Wider Network Benefits Package

Submission to Coast to Capital LEP

Surrey County Council
February 2015

CUSTOMER SERVICE EXCELLENCE CSE

SURREY

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WHO - Scheme Promoter and Partners			
LTA/ Proposer:	Surrey County Council Highways and Transport Department	**Scheme name & [District/ Borough]:**	Wider Network Benefits Phase 1
Contact details:	Surrey County Council County Hall Penrhyn Road Kingston upon Thames KT1 2DN Lead officer: Lyndon Mendes, Transport Policy Team Manager – Lyndon.Mendes@surreycc.gov.uk	**Partners [in joint submissions]:**	N/A

WHAT & WHERE – Outline description, scope & maps	
Type of scheme: (Sustainability package, resilience scheme, hybrid)	Resilience
Scheme description	**Strategic Case** **Overview of the Wider Network Benefit package** Through the implementation of Intelligent Transport Systems (ITS), our *Wider Network Benefits (WNB)* package has been devised to enable us to exert far greater control over how our road network responds to the challenges caused by traffic congestion. The objectives of the *Wider Network Benefits* scheme are as follows: • expand and upgrade Surrey County Council's traffic management capability; • manage the Strategic Road Network and the Surrey road network more effectively; • enable better management of traffic congestion and road safety and improve journey time reliability; • manage traffic for key events on the network more effectively; and • Improve response to incidents on the network. This application for funding covers Phase 1 of the *WNB* package – which concentrates on our five highest priority corridors: A23; A24 (north); A25; A217; and A240. Phase 1 also includes the improvements to our Network Management and Information Centre (NMIC) which will be essential in delivering the control over the network. Whilst the full phasing plan for our *WNB* package is contained within Annexe A, the

estimated ITS equipment to be delivered as part of Phase 1 of the scheme is summarised in Table 1:

Table 1: WNB Phase 1 – Estimated ITS itemised equipment list

ITS Element		Corridor					
Stage	Equipment	A23	A24 (N)	A217	A240	A25	Total
Prevent	Average speed camera			16			16
Monitor	Single-lane ANPR	8	6	15	5	8	42
	Multi-lane ANPR	0	14	18	2	0	34
	CCTV	11	7	6	3	2	29
Inform	Variable message signs	5	1	6	4	3	19
Control	DUSC	15	13	20	3	6	57
	Junction controllers	2	0	3	1	0	6
	Pelican controllers	1	0	2	0	0	3
	Detection loops	0	1	1	2	0	4

Annexe B includes equipment inventories and mapping, however Surrey Police have requested that location information for the ANPR cameras should not be in the public domain. These details can be discussed if necessary with the LEP on a confidential basis.

The phasing plan allows flexibility in delivering the full suite of ITS equipment across East Surrey. The equipment list above has been established based on available cost estimates, however, should economies of scale be achieved during procurement and cost savings made, elements of Phase 2 will be considered as part of the Phase 1 funding stream.

Drivers for intervention

Surrey County Council (SCC) and the Highways Agency (HA) work in partnership to manage the strategic road network and adjoining local road network in Surrey as one to maximise the benefits to all road users on both networks. SCC's NMIC is used to oversee the Surrey highway network on a day-to-day basis through monitoring congestion and incidents, and to plan for forthcoming events.

Incidents

At present, SCC monitor network conditions through ad-hoc reporting of traffic incidents or emergency street-works being entered onto respective systems. Once this evidence is received, NMIC controllers can send out travel alerts, publicise incidents via social media or programme messages onto the current Variable Message Signs (VMS).

The limitations of this approach is that it is reliant on information being observed and manually entered relayed to the NMIC. This means that insufficient monitoring can lead to incidents remaining unreported, or there being significant delays between an incident occurring and the relay of messages.

Furthermore, SCC have limited resources (i.e. those mentioned above) to instantly inform road users of network congestion and therefore have limited opportunity to aid drivers in

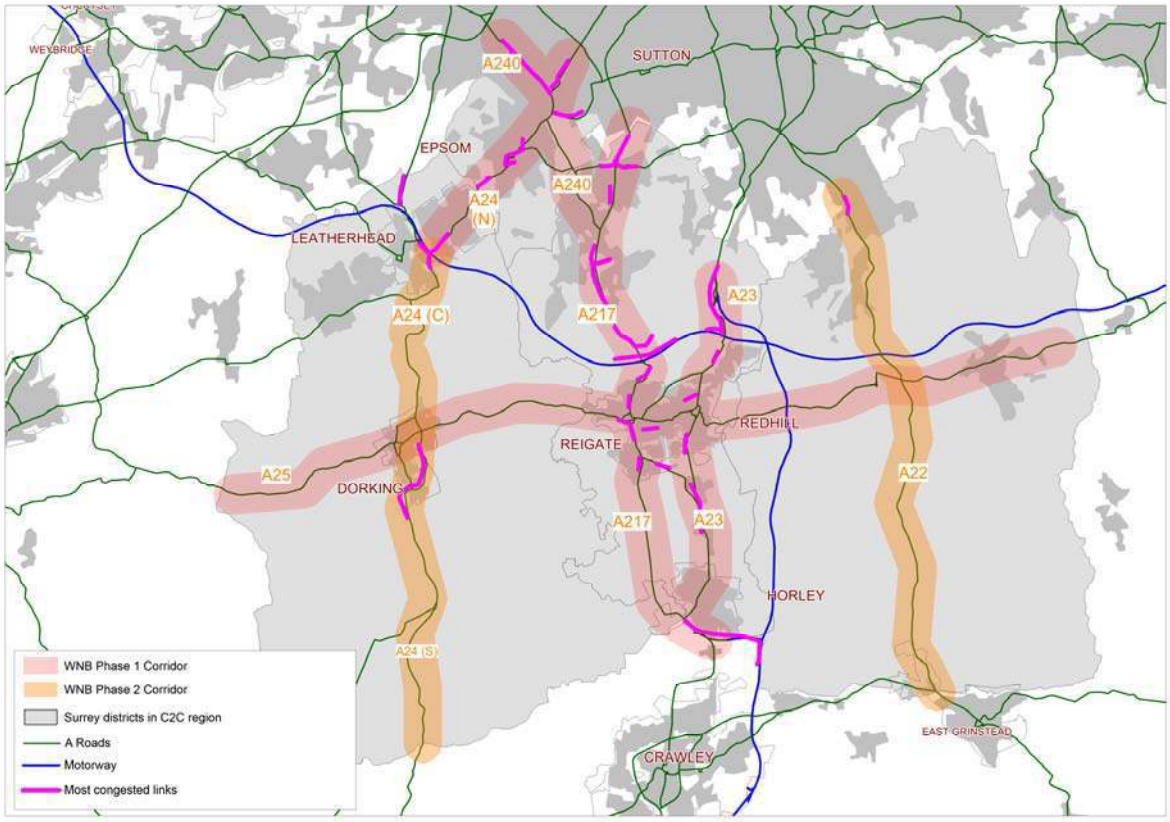
making alternative route choices.

Network congestion

Even under 'normal' operating conditions (i.e. when the network is free of incidents), high traffic flows on several strategic roads (as displayed in Figure 1) mean that they are operating over-capacity in peak times, resulting in congestion and unreliable journey times.

This natural level of congestion means that there is limited resilience in the network to cope with incidents relating to accidents, adverse weather, road works or deployment of the Highways Agency Emergency Diversion Routes.

Figure 1 - Most congested Local Authority controlled highway links in East Surrey



** Source – SCC strategic model, 2011 data*

SCC's *Congestion Strategy* (July 2014) highlights the need to improve journey time reliability as a critical factor for all road users in the county. Crucially, it is recognised that improving reliability can have greater economic benefit than minor improvements in average journey times. The ability of the system to recover from major disruptions is also seen as important.

The objectives of the *Congestion Strategy* are to:

- Improve the reliability of journeys;
- Reduce delays for all transport modes on key routes and at congestion hotspots;
- Improve the provision of journey planning information for travel in Surrey.

SCC's target is to ensure congestion related delay and journey time reliability does not

deteriorate beyond current levels.

In 2014, Surrey Future (a consortium of County and District councils, business leaders and other stakeholders) published the Congestion Programme which sets out the strategic programme for managing traffic congestion on Surrey's road network in support of economic competitiveness and growth.

Journey times and congestion are forecast to continue to increase with additional traffic growth (both background growth and development related). In addition to the forecast background growth, development sites in Surrey and beyond will generate additional traffic growth. The overall effect of these future changes in traffic volumes and routing is likely to negatively impact on the operation of the corridors and main junctions.

The WNB package is a named component in the Surrey Future proposed forward work programme, identified for mitigating the impact of predicted growth.

To this end, SCC wishes to manage the road network more effectively in order to maximise the benefits to road users on both the local and strategic networks. The Wider Network Benefits package, which is the subject of this application, is to expand and upgrade SCC's traffic management capability to enable congestion and road safety to be managed with increased resilience and efficiency county-wide and, potentially, in adjoining authority areas.

The proposed solution

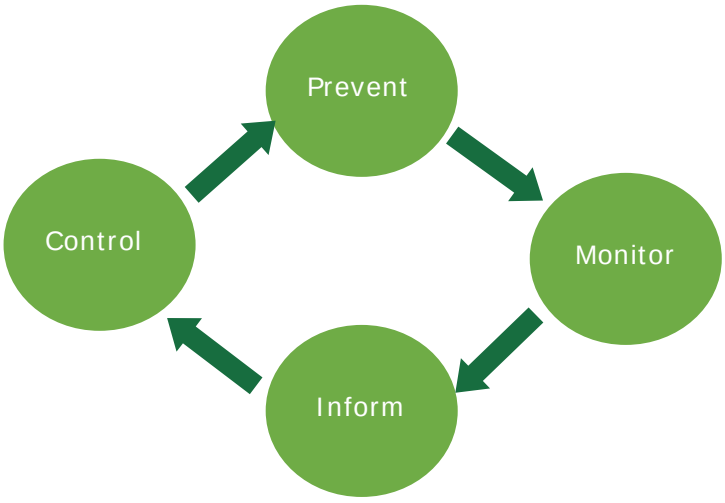
At the heart of the Wider Network Benefits proposal is a suite of proposed ITS measures.

These measures can deliver noticeable economic benefits for Surrey through reduced journey times and increased journey time reliability for all vehicles using the highways, as well as improvements in safety, reductions in pollution and comprehensive and more accessible travel information.

Prevent, Monitor, Inform and Control approach

The method of approach to deliver these ITS measures has been broken down into four key elements – Prevent, Monitor, Inform and Control. Each element will help to achieve an overall improvement to the highway network in its own way.

A fuller explanation of the approach is contained in Annexe C.



Prevent – The prevent aspect will use average speed cameras as a means of reducing excess speeds and casualties, as well as the reduction in incidents causing unexpected traffic congestion. This would operate as part of the Drive SMART Partnership between Surrey County Council and Surrey Police in order to extract maximum benefit from the investment.

Monitor – The monitoring aspect will use Automatic Number Plate Recognition (ANPR) and CCTV technology to gain a good understanding and representation of the Surrey highway network. The equipment will give Surrey live data in the form of journey times, traffic flows, vehicle speeds and incidents. The data can then be processed and manipulated manually and automatically to inform a variety of stakeholders.

Inform – The monitoring data collected will enable Surrey to proactively inform road users with current and accurate travel information. Variable Message Signage (VMS) at key route decision points will display travel conditions, diversions and incidents in real time. Using this new information in conjunction with current social media and e-mail alerts, the travelling public will be able to make decisions about their journey ahead.

Control – Existing traffic signal controllers and infrastructure will be upgraded to enable real-time alterations to timings and signal plans. The live network data being fed from the monitoring aspect will trigger immediate changes to travel patterns.

This monitor, inform and control equipment will be used to:

- Implement a better and more proactive response to incidents on Surrey's Network;
- manage the impact of traffic diversions resulting from incidents on the M25 and M23 when traffic is routed onto the local road network in East Surrey;
- better manage the impact of planned events on the highways.

Corridor selection for *WNB Phase 1*

This application for funding covers Phase 1 of the *WNB* package – which concentrates on our five highest priority corridors:

- A23;
- A24 (north of the M25);
- A25;
- A217; and
- A240.

WNB Phase 1 also includes the improvements to our NMIC which will be essential in delivering the control over the network. These improvements included in Phase 1 will be sufficient to cope with the future demands of the additional ITS equipment proposed under later phases of the WNB package.

Corridor prioritisation was based on the consideration against a number of indicators which

covered strategic, environmental and social importance. Analysis was undertaken of available data and a score was applied to each corridor based on this assessment.

Table 2 provides the summary comparison scores for each of the corridors considered. Further detail on the information used in the prioritisation process is contained in Annexe D.

Table 2: WNB Corridor prioritisation scores

Indicator	Corridor prioritisation 0 = No relevance to 5 = High relevance							
	A22	A23	A24 (N)	A24 (S)	A24 (C)	A25	A217	A240
Congestion	2	4	4	3	4	1	5	5
Traffic flows	2	3	2	3	5	1	5	5
Existing major businesses	1	4	4	3	5	4	3	3
Air quality management area	0	5	0	0	0	5	5	5
Planned & unplanned activities	5	3	3	2	1	4	5	2
Social indicators	1	5	4	4	2	3	2	4
Emergency Diversion Routes	5	5	5	5	5	5	5	5
Future Development	2	5	2	5	3	3	5	2
Average indicator score	2.3	4.3	3.5	2.7	3.0	3.1	4.4	3.3

Financial Case

Derivation of base costs

Costs for the WNB scheme have been deived using benchmarked unit item costs from existing contracts. These benchmarked unit costs have been used to derive a total scheme cost which includes preparation and management, design, supervision and construction. The breakdown of (un-inflated) base scheme costs are detailed in Table 3.

Table 3: Breakdown of costs

Cost item	Cost (millions, Q1 2015 prices)
Equipment	**£2,057,900**
Preliminaries	**£99,145**
Main works	**£198,290**
Statutory Undertakers Works	**£59,487**
Preparatory (design)	**£205,790**
Site Supervision	**£99,145**
Total Base Cost (excluding inflation, risk and optimism bias)	**£2,719,757**

Allowance for risk and optimism bias

A review of risks was undetaken and a risk factor of 15% has been assumed based on bench marking against other SCC submitted Coast to Capital LTB bids. Table 4 details the key project risks idenitifed along with their conseuqencies and the existing controls in place to mitigate for their impacts.

Table 4: Highlighted project risks

Risk Description	Consequences	Mitigation controls	Impact on programme or budget
Highway land width is not adequate for Technology / Unable to meet minimum clearance requirements between Technology and other infrastructure and road network/ unsuitable locations identified for required sight lines	Need to review siting of Technology /Additional site visits/Additional design mitigation costs/Possible need for tree removal	Initial design provides indicative locations. We will investigate alternative sites in the design process. It is unlikely that site options will be so limited that trees will need to be removed.	Extended on-site investigation /redesign work 2 week delay
Incomplete or late delivery of outputs by design teams/project management resource due to other workload pressures/lack of staff	Delay to procurement streams, delay to booking permits to work on the network, delay to implementation	Additional Design Staff Post/s already requested within Traffic Operations Team (Request progressing), decision on project management resource made immediately post detailed design	2 month delay
Long lead times for new Statutory Undertaker service provisions/existing apparatus diversions	Delays in technology installation/operation	Early completion of detailed work and subsequent prompt generation of purchase orders. Partnering with Streetworks team co-located at NMIC to secure permit for works approval	2 month delay
Incumbent Contractor/s goes into liquidation.	Delay in procurement of some elements, delay to works on site. Need to retender elements.	Ongoing engagement/review with incumbent contractors on their financial status and performance. Procurement Team measures in place pre-tendering to ensure companies financial viability. Need for potential mini tendering has already been built into programme, several alternate procurement options have been identified for each element of the technology	3 month delay
Lack of public support	Delay in installation of equipment	Lead member approval gained prior to bid, public engagement and local committee briefing.	1 month delay

Following confirmation of scheme funding, ownership of the risks will be allocated to those parties best able to manage them. Throughout the life of the project these are other identifed project risks will be monitored, amended and added to through the application of a Risk Management Plan.

A further Optimism Bias (of 15%) has been applied to the scheme base cost (plus risk) to

account for there being some residaul uncertainty on delivering the scheme.

Inflation assumptions

For the financial case the full rate of inflation has been included in cost forecasts. Latest forecasts suggest that construction related costs will rise by 2% in absolute terms to 2015/16, a further 2% to 2016/17 and by a further 3% to 2017/18. This covers the period included in the construction profile for the WNB Phase 1 package.

Quantified cost estimate

Table 5 sets out the quantified cost estimate, (outturn cost) which includes risk, optimism bias and inflation and shows the cost profile by year in which the costs are incurred.

Table 5: Quantified cost estimate

Element	Spend profile			Scheme cost
	2015/16	2016/17	2017/18	
Equipment purchase	£0.58	£1.00	£0.58	£2.16
Preliminaries	£0.05	£0.05	£0.00	£0.10
Main works	£0.06	£0.10	£0.04	£0.21
Statutory Undertakers Works	£0.02	£0.02	£0.01	£0.06
Preparatory (design)	£0.10	£0.09	£0.02	£0.21
Site Supervision	£0.05	£0.04	£0.01	£0.10
Risk Budget	£0.19	£0.20	£0.04	£0.42
Optimism Bias	£0.24	£0.24	£0.00	£0.49
Total cost	£1.30	£1.75	£0.70	£3.75

Ongoing revenue liability

Operation and maintenance liabilities will fall to SCC. These costs have not been included in the cost estimate as they will become part of the maintenance and operations costs for the principal road network authority.

We will look to make much better use of our corporate asset management revenue budgets. This will include a flexible approach to how all revenue is distributed across the Environment & Infrastructure division allowing for transfer of revenue fund from underspending budgets to those which require topping up.

Anticipated additional pressure on current revenue budgets estimated against WNB Phase 1 assets is already mitigated by savings achieved against ongoing communication costs associated with current assets.

Commercial Case

Procurement

Rather than selecting a single source for procurment of the technology components which

make up our WNB package, we believe that a bespoke approach will achieve better cost optimisation.

For each of the components which will make up our WNB package we have therefore investigated a number of procurement routes. Once funding is secured we will finalise our procurment strategy.

Table 6 sets out the preferred procument options for each component.

Table 6: Equipment procurement routes

Component	Procurement		
	Preferred route	**Benefits**	**Alternative option**
Average speed cameras	Small competitive tender process	• Tender process will allow comparison of best prices and quality.	Procured through regional ITS existing call-off contract
CCTV	Small competitive tender process	• Tender process will allow comparison of best prices and quality.	Procured through South East ITS Framework contract
VMS	Procured through South East ITS Framework contract	• Removes need to tender and guarantees scheme can be delivered	Small competitive tender process
ANPR	Small competitive tender process (joint with Surrey/Sussex Police)	• Existing contract (joint with Surrey Police has ended and the new tender process will allow comparison of best prices and quality.	Procured through South East ITS Framework contract
Junction equipment	Existing asset management contractor	• Scheme designs can be kept in-house. • Successful existing partnership in delivering similar schemes through contractor. • Removes need to tender and guarantees scheme can be delivered	Small competitive tender process
NMIC	Existing contractor	• Successful existing partnership in delivering similar equipment through contractor. • Removes need to tender and guarantees scheme can be delivered. • New equipment is guaranteed to be compatible with existing.	Small competitive tender process

Management Case

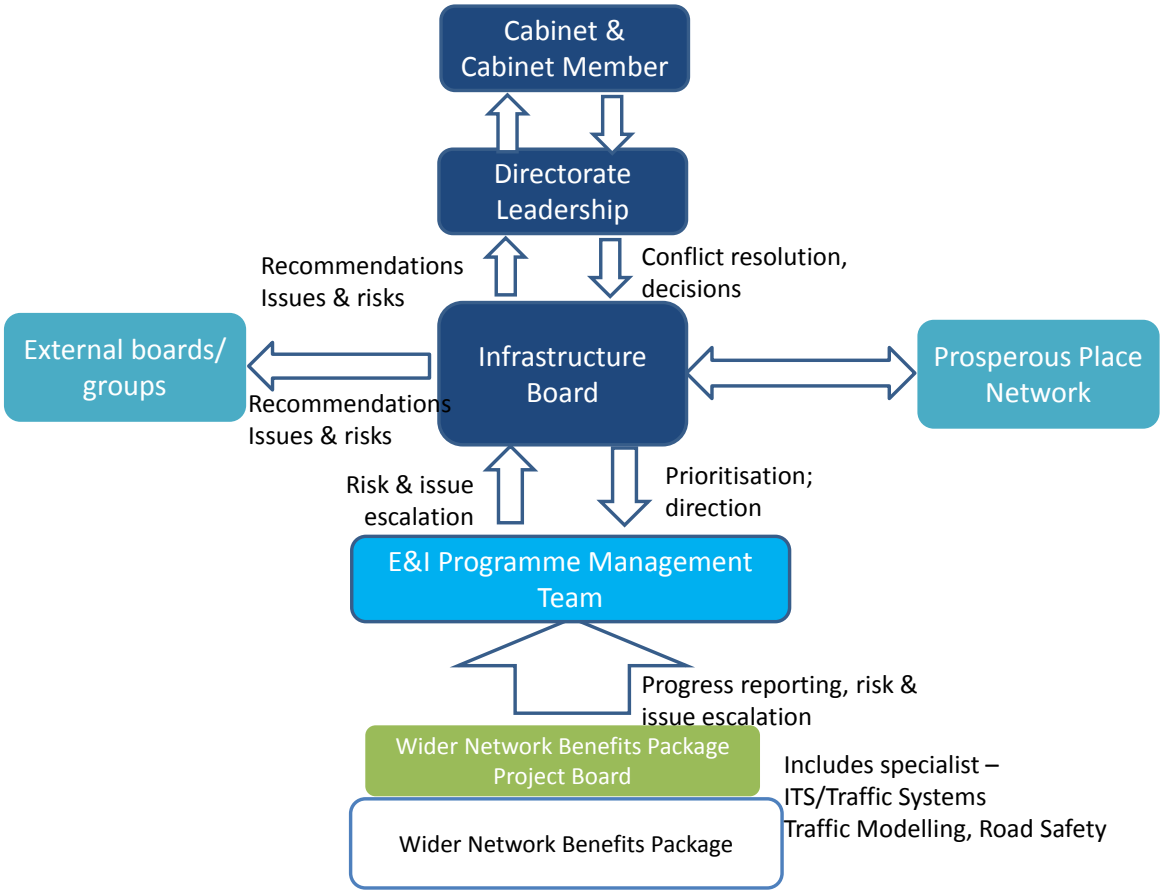
Governance & organisational structure

SCC will undertake the design, construction and monitoring stages of the scheme utilising a governance structure as shown in the organogram in Figure 2.

At the head of the structure is the Lead Cabinet Member with ultimate authority over the

implementation of transport schemes with the assistance of the project board. The leadership team will be responsible for ensuring the scheme follows the identified programme and will maintain the operation of the project delivery team.

Figure 2 – Strategic governance chart[1]



Programme / Project plan

Following on from the initial programme entry submission to the LTB in July 2013 we have progressed with planning scheme delivery to ensure that we will be in a position to complete the scheme by Q4 2017, on the provision that funding is received.

Annexe E contains an outline programme for the WNB Phase 1 project, showing the steps to be taken to ensure timely delivery. The key milestones from the project programme are as follows:

- Submission of proportionate business case: 19th February 2015;
- Decision by C2C LTB/TC2C LEP Board on commitment of funding: Mar/April 2015;
- Procurement period: Apr-Oct 2015

[1] The role of the Prosperous Places Network PPN) is to support sustainable growth which benefits the wellbeing of residents and is achieved through well-functioning places. Through working with our Districts and Borough partners, the PPN is looking at identifying areas to improve joint working and seeks to bring back shared priorities for coordinated delivery across the different directorates within the county council and with partners.

- Sign-off of construction duties (SCC): Q3/Q4 2017

The progress towards these milestones will be monitored by the SCC Project Manager and reported to the Project Board.

Monitoring & evaluation

Tracking of the scheme benefits provided by WNB Phase 1 will be a key element in understanding the success of these specific interventions, and will be vital in understanding how and where further phases are implemented.

To help determine the impact of the ITS measures it is envisaged that a range of data sources will be interrogated to monitor traffic conditions both before and after implementation. These could include the use of:

- Journey time analysis utilising data collected from SCC's existing stock of ANPR cameras on A23 and A25;
- Historic aggregated congestion data taken from GPS derived *strat-e-gis/ C-Jams* analysis;
- Real-time *TomTom* GPS data derived journey times;
- SCC's permanent Automatic Traffic Count (ATC) sites and temporary loops to understand before and after flows and speeds; and
- Collision/ casualty data analysis.

Post-implementation, an activation log for the VMS and traffic signal optimisation will be established to record the number of incidences or events of congestion on the network that have required an intervention - allowing an evaluation of whether the equipment has been sited in the most appropriate locations.

As well as monitoring benefits, we will evaluate how successfully the processes used in the implementation of the scheme (i.e. design, procurement, construction) have been achieved. This will include comparing the resource planning and outturn costs predicted at this stage with the actual resources and finances used to deliver the scheme.

Predicted scheme outturn costs will be monitored throughout the project lifecycle to take account of informed changes to procurement costs, risks etc

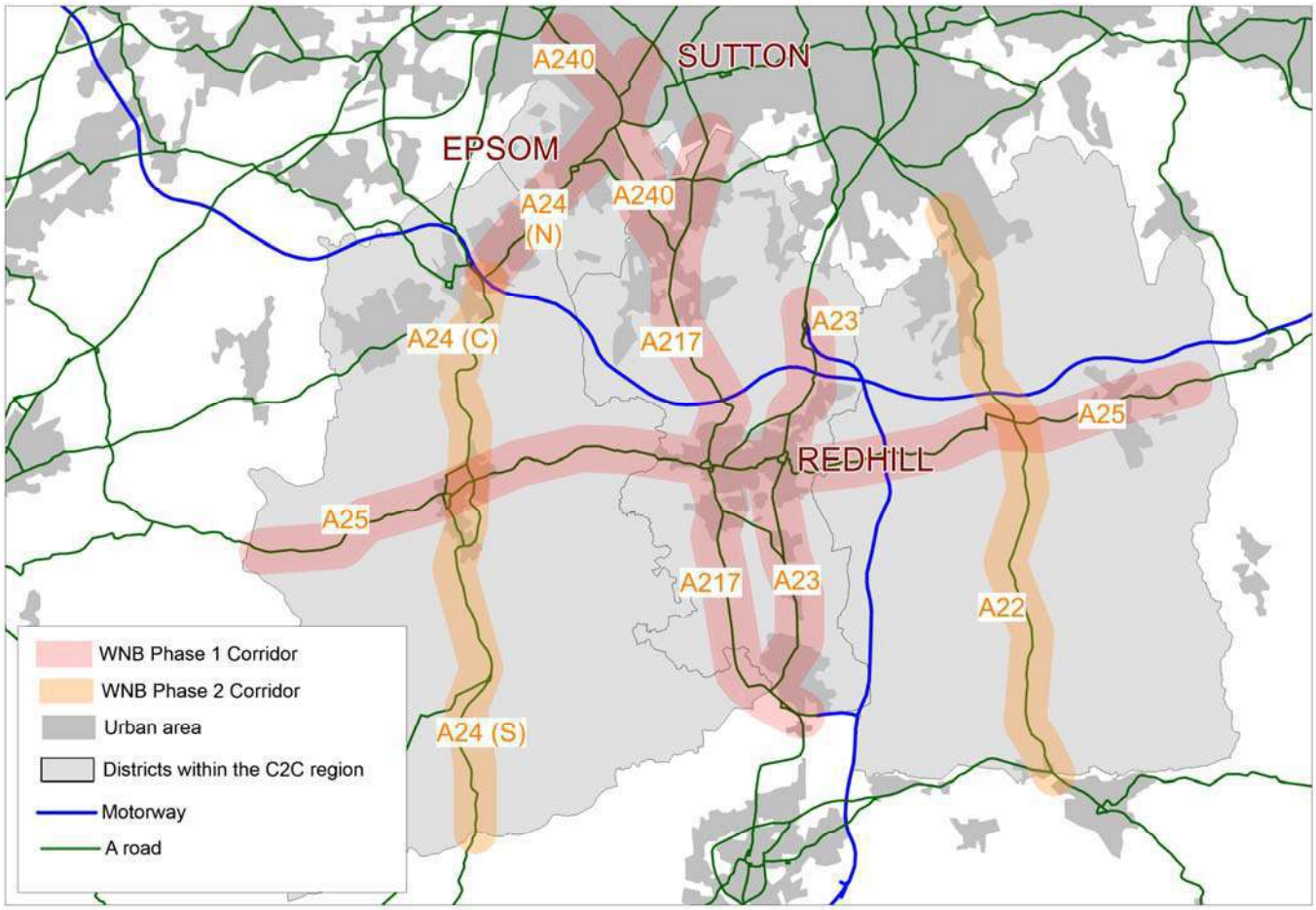
Maps

The equipment upgrade should benefit extensive areas of the Coast to Capital area within Surrey. The geographical scope of the study is shown in Figure 3 and can be summarised as:

- A217 from the Surrey/ London Borough of Sutton boundary, south to the Surrey/West Sussex boundary near Horley;
- A23 from the Surrey/ West Sussex Border to the London Borough of Croydon boundary;
- A24 from the M25 to the London Borough of Sutton boundary;
- A25 from west of Dorking to boundary with Kent County Council; and

- A240 from the Surrey/ Royal Borough of Kingston boundary at Tolworth Court Bridge, south to the junction with the A217 at Burgh Heath.

Figure 3 – Selected corridors for WNB Phase 1 intervention measures



Mapping of potential locations of each of the ITS elements proposed as part of the *WNB Phase 1* are included in Annexe B.

HOW MUCH & WHEN – Estimated construction costs and construction timetable				
Est. Costs:	£3.75m	**Start and end of construction:**	Oct 2015 to Oct 2017	
Spend Profile	**2015-16:** (£ million) Local Growth Fund £1.2 million Local Contribution £0.1 million ---------- **Total £1.3 million**	**2016-17:** (£ million) Local Growth Fund £1.35 million Local Contribution £0.4 million ---------- **Total £1.75 million**	**2017-18** (£ million) Local Growth Fund £0.45 million Local Contribution £0.25 million ---------- **Total £0.70 million**	**2018-21:** (£ million)

Funding expectations (List sources of funds)	The overall cost of the WNB Phase 1 scheme has been calculated at £3.75 million. It is intended that 80% of the scheme cost will be funded by the LEP with the remainder being funded as a local contribution through Surrey County Council. Whilst the majority of the local contribution will be secured via the Surrey Economic Fund, £100,000 of match funding has been received from the Drive SMART Partnership Board. A phasing plan has been adopted for the WNB scheme based on prioritising key transport corridors within the East Surrey area. Phase 1 of the WNB scheme has been derived as a result of the expectation that £3million of LEP funding is available at this stage. Should there be any variation in this funding, the phasing plan can be amended so that the level of intervention can be scaled up or down. Our cost estimates for WNB Phase 1 include an assessment of risk and optimism bias which is suitable for this stage of the project's life. It is anticipated that many of these risks, particularly around procurement and design, will be reduced as the project evolves. In the event that procurement costs are significantly lower than expected at this early stage we will seek to scale up the level of intervention within Phase 1 thus ensuring that the funding is spent within the allotted timeframes. However, if costs are significantly higher, we will scale down the level of intervention to ensure funding is not exceeded.

WHY IT SHOULD BE FUNDED

Summary of the Key Scheme Benefits

- **High level explanation of how the project will contribute to the headline targets for the LEP Strategy for growth for increases housing, jobs and employment floor space.**
- **For sustainability packages: explain how the scheme will encourage travel by modes other than the private car.**
- **For resilience schemes, explain how the scheme will improve the ability of the transport network(s) to cope with extreme and unpredictable events, such as infrastructure, failure, poor weather and/or congestion.**

- Congestion has been identified as the main, strategic transport risk within Surrey, with the cost of congestion estimated to amount to approx. £550 million per annum[2]. Therefore measures that are likely to reduce this risk, such as the proposed ITS interventions, will fully contribute to the headline targets for the LEP.
- New communications technologies offer real solutions to improving transport and information making travel in and around the C2C region a more pleasant and safer experience for the residents, commuters, visitors and businesses.
- The ITS measures proposed within the *WNB* package can assist in an overall reduction in congestion and therefore more efficient movement of people and vehicles in the region, especially during busy daytime periods, but also during the year given the seasonal events, such as the Epsom Derby.

[2] STP Congestion Strategy 2014

- The provision of ITS measures along key transport corridors and in areas of significant activity (both existing and planned) will provide greater opportunities to manage the operation of the highway network and improve access to sites, creating additional incentives for businesses and residents to locate in these areas and helping to unlock the potential in many areas in Surrey. The *WNB* package will also maintain and improve the strategic connectivity advantages to workforces within the UK and will mitigate for planned employment and housing growth.
- Improved ITS measures can deliver noticeable economic benefits for Surrey through reduced journey times and increased journey time reliability for all vehicles using the highways, as well as improvements in safety, reductions in pollution and comprehensive and more accessible travel information.
- The flexibility that ITS measures can provide would also be used to increase the resilience of the network during unique or infrequent episodes (e.g. emergencies, periods of bad weather, planned events and works).
- The implementation of the ITS measures included within *WNB* Phase 1 will facilitate better co-operation with other authorities and organisations in the C2C regions, including Surrey Police and the Highways Agency, allowing for improvements in the sharing of information.
- The *WNB* package clearly links to the SEP priorities in seeking to expand and upgrade SCC's traffic management capability to enable congestion and road safety to be managed more effectively county-wide and with increased resilience.
- In summary, it is anticipated that the scheme would have a highly beneficial impact on the effective and efficient operation of the highway network by improving traffic flows, reducing delays and congestion, and improving junction performance and up to date travel information. This will help to support economic growth across the Coast to Capital LEP area and the rest of Surrey through improved network performance.
- An Appraisal Summary Table summarising the benefits of the scheme is included in Annexe F.

Outline business case of key criteria
[maximum score = 5 per criteria]

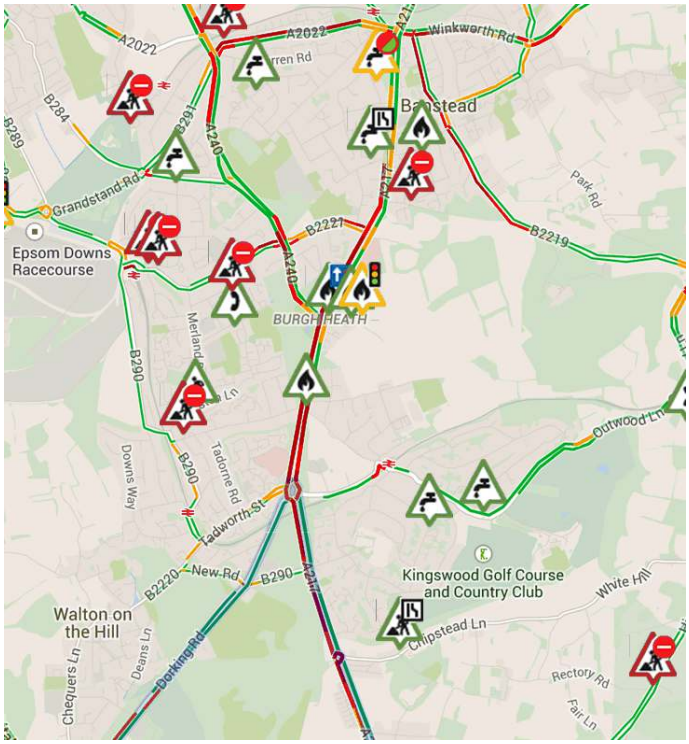
Expected economic benefits [*transport and scheme related*]: • Value for money, including BCR (if known) or similar measure. • Expected impact on journey times, reliability and resilience • Encouraging sustainable travel • Expected impact on	[Scheme Score = **4**] **Value for money, including BCR (if known) or similar measure** While the nature of the *WNB* package bid does not allow for the calculation of a BCR, the highest economic benefits are expected to come from reductions in congestion, travel time and improvements in journey reliability, plus safety gains. It is expected that implementing these measures will save money in the long term by providing infrastructure which is able to detect and mitigate against events on the network. This will help give businesses confidence in the transport network, encouraging economic activity in the area and boosting economic performance. The above benefits, coupled with those associated with economic growth, environmental and social indicators (as specified in the next sections of this

road safety casualties • Valuing public realm • Other transport benefits	application) are sufficient for the WNB Phase 1 package to be considered as having **High** Value for Money. **Journey times, reliability and resilience** According to the 2006 Eddington Transport Study, good connectivity is vital to the future economic growth of urban areas, estimating that a 10% reduction in travel time can increase productivity by 0.4%-1.1%. Through real time monitoring of incidents using ANPR and CCTV, coupled with more effective road safety management, increasing the coverage of VMS equipment will allow accurate and timely information to be relayed to road users which would allow for pre-emptive re-routing to avoid congestion and incidents. This will reduce journey times between origins and destination and thus improve journey time reliability, in addition to improving public safety and security. NMIC staff will utilise the proposed CCTV to make informed and necessary parameter changes at traffic signals. These changes can be applied remotely and instantly to help alleviate traffic congestion. The ITS measures proposed within the WNB Phase 1 will form part of SCC's Urban Traffic Management Control (UTMC) enhancements and are critical tools that will be needed to ensure that Surrey's transport network operates at optimal efficiency, by enhancing the efficiency of the congested urban centres, which act as critical hubs for Surrey's transport network. Surrey's UTMC is controlled in the NMIC which provides the facility to integrate a wide variety of information on highway network conditions from separate sources, supporting network management and providing comprehensive travel information across a wide range of communications networks. The UTMC system can be used to link traffic control systems (predominantly traffic signals) together to deliver reduced journey times and increased journey time reliability across all vehicles using the highway network. This acts to reduce congestion and therefore enhance the economic competitiveness of the urban areas (and surrounding rural areas) where it is implemented. Below are summaries of two case studies which provide evidence of how recent incidents on the Surrey road network are managed in the absence of advanced ITS measures and the impact they have on network operation. **Case Study 1 - Incident on the network – 23rd January 2015** • Location - A217 Brighton Road near Burgh Wood, Banstead. • Impact - 2 lanes closed northbound on the A217 due to emergency burst water main works. This AM peak hour incident was reported by a member of the Traffic and Streetworks team who happened upon the flooding while travelling on the route. The incident was immediately reported to the Streetworks Coordinator at the

NMIC who engaged the communication strategy. This included a tweet via @Surreytravel and a travel alert. A message was also displayed on the existing VMS at Reigate Hill which informed northbound traffic of the disruption further upstream, allowing the travelling public to make a decision about their journey ahead.

The Streetworks team were unaware of the incident prior to it being manually reported, at which time queues had already formed on the A217 downstream of the incident. Figure 4 is a snapshot from the Streetworks.org web based system for logging road works and includes real-time congestion information from Google Maps to illustrate the extent of the disruption on northbound traffic flows.

Figure 4 – Streetworks screenshot of A217 incident



Had the package of ITS measures, as proposed within *WNB Phase 1*, been in place, live monitoring in the form of journey times, traffic flows and vehicle speeds (via ANPR and CCTV) would have identified the incident much sooner. The increased coverage of VMS would have been activated near-instantly to inform road users and traffic signal strategies would have engaged to control signal timings, thereby smoothing traffic flows on the wider network.

Case Study 2 - Incident on the network – 29rd January 2015

- Location – A25 between Pixham Lane and Brockham Lane.
- Impact - Burst water main on A25 today impacting A25, A24 and A217

A burst water main on the A25 created peak hour congestion on a number of routes and required temporary traffic management involving one-way working of traffic signals.

Figure 5 below shows the extent of the impact on the surrounding network

during the incident, while Figure 6 illustrates usual 9am traffic flows during the same period. These examples illustrate the impact on congestion on the A25 and the surrounding network.

The proposed improvements to monitoring, control and inform to be implemented by WNB Phase 1 would have been very beneficial in managing the incident allowing for a smoothing of traffic flows and reducing the impact on congestion and journey times.

Figure 5 – Traffic conditions during A25 flooding incident

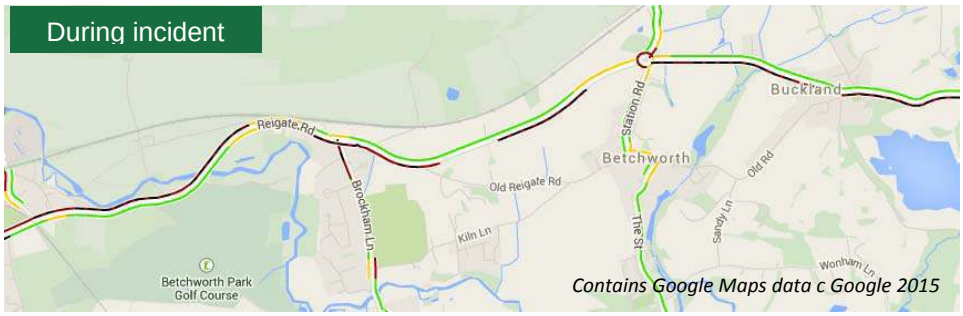
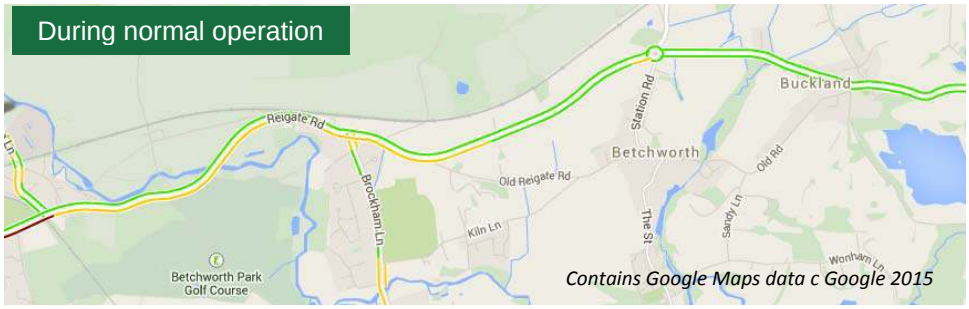


Figure 6 – Normal traffic conditions on A25



For incidents such as the two detailed above, it is evident that the proposed ITS equipment will allow for a more proactive, rather than reactive, response to incidents on Surrey's Network.

Sustainable Travel

ITS (through the implementation of various types of applications) will help to improve sustainability through delivering safer, more secure, more efficient transport movements on the network.

The local bus network is an integral part of the transport system in Surrey providing valuable transport provision to communities, supporting the economy and connecting outlying towns & villages as well as areas of high residential population. Bus journey time reliability will be improved as a result of reduced congestion on the network. The WNB measures will support sustainable transport as alternative to private car, encourage modal shift and support commercial growth for local bus operators.

	Expected impact on road safety casualties Prior to 2014 there had been a substantial reduction in the number of fatal road casualties in Surrey. In 2013 and 2012 there were 18 fatal casualties whereas in 2007 there were 60. Research commissioned by Surrey County Council from TRL Ltd concluded that this reduction appeared to have been linked to the economic downturn. More extreme weather in recent years may have also resulted in people driving less, and more cautiously than they did in previous years. There are signs that the economy is improving and sadly this appears to have corresponded with a rise to 39 fatal casualties during the most recent year 2014. In 2013 there were 581 serious injuries. Full complete data for 2014 is not yet available but emerging results show that it appears likely that there will be a substantial increase to more than 650 serious injury casualties, greater than any of the previous 10 years. The largest road user group involved in these are car occupants, constituting about one third of all casualties killed or seriously injured in 2013. In the three years to the end of August 2014 there were 17 collisions resulting in serious injury and 83 collisions resulting in slight injury on the 8 km stretch of the A217 Brighton Road north of the M25. This equates to 2.7 personal injury collisions per month. There are likely to be many more collisions resulting in damage only that are not reported or recorded by the police. As well as the economic impacts of lost output and sick leave of the casualties, the burden on the health sector and emergency services, and the personal pain grief and suffering experienced by those involved, each of these collisions is an incident that leads to congestion on this strategic route while the collision debris, vehicles and casualties are removed. In the most serious cases the road may be fully closed while the police conduct a detailed investigation. There are three existing spot speed “Gatso” cameras along the A217 north of the M25 that are now becoming obsolete due to their age. The simplest and cheapest way of upgrading these units would be to replace "like for like" so that the same spot speed housing is retained and upgraded to allow the use of digital camera technology within it. However the Wider Network Benefits Bid provides the opportunity to take a more strategic view of this key route and consider enhanced options for replacing these spot speed enforcement cameras over and above business as usual. Average speed cameras would encourage compliance with the speed limit along the whole length in both directions as opposed to only within the vicinity of the spot speed cameras in one direction at a time. Consequently the reduction in road casualties along this route (and the reduction in incidents causing unexpected traffic congestion) would be greatly enhanced. The Department for Transport report in their Circular 01/2013 "Setting Local Speed Limits" that data for permanent average speed camera sites across the country indicates reductions in Killed and Serious injury casualties of 69% and reduction in total

	casualties of 38%. As well as the significant additional benefits of average speed cameras in reducing road casualties and collisions that lead to traffic congestion, there is evidence that by smoothing traffic flow average speed cameras also improve the capacity of major roads. This is because on roads without average speed cameras the tendency of individual drivers to drive at higher speeds in platoons of traffic results in them requiring greater headway between vehicles and consequently although the individual vehicle speeds may be temporarily greater the total number of vehicles that can pass a point on the network is reduced leading to a pattern of stop-starting and a negative effect on the traffic flow and congestion. Average speed cameras encourage platoons of traffic to travel evenly spaced at an even speed, and this results in an improved flow of traffic and reduced congestion. As noted, many collisions occur due to the stop-start nature of traffic in congested areas. While the commentary above focusses on average speed cameras on the A217 as part of the prevent step, the suite of ITS technologies planned across the corridors will also be used to smooth traffic flows and reduce accidents. Information provided through ANPR and CCTV (monitor) can be used to direct traffic away from accidents using VMS (inform) and signal control (control), and will alert emergency services as soon as an incident occurs. Measures have been prioritised on the corridors to maximise the efficiency of the network at all times of the year, and could assist in casualty reduction at priority locations. **Valuing public realm** The prioritised corridors include several urban areas including Epsom, Reigate and Redhill. Epsom, for example, is an important commercial and retail centre but is subject to high volumes of through traffic due to the A24 bisecting the town. Congestion has a negative impact on the townscape and air quality, and contributes to a poor environment for pedestrians and cyclists. The high volumes of traffic often cause congestion on the one-way gyratory system within the town centre impacting upon journey time reliability. Similar issues are also experienced on other sections of the corridors and in other town centres in Surrey. The WNB measures proposed will work to enhance town centre and urban vitality and provide more attractive environments for businesses and residents by reducing congestion within the town centres, thereby improving the public realm for all users. **Other transport benefits** Improving the resilience of the corridors will help facilitate and complement further transport measures to reduce congestion experienced on the network. These improvements, such as the Redhill Balanced Network and the proposed

	Redhill sustainable transport package, seek to support and promote the role of these strategic corridors linking gateways such as Gatwick Airport with London and the wider LEP area, supporting growth in national and international trade. The scheme directly supports the C2C aspiration to increase the resilience of the road network within the LEP area, providing mitigation for planned events, unexpected road works and adverse weather conditions. Such measures also have a strong role to play in reducing overall asset maintenance costs in Surrey and allow better use of existing resources as the use of ITS measures enhance the efficiency of constrained transport networks. In doing so, the need to construct and maintain additional highway infrastructure is significantly reduced. Procurement and funding are related as they can impact on the overall costs and particularly the capital/ revenue split. The benefits of the WNB package are expected to be felt on the highway networks of our neighbouring local authorities. Representatives of the following authorities have reviewed our proposals and provided written support for the scheme (included in Annexe G): • Transport for London; • Royal Borough of Kingston upon Thames; • London Borough of Sutton; • London Borough of Croydon; • Kent County Council; • West Sussex County Council; and • East Sussex County Council. **Joint Working** The implementation of the ITS measures included within WNB Phase 1 will facilitate better co-operation with other highway authorities, the emergency services, businesses and organisations in the C2C regions, including Surrey Police and the Highways Agency, allowing for improvements in the sharing of information. Letters of support for the scheme from the following organisations are included in Annexe G: • The Highways Agency; • South East Coast Ambulance Service; • Surrey Fire and Rescue Service; • Surrey & Sussex Police; and • Gatwick Airport. SCC's communication and information sharing with the Highways Agency and relevant control centres would be improved by the upgraded capability. It is has also been proposed that SCC's ITS capabilities could be incorporated into a common UTMC database, shared by the HA, TfL and other Highway Authorities. It is anticipated that this would have a highly beneficial impact on the effective and efficient operation of the highway network both within and beyond the Coast

	to Capital region. Since May 2006 the HA has worked with Local Authorities to develop and implement the most effective Emergency Diversion Routes (EDRs) to deal with significant events or incidents which lead to the closure of sections of motorway or trunk road. Traffic is now diverted onto agreed and signed routes, minimising congestion on other local roads. The A23 and A24 are part of the M23 EDR, while the A25 and A217 are part the M25 EDR and enable the HA and Surrey to manage traffic after closure of the HA network. The WNB Phase 1 measures proposed throughout these corridors will improve the performance of the EDRs and provide a means of mitigating the effects of additional traffic. Extensions to the coverage of ANPR equipment will allow for much greater information sharing between Surrey Police and SCC. The ANPR will be used more widely to detect vehicles of interest to the police for crimes, such as burglary, to detect uninsured drivers, vehicles without a valid MoT test certificate or tax, or with unlawful number plates. To illustrate the value of existing ANPR to the Police, 67 hits in 24 hours were recorded on the A217 Brighton Road on the 16th December 2014, while an additional 57 were recorded on the A23 (Hooley) in the same period. Additionally, the inclusion of Average Speed Cameras as part of the package forms part of the Drive SMART Partnership between Surrey County Council and Surrey Police and provides a means of reducing speeds and casualties, as well as the reduction in incidents causing unexpected traffic congestion.
Expected economic benefits *[economic growth]*: • Retention of existing jobs or creation of new jobs • Unlocking or improving access to new dwellings • Encouragement of new businesses, or protection of existing businesses. • Other economic benefits	**[Scheme Score = 4]** **Retention of existing jobs or creation of new jobs and encouragement of new businesses, or protection of existing businesses** London has a significant impact on the transport network and traffic levels in Surrey. Over one-third of Surrey working residents commute out of the county, with 24% travelling to London. While London continues to be the major trip attractor, in the last 15 years there has a significant shift in Surrey's role as an employment destination. At present, 15% of those working in Surrey are now travelling in from outside the county. This demand for commuting both out of and into the county puts pressure on the transport network, and is a trend that is likely to continue. Taking into account these trends, four of the five corridors prioritised in WNB Phase 1 run north south and connect the coast to the capital, while the A25 runs east west and supports London's orbital connections. Gatwick Airport is an important driver of economic growth across the Coast to Capital area and is now one of the most important air-rail-road hubs in the UK.

	Gatwick Airport Ltd is investing £1.2bn in its current growth plans which will further increase passenger numbers from the current level of 35m to 44m per annum. Gatwick, with the support of Coast to Capital LEP, is proposing that a second runway is developed to cater for the long term growth in the UK's international trade. The Davies Commission is currently reviewing proposals and should it recommend a second runway for Gatwick, it will have a major impact on the transport network in Surrey and surrounding areas. Regardless of whether Gatwick receives Government endorsement for this proposal, improvements in surface access must keep pace with Gatwick's growth. This growth must be accompanied by an investment in transport and other infrastructure so that the airport can grow sustainably. The investment proposed as part of the WNB package will go a long way towards realising this goal, ensuring that the capacity of major roads is maximised and that journey times are reliable. As already noted, the corridors which make up the WNB Phase 1 package currently experience significant link and junction congestion on a daily basis. This is primarily a result of travel demand outstripping the available road capacity and means that there is limited resilience left in the network to cope with uncontrollable events such as accidents, incidents involving emergency traffic management or adverse weather related events. This issue will be exacerbated in future as additional development related traffic growth will result in higher levels of congestion and amplify its negative economic, environmental and social impacts. As mitigation, the WNB package will enable more efficient and effective operation of the highway network by improving traffic flows, reducing delays and congestion, and improving junction performance and journey time reliability. The scheme will have a significant benefit on both a local and regional level, and will help to support economic growth over a wide area. The provision of ITS along key transport corridors and in areas of significant activity (both existing and planned) will provide greater opportunities to manage the operation of the highway network and improve access to sites, creating additional incentives for businesses and residents to locate in these areas and helping to unlock the potential in many areas in Surrey which might otherwise be constrained by greater congestion. Reducing the existing high levels of congestion in the peak periods will improve business operations and competitiveness and aid economic growth. It will also benefit the local labour market, with more reliable journey times facilitating greater labour supply. These effects improve the productivity of local businesses and will increase output, as well as improving economic competitiveness. Lower levels of congestion on the road network can encourage investment and new employment and improve retention for existing employment with businesses remaining in the area. Furthermore, reductions in congestion will improve the amenity value and attractiveness of town centres which will in turn encourage

	greater numbers of visitors and shoppers and improve economic vitality. The implementation of the ITS measures proposed in WNB Phase 1 has been prioritised along key corridors where journey benefits can be maximised. The A23, for example, provides direct access to Gatwick Airport, as well as for many major companies located in proximity to it. The measures along this corridor will help raise the competitive advantage of the area, providing opportunities to lead the market internationally. Additionally, the WNB Phase 1 measures will contribute to the performance of the Gatwick Diamond Initiative, a business-led partnership supportive of the aims of the LEP's strategic economic plan. **Unlocking or improving access to new dwellings** Research carried out in preparation of the Surrey Rail Strategy suggests that between 2012 and 2031, the strongest growth in population within Surrey is forecast for the districts and boroughs bordering London, including the areas of Reigate, Redhill and Horley - all of which are connected by the corridors which have been selected for the ITS interventions as part of the WNB Phase 1 package. Housing growth within the borough of Reigate and Banstead, for example, as set out in the Proposed Submission Core Strategy (2013-2027) will mainly occur within existing urban areas and include the building of 6,900 additional homes by 2027. Tackling current congestion and improving journey time reliability through the use of ITS will improve accessibility to these key residential and employment areas and will help to unlock the potential in many areas in Surrey. The attractiveness of the housing sites will be enhanced if improvements to the primary highway network are in place prior to them being ready for the market. The WNB Phase 1 package will improve the key strategic access routes to and from these committed development sites. In turn, this is likely to increase the pace at which housing may sell, thus helping to achieve local housing targets and growth of communities, as well as supporting the planned job growth. The provision of new housing will support job creation in key local employment areas by ensuring that there is a supply of local labour to meet demand. This will help to support Surrey's economic competitiveness. As part of the Horley master plan, a new link road providing access to the A217 by way of a new junction will be constructed. The provision of ITS on this corridor and other prioritised corridors will help to ensure that such developments enhance the region, economically and socially, rather than creating further constraints on the network.
Social Distributional Impact: • Expected	**[Scheme Score = 4]** While a full SDI has not been undertaken, high level qualitative analysis has

regeneration & deprivation impact • Expected impact on severance, physical activity, accessibility	been undertaken with the conclusions as follows: *Deprivation* – Although the East Surrey region is amongst the least deprived areas of the country there are several pockets of deprivation where residents are likely to be disproportionality affected by the impacts of congestion. In these areas, congestion will result in longer and less reliable journey times for those who require public transport as a means of accessing employment and training. Figure D4 in Annexe D includes a figure displaying the correlation between the areas of highest deprivation and the WNB Phase 1 corridors. *Severance* –The scheme will improve the public realm in urban areas by reducing congestion, thereby contributing to the revitalisation of town centres creating a desirable location for businesses and consumers. The project will also improve accessibility and journey times for a larger pool of potential employees. *Air and noise* – Stop-start driving conditions and slower vehicle speeds resulting from congestion can lead to higher roadside pollutant concentrations and noise. The ITS measures will help to limit adverse impacts on air and noise through enabling more efficient network management. Optimisation of the network operation and VMS-driven route planning will help to reduce congestion and therefore exhaust emissions by enabling a smoother flow of traffic. *Accessibility* - The scheme will improve accessibility to places of employment / retail, public services, skills and learning through reduced congestion and delays. This is of particular importance to those who use public transport to access employment and education opportunities. The WNB package will also support the housing growth objectives in Surrey and help to unlock development sites and aid in the creation of safer and more attractive place to live, work and visit. *Accidents* – The beneficial impact that the WNB package will have on road safety is presented in detail in the Economic Benefits section of this application. *Personal affordability*- Reductions in journey time provided by the measures proposed, operating and time costs will lower for road users which will therefore improve personal affordability.
Environmental impact: • Expected impact on carbon emissions • Expected impact on air quality • Expected impact on noise/natural and urban environment	**[Scheme Score = 5]** **Issues with carbon emissions and air quality** Congestion not only has a negative impact upon the economic competitiveness of the county but also can have a negative impact upon the natural environment and urban environment. Transport is a major contributor to global climate change and air quality. Carbon dioxide emissions from transport in the UK grew by 98% between 1971 and 2001 and transport's share of total emissions is predicted to increase from 24%

	in 2006 to 30% in 2022 according to the Committee on Climate Change. Acting on transport's role in mitigating against this is an increasing local and national priority. Air pollution can have a long-term effect on people's heath and is associated, in particular, with premature mortality due to heart and lung effects. 143,200 Surrey residents (13.5%) have a long-term illness or health problems. People in Surrey have a high life expectancy and this is improving over time. However, in the short term, high pollution episodes can trigger increased admissions to hospital and contribute to the premature death of those people that are more vulnerable to daily changes in levels of air pollutants. Road traffic is a key issue in relation to air quality. Stop start driving conditions and slower vehicle speeds resulting from congestion can lead to higher roadside pollutant concentrations, hence causing greater risks to pedestrians and adjacent residential properties. The main source of these pollutants in Surrey is road traffic. To date, 24 Air Quality Management Areas (AQMAs) have been declared in Surrey (see Figure D3 in Annexe D). Most of the AQMAs are designated on transport corridors and within urban areas, and a number of these fall on the corridors selected for the WNB Phase 1. There are 4 AQMAs on the A240/A217 corridor: • A217 near Blackhorse Lane • A217 Reigate Hill • SW area of Hooley, east of A217 • A2022/A240 Drift Bridge There are also 3 AQMAs on the A23 in Surrey: • A23 Hooley • A23 Merstham High Street • A23/A25 in Redhill Town Centre. All of these areas suffer from high roadside pollutant levels and the effect of stop-start traffic caused by congestion exacerbates this issue and can be harmful to human health. **Expected impact on carbon emissions** WNB measures will reduce congestion and stop-start driving which reduces fuel consumption and greenhouse gas emissions by around 30% compared with normal driving conditions. WNB measures have been prioritised within and on routes to and from designated AQMAs, though will have benefits felt more widely, thereby benefiting those most at risk of air and noise quality issues.

	WNB measures will contribute to: • carbon reduction through more efficient network management which will reduce congestion and exhaust emissions; • improved air quality and reduced noise by enabling a smoother flow of traffic through optimised traffic signals. • reducing unnecessary idling and circulation, and smoothing traffic flow which will reduce emissions resulting from stop-start driving behaviour; • reducing traffic levels and congestion by decreasing vehicle miles and avoiding congested areas/routes through improved route planning via VMS.
Contribution to the Strategic Economic Plan • How does the scheme contribute to the objectives and priorities of the SEP? • The five transport objectives • Contribution to other objectives	**[Scheme Score = 5]** **How does the scheme contribute to the objectives and priorities of the SEP** A key objective of the Coast to Capital Growth Deal, published on the 7th July 2014, is to encourage growth across the Coast to Capital region, through targeted investment in infrastructure and innovation, as well as supporting a thriving business base. Priority areas for investment in transport schemes are those which are aimed to unlock stalled economic growth across the Coast to Capital area. The WNB proposal clearly links to the SEP priorities in seeking to expand and upgrade SCC's traffic management capability to enable congestion and road safety to be managed more effectively county-wide and with increased resilience. The scheme directly supports the C2C aspiration to increase the resilience of the LEP area, providing resilience from traffic incidents, road works and the effects of adverse weather. The WNB package will also maintain and improve the strategic connectivity advantages to workforces within the UK and will mitigate for planned employment and housing growth. **The five transport objectives** The scheme contributes to the SEP's five transport objectives in the following ways: 1. **Connectivity "Can I get where I want to go?"** The scheme will achieve this aim by providing accurate information for business, freight and commuter traffic of incidents on the network and prioritising certain routes based off on the ground information. Delivering improved movements, for example, between London/Croydon and Gatwick Airport/Crawley by reducing congestion on the A23 by smoothing traffic flows through optimised traffic signals or, in the event of an incident, through the rerouting of vehicles onto alternative corridors.

	2. Reliability "Will I arrive when I expect?" Tackling current congestion and improving journey time reliability through the use of ITS will improve accessibility to key employment areas, industrial estates and major employment sites and will help to unlock the potential in many areas in Surrey. **3. Capacity "Will I get a seat, a parking space, a clear road?"** Scheme will help to ensure that information includes all essential journey data for users to allow them to make informed decisions on their route. ITS measures will allow for a smoothing of traffic flows through optimised traffic signals or, in the event of an incident, through the rerouting of vehicles onto alternative corridors. **4. Quality "Will my journey be healthy, safe, clean, sustainable and enjoyable?"** Scheme will provide information on travel options and the consequences and implications for users and local people, ensuring safe journeys when incidents occur. **5. Resilience "Will transport be there when I need it – 24/7?** To underpin the local and regional economy, transport networks must be resilient, able to withstand traffic incidents, road works and the effects of adverse weather. This scheme seeks to improve the resilience of the local road network by keeping traffic moving, helping improve the reliability of the routes to meet the needs of the travelling public, businesses and services.
Local Indicators: Local indicators and circumstances that help to explain the need for the scheme.	**Not scored.**

SCORE SUMMARY	
Total score: (out of 25)	**22**
Local priority: (Ranking in order of schemes submitted by the same promoter in this round).	**1**

Annexes

Annexe A

Surrey Wider Network Benefits Package phasing plan

Table A1 - Phase 1

ITS Element		Corridor					
Stage	Equipment	A23	A24(N)	A217	A240	A25	Total
Prevent	Speed camera			16			16
Monitor	Single lane ANPR	8	6	15	5	8	42
	Multi lane ANPR	0	14	18	2	0	34
	CCTV	11	7	6	3	2	29
Inform	VMS	5	1	6	4	3	19
Control	DUSC	15	13	20	3	6	57
	Junction controllers	2	0	3	1	0	6
	Pelican controllers	1	0	2	0	0	3
	Detection loops	0	1	1	2	0	4

Table A2 - Phase 2 (consideration dependent on Phase 1 costs)

ITS Element		Corridor					
Stage	Equipment	A24(C)	A24(N)	A24(S)	A217	A22	Total
Prevent	Speed camera	6					6
Monitor	Single lane ANPR	8	2	14	2	9	35
	Multi lane ANPR	14	0	11	0	10	35
	CCTV	0	0	12	0	7	19
Inform	VMS	4	2	5	0	6	17
Control	DUSC	0	0	10	0	8	18
	Junction controllers	0	0	0	0	0	0
	Pelican controllers	0	0	0	0	1	1
	Detection loops	0	0	2	0	0	2

Annexe B

Surrey WNB Phase 1 - ITS equipment inventory

Proposed inventory of ANPR camera locations

Surrey Police have requested that detailed information concerning the locations of ANPR equipment is kept out of the public domain. Details can be provided to the LEP on a confidential basis if required.

Table B1 Proposed signalised junction improvements

ID	Junction code	Corridor	x	y	DUSC	Junction Controller	Pelican controller	Detection Loop	CCTV
2	P927	A217	-0.20948	51.2686	1	0	0	0	0
3	P929	A217	-0.20503	51.2664	1	0	0	0	0
4	J911	A217	-0.22174	51.2929	0	1	0	0	0
5	J912	A217	-0.22087	51.2919	0	1	0	0	0
6	J913	A217	-0.22213	51.2916	0	1	0	0	0
7	P925	A217	-0.22014	51.2983	1	0	0	1	0
8	J932	A217	-0.218	51.3052	1	0	0	0	1
9	J951	A217	-0.2123	51.3119	1	0	0	0	1
10	J933	A217	-0.20857	51.3273	1	0	0	0	1
12	J921	A217	-0.2042	51.2371	1	0	0	0	0
13	P956	A217	-0.20209	51.2335	1	0	0	0	0
14	P958	A217	-0.19994	51.2269	1	0	0	0	0
15	J934	A217	-0.19776	51.2237	1	0	0	0	0
16	P952	A217	-0.19757	51.2225	1	0	0	0	0
17	P906	A217	-0.19895	51.2191	1	0	0	0	0
18	P921	A217	-0.17704	51.1672	1	0	1	0	0
19	J937	A217	-0.2215	51.3084	0	0	0	0	1
20	J935	A240	-0.23103	51.3254	1	0	0	0	0
21	P639	A240	-0.24831	51.358	1	0	0	1	0
23	J655	A240	-0.25908	51.3652	0	0	0	0	1
24	J615	A240	-0.26339	51.368	0	0	0	0	1
25	J616	A240	-0.27018	51.3716	0	1	0	0	1

ID	Junction code	Corridor	x	y	DUSC	Junction Controller	Pelican controller	Detection Loop	CCTV
29	P843	A24(N)	-0.30668	51.3017	1	0	0	0	0
30	P844	A24(N)	-0.30016	51.3077	1	0	0	0	0
31	P806	A24(N)	-0.29817	51.3089	1	0	0	0	0
32	P601	A24(N)	-0.27937	51.324	1	0	0	0	0
33	P602	A24(N)	-0.27393	51.3256	1	0	0	0	0
35	J634	A24(N)	-0.26868	51.3307	0	0	0	0	1
41	J627	A24(N)	-0.25529	51.3384	1	0	0	0	1
42	P607	A24(N)	-0.25375	51.3393	1	0	0	0	0
43	J653	A24(N)	-0.24997	51.3431	1	0	0	0	0
44	J639	A24(N)	-0.24434	51.3537	1	0	0	0	1
45	P603	A240	-0.24178	51.3378	1	0	0	1	0
51	P924	A23	-0.17527	51.2396	1	0	0	0	0
52	J922	A217	-0.19736	51.2377	1	0	0	0	1
53	J917	A217	-0.2001	51.2381	1	0	0	0	0
54	P918	A217	-0.20489	51.2371	1	0	0	0	0
55	P919	A217	-0.20846	51.2375	1	0	1	0	0
56	V803	A25	-0.07671	51.2466	1	0	0	0	0
58	J802	A25	-0.00072	51.2545	1	0	0	0	0
59	J813	A25	0.01771	51.2554	1	0	0	0	0
60	P733	A25	-0.44597	51.2193	1	0	0	0	0
67	V802	A25	-0.04814	51.2443	1	0	0	0	0
69	J903	A23	-0.17217	51.1694	1	1	0	0	0
70	J914	A23	-0.16841	51.1742	1	0	0	0	0
71	P913	A23	-0.16573	51.1771	1	0	0	0	0
72	P945	A23	-0.16208	51.181	1	0	0	0	1
73	J905	A23	-0.16185	51.1904	1	0	0	0	0
74	P911	A23	-0.16844	51.213	1	0	0	0	0

ID	Junction code	Corridor	x	y	DUSC	Junction Controller	Pelican controller	Detection Loop	CCTV
75	J910	A23	-0.1695	51.2171	1	0	0	0	1
76	P910	A23	-0.17262	51.2283	1	0	0	0	0
77	J909	A23	-0.17076	51.232	1	0	0	0	1
85	J902	A23	-0.16511	51.2458	1	0	0	0	2
86	P901	A23	-0.16447	51.2482	1	0	0	0	0
87	J906	A23	-0.1569	51.2562	1	0	0	0	1
89	P833	A24(N)	-0.29911	51.3084	1	0	0	0	1
90	J613	A24(N)	-0.26897	51.328	0	0	0	0	1
91	P651	A24(N)	-0.26864	51.3293	1	0	0	0	0
96	P654	A24(N)	-0.24674	51.3444	1	0	0	1	1
97	J638	A24(N)	-0.24381	51.3463	0	0	0	0	1
98	P908	A23	-0.16935	51.2341	1	0	1	0	1
99	J904	A23	-0.17629	51.1669	1	1	0	0	2
110	P831	A25	-0.36239	51.2251	1	0	0	0	0
111	J936	A217	-0.22245	51.3112	1	0	0	0	0
111	J931	A217	-0.20378	51.2361	1	0	0	0	0
112	J923	A217	-0.20985	51.3179	1	0	0	0	1

Figure B1 – Proposed sites for junction improvements

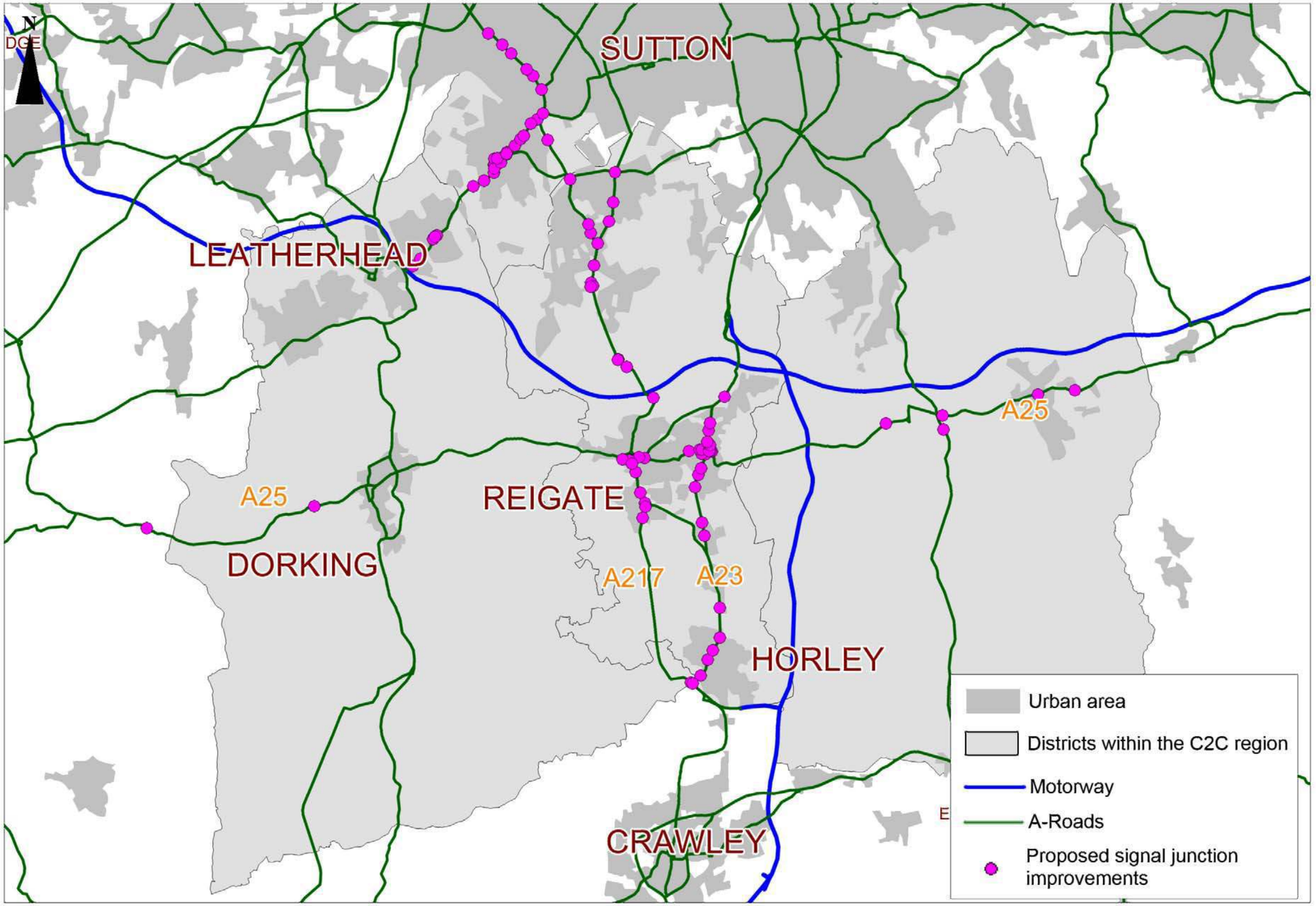


Figure B2 – Potential sites for installation of average speed cameras on A217

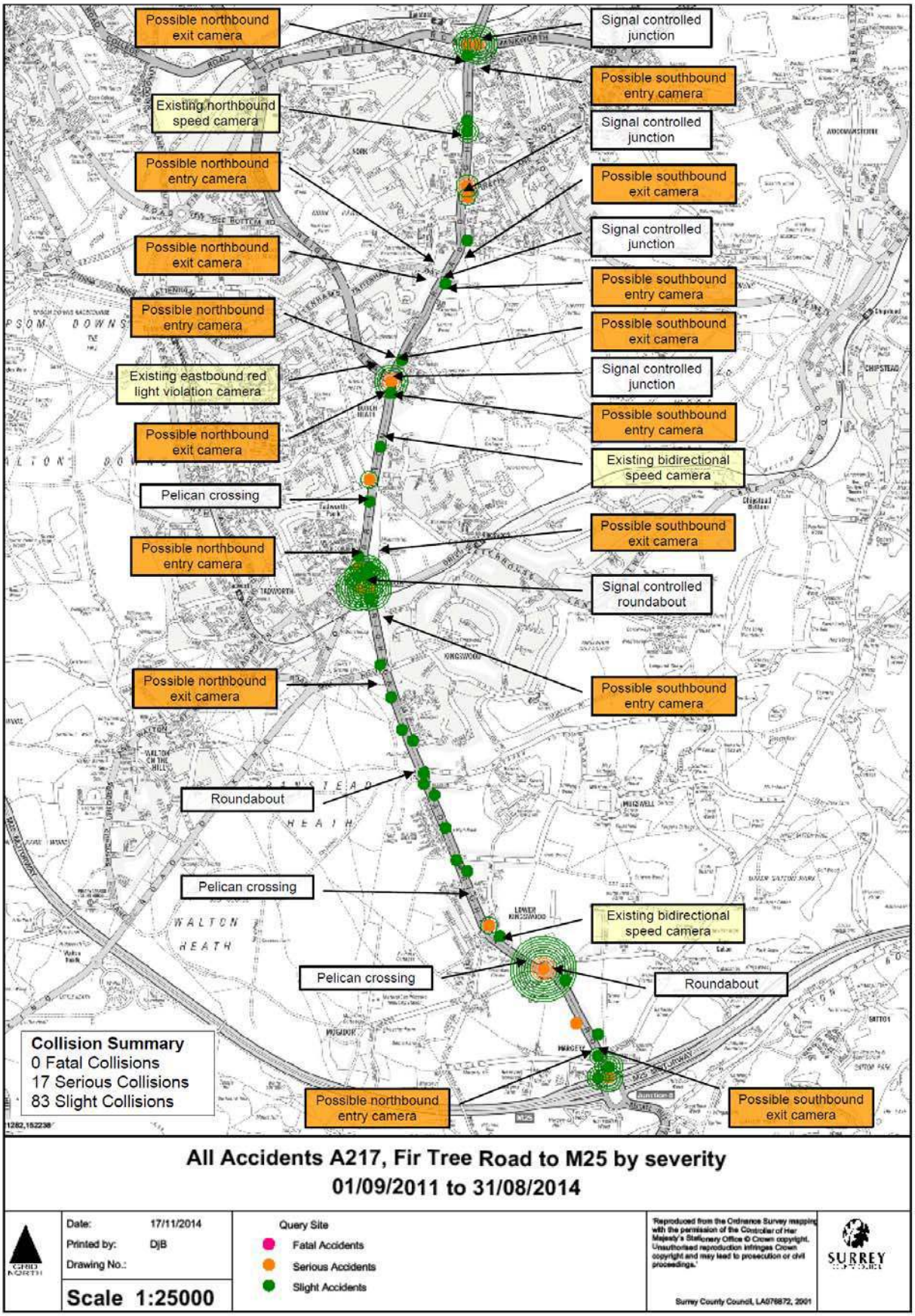
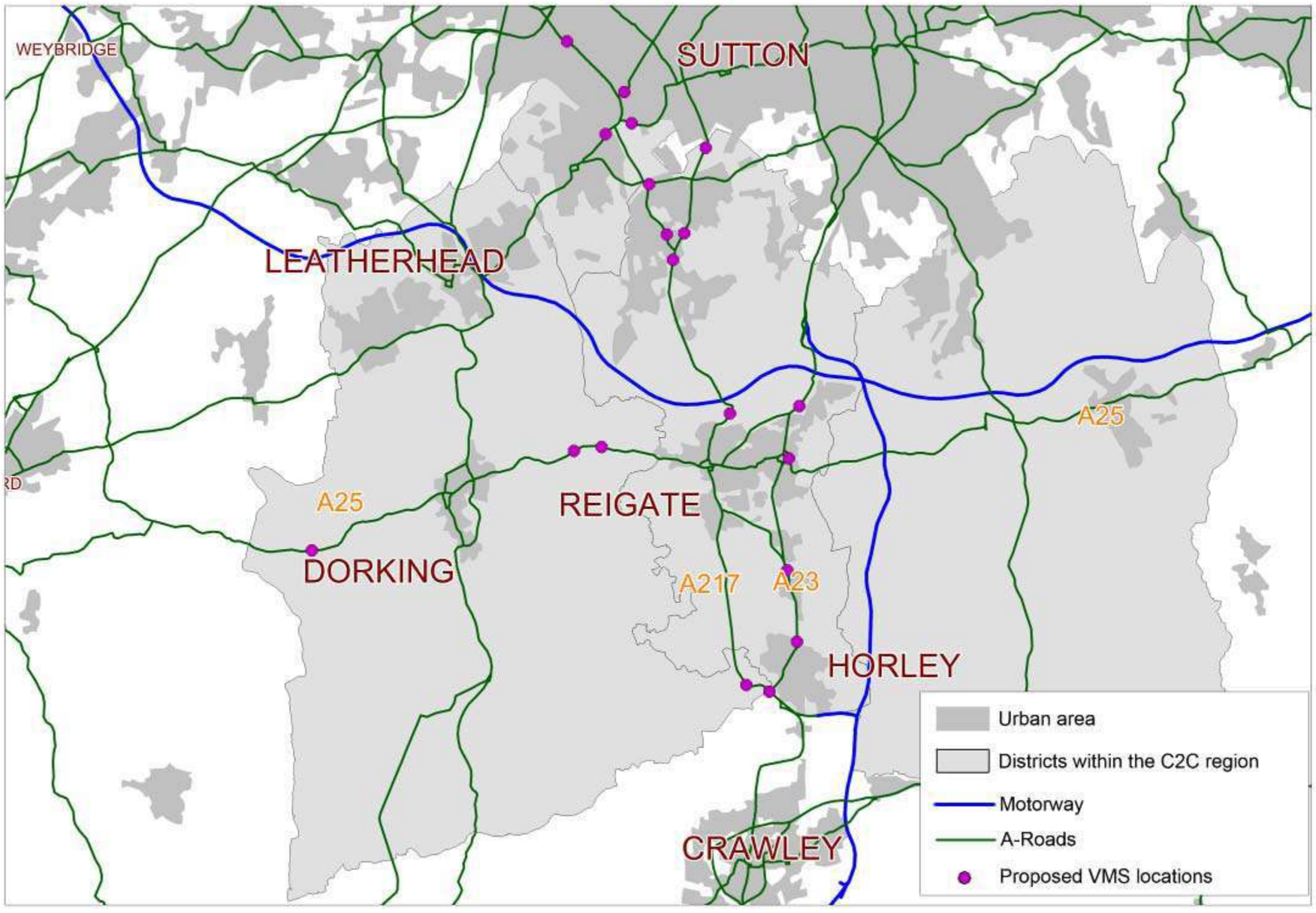


Table B2 – Proposed inventory of Variable Message Signs

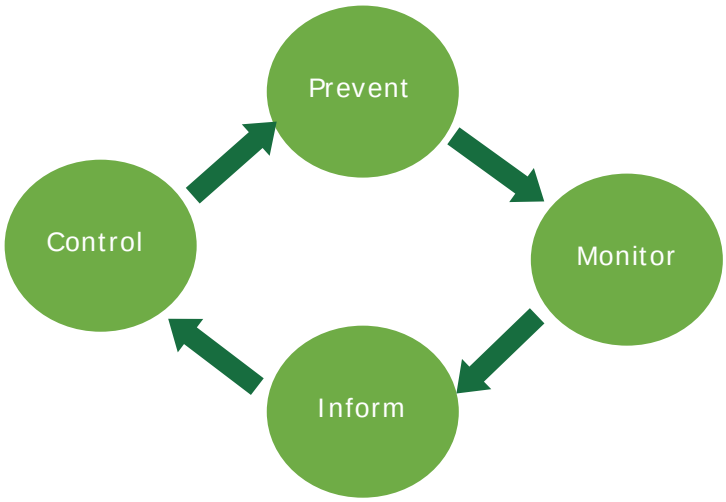
ID	Corridor	x	y	Flow direction
20	A24(N)	521799	161835	Eastbound
21	A240	522705	162213.9	Westbound
22	A240	522439	163305	Southbound
23	A240	520460	165071	Southbound
24	A240	523312	160104.9	Westbound
25	A217	523916	158359	Southbound
26	A217	524526	158397	Southbound
27	A217	524141	157475	Northbound
28	A217	525279	161364	Southbound
29	A217	526116	152142	Southbound
30	A23	528454	144205	Southbound
31	A23	527483	142468	Northbound
32	A23	528104	146683	Northbound
33	A23	528163	150572	Westbound
34	A23	528537	152399.1	Southbound
35	A217	526690	142709	Southbound
7	A25	511590	147376	Westbound
12	A25	520703	150839	Eastbound
13	A25	521662	150972	Westbound

Figure B3 – Proposed sites for VMS



ANNEXE C
Wider Network Benefits Methodology – Prevent, Monitor, Inform and Control

The method of approach to deliver these ITS measures has been broken down into four key elements – Prevent, Monitor, Inform and Control. Each element will help to achieve an overall improvement to the highway network in its own way.



Prevent

There are three existing spot speed Gatso brand cameras on the stretch of the A217 Brighton Road between the M25 and the northern county boundary. They are bi-directional camera housings which means that they can be turned around to enforce in different directions at different times (though not in different directions at the same time). These cameras have been successful in reducing speeds and casualties on the three links where they have been installed. However, the existing camera housings are now becoming obsolete due to the fact that they use old wet camera film technology, which is now no longer supported should there be a need for replacement parts. They are in need of upgrade to digital technology whereby the images from offences are transmitted to the back office remotely without the need to visit the sites and change the film. The simplest and cheapest way of upgrading these units would be to replace "like for like" so that the same spot speed housing is retained and upgraded to allow the use of digital camera technology within it. However, the Wider Network Benefits Bid provides the opportunity to take a more strategic view on speed cameras in the county and consider enhanced options for replacing these spot speed enforcement cameras over and above business as usual.

Consequently we have developed proposals to provide average speed cameras along the A217 corridor as part of Phase 1, as these would offer a number of significant benefits over the usual like for like replacement with spot speed digital technology. This equipment would be installed more widely across the network in later phases of the WNB.

Average speed cameras would encourage compliance with the speed limit along corridors in both directions as opposed to only within the vicinity of the spot speed cameras in one direction at a time. Consequently the reduction in road casualties along a route (and the reduction in incidents causing unexpected traffic congestion) would be greatly enhanced.

As well as the significant additional benefits of average speed cameras in reducing road casualties and collisions that lead to traffic congestion there is evidence that by smoothing traffic flow average speed cameras also improve the capacity of major roads. This is because on roads without average speed cameras the tendency of individual drivers to driver at higher speeds in platoons of traffic results in them requiring greater headway between vehicles and consequently although the individual vehicle speeds may be temporarily greater the total number of vehicles that can pass a point on the network is reduced leading to a pattern of stop-starting and a negative effect on the traffic flow and congestion. Average speed cameras encourage platoons of traffic to travel evenly spaced at an even speed, and this results in an improved flow of traffic and reduced congestion.

Monitor

SCC are looking to use two types of detection equipment that will monitor incidents and congestion along the network. ANPR will be used to monitor journey times and CCTV will monitor incidents. The combined use of these types of equipment will give SCC a comprehensive view of the highway network in real time.

When using Journey Time Monitoring a strategically placed node will pick up a number plate or signal along a route and then match that same item at another node placed further along the route. The methodology behind this is that the device will monitor how long it took Car A to travel from node one to node two, therefore giving an estimated journey time.

As added value, the ANPR will record and store historic data that could be used from a Transport Planning aspect. As the historic database grows traffic trends will form, meaning that the current unreliable road network will become reliable, therefore improving predictability. With a more predictive and reliable network SCC NMIC will be able to focus on executing proactive traffic management strategies rather than reactive ones.

The ANPR detection equipment will be used to output live journey time data or act as a trigger to Inform and/or Control other infrastructure. For instance, the journey time of a road is greater than 24 minutes so display journey time on VMS 16.

In addition SCC will use this detection to monitor the network to make other changes, including SCOOT parameters, implement diversion routes and activate multiple VMS.

Inform

SCC are proposing that the chosen method to Inform motorists of journey time and congestion information is via VMS, in conjunction with social media alerts and emails which are currently used. The locations of the VMS equipment have been chosen to allow enough “thinking time” for the driver to make an informed decision about their route ahead. They are located prior to a road network decision point (i.e. motorway junction exit) to allow drivers to leave their current route based on the information provided on the sign.

SCC intend to refine this approach using the identified congestion hotspots along each route and locating the VMS prior to the issue. Detailed design will look at visibility, verge widths, stats and visual impact.

To help alleviate congestion the VMS will be used to Inform motorists of live journey/travel time information, congested routes and network incidents. In addition to this pre-planned events can be publicised in advance to warn and inform of potential network delay, giving everyday commuters time to change their normal route.

It has been proven that Road Safety Campaign messages have been effective by helping reduce accident and KSI levels. These Campaigns occur at a national level and vary in subjects throughout the year. With the new VMS SCC will also be able emphasise and publicise these events, helping to lower accident rates by informing the public to ‘drive safely’.

Control

Issues can be identified through detection equipment used to monitor the network by supplying live data. This data will be communicated through the UTMC Systems which can be used to change SCOOT parameters, diversion routes and multiple VMS. However, further UTMC or Control Room enhancements may need to be made.

The UTMC system will continuously monitor the network and flag up user configurable issues or delays. It is then SCC responsibility to actively change the situation by controlling these new elements to improve or remove problems. By upgrading the Control equipment these improvements can help reduce network congestion. With the collaboration of the Highways Agency and surrounding authorities, a greater understanding and therefore Control of the road network can be achieved.

ANNEXE D

Corridor selection for *WNB Phase 1*

This application for funding covers Phase 1 of the *WNB* package which concentrates on our five highest priority corridors:

- A23;
- A24 (north);
- A25;
- A217; and
- A240.

Corridor prioritisation was based on the consideration against a number of indicators which covered strategic, environmental and social importance. Analysis was undertaken of available data and a score was applied to each corridor based on this assessment. Table D1 provides the summary comparison scores (0 to 5) for each of the corridors considered. A score of 0 indicates that there is no relevance/issue against the indicator, while a score of 5 indicates that there is a large relevance/issue. An average score for each corridor has then been calculated for comparison and prioritisation. Further detail on the information used in the prioritisation process is outlined below.

Table D1 Corridor Prioritisation - Phase 1

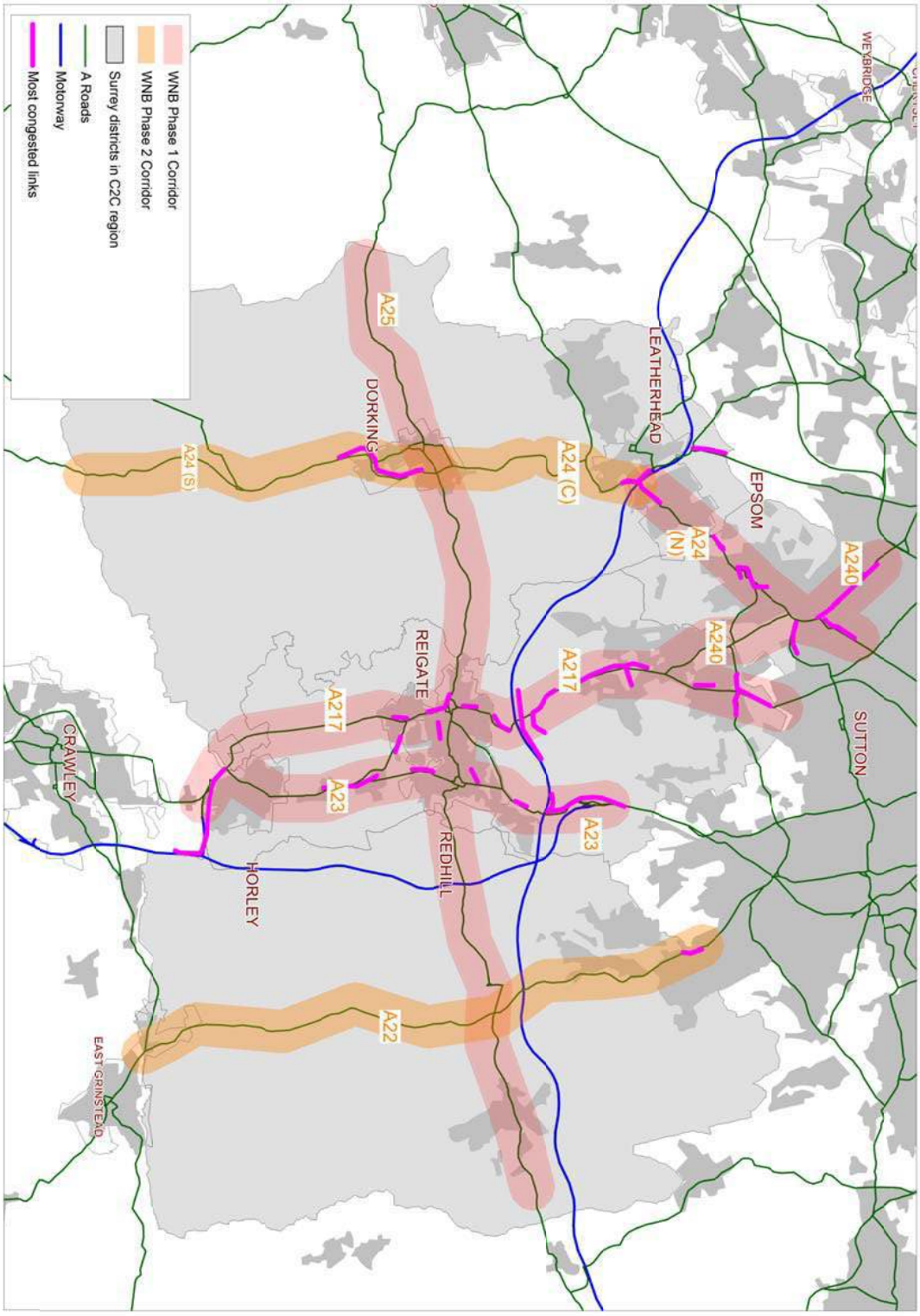
Indicator	Corridor prioritisation							
	A22	A23	A24 (N)[1]	A24 (S)[2]	A24 (C)[3]	A25	A217	A240
Congestion	2	4	4	3	4	1	5	5
Traffic flows	2	3	2	3	5	1	5	5
Existing major businesses	1	4	4	3	5	4	3	3
Air quality management area	0	5	0	0	0	5	5	5
Planned & unplanned activities	5	3	3	2	1	4	5	2
Social indicators	1	5	4	3	2	3	2	4
Emergency Diversion Routes	5	5	5	5	5	5	5	5
Future Development	2	5	2	5	3	3	5	2
Average overall score	2.3	4.3	3.5	2.7	3.0	3.1	4.4	3.3

[1] A24 North Section – corridor north of the M25.
[2] A24 Central Section– corridor south of the M25 to north of Dorking.
[3] A24 Southern Section – corridor north of Dorking to the West Sussex boundary.

Indicator 1: Congestion

Figure D1 shows the most congested corridors on the network based on data extracted from SCC's Strategic Highway Model. Whilst there are pockets of congestion on many corridors within the study area, the prioritisation exercise has considered the proportion of the routes which are effected as relative impacts to urban centres.

Figure D1 Congestion on links



Indicator 2: Traffic Flows

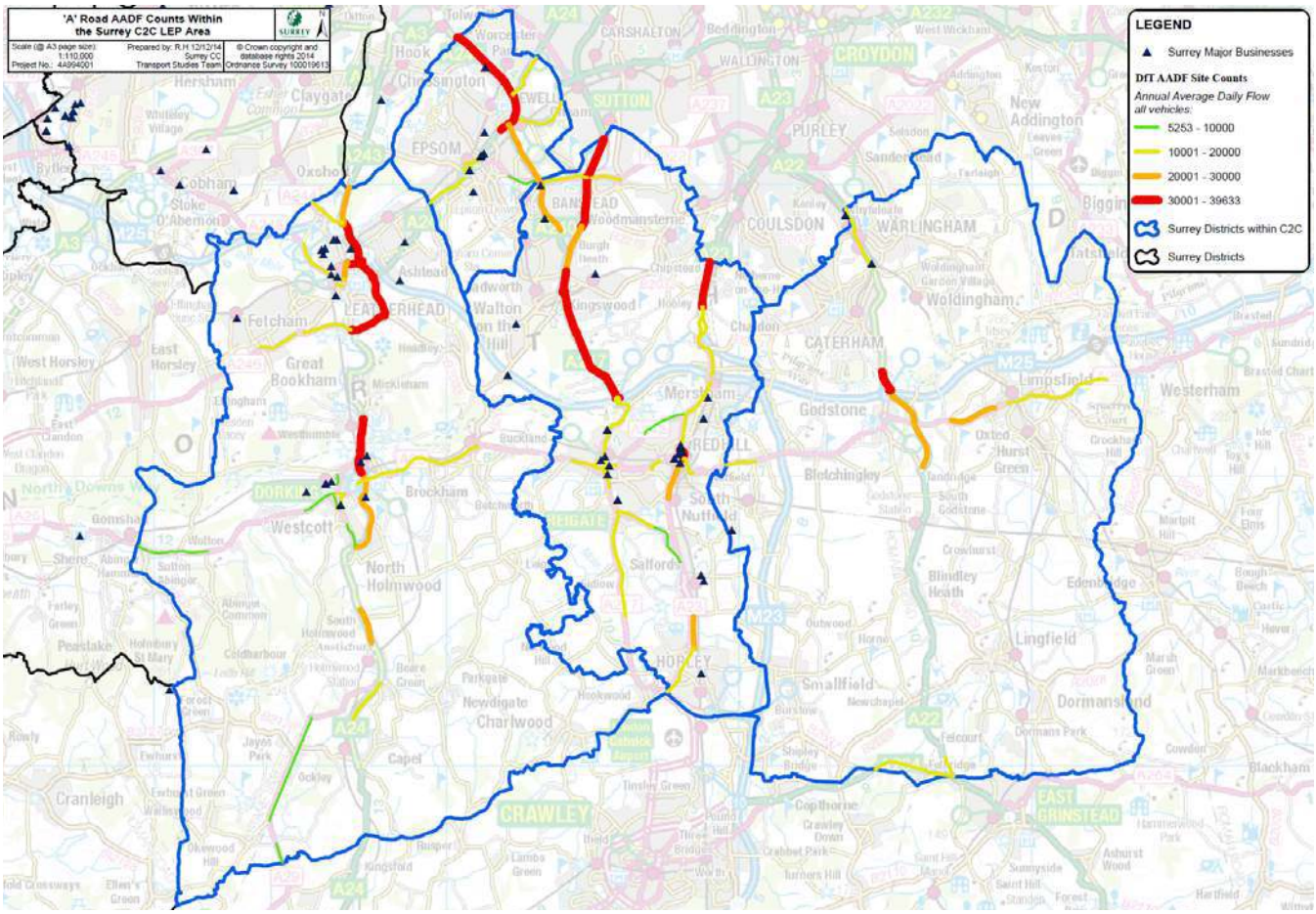
Figure D2 shows the traffic flow data taken from the DfT Annual Average Daily Flow of vehicles on the A roads within the Surrey C2C LEP Area which has informed the prioritisation scores in Table D1.

Traffic flows are generally higher in the northern section of the LEP area on the London radials and north of the M25. The northern section of the A217 experiences flows in excess of 30,000 vehicles per day, as does the A240 and the central section of the A24 through Leatherhead.

Indicator3: Surrey major businesses

Figure D2 shows the location of major Surrey businesses. The main clusters of businesses are located on the A24 in the urban areas of Leatherhead, Epsom and Dorking, on the A217/A25 in Reigate and A23/A25 in Redhill.

Figure D2 AADF Traffic Flow Counts and location of major Surrey businesses



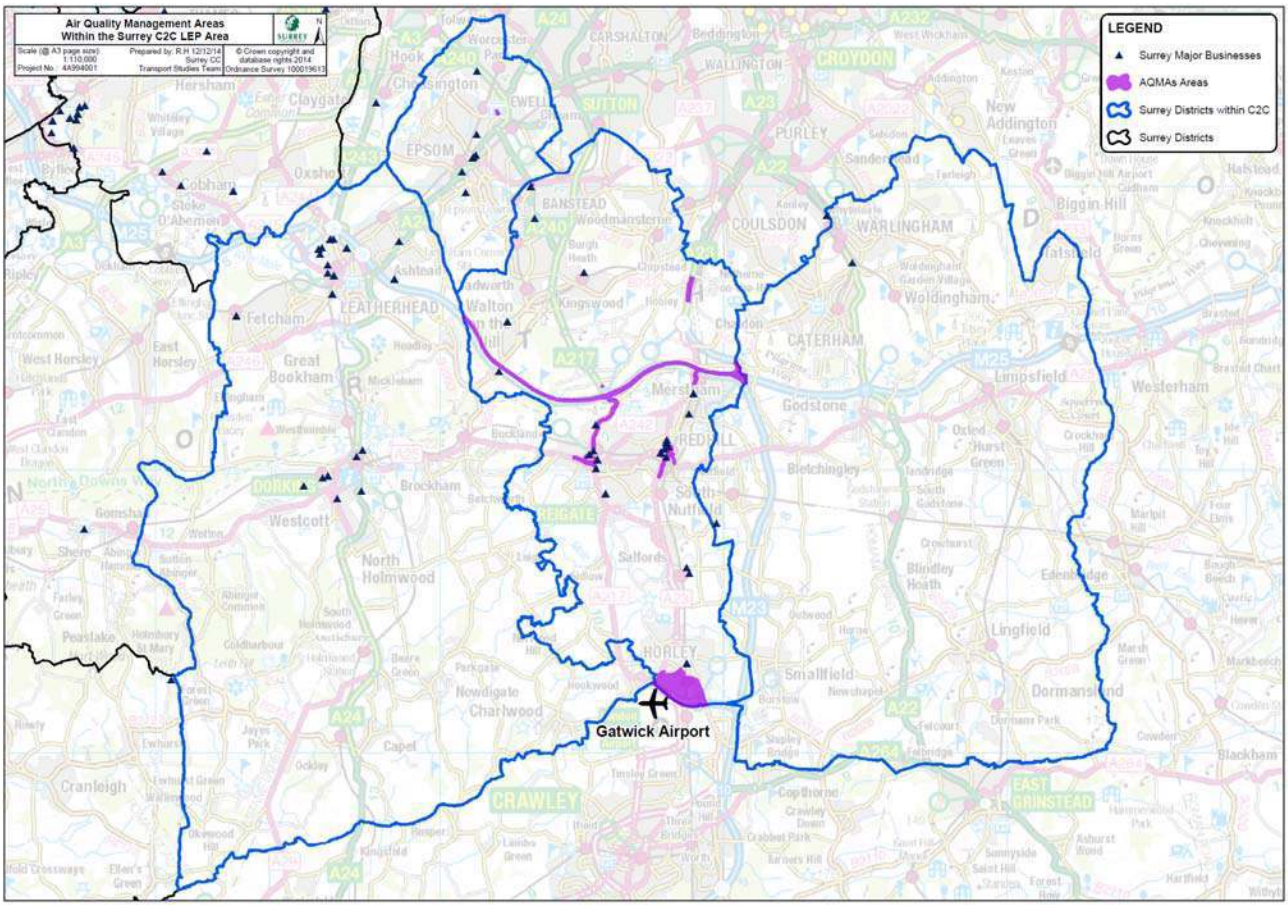
Indicator 4: Air Quality

To date, 24 Air Quality Management Areas (AQMAs) have been declared in Surrey. Most of the AQMAs are designated on transport corridors and within urban areas. These areas suffer from high roadside pollutant levels and the effect of stop-start traffic caused by congestion exacerbates this issue and can be harmful to human health.

Figure D3 shows the 7 AQMAs within East Surrey which are within the C2C area. The AQMAs are listed below and the corridors on which they fall have been prioritised accordingly.

1. A217 near Blackhorse Lane,
2. A25/A217 Reigate town centre, and
3. A2022/A240 Drift Bridge.
4. A23/A25 Redhill Town Centre
5. A23 Hooley
6. East of A217, SW area of Hooley
7. A23 Merstham High Street.

Figure D3 Air Quality Management Areas



Indicator 5: Planned and unplanned activities

Table D2 below shows the number of events on each of the corridors which resulted in works on the carriageway, both planned and unplanned, including carriageway patching, water main repairs, etc. These events were accompanied by positive traffic management which may have affected traffic movements. The figures exclude planned activities such as the Epsom Races, which would cause additional disruptions on the corridors.

Data for the A217, for example, indicates that there were 354 planned and unplanned activities on the corridor between 2012 and the end of 2014. This equates to an activity approx. every 3 days over the three year period. Many of these incidents required lane or road closures which reduced the capacity of the corridor, thereby impacting on congestion and journey times.

Prioritisation score has been based on the total number of activities on the corridor between 2012 and 2014.

Table D2 Planned and unplanned activities, 2012-2014

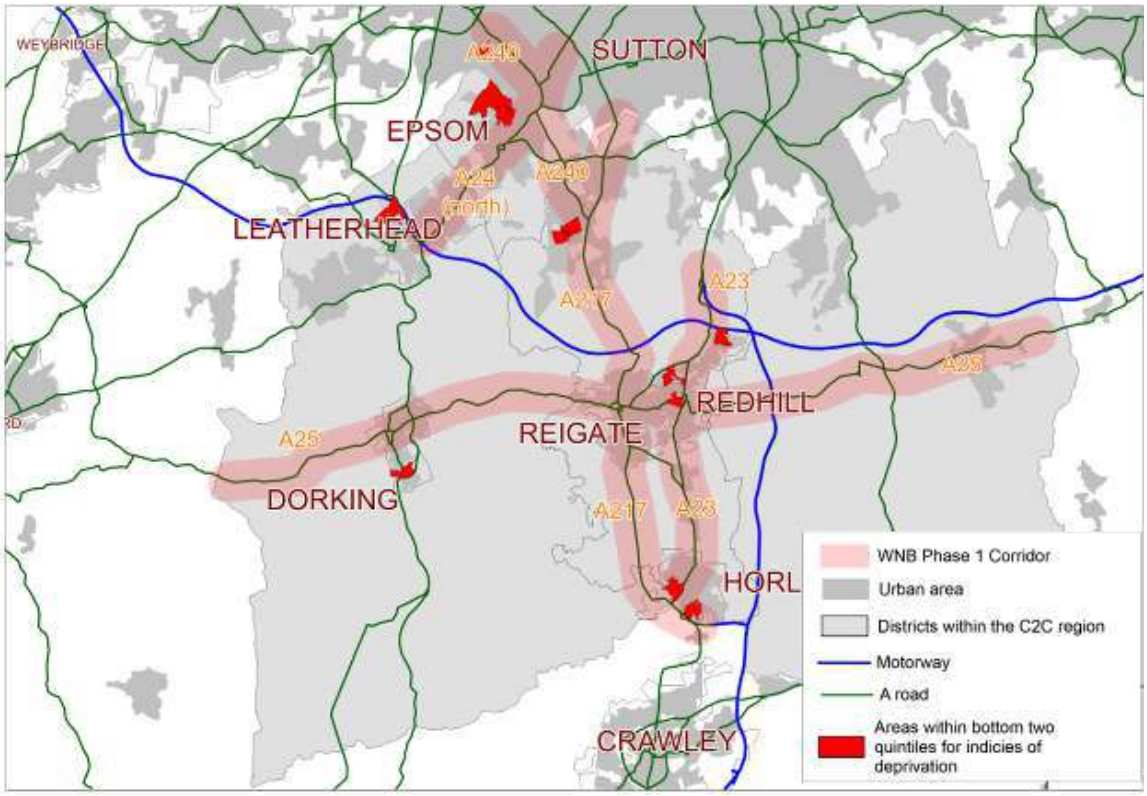
All Traffic Management	A22	A23	A24 (north)	A24 (central)	A24 (south)	A25	A240	A217
Emergency (unplanned)	40	86	85	12	33	108	34	127
Urgent (unplanned)	15	10	9	0	6	12	4	18
Major (planned)	17	23	17	1	7	11	11	20
Other (planned)	283	78	76	45	95	82	51	189
All planned & unplanned works	355	197	187	58	141	213	100	354
Prioritisation Score	**5**	**3**	**3**	**1**	**2**	**4**	**2**	**5**

Indicator 6: Deprivation

Although the East Surrey region is amongst the least deprived areas of the country there are several pockets of deprivation where residents are likely to be disproportionality affected by the impacts of congestion. In these areas, congestion will result in longer and less reliable journey times for those who require public transport as a means of accessing employment and training. Figure D4 displays the correlation between the areas within the bottom two quintiles for indices of deprivation and the WNB Phase 1 corridors.

As can be seen from this map, there are areas of deprivation in proximity to the A24 (north) around Epsom and Leatherhead, on the A25/A23 in Redhill, and pockets on the A217/A240.

Figure D4 – Output areas within bottom two quintiles for Indices of Deprivation



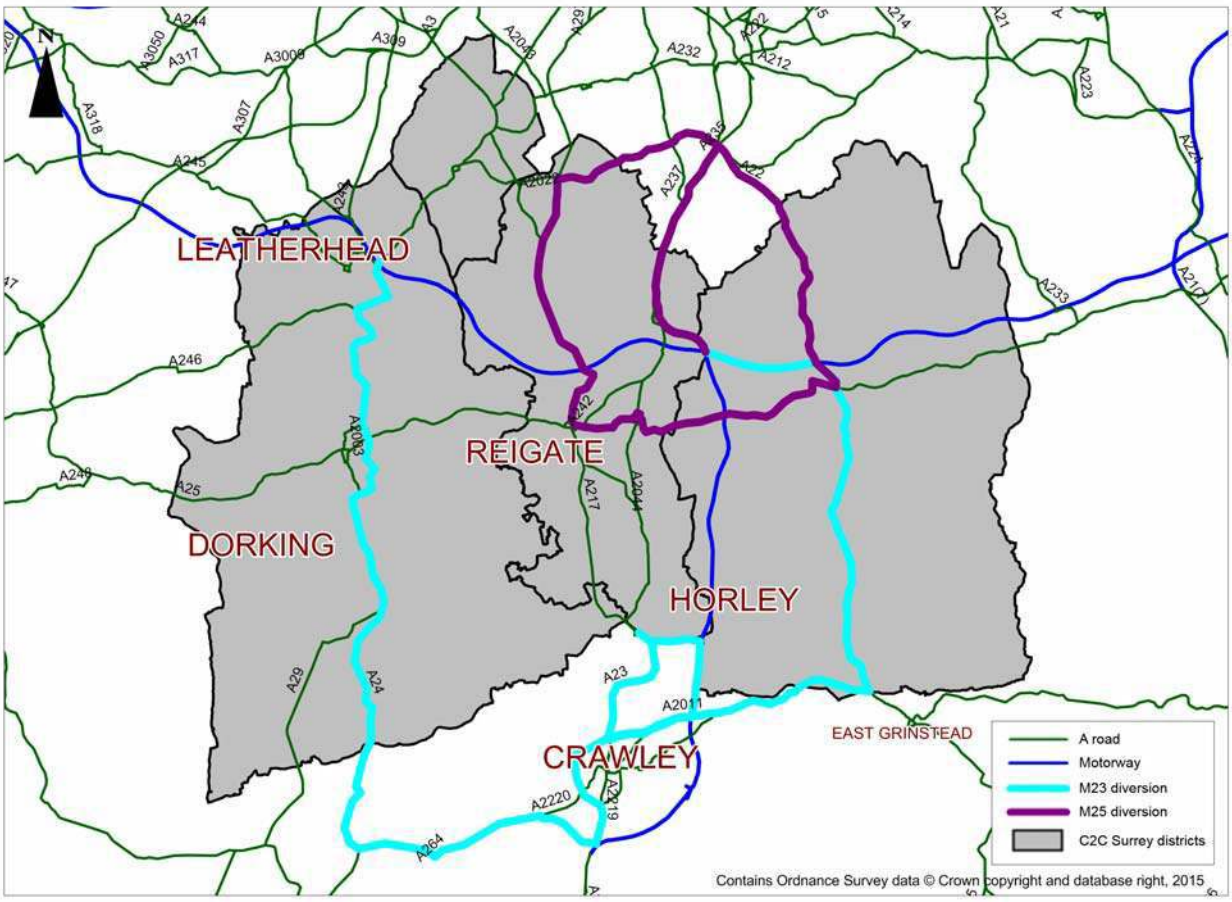
Indicator 7: Emergency Diversion Routes (EDR)

A number of roads in East Surrey form part of the Highway Agency's Emergency Diversion Routes for the M25 and M23. These provide the public with a pre-planned, checked and agreed junction to junction diversion route that circumnavigates an incident which has resulted in the closure of the main carriageway on the M25 and M23. The emergency diversion route will guide

road users around the incident along an alternative road and bring them back onto the motorway or main road at a later junction.

Figure D5 shows that the A23, A24, A217, A25 are part of the M23 EDR, and the A25 and A217 are part of the M25 EDR in East Surrey. These corridors have been prioritised as such in the matrix. There is anecdotal evidence that these routes have been used infrequently by the HA in the past five years.

Figure D5 - Emergency Diversion Routes



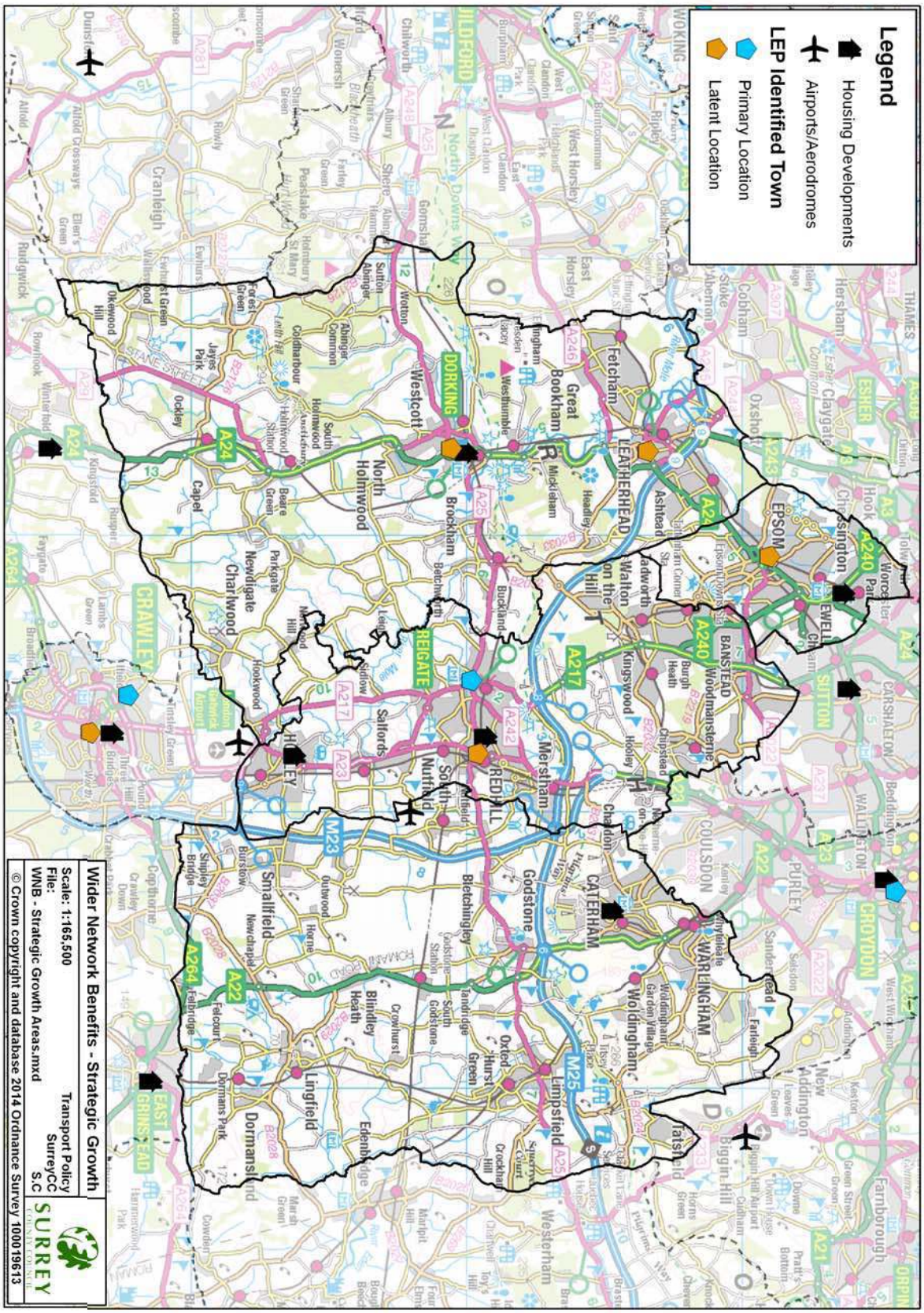
Indicator 8: Future Development

Table D3 details the level of planned residential development identified in the Core Strategies of the four Surrey Districts and by Horsham District Council in the next 10 to 15 years. The corridors most likely to be affected by the additional dwellings at these locations were identified and prioritisation scores derived accordingly.

Table D3 Future Development

Authority	Source	Location	Development	Corridor
Mole Valley	Core Strategy	Leatherhead, Ashtead, Bookham and Fetcham.	3,760 net additional dwellings between 2006 and 2026.	A24 Central Corridor, and the A25.
Reigate and Banstead Borough	Core Strategy	Within existing urban areas and will be prioritised in Redhill and Reigate and in Horley.	6,900 additional homes between 2012 and 2027 Redhill and Reigate- 3,010 homes Horley - 2,600 homes	A23, A25 and A217 corridors.
Tandridge	Core Strategy	focussed in built up areas of Caterham, Warlingham, Whyteleafe, Oxted and Hurst Green	2,500 dwellings in the district (2006-2026).	A22 corridor
Epsom and Ewell	Core Strategy	Epsom	2,620 housing units are planned between 2006 and 2026, with the Town Centre	A24 Northern Corridor
Horsham	Horsham District Council Planning Framework (August 2014)	Horsham	4,500 homes by 2031 on the northern side of the town	A24 southern corridor

Figure D6 Future Development

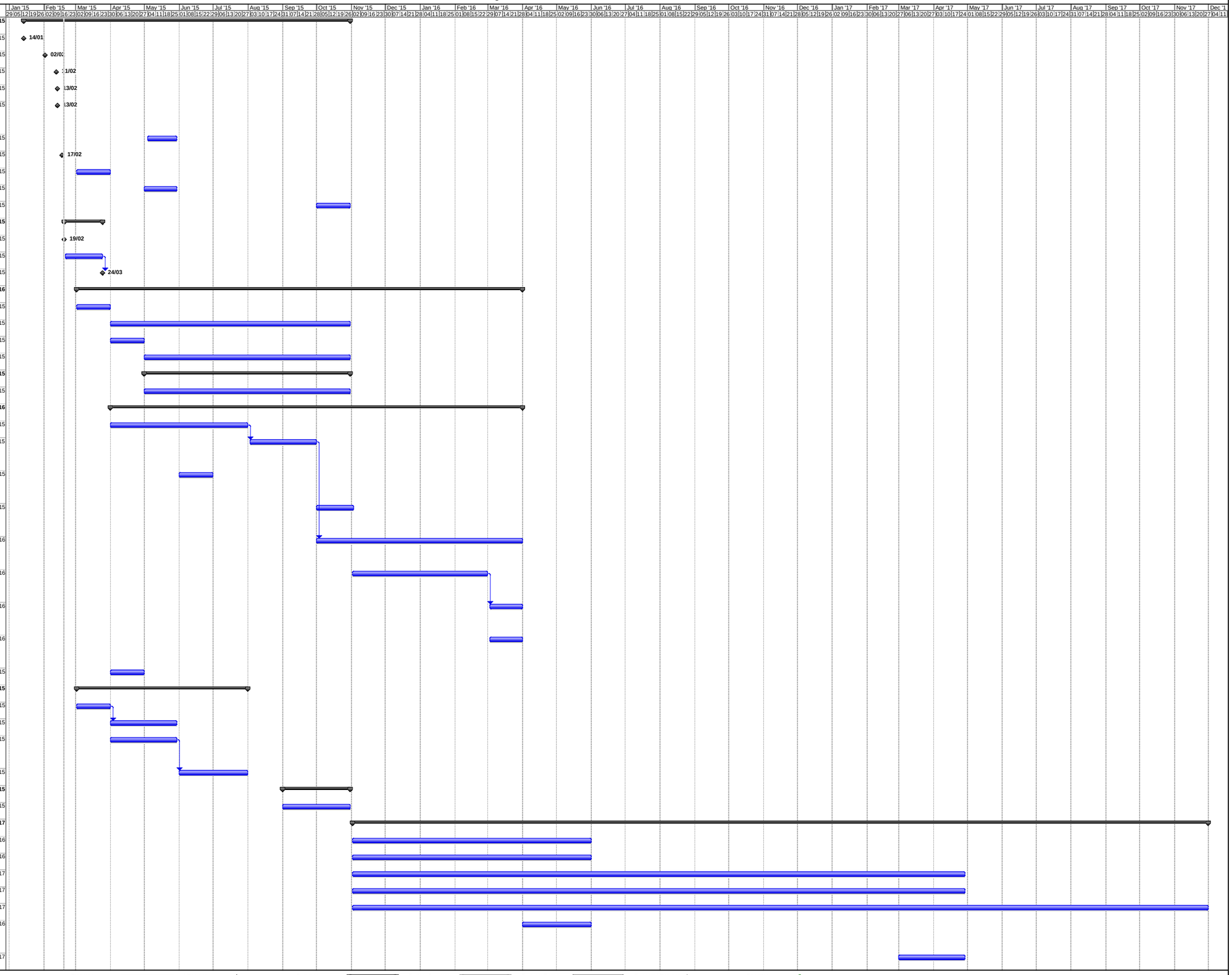


ANNEXE E

Project programme

Surrey Wider Network Benefits Package
Phase 1 - Programme

ID	Task Name	Start	Finish
1	**Internal Approval Processes**	**Wed 14/01/15**	**Fri 30/10/15**
2	Pre-sumbission investment Panel	Wed 14/01/15	Wed 14/01/15
3	Project board meeting	Mon 02/02/15	Mon 02/02/15
4	Section 151 Officer approval	Wed 11/02/15	Wed 11/02/15
5	Strategic Director sign-off	Fri 13/02/15	Fri 13/02/15
6	Cabinet member approval (John Furey - Portfolio Holder)	Fri 13/02/15	Fri 13/02/15
7	Post-submission investment Panel	Mon 04/05/15	Fri 29/05/15
8	Investment Panel	Tue 17/02/15	Tue 17/02/15
9	Procurement review group	Mon 02/03/15	Tue 31/03/15
10	Procurement review group	Fri 01/05/15	Fri 29/05/15
11	Procurement review group	Thu 01/10/15	Fri 30/10/15
12	**LTB Funding Timeline**	**Thu 19/02/15**	**Tue 24/03/15**
13	Submission to LTB	Thu 19/02/15	Thu 19/02/15
14	LTB Review process	Fri 20/02/15	Tue 24/03/15
15	Decision on funding	Tue 24/03/15	Tue 24/03/15
16	**Procurement**	**Mon 02/03/15**	**Thu 31/03/16**
17	Draft procurement strategy	Mon 02/03/15	Tue 31/03/15
18	ANPR - SCC/Surrey Police contract	Wed 01/04/15	Fri 30/10/15
19	Signals - Existing contract	Wed 01/04/15	Thu 30/04/15
20	VMS - Sth East ITS call-off contract	Fri 01/05/15	Fri 30/10/15
21	**CCTV cameras**	**Fri 01/05/15**	**Fri 30/10/15**
22	CCTV Opt 1 - Mini-tender	Fri 01/05/15	Fri 30/10/15
23	**Average speed cameras**	**Wed 01/04/15**	**Thu 31/03/16**
24	Av Speed cameras - Procurement	Wed 01/04/15	Fri 31/07/15
25	Av Speed cameras - Signage design	Mon 03/08/15	Wed 30/09/15
26	Av Speed cameras - Local Committee Report	Mon 01/06/15	Tue 30/06/15
27	Av Speed cameras - Local Committee Report	Thu 01/10/15	Mon 02/11/15
28	Av Speed cameras - Comms and PR	Thu 01/10/15	Thu 31/03/16
29	Av Speed cameras - Cameras and signage installation	Mon 02/11/15	Mon 29/02/16
30	Av Speed cameras - Back Office installation	Thu 03/03/16	Thu 31/03/16
31	Av Speed cameras - Commissioning and Go Live	Thu 03/03/16	Thu 31/03/16
32	NMIC - Existing contract	Wed 01/04/15	Thu 30/04/15
33	**Scheme Design**	**Mon 02/03/15**	**Fri 31/07/15**
34	Preliminary design	Mon 02/03/15	Tue 31/03/15
35	Stats investigation	Wed 01/04/15	Fri 29/05/15
36	Detailed designs inc safety audit & surveys	Wed 01/04/15	Fri 29/05/15
37	Development of maintenance strategy	Mon 01/06/15	Fri 31/07/15
38	**Communications**	**Tue 01/09/15**	**Fri 30/10/15**
39	Pre-instalation Comms to Members	Tue 01/09/15	Fri 30/10/15
40	**Construction**	**Mon 02/11/15**	**Thu 30/11/17**
41	Stats diversions	Mon 02/11/15	Tue 31/05/16
42	Installation of VMS	Mon 02/11/15	Tue 31/05/16
43	Installation of CCTV	Mon 02/11/15	Fri 28/04/17
44	Installation of ANPR	Mon 02/11/15	Fri 28/04/17
45	Installation of DUSC	Mon 02/11/15	Thu 30/11/17
46	Sign off and handover - Average Speed Cameras	Fri 01/04/16	Tue 31/05/16
47	Sign off and handover	Wed 01/03/17	Fri 28/04/17



Project: 2015 02 17 WNB Programme
Date: Wed 18/02/15

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

ANNEXE F
Appraisal Summary Table

Appraisal Summary Table

Date	17 2 2015

Contact:	
Name	Emma Healy
Organisation	Atkins
Role	Promoter's consultant

Name of scheme:	Wider Network Benefits Package
Description of scheme:	Through the implementation of Intelligent Transport Systems (ITS), our Wider Network Benefits (WNB) package has been devised to enable us to exert far greater control over how our road network responds to the challenges caused by traffic congestion.

Impacts		Summary of key impacts	Assessment			
			Quantitative	Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp
Economy	Business users & transport providers	• The provision of ITS measures along key transport corridors and in areas of significant activity (both existing and planned) will provide greater opportunities to manage the operation of the highway network and improve access to sites, creating additional incentives for businesses and residents to locate in these areas and helping to unlock the potential in many areas in Surrey. The WNB package will also maintain and improve the strategic connectivity advantages to workforces within the UK and will mitigate for planned employment and housing growth. • It is anticipated that the scheme would have a highly beneficial impact on the effective and efficient operation of the highway network by improving traffic flows, reducing delays and congestion, and improving junction performance and up to date travel information. This will help to support economic growth across the Coast to Capital LEP area and the rest of Surrey through improved network performance.		Large Beneficial		
	Reliability impact on Business users	• The ITS measures proposed within the WNB package can assist in an overall reduction in congestion and therefore more efficient movement of people and vehicles in the region, especially during busy daytime periods, but also during the year given the seasonal events, such as the Epsom Derby. • Improved ITS measures can deliver noticeable economic benefits for Surrey through reduced journey times and increased journey time reliability for all vehicles using the highways, as well as improvements in safety, reductions in pollution and comprehensive and more accessible travel information.		Large Beneficial		
	Regeneration	Although there are no central government defined Regeneration Areas within the study area, the reduced congestion on the prioritised corridors will help to promote and mitigate for planner residential and employment growth.		Slight Beneficial		
	Wider Impacts	N/A				
Environmental	Noise	Areas in proximity to the priority corridors are likely to suffer no benefits or disbenefits as a result of the scheme.		Neutral		
	Air Quality	Reducing unnecessary idling and circulation, and smoothing traffic flow through optimised traffic signals will reduce emissions resulting from stop-start driving behaviour and improve air quality.		Moderate Beneficial		
	Greenhouse gases	The resultant smoother traffic flows, and reduced congestion from the scheme will lead to a reduction in greenhouse gas emissions.		Moderate Beneficial		
	Landscape	N/A				
	Townscape	WNB measures will take place entirely within the footprint of the existing highway boundary.		Neutral		
	Historic Environment	The potential to affect the historic environment is very low.		Neutral		
	Biodiversity	The equipment for the scheme will be on existing hard standing areas which likely to be devoid of any vegetation or biodiversity value.		Neutral		
	Water Environment	The scheme is unlikely to have any noticeable impact on the water environment as the hard surface area of the carriageway is not being extended to accommodate the new equipment.		Neutral		
Social	Commuting and Other users	It is anticipated that the scheme would have a highly beneficial impact on the effective and efficient operation of the highway network by improving traffic flows, reducing delays and congestion, and improving junction performance and up to date travel information.		Large Beneficial		
	Reliability impact on Commuting and Other users	New communications technologies offer real solutions to improving transport and information making travel in and around the C2C region a more pleasant and safer experience for the residents, commuters, visitors and businesses.		Moderate Beneficial		
	Physical activity	Improvements to bus service reliability may lead to a slight increase in use of public transport and hence increased walking as part of these journeys. However, with the improvement to highway performance the level of mode shifting will be negligible.		Neutral		
	Journey quality	The scheme will provide information on travel options and the consequences and implications for users and local people, ensuring safe journeys when incidents occur. ITS measures will allow for a smoothing of traffic flows through optimised traffic signals or, in the event of an incident, through the rerouting of vehicles onto alternative corridors.		Large Beneficial		
	Accidents	Evidence suggests that the deployment of average speed cameras will lead to greater compliance with speed limits, which is a contributory factor to reduced accident rates Reduced congestion and smoother traffic flows will also result in a reduction to accident numbers.		Moderate Beneficial		
	Security	N/A				
	Access to services	Tackling current congestion and improving journey time reliability through the use of ITS will improve accessibility to key employment areas, industrial estates and major employment sites and will help to unlock the potential in many areas in Surrey.		Moderate Beneficial		
	Affordability	The anticipated reductions in journey time provided by the measures proposed will lead to lower operating and time costs associated with travel for road users. This therefore has the opportunity to improve personal affordability.		Slight Beneficial		
	Severance	The scheme will improve the public realm in urban areas by reducing congestion. This will contribute to the revitalisation of town centres, creating a desirable location for businesses and consumers. The project will also improve accessibility and journey times for a larger pool of potential employees.		Slight Beneficial		
	Option and non-use values	N/A				
Public Account	Cost to Broad Transport Budget	N/A				
	Indirect Tax Revenues	Reduced operating cost for car users results in lower payments of fuel duty and VAT. Changes to demand for public transport is likely to be limited and so have little impact on indirect taxation.		Slight Adverse		

ANNEXE G
Letters of Support

Mr M Jezzard

Traffic Manager
Traffic and Street Works
Operations Group
Surrey County Council

Mark Whitaker

Road Space Management
Directorate
Palestra Zone 3R53rd Floor
197 Blackfriars Road
London
SE1 8NJ

28th January 2015

Dear Matthew,

Surrey County Council – Wider Network Benefits Package Funding Bid

Having reviewed the information provided by yourself in relation to the proposed Wider Network Benefits Package, I can confirm on behalf of Transport for London (TfL), that we are delighted to offer our support to Surrey County Council in your application for funding to the Coast to Capital Local Transport Body.

As a neighbouring Highway Authority we are extremely pleased to see SCC taking a proactive approach to reducing the impacts of traffic congestion; through this proposal to implement a package of Intelligent Transportation System (ITS) measures across the County.

Were the proposals to be implemented, we would expect the benefits to our organisation to be:

- The generation of 'shared situational awareness';
- Improved ability to identify and respond to incidents and planned events and
- Enhanced coordination of road space management between our authorities.

Should this bid be successful we can confirm that we will assist SCC to make the scheme a success in any way we can and we will share information, data and lessons learnt from TfL's own programmes and projects where appropriate.

Yours sincerely,

Mark Whitaker

Head of Operations

Rachel Lewis
Head of Environment

5 February 2015

THE ROYAL BOROUGH OF
KINGSTON UPON THAMES

Matthew Jezzard
Traffic Engineer
Traffic and Street Works
Operations Group
Surrey County Council

Street Services
Guildhall 2
Kingston upon
Surrey KT1 1EU
E-mail: dalton.cenac@rbk.kingston.gov.uk
Direct Line: 020 8547 5895

Dear Matthew,

Surrey County Council – Wider Network Benefits Package Funding Bid

Having reviewed the information provided by yourself in relation to the proposed Wider Network Benefits Package, I can confirm on behalf of the Royal Borough of Kingston that we are delighted to offer our support to Surrey County Council in your application for funding to the Coast to Capital Local Transport Body.

As a neighbouring Highway Authority we are extremely pleased to see SCC taking a proactive approach to reducing the impacts of traffic congestion through this proposal to implement a package of Intelligent Transportation System measures across the County.

Were the proposals to be implemented, we would welcome the increased traffic control that would result from these improvements and specifically the A240. This road suffers significant delays and impacts traffic flows (particularly in the PM peak) towards and from Tolworth, Surbiton and beyond into Kingston. Accordingly any additional VMS, CCTV and DUSC in Surrey that would give motorists relevant information at key decision points on the network and also reduce disruption would be beneficial to the wider network and specifically traffic entering Kingston from Surrey.

Should this bid be successful we can confirm that we will assist SCC to make the scheme a success in any way we can.

Yours sincerely,

Dalton Cenac
Traffic Manager
Environment

Royal Borough of Kingston upon Thames
Guildhall 2
High Street
Kingston upon Thames
KT1 1EU

London Borough of Sutton

Environment & Neighbourhoods Directorate
Executive Head of Commissioning – Brendon Hills

Contact: Martin French
Direct Line: 020 8770 6426
Direct Fax:
Email: **streetworks@sutton.gov.uk**

LONDON BOROUGH OF SUTTON
Environment & Neighbourhoods
Highways & Streetcare
24 Denmark Road
Carshalton
SM5 2JG

Mr M Jezzard
Traffic Manager
Traffic & Streetworks
Operations Group
Surrey County Council
matthew.jezzard@surreycc.gov.uk

16 January 2015

Dear Matt

SURREY COUNTY COUNCIL FUNDING BID
WIDER NETWORK BENEFITS PACKAGE

It was a great pleasure to talk to you yesterday and catch up.

Thank you for the information, and giving me the opportunity of responding.

I have looked at the information about the proposed Wider Network Benefits Package, and yes, I can confirm that the London Borough of Sutton is delighted to be able to support Surrey County Council (SCC) in their application for funding from the Coast to Capital Local Transport Body, for this exciting, innovative initiative..

Sutton, as a neighbouring Highway Authority, are delighted to see SCC taking such a proactive approach to reducing the impact of traffic congestion through the use of a County-Wide Intelligent Transportation System.

I can envisage many benefits to Sutton from this system. They say that to be "forewarned is to be forearmed".

Advance notification and identification of abnormal conditions and traffic flow, combined with the dial up signal control facilities will greatly assist in the management of traffic on our network.

Strategic Director
Environment &
Neighbourhoods
Mary Morrissey

Chief Executive
Niall Bolger

I also believe that the advance information that can be given to motorists by the additional VMS sites will prevent a lot of “Motorist Frustration”, giving them the ability to make well informed route decisions.

All this will lead to our roads being a happier, safer, more free-flowing environment.

Everyone is a winner.

When you are successful in your bid, The London Borough of Sutton will be delighted to help SCC in any way we can to make the scheme the success that no doubt it will become.

Yours sincerely

Martin French
Streetworks & Abandoned Vehicles Manager

Strategic Director
Environment &
Neighbourhoods
Mary Morrissey

Chief Executive
Niall Bolger

CROYDON
www.croydon.gov.uk

Highways & Parking Services
6th Floor, Zone C,
Bernard Weatherill House,
8 Mint Walk
Croydon
CR0 1EA

Mathew Jezzard
Traffic Manager
Traffic and Street Works
Operations Group
Surrey County Council

Contact: Steve Iles
Tel: 0208 726 6000 ext 52821

Date: **05 February 2015**

Dear Matthew,

Surrey County Council – Wider Network Benefits Package Funding Bid

Having reviewed the information provided by yourself in relation to the proposed Wider Network Benefits Package, I can confirm on behalf of the London Borough of Croydon that I am delighted to offer our support to Surrey County Council in your application for funding to the Coast to Capital Local Transport Body.

As a neighbouring Highway Authority we are extremely pleased to see SCC taking a proactive approach to reducing the impacts of traffic congestion through this proposal to implement a package of Intelligent Transportation System measures across the County.

I fully endorse these proposals and believe this will bring benefits to the Croydon road network. The concept of Urban Traffic Management Control when harnessed to modern technological systems will give control back to a local authority who can, through the use of CCTV and ANPR improve the management of competing demands of the road network. It gives a local authority a further tool to expedite traffic including pedestrians on its network and the network of others which is a statutory duty as laid down by Traffic Management Act 2004 Part 2 – Network Management Duty.

In support of this statement I offer two occasions where deployment of VMS and ANPR system would have assisted Croydon.

1. In February 2014 both Surrey and Croydon suffered from severe flooding and the A22 was closed which forced more traffic onto A23. If the VMS signs proposed in this bid were in operation traffic could have been more effectively managed and congestion levels reduced on A23. Traffic could have been re-routed earlier to avoid the congestion in the area, as the wider the distribution area of traffic management the greater control you have on all types of vehicles and drivers are given more informed choices as to what route they can take. Early indications of an incident or immediate works lends itself to more effective management of HGV traffic as it can direct them on to more suitable roads and reduce the number trying

to vie for road space on roads clearly not suitable for this type of traffic. In effect this is what happened during the flooding as HGV drivers were making less informed decisions the closer they came to the flooded area. Croydon then had to manage the HGVs on less suitable roads to avoid height and width restricted bridges.

2. Old Lodge Lane was closed due to TfL's works on the Brighton Road and through use of VMS more effective management of the network could have been achieved by reducing the number of vehicles using the Surrey/Croydon corridor. Unlike static warning signs VMS can reflect real time information such as delays in journey times and drivers can make more informed choices earlier.

Going forwarded by use of the various technologies available future demand management of the road network can be predicted and transport policies implemented accordingly. This can lead to closer cross boundary agreements and when viewed with the use of automated signals controls any build-up of traffic can be managed remotely where wider implications can be taken into account and adjusted accordingly. Therefore Croydon views these proposals as bringing economic and environmental benefits to both authorities especially when seen from the perspective of the travelling public and businesses.

Furthermore it will increase the liveability of both Surrey's and Croydon's residents through less pollution, congestion and better journey times reliabilities.

Should this bid be successful we can confirm that we will assist SCC to make the scheme a success in any way we can.

Yours sincerely,

Steve Iles MBE
Head of Highways and Parking Services,
Development and Environment

Kent County Council
kent.gov.uk

Kent County Council
Invicta House
Maidstone
Kent
TN24 8AD

Contact us at www.kent.gov.uk/highways
Telephone: 03000 41 81 81
Ask for: Andrew Westwood
Reference
Date: 02/02/2015

Mathew Jezzard
Traffic Manager
Traffic and Street Works
Operations Group
Surrey County Council

Dear Matthew,

Surrey County Council – Wider Network Benefits Package Funding Bid

Having reviewed the information provided by yourself in relation to the proposed Wider Network Benefits Package, I can confirm on behalf of Kent County Council that we are delighted to offer our support to Surrey County Council in your application for funding to the Coast to Capital Local Transport Body.

As a neighbouring Highway Authority we are extremely pleased to see SCC taking a proactive approach to reducing the impacts of traffic congestion through this proposal to implement a package of Intelligent Transportation System measures across the County. The measures will complement the Strategic Congestion scheme that already has been approved in Kent.

Were the proposals to be implemented, we would expect the benefits to our organisation in improved communication, awareness and seamless awareness of the cross border road network when managing incidents and works.

Should this bid be successful we can confirm that we will assist SCC to make the scheme a success in any way we can.

Yours sincerely,

Andrew Westwood

Traffic Manager

Peter Atkins
Traffic Manager
Highways and Transport
0330 2226412 (Direct)

Peter.atkins@westsussex.gov.uk
www.westsussex.gov.uk

Northleigh
County Hall
West Street
Chichester
West Sussex
PO19 1RG

Mr Matthew Jezzard
Traffic Manager
Traffic & Street Works
Operations Group
Surrey County Council

23rd January 2015

Dear Matt,

Surrey County Council – Wider Network Benefits Package Funding Bid

Thank you for involving me in the recent joint discussions regarding this initiative.

From our point of view this is an important and worthwhile project which will enable us to level some management on our joint north-south routes of the A29, A24 and A23. This directly supports the principles under the Traffic Management Act 2004. Dissemination of information to drivers across the highway network is obviously one of the key principles of minimising congestion and ITS is a useful tool for this.

Keeping road users updated on traffic conditions is key and on these main commercial, non-trunk routes, and by doing so with strategically placed, reliable equipment will also support commercial activity across the region. In this respect alone it aligns fully with one of the core objectives of West Sussex County Council.

Good luck with your bid and I look forward to a successful outcome so this exciting and beneficial project can be taken to the next stage of design and specification.

Yours sincerely,

Peter Atkins

Highways Specialist Services Manager & Traffic Manager

Communities, Environment & Transport East Sussex Highways
The Broyle
Ringmer
BN8 5NP

Rupert Clubb
BEng(Hons) CEng MICE
Director

Mathew Jezzard
Traffic Manager
Traffic and Street Works
Operations Group
Surrey County Council

Date 14 January 2015

please contact our ref your ref
Graeme Lake
01273 482941
graeme.lake@eastsussex.gov.uk

Dear Matthew,

Surrey County Council – Wider Network Benefits Package Funding Bid

Having reviewed the information provided by yourself in relation to the proposed Wider Network Benefits Package, I can confirm on behalf of East Sussex County Council that we are delighted to offer our support to Surrey County Council in your application for funding to the Coast to Capital Local Transport Body.

As a neighbouring Highway Authority we are extremely pleased to see SCC taking a proactive approach to reducing the impacts of traffic congestion through this proposal to implement a package of Intelligent Transportation System measures across the County.

Were the proposals to be implemented, we would expect the benefits to our organisation to be mostly around the very congested A22 strategic route near Forest Row. We have an average daily traffic flow of some 24,000 vehicles in each direction as many residents commute to London or Gatwick Airport. Incidents on this strategic route in our county could be placed on the proposed VMS signs, offering motorists the opportunity to divert before being trapped in congestion. I see this as evidence that SCC are complying with their Duty to facilitate traffic from not only in their county but also in neighbouring Highway Authorities.

Should this bid be successful we can confirm that we will assist SCC to make the scheme a success in any way we can.

Yours sincerely,

Graeme Lake BEng (Hons) MCIHT
Traffic Manager- Network Management

HIGHWAYS AGENCY

Safe roads, reliable journeys, informed travellers

Our ref:
Your ref:

Matthew Jezzard
Traffic Manager
Operations Group
Surrey Highways
Hazel House
Merrow Lane
Guildford
Surrey
GU4 7BQ

Martin McMahon BEng CEng MICE
Asset Development Team Leader
Room 3A
Federated House
London Road
Dorking RH4 1SZ

Direct Line: 01306 878445

Fax: 01306 878491

12 February 2015

Dear Matthew

SURREY COUNTY COUNCIL - WIDER NETWORK BENEFITS PACKAGE FUNDING BID

Having reviewed the information provided by yourself in relation to the proposed Wider Network Benefits Package, I can confirm on behalf of the Highways Agency that we are happy to offer our support to Surrey County Council in your application for funding to the Coast to Capital Local Transport Body.

As the highway authority for the strategic road network we are pleased to see Surrey County Council taking a proactive approach to reducing the impacts of traffic congestion through this proposal to implement a package of Intelligent Transportation System measures across the County.

Were the proposals to be implemented, we would expect to see a reduction in delays for traffic using the strategic road network, particularly during incidents, and improving journey planning through the increased provision of information to road users.

Should this bid be successful we look forward to working closely with you to make the scheme a success and to align it with our own programme of improvements on the strategic road network through the County.

Yours sincerely

Martin McMahon
Email: martin.mcmahon@highways.gsi.gov.uk

South East Coast Ambulance Service NHS
NHS Foundation Trust

Mathew Jezzard
Traffic Manager
Traffic and Street Works
Operations Group
Surrey County Council

The Horseshoe
Bolters Lane
Banstead
Surrey
SM7 2AS

www.secamb.nhs.uk

31st Jan 2015

Dear Matthew,

Surrey County Council – Wider Network Benefits Package Funding Bid

Having reviewed the information provided by yourself in relation to the proposed Wider Network Benefits Package, I can confirm on behalf of South East Coast Ambulance Service NHS Foundation Trust that we are delighted to offer our support to Surrey County Council in your application for funding to the Coast to Capital Local Transport Body.

As an emergency service and partnering organisation with Surrey CC, dependent on the efficient operation of the road network, we are extremely pleased to see SCC taking a proactive approach to reducing the impacts of traffic congestion through this proposal to implement a package of Intelligent Transportation System measures across the county.

Were the proposals to be implemented, we would expect the benefits to our organisation to be better real time traffic flow information and improved traffic flow. The ambulance service have to reach 75% of life threatening calls in 8 minutes including call handling time, traffic delays have a direct impact on patient care and survival from cardiac arrest.

Should this bid be successful we can confirm that we will work closely in partnership with SCC to maximise the scheme's success for both organisations.

Yours sincerely,

Peter Radoux
Senior Operations Manager

Tel: 01737
Fax: 01737 222857
Email

Matthew Jezzard
Traffic Manager
Traffic and Street Works
Operations Group
Surrey County Council

SURREY
COUNTY COUNCIL
Fire and Rescue

Surrey Fire and Rescue Service
St. David's
70 Wray Park Road
Reigate
Surrey RH2 0EJ

21 January 2015

Dear Matthew,

Surrey County Council – Wider Network Benefits Package Funding Bid

Having reviewed the information provided by yourself in relation to the proposed Wider Network Benefits Package, I can confirm on behalf of Surrey Fire & Rescue Service that we are delighted to offer our support to Surrey County Council in your application for funding to the Coast to Capital Local Transport Body.

As an emergency service and partnering organisation with Surrey CC, dependent on the efficient operation of the road network, we are extremely pleased to see SCC taking a proactive approach to reducing the impacts of traffic congestion through this proposal to implement a package of Intelligent Transportation System measures across the county.

Were the proposals to be implemented, we would expect the benefits to our organisation to be better real time intelligence on road conditions and those issues affecting routing. This could, in turn would allow dynamic briefing to our crews and better management of vehicle routing.

Should this bid be successful we can confirm that we will work closely in partnership with SCC to maximise the scheme's success for both organisations.

Yours sincerely,

Group Commander Matt Sullivan

Surrey Fire & Rescue

Planning and Resilience Team)

Mathew Jezzard
Traffic Manager
Traffic and Street Works
Operations Group
Surrey County Council

3rd February 2015

Surrey & Sussex
Policing Together

Duncan Brown
Road safety & Traffic Management
Surrey Police

Dear Matthew,

Surrey County Council – Wider Network Benefits Package Funding Bid

Having reviewed the information provided by you in relation to the proposed Wider Network Benefits Package, I can confirm on behalf of Superintendent Jane Derrick Head of Surrey / Sussex Roads Policing Unit that we are pleased to support in principle Surrey County Council's application for funding to the Coast to Capital Local Transport Body.

As an emergency service and partnering organisation with Surrey CC, dependent on the efficient operation of the road network, we are extremely pleased to see SCC taking a proactive approach to reducing the impacts of traffic congestion through this proposal to implement a package of Intelligent Transportation System measures across the county.

Were the proposals to be implemented, we would expect the benefits to our organisation to be potentially an enhanced intelligence gathering capability through ANPR cameras to help detect, deter and disrupt criminality at a local, force, regional and national level, including tackling traveling criminals,
In addition with the possibility of introducing Average Speed Camera systems to the bid, this can return significant collision / casualty reduction benefits through
•reduced average speeds
•reduced speed differential between vehicles
•improved traffic flow conditions

Should this bid be successful we can confirm that we will work closely in partnership with SCC to maximise the scheme's success for both organisations.

Yours sincerely,

Duncan Brown
Head of Surrey Police Road Safety & Traffic Management
Surrrey / Sussex Roads Policing Unit

YOUR LONDON AIRPORT Gatwick

4 FEBRUARY 2015

Mathew Jezzard

Traffic Manager
Traffic and Street Works
Operations Group
Surrey County Council

Dear Matthew

Surrey County Council – Wider Network Benefits Package Funding Bid

Having reviewed the information provided by yourself in relation to the proposed Wider Network Benefits Package, I can confirm on behalf of Gatwick Airport Limited that we are delighted to offer our support to Surrey County Council in your application for funding to the Coast to Capital Local Transport Body.

As a neighbouring Highway Authority (airport operator) we are extremely pleased to see SCC taking a proactive approach to implementing measures that will assist the council in reducing the impacts of traffic congestion. This proposal to implement a package of Intelligent Transportation System measures across the County will ensure a data driven monitoring capability that will have wider benefits to neighbouring authorities.

Were the proposals to be implemented, we would expect the benefits to our organisation to be:

- *Improved partnership working building on established relationships.*
- *Sharing data and traffic analysis provided by the proposed system.*
- *Improved response to incidents and operational resilience of the highways network.*
- *Use of the proposed system to enhance passenger information in real time.*

Should this bid be successful we can confirm that we will assist SCC to make the scheme a success and would welcome the opportunity to work with the county and other stakeholders to maximise the benefits provide by the proposed system.

YOUR LONDON AIRPORT Gatwick

Yours sincerely,

Tessa Holme

Senior Surface Transport Manager

Gatwick Airport

London & Surrey Cycling Partnership LLP

115 Southwark Street
London, SE1 0JF
Tel: 020 7902 0212

Mathew Jezzard
Traffic Manager
Traffic and Street Works Operations Group
Surrey County Council
Network Management and Information Centre
Mole Business Park
Station Road
Leatherhead
KT22 7AA

23 January 2015

Dear Matthew,

Surrey County Council – Wider Network Benefits Package Funding Bid

Having reviewed the information provided by yourself in relation to the proposed scheme for Intelligent Transport Systems (ITS) solutions, I can confirm on behalf of London & Surrey Cycle Partnership LLP, organisers of world's largest festival of cycling, that we are delighted to offer our support to Surrey County Council in your application for funding to the Coast to Capital Local Transport Body.

Our team have worked in partnership with Surrey County Council since 2010 to deliver large scale closed road events as part of the strategic vision for large scale cultural and sporting activities to be hosted within the county.

Throughout this partnership the potential for a considerable regional impact on the transport network has been recognised by all planning stakeholders and any opportunity to enhance the management and delivery of these large scale events will demonstrate clear benefits to the emergency services, local communities, businesses and those road users travelling through the county.

The current event sees 65 miles of public highway closed within Surrey for up to 12hrs to accommodate 28,000 cyclists and a professional race. The event routes include key arterial roads and requires close liaison with the Highways Agency. In advance of what can be

considered the largest annual road closure scheme in the UK a comprehensive communications plan is delivered to inform both local and non-local road users of the impact.

It is apparent that both the event organiser and the local authority will seek to use every tool available to ensure optimal delivery of the extensive traffic management planning. The implementation of further ITS measures will allow for:

- Greater awareness to road users in the weeks leading up to the event through additional permanent VMS sites
- Accurate and real-time monitoring of the wider network during the event through both ANPR and CCTV
- Implementation of planned and unplanned control processes to manage traffic flows through the management of traffic signals and updated VMS messaging at key decision points
- Enhance contingency and emergency planning in order to facilitate effective responses to both minor and major incidents on the day of the event

As part of a wider stakeholder group working in partnership with Surrey County Council we are committed to balancing the management of the network in close proximity to the event and the network beyond the immediate closure footprint.

We are extremely pleased to see Surrey County Council taking a proactive approach to reducing the impacts of traffic congestion through this proposal to implement a package of Intelligent Transportation System measures across the county, and the additional benefits to support cultural and sporting events.

Should this bid be successful we can confirm that we will be delighted work closely in partnership with Surrey County Council to maximise the scheme's success for both organisations.

Yours sincerely,

Hugh Brasher
Event Director
Prudential RideLondon