The Green Network (or Grünes Netz) is a masterplan and urban systemic strategy for the city of Hamburg that promotes an interconnected network of both green infrastructure and active travel.

The Green Network consists of three elements; a number of ‘landscape axes’, green corridors that radiate from the city centre, two ‘green rings’ formed of connected greenspaces in an inner and outer loop around the city, and a series of key recreational greenspaces, such as borough parks, district parks and urban leisure areas scattered across urban area. This framework has developed from the original masterplans for Hamburg in the early 20th century and is part of Hamburg’s vision for an Open Space Interconnecting System, a connected network of greenspaces across the city. Already partially developed due to the city’s prior planning policies, the Green Network Plan promoted since 2014 is an integral part of contemporary landscape policy for Hamburg and aims to implement the Green Network as a phased project, due for completion by 2034.

As part of this city wide policy, Hamburg is redeveloping and strengthening its existing green framework to create corridors and links between existing public spaces, with the aim of promoting active travel within the city and outdoor amenities. For the first time ever, the city has decided to unite them together via pedestrian and cycle routes. This strategy forms part of the Green Network Plan, which aims to eliminate the need for vehicles in Hamburg over the next 20 years.
PROJECT BACKGROUND

The city of Hamburg currently consists of more than a third green and public open spaces. The city has a combination of extensive watercourses, including the rivers Elbe, Alster and Bille, as well as numerous lakes, ponds and canals. These blue spaces complement the city’s variety of open greenspaces, including parks, allotments, nature reserves, woods, fields, cemeteries and meadows. Together it is these blue and greenspaces that form the Grünes Netz or Green Network. These areas are recognised as hugely important for quality of life within the city, with many public greenspaces essentially functioning as the equivalent of gardens for individuals living in flats. Additionally, this green network offers movement corridors within the city for commuters and tourists alike, whilst creating sheltered environments for wildlife and biodiversity.

The scale of this existing green network in Hamburg today is largely the result of foresighted urban planners in the early 20th century, and the city’s green belt which survived development during the 1950s and 60s. In particular, the 1919 Axial Concept planning scheme of Fritz Schumacher, which concentrated built development in Hamburg along axes radiating from the city centre interspersed with axes of public greenspaces, and, the Green Belt Plan put forward by Gustav Oelsner in 1925 which created a number of rings of greenspace protected from development. It was these planning schemes that have evolved to inform the landscape axes and green rings of the contemporary Green Network in Hamburg. The subsequent ‘Development Model for Hamburg and its Hinterland’ of 1969 and ‘Unitary Development Plan’ of 1973 also helped ensure the legacy of greenspace across Hamburg. These planning schemes specifically ensured that the landscape axes as well as the two rings of green belt (both the first inner ring at the city’s former fortifications, and the second outer ring of large parks around 8km from the city centre) were protected from development. These areas were instead highlighted as necessary to preserve for agricultural, recreational and ecological use. The Landscape Axes Model became a core part of Hamburg’s Open Space Concept in 1985, formalising these 18-25km long green corridors that stretch from the heart of the city to the surrounding countryside. Most recently, the Open Space Interconnecting System policy, produced as part of the Landscape Programme adopted by the city parliament in 1997, has connected together these landscape axes with the green rings. It is this policy by the City of Hamburg which aims to both enhance and encourage transport by bike and on foot along these green networks and corridors. The policy has helped to create a more varied green network with links and thoroughfares for cyclists and pedestrians alike, with the aim of decreasing vehicular traffic and increasing the benefits of active travel by setting this amongst a variety of connected greenspaces which are also good for the environment, economy and quality of life. For example, as a masterplanning project, the Green Network also aims to tackle...
climate change issues by promoting active travel, discouraging the use of cars, and using green infrastructure to regulate microclimate and mitigate flood risk.

Today, the Green Network consists of this series of landscape axes, the two green rings and a large numbers of parks across the city, with the recent Green Network Plan aiming to enhance, improve and develop this network of greenspaces further to promote both walking and cycling and environmental benefits. According to city spokeswoman Angelika Fritsch, the project will help turn the city into a one-of-a-kind, integrated system: “Other cities, including London, have green rings, but the green network will be unique in covering an area from the outskirts to the city centre. In 15 to 20 years you’ll be able to explore the city exclusively on bike and foot.”
The output of the Green Network is a finely woven network of both smaller and larger green open spaces and links for active travel, outdoor activities and recreation close to the residential areas of Hamburg. This green network is structured around the concept of ‘landscape axes’ stretching from the city centre to the countryside, green rings circumnavigating the city centre both close to the heart of the city at the former fortifications and further out from the centre, and a range of diverse different greenspaces and active travel routes in between. Together this forms connections for both pedestrians, cyclists, and wildlife to easily move around the city within a pleasant, attractive and environmentally beneficial series of integrated greenspaces, corridors and habitats.

The Green Network achieves this via the following outputs:

- **Two ‘green rings’.** The inner green ring is on the edge of central Hamburg, around 1km from the town hall. It takes in the Elbpark, ramparts, Planten un Blomen and the green areas of the Lombard bridges to the west, and the leafy streets and squares of the ‘art island’ on the Deichtorhallen and HafenCity to the east. The outer green ring is located around 8-10km from the city hall, and is used for a mix of commuting and recreational cycling and walking. It totals around 100km in length, and includes diverse city landscapes and greenspaces, including parks, allotments, forests, the agricultural landscapes of Geest, flower and fruit cultivation land, fields, nature reserves, rivers and lakes.

- **The ‘landscape axes’.** Hamburg has series of green corridors called landscape axes of length 18-25km which connect up with the green rings as they move from the countryside into the heart of the city. Today’s landscape axes have evolved from the Landscape Axes Model that was part of the original Landschaftsprogramm Hamburg in 1985. This Saschen or Saxony landscape extends from large agricultural areas, forests and nature reserves, marshlands, the Harburg Hills and Fischbeker Heath conservation area, the Duvenstedter Brook with Wohldorfer forest on the city outskirts, into the city itself via parks, allotments, cemeteries and sports grounds. They include watercourses with accompanying green corridors (such as the riverbanks of the Elbe, Alster, and Außenalster, near central Hamburg.

Photo credit: Green Network Hamburg, Authority for Environment and Energy, City of Hamburg.
Osterbek, Wandse and Billé), marsh areas with grassland, arable fields, meadows and woods. As these green routes move into the city they become narrower, more fragmented and incomplete, and are often simply footpaths framed by trees or shrubs in the most central parts of Hamburg. As a result, planning objectives now focus on closing the remaining gaps in the landscape axes near the city centre to better integrate the Green Network into the densest urban areas.

- **A diverse interwoven system of smaller parks and green infrastructure.** Throughout the city, an additional and important part of the Green Network is the large number of parks, allotments, sports grounds and other pockets of greenspace that are interwoven amongst the urban fabric outside of the main green rings and landscape axes. For example, more than 30 borough parks (between 8 and 60 hectares in size) are distributed around the city and are often used for urban recreation by those in residential areas nearby, whilst also helping to connect the green network together city-wide. Larger district parks, such as Altonaer Volkspark, Öjendofer Park, Wasserpark Dove-Elbe and Harburger Stadtpark are typically between 65 and 150 hectares in size, and are situated at crucial links between the landscape axes and the second green ring. In addition, at the smaller scale, there are more than 245,000 street trees which help create this Green Network at the finer grain. Together this diverse range of smaller and larger pieces of green infrastructure across the city help create a cohesive, connected Green Network.

Together these mechanisms create an integrated holistic approach incorporating planning objectives at the city-scale for promoting both greenspace and active travel.
WHAT ARE THE BENEFITS?

Hamburg’s Green Network is a gradual, phased project aiming to create an exhaustive web of green active travel routes set within green corridors and spaces that will eventually cover the city in its entirety. This deliberate strategic approach combining two green rings, multiple landscape axes, and additional greenspaces to create a comprehensive city-wide Green Network, will help realise the following benefits for both local people, the city’s economy and environment:

- **Connected active green networks for both people and wildlife.** This Green Network of active travel movement routes combined with a diverse range of greenspaces helps promote cycling and walking behaviours by making this easy, accessible, pleasant and a natural transport choice to move around the city. It also helps promote biodiversity and wildlife resilience by creating a connected series of different habitats.

- **Flood mitigation and climate change resilience.** The use of permeable greenspaces within cities such as Hamburg can help manage stormwater runoff, help mitigate flooding, improve micro-climates and reduce the urban heat island effect, absorb CO₂ emissions and improve climate change resilience. As Dr Insa Meinke, Director of the North German Climate Bureau at the Institut für Küstenforschung (Institute of Coastal Research) said "Compared to 60 years ago, the sea level here has risen by 20 centimetres. As a large city, Hamburg is truly at risk. Storm surges could rise by another 30 to 110 centimetres by 2100". This flood risk can be mitigated by a comprehensive Green Network which limits the effects of flooding, particularly during intense storms.

- **Improved health and well-being.** By encouraging active travel and spending time outdoors in natural green surroundings, the Green Network can be beneficial for health and well-being. Both in terms of the physical exercise from increased cycling and walking, and the mental well-being effects of spending time in restorative green environments.

1 [Quotation taken from interview with The Guardian in 2014]
KEY LEARNING POINTS

The Green Network has been developed as a city-wide spatial planning concept for Hamburg. It deliberately combines attractive, green infrastructure at a mix of scales across Hamburg with a bicycle and pedestrian-friendly road network. These two aspects of the Green Network are seen as integral to one-another, with the combination of active travel and greenspace a core part of the concept since its beginnings in the 20th Century. This overall masterplanning policy is unusual in that it has been applied holistically across the city of Hamburg, with key spatial strategies underpinning its application. The Grünes Netz Hamburg is a far reaching project which encourages active travel systematically on a city-wide scale. The ambition and scale of the project is particularly impressive, and also lends itself to some interesting learning points.

The Green Network project is exemplar in terms of its scale and approach. By gradually modifying the urban fabric as part of a comprehensive long term plan, the Green Network has the potential for significant benefits for people, environment and economy at the city scale. For example, the Green Network aims to be complete by 2034, at which point it is intended that it will be possible to travel anywhere city-wide exclusively on foot or by bike, eliminating, in theory, the need for vehicles for those who wish. By encouraging green active travel at this scale, and as a more practical, pleasant and easy-to-adopt way of moving around the city and beyond, the bold nature of the Green Network programme is a key learning point in terms of delivering maximum impact and potential.

Given the scale of the Green Network planned for across the city, a challenge for the project is ensuring that any changes are integrated and contextualised with local needs appropriately. To address this, the Green Network project team is comprised of a core team of planners, including at least one person from each of the seven municipalities of the metropolitan region. This team works with local people from each municipality of the city in the development of the network to ensure its success at both the city-wide the local level.

The Green Network also highlights the importance of both larger green corridors and spaces, and the fine grain of smaller parks, street trees and other greenspaces that connect this network together. These smaller greenspaces are important, not just in terms of habitat connectivity for wildlife, but also to ensure the accessibility of this Green Network for all those people who wish to use it; whether to connect with the broader green active routes for longer journeys or to further reaching Eidelstedter Feldmark, part of the Green Network on the outskirts of Hamburg.

Photo credit: Green Network Hamburg, Authority for Environment and Energy, City of Hamburg.
destinations, or for localised shorter journeys or recreation outdoors closer to home. For example, the smaller parks in close proximity to residential areas are especially important for less mobile sections of the population, such as parents with babies, children and older people, whilst also acting as a localised connection to the broader green active travel network for more mobile users.

Hamburg’s Green Network also offers interesting practical insights into the ways that programmes such as this can help to protect urban greenspace from development. Whilst Hamburg’s Landscape Axes Model and Green Belt Plan have helped provide a solid policy foundation for today’s Green Network and the protection of its composite greenspaces, there are still immense pressures in Hamburg for parts of the carefully preserved Green Network to instead be utilised for residential and commercial developments and roads. Whilst this legacy of city-wide spatial planning policies intending to protect this greenspace have helped to preserve much of Hamburg’s green infrastructure, there have been substantial losses of greenspace particularly in the inner city as a result of this pressure. One of the aims of the next steps of the Green Network programme is to close the gaps and missing links within the Green Network, particularly where the landscape axes become narrow or incomplete near the city centre. This highlights the widespread common conflict that many cities experience in ensuring adequate provision for greenspaces and active travel routes given the competing interests for limited urban land. Hamburg’s Green Network programme is attempting to overcome this challenge by integrating green infrastructure and active travel routes within existing urban forms, such as courtyards, school grounds, car parks and streets. This approach retrofitting green infrastructure and/or active travel routes within the existing developed urban form is intended as a means to successfully navigate this challenge and meet the goals of the Green Network.

“...The Green Network will connect parks, recreational areas, playgrounds, gardens and cemeteries through green paths. Other cities, including London, have green rings, but the green network will be unique in covering an area from the outskirts to the city centre. In 15 to 20 years you’ll be able to explore the city exclusively on bike and foot.

Angelika Fritsch, Office for Regional and Landscape Planning, City of Hamburg, [source: interview with Guardian Sustainable Business, 2013]..."
FUTURE DIRECTIONS

Hamburg’s Green Network utilises an ongoing phased approach, due to have reached completion within 20 years, by 2034. By this time, it is intended the Green Network will cover over 40% of the city, and will have reduced dominance on car travel for necessary journeys. It will achieve these goals by simultaneously enhancing and connecting the city’s existing greenspaces to create a robust network of pedestrian and cycle paths. These will provide additional safe, pleasant, car-free commuter routes that are accessible for, and within reach of all city residents.

The benefits of this project lie in both its scale and connection of existing green elements and active travel routes within the city. A large portion of the Green Network is already in place and can be appreciated on foot or by bike. As the network continues to expand, opening up more thoroughfares and connections via green active travel routes and spaces, it is hoped a switch to walking or cycling as the dominant means of getting around the city will become a gradual and natural behavioural shift for all users.

The ongoing success of the Green Network will also increase local residents’ proximity to green open space, addressing current localised deficits in certain parts of the city, particularly the dense urban city centre. This will help spread the various benefits for environment, economy and people that the completed Green Network will bring about. The result on completion of the Green Network by 2034 will be an attractive, green and desirable city to live and for businesses to locate, which is easy to get around on foot or by bike, improves quality of life, absorbs CO₂ and helps regulate the city’s climate, mitigates flood risk (particularly important as sea levels have risen 20cm here in the last 60 years), and which provides a range of habitats and opportunities for wildlife.