Islington Borough Council

Tree Planting Strategy

Treeco₂nomics

ISLINGTON

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Contents

1. Executive Summary

In this report areas for tree planting within Islington have been assessed using a Multi Criteria Decision Analysis (MCDA) with Geographic Information System software (GIS) to determine the best possible available locations to potentially plant trees. The locations have been ranked between 8 and 3 (level 8 being the best places to plant) based upon:

1. Areas of low tree canopy cover

2. Areas of high social deprivation

3. Areas within 40m of a road for increased pollution removal by trees

Additionally, GIS map layers have been used to ensure no planting areas are located under the canopy of any existing trees or on existing hardstanding.

The Borough of Islington's key points are:

- Overall the borough has 18.4% of Potential Plantable space which equates to 2.7 km^2

- Actual planting space (located on public (council land) is 5.7% (0.84km^2)

- Tollington ward has the highest potential area for planting at 24.3% (0.21km^2)

- Bunhill ward has the lowest potential area for planting at 9.0% (0.098km^2)

- If all actual planting space became tree covered - Islington's canopy cover would increase from 25% to 31% . If all potential plantable space were planted then this figure would be significantly higher at 43%. Furthermore, the canopy cover percentage could be higher than this as tree canopies extend over hard surfaces, therefore providing a larger coverage than the actual planting space.

The current Greater London canopy cover target for 2050 is 30%[1].

Potential Plantable Space (PPS): This is the remaining space calculated from the 'all natural areas' OS layer within Islington after removing any man made surfaces and existing canopy cover.
Actual Plantable Space (APS): This is the remaining space calculated from the 'all natural areas' OS layer within Islington after removing any man made surfaces, multi surface (allocated mainly to private gardens) and existing canopy cover.
Canopy Cover: This is the area of leaves, branches and stems of trees covering the ground when viewed from above.

Greater London Authority (2018)

1. Brief

1.1 Background

As populations within towns, cities and urban areas increase, there is a depreciation in the availability of green spaces as more areas are developed with grey infrastructure. Tree cover within urban areas provides a variety of ecosystem services and also benefits to human health and wellbeing. These benefits provide very real economic benefit and financial savings.

Islington is committed to providing new tree plantings within the borough and in order to make best use of its tree planting budget has commissioned this study. Using a GIS based Multi-Criteria Decision Analysis (MCDA) it has been possible to highlight and identify areas where attention should be focused for new planting proposals.

MCDA is a concept whereby multiple criteria is evaluated as part of a decision making process. In the urban forest environment, key geographical characteristics of an area are categorised to provide a hotspot rating of preferential potential planting areas using a systematic process.

Treeconomics has conducted several studies on behalf of Islington Borough Council, these include:

• iTree Eco Inventory Report of Public Trees

• Tree Canopy Cover Assessment

• ORVal Report (Outdoor Recreational Valuation Tool)

• Policy Review (Trees)

A new proposal has been made to identify locations where trees can potentially be planted. The use of MCDA within the decision making process enables locations to be identified where trees can potentially be the highest benefit to the local area.

3. Tree Planting Hotspots

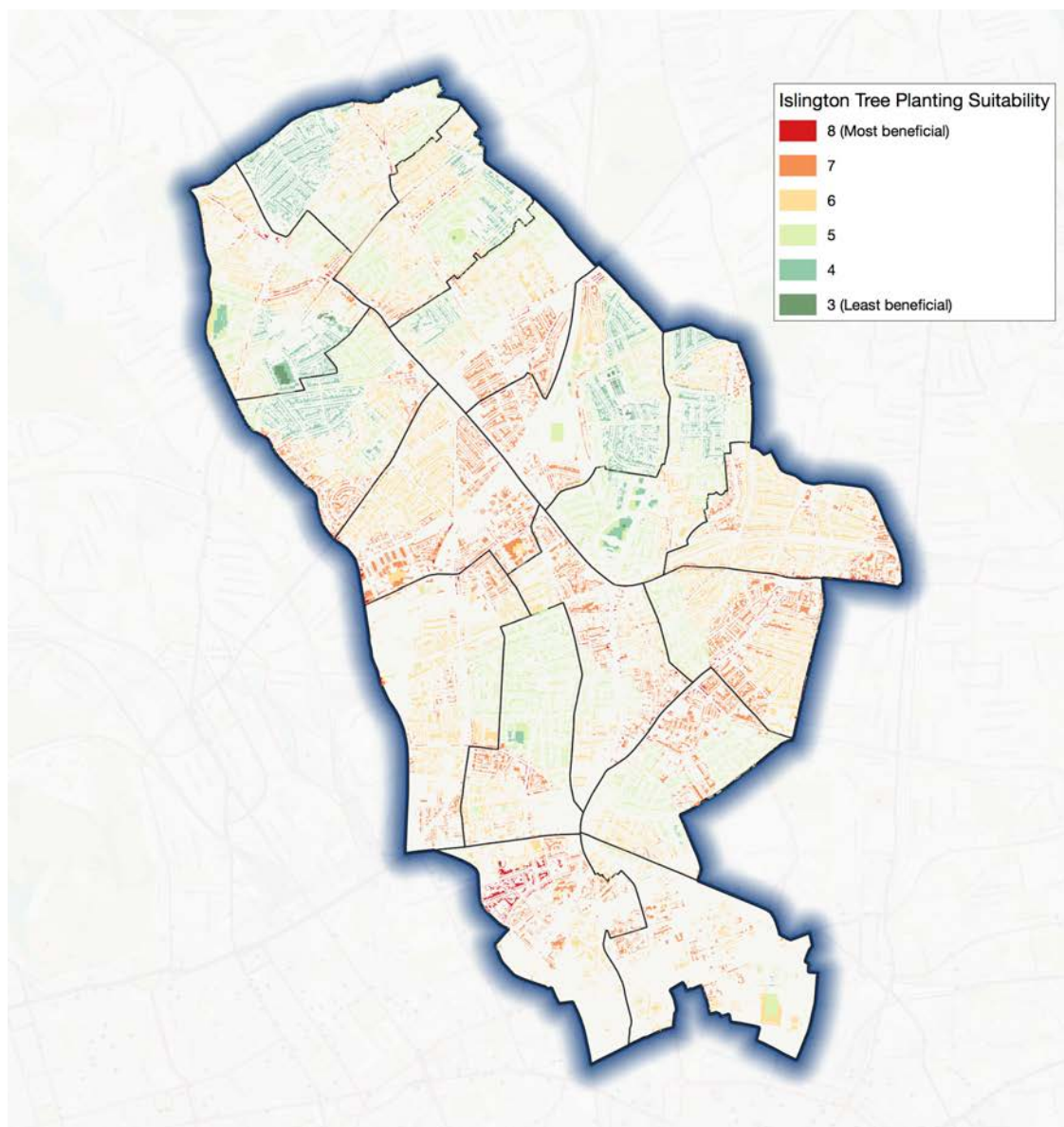## 3.1.1 Islington Potential Tree Planting Hotspots

Figure 1: Potential Tree Planting Hotspots within Islington

Figure 1 above shows the potential tree planting space within Islington (actual tree planting follows). This incorporates all the natural areas within Islington, both public and private, removing any OS designated hard spaces, buildings, transport infrastructure and water. The percentage calculated within Islington as potential tree planting space is 18.4%.
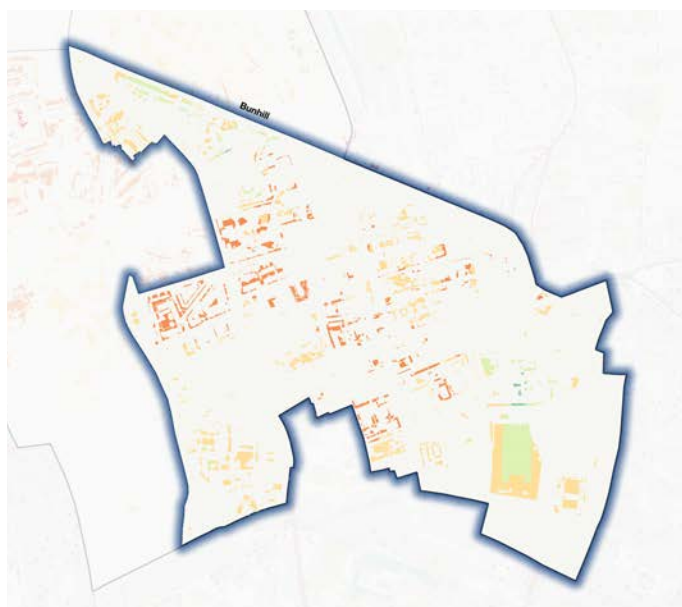
3.1.2 Potential Tree Planting Hotspots by Ward (Individual Maps)

In terms of priority planting areas (Level 7 & 8), 14.8% of the potential plantable space available within Barnsbury Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 2 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 45%.

Figure 2: Barnsbury Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 24.8% of the potential plantable space available within Bunhill Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 3 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 23%.

Figure 3: Bunhill Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 24.3% of the potential plantable space available within Caledonian Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 4 opposite.

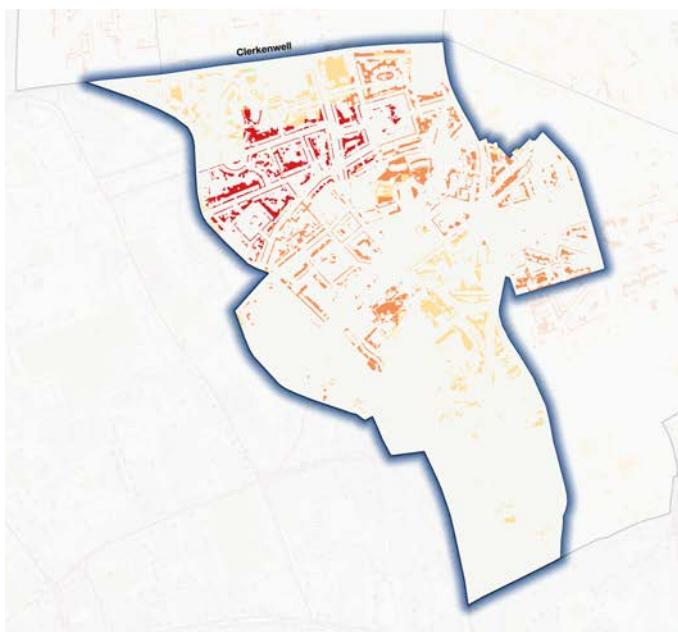If all potential planting space was planted it could increase canopy cover in this ward to 31%.

Figure 4: Caledonian Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 39.4% of the potential plantable space available within Canonbury Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 4 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 59%.

Figure 4: Canonbury Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 63.3% of the potential plantable space available within Clerkenwell Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 5 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 29%.
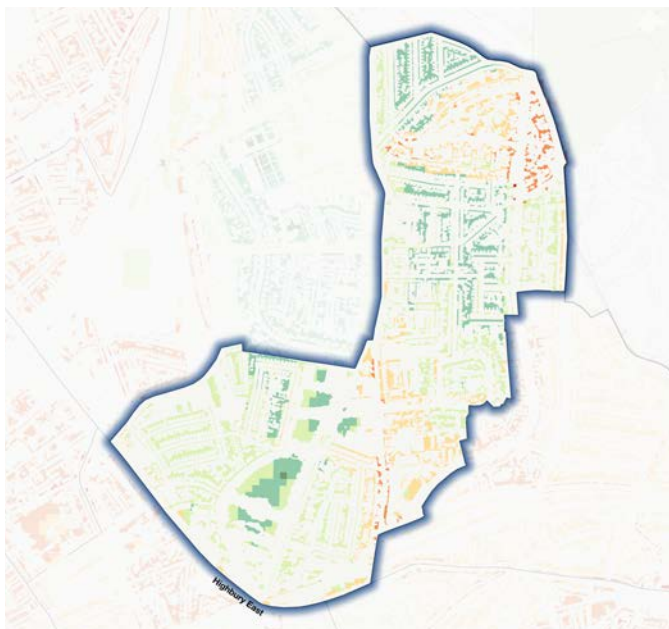
Figure 5: Clerkenwell Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 36.4% of the potential plantable space available within Finsbury Park Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 6 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 35%.

Figure 6: Finsbury Park Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 3.8% of the potential plantable space available within Highbury East Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 7 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 40%.

Figure 7: Highbury East Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 22.6% of the potential plantable space available within Highbury West Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 8 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 40%.

Figure 8: Highbury West Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 2.6% of the potential plantable space available within Hillrise Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 9 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 57%.

Figure 9: Hillrise Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 53.4% of the potential plantable space available within Holloway Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 10 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 43%.

Figure 10: Holloway Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 10.3% of the potential plantable space available within Junction Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 11 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 45%.

Figure 11: Junction Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 28.6% of the potential plantable space available within Mildmay Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 12 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 56%.

Figure 12: Mildmay Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 20.8% of the potential plantable space available within St George's Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 13 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 53%.
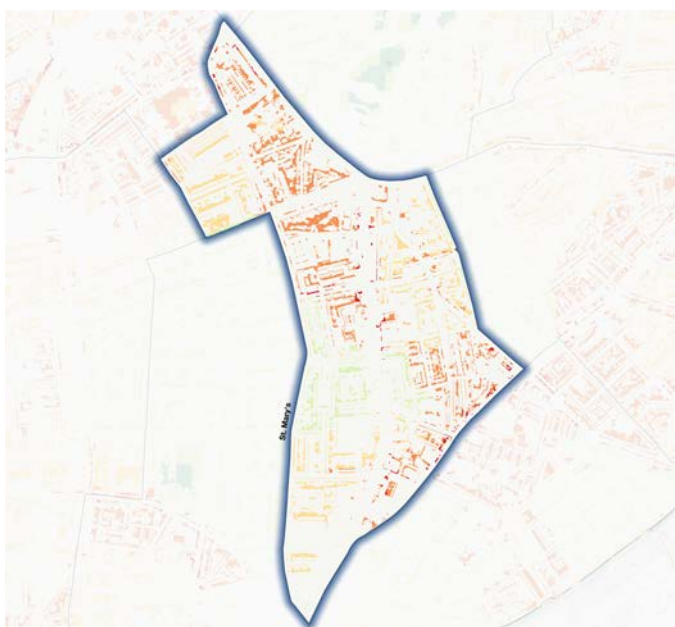
Figure 13: St George's Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 48.5% of the potential plantable space available within St Mary's Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 14 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 39%.

Figure 14: St Mary's Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 39.8% of the potential plantable space available within St Peter's Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 15 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 37%.

Figure 15: St Peter's Ward Potential Plantable Space

In terms of priority planting areas (Level 7 & 8), 6.4% of the potential plantable space available within Tollington Ward is designated as priority planting areas. This is shown by the red and orange areas in figure 16 opposite.

If all potential planting space was planted it could increase canopy cover in this ward to 49%.

Figure 16: Tollington Ward Potential Plantable Space

Rating	3	4	5	6	7	8
Category	Low Planting Priority		Medium Planting Priority		High Planting Priority	
Barnsbury	3.6%		82.1%		14.3%	
Bunhill	0.7%		74.5%		24.8%	
Caledonian	0.0%		75.7%		24.3%	
Canonbury	0.0%		60.6%		39.4%	
Clerkenwell	0.0%		36.7%		63.3%	
Finsbury Park	7.3%		56.3%		36.4%	
Highbury East	28.8%		67.5%		3.8%	
Highbury West	33.5%		43.8%		22.6%	
Hillrise	42.4%		55.0%		2.6%	
Holloway	0.0%		46.6%		53.4%	
Junction	28.2%		61.6%		10.3%	
Mildmay	0.0%		71.4%		28.6%	
St Georges	27.4%		51.8%		20.8%	
St Marys	0.0%		51.5%		48.5%	
St Peters	0.7%		59.5%		39.8%	
Tollington	13.2%		80.4%		6.4%	

Table 1: Percentage of Priority Planting Areas by Ward

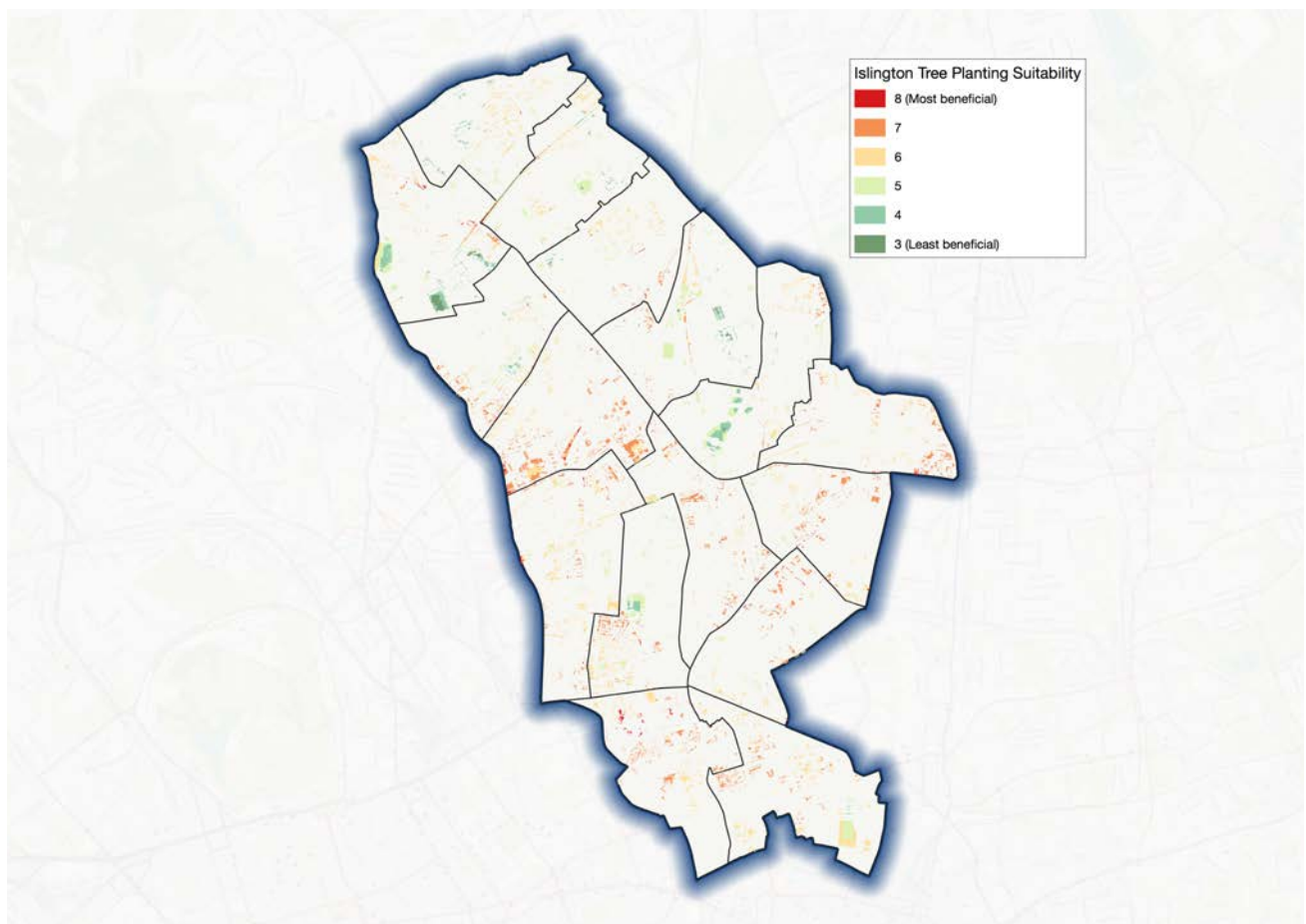## 3.1.3 Islington Actual Tree Planting Hotspots

Figure 17: Actual Tree Planting Hotspots within Islington

Within Islington's 'all natural areas' OS layer, a sub category of 'multi surface' is applied to private land around housing and other properties. The ground cover of these areas are subject to continual change at the discretion of the owner. When the 'multi surface' layer was removed from the dataset, the area remaining was all the natural green space within Islington. This was applied to the potential tree planting hotspot map and re-designated as 'Actual Tree Planting Hotspots'. The percentage of potential area calculated within Islington as 'Actual Tree Planting space is 5.7%.

29.3% of the available planting space within the 'Actual Tree Planting Space Hotspots' map is designated as priority planting areas, these are the red and oranges areas in figure 17 above.

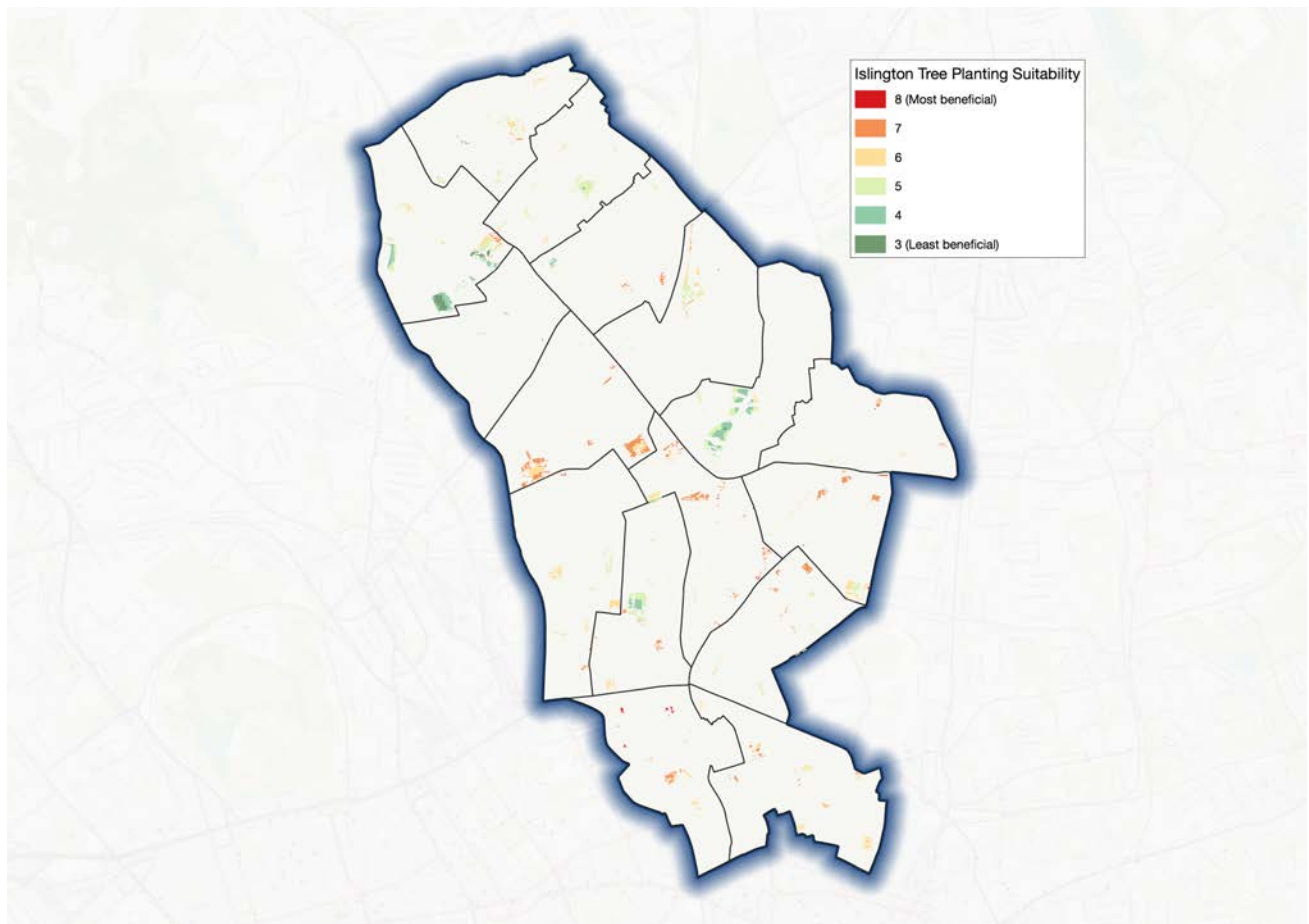## 3.1.4 Islington Council Owned Tree Planting Hotspots

Figure 18: Council Owned Tree Planting Hotspots within Islington

Within Islington's OS layer, a sub category 'parks and open spaces' is applied as areas of natural land owned by Islington Borough Council. The total area is 5.6% of the total area of Islington. 38.6% of the parks and open spaces layer is potentially available for planting. In terms of priority planting areas (Levels 7 & 8), 24.2% of the available planting space within parks and open spaces is designated as priority planting areas, these are the red and oranges areas in figure 18 above.

4. Conclusions

The London Borough of Islington has an estimated potential tree planting space (PPS) of 18.4%, which equates to an area of 2.7km2. Although this is a large area for potential planting, it does incorporate privately owned gardens which have a multitude of ground covers. 28% of this area is designated as priority planting areas, these areas would have the highest impact within the borough if trees were to be planted in these locations.

At individual ward level the area with the highest priority potential tree planting space is Clerkenwell (with an area of 63.3%). However, Clerkenwell only has a PPS of 11% so finding locations where trees can be planted will be challenging.

Holloway ward has 21% potential tree planting space with 53.4% of that classified as priority planting areas. This is the 6th largest potential tree planting space percentage and the 2nd highest priority planting percentage in Islington.

Due to the unknown nature of the ground cover within private gardens in Islington, a separate calculation was produced after removing these areas, this was reclassified as actual potential plantable space (APS). The estimated actual potential tree planting space within Islington is calculated to be 5.6% or 0.85km2. 29.3% of this area is designated as priority planting areas.

Islington Borough Council has ownership of several parks and open spaces. The estimated potential tree planting space for council owned areas is 38.6% or 0.32km2. These areas are likely to be the easiest to potentially plant trees as the council would not require permission from private land owners but it is the discretion of the tree officers to decide whether the sites located by this study were suitable at ground level.

5. Recommendations

The following recommendations have been formulated to assist Islington Borough Council to make tree planting decisions on the basis of the best available information and to ensure that resources are focused to maximise the benefits trees can provide, and that they can be targeted to areas where they are most needed.

5.1 Ground Proof Check

The hotspots produced in this report have been generated using computer data. The suitability of these potential tree planting areas are subject to a ground check to decide whether the location has any restrictions or services which would prevent any tree planting. The large number of hotspots available gives the council a good chance of locating suitable planting areas within the borough.

5.2 Community Engagement

Engaging the community once tree planting sites have been identified is beneficial in many ways. Residents, local businesses and utility companies etc are more likely to cooperate with the planting of the trees in their borough, will be more likely to nurture the new trees. Enlisting the help of local schools can increase the involvement of local residents and the benefits of trees can be highlighted to future generations as well as possibly being used as part of a social integration scheme.

5.3 Produce a Plan for Species Diversity

Increasing temperatures and pest and disease threats are a major risk to the trees within Islington. When selecting species to be planted in the urban landscape it is important to diversify from the current tree stock in order to implement sustainable management of the urban forest. Adapting to climate change, soil conditions and species tolerant to urban environments are just three factors to consider as part of tree species selection criteria and it is important to identify potential local future issues such as canopy size and tree height when planting in certain areas. The importance for urban tree diversity cannot be undervalued as recent outbreaks of Ash dieback and future diseases such as Xylella could have a damaging impact on our urban trees.

5.4 Continual Management of Tree Stock

Planting new trees is just the start of the process when managing an urban forest. Creating a plan for continual management as the tree grows will ensure the trees have the potential to achieve their maximum performance in terms of ecosystem services and a longer lifespan. Using contractors who are up to date in pruning techniques and understand the physiology of trees at each phase of their lifecycle will ensure that best practice is used when management decisions are made.

Appendix I - Methodology

GIS (Geographical Information System) project boundaries of Islington, and the individual wards were accessed using the London Datastore. Additional OS background mapping data was obtained from Islington Borough Council*. Tree canopy cover within the London borough of Islington was assessed using the Blue Sky National Tree Map** from the Islington canopy cover survey. Health and socio-economic data has been obtained from the Office of National Statistics (ONS) and Public Health England (PHE) official published data.

These datasets were combined using GIS software to provide the potential tree planting hotspot maps used in this report.

Suitable areas for planting were identified by using the council OS mapping data and then adding different criteria in order to score the areas which would have a greater benefit for the local area by planting . This was then compared with the different types of area within the borough to assess realistic percentages for possible tree planting.

The three main layers used for scoring were air pollution concentration, indices of multiple deprivation (IMD) and risk of flooding (figures 19, 20 & 21 below). They were combined with road proximity data to create a hotspot map of potential tree planting locations.

* The categories used to calculate the ground cover may have changed since the OS maps were generated and this should be considered when using the figures within this report.
** Bluesky National Tree Map (2015) Aerial photography of tree and shrub crown polygons over 3m in height with a 90-95% accuracy.
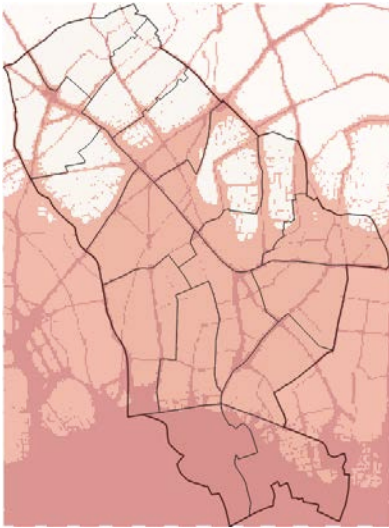
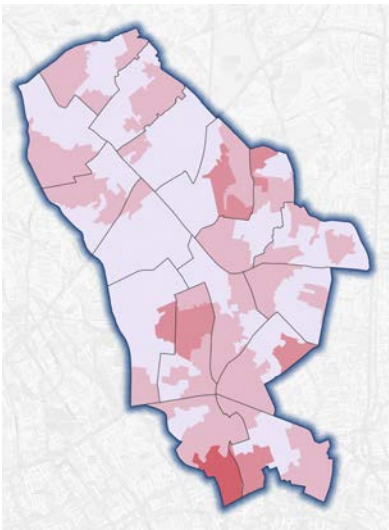**Figure 19: Air Pollution Data Map (NO2 + PM 2.5)**

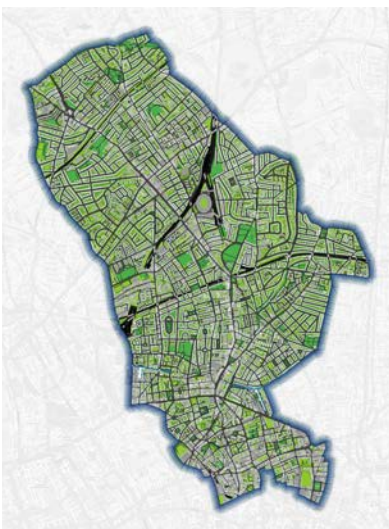**Figure 20: Index of Multiple Deprivation Map (High, Medium, Low)**

Figure 21: Flooding Risk Map

Bibliography

Islington OS Mastermap, Supplied by Islington Borough Council. [Accessed 5th September 2019 under contractor License.]

English Indices of Deprivation (2015) https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015 [Accessed 1st July 2019]

Environment Agency Flood Risk Areas 2017, https://data.gov.uk/dataset/7792054a-068d-471b-8969-f53a22b0c9b2/indicative-flood-risk-areas-shapefiles [Accessed 1st July 2019]

London Atmospheric Emissions Inventory, https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2016 [Accessed 1st July 2019]

Bluesky Canopy Cover Map [Accessed 1st July 2019]

Greater London Authority (GLA) (2018), https://www.london.gov.uk/what-we-do/environment/parks-green-spaces-and-biodiversity/trees-and-woodlands/tree-canopy-cover-map