Improvement Programme

A key issue in the stakeholder consultation for this study was the poor access to rail stations in Surrey. This is evidenced in the National Passenger Survey results, which indicate that only 52% of passengers are satisfied with ‘connections with other forms of public transport’, compared to 74% in the south east region.

There is very little further evidence and data on access to stations in Surrey, such as overall demand, mode share and car parking usage. This option is a rail station access improvement programme, informed by a new data collection exercise on current usage and forecast growth, focused on the key stations where there are higher volumes of passengers or known issues.

Based on the data collected, a Programme of access improvements should be developed to address gaps, providing additional capacity or alternative modes of access. Schemes should cover all transport modes and could include improved parking facilities for cars and bicycles, improved walk and cycle access to stations, improved pick-up/drop-off facilities for private cars and taxis or improved bus services to the station with enhanced interchange and integration (e.g. coordinated timetables). The package of measures could take the form of a Station Travel Plan, as a catalyst for improvement.

Bus and rail integration should be a key theme, to avoid the continued use of private cars as an access mode. The following simple measures could be included in the package to encourage bus use:

- High priority to bus/rail interchange when stations are redeveloped, such as that planned at Dorking, along with decent sheltered, well-lit stops with real time information;
- Provision of prominent onward journey information at the main exits of rail stations including maps, leaflets and bus real time information screens, and clear signage to bus stops;
- Promote Plusbus integrated rail/bus ticketing which already exists at the main Surrey stations. Encourage operators to develop this for ITSO smart ticketing, as is already in place in Horley where Southern key card holders with Plusbus can travel on Metrobus services locally on the same smartcard;
- Encourage rail operators to show key bus connections and links on rail maps;
- Work with bus and rail operators to provide timed connections between services where possible.

In some areas of Surrey the private car is an important mode of access to rail stations, particularly in rural areas where there are few viable public transport alternatives and where distances are too long or roads not suitable for walking and cycling. In these cases, car parking facilities need to provide sufficient capacity at an appropriate price. Examples raised in the consultation include Haslemere, Farnham, Brookwood, Godalming, Redhill and Merstham. Issues include lack of capacity, particularly after the morning peak. These key locations need to be identified and studied through this option, to assess the capacity issues and determine where expansion of car parks is appropriate and provides value for money. Future growth in the catchment area also needs to be considered so that capacity grows in line with demand. This option is not funded. Initial data collection costs are likely to be in the region of £50-100k, with scheme costs

depending on the exact measures developed and the location. This is an option Surrey County Council could contribute to through local funds or funding bids (eg Access for All or National Stations Improvement Programme), and obtain financial support from the relevant train operator.

This is a short-medium term scheme, building on access improvements already made at stations such as Redhill. Data collection should be undertaken immediately, with a programme of work scheduled to fit with funding availability and other local development plans. It will be important to develop the programme quickly so that Surrey County Council can lobby for inclusion of relevant schemes in the Thameslink and South Western franchise specifications.

Surrey County Council and partners can lead this option, but will need the support of both the local partners, particularly Borough and District Councils, who often have good local knowledge of specific issues at stations, and the rail industry, particularly the relevant train operator and Network Rail.

### 5.7.2 Station Facilities Improvement Programme

A key issue in the stakeholder consultation for this study was the facilities at rail stations in Surrey. This is evidenced in the National Passenger Survey results, which indicate that only 52% of passengers are satisfied with ‘the availability of staff’, compared to 59% nationally, and only 44% are satisfied with the facilities and services at stations, compared to 50% nationally.

A standard service specification for station facilities should be developed (see option below) in Surrey. A rail station facilities improvement programme can be developed, informed by the standard service specification, to address gaps where facilities fall below the specification.

Schemes could include improved staffing levels at stations for passenger security (or safety design improvements for unstaffed stations), provision of passenger information, ticket machines, toilets, access for the disabled (DDA<sup>13</sup> compliance), and other facilities. It could also include improved facilities for integrated ticketing.

This option is not funded. Development of the standard service specification will be a cost to Surrey County Council, with scheme costs depending on the exact measures developed and the location. This is an option Surrey County Council could contribute to through local funds or funding bids, and obtain financial support from the relevant train operator.

This is a short-medium term scheme, building on station improvements already made in Surrey. Development of the requirements should be undertaken immediately, with a programme of work scheduled to fit with funding availability and other local development plans. As with the station access option, it will be important to develop the programme quickly so that Surrey County Council can lobby for inclusion of relevant schemes in the Thameslink and South Western franchise specifications.

Surrey County Council and partners can lead this option, but will need the support of both the local partners, particularly Borough and District Councils, who often

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<sup>13</sup> Disability Discrimination Act.

have good local knowledge of specific issues at stations, and the rail industry, particularly the relevant train operator and Network Rail.

### 5.7.3 Standard Service Specification

Analysis for the Issues Paper showed variability in service frequencies by station and in journey times to key urban centres in Surrey. A standard service specification would provide passengers with more certainty about the frequency of rail services from their local station to key destinations (e.g. London, Reading, Guildford) and could, in some cases, get a ‘turn-up-and-go’ service.

This is aspirational and could take a long time to fully develop and implement. It is also made complicated by the fact that there are currently three different train operating companies in Surrey. However, it will provide a very useful benchmark for engagement with stakeholders and supports the identification of priority schemes where services fall below the benchmark.

A standard service specification should include journey times to key urban centres, to ensure that, where reasonable, passengers can access these centres within a certain time (e.g. 30 minutes). Providing more certainty over frequency and journey times would improve the rail experience for Surrey residents and workers.

It would include requirements for minimum peak and off peak frequencies (to key destinations) and minimum journey times to key urban centres (e.g. Guildford). It could also cover minimum levels of station facilities, such as staffing and step-free access. It could also include specific requirements for services to airports, in line with Network Rail’s Long Term Planning Process, eg 2-4 opportunities to travel per hour to large airports.

Activities would include developing the specification and prioritising schemes, and developing business cases for improvements.

By example, TfL has a standard service specification for rail services, which may be a useful guide. In the Mayor of London’s Rail Vision (Feb 2012) it identifies a package of customer service standards which can be applied across the rail franchises serving London, including a ‘turn-up-and-go’ frequency of at least four trains per hour throughout the week.

This option is not funded. Development of the standard service specification will be a cost to Surrey County Council, with scheme costs depending on the exact measures developed and the location. This is an option Surrey County Council could contribute to through local funds or funding bids, and should obtain contributions from the relevant train operating company.

This is a short-medium term scheme for the development of the specification and related activities. Development of the requirements should be undertaken immediately, with a programme of work scheduled to fit with funding availability and other local development plans.

Surrey County Council and partners can lead this option, and should lobby the DfT to include the specification and related schemes in franchise specifications and possibly for funding. They should also encourage bidders to deliver the specification through franchises.

## 5.7.4 Rail Improvements to Support Developments

This option is a process for reviewing rail links to new developments. New developments are planned in and around Surrey that will generate additional travel demand in the County. These include the Whitehill/Bordon development, Aldershot urban extension, and the DERA site at Longcross. Where feasible, this additional travel demand should be accommodated on public transport, and rail where appropriate. This will enable new developments to be implemented without a major impact on the road network and without adding to congestion, allowing sustainable growth.

Rail schemes should be developed where they can directly or indirectly serve a new development. Whether rail can directly serve a new development can be determined using the technology choice framework, as shown in **Figure 28**. This assessment also needs to consider impacts of new stations on existing journey times and stopping patterns, to avoid detrimental impacts to existing levels of service.

**Figure 28: Technology Choice Framework**

Commuter / Inter-urban travel	Implementation Timeframe	Peak capacity / hour	System life (years)	Unit carrying capacity
Regular Buses	Short	2,500 – 6,000	8 - 14	40 - 120
Light Rapid Transit (LRT)	Medium / long	12,000 – 20,000	25 - 50	400 - 600
Tram Train	Medium / long	6,000 – 12,000	25 - 50	400 600
Heavy Rail	Long	20,000 – 60,000	25 - 50	2,000 – 3,500

If rail is not the most appropriate mode, assessed through the Technology Choice Framework, then other modes should be used instead, such as bus.

Indirect serving of developments may include improving station access at a station near a new development, where buses and cars may feed into the rail network from the new development.

Key sites to be considered under this option should be identified by Surrey County Council and partners and rail improvement schemes developed through the Transport Assessment for the site, in consultation with Surrey County Council and the relevant Borough, and then added to the Rail Strategy once approved. The rail schemes can then be developed through the Rail Strategy programme.

There are no direct costs associated with this option, as this is a review process. Scheme costs will depend on the exact measures agreed through the Transport Assessment, and should be funded by the relevant developer(s).

This is a short-medium term scheme, the timing of which is linked to the schedule of the various developments around the County.

Surrey County Council and partners should proactively lead this option, to engage with new developments and set out requirements for sustainable development as early as possible. The option will need the particular support of local partners, particularly Borough and District Councils, who can provide local knowledge and manage delivery of schemes.

### 5.7.5 Demand Management Interventions

Demand management is an important option that could help to delay the need for major infrastructure upgrades by reducing demand for train services, particularly on the most crowded routes at peak times.

The fares structure as it stands does not sufficiently differentiate between the marginal costs that a commuter in the high peak imposes on the railway (in terms of operation and infrastructure) and the costs imposed by passengers travelling at other times. For example, in terms of cost per journey, it is more expensive to travel between London and Woking during the low-demand off-peak period than it is to travel at the busiest times using an annual season ticket (see Options Paper for details).

In almost all cases, calls for investment in costly infrastructure improvements to the railway network are driven by the need to accommodate morning peak demand. For this reason, there is an equity argument for charging highest fares to peak commuters as they will benefit most from infrastructure investment.

Demand management interventions could take any number of forms, but the fundamental principle is to incentivise fewer people to travel on the rail network at times when demand is highest. Interventions could include:

- charging a premium for travelling in the morning peak hour;
- providing a discount for travel in the ‘shoulder peak’ period;
- selling flexible season tickets that reward part-week commuting patterns;
- producing better information for commuters about crowding levels on specific trains (South West Trains has trialled posters at selected stations and on its website, in conjunction with the Office of Rail Regulation, detailing the level of crowding on peak services, which has resulted in some changes in passengers’ travelling habits. Further trials or a more permanent scheme may be implemented in the future);
- setting up a non-cash rewards scheme to incentivise travel on less busy trains.

Smartcard ticketing is a prerequisite of introducing differential pricing by train / time of day. South West Trains has installed ITSO smartcard equipment at all its stations and with the completion of the TfL / DfT project to enable ITSO use in London due in 2014, the infrastructure to support demand-managed pricing will be present. However, the required changes to the rail industry pricing regime and permitted fare levels would need Ministerial approval before it could be introduced.

The costs and benefits of these measures are not fully known, and are difficult to estimate, as it involves complex behavioural modelling.

This is a complex and difficult option to develop and implement, and requires the support of a number of stakeholders across the rail industry. This should not

however, deter the industry from addressing the option, as the alternative (major infrastructure development) is also expensive, costly, risky and time consuming.

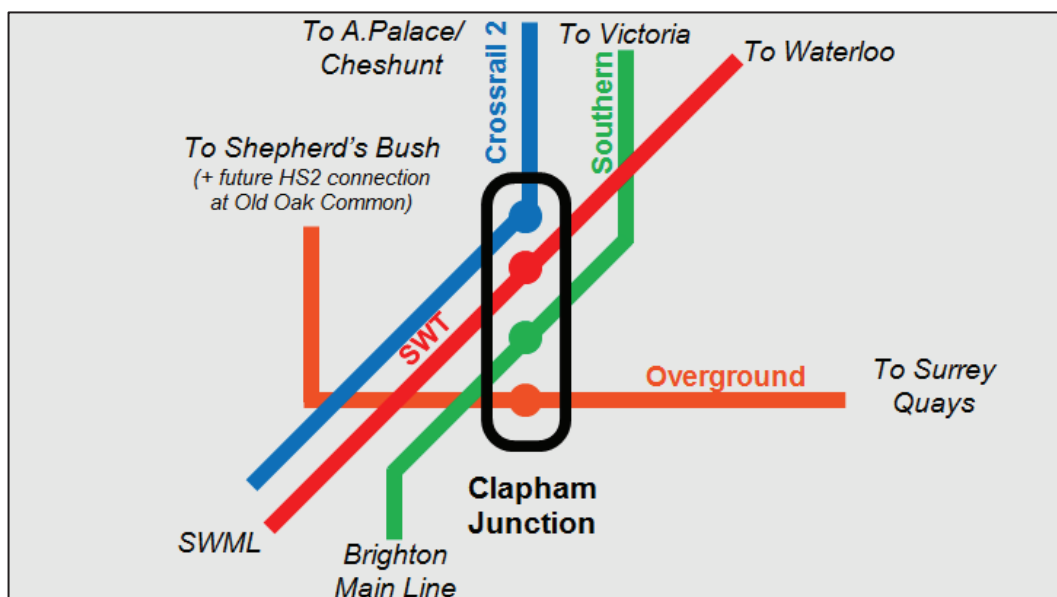
It is therefore recommended that Surrey County Council and partners engage with the rail industry, particularly the DfT and franchisees to review the demand management options available and push to develop options that would benefit Surrey.

### 5.7.6 Clapham Interchange

Many stakeholders, including the train operating companies, are convinced that there is great demand for better connections at Clapham Junction. Clapham Junction is a key link between two main Surrey rail corridors. On the South West Main Line, Clapham Junction is not served by Outer Suburban and long distance services during peak hours due to capacity issues. On the Brighton Main Line, many services do not stop at Clapham Junction for capacity and journey time reasons.

With improved frequencies planned on London Overground services (linking Clapham Junction to Shepherd's Bush and Willesden Junction in the north, and Surrey Quays in the east) and the potential in the longer term for a connection to Crossrail and High Speed 2 at Old Oak Common, improved interchange at Clapham Junction would provide for new journey opportunities for Surrey. It would benefit users across Surrey, on both the the SWML as well as the BML. It could also relieve pressure on Waterloo, if passengers can alight before the terminus station. The concept is illustrated in **Figure 29**.

**Figure 29: Clapham Interchange Concept**



This option involves stopping more SWML and BML services at Clapham Junction Station, and improving the station facilities and operations to serve the needs of interchanging passengers. It would require changes to track layout and platforms on the SWML and BML fast lines. It would also require major works to improve cross-platform interchange, such as a new wider passenger overbridge or subway linked to all platforms with escalators to accommodate increased passenger flows.

The costs and benefits of this option are not known, so a business case would need to be developed to determine the specification for the scheme and the value of investing in it any further.

This is a long term scheme that could be developed to coincide with the construction of Crossrail 2 and/or a fifth-track scheme to Clapham Junction. Indeed, it may require Crossrail 2 or an alternative capacity solution to be implemented to fully achieve the benefits from the released capacity on the SWML.

Surrey County Council and partners should work with the rail industry, particularly the DfT, Network Rail and TfL, to review the business case for this option, and develop the scheme further.

### 5.7.7 Network Wide and Stations Strategy

There is a clear strategy to address the network wide adequacy gaps in Surrey. It is summarised as:

- Taking the leading in developing a Station Access Improvement Programme option, with the support of Borough and District Councils, the relevant train operator and Network Rail;
- Taking the lead in developing a Station Facilities Improvement Programme option, with the support of Borough and District Councils, the relevant train operator and Network Rail;
- Taking the lead in developing a standard service specification for Surrey, and lobbying the DfT to include the specification and related schemes in franchise specifications;
- Proactively leading the process to identify the potential for rail to support new developments, engaging with new developments and setting out requirements for sustainable development as early as possible;
- Engaging with the rail industry, particularly the DfT and franchisees to review the demand management options available and push to develop options that would benefit Surrey;
- Working with the rail industry, particularly the DfT and Network Rail, to review the business case for Clapham Interchange, and develop the scheme further.



## 5.8 Summary

In this chapter, the strategies for each area/topic were presented. The areas/ topics covered are:

- South West Main Line;
- Windsor Lines;
- Brighton Main Line;
- North Downs Line;
- Access to airports;
- Access to Guildford;
- Network wide and stations.

The strategies comprise the committed schemes and the preferred options for the short, medium or long term timescales. These area/topic strategies combine to form the Surrey Rail Strategy.

The main actions to deliver each option were identified. These inform the rail strategy action plan in the following chapter.

## 6 Rail Strategy Action Plan

This chapter presents the recommended actions for Surrey County Council, its partners, and other stakeholders in the short, medium, long term to deliver the rail strategy described in the previous chapter.

The top priority actions are identified to enable the effort and resources to be focused on the most important issues.

The Action Plan is split into three tables:

- Short and Short-Medium term;
- Medium and Medium-Long term;
- Long term.

The Action Plan tables are structured as follows:

- ‘**Area/ Topic**’ is the category for the action. Each topic is a different colour to aid reading of the tables;
- ‘**Option**’ is the shortened named of the option for which the action is required;
- ‘**When**’ refers to the timescale in which the action should be undertaken. This is usually Short, Short-Medium, Medium, Medium-Long or Long. Where more specific information is available, this is included (i.e. a year or Control Period);
- ‘**Action**’ is the action required by Surrey County Council and its partners, taken from the previous chapter. In this context, partners refers to Surrey Future, the M3 or Coast to Capital LEP, or the Surrey business community, or a combination of these;
- ‘**Main Stakeholders**’ refers to the parties with whom Surrey County Council and its partners should work to deliver the strategy. These are:
  - DfT – the Department for Transport;
  - NR – Network Rail;
  - TfL – Transport for London;
  - TOC – the relevant Train Operating Company;
  - BD – Boroughs and Districts, both within Surrey and possibly in neighbouring counties;
  - Other – depending on the option, may refer to, for example, airport operators or private sector scheme promoters.

Within each table, the actions are grouped by area/ topic; they are not in priority order within each table. Priority actions are considered at the end of this chapter.

## 6.1 Short Term Action Plan

The Short and Short-Medium Term Action Plan is shown in **Table 6**.

In the short term action plan there are actions required to:

- Support committed train lengthening schemes on the South West Main Line and Windsor Lines;
- Continue to work with Network Rail on level crossing issues along the Windsor Lines;
- Commence strong lobbying for further development of the Crossrail 2 regional scheme to deliver more capacity on the South West Main Line, working closely with TfL and other key stakeholders;
- Explore options to reduce journey times between Camberley and London;
- Support committed additional platform at Redhill;
- Lobby for train lengthening and timetable recast on the North Downs Line;
- Proactively engage with the Davies Commission on airport capacity;
- Support committed schemes that will benefit Gatwick Airport;
- Work with Kent County Council to consider the feasibility of a Tonbridge-Gatwick service that would benefit Tandridge District.
- Improve road-based access to Heathrow Airport;
- Lead the development of the station access and station facilities improvement programmes, as well as the standard rail service specification for Surrey;
- Lead review, and where appropriate, the development of rail improvements to support developments.

As each option is developed, individual programmes will be drawn up for implementation of the option.

**Table 6: Short and Short-Medium Term Action Plan**

Area/ Topic	Option	Action	When	Main Stakeholders					
				DfT	NR	TfL	TOC	BD	Other
South West Main Line	Committed Schemes	Supporting the committed scheme to lengthen trains	Short 2013-4	X			X		
South West Main Line	Crossrail 2	Strong support for development of the Crossrail 2 regional scheme	Short 2013	X	X	X			
South West Main Line	Sturt Lane Chord	Exploration of short-medium term options to reduce journey times between Camberley and London via Ash Vale, linked to Alton-Guildford option	Short				X		
Windsor Lines	Committed Schemes	Supporting the committed schemes to deliver 10-car operation and additional services	Short-Medium		X		X		
Windsor Lines	Committed Schemes	Continue to work with Network Rail on level crossing issues along the Windsor Lines;	Short-Medium		X				
North Downs Line	Committed Schemes	Supporting the committed scheme to provide an additional through service to Gatwick with the completion of platform 0 at Redhill	Short-Medium	X	X				
North Downs Line	Train Lengthening	Lobbying the DfT to include train lengthening and timetable recast in the next franchise specification	Short-Medium	X					

**Table 6: Short and Short-Medium Term Action Plan (cont'd)**

Area/ Topic	Option	Action	When	Main Stakeholders						
				DfT	NR	TfL	TOC	BD	Other	
Access to Airports	Committed Schemes	Considering Surrey's position on airport growth in the region and proactively engage with the Davies Commission in the short term to ensure a preferential outcome for the County	Short	X						
Access to Airports	Committed Schemes	Supporting the committed schemes that will benefit rail access to Gatwick (eg Thameslink Key Output 2, Platform 0 at Redhill, NDL improvements)	Short-Medium		X					
Access to Airports	Heathrow	Expending effort on improving journey time reliability of access to Heathrow by road, and undertaking research to inform the development of options for improving bus and coach access, for example by providing additional Rail-Air links from other locations (based on the existing Woking model)	Short-Medium					X	X	
Access to Airports	Heathrow	Actively engaging with Wandsworth Council on the Airtrack Lite scheme to assess the benefits for Surrey and consider its support for this scheme	Short-Medium		X					X
Access to Airports	Heathrow	Considering scheme proposals such as Staines Rapid Rail and extension of the Ultra PRT to Staines, once these become formal proposals and a business case assessment has been undertaken	Short-Medium							X
Access to Airports	Gatwick	Work with Kent County Council to consider the feasibility of a Tonbridge-Gatwick service that would benefit Tandridge District.	Short-Medium							X
Network Wide & Stations	Station Access Improvement Programme	Taking the lead in developing a station access improvement programme, with the support of both local partners, particularly Borough and District Councils, and the rail industry, particularly the relevant train operator and Network Rail	Short-Medium	X	X		X	X		
Network Wide & Stations	Station Facilities Improvement Programme	Taking the lead in developing a station facilities improvement programme, with the support of both local partners, particularly Borough and District Councils, and the rail industry, particularly the relevant train operator and Network Rail	Short-Medium	X	X		X	X		
Network Wide & Stations	Standard Service Specification	Taking the lead in developing a standard service specification for Surrey with both the local partners, particularly Borough and District Councils, and the rail industry, particularly the relevant train operator and Network Rail	Short-Medium	X	X		X	X		
Network Wide & Stations	Rail Improvements to Support Developments	Proactively leading the development of rail improvements to support developments, with Borough and District Councils	Short-Medium					X		

## 6.2 Medium Term Action Plan

The Medium and Medium-Long Term Action Plan is shown in **Table 7**.

In the medium term action plan there are actions required to:

- Work closely with Network Rail to support the effective use of committed funding to deliver capacity improvements at London Waterloo;
- Lobby for additional train lengthening on the South West Main Line, particularly its inclusion in the next South Western franchise specification;
- Proactively lobby for the inclusion of Surrey County Council and partners in the development of the Crossrail 2 scheme;
- Promote the Sturt Road Chord scheme as an effective use of future additional capacity on the SWML;
- Monitor actual demand growth on SWML Inner Suburban and Windsor Lines services;
- Support committed schemes on the Brighton Main Line and monitor the construction impacts of the Thameslink Programme;
- Work with Network Rail to develop further BML capacity improvements;
- Lead development of major improvement scheme for the North Downs Line, working closely with the DfT and Network Rail;
- Support committed Heathrow Western Connection to Reading;
- Engage with all options which seek to address access to Heathrow;
- Raise Crossrail extension option in discussions on Airtrack Lite;
- Develop options that will benefit Gatwick Airport in future;
- Confirm the business case for Guildford local access schemes, including 2 tph Alton-Guildford, and new stations at Park Barn and Merrow;
- Engage with the rail industry on demand management measures.

As the strategy enters the medium term, it is likely that the external environment will change, with the Davies Commission reporting and new franchises being awarded, amongst other things.

The strategy should be reviewed and amended to reflect any significant changes. This is considered further at the end of the chapter.

**Table 7: Medium and Medium-Long Term Action Plan**

Area/ Topic	Option	Action	When	Main Stakeholders					
				DfT	NR	TfL	TOC	BD	Other
South West Main Line	Committed Schemes	Working closely with Network Rail to develop incremental improvements to train frequency and length in the medium term, including the 28tph scheme	Medium CP5		X		X		
South West Main Line	Maximum Train Length	Lobbying for additional lengthening of remaining trains so all trains are operating at maximum length	Medium CP5	X			X		
South West Main Line	Crossrail 2	Proactive lobbying to include Surrey County Council and partners in the development of the Crossrail 2 scheme	Medium	X	X	X			
South West Main Line	Sturt Lane Chord	Promotion of the Sturt Lane Chord option in the next HLOS, linked to additional capacity released by other options, so it can be delivered later in CP6	Medium	X	X				
South West Main Line	Lengthen to 12-Car	Monitoring of demand growth on Inner Suburban services to determine the requirement for additional lengthening to 12-car in the future	Medium	X	X				
Windsor Lines	12-Car Trains	Monitoring of demand growth on Windsor Line services to determine the requirement for additional lengthening to 12-car trains in the future	Medium	X	X				
Brighton Main Line	Committed Schemes	Supporting the committed schemes to provide additional capacity through the Thameslink programme, particularly the delivery of Key Output 2, and lengthening on the Uckfield line	Medium		X				
Brighton Main Line	Committed Schemes	Monitoring the construction impacts of Key Output 2 and working with rail industry partners to ensure that the impacts on Surrey are not unreasonable	Medium		X				
Brighton Main Line	Junction Improvements	Working with Network Rail to develop the option and lobby the DfT to include this in the next HLOS so it becomes a requirement for CP6.	Medium	X	X		X		

**Table 7: Medium and Medium-Long Term Action Plan (cont'd)**

Area/ Topic	Option	Action	When	Main Stakeholders					
				DfT	NR	TfL	TOC	BD	Other
North Downs Line	Electrification & improvements	Leading the development of an NDLM major improvement project with general upgrading of the line to provide an improved orbital service offering in Surrey, possibly with electrification	Medium-Long	X	X		X		
Access to Airports	Committed Schemes	Supporting the Western Connection to Reading committed scheme that will benefit rail access to Heathrow to ensure that this is improved	Medium-Long		X				
Access to Airports	Gatwick	Developing the recommended options that will benefit rail access to Gatwick in the future. These include North Downs Line train lengthening, North Downs Line electrification and improvements, and Brighton Main Line junction improvements, to address adequacy issues	Medium-Long	X	X				
Access to Airports	Heathrow	In the discussions on Airtrack Lite, raising the alternative to extend Crossrail to Staines, to assess whether this scheme is worth pursuing further as an alternative to the proposed scheme	Medium		X	X			X
Access to Guildford	2tph Alton-Guildford	Confirming the business case for 2tph Alton-Guildford and lobbying the DfT to include it in the next South Western franchise specification	Medium	X	X		X		
Access to Guildford	Park Barn Station	Confirming the business case for Park Barn station and lobbying the DfT to include it in the next South Western franchise specification	Medium	X	X		X		
Access to Guildford	Merrow Station	Confirming the business case for Merrow station and, if confirmed, lobbying the DfT to include it in the next South Western franchise specification	Medium	X	X		X		
Network Wide & Stations	Demand Management Interventions	Engaging with the rail industry, particularly the DfT and Network Rail, to review the demand management options available and push to develop options that would benefit Surrey	Medium	X					



## 6.3 Long Term Action Plan

The Long Term Action Plan is shown in **Table 8**.

In the long term action plan there are actions required to:

- Identify further capacity upgrades on the South West Main Line and enabling schemes for Crossrail 2 or an alternative long term scheme to relieve the inner area;
- Secure policy support for a southern rail access to Heathrow Airport through the rail industry long term planning process for delivery in CP6 (linked to expansion at Heathrow Airport, if granted through the Airports Commission).
- Develop the concept of a new, possibly high speed, rail link across Surrey from Heathrow to Gatwick Airport and possibly beyond;
- Develop the business case for the Clapham Interchange option.

These actions cover the long term schemes that could only be implemented in the long term. However, these actions can be taken forward earlier if other actions are completed and there is a desire to accelerate these schemes.

**Table 8: Long Term Action Plan**

Area/ Topic	Option	Action	When	Main Stakeholders					
				DfT	NR	TfL	TOC	BD	Other
South West Main Line	Further Capacity Upgrades	Identification of requirements for further capacity upgrades and enabling schemes for Crossrail 2, including Woking Flyover	Long CP6	X	X				
Access to Airports	Heathrow & Gatwick	Secure policy support for a southern rail access to Heathrow Airport through the rail industry long term planning process for delivery in CP6 (linked to expansion at Heathrow Airport, if granted through the Airports Commission).	Long	X	X			X	
Access to Airports	Heathrow & Gatwick	Develop the high speed rail link scheme to pre-feasibility level to investigate the major opportunities and challenges, and build stakeholder support	Long	X					
Network Wide & Stations	Clapham Interchange	Working with the rail industry, particularly the DfT and Network Rail, to review the business case for an improved Clapham Interchange for Surrey, and develop the scheme further	Long	X	X	X	X		

## 6.4 Rail Strategy Priorities

There are a number of actions identified above covering many different options. There is a risk of confusion over priorities and dilution of resources across too many activities, particularly if human resources to lead and develop options are limited.

The priority actions should be those which relate to those options which are closely aligned with the Surrey rail development objectives and which have the potential to have a major impact on rail in Surrey, in the short, medium or long term. These priority options are considered to be:

- **Capacity on the South West Main Line** – the South West Main Line has significant capacity challenges in future. In the short to medium term the County Council should support committed and planned schemes to increase capacity through train lengthening and additional services. In the longer term, the Crossrail 2 project has the potential to address some of the capacity gap forecast on the line and, depending on the configuration of the scheme, has wider benefits for parts of Surrey in terms of greatly improved access to major employment centres in London and in maintaining Surrey’s global competitiveness by providing better connections to HS1 and in future HS2. It should be a priority of the strategy to implement actions that encourage further development of the Crossrail 2 regional scheme with stakeholders, and also to develop the enabling schemes in the short to medium terms, such as Woking Flyover and plans to relieve the inner area of the South West Main Line;
- **Local Orbital Rail Services** – improvements to the North Downs Line will address capacity issues in the short-medium term, but in the medium long term there is potential to create a really strong orbital link through Surrey, anchored by Gatwick Airport at one end and Reading at the other (for the future employment opportunities in Reading and wider connections, such as the planned Western Connection to Heathrow) and with the major Surrey towns of Redhill and Guildford between the two. There is also potential to link through to Kent on the Tonbridge line. This is an option that Surrey County Council and its partners can step up to and take the lead on, and it should be a priority of the strategy to push forward with this option;
- **Access to Airports** – this is a high profile and political issue in Surrey, and it affects decisions to locate people and businesses in the County. There are a number of options in the short and longer terms to address access to Heathrow and Gatwick, but in the case of Heathrow, there are no easy solutions. It should therefore be a priority for Surrey County Council and its partners to demonstrate leadership on this issue, by defining its position on airport capacity, and taking the lead on improving access to airports from Surrey. Inevitably, a final position will be dependent on the conclusions of the Davies Commission, but it is important that Surrey lobbies strongly for the continued development of Heathrow and Gatwick, because of their contribution to Surrey’s global competitiveness, economic prosperity, and employment.

## 6.5 Implementing the Strategy

Once the Surrey Rail Strategy is approved and adopted by Surrey County Council, it should be implemented quickly to maintain the momentum gained during the development stage of the strategy. There has been excellent stakeholder interest and support from both within the County and the rail industry, and this should be harnessed by Surrey County Council and its partners to deliver benefits to Surrey from the strategy options.

In particular the short term options should be developed as a priority to feed into the main rail industry processes. Early engagement should include:

- Engagement with the **Department for Transport** to clearly promote Surrey's requirements for:
  - the 2017 High Level Output Specification (HLOS) and Control Period 6;
  - future franchise specifications and priorities (Thameslink, South Western, Great Western, etc);
- Engagement with **Network Rail** to ensure Surrey's active participation in the Long Term Planning Process (LTPP) particularly the London and South East Market Study and future Route Studies. Conditional outputs should be clearly defined so options for Control Period 6 are developed and agreed;
- Engagement with **Transport for London** to ensure Surrey's active participation in the development of the Crossrail 2 scheme, and other schemes involved lines and stations in London, eg Clapham Junction hub;

Regular engagement should also be held with the **Train Operating Companies** to build relationships around development and implementation of relevant options, and with **Surrey stakeholders**, such as Boroughs and Districts and the business community, to report on progress, build relationships around the rail strategy, and harness local skills and knowledge to support implementation.

One possible approach for building stakeholder support around the rail strategy is to hold an Annual Rail Summit. During the stakeholder consultation, this was reported by Kent County Council as an effective means of implementing their Rail Action Plan. After developing a Rail Action Plan for Kent, the County Council invited stakeholders to the rail summit, where stakeholders including rail user groups, parishes and local politicians were informed of progress in implementing the Action Plan and given the opportunity to put forward their concerns. This meant that the County could then pass on these concerns, acting as the 'voice' of rail for the County. A rail summit or similar type event is recommended as a way of implementing this strategy and maintaining stakeholder support.

## Appendix A

### Meetings with Stakeholders

Stakeholders	Description	Format	Meeting Date
Surrey County Council	Relevant Members Cllr Steve Renshaw Cllr John Furey Cllr Simon Gimson SCC Principal Environmental Assessment Officer SCC Surrey Future team SCC other relevant officers	Meetings at 'drop-in' event at County Hall	26 November 2012
	Stewart Palmer (SCC adviser)	Meeting at County Hall	30 November 2012
	SCC Members	Member Seminar	14 January 2013
Surrey Borough and District Councils	Local planning and transport officers D Yell (Guildford) G Davies (Reigate & Banstead) J Straw (Mole Valley) J Phillips (Tandridge) J Brooks (Spelthorne) J Rickard (Surrey Heath) K Jakubczyk (Epsom & Ewell) L Underwood (Elmbridge) P Falconer (Waverley) R Ford (Runnymede)	Meetings at County Hall	26 November 2012 30 November 2012
	Woking Borough Council	Telcon with Jeni Jackson	10 December 2012
Other councils	Hampshire County Council	Telcon with Geoff Hobbs	29 November 2012
	Kent County Council	Telcon with Stephen Gasche	4 December 2012
	West Sussex County Council	Telcon with Jamie Dallen	4 December 2012
Transport for Surrey Partnership Board / Surrey Connects	Mark Pearson (Chief Executive of Surrey Connects)	Meeting at County Hall	30 November 2012
Local Enterprise Partnerships	Enterprise M3	Meeting of Enterprise M3 LEP Transport Action Group	24 January 2013
	Coast to Capital	Telcon with Ian Parkes	19 December 2012
Department for Transport	Franchise Specification team Rail Strategy team	Meeting	27 March 2013
Network Rail	Representatives from the HQ Planning team and, if appropriate, from the Wessex Route team	Meeting with Richard Eccles	1 February 2013
Transport for London	Crossrail 2 Planning Team	Meeting	23 November 2012
Train Operating Companies	South West Trains	Meeting at SWT HQ	5 December 2012
	Southern	Telcon with Howard Read	23 January 2013
Rail passengers	Passenger Focus	Telcon with Linda McCord	12 December 2012

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