APPENDIX
CITY SUMMARIES

CITY SUMMARIES

This section summarises the principal findings from each city by way of four-page illustrated bulletins arranged to a common format. More detailed information relevant to each city is available as indicated (e.g. under the Reference Documents heading in each bulletin).

The table below presents some 'vital statistics' for each city, for the purposes of comparison. The land area and population figures are rounded. The basis of the cycle mode share figures varies from city to city, both in terms of age an source. Targeted surveys have been undertaken by some cities; various other sources have been used for other international cities; and the source for UK cities is the 2011 Census figure for journeys to work. Although therefore not directly comparable, the mode share figures give some indication of the success different cities have had in enabling cycling.

With data for London at the top, other cities are listed in ascending order of the mode share figure given. This is also the order in which the city summary bulletins are presented in this document. (Although this study has drawn on previous visits to Amsterdam and Copenhagen, these cities were not formally part of this commission and are not represented by bulletins here.)

At the end of the document, there is a brief summary of the findings and recommendations from the P2P (Portland, Oregon to Portland Place, London) study/charity cycle ride that took place in 2013.

City	Country	Land area	Resident Population	Population Density	Cycle Mode Share
London	UK	1,580 sq km	8,308,000	5,300/sq km	2% (3.9% 2011 jny to work)
New York	USA	788 sq km	8,300,000	10,500/sq km	Just over 1%
Washington DC	USA	177 sq km	646,500	3,600/sq km	3% (2010 jny to work)
Brighton + Hove	UK	88 sq km	273,400	3,100/sq km	4.9% (2.8% in 2001)
Nantes	France	528 sq km	590,000	1,100/sq km	~5%
Minneapolis	USA	151 sq km	393,000	2,600/sq km	5% (2012 jny to work)
Seville	Spain	140 sq km	703,000	5,000/sq km	5.6% (2011)
Dublin	Ireland	114 sq km	525,400	4,600/sq km	6% (2011)
Christchurch	New Zealand	452 sq km	350,000	800/sq km	6.5% (2006 jny to work)
Stockholm	Sweden	382 sq km	1,370,000	3,600/sq km	10%
Berlin	Germany	894 sq km	3,450,000	3,900/sq km	13% (2008)
Munich	Germany	312 sq km	1,400,000	4,500/sq km	17.4% (2011)
Malmo	Sweden	159 sq km	307,000	1,900/sq km	23% (2008)
Cambridge	UK	117 sq km	123,900	1,000/sq km	29% (28% in 2001)
Utrecht	Netherlands	99 sq km	323,600	3,300/sq km	33%
Amsterdam	Netherlands	219 sq km	810,000	3,700/sq km	~40%
Copenhagen	Denmark	616 sq km	1,230,700	2,000/sq km	26%

NEW YORK CITY

Cycle Network Overview
The development of the city's cycle network has been in progress for many years, but there was a step change in 2006 when the Mayor made a commitment to construct 200 miles of bike paths and lanes by 2009. This was achieved, and the network continues to grow – 54 cycle lane miles are planned to be completed in 2013. The network is defined as: Class I: bike paths physically separated from motor vehicle and pedestrian traffic Class II: on-street bike lanes defined by a painted stripe Class III: bike routes represented only by posted route signs Most of the Class I paths, as well as areas of improved public realm generally, have been built at a low cost using 'semi-segregation'. As further funding has been made available, this has been replaced by permanent construction.
Cycle Statistics
Commuting in New York City: 55% use the subway, bus or rail; 30% travel by car or taxi, 10% walk. 54% of households in New York City do not own a car. Although cycling currently accounts for only around 1% of trips across NYC, it is higher in areas where the land use mix and demographics are more favourable – eg Manhattan, Brooklyn, Williamsburgh. Bicycle commuting to and from Manhattan has more than doubled since 2005, more than tripled since 2000, and more than quintupled since 1990. New York City saw a doubling in bicycle commuting between 2007 and 2011, and aims to triple it by 2017. There are no targets for reducing car use, but there has been a willingness to redistribute carriageway space to give more space for cycling and walking. In 2012 there were 18 cycling fatalities and some 3900 injuries in NYC. The number of casualties has stayed broadly constant over recent years, and with the growth in cycling it is estimated that the risk to cyclists has fallen by about 73% between 2000 and 2011.
Policy + Funding
Some 80% of the capital cost of the cycling infrastructure has been provided by the Federal Government. However, the City has been able to use revenue spending to construct much of the network – road markings and semi-segregation. Design for cycling has knock-on implications for motor vehicle provision - eg lane widths. NY DOT will use motor lane widths of 10' (3m) when necessary to enable cycle lanes/tracks to be provided.
Legal Framework
Cyclists are required to use bike lanes when they are provided, but there is no requirement in NYC for cyclists to 'hug the kerb'. Cycling on footways (sidewalks) is banned. There is no law of strict liability. Traffic signs and markings are given legal force at Federal level. There is scope for the State and (separately) the City to bring in traffic rules, however - eg no parking or driving within cycle lanes. Dooring is also illegal. Drivers are required to exercise due care around cyclists and sound the horn to give warning. Vehicles (including cyclists) are required to give way to pedestrians when turning at traffic signals under the 'parallel green' system. There is no legal problem with cyclists making a two stage (box) turn at signals but it is not required.
Public Cycle Hire
The Citibike system operates across Lower Manhattan and Brooklyn. The largest bike share system in the US, it opened in May 2013 with 330 stations and 6000 cycles. Plans are for more than 10000 cycles and 600 stations. The system is virtually identical to the Barclays Cycle Hire system in London, although the docking stations are solar powered. From inspection, it appears that the system is well used by New York residents for short trips around the city, and is very popular.

Cycling Culture
There is no legal requirement to wear a helmet, except for children aged between 5 and 14. Helmet wearers appeared to be in the minority. Cycle training is provided free for children and adults by Bike New York, a not-for-profit organisation, working in partnership with New York DOT.
Public Transport Networks
New York has the most extensive public transport system in North America, with a well developed suburban train, subway and bus network.
Governance
The Mayorality is the most important decision making body within NYC, and the most recent administration has had a large beneficial impact on cycling provision and levels. The NYC DOT operates at City-wide level and is able to implement schemes across all streets (and including the bridges) in the five Boroughs. Local consultation is still important though. There have been a number of legal challenges to the provison of cycling infrastructure (most notably on Prospect Park West) but these have failed. The Mayoralty current at the time of our study visit ended in November 2013. The new Mayor, Bill de Blasio, has stated that he will support the further development of the cycling network.
Settlement Pattern-Topography-Climate
Polycentric – Manhattan is the most important location for employment and commerce, but there are smaller centres throughout the 5 boroughs making up NYC. The network mainly consists of a strict orthogonal grid. The city is reasonably flat but with some moderate to long gradients – eg across the bridges. New York's climate is very varied, with hot and humid summers and cold damp winters, often snowy.
Reference Documents
New York City DOT has developed its own standards for cycling infrastructure, largely based on a review of standards in other cities. It has collaborated with other US bicycle-friendly cities to produce the NACTO design guide. NACTO (the National Association of City Transportation Officials) is a small organisation (based in New York) which acts as technical umbrella organisation for City transport authorities (as opposed to those at State level). There are variations in detailed approaches between cities (eg on the colouring of lanes on the approaches to/through junctions) and are presented as alternatives in the NACTO guide. New York does seek to apply its own solutions in a consistent manner. All designs have to be consistent with MUTCD (equivalent of TSRGD) but not the AASHTO manuals (somewhat equivalent to DMRB). Officers have sometimes had to be 'creative' in their interpretations of Federal rules.
Interviewees
Ryan Russo Joshua Benson Michael Flynn David Vega-Barachowitz, NACTO

Bi-directional track through a complex junction. Lane markings and 'sharrows' (shared use arrows) help to waymark

There is cycle provision (of varying quality) across all the major bridges in NYC

A typical painted lane in Brooklyn, but with inadequate clearance to the door zone

A bi-directional painted lane in Brooklyn

An offside cycle lane with wide, painted buffer strip. Placing the lane here avoids conflict with buses and parked cars

A bi-directional protected bike track in the centre of a major highway

Offside bike track created at low cost with segregation through flexible wands in a wide, painted buffer strip.


As funds become available, lightly segregated tracks can be fully separated as part of public realm schemes

WASHINGTON D.C.

Cycle Network Overview
Arising from the 2005 Bicycle Master Plan, by 2012 a cycle network of 56 miles of lanes and 3 miles of tracks had been provided around the city compared to 3 miles in 2000. Around 10 miles of new routes are planned for each future year. Some of these, especially in the centre, comprise one or two-way bike lanes physically separated from motor vehicle and pedestrian traffic. However, the bicycle network remains fragmented. Just outside DC, in Arlington, there are 86 miles of on-street lanes and paved off-road trails. There is a focus on routes to Metro stops to encourage longer distance commuters, with the introduction of secure parking and promotion of "Bike and Ride".
Cycle Statistics
Commuting in Washington DC (2010): 39% use subway, local rail or bus, 41% travel by car or taxi, 12% walk, 3% cycle. The DC Department of Transport (DDOT) recorded in increase in bicycle commuting from 1.16% in 2000 to 3.13% in 2010. There are no specific targets for reducing car use, but there is clear willingness to redistribute space to give more for cycling. Although cycling currently accounts for only around 3% of trips in Washington DC, it is higher in a number of areas where the land use mix and demographics are more favourable, with levels in some neighbourhoods exceeding 5% (and the highest cycle-to-work share being 10%). However, only 28% of the workforce are residents and many commuter trips are relatively long, which discourages higher levels of cycle commuting. In 2010 DDOT reported 2 cyclist fatalities with ~340 injuries in total. In previous years, the total figure was roughly constant at ~250 injuries. A particular safety issue has been experienced on the central bicycle lanes along Pennsylvania Avenue due to vehicles (especially taxis) U-turning across the facility. Although U-turns are illegal, its protected status as the Presidential route between the White House and Capitol Hill means that the lane cannot be protected by physical measures. Washington DC is notable in the USA for having a significant number of roundabouts ("traffic circles"), however there does not appear to have been any attempt to make these cycle-friendly.
Policy + Funding
A large proportion of the capital cost of cycling infrastructure has been provided by specific programmes of the Federal Government. However, Washington DC has also used its own revenue spending to construct much of the network, including measures such as road markings and semi-segregation which would be considered capital in the UK.
Legal Framework
Cyclists are considered as operators of vehicles and must obey all relevant highway laws, signs, etc. There is no requirement to use bike lanes when they are provided. There is no law of strict liability. If travelling slower than prevailing traffic, cyclists must ride "as closely as practicable to the right-hand curb" except where overtaking, turning, following lane markings or "where necessary for the bicyclist's safety". On one-way streets cyclists may ride on both sides with similar regulations. Cyclists are permitted to ride on sidewalks in Washington DC (except in the CBD), although DDOT discourages this. They are also permitted to use crosswalks (pedestrian crossings) without dismounting. In both these cases cyclists must give way to pedestrians. In addition to Federal laws, there is scope for DDOT to bring in local traffic laws – e.g. cars may not stop, wait or park in a bike lane. Drivers must leave at least 3 feet clearance when overtaking cycles, and there are specific regulations making "right hooks" and dooring illegal. Vehicles (including cyclists) are required to give way to pedestrians when turning at traffic signals under the 'simultaneous green' system. Motor vehicles are also required to give way to cyclists at a number of junctions where signed to do so.
Public Cycle Hire
The Capital Bikeshare system opened in 2010 and is currently one of the largest cycle hire sharing systems in the USA with over 1,800 bicycles and 265 stations. The scheme uses the Bixi system and hence is virtually identical to the Barclays Cycle Hire system in London. Observations suggest the system is well used by Washington DC residents and visitors for short trips around the city.

Cycling Culture
Training is provided free for children as part of the Biking for Kids programme in Washington DC schools, carried out by the Washington Area Bike Association (WABA), which also offers paid-for training for adults in Washington DC and Arlington. There is no legal requirement to wear a helmet, except for children under the age of 16. Among adults, helmet wearers appear to be in a small majority. There is a growing cycle culture in the Washington DC metropolitan area, with a number of cycle events throughout the year, including organised rides and talks.
Public Transport Networks
The Washington DC metropolitan area has an extensive public transport system with a well-developed subway (Metro), local rail and bus network. Metro lines allow cycle carriage at off-peak times including weekends, and Metro buses have bike racks on the front.
Governance
Settlement Pattern-Topography-Climate
Washington DC is a compact city in the form of a truncated square with a single Central Business District. The capital of the USA, Washington DC is a planned city, developed since the early 19th century, and divided into four quadrants. The road network consists of a series of wide avenues radiating out from the US Capitol building. A grid system of streets fills the areas between the avenues. To the southwest of the city the Potomac River forms the boundary with Arlington County and the City of Alexandria (both in Virginia). Although separate political entities, these form part of the metropolitan area along with other adjacent settlements. The Washington DC metropolitan area is reasonably flat with some moderate gradients. Its climate is humid & subtropical, with hot and humid summers and cold damp winters, generally snowy.
Reference Documents
DDOT has developed its own standards for cycling infrastructure over recent years, largely based on a standards from other cities. The city has generally adopted the NACTO "Urban Bikeway Design Guide" (2nd edition published in 2012, see NYC for more details). There are variations in detailed approaches between cities (e.g. on the colouring of lanes on the approaches to/through junctions, where DDOT adopts the opposite approach to New York City DOT) and these are presented as alternatives in the NACTO guide. Notable examples of innovative facilities are 15th Street (two-way light segregated cycle track, using posts), M Street (one-way light segregated cycle lane, using posts) and Pennsylvania Avenue (two-way buffered central cycle lane). These include junctions based on the NACTO guide. Some have mixing zones with dedicated signals for cyclists. However in a number of places cyclists are directed to follow pedestrian signals to cross. This is particularly true for cycling in the contra-flow direction.
Interviewees
Jim Sebastian - Bicycle & Pedestrian program manager, Washington DC DOT Andy Clarke - President, League of American Bicyclists

Two-way track segregated by 'wands'

Two-way 'lightly segregated' track with adjacent end-on parking

'Mixing Zone' with light segregation to limit area where motor vehicles can move across

Two-way central cycle track

Signalised junction on two-way central track, with separate lanes for ahead and turning movements

Simpler layout of two-way central track at signalised junction

Entrance to the central bi-directional track on Pennsylvania Avenue, leading towards the White House


Two-way cycle 'greenway'

NANTES

Cycle Network Overview
Nantes only began to invest seriously in cycling in 2008, when the cycle mode share was around 2%. There are now 450km of designated routes, and the city is extending this by around 20km per year. The network mostly consists of cycle lanes, which are marked with broad dashed white lines. Few pavement level tracks are used - where these are provided they are paved in contrasting material to define the route, or are occasionally (eg around roundabouts) with a white dotted line and symbols. On streets with a motor traffic flow of <5000 per day, a 'Chaucidou' layout is used, which has a single two-way motor traffic lane and cycle lanes on either side. Bus lanes are considered to be part of the city's cycle network, and account for 15km of the network. Semi segregation is used in some key places, eg on the exit from roundabouts where there is a strong possibility of motor traffic entering the lane. This consists of raised thermoplastic lines, or occasionally raised granite paved strips. On the key north-south cycle route along Cours Des 50 Otages there is a raised two-way cycle route along the centre of the street, with single traffic lanes on either side, which cater for public transport and access traffic. There are also a number of important greenways including along the River Loire which is a key east-west route. There are also extensive 30kph areas as well as 20kph 'zones de rencontre' (home zones).
Cycle Statistics
Cycling mode share is currently circa 5% over the metropolitan area, and around 10% in the city centre. The overall mode share is approx 50% car, 50% public transport, cycling and walking. By 2030 Nantes is aiming to have reduced individual motorised modes to 33% of all trips. By 2020, the aim is for cycling to make up 15% of trips. Limiting car access is a key part of the strategy. There are generally around 2-3 fatalities per year and 20 serious injuries. This is staying constant, even as cycling grows.
Policy + Funding
The current spend on cycling is 5m € pa, and the aim is to double this, to approximately 15 € per person per annum.
Legal Framework
A recent change in the law allowed cyclists to turn right on a red signal at crossroads, and go ahead at T-junctions, but giving way to pedestrians. Nantes has pioneered this - it has carried out an evaluation of 16 sites and has concluded that the system is working well. Under French law, all streets in 30kph zones must be two-way for cycling, and the city has therefore carried out a blanket authorisation of contraflow cycling in much of the city centre.
Public Cycle Hire
Nantes has established the Bicloo system, the first cycle hire system in France. There are currently 100 stations, 1000 cycles - all at no cost to the city as they are funded through advertising (JC De-caux). It is used mainly by visitors and people starting to take up cycling, and is not considered to represent significant proportion of cycle trips. Nantes also operates a municipal bike hire system for daily hire as well as 'Cyclotan', a folding bi-cycle which can be taken on public transport and is rented for 190 € pa.

Cycling Culture
Cycling is generally less vehicular in style than in the UK, although there are some occasions - eg at the many roundabouts - where cyclists need to be confident to cycle in the carriageway. Most people do not wear helmets and cycle in everyday clothes.
Public Transport Networks
Nantes was the first city in France to construct a modern tram network. It has also invested heavily in conventional and guided bus - the latter with significant priority at major junctions. A key part of the cycling strategy is to better integrate with public transport, with secure cycle parking at major interchanges. There are no plans to carry bikes on trams/buses, except folding ones.
Governance
Nantes Metropole has overall responsibility for transport, urban planning, waste etc across the conurbation. It has an overall budget of 1 billion euro pa. 'Soft modes' are part of the transport department (50 people) with 10 people working in this area. There is a need to consult with the 24 cities that make up the metropolitan area, but key decisions are taken by the main authority.
Settlement Pattern-Topography-Climate
The conurbation (Nantes Metropole) consists of 24 'cities', ranging from suburban centres to semi-rural villages. It mainly has an organic grid of routes, more tightly spaced in the centre, with major radials leading from the city centre. Some of the more modern suburbs have Radburn-type layouts. The city itself is mainly flat but there are some moderate hills in the suburbs, rising up from the Loire valley. It has an oceanic climate, with moderate snowfalls in the coldest months. The average rainfall is 736mm pa.
Reference Documents
Nantes Metropole has developed its own design principles based on research into best practice.
Interviewees
Hadrien Bedok Beatrice Renaud

Nantes has many roundabouts and has placed cycle symbols in the circulatory carriageway at some of them

Central, bi-directional track, Cours des 50 Otages; with bus lanes to either side

A recent extension to the main bi-directional track across the city - with priority over side streets

New bi-directional track running parallel to a tram line

Cycle track along the river Loire - part of the long-distance 'Loire a Velo' route

Painted lane with offside car parking

The southern section of the Cours des 50 Otages - parallel cycle and pedestrian crossings over a central reservation gap, next to a tram stop.

A parallel pedestrian and cycle priority crossing over a busy street

BRIGHTON + HOVE

Cycle Network Overview
Better provision for cycling in Brighton & Hove can generally be traced to its success in bidding to become a Cycling Demonstration Town (2005-08). Officers specifically sought inspiration and expertise from Copenhagen. Early work focused on introducing advanced stop lines (28 in one 3-month period) and cycle parking. In 2007, the city innovated with cycle parking on the carriageway (where car parking had been), and in 2008 also installed protected cycle tracks on the north-south Grand Avenue/The Drive link between the Hove sea front and Old Shoreham Road: a total of around 1.5km in length. Another milestone, in 2009, was making cycling legal on Undercliff Walk. In 2012, a new east-west stepped cycle track was opened on Old Shoreham Road, connecting the Grand Avenue/The Drive track in Hove with Brighton. This 1.15km scheme features tracks on both sides of the street, created largely by reclaiming former general carriageway: what was a 9-11m wide single carriageway is now a consistent 6.1m in width. In addition to providing protection for cycling, the carriageway narrowing has led to an appreciable drop in traffic speeds. The city's other main east-west cycle track runs along the seafront, where there is space for better provision than is currently made, but local opposition to this for various reasons. A new section of cycle track on the Lewes Road, connecting the University on the outskirts with the centre of the city, was opened in 2013. Work is now in hand to radically improve the cycle track provision connecting Lewes Road to the sea front via Valley Gardens to the Pier. Steadily, a connected network of separated cycle tracks is growing in the city.
Cycle Statistics
A survey by Cycling England at the end of the Cycling Demonstration Town period suggested there had been a 27% increase in the amount of cycling in the city over three years from 2006 to 2009. The 2011 census showed a 5.4% cycle mode share for journeys to work in the city as a whole; double the figure of 2.7% from the 2001 census. The figures for different wards vary considerably. Daily cycle flows along the sea front route are around 4,000, with around 500/day along Old Shoreham Road.
Policy + Funding
The Council last adopted a formal Cycle Strategy in 2003, but the policy of the current administration is strongly pro-cycling and supportive of other sustainable transport modes. In 2013, the Council implemented a 20 mph zone covering all of the city centre, and in early 2014 agreed to extend this to nine further areas. A third and final phase is planned. Officers report that the success of recent cycling measures (e.g. Old Shoreham Road, Lewes Road) has helped to build a cross-party consensus in favour of encouraging cycling. There is no major pot of funding specifically allocated to cycling, but the Council has invested several millions in recent years on comprehensive street improvement schemes that enhance conditions for cycling (including, e.g., the New Road 'shared space'). Funding sources include central Government via the Local Transport Plan (LTP) process and Local Sustainable Transport Fund (LSTF), the 'Coast to Capital' Local Enterprise Partnership (LEP), and contributions from developers via 'Section 106' agreements
Legal Framework
Same as that applying in London.
Public Cycle Hire
Brighton & Hove does not have a public bike hire scheme, and no specific plans to introduce one.

Cycling Culture
By UK standards, parts of the city have a very well-developed cycling culture, with cycling seeming more popular in Brighton than Hove. Anecdotally, this culture is strongest within a particular demographic (white, middle class) and this is reflected in the fact that Brighton & Hove voted in the UK's only Green-led Council administration and returned the country's only Green MP to Parliament.
Public Transport Networks
Brighton & Hove has what is widely regarded as one of the best bus services in the UK outside of London, with a dense network of high-frequency services run by a single operator: the Brighton & Hove Bus & Coach Company. The two centres are also connected directly by railway, although the stations lie somewhat north of the main commercial and employment concentrations.
Governance
Brighton & Hove City Council is a Unitary Authority – being its own Highway and Planning Authority. At the city boundaries, it works with neighbouring highway authorities of West Sussex and East Sussex County Councils. Political leadership has been critical to growth in provision for cycling. The previous administration sought to remove Grand Avenue-Drive cycle track in 2011; the new administration since May 2011 has backed construction of Old Shoreham Road and Lewes Road cycle tracks.
Settlement Pattern-Topography-Climate
As the name suggests, Brighton & Hove is a conurbation with two centres: Brighton to the east and Hove to the west. Brighton has the bigger commercial centre; the main City Council buildings are in Hove. In keeping with most seaside towns and cities, the Brighton & Hove does not have a conventional radial transport network, and there is no north-south through movement. Large parts of the city are hilly, though some areas with particularly challenging gradients also have some of the highest cycling levels (e.g. Hanover). There is also a general rise in ground level away from the sea northwards to the South Downs. The climate is generally temperate, with seaside location minimising the incidence of below-zero temperatures.
Reference Documents
Currently, the Irish National Cycle Manual (2011) is the main reference document used. Previously, the original London Cycling Design Standards were used. B&HCC prepared its own note on Cycle Track Design Guidance, which is summarised in its Streetscape Design Guidelines: http://www.brighton-hove.gov.uk/sites/brighton-hove.gov.uk/files/downloads/transport/Streetscape_Design_Guidelines.pdf Local Transport Note 2/08 forms part of the context, but is not used as a key design document.
Interviewees
Abby Hone, Brighton + Hove City Council Robin Reed, Brighton + Hove City Council

The central reservation on Lewes Road was narrowed to create the wide bus lane + cycle lane arrangement

'Bicycle gate' signals on the Lewes Road

A child cycling on the Old Shoreham Road cycle track

The Old Shoreham Road cycle track opening celebration, June 2012

A short section of shared foot/cycle path where Old Shoreham Road narrows to cross a railway bridge

Cycling along the sea front in Hove

One of many bus stop bypasses on the Lewes Road

Home-made advice to cyclists on Old Shoreham Road, where the track has priority over the side street

MINNEAPOLIS

Cycle Network Overview
Cycling has always been popular in Minneapolis and off-highway bike trails began to be built in the late 1970s following a then renewed interest in cycling. These Greenway trails now form a key element in the city's cycle network, making up nearly half of its length. They follow old railway routes and the banks of the Mississippi River and are on commuter desire lines, linking the two main campuses of the University with one another and with the city centres. They are also used for leisure rides, forming an attractive route around the twin city through parkland and lakeside settings. The trails are lit and are used throughout the year. Generally the routes are bi-directional and exclusively for cycling, with separate pedestrian routes alongside. There has been ongoing investment in the Greenway network, with a number of major bridges having been built across barriers (railways, river, freeways) in recent years to link the trails together. On highway the network consists of simple bike lanes, generally 5' wide and clear of parking, and 'bicycle boulevards', streets with low motor traffic volumes and speeds. The city is now beginning to trial light segregation and Danish-style intermediate level tracks on main highways.
Cycle Statistics
2012 Journeys to work, Minneapolis city – Walking 7%, Cycling 5%, Public Transport 13%, Car 75%. Cycling has not been growing significantly in recent years, although the most recent data is more encouraging, reflecting the completion of some key links in the network. For example, the opening of the Cedar Lake Trail extension in 2012 led to an increase of 21% in cycling on the overall corridor and more than a doubling on the trail itself. The difference between summer and winter cycling levels is reducing over time. The number of collisions involving cyclists has shown a steady decline in recent years, from 320 to 270 per year, despite the growth in cycling in the mid 2000s. Most crashes take place at intersections along major arterials. The crash rate is lower on the busiest routes – 'safety in numbers'. There were 1.1 fatalities per year on average between 2000 and 2010.
Policy + Funding
Twin Cities was one of four US communities to receive $28m of Federal funding for walking and cycling in 2007.
Legal Framework
Traffic signs and markings are given legal force at Federal level. There is scope for the State and (separately) the City to bring in traffic rules, however. Cyclists have the same rights as motorists, including turning right on red when this is allowed. They can also pass a signal if it shows red for 'an unreasonable time' and there is no immediate hazard. Motorists are required to maintain a 3 feet clearance when passing cyclists and must not park in bike lanes. Cyclists are able to use sidewalks except in downtown. There are no strict liability laws.
Public Cycle Hire
The Nice Ride system, launched in 2010, provides public bike hire across the urban areas of the Twin Cities and is similar to the London Cycle Hire system. It offers 1550 bikes at 170 stations, but only operates from April to November. The ridership per day is currently around 1250.
Cycling Culture
There is no legal requirement to wear a helmet but from our site visit it seems that more than half of Minneapolis cyclists wear helmets. Cyclists tend to wear more specialised clothing than in European cities.

Public Transport Networks
Minneapolis has a modern light rail system, currently with only one line linking downtown with the airport, but a further route to St Paul downtown is under construction and additional routes are planned. The city's bus network and light rail are operated by the same company. Bikes are carried on trams and on buses.
Governance
There are three tiers to the road network - Federal (Interstate), County (Arterials) and City (all other Streets). The City is generally positive towards cycling, but the County is possibly less so, since many elected members represent rural and suburban areas where there is much less of a cycling culture. Federal funding for cycling is being delivered through the Bike Walk Twin Cities Program, which is being managed by Transit for Livable Communities (TLC), a non-profit/advocacy organisation.
Settlement Pattern-Topography-Climate
The metropolitan area of the Twin Cities has two downtowns, Minneapolis and St Paul, which form the core of the urban area. The University campuses lie between these centres. There are no major urban centres in the surrounding suburbs, although there are commercial malls typical of the US. The network has a strict orthogonal grid in the urban parts of the metropolitan area, and lower density cul-de-sac layouts in the surrounding suburbs. The area is generally flat, but with some moderate gradients in the Mississippi valley which passes through both cities. Minneapolis has a continental climate, with cold snowy winters and warm summers. It experiences minimum temperatures below -18°C on 30 days per year; and above 32°C on 15 occasions per year on average. Precipitation is some 75cm per year, with the highest rain in June.
Reference Documents
Minneapolis DOT generally uses NACTO standards for bicycle lane widths and semi-segregated tracks (only one of which has been constructed so far), plus bicycle boulevards. There are tensions with the Minnesota State highway standards, which can make it difficult to introduce cycle and walking facilities. The city is participating in a state-level committee working towards the revision of these standards, as well as in trials of innovative design solutions such as the use of colour and bicycle signals at traffic lights. Follow up evaluations of these trials will continue for two years.
Interviewees
Prescott Morrill, Bike Walk Twin Cities Rose Ryan, Hennepin County

A long-distance greenway passing through the University of Minnesota campus

Cars waiting at a Stop sign for bikes to pass on the Midtown Greenway

Typical greenway at the side of the road, with separate bi-directional cycle track and footway

Typical painted lane, with some buffer space to parked cars

All buses are equipped to carry bikes

Sign apparently erected in response to a 'right hook' problem

The Martin Olav Sabo bridge, carrying the Midtown Greenway across Hiawatha Avenue (Trunk Highway 55). It is 671m long and is divided into a bi-directional cycle track and a footway

The Midtown Greenway runs largely along a former railway line. The opening of the route has been a catalyst for local regeneration.

SEVILLE

Cycle Network Overview
The development of Seville's network of protected bi-directional cycle tracks was quite remarkable. The rapid growth is charted by the following statistics: 2006 – 12km of bike tracks. 2007 – 77km of bike tracks; 684 bike parking spaces 2008 – 92km of bike tracks; 1,428 bike parking spaces 2010 – 120km of bike tracks; 5,728 bike parking spaces On average, over a four year period, around 500m of new cycle track was constructed every week. Future plans seem to focus on linking outlying 'villages' to the centre and providing bike paths in new developments. There are no proposals to create a denser urban network or to provide bike paths on both sides of streets. Almost all the main streets in the urban area, surrounding the city core of narrow, cobbled streets, have been treated with a single, standard bike track template: bi-directional, segregated and around 2.5m wide (varies in width both up and down according to local constraints). These tracks were largely taken from carriageway/parking, but sometimes from footway. Where the track is at carriageway level, separation is provided by a range of means from different types of bollard, railings, and lower-profile, white concrete 'Lacasitos' (the name of a Spanish M&M-type sweet). All of these separation methods deliver a high degree of subjective safety, as they would damage any car that over-runs them. This template and simple, pragmatic form of separation was chosen for its ability to be implemented both rapidly and cheaply. At junctions, the path is often rather circuitous, but it never disappears – directness is traded for simplicity and continuity. Going forward, the Junta's preferred model would be more costly footway level tracks separated from the carriageway by kerb, but with no kerb separation from the adjacent footway.
Cycle Statistics
Non-motorised transport fell steadily from 50% of all trips in 1990 to 32% of all trips in 2007. An increase in bike mode share (all journeys) followed the rapid expansion of the cycle track network from October 2006: one source shows growth from 3.2% of all trips in Nov 2007 to an estimated 5.6% in Nov 2011. Of those transferring to bike, a survey suggested 37% from bus, 23% from car driver and 28% from walking. The same survey estimated average bike journey distance was 5.1km; and reported that 30% of Sevillans cycle reasonably regularly. Cycling growth figures vary with source, with little directly comparable data for the city as a whole. One survey of cyclists numbers at a series of count points around the city showed an increase bike flows from 330 in Sept 2006 to 1,935 in Nov 2011 (a growth factor of 5.8 in 5 years). Another report shows an increase in (presumed) city-wide bike flows from 6,605 weekday/4,427 weekends in 2006 to 68,261 weekday/29,219 weekends in 2009 (a 10x increase in weekday bike traffic in 3 years!)
Policy + Funding
The rapid growth of Seville's cycle track network, and of the city's cycling culture, took place under the previous Ayuntamiento (City Council) administration. The current Ayuntamiento administration is pursuing improvements to cycling less vigorously than in the latter half of the first decade of the century, partly due to a change in the political colour of the party in control and partly due to a sense of 'job largely done'. The work from 2006-2009 is estimated to have cost 30m € over the four years. It is clear that investment in cycling at anything like these levels has not been sustained. While there appear to be no plans to significantly expand the city's cycle track network, investment in maintaining the existing assets will be very important. From our visit, we would raise a concern over whether enough is being spent on this.

Legal Framework
At signalised junctions, drivers are typically shown green to turn right across cyclist and pedestrian greens on the side arm, and flashing amber lights are sometimes used to remind drivers that they are required to give way to the latter. At unsignalised locations (e.g. side street junctions), drivers must yield to cyclists where a marked bike track (green with elephants' feet to either side) crosses their path. This is a general regulation (check local/state) and is not further enforced by give-way markings. Cyclists are not required to use the formal bike tracks and may cycle in the main carriageway should they choose. Within the city core (and the ring of dedicated bike paths) there is a warren of largely narrow streets (often very), most of which have one-way operation. There is no formal bike contra-flow (in some streets it would be physically impossible for a bike to pass an oncoming car), but cyclists often ride contra-flow informally and the city does not enforce against such activity. Vehicle speeds in the core are generally low.
Public Cycle Hire
The 'Sevici' cycle hire system grew from 100 stations, 1,000 bikes & 3,500 memberships in 2007 to 250 stations, 2,500 bikes & 68,000 memberships in 2010.
Cycling Culture
Observations suggest helmet wearing is largely restricted to sportifs (a large proportion of these at weekends and evenings – especially on the canal-side 'green route'). Helmet wearing is compulsory for children up to age 8. Though bike mode share has increased during the past decade, the street use culture remains largely one where drivers feel confident in asserting their priority, although they must yield by law wherever a marked bike track crosses the carriageway at unsignalised locations. Cycle theft is not reported as a major problem.
Public Transport Networks
The city has a comprehensive network of relatively frequent bus services, all operated by the Ayuntamiento. Seville also has a single, four-stop tram service running from the south of the city centre (by one of the two main bus stations) to a square in the heart of the main shopping area. There is also an underground Metro system.
Governance
The city council (Ayuntamiento) is directly responsible for the city's highways, though the vast majority (90%) of funding comes from the regional authority (Junta de Andalucia) and national Government. There are 'villages' outside the city (check if these have some local powers?).
Settlement Pattern-Topography-Climate
Monocentric, with some local centres; generally very flat; can be very hot (regularly 30°C+ in summer); shade is important; never too cold/icy/snowy to ride.
Reference Documents
Seville Bicycle Master Plan, March 2007 (in Spanish) http://www.sevilla.org/sevillaenbici/plandirector/PlanBiciSevilla.html Andalucia Bicycle Master Plan, 2014-2020 (in Spanish) http://www.juntadeandalucia.es/fomentoyvivienda/estaticas/sites/consejeria/areas/transportes_infraestructuras/plan_bici/documentos_plan_bici/documentacion_aprobado/PAB_2014_2020.pdf
Interviewees
José Antonio García Cebrian - Deputy Minister for Infrastructure and Housing, Junta de Andalucia (formerly Director General of Planning & Housing, Ayuntamiento de Sevilla) Luis Ramajo - Sustainable Mobility Chief, Junta de Andalucia

Sevillian cyclists seem happy enough to mingle with the city's single, relatively short tram line.

A typical 'floating bus stop' arrangement.

Sports cyclists out for an evening ride pass by the Torro del Oro

Trees' value to Seville meant none were removed to create the tracks. Mobility scooter & wheelchair users are welcome.

Cycle button used to define cycle path through Avenida de la Constitucion, the city's central pedestrianised street

Typical markings as a bi-directional cycle track approaches/ leaves a crossing

Sevillians cycling in front of the Plaza de Espana

Close-up of a 'Lacasito' - a concrete feature used widely to project cycle lanes (the nickname comes from a Spanish M&M-type sweet)

DUBLIN

Cycle Network Overview
Dublin's cycle network is not very well developed at present, although there has been some investment in on-carriageway lanes and off-carriageway tracks. These are generally similar to UK practice, although Dublin has made better use of transitions between cycle lanes and tracks than most UK cities, and has begun to provide some facilities that are similar to continental Europe such as two-stage turns at signals and cycle tracks at roundabouts with priority over entries and exits. Cycling is now seen as a high priority and a strategic cycle network has been planned for the whole of the urban area, based on detailed forecasts of future cycling flows. The general aim is for routes to be at a maximum of around 250m spacing. These will consist of a combination of lanes and tracks, plus traffic calmed routes and off-highway greenways. A graph of traffic speed and volume, largely taken from Dutch practice, is being used to determine the appropriate provision. In suburban areas, routes are being achieved by linking cul-de-sac layouts – this is not always easy, but is essential to reducing car dependency in low density areas, which are difficult to serve with public transport.
Cycle Statistics
2011 Journeys to work – Walking 15%, Cycling 6%, Public Transport 21%, Car and Van 58%. Cycling has grown significantly in recent years – an increase of 40% inside the canals between 2006 and 2011, and an increase of 29% across the city as a whole. It is estimated that there were 22,000 morning peak cycling trips in the Greater Dublin Area in 2011 and the aim is to increase this to 75,000 trips by 2021. The number of cyclists killed and seriously injured has generally declined over recent years although there appears to have been a flattening of the trend more recently. There was 1 fatality and 7 serious injuries in 2010. Collisions with left turning lorries has been the main source of fatalities.
Policy + Funding
Committed spending for 2012 is some 5m €, or around 4 € per person per year.
Legal Framework
No user has an overriding right to use the road, but priority is given from place to place, depending on road markings, signs and signals. Motorists are meant to give priority to pedestrians crossing side roads, even at signals, but this is not widely observed. There are no strict liability laws. Until recently cyclists were required to use cycle infrastructure where it was provided, but this has been rescinded.
Public Cycle Hire
Dublin Bikes was established in 2009 and is the same system as that used in Paris. It is sponsored by JC Decaux. There are currently 550 cycles and 44 stations and it planned to be expanded with a further 950 cycles and 58 more hire points. It is considered to be highly successful in getting more people onto bikes and changing the perception of cycling in the city.
Cycling Culture
Training is provided by volunteer organisations. There is no legal requirement to wear a helmet. Helmet wearers appeared to be in the minority.
Public Transport Networks
Dublin has an extensive bus service and two light rail lines, of which more are planned, together with suburban and longer distance rail lines.

Governance
The National Transport Authority, established in 2009, has overall responsibility for transport planning across the Dublin conurbation and the four largest Irish cities, including for cycle policies, technical guidance, planning and funding. This is seen as critical to the growth of cycling in Dublin and Ireland. A series of gateways/approval processes will be used for all cycle projects funded by the NTA and this will be used to maintain the quality of schemes.
Settlement Pattern-Topography-Climate
The conurbation of Greater Dublin has a strong city centre forming the main commercial and retail focus and with a typical pattern of radial and orbital routes. There numerous significant secondary centres across the settlement, several of which have been expanded fairly recently, such as Blanchardstown and Tallaght. The street pattern is varied, with well-connected networks in the city centre and older suburbs, but more dendritic and disconnected in more recent development. The city is reasonably flat but with some higher ground and moderate hills in the outer suburbs. Dublin has a maritime climate with mild winters and cool summers. The average rainfall is 715mm, distributed throughout the year.
Reference Documents
The National Cycle Manual (NCM) is the main source of technical guidance, and was published by the NTA 2011. It is guidance, but designers will be expected to use it on all projects funded by the NTA. It is referred to in new Design Manual for Urban Roads and Streets (DMURS), which is now a government standard for urban areas. The NTA is very pleased with the NCM and consider it key to the development of a high quality network. It has only been applied to a limited extent so far though - many existing facilities predate NCM and need to be updated.
Interviewees
Michael Aherne Robert Parkinson

The existing network is made up of both lanes and footway level tracks - which sometimes leads to duplication

A cycle lane transitioning into a verge cycle track on Stillorgan Road

Bus stop bypass and adjacent cycle parking

Easy transition from cycle track to cycle lane

Bi-directional cycle track with separate footway, Samuel Beckett Bridge

Flashing amber signals are used to show a requirement for drivers to give way on turning

A 2m-wide mandatory on-carriageway cycle lane

Ireland has been using low level cycle signals for many years

CHRISTCHURCH

Cycle Network Overview
Christchurch is generally regarded as the leading cycling city in New Zealand. The existing cycle network is mainly made up of 68km of on-road cycle lanes and 86km of off-road cycleway paths (2006 figures). The Canterbury Earthquake Sequence of 2010-2011 means that the City Council is planning comprehensive redevelopment of some areas, and plans for approximately 130km of major cycleways form part of the Transport Strategy. Three classes of route are planned: major cycleways, local cycleways, and recreational cycleways. A conceptual map of major cycleways has been developed comprising an inner ring and eight radials, with an outer ring between two radials in the vicinity of the University. Cycleways may be on- or off-carriageway, depending on the shortest route. There is a presumption in the new cycle design guidelines to develop a network of routes for cycle traffic which are not coincident with public transport, because of the experiences of high numbers of collisions on corridors with a large number of buses. On-carriageway provision will comprise Copenhagen-style stepped tracks, 'light segregation' and painted lane lines (as a less preferred 'retro-fit' option). Use is also being made of flexible wands and Riley separators (1.2mx100mmx25mm yellow plastic reflectorized markers fixed to the carriageway in line with the white cycle lane line). Research suggests that while Riley separators move motor vehicles further back into their own lane, encroachment is still high and vertical flexible posts combined with Riley separators are very effective (Koorey et al., 2013).
Cycle Statistics
Cycling currently accounts for some 3% of trips in Christchurch, a figure which has remained fairly constant over the last decade. Car travel is the most popular mode, (47% driver, 25% passenger), followed by walking (21%). Public transport is only some 3%. Car ownership is high, with only 9% of households not owning a car (2006). The trend is for car ownership to continue to increase.
Policy + Funding
The current Transport Strategic Plan was developed after a range of a range of public consultations, including a 'Share an Idea' initiative, involving some international input from, for example, Jan Gehl. There was an overwhelming public response with 3,700 submissions relating to transport alone. The overall public desire has been for a much more people friendly city. Politically, this public desire is proving difficult to merge with the national government's agenda which is primarily concerned with the economics of time savings for motor traffic. NZ$70 million (£36 million) is being invested in cycling. There is also significant funding for 'like for like' replacement (as opposed to betterment) of infrastructure damaged in the earthquake.
Legal Framework
NZ has the left hand rule of the road, the same as the UK. There is no strict liability law, but there is a nationally funded Accident Compensation Corporation which provides no fault personal injury cover for all residents and visitors. Vehicles turning left or right at a signal controlled junction must, by law, give way to pedestrians crossing lawfully. In practice, however, drivers generally do not give way to pedestrians. In law, cyclists cycling behind the kerb line do not have any priority when re-entering the carriageway. When they are cycling in the carriageway they have priority in the same way as other vehicles do, but have to give way to pedestrians in a similar way to motor vehicles. At signals, the law permits cyclists to turn right in two stages by remaining to the left. Infrastructure is sometimes provided to make this manoeuvre easier. Helmet wearing is compulsory in New Zealand.

Public Cycle Hire
There is no public cycle hire system in Christchurch.
Cycling Culture
The cycling culture in Christchurch may be described as one of 'resilience' against the dominant car culture, the lack of a comprehensive network and facilities for cycle traffic, and the need to wear a cycling helmet. There is a well-known drink driving and speeding problem and this is more of a problem than in the UK. This has the effect of heightening the sense of risk connected with cycling, and this is compounded by the number of young drivers on the road. People tend to wear everyday clothes, but many people also wear fluorescent jackets. They tend to ride a range of types of bicycle, but mountain bikes tend to dominate. There is a strong leisure cycling culture associated with riding in the hills to the south of the city. Other bicycle types include drop-handle bar tourers/racers and hybrids.
Public Transport Networks
Christchurch has no rail or tram networks, but has an extensive bus network. The 'Metrocard' multi-trip ticketing works well and covers 33 routes. Two-thirds of buses have a double bicycle rack fitted to the front of the bus. There are approximately 100 users a day who travel with bicycles. All buses will become fitted with racks as each service is re-tendered.
Governance
The governance structure has three levels – National, Regional (Canterbury) and City.
Settlement Pattern-Topography-Climate
The area of the city jurisdiction is 1.426 km2, which includes some sparsely-populated areas. The urban area itself covers 452 km2 of this total. The urban area is largely flat, although some suburbs extend into the surrounding hills. The street pattern of the city centre and the older parts of the city is largely a grid, broken only by the River Avon. Outside this about 60% of the city is on a grid pattern.
Reference Documents
Christchurch Cycle Design Guidelines http://resources.ccc.govt.nz/files/CityLeisure/gettingaround/cycling/ChristchurchCycleDesignGuidelinesWEB.pdf Christchurch Strategy Transport Plan http://resources.ccc.govt.nz/files/TheCouncil/policiesreportsstrategies/transportplan/ChristchurchStrategyTransportPlan2012.pdf New Zealand Cycle Network and Route Planning. http://www.nzta.govt.nz/resources/cycle-network-and-route-planning/docs/cycle-network-and-route-planning.pdf
Interviewees
Tim Cheesebrough, Michael Ferigo and Ruth Foxon from Christchurch City Council Glen Koorey from University of Canterbury

Flexible vertical markers and Riley separators

Planting as part of segregation on Ilam Road

Advanced loop detection creates green wave on cycle path

Loops are double to enhance detection and near and far side aspects are displayed

Choice of route around bus stops on Ilam Road

Generously-proportioned cycle route adjacent to road

Light segregation on Ilam Road

Cycle ahead and right turn movements provided with separate facilities at a signalised junction

STOCKHOLM

Cycle Network Overview
A mixture of on-carriageway lanes and off-carriageway paths exist; generally the latter away from the centre where space is less at a premium and streets less complex; but many paths in the centre as well. Neither the Stockholm Municipality nor the Stockholm Region of the Trafikverket (Transport Ministry) has a fixed policy on lanes/tracks or uni-bi-directional. Design is considered in context and on merits of each case. The new streets in Hammarby Sjostad have lanes, but these are on generally calm main streets and are do not represent a new standard approach. In 2013, the Trafikverket consulted on a comprehensive Regional Cycle Plan featuring proposals for a County-wide strategic network comprising a total of 52 named routes. Stockholm City Municipality also has a new network plan, and proposes to focus improvements on a largely grid-like network of core routes. The general approach is that streets with a speed limit of 30kph do not usually require cycle infrastructure.
Cycle Statistics
Reliable data on bike use and mode share appear to be unavailable: partly because different surveys by different authorities are not comparable; partly because pedestrian and cycle traffic is still often counted as one mode; and partly because the more comprehensive surveys are undertaken by the single public transport authority, which counts in winter because data relates to funding and public transport usage is higher in winter (when cycling is lowest). Anecdotally, interviewed officers report cycling has increased by ~80% in the past decade. Official collision records for the whole of Stockholm County show the following data for cyclists (Total injuries/Killed/Seriously Injured): 2010 - 1186/113/3; 2011 - 1703/137/3; 2012 - 1713/117/1.
Policy + Funding
The most up-to-date statements of Regional and Stockholm Municipality cycle strategy and policy are contained in their respective Cycle Plans. In Stockholm Municipality, support for cycling is now generally considered by all parties to be a good thing and a vote-winner, and this has led to a funding commitment amounting to around SEK 1billion (~£100m) over 10 years. This is a major increase on previous levels of funding, but there is a concern that, "because we like to do things well in Sweden", the cost of works may mean the money will not stretch as far as might be thought. The Trafikverket has substantial additional funds for investment in cycling in the region, but cycle-friendly measures are not just proposed as part of cycle-specific schemes.
Legal Framework
At signalised junctions, a 'simultaneous green' arrangement typically operates, with drivers and cyclists required to give way to pedestrians crossing the side arms. The use of cycle tracks, where present, is technically compulsory. This can cause problems where tracks are too narrow for peak volumes and/or for overtaking. Paths/tacks that are intended to be uni-directional (e.g. with the flow on adjacent the carriageway), can legally be cycled on in either direction unless specifically excluded by a 'no entry' sign. Markings/signals for two-stage left turns are occasionally marked at present, and Stockholm Municipality is planning to increase the use of this measure. Left turns from the offside general carriageway will remain legal, however, unless locally prohibited for all traffic. Cycles are generally considered vehicles (i.e. not a special case), and motor vehicles do not have to give way to cycles moving/turning across their path unless the need to give way is specifically indicated by 'sharks' teeth'. There is an ongoing review of the legal framework relating to cycling, including cycle contra-flow on one way streets (which is currently very rare).

Public Cycle Hire
Stockholm operates the 'City Bike' scheme, with around 100 hire stations dotted around the city. Due to the local climate, City Bikes can only be hired from April through to October. Rental costs SEK 165 (~£16) for three days or SEK 250 (~£25) for a whole season.
Cycling Culture
Cycle helmets are not compulsory for adults, and interviewed officers stated that there are/have been no 'wear a helmet' campaigns. Observations from our visit suggest around 75% of cyclists in city centre wear helmets in commuter peaks, to reducing to more like 50% in off peak periods. Interviewed officers suggested this a 'big city issue' and also relates to general Stockholm 'culture of speed' (by all modes – even walking!). There is far less helmet wearing in Malmo, for example. A very mixed biking culture was observed, with wide range and good representation of groupings from full-on sporty-lyrca on road bikes to cycle-chic style on 'Dutch-style' bikes. This can cause conflicts relating to overtaking. Occasional hi-viz wearers were notable by their scarcity.
Public Transport Networks
Stockholm has a 3-line underground (T) network and a well-developed overground rail system, focused on Stockholm Central station. There is a tram network and a comprehensive bus network (single operator), although the density and frequency of services are much lower than in London.
Governance
There is no over-arching highway authority for Stockholm County, which is comprised of 26 Municipalities, of which Stockholm City is the most central and home to around two-thirds of the County population of just over 2 million. There is a County-wide public transport authority, and the national Trafikverket has responsibility for a very small number of strategic ('European') roads. Otherwise each municipality has responsibility for its own local highways, cycling, parking, etc. and each funds transport initiatives largely from locally-raised taxes/rates. The Trafikverket also contributes funds through programmes ranging from road safety packages to major highways schemes. Willingness to improve conditions for cycling varies from municipality to municipality and relates partly to politics and partly to more car-centric thinking the further away from the centre. Cross-border co-ordination one of the key problems in pursuing route development as proposed by the Regional Cycle Plan.
Settlement Pattern-Topography-Climate
Polycentric. While city centre is focal point of Stockholm 'County', waterways help divide the area into a number of quite distinct areas (Normmalm; Sodermalm; Solna; etc.) that have their own centres. Interviewed officers report that a large proportion of the County's employment total is located in a particular district north of Solna. Topography is variable, the city centre being largely quite flat, but with some ridges. Sodermalm and other suburbs are much more hilly. Many bridges across waterways also involve climbs. Cold and snow in winter lead to significant seasonal variations in cycling levels.
Reference Documents
Stockholm Cykelplan 2012 http://www.stockholm.se/TrafikStadsplanering/Trafik-och-resor-/Cykla-och-ga/Cykelplan-/
Interviewees
Johanna Salen - City of Stockholm Traffic Office Ebba Larsson - Strategic Planning, Trafikverket - Stockholm Region

A bi-directional cycle track on a bridge, created by re-assigning a general traffic lane

Cycling in Stockholm is for people of all ages

This pedestrian and cycle tunnel in the city centre allows people to avoid a steep ridge.

Bridges are extremely important to Stockholm, because of the city's many waterways. This bridge carries every mode.

A fairly typical cycle lane arrangement in central Stockholm

It's Sweden - so there are plenty of Volvos. This one has 'Gone Dutch'!

A waterside cycle track, with footway alongside, linking the old and new parts of the city centre


One of central Stockholm's most heavily-cycled junctions, during the morning peak.

BERLIN

Cycle Network Overview
Prior to unification (1989), West Berlin had developed a relatively good network of largely off-carriageway cycle tracks on main roads and this was successful in encouraging cycling. Specific provision for cycling in East Berlin was essentially non-existent and bike mode share corresponding small (estimated at ~1%). City Cycling (by Pucher & Buehler, Table 13.2) states that 3,800km of streets (72% of the network) have been traffic-calmed to 30kph or less; and that the network of separate cycling facilities tripled from 271km in 1970 to 920km in 2008. Figure 13.4 (based on Cycling in Berlin, 2010) states 4km of on-road bike lanes and 29km of off-street bike paths per 100,000 of population. This is largely the legacy of pre-unification West Berlin; the Senate is now mostly implementing on-carriageway lanes for reasons associated with costs and the belief that there is greater objective safety when cyclists are always in drivers' field of view. A Senate press release dated January 2013 states that there is a total of 1,030km of bike paths/lanes + 70km of (generally wide) shared bus/cycle lanes.
Cycle Statistics
The number of daily bike trips fell by 75% from 1950 to 1975 (Cycling in Berlin, 2003), then rose by 300% from 1975 to 2008 (Cycling in Berlin, 2010). Bike share of all trips rose from 6% in 1990 to 13% in 2008 (City Cycling, pp.292 & 348). A new cycling survey took place during 2013 and Senate officers consider the current overall mode share figure to be at least 15%. There are significant variations across the city's 12 Boroughs (e.g. in 2008, 21% in Friedrichshain-Kreuzberg to 6% in Marzahn-Hellersdorf. The Senate states that there are around 1.5m bike trips in Berlin every day and that 41% of cyclists are women. Serious injuries to cyclists fell by 38% from 1990 to 2008 (City Cycling, p.348). The five year annual average cyclist fatality rate per 10,000 daily bike commuters = 0.6 (compares with CPH & AMS figures of 0.3 & 0.4; City Cycling, p.295). Officers report main KSI problems are with 'right-hooks' at junctions (left in UK) and also with left-turners hit by oncoming motorists who fail to anticipate/don't see the cyclists.
Policy + Funding
The Senate published its new Cycle Strategy in March 2013. The first city cycling strategy was published in 2004, and the latest version maintains a pro-cycling policy at the city level, despite changes in political control. The Mayor and Finance Senator are key individuals. The Berlin Bicycle Council was established in 2003 to help formulate strategy. City Cycling (p.308) states that Senate intends to increase cycling budget to €15m annually by 2015, about €5 per year per head of population.
Legal Framework
At signalised junctions, drivers (& cyclists) are typically shown green to turn right across pedestrian greens on the side arm, with the former required to give way to the latter. This method of control is used to aid junction efficiency for all users. Use of cycle tracks is technically compulsory where they are indicated by sign type 237 (UK 956). However, enforcement of this rule is variable and legal challenges have suggested that obedience can only be mandatory where the highway authority can prove that it is unsafe to cycle in the adjacent carriageway. (See also under Munich.)

Public Cycle Hire
Since 2002, Deutsche Bahn has run the Call-a-Bike scheme, now available throughout eight cities (including in Berlin) and at the main stations in around 50 other cities/towns. There were 430,000 registered users nationally in 2012, and Berlin was third behind Munich and Frankfurt in terms of usage. 3,000+ bikes available in Berlin. Hiring a bike usually costs €0.08/minute, capped at a maximum of €15/day (lower rates with a BahnCard).
Cycling Culture
City Cycling (Table 13.2) states that bike training courses are compulsory for all school children in 3rd/4th grade, who need to pass a skills test (includes on-street rides). Cycle helmets not compulsory; observations from site visit suggest around 10-15% of adults cycling wear helmets in the city centre. Negligible hi-viz wearing was observed on our visit.
Public Transport Networks
Comprehensive S-Bahn (overground) and U-Bahn (underground) systems; a tram system; and numerous, frequent bus services (single operator). Bus services, however, are not generally comparable with the density and frequency of London's.
Governance
The Senate is the strategic transport authority for Berlin; and there are 12 boroughs with local responsibilities. In essence, the arrangement is like London on a smaller scale. The Senate has powers over the main road network (equivalent to TLRN), but on other roads boroughs make the decisions in terms of bike infrastructure, parking, etc. Senate officers consider their role as scheme funders to be a primary means of influencing local decisions and hence achieving reasonably consistent cross-city outcomes. As in London, different boroughs have different political and demographic character, making some more pro-cycling than others.
Settlement Pattern-Topography-Climate
Polycentric - city centre is strong focal point, but there are important town centres in outer areas, e.g. Spandau, Charlottenburg, etc. Generally flat – some gentle inclines in central area. 57cm annual precipitation; 80 days/yr 0°C or less; 7 days/yr 32.2°C or more (City Cycling Table 3.1) Cold (and often snowy) winters lead to notable seasonal variations in cycling levels.
Reference Documents
Berlin Cycle Strategy (Senate, 2013. In English): http://www.stadtentwicklung.berlin.de/verkehr/politik_planung/rad/strategie/index_en.shtml Mode share by borough fact-sheet: http://www.stadtentwicklung.berlin.de/verkehr/politik_planung/zahlen_fakten/download/1_SrV_faktenblatt_berlin.pdf
Interviewees
Burkhard Horn - Head of Transport Policy & Planning, Berlin Senate, Dept for Urban Development Hermann Blümel - Principal, Transport Policy, Berlin Senate, Dept for Urban Development Roland Jannermann - Cycle Infrastructure Planning, Berlin Senate, Dept for Urban Development Sebastian Bührmann - Deutsches Institut für Urbanistik (Difu)

Typical cycle lane layout - with 0.5m 'dooring zone' allowance

Rather worn markings for ahead and two-stage left turns

Cycle lanes - used for more than just cycling!

These are scenes you can expect when you create Fahrradstrassen

Mandatory cycle lane on a dual carriageway - with dedicated tram zone in the centre

Cycles and trams seem to mix fairly well, when required to

The Brandenburg Gate - not just a sightseeing highlight, but also a traffic filter; and part of the city with a 10 kph speed limit

Tourists on bikes in the Gendarmenmarkt

MUNICH

Cycle Network Overview
Very extensive. Currently described as comprised 1,200km of cycle routes, with target of 1,400km. The latter to consist of ~500km of tracks/lanes, ~500km of Fahrradstrassen, and ~400km of routes through parks etc. The network of hundreds of km of bike tracks was begun in the 1970s, but is now too narrow in some sections and is also considered to have led to footways that are also too narrow in some sections. As a result, the network is being developed largely through on-carriageway lanes (on streets with %0 & 60 kph limits), with the carriageway space being taken from former traffic lanes or parking and the footways being widened where old, narrow cycle tracks are replaced.
Cycle Statistics
Steady mode share growth in recent years from 10% of all trips in the city in 2002, to 13.6% in 2008, to 17.4% in 2011. The 2011 survey is not directly comparable to the 2002 & 2008 studies, but the officers interviewed were content that current figure is at least 18%. The next MiDMuc survey (comparable to 2002 & 2008) will be undertaken in 2015 or 2016. The 2002 figure of 10% was described by officers as, at that time, around the national average. The 2011 survey was part of an evaluation of the Radlhauptstadt ('Bicycle Capital') initiative. The 17.4% figure is considered the highest figure for any German city with a population of more than one million. About 80% of Munich's citizens have at least one bicycle. The City Council considers that the bicycle is usually the fastest means of transport for trips of up to 5km within the city. Such trips are around 60% percent of the city's total.
Policy + Funding
There is strong policy support for cycling, including the 2009 adoption of a city bike 'masterplan'. Also strong political support from one of the two executive Mayors – Hep Monatzeder – a Green who has held power for around a decade within a stable Green/Social Democrat coalition. The city's Transport Development Plan (2006) embodies motor traffic reduction and improvements to public transport, cycling and walking. Annual spend on cycling projects (including promotion) is €4.5m.
Legal Framework
At signalised junctions, drivers (& cyclists) are typically shown green to turn right across pedestrian greens on the side arm, with the former required to give way to the latter. Use of cycle tracks (where signed by blue circle) is compulsory. However, following national legislation around a decade ago, it is only compulsory to have such signs where it can be demonstrated that cycling in the carriageway is unsafe (e.g. on roads with speed limits greater than 60kph). Therefore, the main role of one Council officer is currently the removal of such signs! As elsewhere in Germany, right-turners give way (cyclists as well as drivers). Several signalised junctions featured stand-alone flashing amber aspects warning left-turning drivers also to give way to crossing pedestrians and cyclists. (Not observed in Berlin.) Where cycle tracks cross side streets, these were typically just marked by two lines of 'elephants' feet'. These do not indicate priority in themselves, but drivers emerging from side streets give way (or at least were uniformly observed to do so). This follows from the general rule that traffic from side streets must give way to traffic on the main street, which includes cycles going ahead either on a track or in a lane. As for vehicles turning right into side streets, again the general right-turners-give-way rule applies. Around 40% of all one-way streets (i.e. ~300) now allow contra-flow by bikes, which is simply indicated by a plate beneath the now entry sign featuring a cycle symbol and the word ' Frei', and also by a token painted lane around 2-3m long. No matching signs to warn drivers at the other end of the street were observed (e.g. 'watch out for cyclists coming towards you). Officers considered that allowing cycle contra-flow had increased safety, due to previous levels of informal (illegal) contra-flow cycling.

Public Cycle Hire
Since 2002 Deutsche Bahn has run the Call-a-Bike scheme, now available throughout eight cities (including in Berlin) and at the main stations in around 50 other cities/towns. There were 430,000 registered users nationally in 2012, with Munich leading the way in terms of usage.
Cycling Culture
Observations suggest levels of cycle helmet wearing are very small, though this increases to maybe 5-10 in peak hours (commuters). There are no helmet compulsion laws for adults, obviously. As part of its strong focus on campaigning/soft measures (~10% of a dedicated cycle budget), the Council is very keen to promote a strong cycling culture. Anecdotally, drivers readily give way where they are supposed to, though also happy to assert themselves where they are able. Cycle security does not appear to be a big issue – our hire bikes only had the rear wheel 'cuff' lock and the member of staff said there wasn't a problem; while one of the officers interviewed has a good bike, uses it every day and only ever locks it to itself. Styling itself the Radlhauptstadt, Munich has an ongoing programme of numerous promotions and events actively to encourage a 'Bicycle Culture'. These range from clear, simple, fun branding to major events like the annual Radlnacht (mass-participation night ride around the city centre), the 'Radlstar' competition (€4,000 for the winner!), a bike flea-market and a cycle-chic fashion show.
Public Transport Networks
Bus, tram, U-Bahn & S-Bahn. The first three are run by MVG, which is owned by the City Council but is a distinct entity. S-Bahn is run by Deutsche Bahn. Considerable works on new and improved tram lines are currently underway. Bikes are allowed on U-Bahn. Integration is good for passengers; some operational disconnect between MVG & the Council as highway authority was reported.
Governance
The city council has effective control of all the highways in the city area. There are boroughs, but these are not highway authorities. Munich sits within a region, but all the other settlements are clearly distinct. The Bavarian and national Governments have little direct influence over transport policy (although Munich is the seat of the Bavarian parliament.
Settlement Pattern-Topography-Climate
Monocentric; compact; 'a village of a million people'. The city is generally very flat, with the odd gradient (e.g. around the Oktoberfest park) noticeable by their scarcity. Climate is pretty temperate – "never too hot nor too cold".
Reference Documents
2006 Transport Development Plan (in German) http://www.muenchen.de/rathaus/Stadtverwaltung/Referat-fuer-Stadtplanung-und-Bauordnung/Verkehrsplanung/Verkehrsentwicklungplan-VEP-2006.html Bicycle Traffic in Munich, 2010 (in German and English) http://www.radlhauptstadt.muenchen.de/fileadmin/Redaktion/PDF/Radl_Brosch_2010.pdf
Interviewees
Wigand von Sassen, City of Munich Council Bernadette-Julia Felsch, City of Munich Council

'Bicycle Street' carriageway marking


Cycling through parks, away from the main highway, is a relatively common, and pleasant, experience


Example of a stepped cycle track...


...some of which are quite old and now too narrow for demand


Cycling in one of the city's newest cycle lanes, alongside both general traffic and trams


In the city centre, not far from Marienplatz, where the 5 kph speed limit seems to encourage cycle-powered boats!

Cycle tracks through the Olympic Park are a great way of getting to and around one of the city's main attractions

Cyclists heading toward the Maximilianuem on a separated track

MALMO + LUND

Cycle Network Overview
The cycle networks in both cities are very well developed and comprehensive – there are 500km of routes in Malmo. There are very few on-carriageway traffic lanes and there are no plans to change this. Most tracks are at footway level or are on routes where there are no motor vehicles at all ('bi-cycle roads'). The routes are direct and easy to follow and there is little interaction with motor traffic anywhere on the system. Drivers are very considerate. In Malmo most tracks are two way – this was taken as a key decision in 1976. They are generally a minimum of 2.5m wide, but the city is now moving towards 3m and above as a minimum due to in-creased flows and congestion at some places. At 8000 cyclists per day the desirable standard width for a two way track is 4m. In Lund tracks are also at footway level but are one way and are generally around 1.5m wide as a minimum. The officers in Lund believe that one-way cycle tracks along highways are safer than two way. The aim is to continue to grow cycling through links to new development, promotion and ancil-lary facilties such as secure parking at public transport interchanges. By 2032, Malmo wants to be amongst the best cities in the world for sustainable transport.
Cycle Statistics
In 2008, Malmo residents made 23% of all of their trips by cycle. It is thought to be around 25% now and the aim is to reach 30% by 2018. There are around 100,000 bike trips per day in Malmo. Winter cycling levels are about 80% of summer levels. Car use is around 45%. In Lund 43% of trips are by cycle – it is thought hard to grow beyond that figure. 15% walk, 16% use public transport. Cycling is very inclusive - children as young as 5 are allowed to cycle to school. There are typically 1 to 2 cyclist fatalities in Malmo per year. The most common type is collision with a lorry turning right (UK left). In Lund most casualties result from cycle-cycle collisions.
Policy + Funding
Malmo - Investment of £40m in infrastructure over the 7 year period 2012 to 2019, plus £1.6m per year on soft measures - in total approx £20 pp pa Lund - varying levels of funding - between £1.5m and £5m pa. - ie between £13 and £43 pp pa
Legal Framework
There is no strict liability law in operation but even so, drivers are very considerate towards cyclists. Although the law requiring drivers to give way to cyclists when crossing is being strengthened, driv-ers do readily give way at the moment.
Public Cycle Hire
There is no cycle hire scheme at present, but Malmo is considering introducing one, based on the new Copenhagen system.
Cycling Culture
There is no legal requirement to wear a helmet, except for children aged under 16. Helmet wearers are very much in the minority. As in other countries, traffic must give way to pedestrians and cyclists when turning at traffic signals, with all users receiving parallel greens.

Public Transport Networks
Malmo and Lund have rail and bus services and a tram network is planned.
Governance
There are separate unitary municipalities in Malmo and Lund, with some differences in technical policies. The Skane Region and the national transport authority have little influence over cycling policies locally – there is clear direction at city level. All of the political parties in Malmo are pro-cycling; the difference is in the degree to which they are willing to constrain car use. In Lund all parties have supported cycle promotion since 1998. The Lund cycling plan is now on its 3rd update.
Settlement Pattern-Topography-Climate
Essentially single centres to both cities, which are around 10 miles apart, separated by villages and farmland. Malmo is a major port on the Oresund Strait, near to Copenhagen. Lund is inland, and is a university town. Both settlements have a radial/orbital pattern of main routes, with residential neighbourhoods between of varying layout type. Malmo is generally flat, Lund is slightly more hilly, with some 90m between its high and low points.
Reference Documents
Each city has developed its own standards for cycling infrastructure.
Interviewees
Olle Evenäs - Malmo Anders Söderberg - Lund Anna Karlsson - Lund

Malmo: bi-directional track crossing carriageway with priority

One of the busiest routes into Malmo city centre, with parallel pedestrian crossing alongside

Cycling through Malmo's inner suburbs en route to Lund - protected bi-directional track with priority over side roads

Suburban bi-directional track, again with priority over the side road and with parallel pedestrian crossing

Recent investment in Lund - putting cycle tracks into a large, grade-separated junction

Principal cycle route close to Malmo city centre, passing beneath the ring road in a wide, well-lit underpass

The Lund suburbs contain a network of separated pedestrian and cycle routes which pass under major highways. The Swedes call the cycle paths 'bicycle roads'.

Cycling in Malmo and Lund is very inclusive. Cycling flows are so high in some locations that there are concerns over cycle congestion.

CAMBRIDGE

Cycle Network Overview
Cambridge is a very permeable city for cycling, and officers felt that this was one of the keys to making Cambridge a cycle-friendly city. The centre was opened up for cyclists approx. 15 years ago, prior to that no cycling was permitted. There are many more bridges across the River Cam for cycles and pedestrians than there are for motor vehicles. Outside the centre there is a good network of routes via quiet residential streets, achieved through filtered permeability, and on shared use paths across the green spaces (although these are fairly narrow in places). These routes typically continue over major roads via Toucan crossings. On the busy roads the cycle provision is not as good. The majority of facilities are in the form of either mandatory cycle lanes, advisory cycle lanes (mostly with double yellow lines) or shared use off-carriageway paths. This has been dependent on the existing space available in most cases. The County Council recognises that to grow cycling further, conditions on the main highway network need to be improved. The wide central feeder lanes on Hills Road are working well and an early start signal at an ASL has recently been installed with DfT authorisation. Some existing 1.4m wide mandatory cycle lanes are been removed and replaced with 1.8m wide lanes, with the road centre line removed to provide a 5.6m wide two way traffic lane in the centre, (Gilbert Road). Cambridge is looking to provide uni-directional cycle tracks, segregated by some form of physical barrier from traffic, along two key corridor routes - Huntingdon Road (city bound) and Hills Road (both directions). The details of any segregation between directions have yet to be decided. There are also plans to join the existing greenways along the guided bus route on the northern and southern sides of Cambridge to form a high speed cross-city cycle route.
Cycle Statistics
32% of travel to work trips in the city of Cambridge are by cycle (2011 Census).This represents a 12% increase since 2001. There is only a very small seasonal variation in cycle use levels in Cambridge. Cambridge is aiming to achieve a 40% modal share for cycling over a 10 year period to 2023. Much of the growth in cycling, and the development of the network, will come from the south Cambridge developments including Addenbrokes, which is planned to increase in population from 5000 (2013) to 12,000 (2023). Over the last three years there have been 221 cycle casualties per year in Cambridge, of which 27 were serious. There were no fatalities. 40% of the casualties are female.
Policy + Funding
Cambridge has received LSTF, Cycle City Ambition and Cycle Safety Grants - all short term. Some European funding has also been obtained. Longer term funding is currently based on potential developer contributions - the economy of Cambridge is strong and officers predict that a significant amount of funding for cycle facilities will be forthcoming through this mechanism.
Legal Framework
As London. Cambridge has been willing to experiment with innovative road markings, signs and early-start signals for cycles.
Public Cycle Hire
None

Cycling Culture
Most people in Cambridge do not wear helmets – the culture of cycling is much more like continental Europe than London. It is notable that the new Cambridge cycling map cover features cyclists who are not wearing helmets. Cambridge differs from many UK cities in that the gender split for cycling is approximately 50/50. Cambridgeshire promotes cycle training for both adults and children, which is provided by external organisations. 4,000 children per year undergo Bikeability training (70% take-up in schools).
Public Transport Networks
Cambridge has main line rail services, including to London. The Cambridge busway from Huntingdon opened in August 2011 and locally connects the park and ride site at Trumpington (south west) to the city centre, including an adjacent off road cycle facility. All 5 park and ride sites around Cambridge have covered, lit cycle parking at the termini and all stops, and tarmac surfaced off road cycle tracks directly into the city centre.
Governance
Cambridgeshire County Council is the Highway Authority for the area, and has overall responsibility for transport across the wider Cambridgeshire area and the City itself; including for cycle policies, technical guidance, planning, funding and implementation. Cambridge City Council is the lower tier authority, whose responsibilities include land use planning. A team of 12 people work on cycling schemes across the County.
Settlement Pattern-Topography-Climate
Cambridge has a dense and compact central area surrounded by mainly residential lower density areas, with a number of district sub-centres/villages. Several large green areas and parks lie around the central core. The city has seen mainly organic growth along the river, railway and main radial road corridors. University colleges make up a considerable part of the city centre. The city is mainly flat, with few hills. Cambridge is in the driest region of the UK, with around 570mm of rainfall per year.
Reference Documents
Local Transport Note 2/08 was the key reference document cited by Cambridge County Council.
Interviewees
Mike Davies - Cambridgeshire County Council

The city centre is much more accessible on foot and cycle than by car

Central cycle lane on approach to traffic signals, to separate ahead cyclists from left-turning traffic at the stop-line.

Cycle-only stage at signals across the ring road, leading to a cycle path across green space

The cycle track alongside the guided busway. An after-thought, but now one of the main cycle routes into the city.

360m long covered pedestrian/cycle bridge across the railway corridor, and important east-west connection

On Gilbert Road, cycle lanes have been widened and the centre-line marking has been removed

There are numerous off-carriageway shared use paths, but they do not often have priority at side roads

Routes across the green spaces around the city centre are popular, but relatively narrow

UTRECHT

Cycle Network Overview
Utrecht has set out a main urban bicycle network with a mesh of 400 – 500 metres that connects to the regional bicycle network. This network has the rough form of a spider's web, in which the radials are directed at the centre of the city. In devising this network, the main the focus was on routes. The type of facilities (bicycle paths, etc.) to be provided were determined subsequently, with three basic profiles available: (i) a profile with a physical separation of the bicycle facilities; (ii) a profile with a visual separation of the facilities; and (iii) a mixed profile (see Common Technique L1 in the main report). The choice of the best basic profile to use is dependent on factors such as the function of the road, the intensity of vehicle traffic and the speed of vehicle traffic.
Cycle Statistics
Cycling and walking as the main method of transport in Utrecht each account respectively for 33% and 25% (NL average 27% and 17%). The bicycle mode share for journeys up to 5km long is 42%. (2008 figures). In 2000 in Utrecht, 931 people were killed or seriously injured in traffic collisions. 27.8% of this total were cyclists. In 2012, 650 people in total were killed on Dutch highways, of which 200 were cyclists. 34 (5%) of the national total of highway fatalities were in Utrecht Region.
Policy + Funding
Utrecht sees cycle policy as an essential part of an overall spatial planning policy that links land use and transport provision (especially public transport, walking and cycling) very closely. Utrecht adopted a bicycle policy document in 1992 that was updated and re-adopted in 2002. The 2002 policy had a 2015 horizon. It consists of three parts: (i) the policy; (ii) the main bicycle network; and (iii) the programme of requirements. The programme of requirements includes regulations that concern dimensions, material use and other design requirements for bicycle routes. Utrecht's bicycle policy has two objectives: to retain the high cycle mode share; and to integrate cycling with the whole traffic and transport system. The funding of cycling provision in Utrecht is fragmented and complex, and no clear figure for annual expenditure on cycle infrastructure is known. The majority of new bicycle facilities are realised in the context of major urban developments. Another important source of finance for cycling facilities is the general highways management and maintenance budget: if work needs to be carried out in any case, it is relatively cheap to create or improve cycle facilities. There is a modest budget specifically for new cycle facilities, but this is too small to finance major investments such as long sections of dedicated bicycle paths, tunnels or viaducts.
Legal Framework
In the Netherlands, a cyclist has a legal status that is laid down in the Road Traffic Act (a cyclist is a "driver/ rider" just like a car driver, motorbike rider and a moped rider). Where cycle tracks are signed (equivalent to UK Diagram 955), their use by cyclists is compulsory and it is illegal to cycle alongside on the main carriageway. Key legal traffic measures for cyclists are parking restrictions and traffic priority regulations. However, as in the UK, proposals to remove parking usually meet strong resistance from residents and shopkeepers.
Public Cycle Hire

Cycle hire is available via the national OVFiets system. Hire locations are mainly at railway stations and other specific hubs, since bike hire is generally only required by visitors (almost all local people have their own bike).
Cycling Culture
Anecdotally, there are more bicycles in Utrecht than people. People of all ages cycle, with no sign of hi-viz and only young children wearing helmets. School-children have cycle training. Bicycles are used for almost all trip purposes within the city. Some of the busiest locations become very congested with pedestrians and cyclists, but bike-handling skills allied to custom and practice seem to mean a harmonious co-existence between those user groups. Utrecht was the best example we saw of cyclists really just being 'people on bikes'.
Public Transport Networks
From Utrecht Centraal station, railway lines run in six directions. In 2006 there were 22 stations within a radius of 15 km of the centre, with 4 in the city itself; with committed plans to open 7 new stations in and around the city to deliver a system of frequent regional train services ("Randstadspoor"). Bikes are allowed on trains, but only for a flat fee of €6 and outside of peaks. The satellite towns of Nieuwegein and IJsselstein are linked to the city by a rapid tram links, and new tram lines are also being constructed. Bikes are allowed on trams at any time. Local public transport in Utrecht is made up of city and regional bus lines. A network of high-quality bus lanes has been created, and designed in such a way as to make them suitable for use by trams in the future.
Governance
City of Utrecht is the largest municipality (around 300,000 inhabitants) of 9 that comprise the Region of Utrecht (combined population around 650,000). The City Council (Gemeente) is essentially self-governing when it comes to cycling, although most of the funding comes through the Region. The Region, indeed, is more of an agency than a government, having no elections and a Board with one representative from each municipality.
Settlement Pattern-Topography-Climate
Utrecht city is part of a region that includes the satellite towns of Maarssen, De Bilt, Zeist, Bunnik, Houten, Nieuwegein, and IJsselstein. The topography is flat and the climate is comparable to London's.
Reference Documents
The CROW Manual ("like all Dutch cities")
Interviewees
Ruud Ditewig - Gemeente Utrecht Ronald Tamse - Gemeente Utrecht Herbert Tiemans - Senior Policy Advisor, Bestuur Regio Utrecht Marc Wagenbuur - 'Bicycle Dutch' blog

Hi-viz- and helmet-free cycling by all ages is the norm in Utrecht

A pedestrian and cycle bridge - a typical measures giving these modes an advantage over motor traffic

When the conditions for cycling are attractive, cycling is what you get

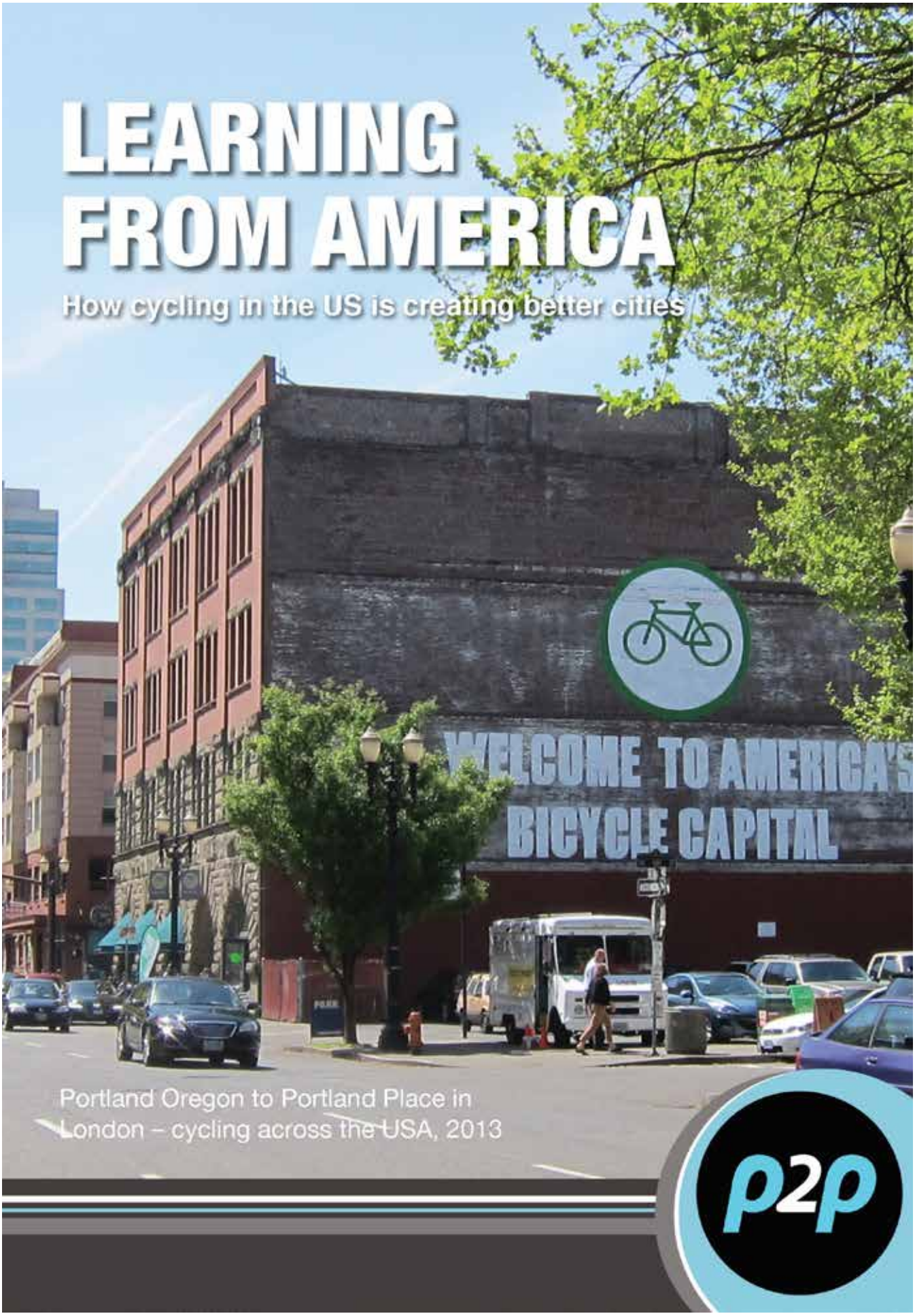
Bicycles are used for almost all journey purposes

A reminder to drivers to give way to cyclists and pedestrians when turning right on a green signal

Cycling in Utrecht is usually a real pleasure

Atypically, this cycle lane is poorly specified and too narrow for demand; but it hardly seems to matter in a city where mass cycling is expected and respected.

Cycle paths are well used for commuter trips between the city and its suburbs, and also for leisure


LEARNING
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WELCOME TO AMERICA'S
BICYCLE CAPITAL
Portland Oregon to Portland Place in
London – cycling across the USA, 2013
p2p

PORTLAND TO PORTLAND (P2P) - FINDINGS

From April to July 2013, a team of British riders rode from Portland, Oregon to Portland Place in London. Part of the aim was to witness at first hand how cities are coping with the increasing interest in urban transport.

The P2P team rode through 12 cities (Portland Missoula, Minneapolis, Milwaukee, Chicago, Cincinnati, Pittsburgh, Philadelphia, New York, Cardiff, Bristol and London) to experience their cycling facilities directly, and to speak with local officials and politicians, advocacy groups and the many people who stopped to talk and sometimes rode with them.

In undertaking the International Cycling Infrastructure Best Practice Study for TfL, we were grateful to be able to discuss P2P's key findings with the leaders of the team.

The following recommendations and lessons are taken from the P2P report 'What London Can Learn from America's Cycling Cities'.

P2P Recommends:

All transport and planning policy-making should have liveable cities as their priority, with walking, cycling and public transport as the principle modes.

All transport and urban planning should become fully integrated, so that the street and the place, the activities and the architecture are considered holistically

Active transportation should be seen as the structure for communities and policy-makers working together and using available resources effectively, including empowered advocacy groups to assist in local delivery

Strong political leadership and a clear vision create momentum and positive expectations, and a pride in progress.

Invest in communication and marketing. We were struck by the constant reminders of what's on offer for cycling in the US.

Dispel the myths about cycling and the effects of the infrastructure

Central government public investment is essential

Invest more in physical infrastructure for cycling and pedestrians, to help shape our cities into pleasant, sustainable environments capable of absorbing population growth.

Invest more strategically in infrastructure. Part of any strategy should reflect spatial thinking about the city.

Use the whole range of infrastructure options to innovate and encourage more to cycle.

Adopt high standards of maintenance and enforcement

Reduce urban speed limits to 20 mph/30kph

Key Lessons for London

We must actively change the culture of driving and its relation to cycling.

We should continue the move to separated cycle lanes where appropriate.

Areas of central London are ideally suited to use as shared spaces.

We should implement the 'Three foot rule' or 'One Metre Rule' where vehicles should give adequate space when passing cyclists.

We should implement a Complete Streets policy so that TfL and boroughs design and operate the entire roadway with all users in mind

In memory of Francis Golding, a planning consultant who was killed while riding his bike in London, the P2P team proposes 'the Golding Rule'. This promotes the idea of consideration by all road users and right of way of the more vulnerable. The rule is represented by the following diagramatic sign.

urban movement

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