Trees in High Density Housing Areas - Location, Potential and Stakeholder Opinions

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Background

- Trees confer not only aesthetic benefits to urban area but also benefits to environmental quality
- Significant differences have been shown in levels of tree cover between high, medium and low density housing
- Areas of high density housing have fewer trees, and therefore see fewer benefits of trees than other lower density areas
- These areas tend to experience higher air and surface temperatures, more air pollution and have a poorer overall environment
- Therefore, increasing tree cover in high density housing is of particular importance and interest

Where are trees growing?

- Trees may grow or be planted in pavements, public or communal open space, front or back gardens or alleyways
- I have identified 11 high density housing types across Greater Manchester with differing layouts
- Differing layouts affect the space available for tree planting and growth

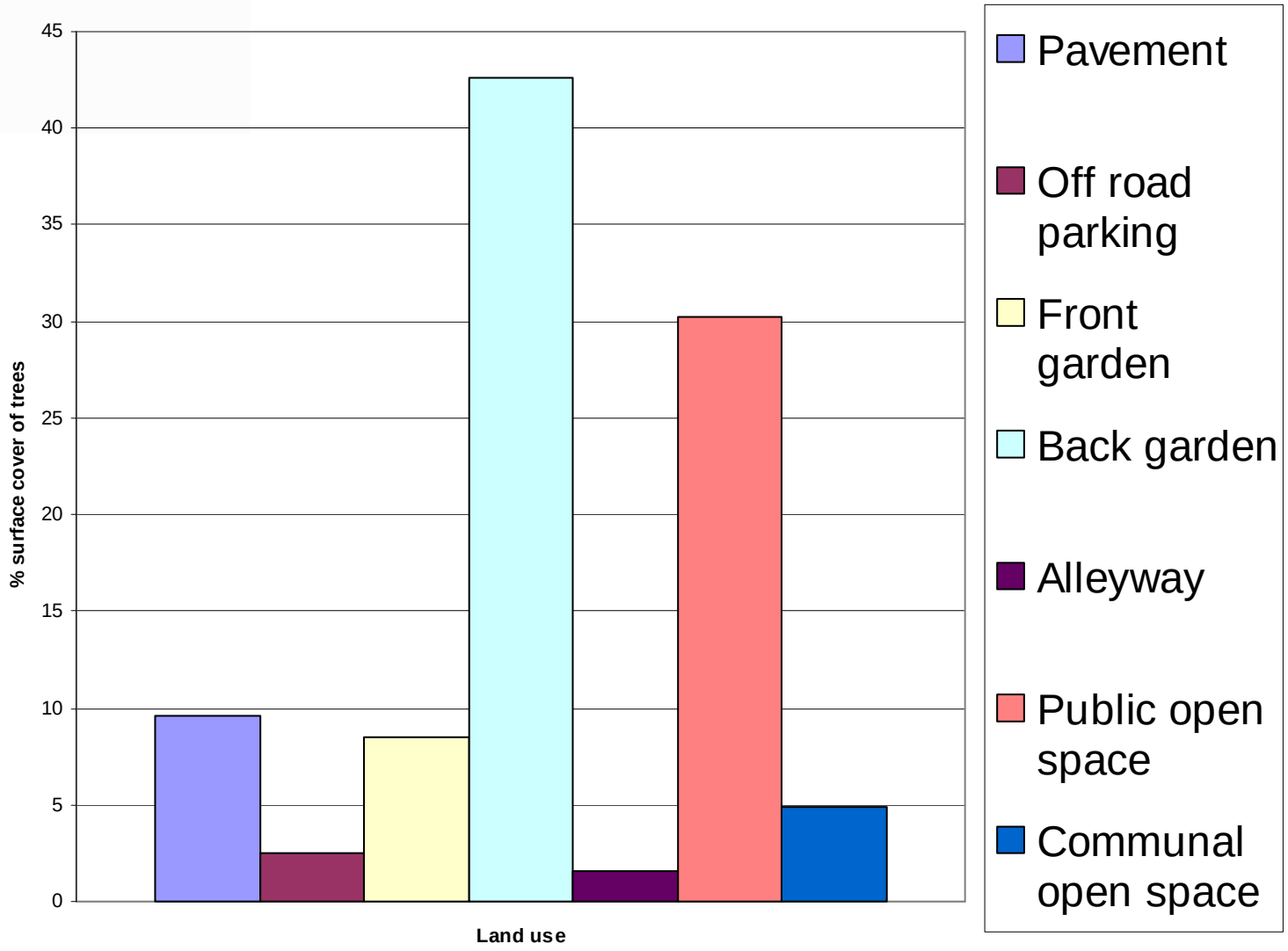
Housing Types

2.6%

1.6%

5.4%

The distribution of trees



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Potential to Increase Tree Cover?

Guidance for Increasing Tree Cover

Trees cannot be planted into roads or into on road parking and cannot replace buildings

Trees along pavements were planted 8m apart, following Red Rose Forest Green Streets guidelines

- a community led street tree planting scheme

Trees were ‘planted’ in appropriate areas with a clear radius of at least 1m from obstacles

Silver birch trees with a canopy cover of 1.15m² were used as a standard to calculate surface cover

Potential increases in tree cover

	Current tree cover (%)	Potential tree cover (%)	Total tree cover (%)
Pre 1919 semi	11.6	4.98	16.58
Pre 1919 onto road	1.6	7.55	9.15
Pre 1919 front yard	2.6	7.98	10.58
Pre 1919 front and back garden	3.6	6.51	10.11
1919-1959 semi	11.4	6.53	17.93
1919-1959 terrace	5.6	7.4	13.0
Post 1950s semi	5.8	6.27	12.07
1960s walkway	14.8	6.24	21.04
1960s drive	5.4	10.5	15.9
Post 1960s terrace	6.2	8.35	14.55
Post 1960s courtsquare	4.4	7.94	12.34

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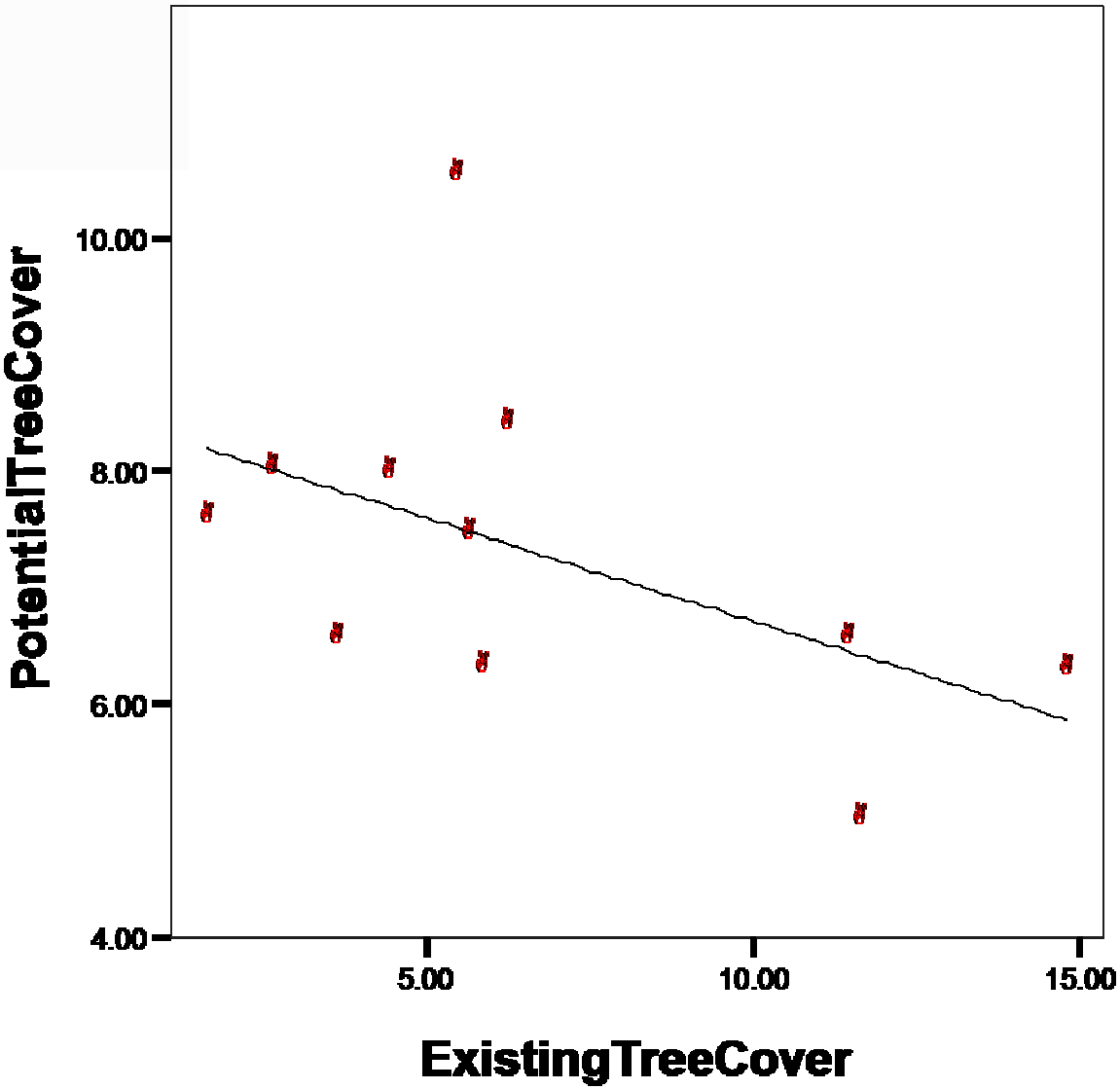
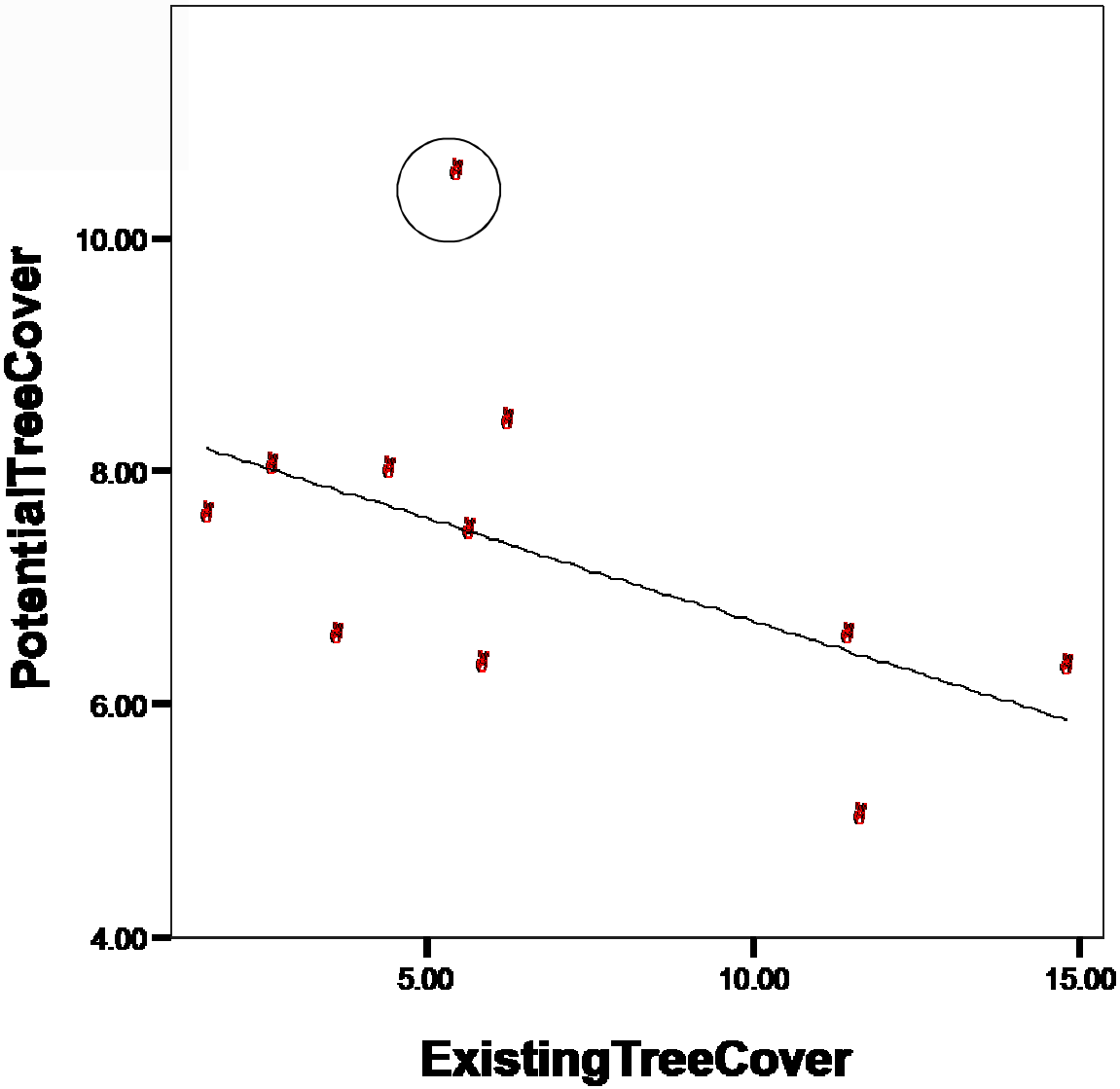


R squared = 0.26

Potential increases in tree cover



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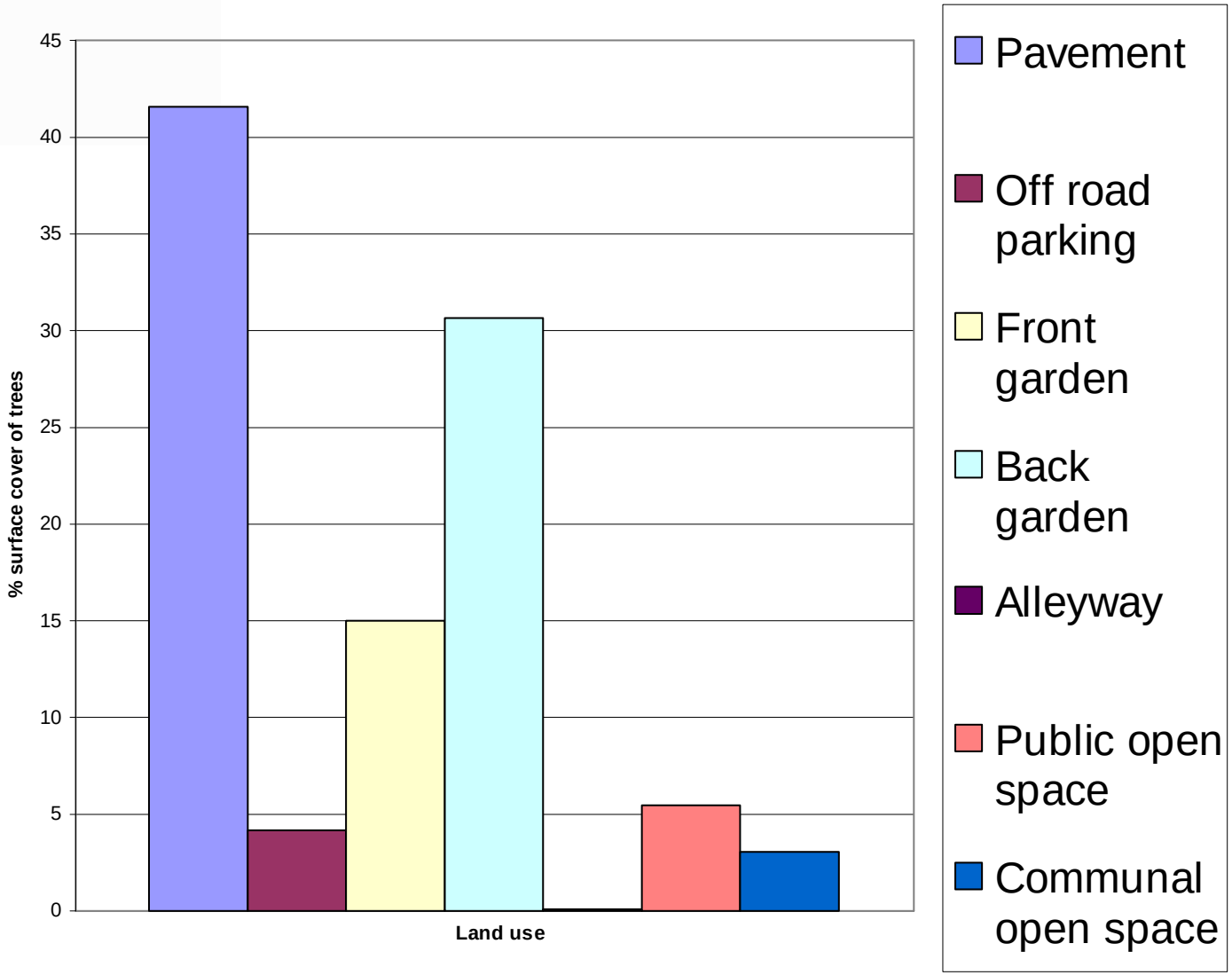

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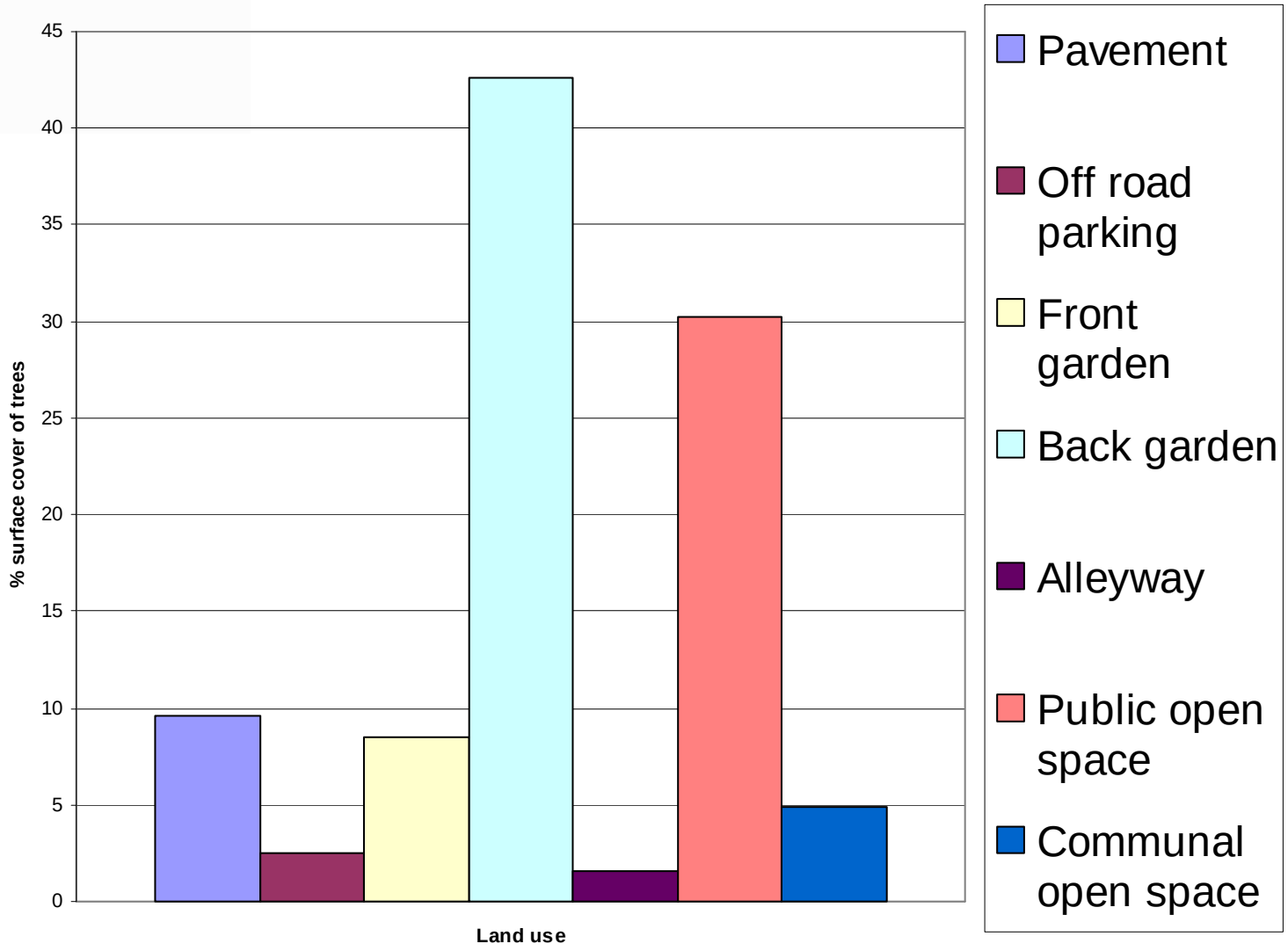

Effects of increasing tree cover on the local environment

Trees can have a potentially large effect on their surroundings beyond the aesthetic

- shading effects
- cooling effects
- interception of pollutants
- interception of rainwater

Using a computer model, surface temperatures have been calculated at present and future maximum temperatures due to climate change with existing levels of tree cover and potential levels of tree cover

Effects of increasing tree cover on the local environment

Pre 1919 onto road housing – modelled surface temperatures on an extreme hot day

Tree cover	Baseline (° C)	2080s low (° C)	2080s medium (° C)	2080s high (° C)
Current situation (1.6%)	35.58	41.21	42.87	44.67
With more trees (9.15%)	32.72	37.43	38.81	40.3
Difference in temperature	2.86	3.78	4.06	4.37

Effects of increasing tree cover on the local environment

Post 1950s semi – modelled surface temperatures on an extreme hot day

Tree cover	Baseline (° C)	2080s low (° C)	2080s medium (° C)	2080s high (° C)
Current situation (5.8%)	24.94	28.03	28.99	30.05
With more trees (12.07%)	24.43	27.48	28.42	29.48
Difference in temperature	0.51	0.55	0.57	0.57

Residents' Views

These views are important as residents of high density areas may not like trees, or may not be aware of the benefits of trees, so may not be supportive of tree planting

Residents of a variety of streets were surveyed to explore their views on street trees

Street types surveyed with a postal questionnaire and doorknocking:

- Streets with no trees
- Streets with old street trees
- Streets with new street trees through the Red Rose Forest Green Streets programme
- Streets which had Green Streets trees 5 years ago

Residents' Views

- Residents of all streets and all socioeconomic types were overwhelmingly positive about trees
- 'Trees are important to my quality of life' and 'trees can play an important part in stopping climate change' were the most strongly agreed with statements
- 'Trees should not be planted because they cost the council too much' was the most strongly disagreed with statement

Residents' Views

- Slight majority of residents don't think presence or absence of trees affects house prices

- Vast majority would probably or definitely try to move to a street with trees in future

- Residents are very positive about the Green Streets programme and would recommend it to a friend

Ways to Increase Tree Cover

Tree cover in the public realm may be increased in two ways:

1) As part of a street greening scheme

   - e.g. Green Streets project

2) As a byproduct of regeneration schemes

Green Streets Projects

- Green Streets projects are community led schemes to plant trees in residential streets
- Over 5 years, the Green Streets scheme of Red Rose Forest in Manchester has planted 945 trees
- No correlation was found between levels of deprivation, housing type or existing environment and the percentage of residents agreeing to have a tree
- The presence of a proactive champion raised tree uptake levels by an average of 8.8%

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Green Streets Projects

Regeneration
Case Study Areas

Area 1 – Chimney Pot Park, Langworthy, Salford

an area of terraced housing due for demolition until intervention of local MP and Urban Splash

Area 2 – Grove Village, Ardwick, Manchester

an area of low housing demand and poor quality housing, regenerated into some council and some private homes

Chimney Pot Park - Views of Developers

- The gardens were moved to an upper level above car parking, with some private and some communal space
- The developer wanted to foster a sense of community through interactions between neighbours with and about the plants, which they felt was lacking in other new developments
- However, the public realm has not been treated with the same care, even though more trees have been planted than were removed

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Chimney Pot Park

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Chimney Pot Park

Grove Village – Views of Developers

- A Green Route was planned through the estate
- However, ‘value engineering’ and additional restrictions by the highways department meant this route was built as a regular road
- It may now be seen as a green transport route, not green vegetation
- Issues with tree planting due to underground services were also found during construction
- Removed trees had grown in grass verges, but new trees were mostly planted into pavements
- More trees were planted than removed

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Views of Developers

Views of Practitioners

- Practitioners are most concerned with ways of funding tree planting and maintenance
- A range of potential funding methods were highlighted, both conventional and unconventional
- Tapping into other funding streams focussing on health or economics was suggested
- Generating funding directly from residents and/or businesses was also suggested
- There was a lot of interest in the potential of using urban trees as a source of biomass, as both a revenue stream and as a way of cutting carbon emissions

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Conclusions

Trees in High Density Housing Areas

- The level of tree cover is affected by housing type
- Trees are most commonly found in back gardens and public open space
- There is the highest potential for new trees to be planted in pavements, back gardens and front gardens, less potential in public green space
- Residents are overwhelmingly positive about trees and do not think that cost is a reason not to plant trees in urban areas
- Residents wish to move to areas with street trees but a slight majority do not associate trees with increased house prices

Conclusions

- Urban greening programmes can increase tree cover, and residents are very supportive of these
- Regeneration can plant more trees than it removes, but trees may not have space to grow
- Developers are becoming more aware of trees as helping community spirit and ‘placemaking’, and improving areas of low housing demand
  - but care needs to be taken over planting methods
- Funding is a critical issue for practitioners, but there is potential for innovative uses of existing funding and development of other revenue streams

Thanks for listening

Project funded by the University of Manchester ‘Your Manchester’ fund

Supervised by Professor John Handley and Doctor Roland Ennos

Thanks to Red Rose Forest for research assistance and provision of data