

Pilot location: Purley Area, London Borough of Croydon (UK)

Location and Environmental Setting

The **Purley area** is located in the **London Borough of Croydon**, in the South of Greater London (see *Figure 1*).

Purley is a highly urbanised area stretching over 652 ha along a natural depression corresponding to the former pathway of the River Wandle. The River Wandle is entirely culverted in this area until it emerges at Wandle Park (in the north most boundary of the Purley area – *Figures 1 and 2*), from when it flows open until discharging in the River Thames.

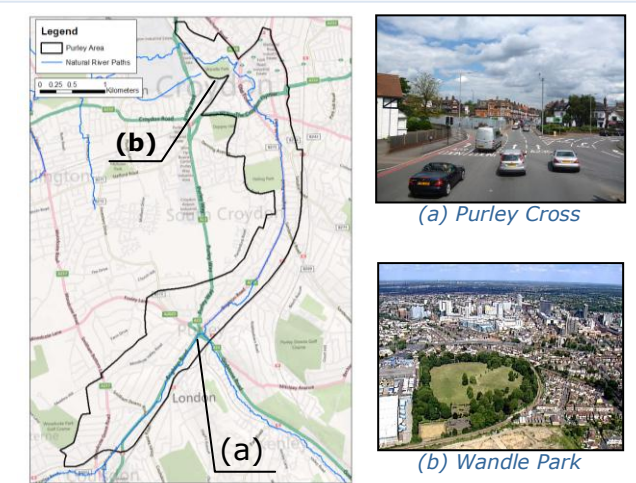


Figure 2: Map and photos of the Purley Area

During heavy rainfall, surface water flows towards this natural depression, resulting in significant flood depths. Two seasonal streams (the Couldson and Caterham Bournes), also flow towards this area during rainy periods (see *Figure 1*).

The Purley area has a population of approximately 28,000. In general, it is a **highly affluent area** and its economic activity is higher than in the rest of the Borough (which comprises a significant mix of affluence and deprivation).

Purley has a high density of commercial buildings. It provides the largest retail offer outside of central London and employment of over 16,000. In addition, it comprises a great amount of essential infrastructure. **As a result, flood damage potential in this area is very high.**

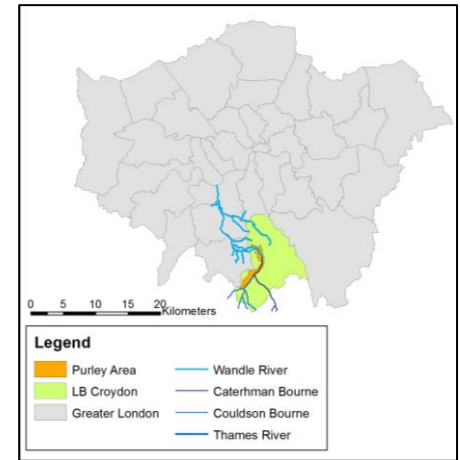


Figure 1: General location of the Purley Area (London Borough of London)

Urban pluvial flood risk problems and management objectives

Croydon was ranked as the fourth settlement in England most susceptible to surface water flooding, with over 21,000 properties at risk (Defra, 2009). Within Croydon, **Purley was identified as the area at greatest risk of surface flooding**, comprising the greatest number of receptors, essential infrastructure and commercial properties at risk.

Purley has a history of pluvial flooding, with photographic records dating back to 1961. The most notable flood event in the last decade was that of **20th July 2007, when 320 properties and 26 schools reported surface water flooding**. Over 8 flood events of smaller magnitude have been recorded between 2000 and 2012.

Table 1: Number of infrastructure/properties at risk of flooding in the Purley Area during a 1:100 years return period rainfall event (Croydon SWMP, 2011)

	Infrastructure (PPS25 Categories)			Households	Commercial Properties
	Essential	Highly Vulnerable	More Vulnerable		
Flood depth > 0.03 m	16	2	68	8,450	1,286
Flood depth > 0.50 m	1	0	10	618	95

Pluvial flooding mechanisms:

- Pluvial flooding is **driven chiefly by the local topography and relatively steep slopes** (see *Figure 7*) which channel water to the natural depression along Brighton Road (former pathway of River Wandle), where reported incidents of flooding are concentrated.
- Problem is exacerbated by **high degree of urbanisation** and presence of **London Clay**.

Potential urban pluvial flood risk mitigation options:

- Big interceptor along Brighton Road to increase capacity of sewer system
- Storage in parks along Brighton Road
- Sustainable urban drainage systems at property level
- Continue ongoing improvements to maintenance of drainage network
- Raising community awareness + property level flood protection. A pilot Community Flood Plan was launched in Purley Cross in March 2012. This plan has helped in raising awareness and empowering communities to increase their resilience to flood risk. The continuity of this plan must be ensured and similar plans could be implemented in other areas of the Borough.
- Improved event management, supported by improved forecasting and warning



Figure 3: July 2007 – Purley Cross



Figure 4: Community Flood Plan of Purley Oaks - produced with the support of the Greater London Aut.