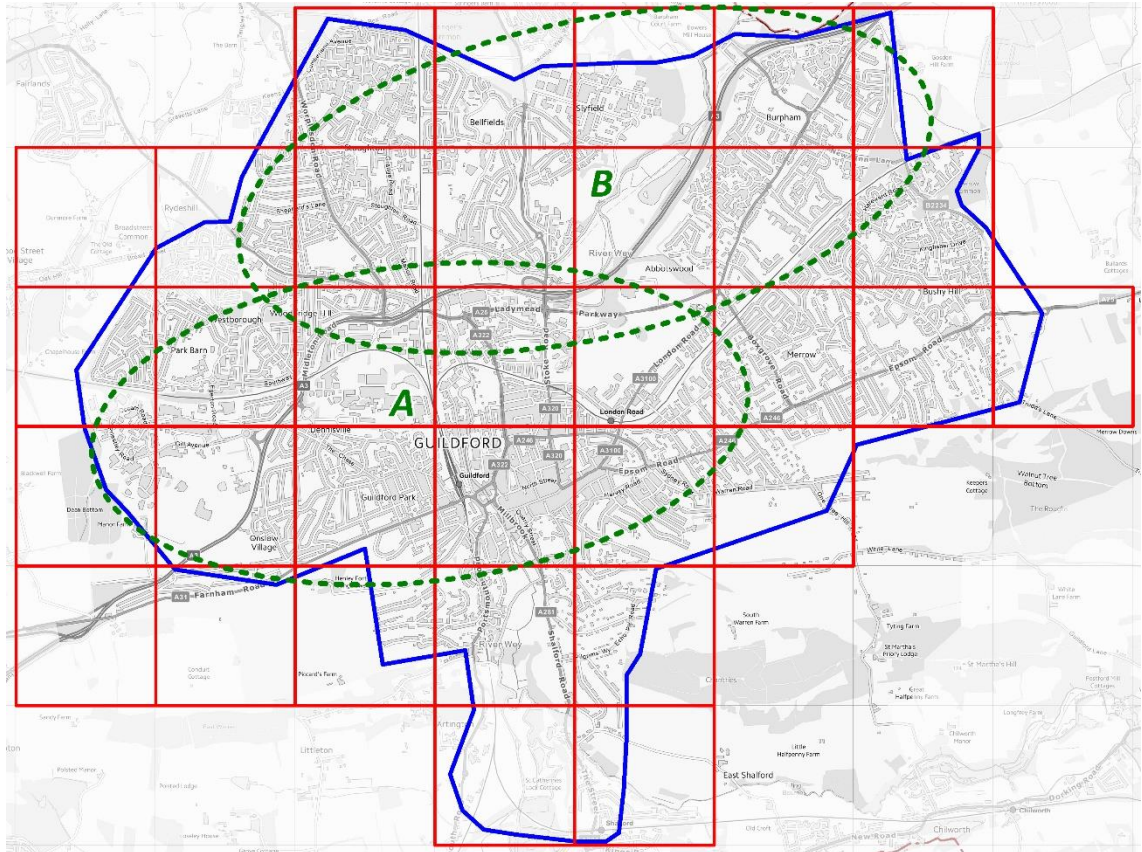


## Appendix 2: Suggested scheme extent and phasing

A2.1 Based on the assessment and stakeholder input, the consultant recommends that the scheme is developed in a phased manner that is compatible with the existing University of Surrey scheme. Plan 3 shows two areas, corresponding to two phases of bike share development, identified as 'A' and 'B'. These areas and phases cover the higher potential areas.

- A.** Town centre & west Guildford (including University of Surrey campuses)
- B.** North Guildford plus additional hubs within area A



*Plan 3. Suggested bike share phases*

A2.2 These two areas can be used to develop options for the size of a town-wide scheme, based on established parameters for hub locations. Table 3 below shows the approximate area and residential population of the areas covered by the two phases. Note that this does not include daytime population i.e. employees or non-resident students.

Phase	Approx. urban area (km <sup>2</sup> )	Approx. residential population (2017 est.)
<b>A (including area covered by University of Surrey scheme)</b>	8.5	31,000
<b>B</b>	9	27,000

Table 3. Phase areas and population (based on LSOAs)

A2.3 Best practice in other countries recommends that hubs are located about 250m-300m apart (about 3 minutes walk). However, in the UK this has been increased slightly to 400m (i.e. about 5 minutes walk) to match the recommended spacing for bus stops, providing a density of around 6 hubs per km<sup>2</sup>. This is the density for the Santander Cycles scheme in London. Other schemes are generally less dense e.g. Brighton and Belfast have 3 hubs per km<sup>2</sup>, while Edinburgh and Cardiff have just 2. However, this is mainly due to a number of outlying hubs which serve to reduce the average density.

A2.4 In practice, hubs are usually sited either at or very near to key destinations, rather than exactly spaced. In core areas there might be two hubs close to each other – for example at Guildford Station and across the River Wey by the Odeon cinema.

A2.5 In areas such as more residential neighbourhoods a lower density of around 3-4 hubs per km<sup>2</sup> is acceptable at the launch of a scheme (spacing of around 600m), with some in-fill at a later date. This approach has been used in Brighton where the initial phase of around 40 hubs at the launch of BTN BikeShare in September 2017 was intensified with 10 more hubs in November 2018 and incremental expansion since then.

A2.6 Based on these densities, then consultant has developed a range of suggested scheme sizes for each phase, set out in Table 4.

Phase	Town centre		Wider Guildford area		Total	
	Hubs	Cycles	Hubs	Cycles	Hubs	Cycles
<b>A</b>	8 - 10	60 - 70	15 - 20	90 - 105	<b>25 - 30</b>	<b>150 - 175</b>
<b>B</b>			25 - 30	150 - 175	<b>25 - 30</b>	<b>150 - 175</b>

Table 4. Suggested range of scheme size

A2.7 The consultant suggests that Phase A could comprise between 25-30 hubs with a fleet of 150-175 cycles. When combined with the existing University of Surrey scheme (50 cycles, now 9 hubs with a further hub planned) this would result in a total scheme size of around 35-40 hubs with 200-225 cycles.

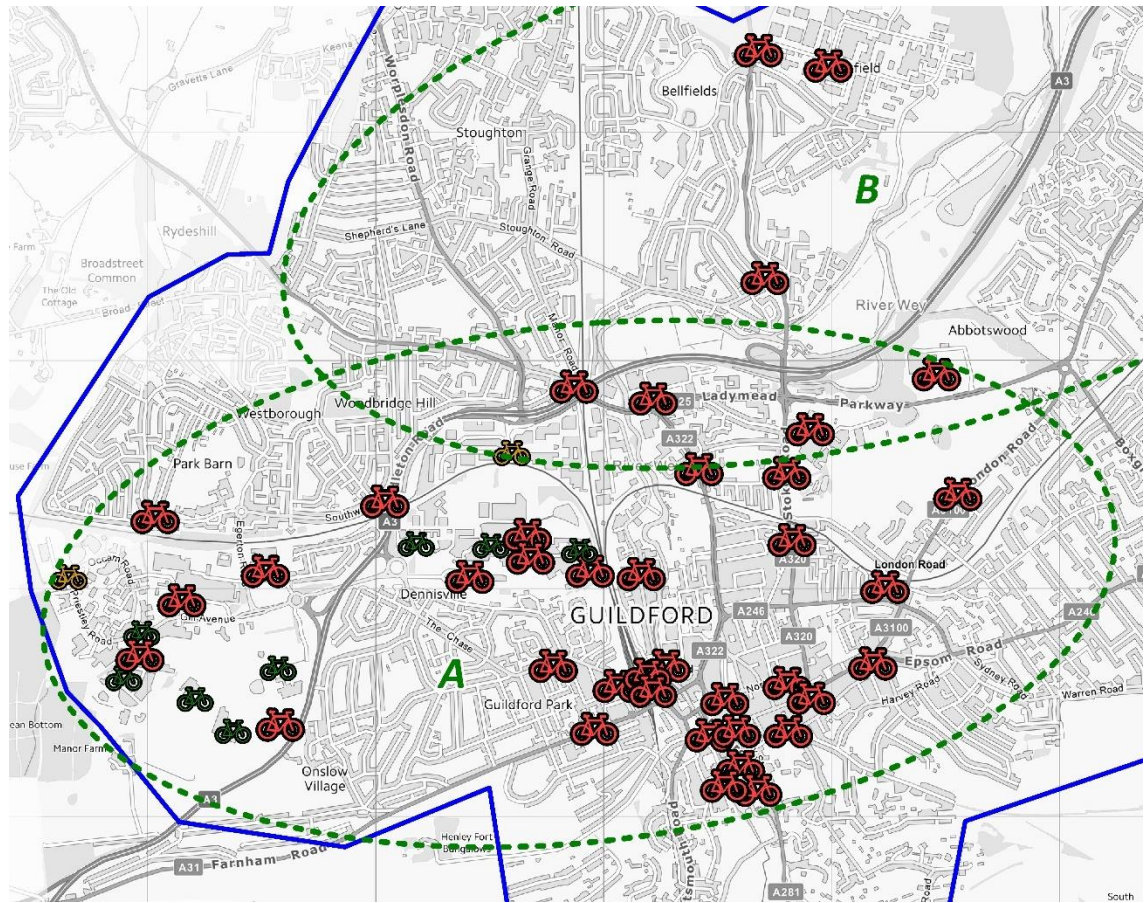
A2.8 Phase B has not been considered in as much detail but an outline estimate would suggest a roughly similar scale to Phase A to allow for the less dense areas covered. This would give a total for the combined schemes, including that of the University of Surrey, of around 350-400 cycles and 60-70 hubs.

- A2.9 Note that all figures for cycles are for the total fleet size. Based on experience of recent schemes, the consultant suggests that an allowance of around 10% should be made for cycles that are unavailable due to repairs and maintenance.
- A2.10 The suggestions for scheme size apply to both fully docked or hybrid schemes. The initial expectation is that all hubs comprise physical docks. However, if a hybrid system is used this gives the option during the implementation stage of considering the use of virtual hubs in some locations. This would be an issue to be agreed in partnership with the selected operator rather than at this stage.
- A2.11 Using the resident population allows use of an alternative guideline for the number of cycles in the scheme. The ITDP Bike Share Planning Guide (2014) suggests a range of 10-30 per 1,000 resident population. Based on this, a scheme covering the Phase A area would require between 310 and 930 cycles, considerably higher than the area-based estimate. However, this is derived from experience in cities world-wide with much higher cycle usage than the UK in general and Guildford in particular. The town is also much smaller than the cities researched by ITDP (e.g. New York, Paris, London) with a much lower daytime population. Hence, we consider that the suggested level of hubs and cycles is reasonable.

#### **Possible hub locations**

- A2.12 The consultant carried out a detailed review of the Phase A area as shown above to produce an initial schedule of possible hub locations (whether physical docks or virtual hubs). It was agreed that a review of Phase B was not required at this stage.
- A2.13 The long list of suggested locations was discussed at the stakeholder event in July 2018. There was broad endorsement for the initial suggestions, with one key exception. This was a request for inclusion of the Slyfield Industrial Estate (in the Phase B area) to be considered for inclusion in Phase A. This was due to the large amount of shift work on the estate and the poor provision of public transport.
- A2.14 To support this, two additional hubs are proposed at the industrial estate (east and west), plus a hub at the junction of Stoughton Road and Old Woking Road (on the cycle route between Guildford town centre and Slyfield).
- A2.15 The suggested hub locations are shown on Plan 4 below.



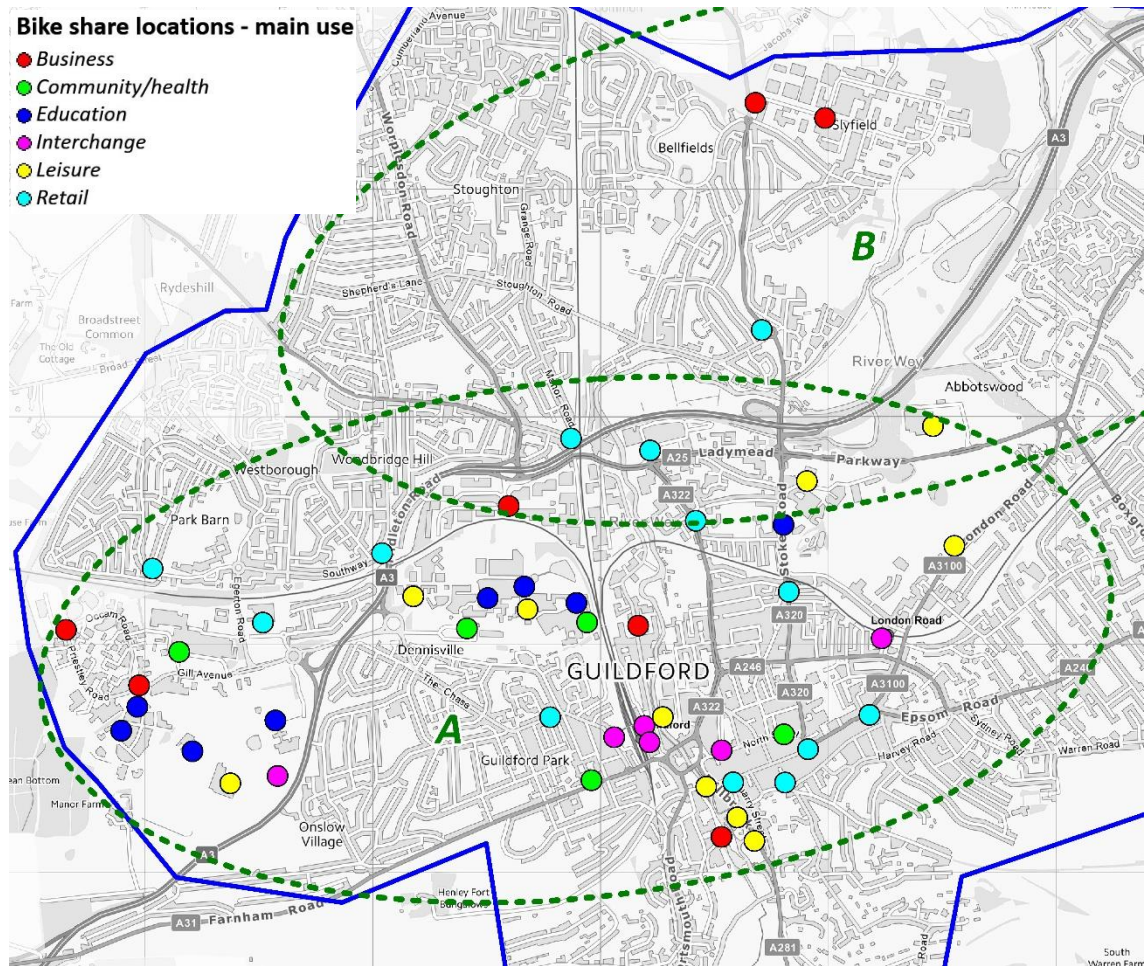


Plan 4. Suggested Phase A hubs (red) with existing (green) & planned (orange) UoS hubs

A2.16 The precise details of where and how a hub is placed will depend on the nature of the location, the size of the hub (i.e. number of docks) and the available space. There may be other local considerations such as access, the impact on people walking, and conservation and public realm issues. In some locations the preferred option will be on the carriageway which will also mean possible re-purposing of car parking spaces. Some of these issues will also apply to virtual or geo-fenced hubs.

A2.17 If an e-bike scheme is chosen then there will be also be a need to consider the location of charging docks, with electricity supply, possible new cabling and streetworks all being issues. Whilst this is not a trivial matter, we would only anticipate around a third of hubs would need to be used for charging, reducing the impact of charging hubs.

A2.18 The suggested hub locations were classified using six primary use categories (see Plan 5). This will enable a clearer case to be made for each hub at the implementation stage. However, it is important to note that most hubs would serve a variety of trip purposes.



Plan 5. Classification of Phase A hubs by use category

A2.19 More detailed assessments have not been carried out at this stage as this is best done in partnership with a prospective operator. Different systems have varying requirements in terms of the method of installation, the physical size of a dock and other issues such as an electricity supply. They will also need to take into account how the hub is serviced which again will vary according to the operator.

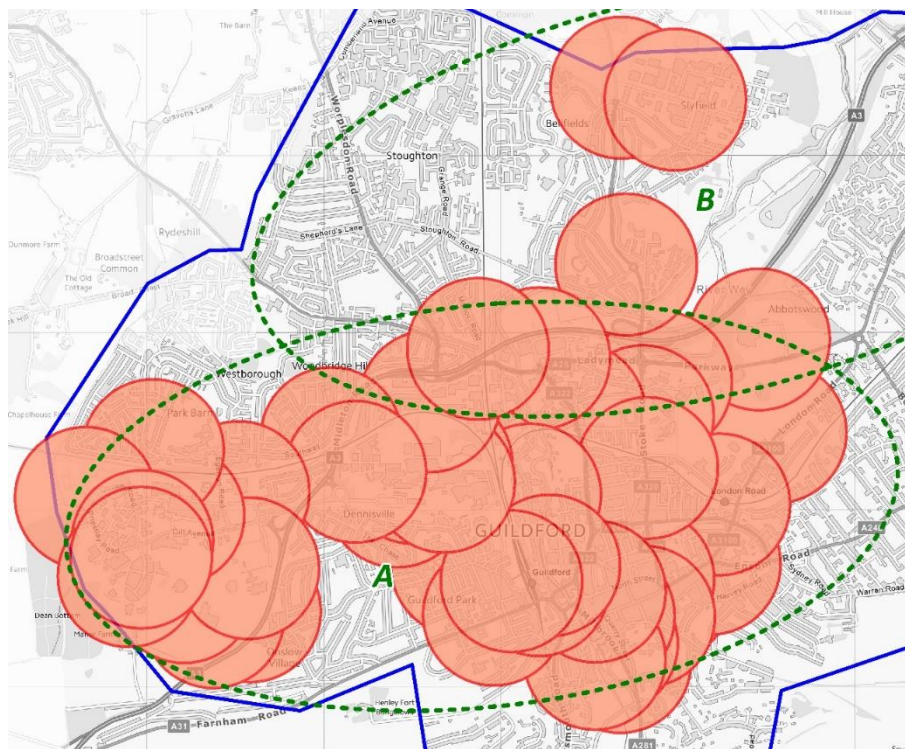
A2.20 Once a scheme has progressed through the procurement process a datasheet should be produced for each potential hub, with a plan and details on the number of docks and other issues, including permissions, electrification and any constraints. This will also allow complementary issues to be addressed (e.g. a hub on a one-way street might require a contraflow cycle lane to be provided).

A2.21 Any potential impact on third parties could also be discussed at this stage. An example is the concern expressed by the National Trust regarding additional maintenance that might be needed on the River Wey towpath if bike share leads to significant increased use.

A2.22 Plan 6 below shows the catchment areas for each suggested hub, based on a 400m buffer. This assumes a worst-case situation where a hub is empty and a user needs to walk to an adjacent hub to hire a cycle. Most of the Phase A area



is within 400m of a hub, apart from a section of the Guildford Park neighbourhood and the western part of Merrow. If the lack of hubs in these areas is felt to be an issue, this could be addressed with infill in Phase B.



Plan 6. 400m buffers around proposed hub locations

### **Park and Ride**

A2.23 At the outset it was suggested that consideration should be given to the inclusion of the four Park and Ride sites in Guildford as potential bike share hubs. Data from CoMo UK's 2017 bike share survey shows that 15% of bike share users combine their journeys with driving a private car trip (and a further 8% with a passenger trip in a car). There is therefore in principle some potential to combine bike share and Park and Ride.

A2.24 However, the theoretical potential should be considered alongside practical details of the siting and layout of Park and Ride sites. When these are examined, only two of the four sites (Onslow and Spectrum) would be likely to support bike share. Detailed comments on the Park and Ride sites are set out in Table 5 below.

<b>P &amp; R site</b>	<b>In Phase 2?</b>	<b>Comments</b>
<b>Artington</b>	No	Far from town centre along a busy main road (though the towpath is an alternative route). Low usage would therefore be expected.
<b>Merrow</b>	No	Far from town centre along a busy main road with very little cycle provision. Low usage would therefore be expected.
<b>Onslow</b>	Yes	Near University of Surrey campus at Manor Park and would therefore complement existing scheme.
<b>Spectrum</b>	Yes (at Leisure Complex)	Combined with parking for the Spectrum Leisure Complex and hence a single hub could serve both destinations.

*Table 5. Potential for bike share at Park & Ride sites*