

Appendix 4

Notes from additional Evidence Gathering

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Part A

**Telephone Meeting with Jon Rouse
Chief Officer for GM Health and Social Care Partnership
20 March 2016**

As requested by the group I contacted Jon Rouse and he kindly agreed to a 15-minute telephone meeting to discuss concerns raised by members prior to which I sent him a note carrying much of the following discussion.

I explained that meeting two of the group was the main session which considered health and science, though Dr Ian Mudway of KCL also provided a very clear exposition of what is now long standing evidence of harms to meeting three.

I explained that members of the group were very concerned that the recently published and now adopted Population Health Plan for GM contained no mention of Air Quality and they asked me to contact him to discuss why that might be and, if we agreed this was an important omission, how that could be addressed.

I explained that the following word search terms returned no results:

Air Quality
Clean Air
Particulates
NOx
Road Safety
Congestion
Noise
Cycling
Walking
Greenhouse

Carbon returned four, though not related to outdoor air quality and, providing quite a relief to this generally frustrating exercise, "activity" returned multiple results, a good few of these relating to physical activity and exercise.

My note had stated that it is accepted by Government that poor air quality is one of six main harms that come fully or partly from roads and that health actuaries and emerging economic models suggest that each of these has a multi billion pound cost to the UK as well as considerable pain, disease, suffering and early death.

In many cases there is also a relentless toll on day to day living from before the cradle (poor ante-natal thriving and low birth weights) to the grave.

These are the four main pantechnicons of road apocalypse:

Air Quality
Road Fatalities and Serious Injury
Congestion
Lack of outdoor activity in streets

(including active travel as well as leisure)

And there are also substantial harms with significant human and financial cost from:

Greenhouse gases
Noise nuisance

Whether pro rata to population or higher (e.g. AQ, congestion) or lower (e.g. road safety) the annual harms and costs in GM are very considerable from each of these and cumulatively between them all.

I explained that I believe, and that members of the group believe, that there is a case for the lack of these in the existing plan to be recognised as a serious omission and be added urgently to the GM Population Health Plan.

I told him that I know via David Regan that Jon himself is very aware of an interested in tackling the wider determinants of health including road related issues, and potentially he is a very strong ally if we can gather arguments and make the business case.

We also know and welcome that the GM Directors of Public health have agreed to include AQ alongside Activity as one of their priorities despite AQ not yet appearing in the GM Population Health Plan. Which we welcome.

- Jon Rouse said that he agreed that a collective mea culpa was required on not embedding Air Quality (and other road related issues) in the GM Population Health Plan. He agreed that this should have been there, even though he felt there is little or no agency. He suggested that that feeling of lack of agency on this agenda may have been why it was not included.

Others have suggested that though this is broadly a good and useful document it is still perhaps more medical, clinical, illness focussed than we might hope, and in that sense old fashioned, and that there is a good deal of space to improve it.

- Jon Rouse stated that he intended to have an early conversation with the newly elected Mayor and that he also fully expected there to be a new version of the GM Population Health Plan which did reflect and address this omission.

Beyond this I aimed to talk to Jon about existing and emerging economic models for the financial costs of these harms and the potential benefits and savings on offer.

Under the Bike Life project undertaken by Sustrans on behalf of GM and six other cities we have an economic model, or perhaps two economic models, on the cycling related arithmetic. I know there is also an economic model which will sit alongside much existing evidence and calculation as part of the ongoing NICE work on Outdoor Air Quality, that there are long standing models on Road KSIs and Congestion, and for Greenhouse gases/Carbon and for noise nuisance.

I believe that while some of these harms and costs are outside the health and illness economy it is fair to say that a major part of them are health related.

I also believe that Return on Investment models show spectacular returns for relatively modest investments. I explained that by 'relatively modest' I was not thinking of leaflets, engagement workers and a few local events and initiatives, useful though these are. I am thinking of significant investments in tackling the harms by helping make highways and other spaces - just being outdoors - healthier, safer and happier.

- We had a short discussion about that potential; without considering the levels of investment needed, the other partners who should be involved, or the mechanism.

Finally, we had a few minutes remaining and I picked up a few other issues, some outside Health and Illness, that I felt Jon Rouse and GMHSCP may have views on.

For example:

Manchester/GM adopting a Vision Zero approach to road safety

I explained that to move from an intent to introduce this, which I hoped would be passed by Full Council on Wednesday, it was necessary to have buy in from the Mayor, HSCP and the NHS, GMP, GMFRS, GMCA, TFGM and the districts.

- Jon stated that this was something that, having a mission to save lives and prevent injuries and to promote health, he expected to support.

The GM Spatial Framework (and planning more generally)

- Jon stated that although it was the convention that GM organisations and districts did not take part formally in GM consultations as in essence these were our own plans we were talking about, GMHSCP had had an input particularly on issues such as age friendly, proper provision for retirement and added care, proper provision for health care facilities.

Standards for Housing and streetscapes

- Similarly GMHSCP had had an input on the new MCC residential standards.

I thanked Jon and ended by saying that health and happiness flow from good places - levels of walking and cycling and simply enjoying outdoor spaces was a barometer of human happiness, rather than ends in themselves.

Part B

Meeting with Anne Morgan Planning Strategy Manager GM Planning & Housing Team

Responsible for the GM Strategic Planning Framework

24 March 2016

We had a wide ranging discussion about the latest consultation version of the GM Spatial Planning Framework with particular reference to aspects that may impact on Air Quality and other road related harms.

We discussed:

- "a place with a plan is a place with a future"
- the status of the "framework" and how it differed from a local plan
- answer: it is essentially the same thing as a local plan but on GM geography
- it will be a material planning consideration, alongside others, once it is agreed
- our broad areas of AQ interest: density, transportation, inequality, road and other sources of gaseous and particulate pollutants, the process to a 'publication plan', the green belt, the mayor's powers

How Density Can Contribute to Air Quality (and other road harms) by

- creating critical mass for services
- reducing need for travel for shopping etc
- creating critical mass for passenger transportation systems
- either as a single large node (20,000?) or
- as a series of smaller nodes (3,000?) along a passenger transport and active travel corridor (cf Copenhagen's five fingers)
- reducing need for daily use of private cars
- creating local employment at all skill levels with reduced travel requirements
- meeting housing need in large chunks
- giving quick transformational wins
- having good insulation and heating and energy characteristics
- providing, especially in gentle density, best opportunity for S106 or CIL

Current Density in Greater Manchester

- even in the city centre density is relatively low
- across the city and the conurbation as a whole very low indeed
- previous developments such as 'the crescents' and towers in space had been perceived as being high density whereas they were not at all
- towers and blocks with relatively small spaces between are high density
- Berlin/Barcelona/Paris style courtyard blocks are also high density
- density vs green belt use may be argument used by tower developers
- generally felt both are needed

- and that towers and density need to be in the right places
- density in MCC district centres and in GM town centres is very low
- there is a relatively low contribution from city and two centres in all districts apart from Manchester and Salford, but with better results in Stockport and Bolton
- in general elsewhere only about 4% of housing provision is in town centres
- there is huge opportunity but also great reluctance to build to say 20%
- there are great opportunities to replace declined retail centres with largely residential blocks which also revitalise their places and allow retail to return
- it may be useful to see such town centre density in the south of the conurbation so there is no sense of this being imposed on the north
- Stockport are making good progress and have more ambition currently

Transportation Issues

- from spatial planning side feeling is that transport plans are pushing for more development inside M60 and for priority to travel to and from regional centre
- from transport side there is concern that there is already much to do in investment to service existing townships and smaller settlements satisfactorily
- that new nodes may be created under GMSPF with insufficient critical mass for sustainable passenger transport
- that this may drive use of private cars by residents
- from spatial planning side there is a feeling that there is a lack of infrastructure already in north of conurbation and outside M60 and this needs to be addressed
- also that whereas Stockport has seen their eight minutes to CC and relatively low land values (for now) as a real opportunity Ashton (nine minutes) has yet to do so
- buses are very flexible and should be under more control, in a process likely to get moving in 2-3 years, but tram, tram-train and train are currently greener and also more compelling alternatives to cars for many residents
- true transport integration including by multi mode ticketing would help
- there are a large number of residents, particularly children, who hardly travel to the regional centre despite their proximity, low costs and free things to do
- partly through largely unfounded estimates of risk on roads and risk of crime
- there are a large number of residents of working age who are reluctant to travel as far as they would need to to find jobs suited to their (currently low) skill sets
- there needs to be suitable employment and other infrastructure in local areas including unpopular and not seen as good news employment such as small factories, workshops, warehouses, distribution centres, call centres, waste and recycling processing, incinerators etc

Inequality

- there is huge inequality in the conurbation
- there is a massive north-south divide in for example GVA and IMDs and health

- there is a continuous grouping of 53 council wards in the north of the conurbation which have deficits in all economic and social measures
- there is a great variation in land prices and property prices and quality of buildings many of which need retrofit measures to be energy efficient/low carbon
- there is evidence that small levels of incomers to a poor area can help raise expectations and address issues
- there are great opportunities to address this inequality, driving growth in locations with the greatest potential for regeneration

Sources of pollutants which all need control and reduction include

- roads
- wood burning
- carbon burning
- biosphere
- air travel
- railways
- agriculture
- employment

Green Belt Issues

- proposals to allow some of GM's green belt to be used as residential and employment sites have been controversial
- relatively speaking there is very little green belt in the city of manchester
- planners believe that all green space, whether designated green belt or not, should be reviewed and the best elements retained, enhanced and extended
- planners also believe that despite a brown fields first policy and high and medium density developments elsewhere some green belt sites should be developed to meet housing and employment targets
- it is these proposals that produced strong public reaction and a commitment from some Mayoral candidates to change the GMSPF

What is process/timetable?

- it was intended that in June/July 2017 the "publication plan", for examination in public by government, would be published.
- given the public response to the way the plan has been presented and received it is now expected that there will be another consultation plan in September 2017
- this would be consulted on for around 12 weeks
- the publication plan would follow evaluation of responses, around June 2018
- this will be a joint plan of 10 districts and has the same status as a material consideration for planning as the local plans that have come before

Mayoral Planning powers are:

- creating a spatial framework/development plan, but needs unanimous approval
- potentially defining scope of Community Infrastructure Levy, which replaces Section 106 and other "planning gain" arrangements
- potentially Mayor's allocation of development sites of different kinds
- potentially having call in powers; Government wanted this but GMCA authorities have so far declined this
- in addition there will be 'soft power' arising from a personal mandate

Part C

Meeting with Stephen Hodder

23 March 2016

Chair of the steering group for Manchester's Residential Standards

Former RIBA President

Award winning Manchester architect

Current status of the Standards

The Executive has adopted the standards and delegated the Leader of the Council to make adjustments to the space standards (Appendix A) so that these could match the best practice e.g. The London Housing Design Guide.

These standards should now inform pre planning negotiations with developers with potential planning applications and also officers in their reports and finally the planning and highways committee in decisions.

Discussion of the Standards

To what extent did AQ play into the Standards?

Not one of the nine components but a cross cutting theme in several of the areas, future proofing, walkability, practical requirements on waste, cars and car use, cycling

Transportation

- The standards call for high levels of walkability
- They call for high levels of permeability and access for people on bikes
- They call for good cycle parking and storage
- They accept low levels of car parking at sustainable locations
- They support EV charging and car clubs
- They support reduced dependence on private cars
- They promote good access to sustainable transport
- They do not define the relationship with major roads
- They do not identify particular sites or typologies of sites
- They do call for a clear hierarchy of highways (including carriageways, cycleways, footways, and shared spaces and other non conventional access treatments).

[* hierarchy of users: footway users of all abilities at the top, people on bikes and passenger transport next, freight and logistics vehicles, and private cars at the foot.]

Other Infrastructure and Tenure

- The standards call for ground level activation in e.g. apartment blocks but the means of doing it are not prescribed
- This might include retail, other employment, education, nurseries, health care
- This might include work without commutes e.g. live work space, hot desks

- But the standards are just that, standards, and this is beyond their scope
- The standards support mixed tenure and price points
- Stephen recognises that affordability and how this is delivered is a key issue for councillors and for the planning process
- Stephen recounted a case where a registered provider in London had tried to specify separate access points for different tenures to his practice - this was successfully resisted
- We agreed that "gentle density" (see below) is likely to provide better opportunities for contribution to affordable units whether on site or by contribution to a pool than either traditional low density housing or high density tall buildings where viability calculations are generally tight
- We also agreed that "gentle density" has a part to play in reducing AQ and other road harms

Non conventional road networks (cf Stephen O Malley in Meeting 3)

- Stephen chaired MIPIM discussion on healthy streets
- Frederick Segur (curator of Trees and Landscapes, Lyons), Eamonn Boylan (Chief Exec of Stockport, due to start as Chief Exec of GMCA very soon) and Stephen O'Malley (Civic Engineers) took part
- Rue Garibaldi is a centre piece green street in Segur's Lyons
- (The Greater Lyons tree charter is available in English
- <http://www.tdag.org.uk/index.html> bottom left)
- Super green and calmed Great Ancoats St example (Stephen O'Malley)
- But as discussed M3 not considered an option at this time by highways authority
- As we raised at AQ: interesting model but needs the right place to try
- Stephen Hodder also has designs in Stratford/Newham include shared space
- City of Trees was considered. Massive ambition. Some issues with cost of basic street trees militating against ambitions for high volume.

Density Issues

- We talked about towers vs gentle density
- Gentle density is say 4-7 storeys as seen in many EU cities.
- Why no Berlin style relentless but gentle density for miles? In Manchester
- Perhaps issues of land supply? Though Hulme, East Mcr etc
- Was brought up (George Mills, Homes for Change) in Hulme regeneration
- How Homes for Change inwards could have been that height and density
- Noted use of need for density now to justify any and all tall buildings
- But also successful gentle density such as Hackney Peabody scheme
- 250 or so dwellings plus local services replaced 40 or so houses in that
- Hindsight says Hulme development should and could have been higher, perhaps East Manchester and Ardwick also, but a cultural shift in housing preferences that would allow and buy into that post dates much of this regeneration
- Brief discussion of Pembury Circus from Peabody in Hackney. This replaced 43 houses with 268 flats, community centre and retail, including 119 affordable <https://www.theguardian.com/uk->

[news/davehillblog/2016/nov/19/has-pembury-circus-done-the-london-housing-trick](https://www.manchester.gov.uk/news/davehillblog/2016/nov/19/has-pembury-circus-done-the-london-housing-trick)

Pre-fabricated units and modules

- An aspect of the future approach on number of grounds
- Potentially a method of addressing housing demand
- Diversity in industry with senior women would help change
- Laing O Rourke tooling up to do prefabs at scale
- Although there is a potential 60% saving on standard build costs at the time of writing costs are similar to conventional builds
- Once volume is achieved more affordable homes very possible for set budget
- But the critical mass has not been achieved yet

Retrofitting existing housing stock in regeneration areas

- Agreed this was a good idea to consider before demolition
- Did not have time to consider how 80-90% of stock not new and not scheduled for regeneration could be updated

Green and Blue infrastructure

- Agreed. This is important.

Greater Manchester

- There is potential to cascade these standards to all districts
- But this is for those planning authorities to consider and agree

GMSPF

- Is there enough recognition of issues and standards raised in MCC?
- Residential standards should become embedded in GMSPF
- Question is buy in by the different districts

I asked whether there were any particular out of the box recommendations for AQ (or other road harms*) that Stephen would like to see? Those harms being:

- Noise
- Road safety
- Congestion
- Greenhouse
- Stifling activity
- Lack of clean air

Answer was that there was consideration of environmental issues across the adopted standards document as a cross cutting issue but the wider roads and health issues were outside the scope and remit of this work.

Part D

Telephone Meeting with Alan Higgins Director of Public Health Oldham Member of NICE panel on Outdoor Air Quality

NICE Guidelines on Outdoor Air Quality

Methodology and Ethos of NICE

- Formally published (and grey) research not undocumented real life or common sense
- This approach derives from and is consistent with drug and therapy evaluations
- May not be as useful for transport, social, public health and spatial planning interventions
- Not an Institute that is likely to be either passionate or challenging despite voices who might be individually so a translation problem. Dispassionate to a fault.
- Contrast with Royal College of GPs who have a different kind of platform

Differences in Structure for Final Report

- Better drafting and detail
- Split of previous planning heading into a. Planning and b. Development Management
- Addition of walking to cycling

Responses to Consultation (including our points)

- Consultation version was negative and pessimistic about cycling in road corridors
- I asked Alan if this was a major point of contention and he said those who cycled did raise this and looked for direct routes covering intermediate points ABCDE not just A-B
- Now re-worded to include lanes on and next to carriageways not just greenways
- Lines on opportunities for trees were confused and led to some confused media reports
- Now clearer reference to different species and management
- Including ozone effects and combinations of organic materials with pollutants
- Media had also been confused on road washing which does work very well in cities

Arguably Missing From The Report

- Big ticket and ambitious interventions such as full cycle network or pedestrianisation or clean air zones or large scale congestion charging
- Similarly 'scrappage' schemes: government incentivises scrapping of polluting MVs

- Grasp of huge scale of opportunities to deal with high human and financial costs of roads
- Grasp of huge costs of doing nothing or not much
- Grasp of massive returns on investment available, which make roads or HS2 pale
- Economic model(s) that pull the costs and returns together effectively
- Specification of big research and evaluation areas

Wider Discussion on Population Health and Mainstream Health

- GM Population Health Plan reflects illness focus and concentration on acute, chronic and end of life effects rather than lifelong degradation of health and happiness.
- Does not include Air Quality, Casualties, road harms except reduction in activity, slightly
- GMHSCP leadership believes in prevention and tackling wider determinants
- Seeking substantial investment from mainstream Health and PH budgets is reasonable given where benefits fall on reducing many of the road harms including bad air

Part E

Effective Modal Shift to Cycle Trips in Seville, following rapid expansion in network Discussion with Jesus Friere of ECF / Seville

With links to supporting documents

1. Timelines and Key Numbers

In 2005 the city council commissioned a strategy which reported and began delivering in 2006, continuing in 2007 and 2007 but front loaded. At the start there were 6,000 trips.

In this period 70 km / 44 miles of new separated lanes were built at a typical cost of about 300,000 euros per km. The Bici Share scheme was also established.

By 2010 the total network was 140 km / 88 miles and the trips were up to 72,000 per day. 1,200% shift in 3-4 years. Total cost around 30m euros. 2.5m euros on one vital bridge.

2011-2015 change of regime which was less interested and made no more investment but the network would be very hard to dismantle. 2016-2020 return of innovative regime.

2. Principles

- First create full connected network then add to it
- Stretch into all areas not just hot spots
- Remove kerbside car parking and use that space (8,000 bays gone)
- Calm city centre area with low traffic and speeds and roads shared
- Ignore lack of cycling culture
- Aim to reach 10% / 100,000 journeys by 2020.
- Move safe bike parking and storage inside at PT stops
- Improve integration including better bike on train (only one tramway currently)

3. Vision Zero

Seville does not formally have Vision Zero commitments but has increasing walking and cycling with reducing KSIs. Road safety is treated very seriously especially on trunk roads.

4. Air Quality

ECF is in the process of producing a study on Air Quality with Seville as a case study. Seville has a strong link with ECF.

5. Local Economy

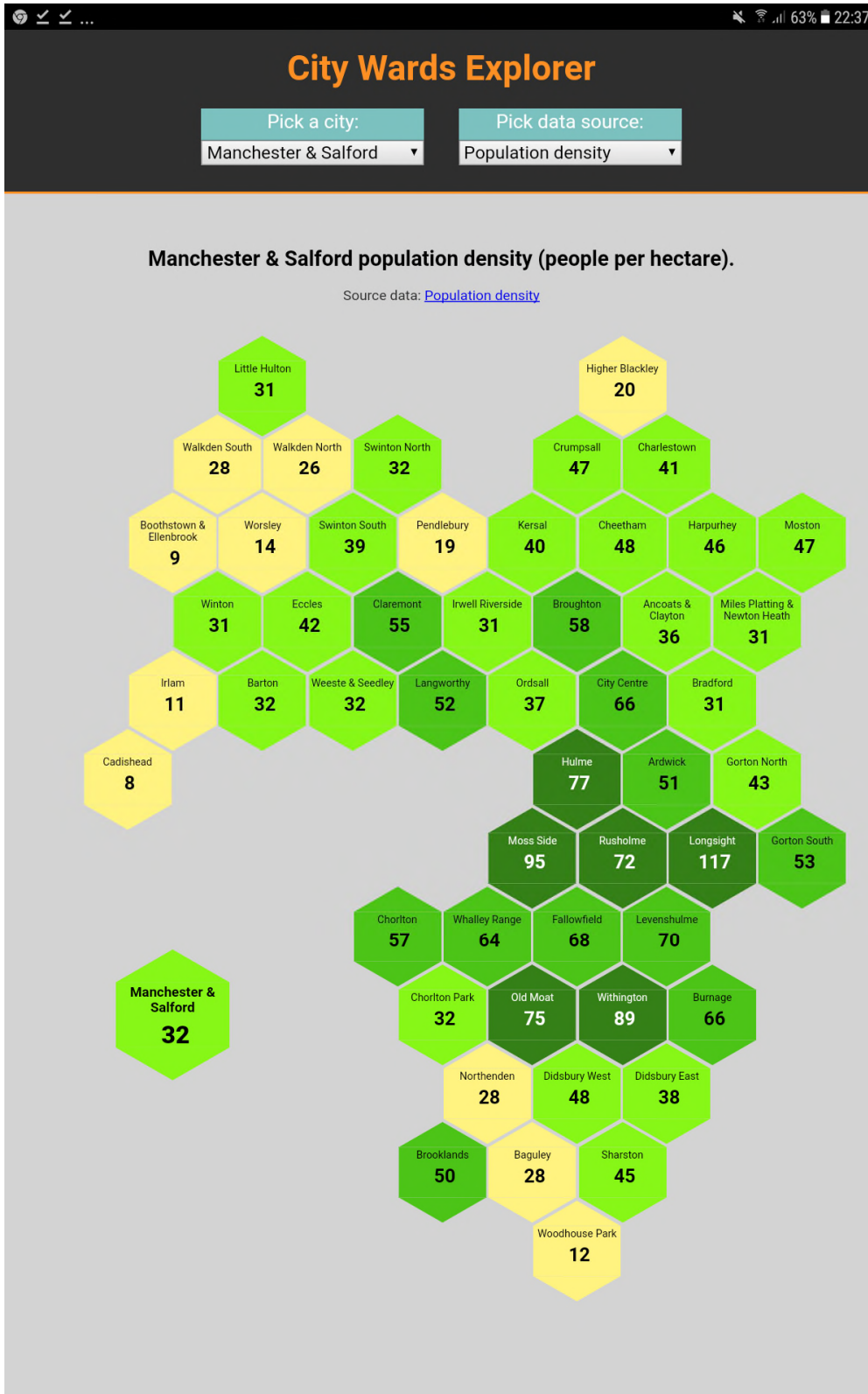
Developments brought very good results for local shops.

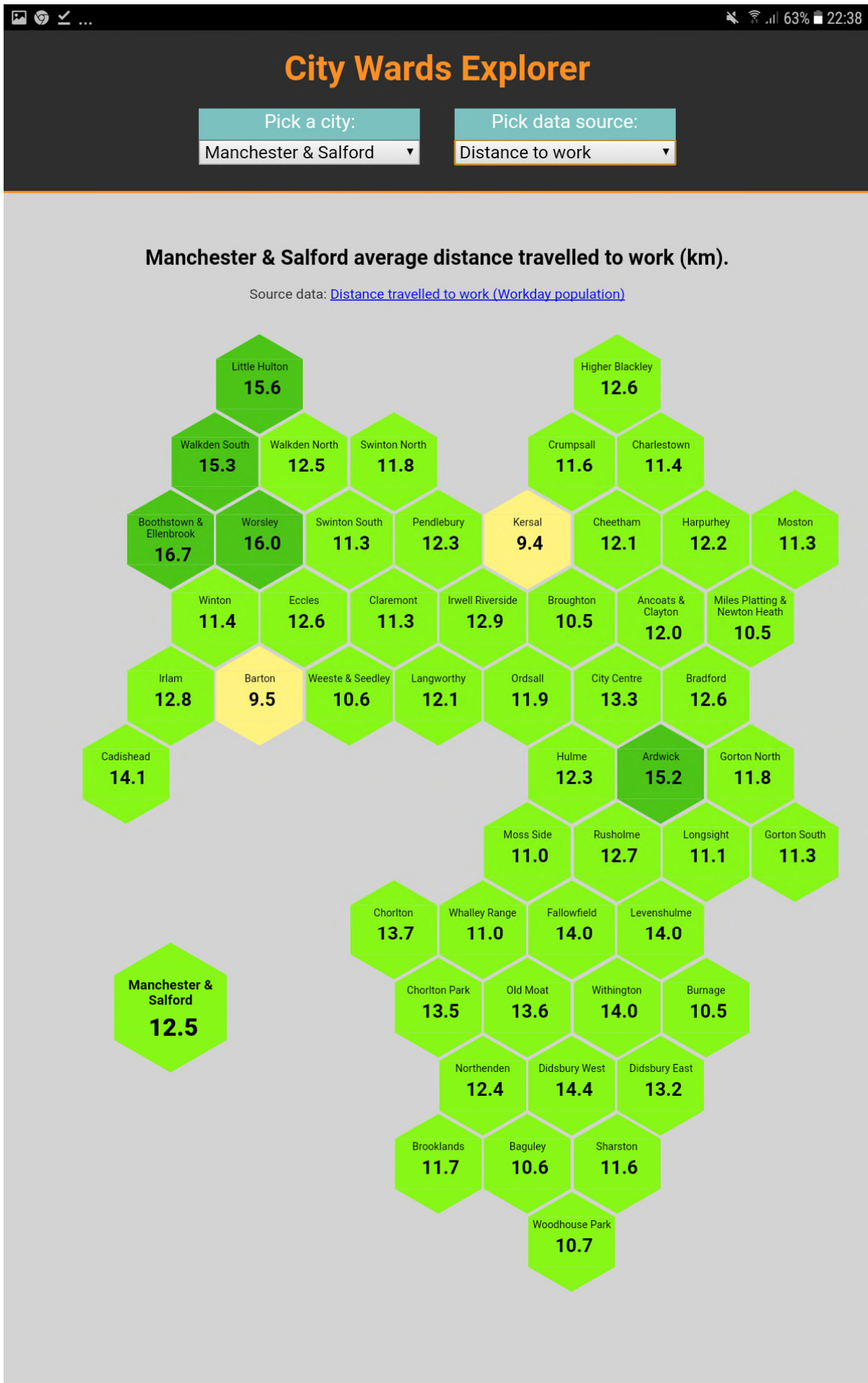
- o Sevilla, A Successful Experience Of Promotion Of Urban Cycling In The South Of Europe Velo-city 2012
- o Sevilla: faster is better
- o On the effect of networks of cycle-tracks on the risk of cycling. The case of Seville

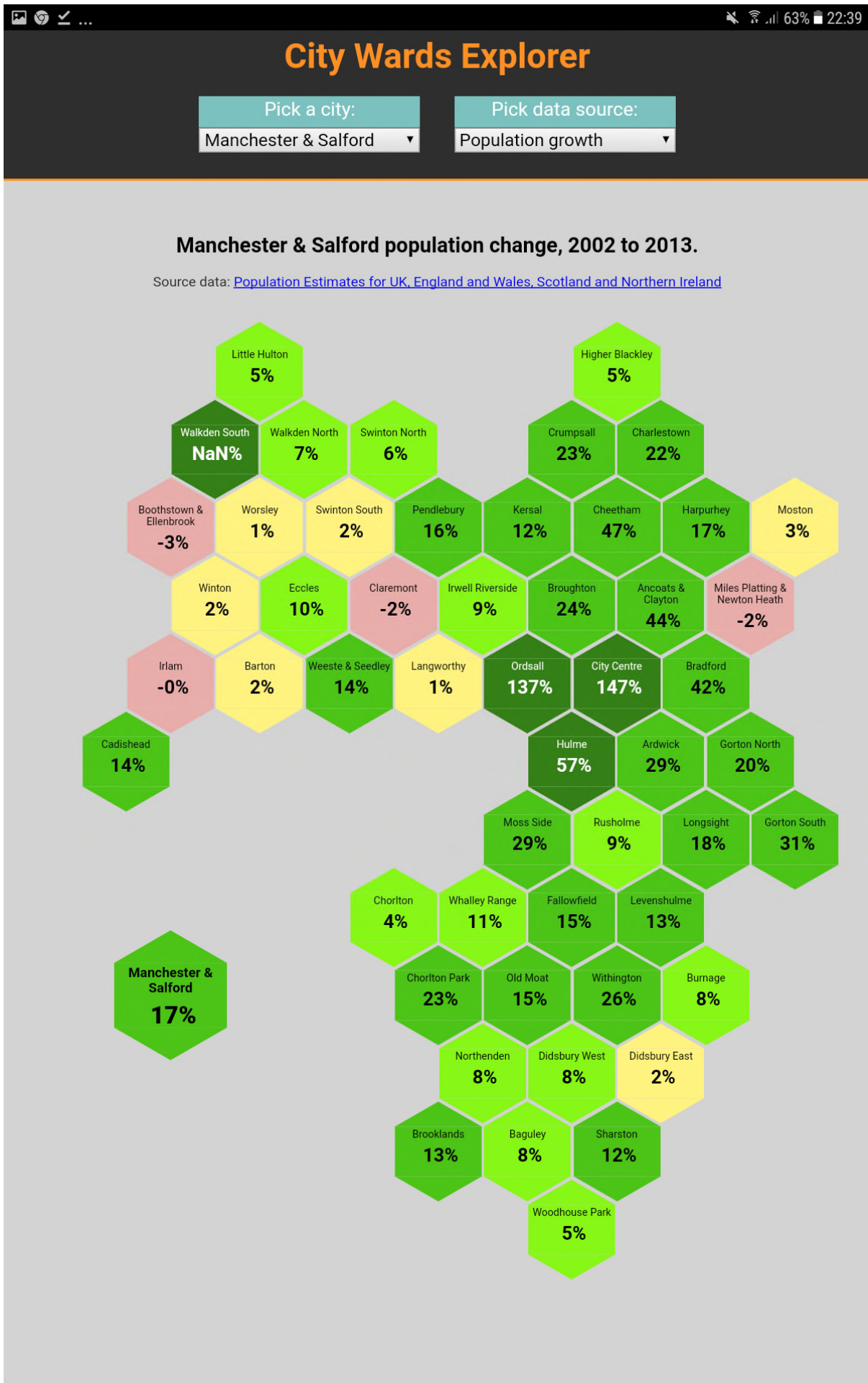
- **ECF reports:**
 - o Shopping by bike: <https://ecf.com/groups/shopping-bike-best-friend-your-city-centre>
 - o Cycling and air quality: <https://ecf.com/what-we-do/health-and-environment/air-quality>
 - o Congestion charges: <https://ecf.com/groups/congestion-charges-and-cycling>
 - o Further reports can be found on www.ecf.com

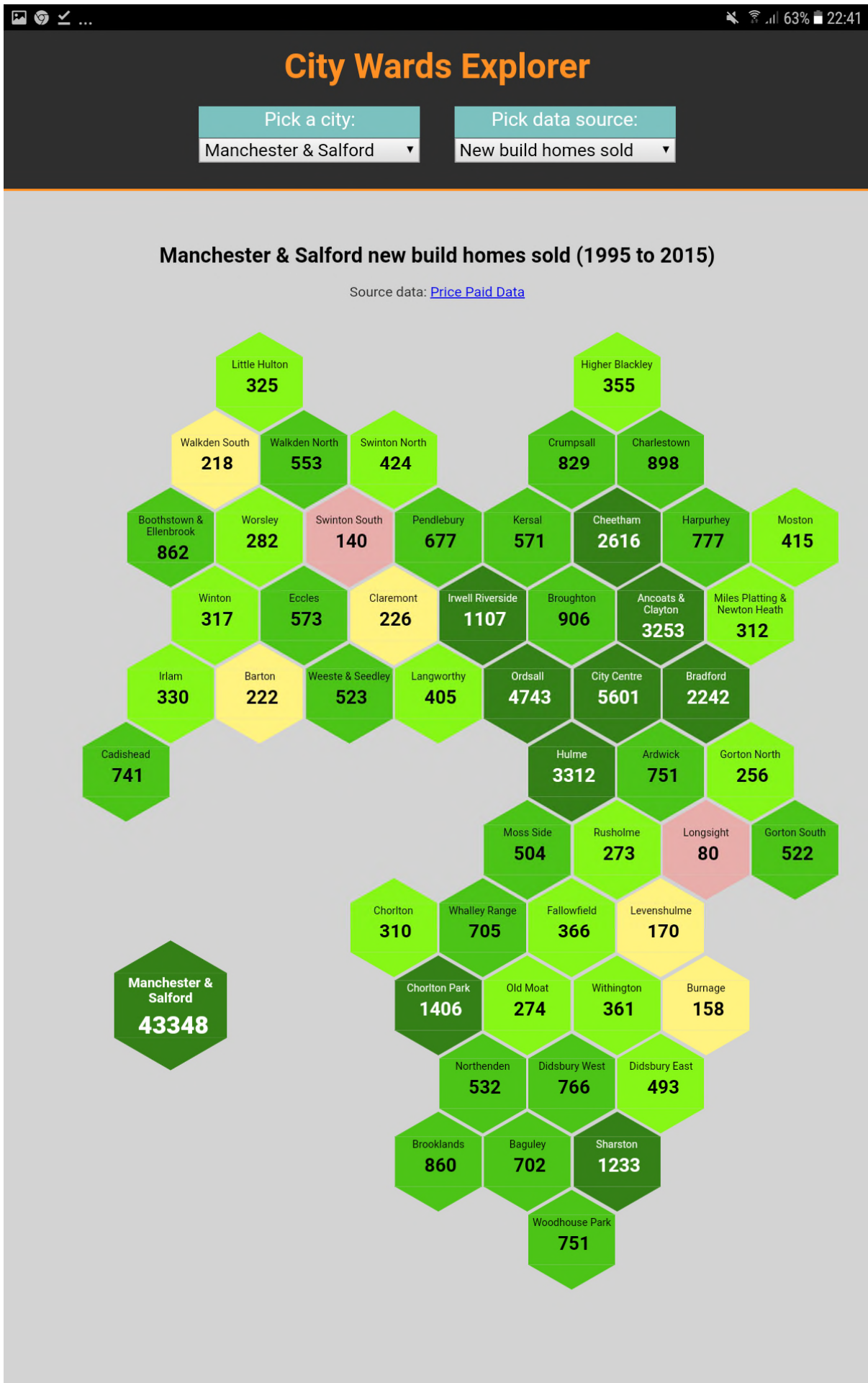
Part F

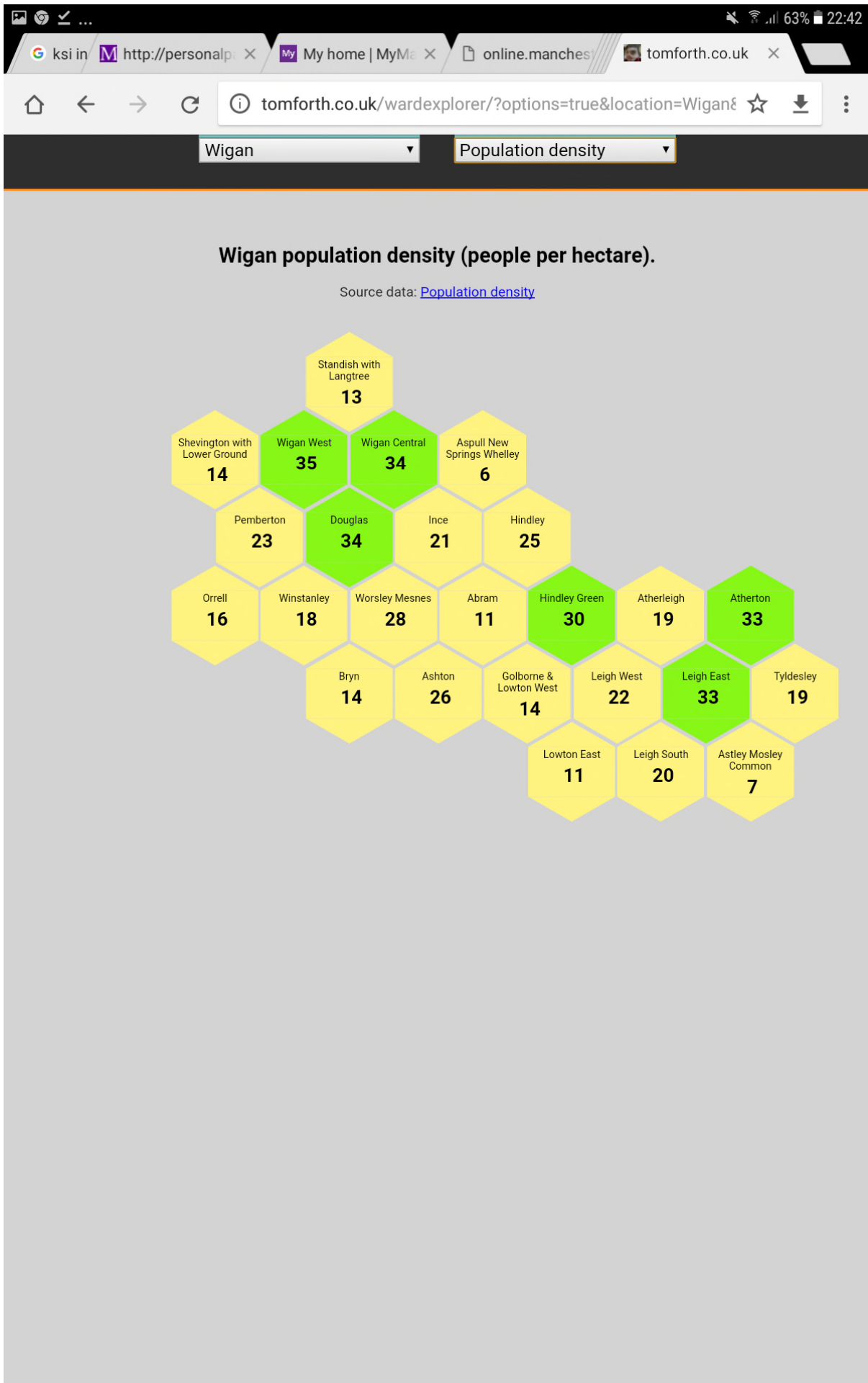
Tom Forth, Open Data Institute, Leeds
Density and Other Ward Level Data

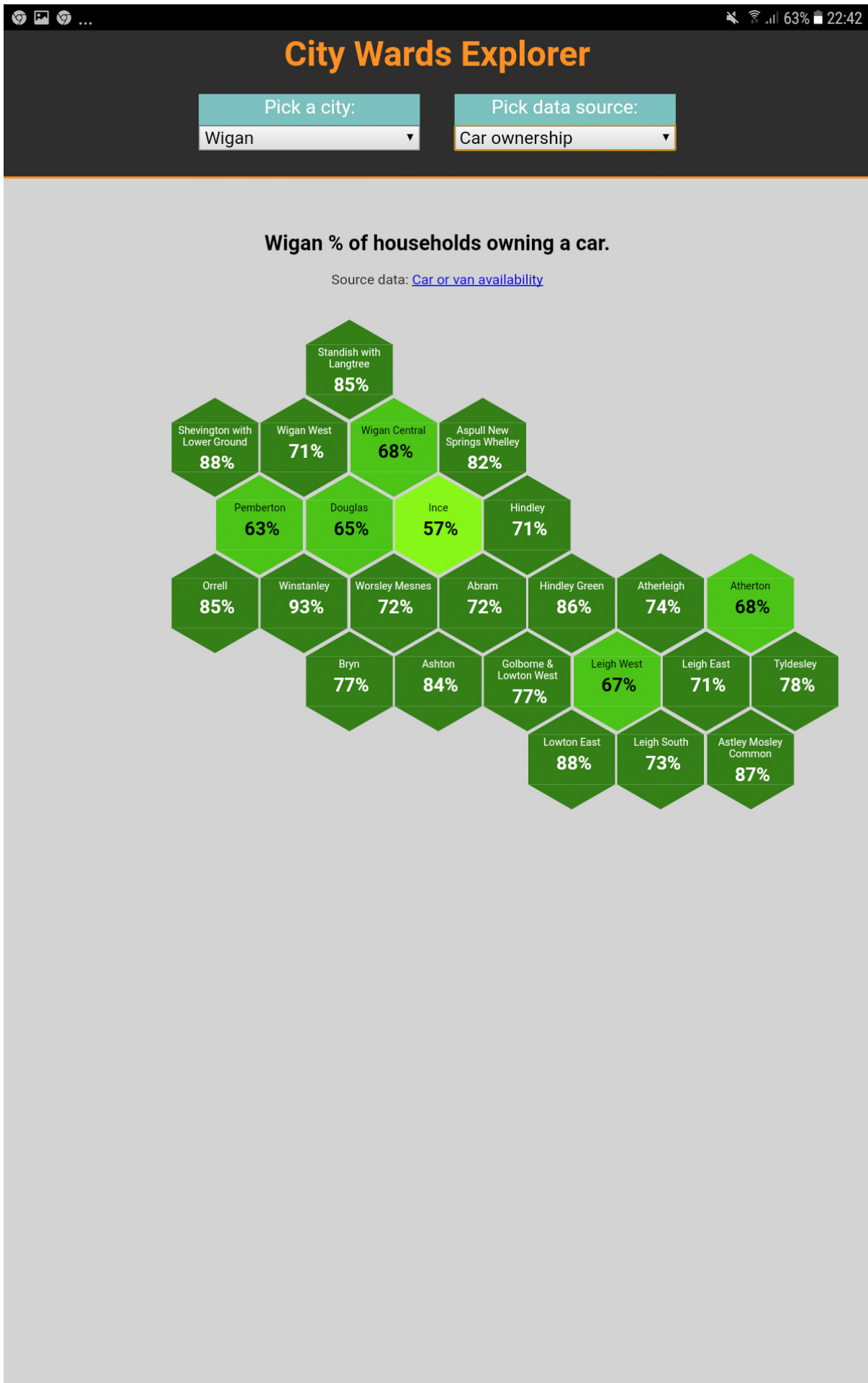












Part G

**Presentation from Janette Sadik Khan
Former Transport Commissioner for New York City
Bloomberg Associates
Including NACTO Global Street Design Guide**

**Given to Living Streets, Walking Summit
18 March 2017**



Janette Sadik-Khan, former New York City Transportation Commissioner.

Video: <https://www.youtube.com/watch?v=anlC-8yD6EQ>

Presentation Slides Part 1:
<https://drive.google.com/open?id=0B9ge2i2b1vQRZEhDYWhZWxV5b0U>

Presentation Slides Part 2:
<https://drive.google.com/open?id=0B9ge2i2b1vQRU1F1ZjFxSWdRcFE>

Part H

**Presentation from
Riccardo Marini
Gehl Architects, Copenhagen**

**Given to Living Streets, Walking Summit
18 March 2017**



Riccardo Marini, Masterplanning and Urban Strategy Expert at Gehl Architects.

Talk to Living Streets - Walking Summit - 18 March 2017
<https://www.youtube.com/watch?v=NzMVrr51-ws>

Part I

Further and Updated Case Studies of Cities which are undertaking comprehensive action to reduce emissions from transport **Jack Snape, Manchester City Council**

Cities around the world are taking action to improve urban air quality, and most are looking to do this through measures that also reduce their carbon footprint. In this note we set out five case studies of mainly European cities that are in the process of introducing comprehensive sets of policies to reduce emissions from transport. We have chosen to focus on European cities for the following reasons:

1. These cities are more similar to Manchester in terms of economic and physical geography than cities on other continents.
2. European cities are generally now focussed on reducing air pollution from transport as air pollution from other sources, such as heat and power generation, has been reduced to relatively low levels.
3. The cities covered here have generally gone further than Manchester in developing strong measures to reduce air pollution and carbon emissions, and therefore illustrate the types of measures we might consider in future to further reduce our emissions.

London (population 8.7 million)

Air pollution in London exceeds levels in Manchester, but the city faces many similar challenges in terms of balancing a growing population and economy with congestion from both passenger and freight transport. In addition, the fact that the cities operate in the same national policy landscape, and have similar powers under devolution, makes London a useful case study. Key policies and schemes that have been introduced or are planned in the near future include:

- An Ultra-Low Emission Zone (ULEZ) to be introduced in city centre from 2020, with vehicles entering the ULEZ and not meeting specified emissions standards facing a Penalty Charge Notice (PCN).
- A £10 toxicity surcharge (“T-Charge”) on high polluting vehicles entering the City Centre from 2017.
- All new black cabs to be plug-in vehicles from 2018 and all new private hire to be plug-in from 2020.
- All single decker buses in central London to be zero emission by 2020. All double decker buses to be hybrid from 2020, with trials of increasing numbers of pure electric double decker buses.
- Clean bus corridors to be launched in worst pollution hotspots.
- Use of the LoCITY and Fleet Operator Recognition Scheme (FORS) programmes in collaboration with logistics sector to promote more efficient operations (e.g. load consolidation) and use of low and ultra-low emission vehicles.
- Increasing investment in cycling, including a comprehensive network of cycle lanes and cycle parking and storage, with a plan for 5% modal share for cycling by 2025.

Copenhagen (population 0.6 million)

Copenhagen is often cited as a city with a thriving sustainable transport network, with a particular focus on high levels of cycling. One particular point of interest is that it achieves a high modal share for cycling despite having more days per year within rainfall over 0.1mm than Manchester. Key policies and schemes that have been introduced or are planned in the near future include:

- Sustained investment in cycling infrastructure (including cycle parking and storage), long-running cycle share system and restrictions on car use, helping cycling to achieve a 36% share of trips.
- Dense metro and bus networks (trials of electric buses).
- Large parts of the city closed to motor vehicles for a number of decades. Also strong restrictions on city centre parking.
- Planning for development in suburbs strongly linked to local rail network - 5 arterial lines stretching out from city centre maintained and improved since 1940s.
- The city plans to be carbon neutral by 2025.

Oslo (population 0.6 million)

Oslo is currently recognised as electric vehicle (EV) capital of the world. In December 2016, 5% of all cars on Norway's roads were EVs. As this percentage grows, Oslo will provide key learnings to other cities on how EV recharging can be successfully integrated with constrained urban electricity networks, particularly where rapid recharging is required for high-utilisation vehicles such as buses and taxis. Key policies and schemes that have been introduced or are planned in the near future include:

- Incentives to EV owners, including free parking, access to bus lanes and exemptions from ferry charges.
- Provision of widespread public EV charging infrastructure, including rapid chargers.
- City policy is supported by very strong national policy, including EV exemption from the ~100% sales tax on new cars and a Government target that by 2025 all new cars, vans and buses will be zero emission.
- A congestion charge is in place to reduce traffic.
- Provision of an increasing network of cycle lanes and a plan for 16% modal share by 2025.
- Future measure include a proposed "no car zone" in the city centre.

Seville (population 0.7 million)

Promotion of sustainable transport in Seville is characterised by significant and rapid investment in cycling infrastructure, leading to significant and rapid increases in modal share for cycling, from 0.5% in 2006 to 7% in 2013, with the cycling network costing around 35 million in total. Seville expects to achieve a reduction of 4 µg/m³ in the annual mean of NO₂ in 2020 due to the implementation of a complete pack of traffic demand management measures including cycling. Key policies and schemes that have been introduced or are planned in the near future include:

- Development and enhancement the network of segregated infrastructure for cyclists.
- Provision of a public Cycle Hire scheme.
- Introduction of new car-free zones in the city centre.
- Incentives for use of high-occupancy vehicles.

- Increasing and improving existing public transport infrastructure.
- Revising the existing mobility plan to better integrate different modes of transport.

New York (population 8.4 million)

As with Seville, New York has rapidly increased its network of cycling infrastructure in recent years, with an approximate doubling of the length of the network since 2007, meaning there are now over 1,000 miles of cycle lanes in the city. A recent report on cycling in New York suggested that there had been an 80% increase in daily cycling between 2010 and 2015 (the city does not currently gather data on cycling on a regular basis, but the city's latest transport strategy contains plans to do this). Further measures to improve air quality include:

- Plans to create or enhance at least 50 miles of bike routes per year.
- Launch of a secure bike parking pilot program near transport interchanges.
- Expansion of the Select Bus Service (SBS) to improve local bus services.
- Expansion of out-of-hours deliveries in conjunction with noise monitoring to reduce peak-time freight traffic.
- Creating the largest municipal electrical vehicle fleet in the United States, with 50% of new Transport Authority cars purchased in 2017 to be plug-in hybrid or pure electric.

More information is available here:

<http://www.nycdotplan.nyc/PDF/Strategic-plan-2016.pdf>

<http://www.nyc.gov/html/dot/downloads/pdf/cycling-in-the-city.pdf>

Other case studies on low emission vehicles

Whilst these cities are good examples of what a comprehensive package of measures might look like, there are some useful examples of individual innovative measures to promote EVs in different cities all over the world within this document:

[http://urbanforesight.org/wp-](http://urbanforesight.org/wp-content/uploads/2015/07/urbanforesight_ev_casebook.pdf)

[content/uploads/2015/07/urbanforesight_ev_casebook.pdf](http://urbanforesight.org/wp-content/uploads/2015/07/urbanforesight_ev_casebook.pdf)

These include:

- Electric and cycle last mile logistics in Brussels.
- Wireless re-charging buses in Gumi, South Korea
- Electric car sharing schemes, Paris
- Intelligent Transport Systems, Japan

Another point to note is that Paris, Mexico City, Madrid and Athens have recently announced a plan to "ban" diesel vehicles by 2025. Details of how this policy will be implemented and what will be done about vans and Heavy Goods Vehicles are yet to be announced.

Part J

Note on use of EMIGMA Database Martin O’Neill, Lead Air Quality Officer Transport for Greater Manchester

The original EMIGMA database was compiled by the London Research Centre (LRC) and RSK Radian on behalf of the Department of the Environment, Transport and the Regions (DETR) Air and Environment Quality Research Programme. Released in June 1997, it represents the second of a series of atmospheric emissions inventories covering many of the UK’s major urban and industrial zones (Buckingham et al, 1997).

The emissions inventory contains information on the emissions of pollutants identified in the UK’s Air Quality Strategy from all identifiable sources in the area. The emissions sources are grouped into three broad categories:

- stationary point sources - predominantly industrial processes
- mobile line sources - road, rail and air transportation
- area sources - other influential sources, such as domestic emissions, which it is not practical to resolve to point or line representations but which are nevertheless collectively significant. These sources are essentially population based and include, for example, combustion and solvent usage related emissions from domestic houses. They also include hot soaks vehicle emissions, which are based on estimates of vehicle destinations in each of 864 transport model zones making up Greater Manchester.

The emissions are then aggregated to a 1km² grid covering Greater Manchester. Highways Forecasting and Analytical Services (HFAS)[1] was commissioned on behalf of the Greater Manchester Local Authorities to undertake an update of the EMIGMA emissions inventory for a base year of 2014. The updates prior to 2004 were undertaken by the Centre for Air Transport and the Environment (CATE), formerly called ARIC.

The 2014 EMIGMA database covers an area of 1272 km² encompassing the ten administrative districts of Greater Manchester.

The database allows the magnitude and spatial distribution of emissions across Greater Manchester to be investigated and enables the relative importance of different sources of air pollution to be examined. The emissions data has a further role in providing the basis for dispersion modelling exercises and air quality management planning. In conjunction with transport models it also provides the basis for forecasting air quality and determining the effects of changes in land use planning and transportation policies on mass emissions.