

UK URBAN NATURAL CAPITAL ACCOUNT MANCHESTER



Phil Cryle
VNN Conference
19th October 2017



**Centre for
Ecology & Hydrology**
NATURAL ENVIRONMENT RESEARCH COUNCIL

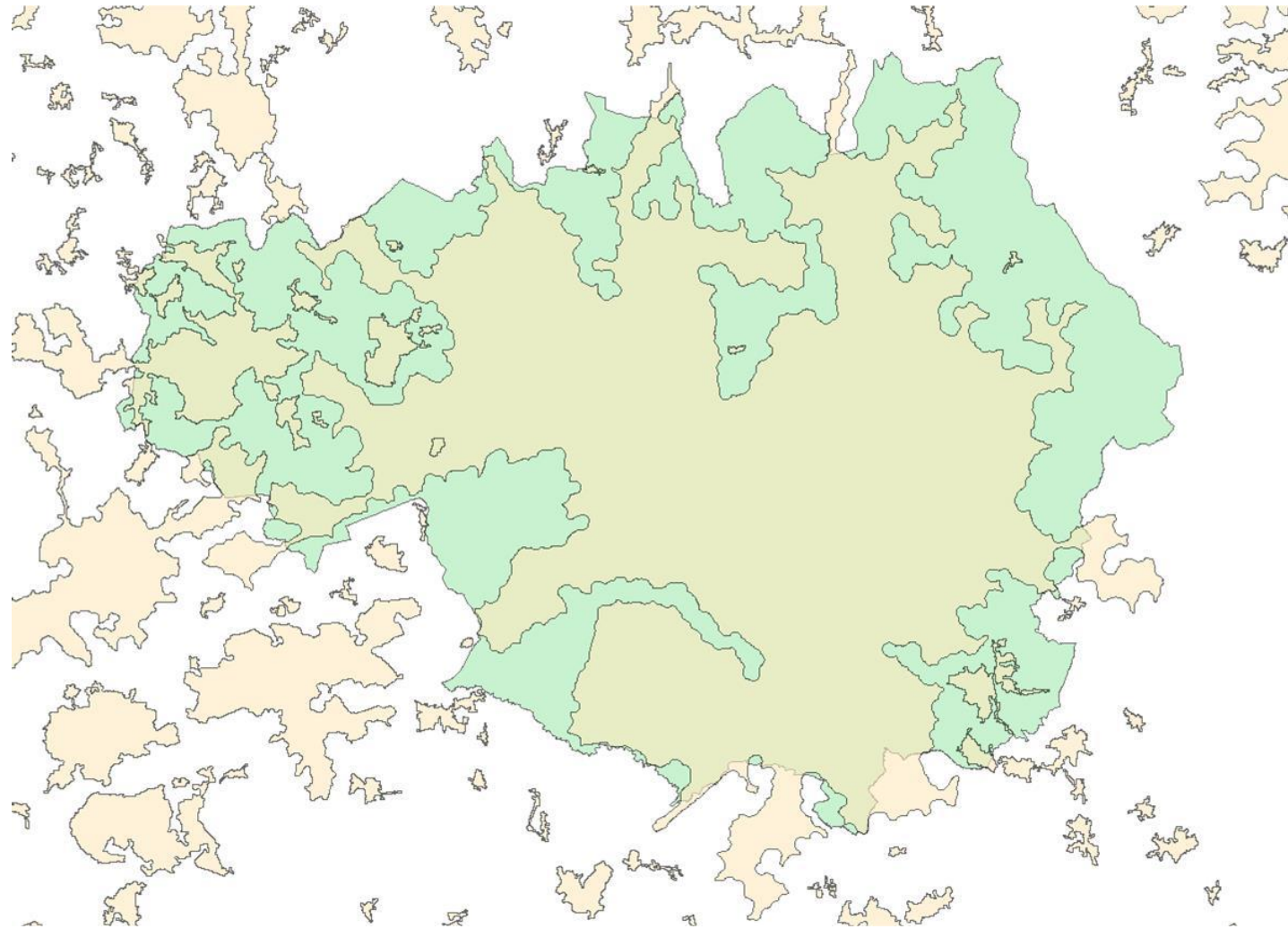
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Environment Consultancy

OUTLINE

Aim: To show how national methods can be applied at the local scale

1. Scope
2. Approach (noise regulation)
3. Results

MANCHESTER URBAN NCA: SCOPE



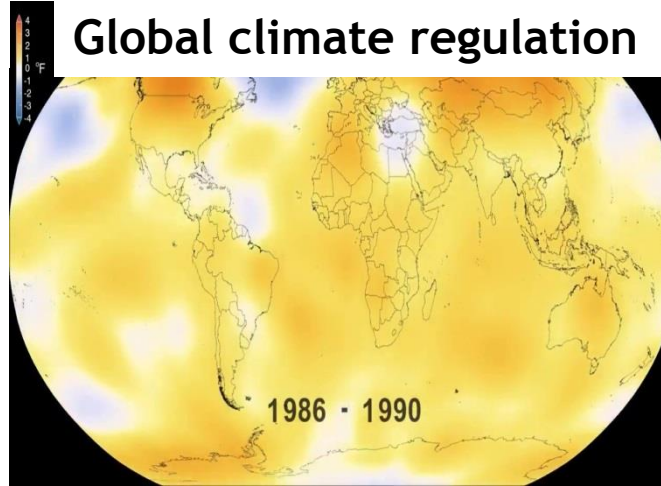
- Urban extent polygons
- Boundary of GMCA

MANCHESTER URBAN NCA: SCOPE

Noise regulation



Global climate regulation



Physical health from outdoor recreation

Local climate regulation



Food



Air quality regulation



MANCHESTER URBAN NCA: APPROACH

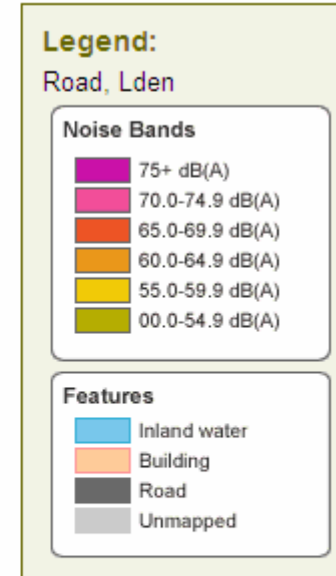
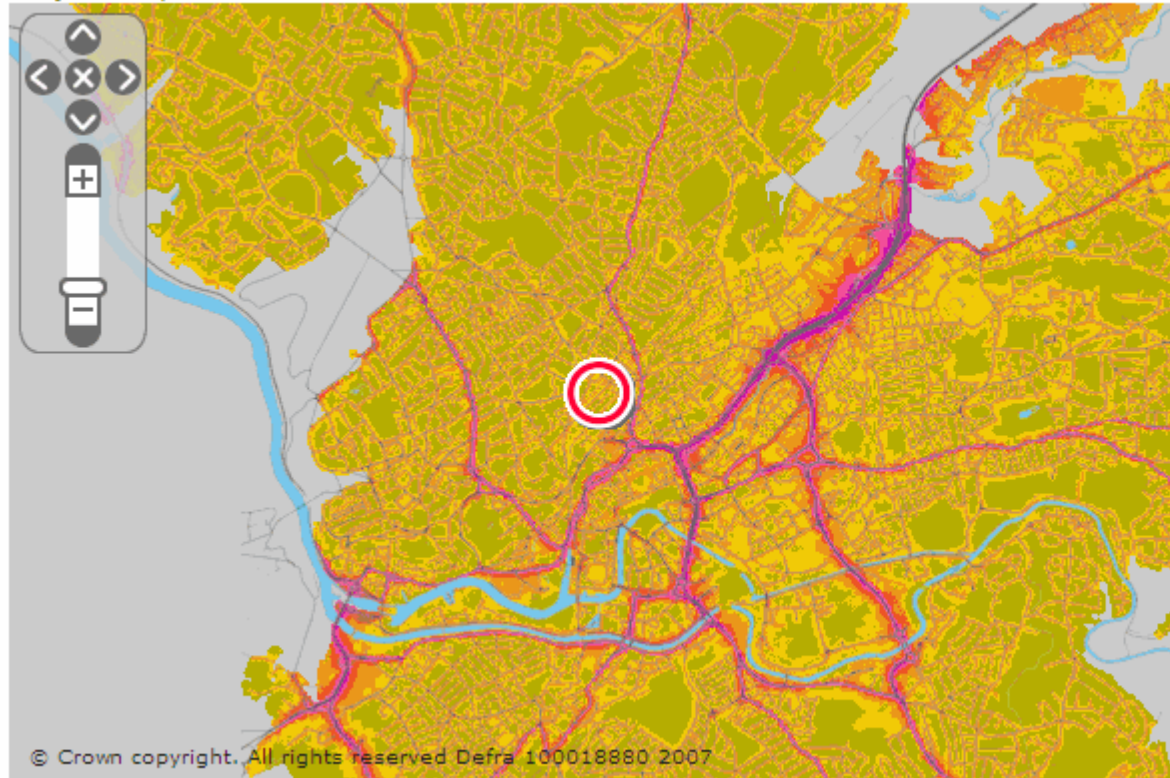
- i) Identify patches of tree cover greater than a threshold area of 200 m² (using Bluesky National Tree Map) on the assumption that these provide a 2dB noise mitigation service



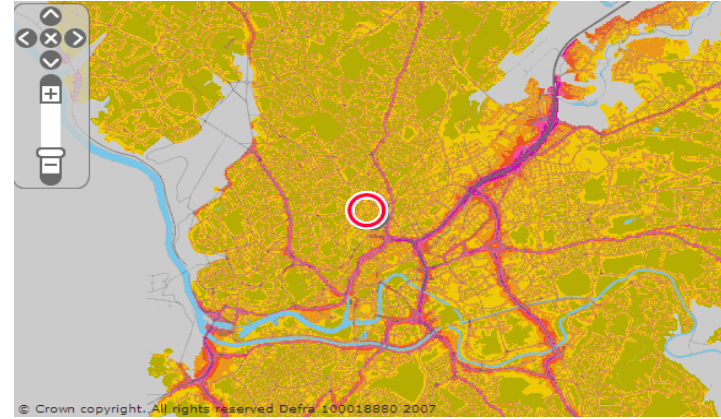
MANCHESTER URBAN NCA: APPROACH

- i) Identify patches of tree cover greater than a threshold area of 200 m² (using Bluesky National Tree Map) on the assumption that these provide a 2dB noise mitigation service
- ii) Calculate the urban areas potentially affected by those trees using spatial noise maps for road noise (Defra, 2014)

Map: BS1, Bristol

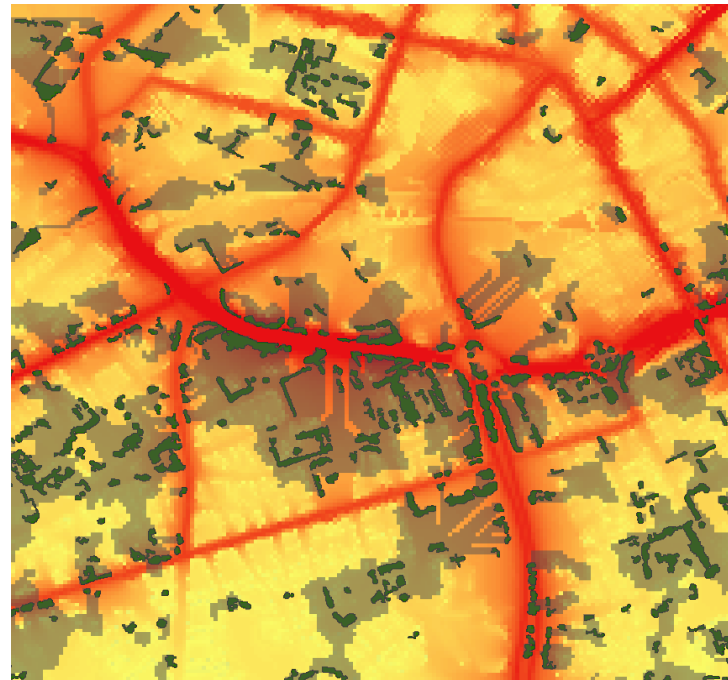


MANCHESTER URBAN NCA: APPROACH



Heat map shows:

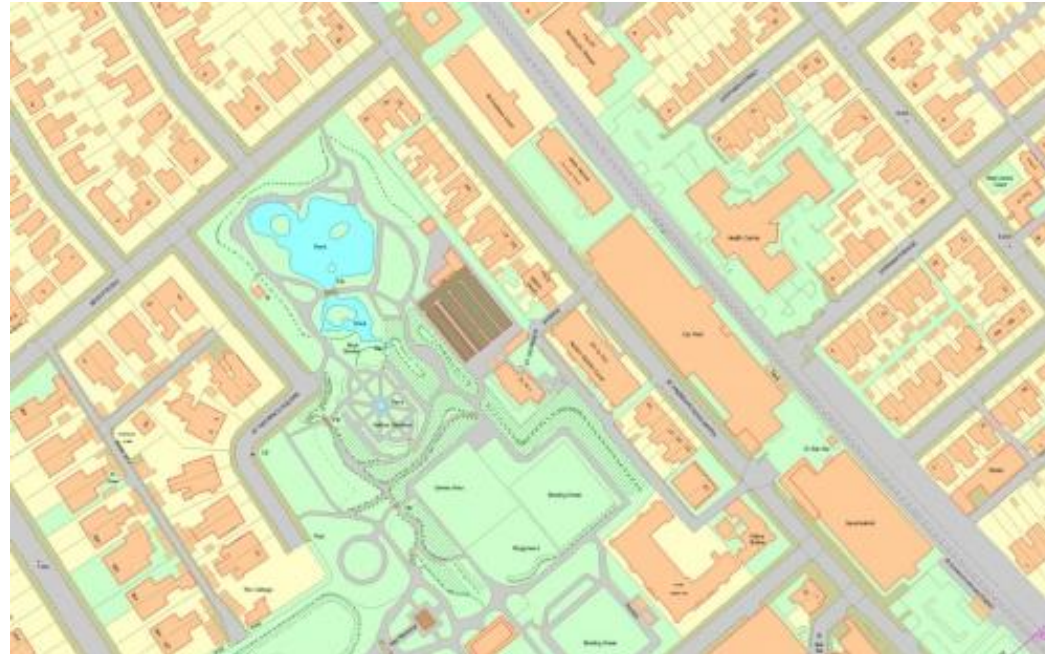
- Road noise (yellow - low; red - high)
- Trees greater than 200 m² canopy (green)



- Areas where noise level is reduced due to tree presence (grey)

MANCHESTER URBAN NCA: APPROACH

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- ii) Calculate the urban areas potentially affected by those trees using spatial noise maps for road noise
- iii) Identify the location of beneficiaries in those zones using buildings from OS Mastermap



MANCHESTER URBAN NCA: RESULTS

Natural capital benefit	Indicator	Amount (2016/2017)	Units
Noise regulation	Noise band (dBA):		Number of buildings mitigated by 2dBA
	>=80	-	
	75.0-79.9	1,000	
	70.0-74.9	11,000	
	65.0-69.9	45,000	
	60.0-64.9	107,000	
	55.0-59.9	264,000	
	50.0-54.9	-	
	45.0-49.9	-	
Total		428,000	

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Global climate regulation	Carbon (equivalent) sequestered	25,000	Tonnes of CO ₂ e per year

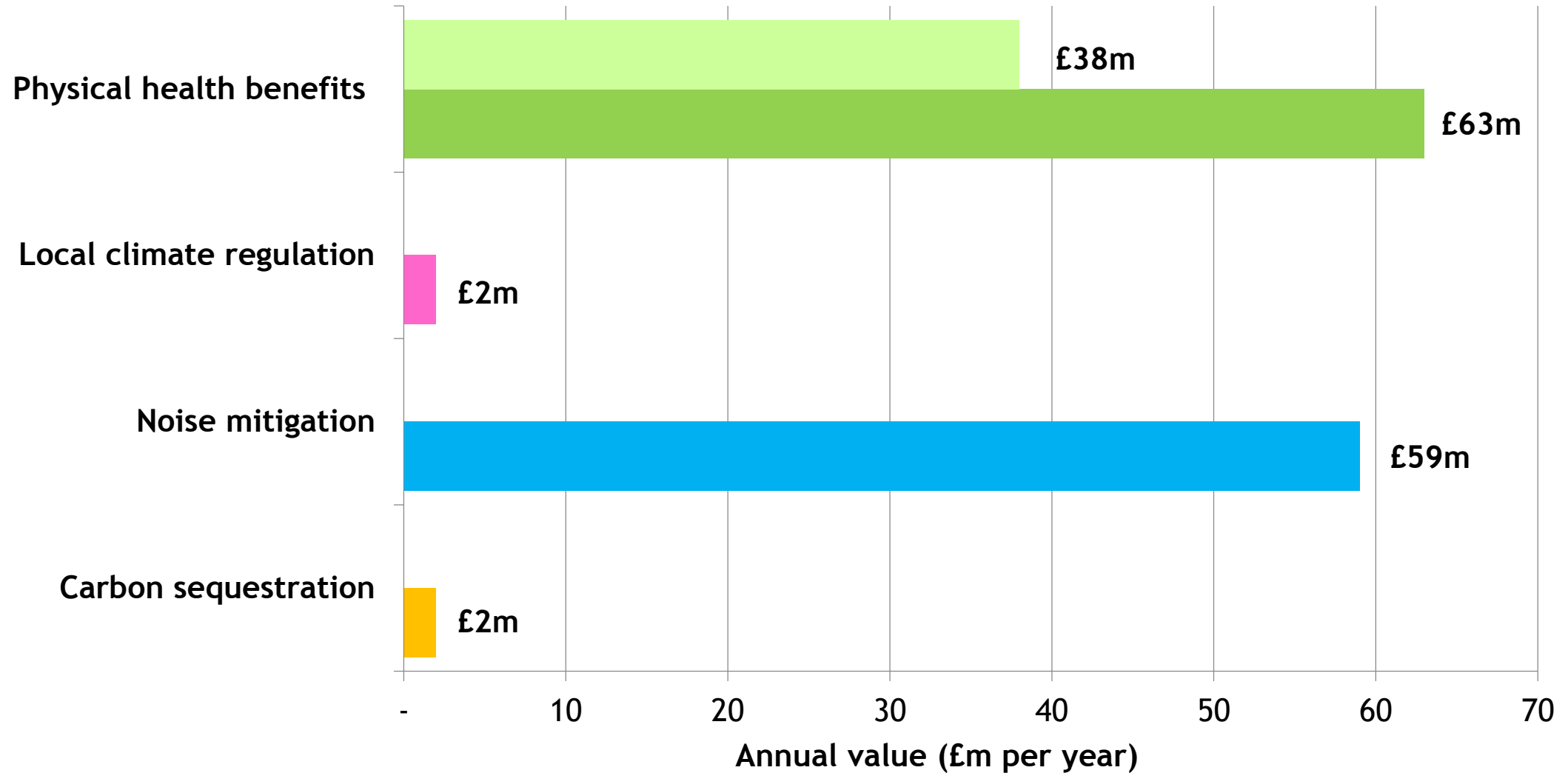
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Global climate regulation	Carbon (equivalent) sequestered	25,000	Tonnes of CO ₂ e per year
Local climate regulation	Combined cooling effect of urban parks and woodland (all patches)	0.50	Degrees Celsius

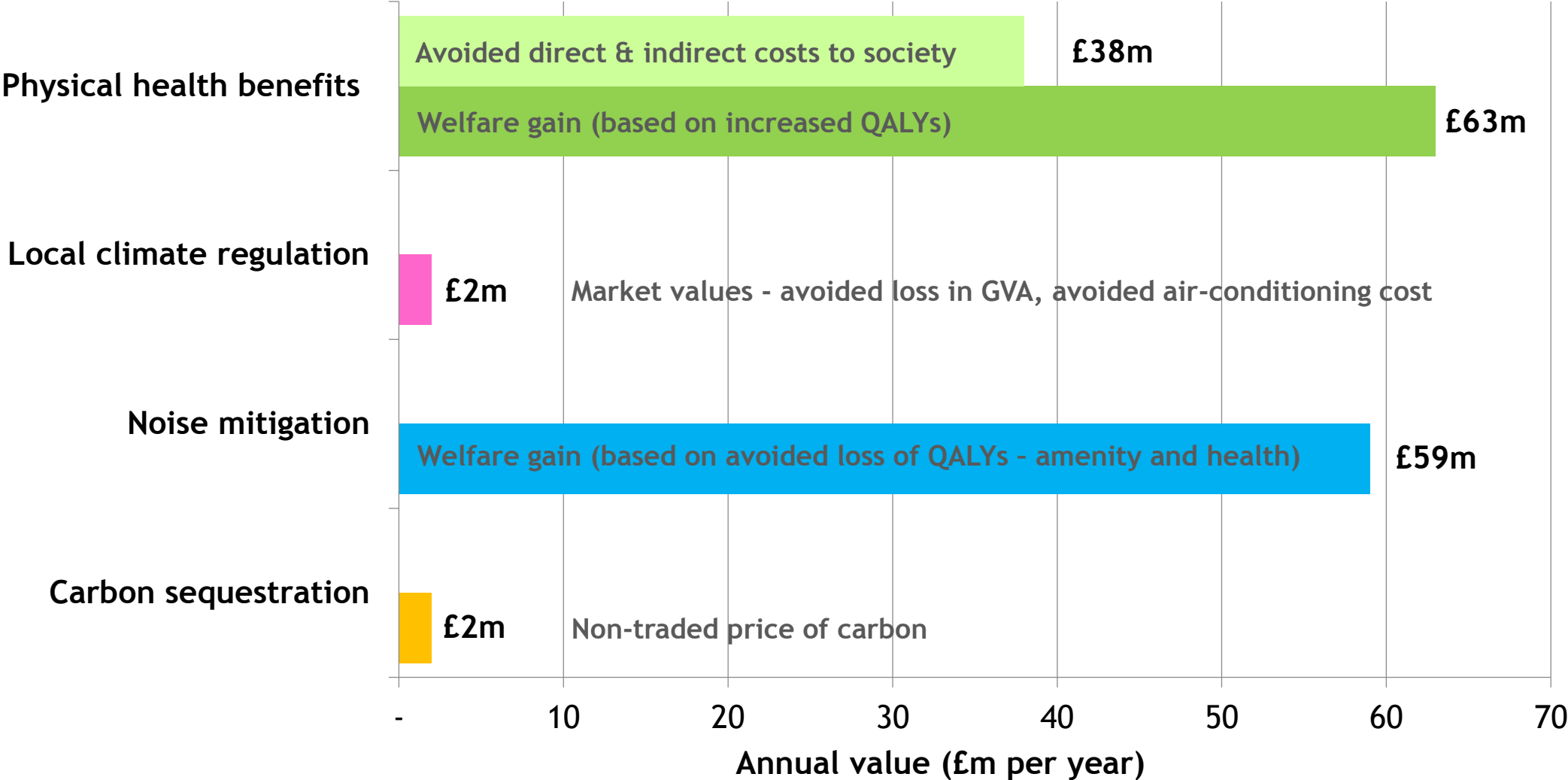
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Physical health benefits	QALYs per year	3,000	QALYs per year
	Active visitors	84,000	Number per year

MANCHESTER URBAN NCA: RESULTS



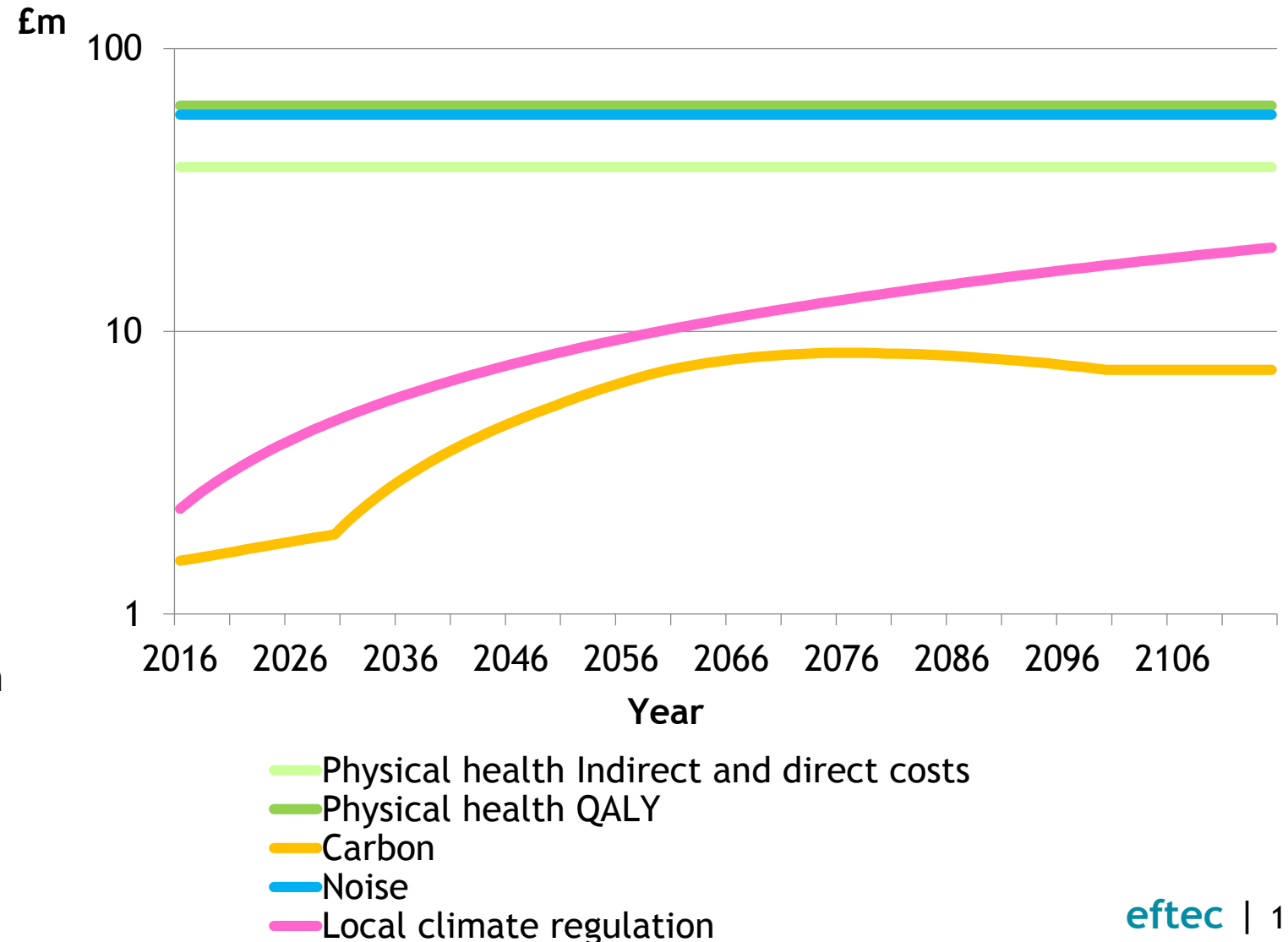
MANCHESTER URBAN NCA: RESULTS



MANCHESTER URBAN NCA: RESULTS

- Natural capital accounts report ‘capitalised value’
 - Discounted flow of value over time
 - Asset value calculated from profile of physical and monetary flow over time
- Asset values (PV, 100yrs, 3.5% D.R.)
 - Physical health (cost) = £1.1bn
 - Physical health (QALY) = £1.9bn
 - Local climate regulation = £0.2bn
 - Noise regulation = £1.7bn
 - Carbon = £0.1bn

Asset value: profile of benefits over time (£m, 100years)



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