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## FROM GREENBELT TO INFRABELT—LONDON'S GREEN BELT AS MODEL FOR A SUSTAINABLE LANDSCAPE?

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In light of the current ecological and economic crisis, and the call for a more sustainable urban development, spatial containment strategies are at the forefront of urban discourse all over the world. London's Green Belt (LGB) is the oldest and largest spatial representation of a containment strategy in modern times. It is therefore an important case when it comes to discussing whether containment and spatial constraints imposed by planning can contribute to a more sustainable urban development.

Throughout the respective literature, the LGB has been discussed as so successful in preventing the dispersion of the urban agglomeration—that its conception has been emulated in towns and cities worldwide. Almost every aspect of the LGB has been analyzed and discussed: the history and authorship of ideas (Thomas 1963), the importance of the green belt for strengthening the discipline of urban planning (Hall 1988 2003), the change of land prices in London (Munton 1983), social aspects, such as increased commuting times (Hall 1973), and more recently, the influence of the LGB as an example for strategic urban planning for communities worldwide (Freestone 2002). However, a portrait of



**FIGURE 1** London Green Belt outside Welwyn Garden City

the LGB as a landscape is lacking in the current scholarship. The claim that the Green Belt promotes a sustainable, or environmentally friendly development is therefore scientifically unsubstantiated. A study mapping and analyzing the use of land in the LGB adds to the general understanding of the LGB, and contributes to the discourse on whether such strategies do indeed promote a more sustainable development in urban areas [FIGURE 1].

#### **THE USE OF LAND IN LONDON'S GREEN BELT TODAY**

I constructed a map in order to analyze the LGB. The base map was composed of satellite images from Google Earth, cross-referenced with the vector-based, single-layered, official map provided by the London Green Belt Council and the British Government (2009). That map of the LGB is widely published in official documents, and also referred to in print media (Burdett and Sudjic 2008). It suggests a continuous green carpet around London.

In contrast, my map of the LBG distinguishes the following basic layers: settlements, industry, forests, fields, water, infrastructural networks (including highways, railways, waterways, airport), and large-scale sport venues. "Green" surfaces comprise only three of the eleven layers of the map [FIGURE 2]. Today, the LGB has an estimated area of approx. 4,856 square kilometers. (Humpert 2010) In comparison, the Greater London area is 1,579 square kilometers. (Humpert 2002) That means that the LGB is roughly three times larger than the city it contains. In the LGB, large patches of settlements cover an area of roughly 1,517 square kilometers, almost the size Greater London itself (1,579 square kilometers). These large patches are "holes" that are exempted from the legal regulations that govern the use of land in the green belt, which for example prevent the construction of housing. Some of them

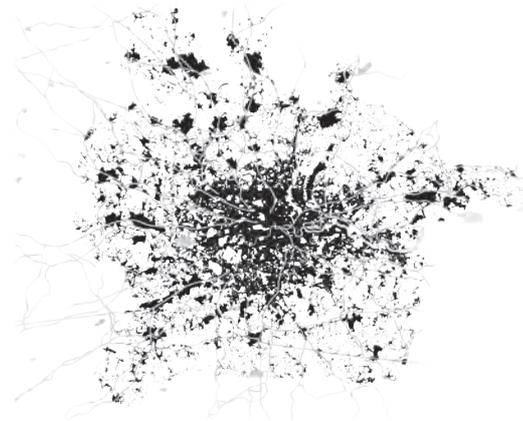
are New Towns or other settlements, like Harlow, Hemel Hempstead, or Ascot. Together there are 773 of these large holes in the Green Belt. There are also other sealed areas, small patches that sprinkle the belt more or less continuously. Together, there are more than 7,000 of these smaller patches, occupying an area of 432 square kilometers, roughly a quarter of the size of Greater London. There are also areas that are used by large-scale industries, near harbors or airports. Together, these industrial areas cover 101 square kilometers. There are nineteen airports located in and around the Green Belt, serving both civil and some military purposes. Together, these airports occupy roughly thirty-seven square kilometers. Large sports venues, like horse racing tracks, are also located inside the Green Belt. They cover roughly 2.3 square kilometers of land. All together, these built up areas are one third larger than the land covered by Greater London itself. All these dominantly sealed areas sum up to roughly forty-three percent of the area of the LGB. The LGB is thus not a continuous open space at all [FIGURE 3]. So what of its "green" space? 798 square kilometers of the LGB is forests (15.7%). This is not one continuous forest, but roughly 5,400 patches of forest. One hundred square kilometers of the LGB is covered by water (2%). One hundred forty-eight square kilometers is golf courses (2.9%). The remaining 1,720 square kilometers of the Green Belt (35%) is used as agricultural land, including fields, grazing land, and meadows. Together, this sums up to 2,766 square kilometers of open land. That equals 57% of the LGB. With 43% of sealed land and 57% green. The LGB is thus just a little bit more "green" than built over.

#### **INFRA-BELT**

The LGB was originally conceived as a lush, green, nourishing, and healthy compliment to the unhealthy and



**FIGURE 2** Revised map of the London Green Belt



**FIGURE 3** Built up land and infrastructures in the London Green Belt

expanding industrial metropolis of the eighteenth and nineteenth century. Yet, as the study shows, the LGB itself has transformed into *the* infrastructural space catering many of the needs of the global city London in the twentieth and twenty-first century. In fact, today, the LGB serves as the very physical infrastructure of London, containing: mega-highways, the high speed train corridor, and at the same time, combined one of and the world's largest airport terminals. The cross-border flows of capital, labor, goods, raw materials and tourists eminently inscribed in the global economy in which London has been successful in preserving its economic dominance—arrive or terminate in the LGB of today. Juxtaposing the different functional layers of the map with noise maps, it also becomes clear how the large infrastructures affect the landscape: especially close to the two newer airports Luton and Stansted, the most traffic-burdened spaces are located just outside the LGB borders beyond which growth is severely restricted. It must thus be stated that the severe restriction to the expansion of London imposed by the LGB has actually facilitated the location and steady extension of four large airports that finally cater to the city! The LGB is one of the most frequently flown over tracts of land on earth. My study also shows the impact of the M25 motorway—the most traffic-burdened road in the whole country. Noise levels here are calculated on the base of traffic flow and lie well above the unhealthy level of the 60dB, which can cause severe stress symptoms (Defra 2008).

Compared to the official map of the Green Belt, my revised version deducts all areas under much excessive noise impact and which are not green. This revised map “LGB Revised” reveals a drastically different image of the LGB: the landscape is not continuously green, but fragmented into many small patches of built up land and criss-crossed by noise pollution, which prevents the enjoyment of this land for leisure [FIGURE 4].

This study reveals how the LGB, as the dominant urban structure around London, has actually been developed. Instead of preventing the spread of urban London beyond its borders, the LGB has supported the outsourcing of vital infrastructures away from the city center, making space for intense inner urban densification.

As one consequence, the transition from city to country is not very pronounced at the LGB's fringe. A section through the agglomeration would show a densifying center with a gradually decreasing building density towards the edge, followed by a corridor of rather large infrastructural, recreational, industrial, and retail uses that are interspersed by open land.

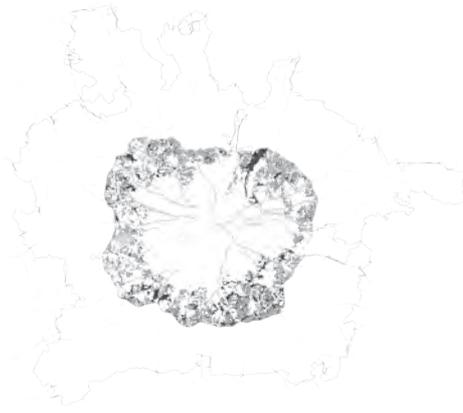
The dominant border shaping the form of development is not the city limit toward the Green Belt but rather the M25 motorway. Since the statutory border to development (LGB) is different from the layout of the main infrastructure (M25, radial roads, and airports)—they are not congruent. A certain form of urbanization fills the gap in between. How can this be described: even though the area is not continuously built up, and not dominated by housing, it is most certainly not rural, nor dominantly “green.” Yet, the ring cannot be defined as sprawl, since housing is largely absent. Rather than “Green Belt,” a new vocabulary is required to describe the particular qualities and potentials of this area. I propose: London Infra-Belt. The landscape of this London Infra-Belt connects the local and the global sphere. Here, the world leaves its footprint on the London territory [FIGURE 5].

## CONCLUSION

The main motivation to create a Green Belt around London in 1958 was to prevent the spread of the city into its surroundings, to retain some “natural” or rural landscape close to the city, and later to counteract the negative effects of



**FIGURE 4** Noise impact on the London Green Belt through all traffic



**FIGURE 5** From London Green Belt to London Infra-belt

sprawl. Today, the interdependence between London and its surrounding is very strongly depicted in the use of land through physical networks.

The previous research has shown that the LGB has not prevented the spread of London, but only the spread of London's housing. Housing is only one function in a city or in an urban agglomeration—even though it may be the most generic and dominant one. The implementation of the LGB excluding housing from this space has thus fostered a functional division of uses in the agglomeration, triggering the need for certain forms of traffic that would otherwise not exist. On the other hand, it must be stated that the global city of London, with its role in global markets and global streams of communication, is highly dependent on specific infrastructures facilitating that status (Sassen 2001). Airports are some of the most essential of these infrastructures, since they mirror the relations of the global city to the rest of the world, and its connections in physical space. (Wichmann Matthiesen 2004) It is ultimately the existence of the LGB as an open landscape that has facilitated the location and extension of the airports around London. It is the very absence of housing as a base layer of the urban landscape that has eased the operation of these airports. These ambiguities lead to question whether the LGB indeed supports “sustainable development,” as it has often been claimed, or whether it is just a strategic tool to foster another kind of urban development or inner-urban densification. With the widest possible exclusion of housing from the LGB and its concentration into clearly defined islands within the Green Belt a clear economic dependence between the metropolis and its surroundings is revealed. Also with regard to the location of infrastructures outside its own borders, this dominance of the city over the countryside is inscribed. Nonetheless, there is potential that both spheres—the urban and global versus the rural—could form more meaningful

hybrids. The urban fringe represents the transition between the urban area, and the formerly dominantly rural area, and as such provides the potential to become a location for many activities that link the two even stronger than through recreation and the provision of space for infrastructure. This landscape still offers open space for new uses or programs that could add to the sustainable development of London.

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