

# A217 Network Resilience

## Submission to Coast to Capital LEP

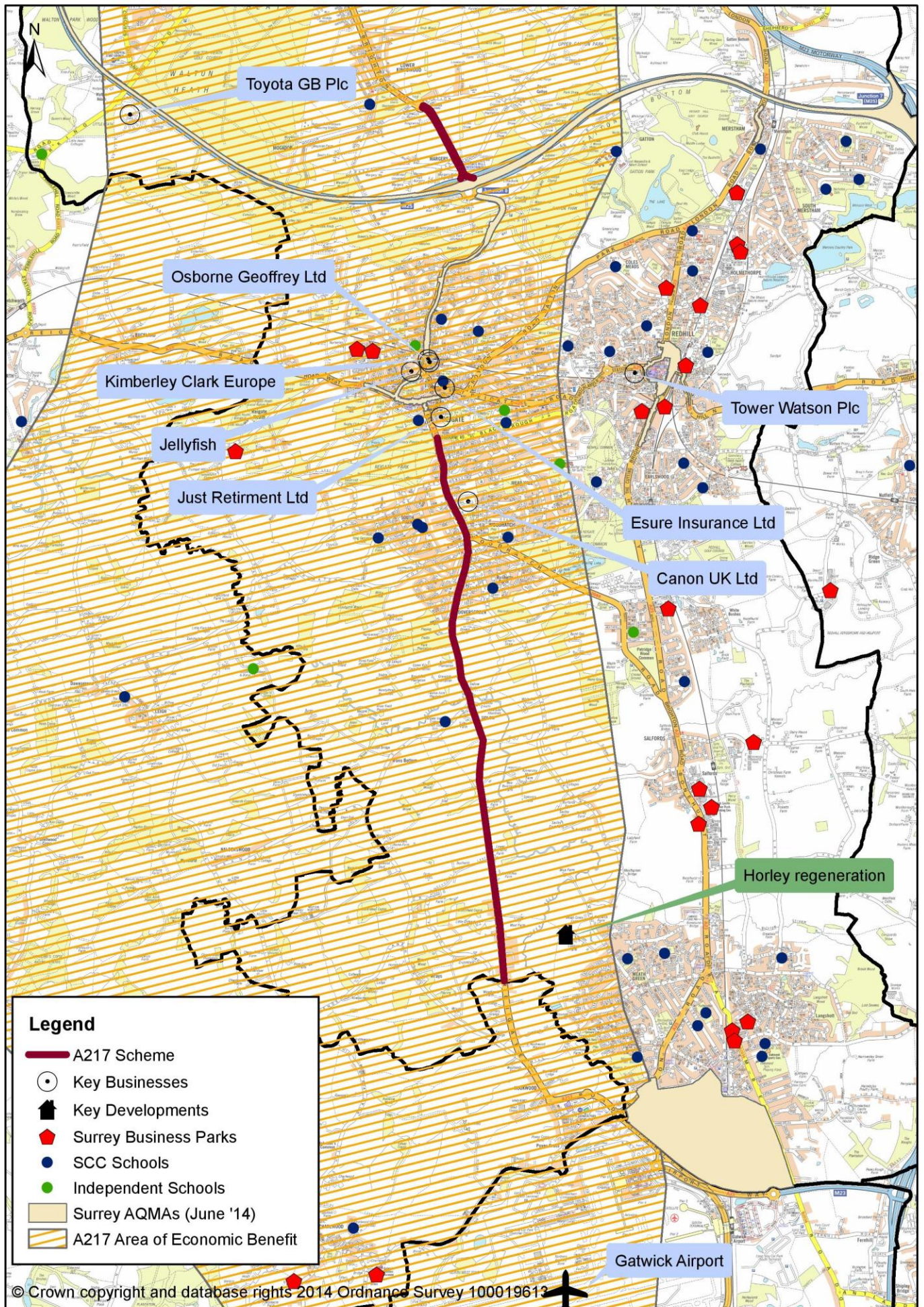
**Surrey County Council**  
**December 2014**







# A217 Network Resilience





## Coast to Capital Local Transport Body Sustainability and Resilience Schemes Application Form

WHO - Scheme Promoter and Partners			
<b>LTA/ Proposer:</b>	Surrey County Council	<b>Scheme name &amp; [District/ Borough]:</b>	A217 Network Resilience Reigate & Banstead
<b>Contact details:</b>	Lyndon Mendes Lyndon.mendes@surreycc.gov.uk	<b>Partners [in joint submissions]:</b>	N/A
WHAT & WHERE – Outline description, scope & maps			
<b>Type of scheme:</b> (Sustainability package, resilience scheme, hybrid)		Resilience Scheme	
<b>Scheme description</b>	<p><b>Overview</b></p> <p>This project aims to improve the reliability and resilience of the transport network in the Coast to Capital area, especially the local road network. The scheme is a package of resilience improvements to improve the ability of the A217 in Surrey to cope with extreme and unpredictable events on this key route providing access between London and Gatwick. In line with the aims of the LEP's strategic economic plan for flood defence and resilience schemes<sup>1</sup>, the scheme is expected to:</p> <ul style="list-style-type: none"> <li>Reduce the frequency of flooding on the network and associated diversions and accidents</li> <li>Reduce disruption to businesses and local services due to delays, additional costs and reduced access to location</li> <li>Reduce negative impacts on road users across all modes of transport.</li> </ul> <p>The package comprises highway drainage capacity improvements and resurfacing repairs to give long term benefits, prolonging the life of the carriageway and increasing resistance to flood water damage. The scheme is located in the heart of the Gatwick Diamond, providing access between London and Gatwick and is a key element of the</p>		

<sup>1</sup> Reference: Coast to Capital Strategic Economic Plan March 2014 Appendices and Transport Annex, page 20.

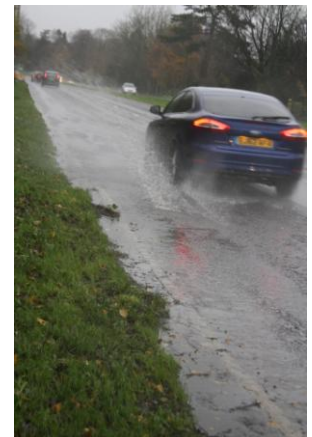
network in the East Surrey M25 corridor identified by Coast to Capital as a spatial priority<sup>2</sup>.

### **Scheme details**

**Belmont Roundabout** – It is proposed to deliver major highway drainage improvements both at the roundabout and on the approaches by upgrading the capacity of the current system and providing new soakaways to manage surface water flooding during extreme weather events. Surrey County Council collaborating with TFL, London Borough of Sutton, Natural England, Environment Agency and the Banstead Conservators to find a solution that provides enhanced safety resilience to flooding and protects the sensitive environment

**Junction 8 M25 to roundabout at Babylon Lane** – It is proposed that the water management system will be upgraded to increase capacity during extreme rainfall events at this major interchange with the M25 and accident blackspot.

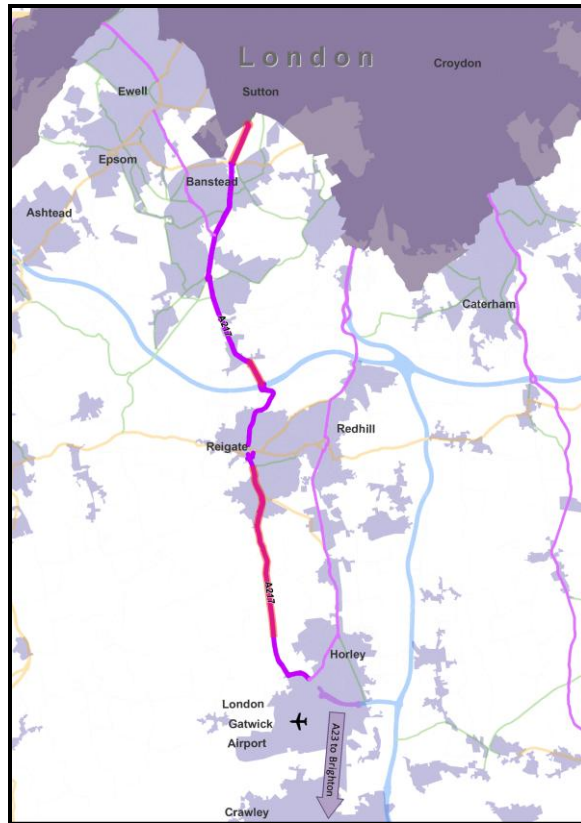
**South of Reigate to Horley (sections)** - Targeted lengths of carriageway, between the towns of Reigate and Horley, that were damaged due to the flooding of the River Mole and its tributaries will be reconstructed and resurfaced. The scheme will include local improvements to the drainage capacity along this route.



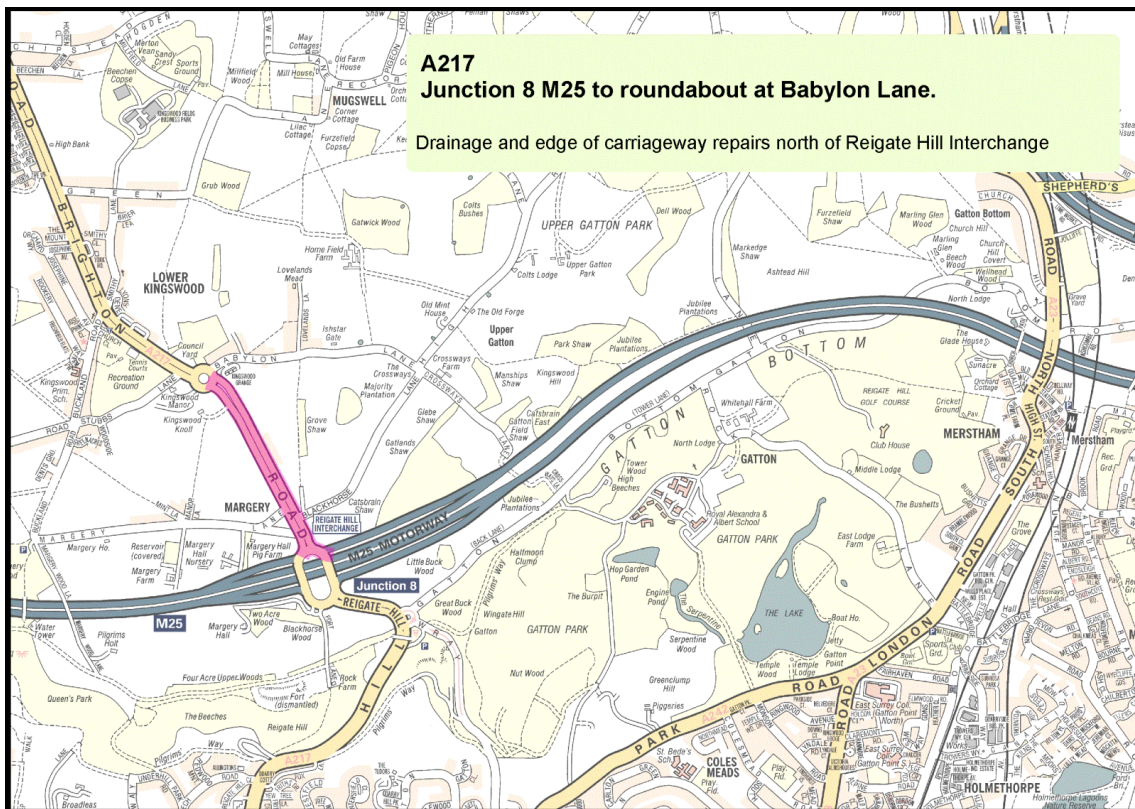
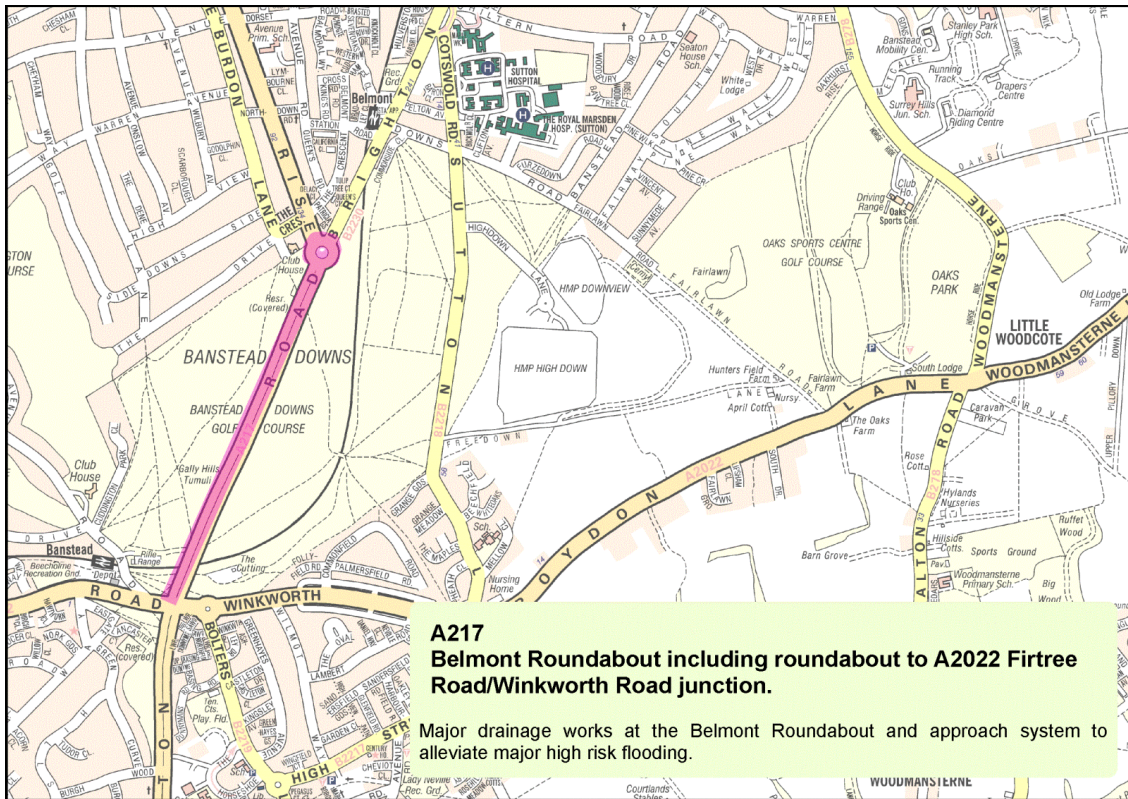
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<sup>2</sup> [Coast to Capital Strategic Economic Plan March 2014](#) p.46

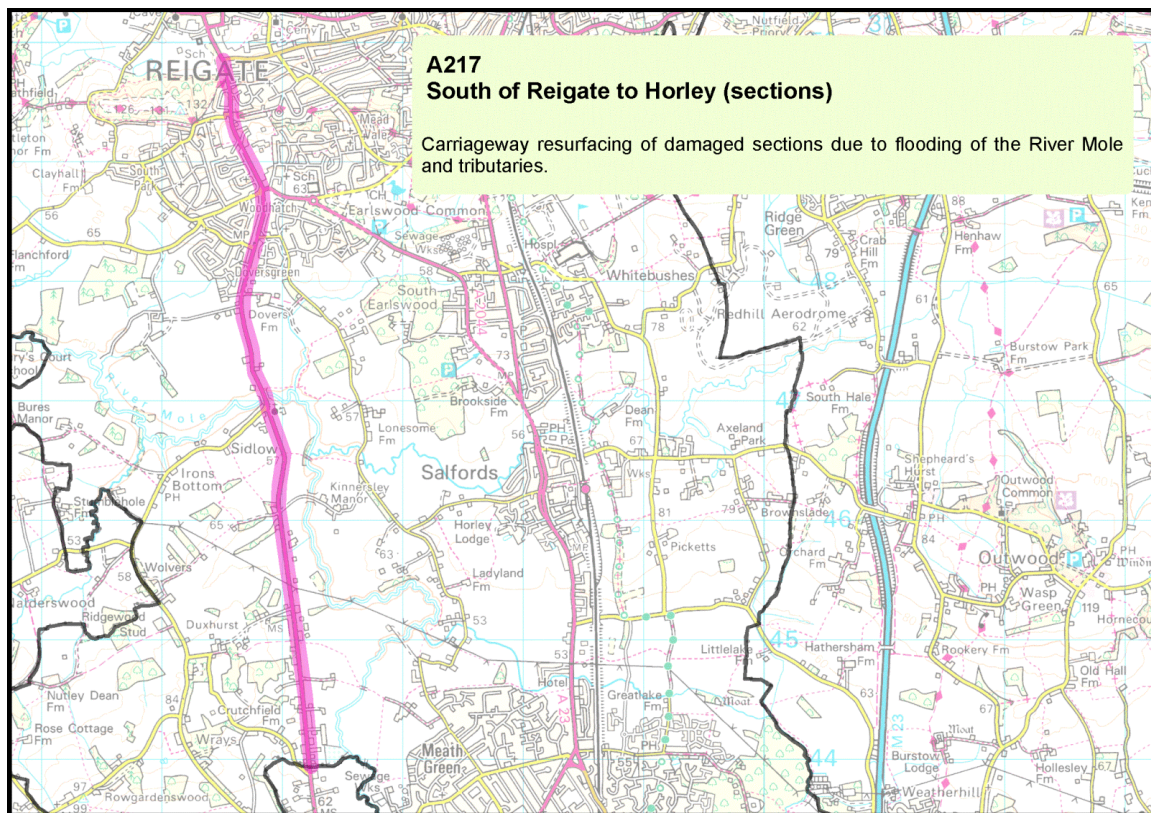
## Maps











#### HOW MUCH & WHEN – Estimated construction costs and construction timetable

<b>Est. Costs:</b>	£3.225m			<b>Start and end of construction:</b>	July 2016 to December 2017	
<b>Spend Profile</b>	<b>2015-16:</b> (£ million) £0	<b>2016-17:</b> (£ million) £1.725	<b>2017-18</b> (£ million) £1.5	<b>2018-19:</b> (£ million) £0	<b>2019-20:</b> (£ million) £0	<b>2020-21:</b> (£ million) £0
<b>Funding expectations</b> (List sources of funds)	<p>2016 – 17 £1.47 LEP £0.255 SCC Match funding</p> <p>2017 – 18 £1.28 LEP £0.22 SCC Match funding</p>					



Construction Timetable	A217 Resilience Scheme															
	2014/15				2015/16				2016/17				2017/18			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Key															
	O	Pre-feasibility														
	P	Business Case preparation & all associated activities														
	R	Assessment and LEP consultation														
	B	Detailed design & procurement [following LEP approval]														
	G	Scheme construction														
	No work being undertaken on scheme															
The scheme consists of both drainage and surfacing work. Costs for the surfacing can be calculated with a fair degree of certainty, but drainage works are still being investigated therefore an optimism bias of 40% has been used. There is also a risk of additional uplift for nightworks having to be factored in when surfacing is carried out - currently an assumed rate of uplift has been factored into the costings.																
WHY IT SHOULD BE FUNDED																
Summary of the Key Scheme Benefits																
Structure of the key scheme benefits																
1. Introduction and need for scheme																
2. Objectives																
3. Background and supporting evidence																
4. Linkage to other funding bids to the Coast to Capital LEP																
1. Introduction and need for scheme																
The A217 is the main arterial route between London, M25 (Junction 8) and provides access for movement of freight from the ports in the south, and Gatwick Airport, and commuter and commercial traffic en route to M25 and London.																
The route comprises an important element of the LEP-identified <a href="#">East Surrey M25 Corridor</a> , considered a linchpin of the Coast to Capital economy. Linking London to Gatwick Airport and the south coast, the corridor supports east-west movements along London’s orbital routes – the M25, A25 and North Downs Line. This scheme seeks to maintain the resilience of the A217, an important link for commuter, business and freight traffic into these orbital links.																
The A217 is one of the most strategically important roads in Surrey, providing the main route from London to the south coast through Surrey. It links onto Junction 8 of the M25 and serves as a critical diversion route in the event of major problems on the M25 and M23. The A217 north of the M25 is at significant risk of surface water flooding, particularly at Belmont Roundabout which is on the border of the London Borough of Sutton where the A217 comes under the management																

of TfL reflecting its status as a strategic link between London and the M25.

There are primarily three issues that will be addressed by this scheme. At the northern section of the scheme, at the Belmont Roundabout, there are large areas of standing water on the roundabout carriageway and on the hill leading down to Sutton due to insufficient capacity during extreme weather events. Highway drainage capacity needs to be increased north of the Reigate Hill interchange to provide improved resilience during periods of extreme rainfall.

The A217 south of the M25 Reigate Hill Interchange is affected by The River Mole which is a tributary of the River Thames and flows north west through Surrey for 50 miles. Much of the catchment area lies on impermeable rock (including Wealden Clay and London Clay), meaning that the river level responds rapidly to heavy rainfall. The River Mole and all of its tributaries, including Salfords Stream and Earlswood Brook between the A23 and A217, flooded during the winter 13/14 flood event. This resulted in significant damage to sections of the carriageway south of Reigate to Horley. **Annex 1** shows the communities most affected by the flooding.

## 2. Objectives

The purpose of the scheme is to provide improvements to the resilience of local infrastructure and the highway network and to provide water management to mitigate the effects of major flooding events in the future.

This scheme forms part of wider collaborative projects with a variety of third party stakeholders. Reigate Town Centre has recently delivered major carriageway improvements and the northern part of the scheme is aligned with Sutton Borough Council's Local Plan.

Surrey County Council is collaborating with the Environment Agency to ensure that any works done are complementary to their **River Mole** projects.

## 3. Background and supporting evidence

Despite being a small river, flooding along the River Mole has the capacity to cause significant damage and disruption on a local and even national scale due to location of key infrastructure and communications located within the catchment, most notably, Gatwick Airport, East Surrey Hospital, the M25 and M23 and the London-Brighton railway. Specific impacts of the winter 2013-14 storms and floods on the River Mole included:

- Gatwick airport: [power failure](#) from flooding causing delays with luggage handling, 100 flights delayed or cancelled; [thousands of travellers were left stranded](#) or abandoned as rail connections were disrupted as well.

- Burford Bridge hotel, Dorking and Ye Olde Six Bells in Horley: amongst other commercial properties were submerged by flooding and closed for extended periods.
- Numerous roads and rail links including two closures of the A24 at Mickleham, A217, A23 around Horley and Salfords and downstream in Leatherhead
- Flooding of residential properties: 40 homes in Fetcham were under water throughout Christmas
- A landslide caused an embankment to collapse on the Dorking to Horsham railway line: limited service and month to repair



The scheme supports planned development in Reigate & Banstead by improving the resilience of key infrastructure in the borough, including the Preston Regeneration project and the current development at Horley which will see 2,600 new homes delivered by 2025. The Reigate & Banstead Strategic Flood Risk Assessment (2012) emphasises the importance of this:

*“the areas of highest fluvial flood risk largely coincide with most populated areas of the borough, namely Redhill Town Centre and the areas around Horley. Within the urban centres flooding can cause severe damage and disruption. Whilst only a relatively small proportion of the borough is susceptible to river flooding, the consequence of flooding to homes, business and local infrastructure can be considerable”.*

The R&B Flood Risk Assessment<sup>3</sup> states that within the urban centres of the borough, even where flooding may not have been observed to date, it is inevitable that localised flooding problems arising from under capacity drainage and/or sewer systems will occur, particularly given the mounting pressure placed upon ageing systems as a result of climate change. Furthermore, sewer systems are generally designed to cater for the 1 in 30 year storm, and highway soakaways are generally designed for only 1 in 10 year storms. Storms over and above these design events will exceed the drainage system, resulting in overland flow, often in an uncontrolled manner resulting in localised flooding.

There is an imminent duty and statutory obligation for local authorities to address climate change – including CO<sub>2</sub> emissions and resilience to climate change risks. Expected impacts of climate change include: more extreme temperatures, short duration high intensity rainfall, adding a risk of likely increase in more intense rain events leading to short-term localised flooding; an increase in the severity and number of storms, representing a risk in possible increase in severe storm events where drainage systems over wide areas are overloaded and severe disruption and damage to infrastructure is possible; prolonged dry periods; and increases in wind speed. This will impact on access to key locations in the C2C area such as Redhill, and the regeneration areas of Horley and Preston, as well as causing bottlenecks on these key routes through the C2C area. Flooding issues will act as a barrier to growth in key areas unless these vital alleviation measures are taken forward.

<sup>3</sup> Reigate & Banstead Strategic Flood Risk Assessment Final Report May 2012



#### 4. Linkage to other funding bids to the Coast to Capital LEP

- **A23 network resilience**

A package of resilience improvements to improve the ability of the Surrey sections of the A23 to cope with extreme and unpredictable events.

- **Coast to Capital Wider Network Benefits Package**

The Coast to Capital Wider Network Benefits Package, which seeks to provide equipment upgrades to reduce delays and congestion on strategic routes within the C2C area.

#### ***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 road safety casualties
- Valuing public realm

##### **[Scheme Score = 4 ]**

The **value for money** (VfM) from delivering this scheme is expected to derive from providing infrastructure which is able to withstand the increasing likelihood and effects of flooding. This will help give businesses confidence in the transport network, encouraging economic activity in the area and boosting economic performance.

This scheme proposes carriageway resurfacing and drainage repairs to key sections of the A217, the need for which has been aggravated by the extreme weather events earlier in 2014.

The map at **Annex 2** has used evidence from the National Receptor Dataset<sup>4</sup> to show the number of businesses and services ('receptors') affected by the traffic disruption as a result of the flooding. It provides an indication of the geographic area expected to benefit from reduced transport disruption as a result of implementing the scheme.

Carriageway condition data from the machine based SCANNER survey carried out on the A17 in 2012/13 identifies that there are a number of lengths of the road that would benefit from resurfacing to improve resilience (see **Image A**). Analysis of the data has identified that the primary cause of failure in these sections are texture and cracking. Texture helps to provide high speed skidding resistance on fast roads which may affect road safety. Variations in texture depth along or across the road can indicate surface wear and the presence of defects in the surface course. Cracking can indicate deterioration of the surface course or of deeper seated

<sup>4</sup> Guidance can be found within Environment Agency ' National Receptor Dataset' and the EA's record of the data can be viewed at: <http://data.gov.uk/dataset/national-receptor-dataset-afa171>

• Other transport benefits

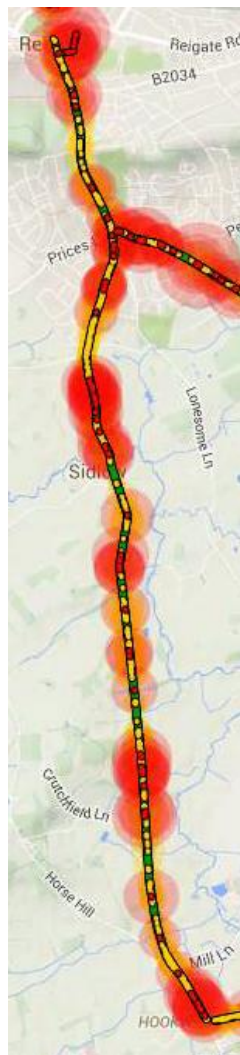


Image A



Image B

effects to the structural layers of the road. Cracking may allow water to penetrate through the road layers weakening the foundations.

Using GIS analysis tools we are able to calculate scheme lengths based on expected deterioration in the two years since the SCANNER survey. This analysis provides us with an indication of the lengths that we will need to treat (See **Image B**). In practice the deterioration is likely to be more significant than the expected deterioration due to the extreme and prolonged rainfall during the winter of 2013/14 and the analysis will be rerun using the 14-15 SCANNER data which will be available in early spring in order to better inform the actual lengths that will be reconstructed as part of this scheme.

Image A key:  
Red = RCI over 100; Amber = RCI over 40  
Image B key:  
Orange = major strengthening; Yellow = resurfacing  
Pink = surface dressing

**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 = 5 ]**

The scheme addresses a route central to the borough of Reigate and Banstead, which itself is central to the [Gatwick Diamond](#) economic area and is at the heart of the Coast to Capital LEP. The borough also sits within the area covered by [Surrey Connects](#), the economic partnership for Surrey.

In brief, the scheme is expected to contribute the following economic benefits:

- Retain existing businesses and jobs already located in the area, by addressing the perception of poor transport/accessibility arrangements which can contribute to businesses relocating away from an area. Implementing the schemes outlined above will result in a more reliable transport network, helping to retain businesses and encourage growth.

<p>The <b>Gatwick Diamond</b> Initiative is one of the strongest regional economies in the UK with 45,000 businesses and £20.7 billion GDP (Local Futures 2012). The Gatwick Diamond is home for the UK headquarters of many global brands including ExxonMobil, Unilever, Nestle, Elekta and Doosan.</p> <p>The Gatwick Diamond offers a skilled workforce including graduates from the Universities at Brighton, Sussex and Epsom and Further Education Colleges at Redhill, Crawley and Epsom.</p>	<ul style="list-style-type: none"> <li>• Encourage rises in the rates of net business start-ups by removing potential barriers imposed by constraints on the transport network along this corridor, thereby contributing to job creation.</li> <li>• Support and facilitate the significant housing growth planned in Horley as part of the <a href="#">Horley Master Plan</a><sup>5</sup>, which will see 2,600 additional homes delivered by 2025; the scheme will improve access to these homes, improving the reliability and quality of journeys.</li> <li>• Contribute to the performance of the <a href="#">Gatwick Diamond Initiative</a>, a business-led partnership supportive of the aims of the LEP's strategic economic plan.</li> <li>• Support economic activity and facilitate growth in the area around <a href="#">Gatwick Airport</a>, which is a major economic contributor to the Coast to Capital area; the A217 is a key route to Gatwick Airport, linking the airport to London. Gatwick provides roughly 23,500 on-airport jobs<sup>6</sup> and another 20,000 jobs indirectly.</li> <li>• Support the performance and growth of large businesses in the area. Such businesses include: <b>Toyota</b> GB Plc, <b>Pfizer</b> UK Ltd (company UK headquarters located at Junction 8, M25); Geoffrey Osbourne Ltd, <b>Jellyfish</b>, <b>Kimberley Clark</b> Europe Ltd, <b>Canon</b> UK Ltd, Tower Watson Plc, <b>Esure</b> Insurance Ltd, Just Retirement Holdings Ltd (A217 Reigate to Horley). Maintaining resilience on the network which provides access for such national and multi-national businesses to Gatwick Airport is considered essential for the vitality and economic growth of the area.</li> </ul>
<p><b>Social Distributional Impact:</b></p> <ul style="list-style-type: none"> <li>• Expected regeneration &amp; deprivation impact</li> <li>• Expected impact on severance, physical activity, accessibility</li> </ul>	<p><b>[Scheme Score = 4 ]</b></p> <p>The scheme will support the regeneration of the <a href="#">Preston</a> area of Tadworth in Reigate and Banstead, a joint project between Surrey County Council and Reigate and Banstead Borough Council which aims to regenerate the area with new community facilities. This regeneration of one of the borough's most deprived areas will enable the community to thrive, grow the economy and boost young people's skills and future prospects.</p> <p>This scheme would also support the <a href="#">Horley Masterplan</a>, referenced above, which will unlock the development of 2,600 new</p>

<sup>5</sup> Details of the Horley Master Plan can be seen in the Reigate & Banstead Borough Council Local Plan [here](#).

<sup>6</sup> <http://www.gatwickairport.com/business-community/about-gatwick/at-a-glance/facts-stats/>



	<p>dwelling as well as redevelop key sites and create a safer and more attractive place to live, work and visit. Specific to the North West Sector of the Horley Master Plan, the scheme will facilitate and improve access to this sector which will provide 1,570 homes. As part of the master plan, a new link road providing access to the A217 by way of a new junction will be constructed. This resilience scheme will complement this new road and junction.</p> <p>There are limited north-south routes to London across the North Downs and M25 in this area. When the A217 is subject to road closures and diversions, <b>severance</b> caused by the North Downs and M25 is worsened; traffic is forced to use the few remaining links, resulting in congestion and unreliable journey times. One such link is Pebble Hill, a steep, narrow road unsuitable for HGV use. Businesses, including Pfizer UK Ltd who occupies a large site and is a large employer, and local schools and services such as the Beacon Primary School (Preston regeneration area) and St Helier Hospital located in the area are affected.</p> <p>An expansion programme for schools in the local area has been identified and a resilient network is essential to coping with the travel generated by schools and to providing suitable accessibility. Schools identified for expansion in the A217 corridor include<sup>7</sup>:</p> <ul style="list-style-type: none"> <li>• Holmesdale Infant School, located just off the A217 in Reigate from 2013 expanded from 90 to 120 places per year (over 3 years)</li> <li>• 1 form of entry will be provided in 2015 in Reigate (120 places in total)</li> <li>• 1 forms of entry will be provided in 2016 - in Reigate. 90 places per year</li> <li>• 3 forms of Secondary entry (90 places per year 450 places in total) are planned to be provided in Reigate up to 2019</li> <li>• A new Secondary School in Reigate to provide 5 forms of entry (750 places in total) is being planned to be provided at the start of the next 5 year programme (from 2019).</li> </ul>
<p><b>Environmental impact:</b></p> <ul style="list-style-type: none"> <li>• Expected impact on carbon emissions</li> <li>• Expected impact on air quality</li> </ul>	<p><b>[Scheme Score = 4 ]</b></p> <p><b>Carbon emissions</b> can be affected by stop-start driving behaviour and subsequent increases in pollutants from car exhausts, a known contributor to poor air quality. Stop-start driver behaviour can be caused by congestion. Improving the reliability and resilience of the A217 will reduce the congestion caused by</p>

<sup>7</sup> Source: Surrey education

<ul style="list-style-type: none"> <li>• Expected impact on noise/natural and urban environment</li> </ul>	<p>road closures and diversions. Therefore the improved resilience of the A217 would likely impact positively upon carbon emissions and air quality.</p> <p>There are two identified <b>Air Quality Management Areas</b> (AQMA) on the A217. These are exacerbated by stop-start driving conditions; the improvement of the road surface will ameliorate the levels of road side pollutants at these locations, having a positive impact on human health habitats, ecology and biodiversity.</p> <p>Whilst there is no set figure defining acceptable levels of road <b>noise</b>, materials providing the least noisy solution will be used wherever possible, taking into account other factors such as cost, volume and speed of traffic.</p> <p>The A217 has scattered pockets of ancient woodland along its route, and falls within the greenbelt. The A217 through Reigate has been designated an area of high archaeological importance/potential.</p> <p>Where highway drainage systems discharge into a watercourse or the aquifer, options to remove silt and pollutants such as interceptors or green SuDS (like reed beds) will be considered and implemented where practical.</p> <p>This will work towards improving the water quality of the area, as required by the EU Water Framework Directive</p>
<p><b>Contribution to the Strategic Economic Plan</b></p> <ul style="list-style-type: none"> <li>• How does the scheme contribute to the objectives and priorities of the SEP.</li> <li>• The five transport objectives</li> <li>• Contribution to other objectives</li> </ul>	<p><b>[Scheme Score = 5 ]</b></p> <p><b>How does the scheme contribute to the objectives and priorities of the SEP</b></p> <p>The scheme is directly aligned with the aims and objectives of the LEP's Strategic Economic Plan, and specifically focuses on the aim to '<b>keep the network operating 24/7</b>' in its capacity as a resilience scheme<sup>8</sup>. The SEP aims to deliver resilience schemes to:</p> <ul style="list-style-type: none"> <li>• Repair and maintain critical transport structures</li> <li>• Prevent or <b>mitigate the risk of flooding</b></li> <li>• Reduce the number of traffic incidents (such as crashes and roadworks) and help the network recover quickly after such incidents</li> <li>• Provide resilience from adverse weather conditions, such as heavy snow fall.</li> </ul>

<sup>8</sup> C2C Strategic Economic Plan March 2014, p.83

	<p>As such, this scheme embodies the SEP's scope for a flood alleviation scheme which is defined as "improving highway drainage and embankments to reduce the risk of flooding"<sup>9</sup>.</p> <p><b>The five transport objectives<sup>10</sup></b></p> <p>The scheme contributes to the SEP's five transport objectives in the following ways:</p> <ul style="list-style-type: none"> <li>• <b>Connectivity "Can I get where I want to go?"</b> Business, freight and commuter traffic will be able to continue to make use of this important north south route, accessing Gatwick Airport and London.</li> <li>• <b>Reliability "Will I arrive when I expect?"</b> Journey time reliability, particularly for those travelling by car, HGV or public transport will be improved. Avoiding the need to implement road closures will allow journey times to be maintained, avoiding lengthy route diversions.</li> <li>• <b>Capacity "Will I get a seat, a parking space, a clear road?"</b> This scheme includes a stretch of the A217 which provides access to the M25 from the north at Junction 8. Maintaining the capacity of this link is crucial for flows on the Strategic Road Network. Ensuring that the capacity of the route is not constrained by drainage and carriageway issues, exacerbated by flooding, contributes to the resilience of the network.</li> <li>• <b>Quality "Will my journey be healthy, safe, clean, sustainable and enjoyable?"</b> The improvements to the road will contribute to providing a quality transport network to serve this part of the East Surrey M25 corridor, which is safe and reliable for all road users.</li> <li>• <b>Resilience "Will transport be there when I need it – 24/7?"</b> To underpin the local and regional economy, transport networks must be resilient, able to withstand the effects of adverse weather, traffic incidents and road works.  This scheme seeks to materially improve the resilience of the local road network on a key route of strategic importance. The improved resilience of this stretch of road will support the future resilience of the road network across the coast to capital area by improving a key arterial route and reducing future maintenance and repair needs.</li> </ul>
<p><b>Local Indicators:</b> Local indicators and circumstances that help to explain the need for the</p>	<p><b>Not scored.</b></p>

<sup>9</sup> C2C Strategic Economic Plan March 2014, p.86

<sup>10</sup> C2C Strategic Economic Plan March 2014, p.81



scheme.	
<b>SCORE SUMMARY</b>	
Total score: (out of 25)	<b>22</b>
Local priority: (Ranking in order of schemes submitted by the same promoter in this round).	Of the four resilience schemes submitted to C2C in December 2014, this scheme is the <b>third priority scheme</b> .

## Scoring criteria

Scores	Expected Economic benefits (transport and scheme related)	Expected Economic benefits (economic growth)	Socio-distributional Impact	Environmental Impact	Strategic Economic Plan
<b>Score: 5</b> <b>[Green]</b>	Expected BCR of 2+ (if known)  Significant beneficial impact on transport indicators.	Support for delivery of new jobs, housing & employment floor space in area clearly expected.	Significant positive benefits expected, such as supporting regeneration, improving accessibility, reducing severance and/or promoting physical activity.	Likely to lead to a reduction in carbon emissions and have limited impact on the natural environment and/or air quality and noise standards.	Clear linkage to one or more SEP policies and priorities
<b>Score:3</b> <b>[Amber]</b>	Expected BCR of 1.5 to 2 (if known)  Some, but limited beneficial impact on transport indicators.	Expected to support retention of existing jobs & help deliver some housing.	Some socio-distributional and well-being impacts expected.	Limited or neutral impact on carbon emissions, natural environment and/or air quality shown.	Some linkage to SEP policies and priorities.
<b>Score 1:</b> <b>[Red]</b>	Expected BCR of under 1.5 (if known)  Very limited or negative impact on transport indicators.	Very limited linkage with delivery of employment and/or housing expected.	Very limited or negative impact on distributional and well-being impacts expected.	Likely to have a negative impact on carbon emissions, local air quality and/or the natural environment.	Weak link to the SEP.

### Local Indicators

1. Employment - residence base (2012; Annual Population Survey, Nomis)
2. Employment Rate (2012; Annual Population Survey, Nomis)
3. Number of jobs - workplace base (2011, Business Register and Employment Survey, Nomis)
4. Business survival rates (1 year) (2011, Business Demography, ONS)
5. Number of businesses per 10,000 working age population (2012, ONS)
6. Business births per 10,000 working age population (2011, Business demography; 2011; and Annual Population Survey, ONS)
7. JobSeekers Allowance claimant count - % of economically active population (April 2013, Nomis)

### Transport Effects

1. % of working age population (aged 16-74) in employment using walking or cycling as main mode to get to work (2011 Census)
2. % of working age population (aged 16-74) in employment using bus, train, underground, tram or metro as main mode to get to work (2011 Census)
3. Congestion – indicator being developed based on either average delay on links (Trafficmaster data) or million vehicle km on principal roads

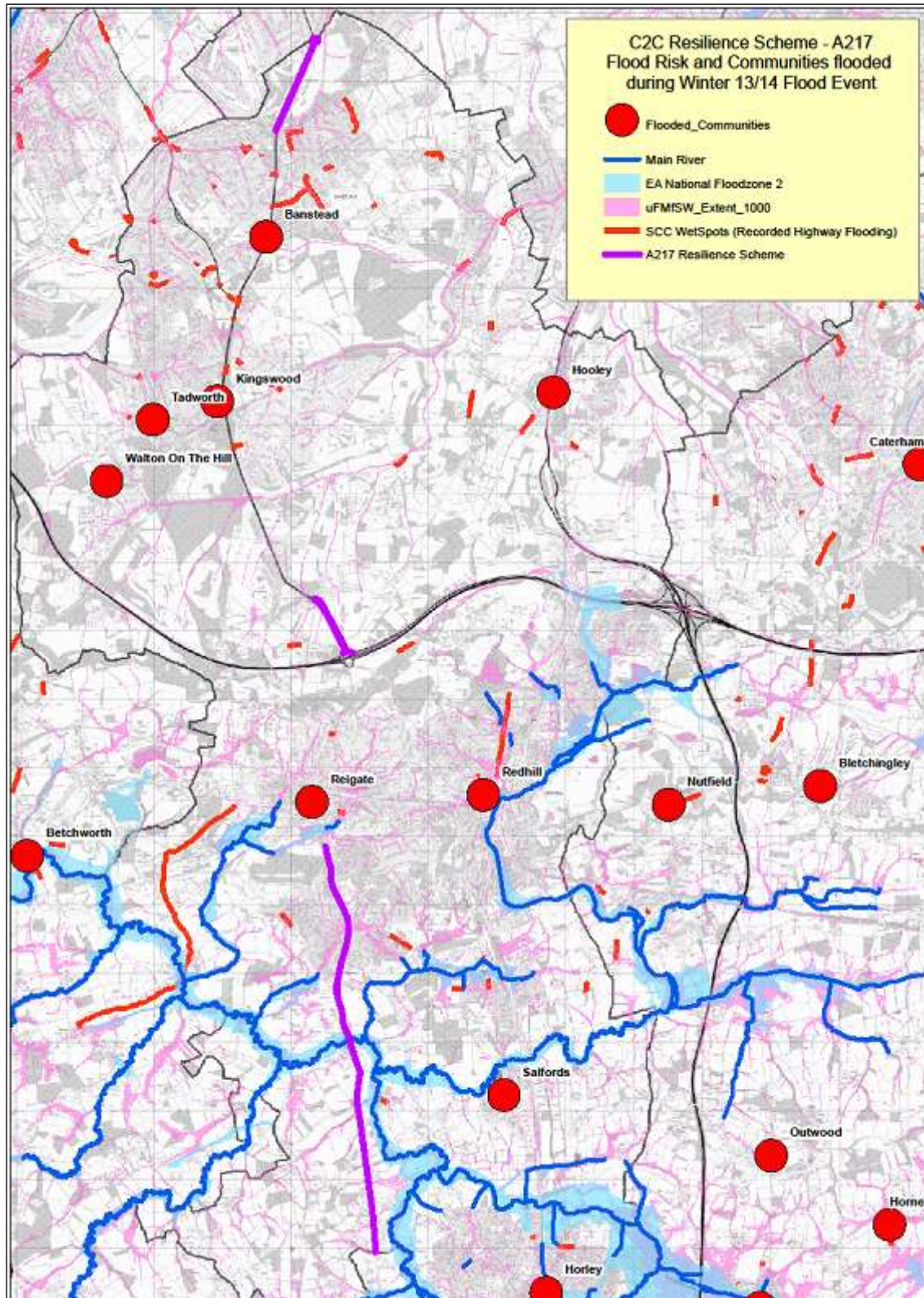
**Regeneration Impact**

1. Amount of planned new housing up to common future end year (LDF documentation – various)
2. Amount of planned new commercial floorspace (sq m) up to common future end year (LDF documentation – various)
3. Amount of planned new retail floorspace (sq m) up to common future end year (LDF documentation – various)
4. Index of Multiple Deprivation (IMD) - number of LSOAs in Borough or District within the top 20% most deprived nationally (2010)
5. Index of Multiple Deprivation (IMD - average score for District (2010)





## **Annex 1 – A217 Flood risk and communities flooded during the 2013/14 Winter flood event**





## **Annex 2 – Area benefitting from reduced transport disruption as a result of the proposed scheme**

### C2C Resilience Schemes - A217 Area benefitting from reduced transport disruption

No. of receptors within traffic disruption area

Economic	A217 Transport Impact Area
Retail	1235
Offices	304
Warehouses	104
Industry	138
Public Car Parking	50
Electricity Sub Stations	380
Transportation Services	
Rail Stations	8
Bus Stops	507
Critical Services	
Fire Stations	2
Ambulance Stations	1
Doctors Surgeries	7
Police Locations	3
Hospitals	4

- Surrey Districts
- C2C LEP Boundary
- Motorway
- Trunk Class 'A'
- Class 'A'
- Class 'B'
- C2C Transport Disruption Area
- A217 Resilience Scheme

