

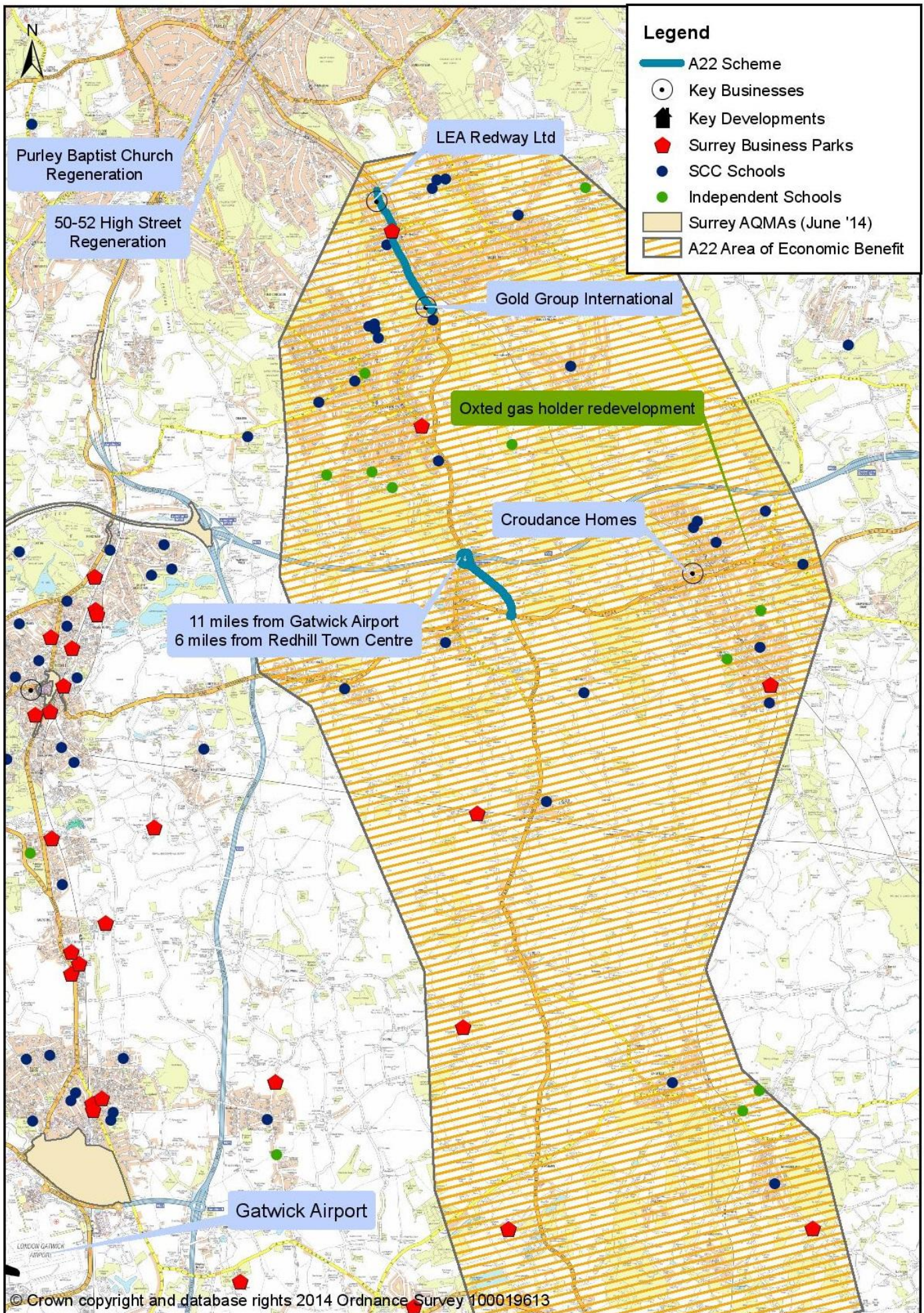
A22 Network Resilience

Submission to Coast to Capital LEP

Surrey County Council
December 2014



A22 Network Resilience



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

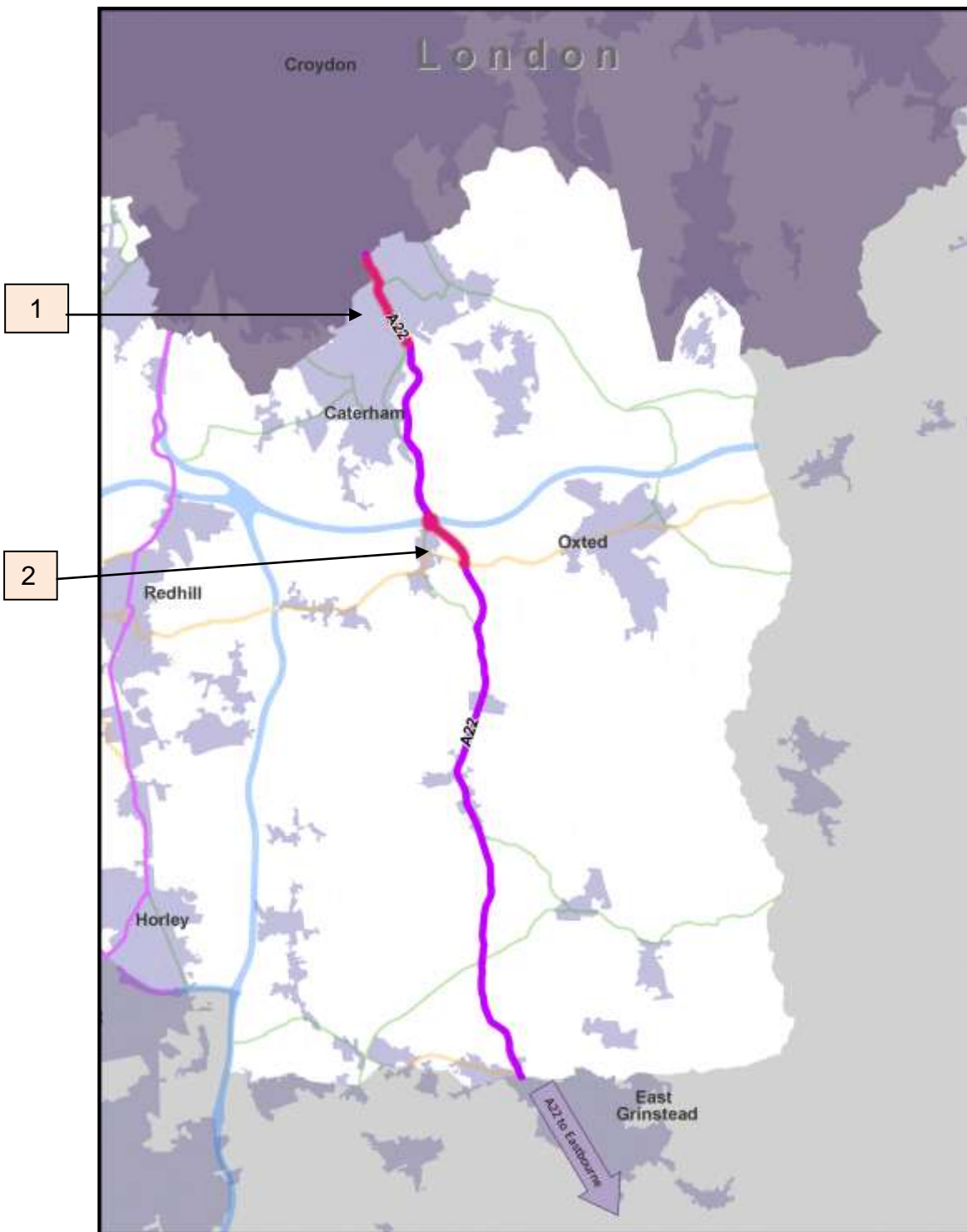
WHO - Scheme Promoter and Partners			
LTA/ Proposer:	Surrey County Council	Scheme name & [District/ Borough]:	A22 Network Resilience Tandridge
Contact details:	Lyndon Mendes Lyndon.mendes@surreycc.gov.uk	Partners [in joint submissions]:	N/A
WHAT & WHERE – Outline description, scope & maps			
Type of scheme: (Sustainability package, resilience scheme, hybrid)		Resilience Scheme	
Scheme description	<p>Overview</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.</p> <p>The scheme is a package of resilience improvements to improve the ability of the Surrey sections of the A22 to cope with extreme and unpredictable events.</p> <p>In line with the aims of the LEP's strategic economic plan for flood defence and resilience schemes¹, the scheme is expected to:</p> <ul style="list-style-type: none"> Reduce the frequency of flooding on the network and associated diversions and accidents Reduce disruption and additional costs to businesses and local services due to delays and reduced access to locations Reduce negative impacts on road users across all modes of transport. <p>The package comprises resurfacing, drainage works and major repairs to the flood damaged carriageway, in order to provide future resilience.</p> <p>The scheme is located in the heart of the Gatwick Diamond, providing access between London and Gatwick and is a key element on the network in the East Surrey M25 corridor identified by Coast to Capital as a spatial priority².</p> <p>Scheme details</p> <p>A22 Drainage System – The drainage system to manage surface water and</p>		

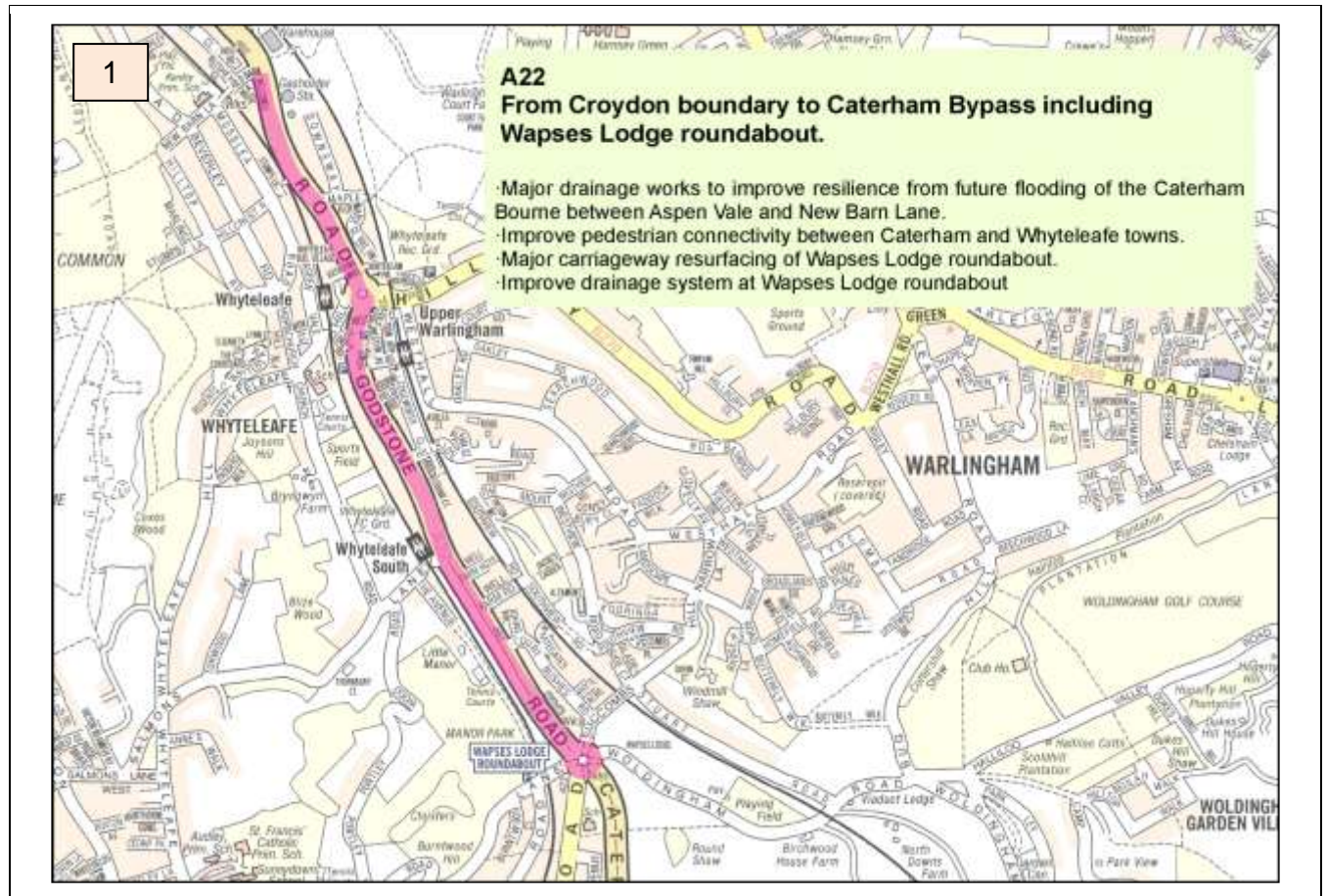
¹ Coast to Capital Strategic Economic Plan March 2014 Appendices and Transport Annex, page 20.

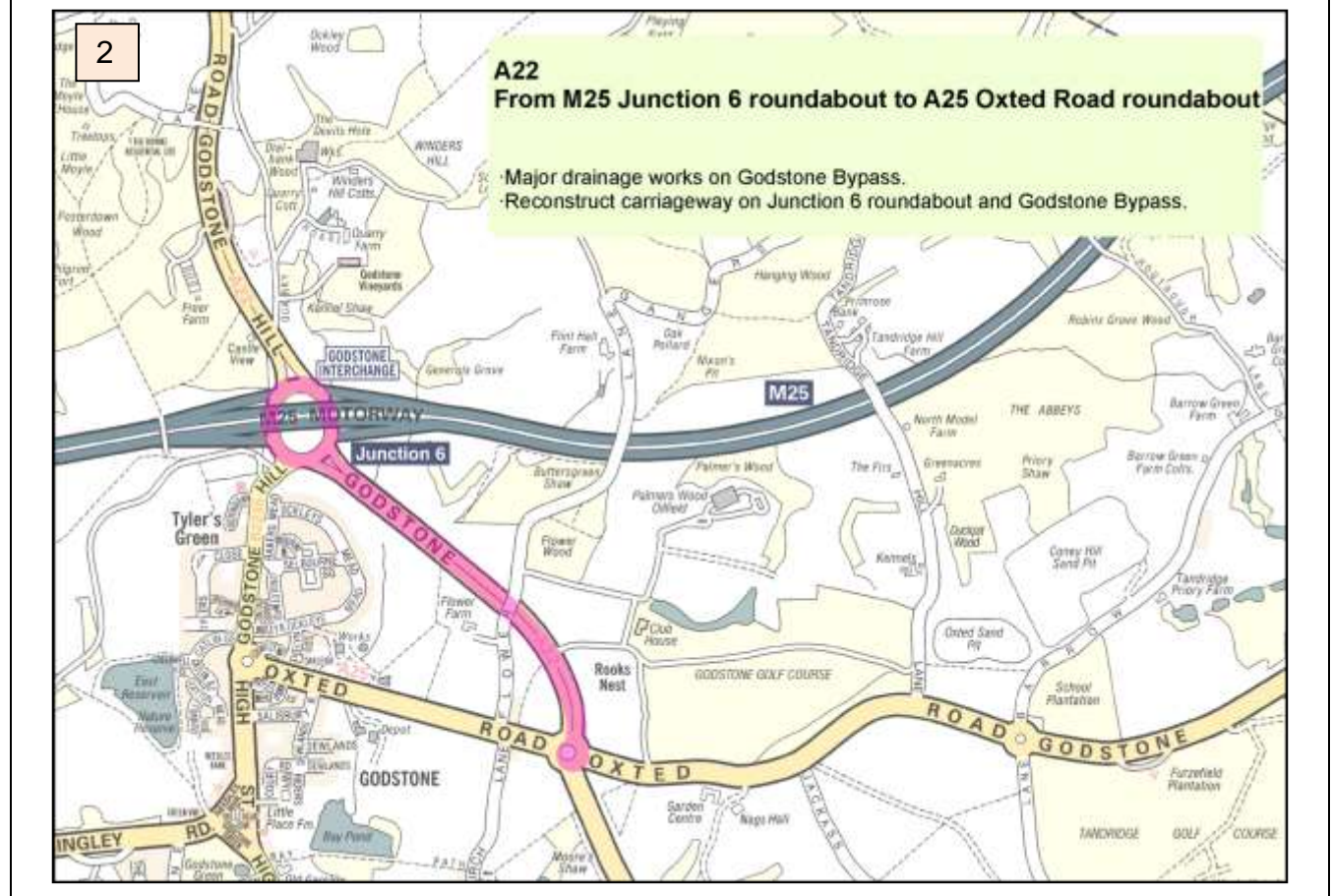
² [Coast to Capital Strategic Economic Plan March 2014](#) p.46

	<p>the Bourne stream did not have sufficient capacity to cope with the level of flood water during the winter 2013/14 flood event. The current drainage system is of limited capacity and utility lines and tree root growth are reducing capacity. To improve resilience in this area, a new water management system will be installed between New Barn Lane at the Croydon boundary and Aspen Vale in Whyteleafe. Improvements will be made to the existing water management system between Whyteleafe and Wapses Lodge Roundabout. The design will be carried out in collaboration with all relevant stakeholders to ensure a robust solution is constructed.</p> <p>Wapses Lodge Roundabout – It is proposed that the roundabout is resurfaced as a major repair to the flood damaged carriageway, in order to make it fit for purpose in the long term. Drainage works are planned to provide connections between new off carriageway water storage areas on Woldingham Road, which have been installed since the Major Incident earlier in 2014, and the improved water management system north of Wapses Lodge. This element of the scheme will also involve improving pedestrian connectivity facilities on the roundabout between Caterham and Whyteleafe in particular for school children and local employees.</p> <p>M25 Junction 6 and Godstone Bypass – There is currently a major structural failure of the southbound carriageway of the A22 between the M25 Junction 6 Roundabout and the A25 Oxted Roundabout. The failure is due to flood damage which has occurred as the existing water management system does not have sufficient capacity in cases of extreme flooding. This has resulted in underlying layers of carriageway being washed away leading to the formation of voids. It is proposed to repair and upgrade the carriageway water management system including the adjacent balancing ponds, and to identify and address the cause of the voids particularly at Flower Lane Bridge. It is also proposed that the M25 J6 Roundabout and both carriageways of the A22 Godstone Bypass, to the roundabout at the A25, are resurfaced as a major repair to the flood damaged carriageway, in order to provide future resilience.</p>
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Maps







HOW MUCH & WHEN – Estimated construction costs and construction timetable							
Est. Costs:	£4.9m	Start and end of construction:			April 2015 to March 2016		
Spend Profile	2015-16: (£ million) £4.9	2016-17: (£ million) £0	2017-18 (£ million) £0	2018-19: (£ million) £0	2019-20: (£ million) £0	2020-21: (£ million) £0	
Funding expectations (List sources of funds)	£4.165 LEP £0.735 SCC Match funding						
Construction Timetable	2014/15				2015/16		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3
	O	P	P	R	G	G	G
	Key O Pre-feasibility P Business Case preparation & all associated activities						

	<table border="1"> <tr> <td>R</td><td>Assessment and LEP consultation</td></tr> <tr> <td>B</td><td>Detailed design & procurement [following LEP approval]</td></tr> <tr> <td>G</td><td>Scheme construction</td></tr> </table> <p>Assuming funding is granted during Quarter 4 (March 2015), construction can begin during Quarter 1 (April 2015). Full procurement process will not be required as existing highway maintenance contracts will be used.</p> <p>Surfacing designs have been completed, but drainage works are still being investigated. Optimism bias for the surfacing elements of the scheme is included at 15%; optimism bias in relation to the drainage elements is included at 40%; the overall bias is therefore included at 25%.</p>	R	Assessment and LEP consultation	B	Detailed design & procurement [following LEP approval]	G	Scheme construction
R	Assessment and LEP consultation						
B	Detailed design & procurement [following LEP approval]						
G	Scheme construction						
WHY IT SHOULD BE FUNDED							
Summary of the Key Scheme Benefits							
<p>Structure of the key scheme benefits</p> <ol style="list-style-type: none"> 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 							
<p>1. Introduction and need for scheme</p> <p>The A22 is a strategic economic corridor connecting major town centres and is a key link between London and the southern commercial ports of Portsmouth and Southampton. It is an important element of the LEP-identified East Surrey M25 corridor, 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. The A22 provides access for both commuter and freight movements, in both a northerly and southerly direction and provides one of the major diversion routes for the M25 and M23.</p> <p>In February 2014, SCC and Croydon BC declared a Major Incident in the Caterham Bourne area due to severe flooding caused by excessive underground and surface water. The area affected is within an identified Environment Agency Flood Zone 2. The incident resulted in major disruption to the Tandridge and Croydon communities with major road arteries including the A22 closed for over four weeks, major disruption to both highway and rail networks, house evacuations and loss of local business income. The cost for the emergency relief effort to Surrey County Council was nearly £300,000 which is in addition to costs incurred by the Fire Service the Army, Network Rail, Tandridge and Croydon Councils and local schools and businesses. Annex 1 shows the communities most affected by the flooding.</p> 							

This proposed major scheme has been developed following a project review of this Major Flooding Incident. The Project Review Board comprising of members from local flood forums, district councils, council members and officers identified opportunities and risks to mitigate future impact and reduce flooding risks.

2. Objectives

The purpose of the scheme is to provide improvements to and resilience of infrastructure and to provide water management to mitigate the effects of major flooding events in the future. The scheme will also enable sustainable travel by providing pedestrian connectivity between the towns of Whyteleafe and Caterham.

This scheme forms part of a wider collaborative project with other aspects being led by Network Rail, the Environment Agency, DEFRA, Tandridge and Croydon Borough Councils.

The objectives of the scheme are aligned with the transport objectives of the Coast to Capital Strategic Economic Plan (SEP), specifically those addressing resilience, quality, connectivity, capacity and quality.

3. Background and supporting evidence

The severe flooding in early 2014 was devastating to the local communities it affected. Local fields had to be flooded to divert water from the Caterham Bourne in February 2014, with the [BBC](#) reporting the A22 Godstone Road was closed for three weeks. In March 2014 the [BBC](#) reported that businesses along the A22 Godstone Road said trade was down 80% when the road was closed due to floods.

The [Surrey Mirror](#) described the floods which “bedevilled the A22” in February 2014 and described diversion routes as “lengthly”.

[GetSurrey](#) reported that the closure of the A22 Godstone Road due to flooding had a “huge impact on local businesses”. The A22 Godstone Road was shut on February 5th 2014 for a period of five weeks. The armed forces and council staff worked to build [temporary reservoirs](#) and flood defences in Woldingham to mitigate the effects of the Caterham Bourne.

The Tandridge DC Strategic Flood Risk Assessment identifies highway flooding issues on the A22, particularly around Whyteleafe.

Whyteleafe and Warlingham is underlain by chalk deposits, therefore, due to the porous nature of the rock flooding is not a major issue apart from when the groundwater level rises. This has

Businesses still paying the price as A22 reopens after flooding

happened on a number of occasions along Godstone Road in Whyteleafe. The Caterham Bourne Study carried out by ArupWater in August



2002 describes the flooding situation in this area.

The Bourne begins underneath the Woldingham Road viaduct south east of Wapses Lodge roundabout. The Bourne then travels down to Wapses Lodge roundabout where it runs through a circular culverted concrete section parallel and to the east of Godstone Road. It then changes to a rectangular section and passes under office buildings and residential properties. The Bourne then crosses the Godstone Road opposite the football ground, in a culvert. It then passes through residential gardens and garages through circular culverts, it then appears in an open channel before crossing the railway line. The Bourne then crosses Whyteleafe Hill via a rectangular culvert and appears briefly as open channels just to the west of the railway by Whyteleafe Station and on the other side of the railway. Before reaching Downsway, the Caterham Bourne crosses the Godstone Road in a culvert and then passes under a house and the BP service station in pipes.

The Bourne has flooded on a number of occasions; in December 2000 a large area of land was flooded from Caterham to Purley, a distance of about 4 miles. The flooding problems observed along the course of the Bourne have been associated with brief groundwater discharges combined with normal winter rainfall. Surcharging of the Bourne occurs when the water table is high, and this can cause sewer flooding.

The effects of climate change mean we can expect more extreme weather events and high rainfall will continue to affect our winters. The emerging protocol for the flooding of the Bourne identifies maintaining vehicle access to A22 as a primary purpose, however this can only be achieved with investment in improving the roads resilience.

Sewer flooding occurs when the sewer network cannot cope with the volume of water that is entering it. It is often experienced during times of heavy rainfall when large amounts of surface water overwhelm the sewer network causing flooding. Surface water flooding is normally caused when the capacity is exceeded and the system surcharges causing water to flow out of the manhole and drain covers. A surface water sewer can also fail as a result of a blockage, siltation, collapse and equipment of operational failure.

Fields flooded to divert Caterham Bourne from A22



The A22 Godstone Road has been closed between Whyteleafe and Purley for nearly three weeks

Fields are being flooded in a Surrey valley to divert flood water that threatened a water treatment works in nearby south London.

Tandridge Borough Council said the holding areas in Woldingham and Whyteleafe would slow down the flow of the **Caterham Bourne**.

The river has flooded roads and properties from Caterham to Kenley and closed the A22 for nearly three weeks.

Emergency services have been pumping water away from Kenley treatment works.

The Army has also been deployed to protect the site.

Related Stories

Seven flood recovery centres set up

Keep emergency fund, councils urge

Residents advised to keep sandbags

Source: BBC news website 24 Feb 2014

There is an imminent duty and statutory obligation for local authorities to address climate change – including CO₂ 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

<p>overloaded and severe disruption and damage to infrastructure is possible;</p> <ul style="list-style-type: none"> • prolonged dry periods; and • increases in wind speed. <p>This will impact on access to key locations in the C2C area such as Caterham, as well as cause disruption due to flooding 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.</p>	
<p>Letters of support for the scheme are included at Annex 2.</p>	
<p>4. Linkage to other funding bids to the Coast to Capital LEP</p> <ul style="list-style-type: none"> • 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. • A25 economic support package A package of transport measures to manage congestion along the A25 corridor including Redhill to Godstone. The package also includes improvements for bus, rail, cycle, pedestrian facilities throughout the transport corridor to help facilitate modal shift. The transport package includes transport improvements within towns and settlements along the corridor including Oxted. • 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. 	
<p align="center">Outline business case of key criteria [maximum score = 5 per criteria]</p>	
<p>Expected economic benefits [<i>transport and scheme related</i>]:</p> <ul style="list-style-type: none"> • 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 • Other transport 	<p>[Scheme Score = 5]</p> <p>Value for Money</p> <p>Evidence shows that the A22 Godstone Bypass currently experiences Annual Average Daily Traffic flows of 26,722 vehicles, of which 1.5% are HGVs.</p> <p>Strategic transport modelling predicts a first year rate of return (FYRR) of 12.68% equating to £576,977.21 in 2010 prices, compared with the scheme cost. Note that this benefit is solely based on delay and represents the twelve hour time period of 0700 to 1900 for weekdays only. Other elements such as vehicle operating costs and accidents have not been considered and therefore the current FYRR is an under-representation of the true benefits of the scheme.</p> <p>The signed diversion for the A22 Godstone Road northbound closure at Whyteleafe results in a 42%, 86% and 69% increase in</p>

benefits



journey times during the weekday average AM, inter peak and PM peak hours respectively. The signed diversion route of the A22 northbound is 79% longer than travelling via the A22 itself.

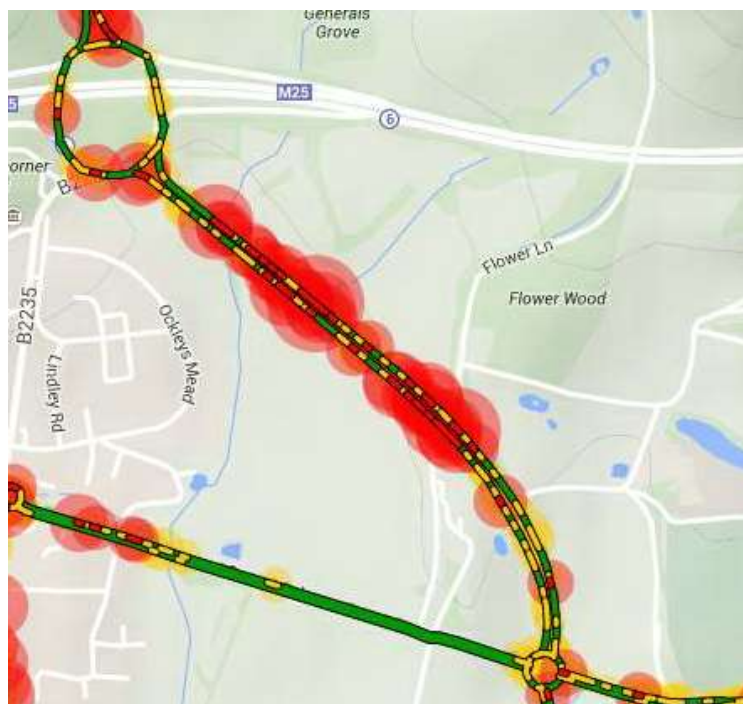
Journey times and reliability will be maintained by keeping the route clear of flooding. **Road safety** is expected to benefit as vehicles will be able to maintain an even speed in the absence of localised flooding.

The scheme will improve facilities for pedestrians crossing the A22 thereby supporting **sustainable travel**. Flooding of the A22 causes severance between the communities of Whyteleafe and Caterham, impacting particularly on access to schools.

The map at **Annex 3** has used evidence from the National Receptor Dataset³ 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.

Condition data from the machine based SCANNER survey carried out on the A22 in 2013/14 identifies that the majority of the length of the road would benefit from resurfacing to improve resilience (see image below).

SCANNER shows significant levels of deterioration.



³ 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>

Analysis of the data has identified that the primary cause of failure in these sections are rutting and cracking. Rutting or other transverse unevenness can affect steering or cause water to pond, both of which may affect road safety. Rutting can also be a good indicator of defects in the surface course or in the structural layers of the road.

Cracking can indicate deterioration of the surface course or of deeper seated effects to the structural layers of the road. Cracking may allow water to penetrate through the road layers weakening the foundations.

The repeated freeze-thaw cycle during periods of wet and cold weather has an adverse affect on the construction of the road, with water entering through surface cracks and joints. When temperatures plunge, the water freezes, expands and causes the surface to rupture. When the ice melts, it leaves a void below the surface, which caves in under the stress of vehicles and eventually forms further defects and potholes.



Using GIS analysis tools we are able to calculate scheme lengths based on expected deterioration in the year since the SCANNER survey. This analysis confirms that there are significant issues with the entire section and the roundabout at junction 6 is also showing signs of deterioration. The roundabout defects are not as significant as the dual carriageway but in practice, the deterioration is likely to be more significant than the data indicates due to the extreme and prolonged rainfall during the winter of 2013/14.

If the scheme were not implemented, the county council would be committed to continue to implement piecemeal repairs on the A22 as and when pot holes and surface issues occur. On this busy stretch of road, repairs must be carried out in conjunction with lane closures, which cause congestion and damage the economy of the area. By improving the resilience of the road, the number of minor repairs can be reduced, leading to fewer delays for the public and businesses.

Assessment of Flood Damages to the Local Economy

Pilot methodology being developed by Surrey County Council and Atkins Global

Surrey County Council is working with Atkins to develop a methodology which can provide a Local Economic Value on an Annual Average loss basis, considering the impact of flooding to both the transport network and to property.

This will be applicable to an economic baseline scenario as well as a proposed flood defence scheme, in order to determine the potential benefits.

Current methodologies are focused on quantifying the net impacts to the national economy, supporting bids to national pots of funding such as the Flood Defence Grant in Aid.

Local councils (and LEPs) are regionally focused so there could be significant economic benefits to specific regions that would not be identified using methodologies currently available.

A report from a Defra R&D project entitled "TOOLKIT for assessing the impacts of flood and coastal erosion risk management on the local economy" was recently published and provides a starting point for an economic valuation of local losses in terms of Gross Value Added (Value of employment); however there are aspects of the characteristics of both flooding and businesses which are omitted.

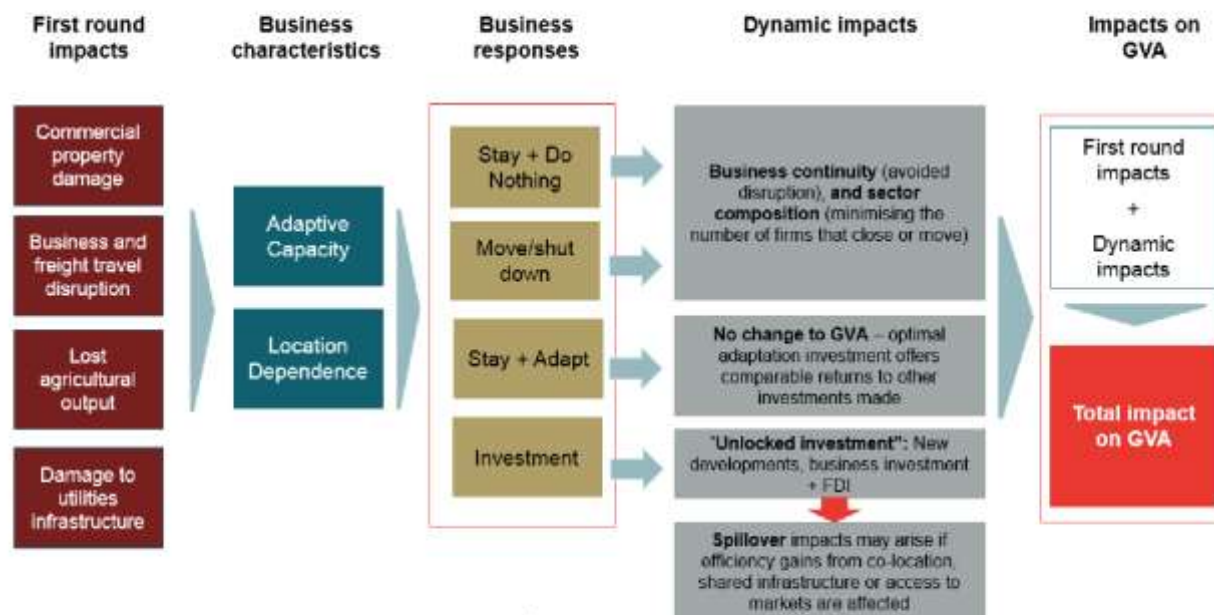
It is noted that LEPs require a Treasury Green Book approach with a value of the economic damages/benefits at a national level when considering funding allocations but can also report on GVA at a local level.

Therefore, using this Defra report as a starting point, SCC and Atkins are undertaking a project to develop a methodology that will deliver separate calculations of the value of flood defence schemes both to the national economy and the local economy, with consideration given to the following impacts/benefits:

- Businesses directly affected by flooding
- Business with loss of access due to flooding
- Businesses with disrupted access due to flooding
- Spillover effects
- Impact on growth and investment decisions

How FCERM can impact on local economic activity: the 'transmission mechanism'

The 'transmission mechanism' shows how lowering the risk of flooding can feed through into impacts on the local economy. The benefits of FCERM are assessed by comparing the case with the intervention (the 'do something') with the case without the intervention (the 'do nothing').



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

The **Gatwick Diamond** 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.

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.

[Scheme Score = 5]

The scheme addresses a route central to the district of Tandridge, which itself is part of the [Gatwick Diamond](#) economic area. 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.
- 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.
- Provide businesses with confidence in the transport network, encouraging economic activity in the area and boosting economic performance. The scheme will achieve this specifically by improving the resilience of the A22 by introducing water management to mitigate the impacts of flooding along the highway, resulting in fewer road closures, necessary due to flooding directly and due to the long term effects of flooding on the carriageway.
- Support and facilitate growth outlined in the [Tandridge District Council Core Strategy](#), which identifies provision for 2,500 dwellings in the district (2006-2026). The majority of the housing development is focussed in built up areas of Caterham, Warlingham, Whyteleafe, Oxted and Hurst Green.
- Contribute to the performance of the [Gatwick Diamond Initiative](#), a business-led partnership supportive of the aims of the LEP's strategic economic plan. The A22 is a key arterial route through the Gatwick Diamond, linking Gatwick to London.
- Support the performance and growth of large businesses in the area. Businesses include: the multinational Gold Group International, Croudace Homes and LEA Redway Ltd.
- Mitigate the negative economic impact that flooding has on the area, by preventing highway closures or part closures due to maintenance works needed to counter the effects of flooding

on infrastructure can disrupt the network. A diversion route to avoid the disrupted area increases costs due to longer journeys and can draw traffic away from economic zones. Road closures can sever communities and business critical links.

- The flooding event in early 2014, described in the Introduction [above](#), received wide media coverage, with reports of businesses suffering substantial losses as a result of the flooding and road closures making the headlines.

During the extreme weather event earlier in 2014, businesses reported a loss of up to 80% as a result of flooding and road closures on the A22⁴.

4 March 2014 Last updated at 11:48



A22 Godstone Road firms 'lose 80% takings' in floods



A scaffolding bridge has been built over the flood water to give residents a walkway

Businesses along a main road from Surrey into south London say trade is down 80% since it was closed by floods.

The A22 Godstone Road through Whyteleafe into Purley has been closed for nearly four weeks since the Caterham Bourne overflowed.

John Painter, director of Whaysbury Tyres, said business had dropped to 20% of normal levels.

Croydon Borough Council said the A22 would reopen in phases, but would not be open fully until mid-March.

Related Stories

Fields to take flood water from A22

Seven flood recovery centres set up

Keep emergency fund, councils urge

Source: <http://www.bbc.co.uk/news/uk-england-surrey-26432283>

Other economic benefits

The LEP supports aspirations to deliver **superfast broadband** across the area. Flooding events can affect the rollout of superfast broadband. This is true of the 2013/14 event, which

⁴ <http://www.bbc.co.uk/news/uk-england-surrey-26432283>

	<p>caused roads due to have fibre spine installed to be closed. This prevented work being completed as scheduled. The flooding resulted in further work being required to continue delivering the programme, including the removal of large volumes of silt that was washed into chambers and ducting that was then needed to be 'sucked' out using specialist equipment.</p>
<p>Social Distributional Impact:</p> <ul style="list-style-type: none"> • Expected regeneration & deprivation impact • Expected impact on severance, physical activity, accessibility 	<p>[Scheme Score = 5]</p> <p>Disruption and closure on the A22 causes major severance to communities, stopping residents accessing key amenities and services. By reducing the need for disruption due to flooding and maintenance works on this strategic route, the severance experienced by the community in times of extreme weather events will be vastly reduced.</p> <p>A number of bus services rely on the A22, especially school bus services, to provide sustainable links for users to key services, residential and employment areas.</p> <p>Bus operator Metrobus, part of the Go-Ahead Group, operates services on the A22, and has provided a letter of support for the proposed scheme. This is included at Annex 4.</p> <p>The proposal will improve access to education centres such as Harris Kenley Primary school which is located on the A22 and had to be shut and children temporarily schooled elsewhere whilst their school building was inaccessible due to the severe flooding event in 2014.</p> <p>The scheme will improve pedestrian connectivity facilities on Wapses Lodge Roundabout in particular for Whyteleafe School and local employees. The roundabout is barrier to movement between housing and key destinations such as schools and the recreation ground. A weekday manual pedestrian count carried out in 2013 counted 220 pedestrian movements on the Roundabout over a 12 hour day. This indicates the importance this route has as a pedestrian access point for the local community.</p> <p>The Surrey Cycleway crosses the A22 at Miles Lane/Harts Lane/A22 Eastbourne Road junction and is also supported by this scheme to improve the resilience of the A22.</p> <p>The Caterham Shabby to Smart project is a scheme jointly funded by government, Surrey CC, Tandridge DC and the local community. It has implemented local improvements to the town centre over the last few years and would be supported by this scheme.</p>

<p>Environmental impact:</p> <ul style="list-style-type: none"> • Expected impact on carbon emissions • Expected impact on air quality • Expected impact on noise/natural and urban environment 	<p>[Scheme Score = 4]</p> <p>Carbon emissions 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 A22 to flooding will reduce the congestion caused by related road closures and diversions. The improved resilience of the A22 would therefore likely impact positively upon carbon emissions and air quality.</p> <p>The diversion route used when the A22 is forced to be closed directs traffic through three Air Quality Management Areas (A23 Hooley, A23 Merstham High Street and A23 Redhill Town Centre). All of these areas suffer from high roadside pollutant levels and the increase in traffic due to the closure of the A22 exacerbates this issue and can be harmful to human health.</p> <p>In addition to causing damage to built environment, the impact of the flooding event earlier in 2014 also affected large areas of the natural environment.</p> <p>The A22 falls within the greenbelt, with small sections of ancient woodland scattered along its route. Areas along the A22 have been marked as sites of special scientific interest (SSSI). Sections of the urban area of Godstone has been designated a conservation area. Parts of the A22 were originally Roman roads, defining the route as 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>Whilst there is no set figure defining acceptable levels of road noise, 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>Contribution to the Strategic Economic Plan</p> <ul style="list-style-type: none"> • How does the scheme contribute to the objectives and priorities of the SEP. • The five transport 	<p>[Scheme Score = 5]</p> <p>How does the scheme contribute to the objectives and priorities of the SEP</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 'keep the network operating 24/7' in its capacity as a</p>

<p>objectives</p> <ul style="list-style-type: none"> • Contribution to other objectives 	<p>resilience scheme⁵. The SEP aims to deliver resilience schemes to:</p> <ul style="list-style-type: none"> • Repair and maintain critical transport structures • Prevent or mitigate the risk of flooding • Reduce the number of traffic incidents (such as crashes and roadworks) and help the network recover quickly after such incidents • Provide resilience from adverse weather conditions, such as heavy snow fall. <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"⁶.</p> <p>The scheme is on the A22 and the town of Caterham is expected to benefit from the scheme (see Annex 2); Caterham is identified in the SEP as a location set to benefit from a package of measures which will utilise the opportunity to redevelop part of the town centre to unlock over 17,000 sqm of floorspace which has the potential to support over 1,300 jobs⁷.</p> <p>The five transport objectives⁸</p> <p>The scheme contributes to the SEP's five transport objectives in the following ways:</p> <ul style="list-style-type: none"> • Connectivity "Can I get where I want to go?" <p>Business, freight and commuter traffic will be able to continue to make use of this north-south key route. Pedestrian connectivity will be improved between the towns of Caterham and Whyteleafe.</p> <ul style="list-style-type: none"> • Reliability "Will I arrive when I expect?" <p>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.</p> <p>The signed diversion for the A22 Godstone Road northbound closure at Whyteleafe results in a 42%, 86% and 69% increase in journey times during the weekday average AM, inter peak and PM peak hours respectively. The signed diversion route of the A22 northbound is 79% longer than travelling via the A22 itself.</p>
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⁵ C2C Strategic Economic Plan March 2014, p.83

⁶ C2C Strategic Economic Plan March 2014, p.86

⁷ C2C Strategic Economic Plan March 2014, p.62

⁸ C2C Strategic Economic Plan March 2014, p.81

	<ul style="list-style-type: none"> • Capacity “Will I get a seat, a parking space, a clear road?” <p>Diversion routes for the A22 involve many roads which are not designed to cope with the large numbers of traffic which use the A22. Therefore, in times when the A22 has to be closed due to flooding events, the road network capacity is significantly reduced. By minimising the time the A22 is forced to close, network capacity will be maintained and disruption minimised.</p> <p>When the A22 is subject to road closures or disruption, the A23 forms part of the signed diversion route. However, the Surrey Congestion Programme identifies parts of the A23 as congestion bottlenecks, including the A23 Horley south of Earlswood, the A23 London Road, and the A23 Horley to Redhill. The sensitivity of this corridor further exacerbates the disruption caused when a flooding event occurs.</p> <ul style="list-style-type: none"> • Quality “Will my journey be healthy, safe, clean, sustainable and enjoyable?” <p>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.</p> <ul style="list-style-type: none"> • Resilience “Will transport be there when I need it – 24/7?” <p>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, helping improve the reliability of the route to serve to meet the needs of the travelling public, businesses and services.</p> <p>The scheme directly supports the C2C aspiration to increase the resilience of the LEP area, providing resilience from adverse weather conditions and mitigating the risk of flooding.</p> <p>Contribution to other objectives</p> <p>With major companies such as Gold Group International and Croudace Homes located along the A22 corridor, this scheme will help raise competitive advantage of the area, supporting and providing opportunities for economic growth in the region.</p>
<p>Local Indicators:</p> <p>Local indicators and circumstances that help to explain the need for the scheme.</p>	<p>Not scored.</p>

SCORE SUMMARY	
Total score: (out of 25)	24
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 top priority scheme .

Scoring criteria

Scores	Expected Economic benefits (transport and scheme related)	Expected Economic benefits (economic growth)	Socio-distributional Impact	Environmental Impact	Strategic Economic Plan
Score: 5 [Green]	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
Score:3 [Amber]	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.
Score 1: [Red]	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

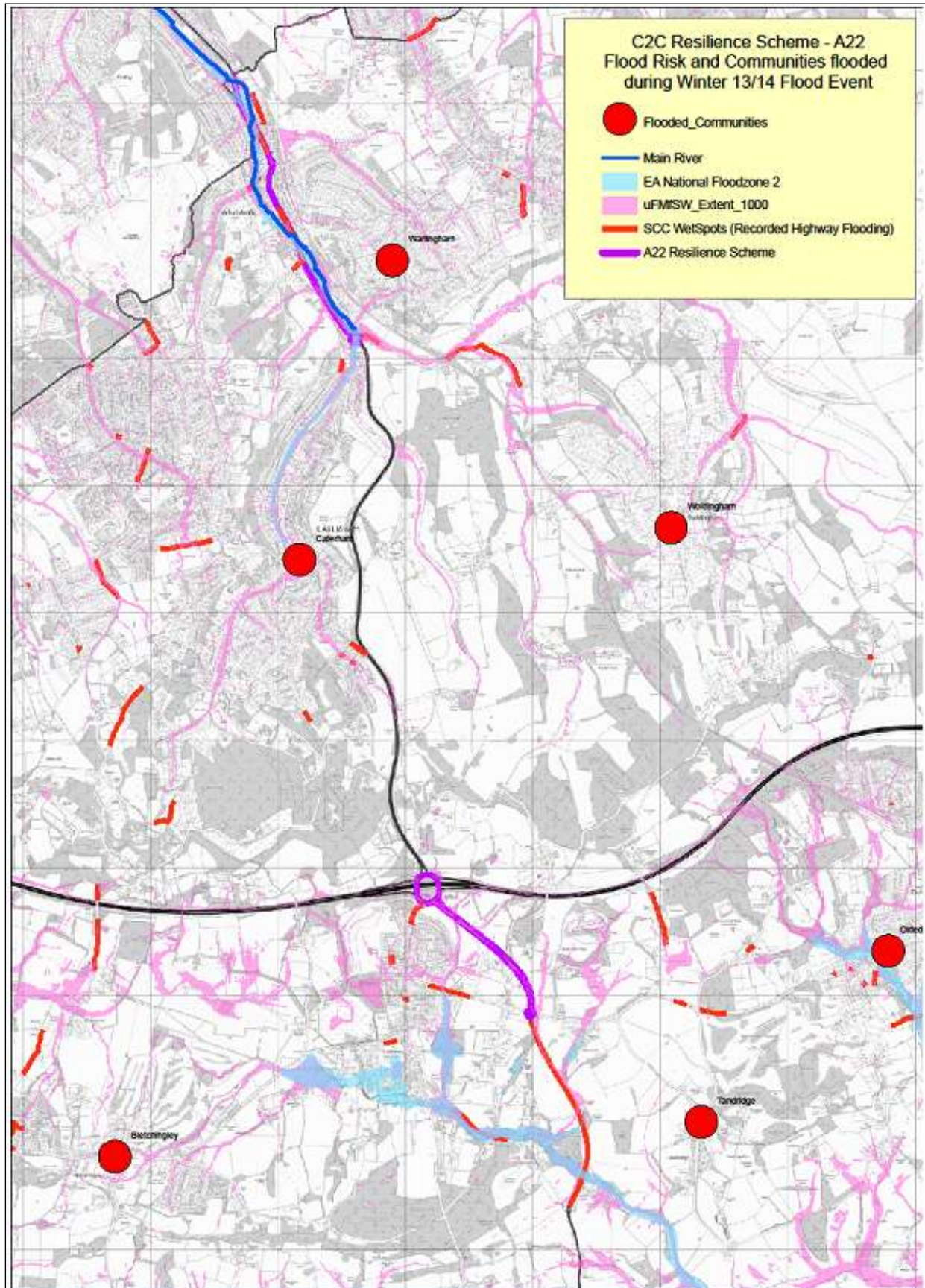
1. % of working age population (aged 16-74) in employment using walking or cycling as main mode to get to work (2011 Census)
2. % of working age population (aged 16-74) in employment using bus, train, underground, tram or metro as main mode to get to work (2011 Census)
3. Congestion – indicator being 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 – A22 Flood risk and communities flooded during the 2013/14 Winter flood event





Annex 2 – Letters of support

Wheatstone Close
Crawley
West Sussex
RH10 9UA

t: 01293 449 192

f: 01293 404 281

www.metrobus.co.uk

8th December 2014

To whom it may concern,

Re: Surrey County Council's bid for 'A22 Strategic Maintenance' major project

Metrobus are delighted to lend support for the bid, for the proposed transport intervention (maintenance) in the Caterham to Godstone areas. We have reviewed the scheme outline proposals and endorse the aims and scope.

We confirm our intention to work with Surrey County Council, Tandridge District Council and other Partnership bodies as appropriate, to support the successful delivery of the proposed scheme.

We are a major local bus operator in Surrey, running a number of bus services in the area that have been negatively impacted by the highway issues.

Yours faithfully



Nick Hill
Head of Commercial Development



Annex 3 – Area benefitting from reduced transport disruption as a result of the proposed scheme

C2C Resilience Schemes - A22 Area benefitting from reduced transport disruption

No. of receptors within traffic disruption area

Economic	A22 Transport Impact Area
Retail	1510
Offices	347
Warehouses	83
Industry	153
Public Car Parking	39
Electricity Sub Stations	456
Transportation Services	
Rail Stations	11
Bus Stops	590
Critical Services	
Fire Stations	3
Ambulance Stations	3
Doctors Surgeries	9
Police Locations	4
Hospitals	4

- A22 Resilience Scheme
- Surrey Districts
- C2C LEP Boundary
- Motorway
- Trunk Class 'A'
- Class 'A'
- Class 'B'
- C2C Transport Disruption Area

