Urban Peripheries and the 15-Minute City: A comparative study on proximity-based strategies for the transformation of suburban and periurban areas

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Abstract
Urban areas are responsible for more than 60 percent of greenhouse gas emissions. As the global urban population increases, future growth will happen primarily in urban peripheries. This raises the question if proximity-based approaches such as the 15-minute city (FMC) can be applied for the sustainable transformation of urban peripheries. Therefore, this study comparing the long-term strategic vision of Melbourne, Portland and Vancouver investigates if these visions address strategies for transformatinng of urban peripheries and if those strategies align with the FMC concept. The study reveals, that the visions, although relying on important points of the FMC, deviate from the original concept regarding the allocation of workspaces: While the urban function of working isn't necessarily a part of complete or 20-minute neighbourhoods, it is one of the essential functions named in the original FMC concept. This is due to challenges which occur when applying proximity-based approaches such as the FMC to urban peripheries which cannot provide the building and population density needed in order to make the provision most daily essentials viable inside a 15-minute walking distance. This poses a dilemma as promoting walking as the main mode of transit is of utter importance for the FMC concept.

Keywords: urban peripheries, 15-minute city, complete neighbourhoods, Zwischenstadt, proximity, mobility

1. Introduction

Since its introduction in 2016, the 15-minute city (FMC) (Moreno 2020; Moreno et al., 2021) has become a popular model for urban planning and urban design (Pozoukidoi and Chatziyiannaki, 2021, p. 3). This is mainly due to global challenges such as climate change and the Covid-19 pandemic as the FMC concept is aimed at reducing greenhouse gas (GHG) emissions and improving city dwellers' quality of life by providing all daily essential within a 15-minute walk from home (Allem et al., 2022, p. 2). There is an urgent need for transformational urban models as well as strategies and policies for their implementation as 55 percent of the global population already live in urban environments (UN Habitat, 2020) and urban areas are responsible for more than 60 percent of global GHG emissions (United Nations, 2020). In their second white book (livre blanc) Moreno and his team at Chaire ETI list several cities such as Ottawa, Melbourne, Portland, Barcelona, Milano, Nantes and Mulhouse which are considered pioneers in implementing the FMC as the basis for their urban planning- and urban design strategies (Chair ETI, 2020, pp. 20-45). As the share of the global population living in urban areas is expected to grow up to 68 percent by 2050 (UN Habitat, 2020) it is worth mentioning that "urbanization in the twenty-first century is increasingly occurring in the peripheral areas outside the city" (Wu and Keil, 2022, p. 11). Regarding the previously mentioned list of cities, it is striking that the majority of these so-called pioneer cities are

metropolises of national or even international importance which already profit from dense and mixed-use urban structure: Siedentop and Gerten (2023, p. 2) estimate that the majority of people living in the central and middle parts of large cities already profit from living in a FMC. However, as Bremer (2022, p. 33) points out the majority of people in western industrialised countries does not live in compact urban centres, but in disperse, low-density settlement-structures for which Thomas Sieverts (2013) coined the term *Zwischenstadt*. Bremer estimates, that up to 75 percent of the German population live in Zwischenstadt-like areas according to their mobility patterns (Bremer, 2022, p. 33). As Sieverts Zwischenstadt (2013) is a collective term which can be referred to as a fuzzy concept, one can argue about the exact definition and delimitation of the settlement structures it includes. Regardless of the exact delimitation and proportion of people living in Zwischenstadt-like environments it is needless to say that developing guiding principles for the transformation of these Zwischenstadt-like areas in order to reduce GHG emissions, improve social cohesion and increase it climate resilience can play an important role for the sustainable transformation of the built environment (Sieverts, 2005, p. 29). As a response to these needs Carlos Moreno suggests to extend the FMC concept to semi- or less dense areas. This adaptation of the FMC will be called 30-minute territory (*territoire de la démi heure*) and could provide a new territorial framework for urban planning and design, according to Moreno (2020, pp. 127f.).

2. Methods

The aforementioned subjects in section 1 raise two general questions: If and how are transformational urban strategies which are based on proximity and active mobility such as the FMC or 30-minute territory applied on Zwischenstadt-like urban peripheries? Second, what is the image of the FMC or 30-minute territory in terms of urban form, typologies and urban design, especially in Zwischenstadt-like urban peripheries?

For this reason, in this study the long-term strategic visions of Melbourne (Plan Melbourne 2017-2050), Portland (2035 Comprehensive Plan) and Vancouver (Vancouver Plan 2050) will be compared regarding the following questions: First, are urban peripheries addressed at all and which significance is given to them? Second, which strategies for the transformation of urban peripheries have been developed and how do these correlate with the thematic pillars of the FMC. And third, which significance is given to work as a social function and the allocation of workplaces?

2.1 Spatial framework

Sieverts' Zwischenstadt is a fuzzy concept which does not provide an exact definition and delimitation of the settlement structures included. It acts as a collective term subsuming areas which can be described as ruralised cities or urbanised countryside at the same time and, therefore, can't be clearly categorised into town or countryside (Sieverts, 2013, p. 14). It comprises large infrastructure facilities, suburbia as well as commercial- and industrial zones which are typically found in the peripheries of cities, but also later phenomena which occur in larger agglomeration areas, such as post-suburbia, exurbia, edge-cities and technoburbs. As this study compares three metropolises and their agglomeration areas it will focus on the transformation of low-density suburbs as well as commercial and industrial areas in the peripheries of these cities. For this reason and, as the German term Zwischenstadt is hard to translate into English and could interrupt the flow of reading, in the following sections I will refer to those urban structures which are subject to the investigation as *urban peripheries*.

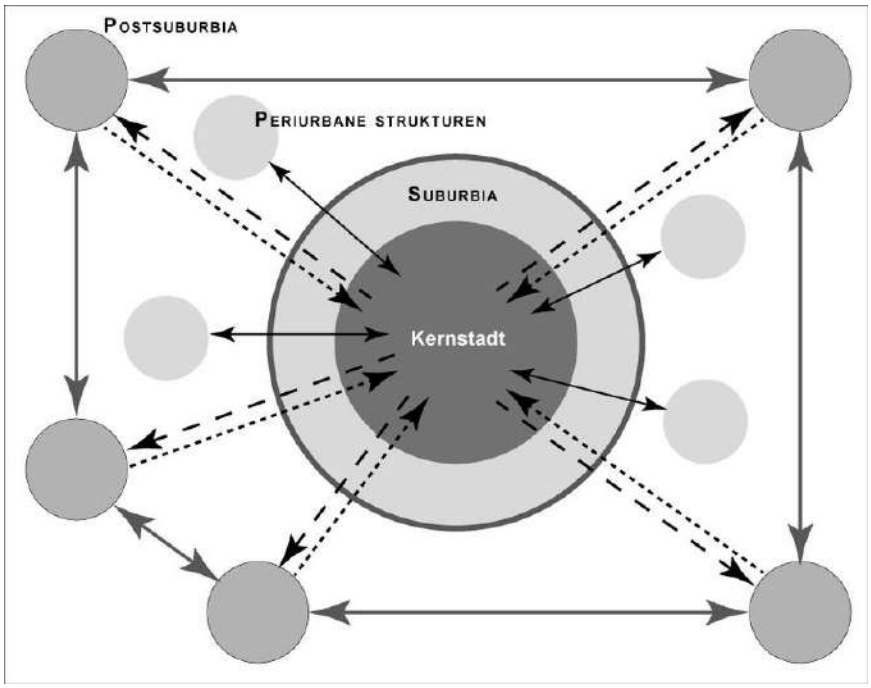

Fig. 1: Different phenomena as part of Zwischenstadt and their relations

2.2 Sample

The cities of Melbourne and Portland have been chosen, because they have repeatedly been mentioned in the writings of Carlos Moreno and Chaire ETI as pioneer cities of the FMC (Chaire ETI, 2020, pp. 20-45; Moreno, 2020, pp. 118f.). Additionally, Vancouver made its dedication towards the FMC concept clear on several occasions (City of Vancouver, n.d.). Furthermore the cities have provided one document coherently presenting their long-term strategic vision which makes a comparison possible without carrying out a meta-analysis of a variety of strategic planning documents. Finally, as they are all cities which consist to a large extent of suburbs, their urban structure is fairly comparable among each other and it is more likely to identify strategies pursuing the transformation of urban peripheries.

2.3 Analytical framework

Moreno's FMC concept is based on proximity and active mobility (Abbiasov et al., 2024, p. 445) and integrates several previous urban models, such as the neighbourhood unit, urban villages and transit-oriented design (Pozoukidou and Chatziyiannaki, 2021, p. 2) as well as the compact city, the walkable city and the green city (Allam et al., 2022, p. 2;) Therefore it suggests a number of goals and strategies in order to transform our built environment into FMCs such as prioritisation of active mobility (Moreno, 2020, p. 51), the redesign of streets (Moreno, 2020, p. 70) and placemaking (*topophilie*) (Moreno, 2020, pp. 116f.) together with the idea of a continuous, defragmented urban fabric with a minimum density and mixture of urban functions (Moreno, 2020, p. 51) in order to provide the needed proximity to the essential six urban functions which are living, working, education, supply, health and green (Moreno, 2020, p. 120). These strategies can be summarised under the following four thematic pillars on which the FMC concept is build: *Urban form, mobility, placemaking* and *climate resilience*.

3. Comparison of long-term strategic visions

This comparative study will identify for each sample if and how urban peripheries are being addressed and which strategies are being pursued for their sustainable transformation. The strategies will be summarised and compared following the thematic pillars of the FMC: *urban form, mobility and placemaking*. Climate resilience will be no part of the comparison as this study is focussed on the built environment and the allocation of urban functions in urban peripheries. Later these findings will be summarised and compared to the original FMC concept.

3.1 Plan Melbourne 2017-2050

Melbourne is one of the cities which have adapted their official planning policies to the concept of the 15-Minute city (Moreno, 2020, p. 118f.). Plan Melbourne 2017-2050 is the central strategy in order to „manage growth in the city and suburbs to the year 2050“ (DELWP, 2017, p. 3). In this subsection Plan Melbourne 2017-2050 will be analysed.

3.1.1 Structure and main goals of Plan Melbourne 2017-2050

Melbourne's main challenge is to manage population growth over the coming years without further sprawling (DELWP, 2017, p. 6). For this reason it is bases on "9 principles that underpin a long-term vision for Melbourne“ and structured around „7 outcomes to drive Melbourne as a competitive, liveable and sustainable city, 32 directions setting out how these outcomes can be achieved [and] 90 policies outlining how each outcome will be approached, delivered and achieved“ (DELWP, 2017, p. 3). These principles include the creation of 20-minute neighbourhoods and a network of centres (DELWP, 2017, p. 10).

3.1.2 Strategies related to urban peripheries

Plan Melbourne does not directly address urban peripheries with Zwischenstadt-like features, but it identifies several zones with shared morphological features such as the Central Business District (CBD) as well as inner, middle and outer suburbs (DELWP, 2017, p. 36) which are repeatedly addressed in different policies and directions. There is no map or list provided to make clear which parts of the city are categorised as inner, middle or outer suburbs. Compared to the phases of Melbourne's urban development (*Fig. 2*) these zones can be partly assigned to different development phases as the CBD and those suburbs which have evolved before the rise in private car ownership have a more compact structure and are therefore more walkable. There are several inner and middle suburbs which already fulfil the criteria of a 20-minute neighbourhood and middle and outer suburbs which don't (DELWP, 2017, p. 47). This means that urban peripheries are most likely to be found in these middle and outer suburbs. Therefore, the following analysis will outline strategies aiming at transforming those structures into complete and walkable 20-minute neighbourhoods.

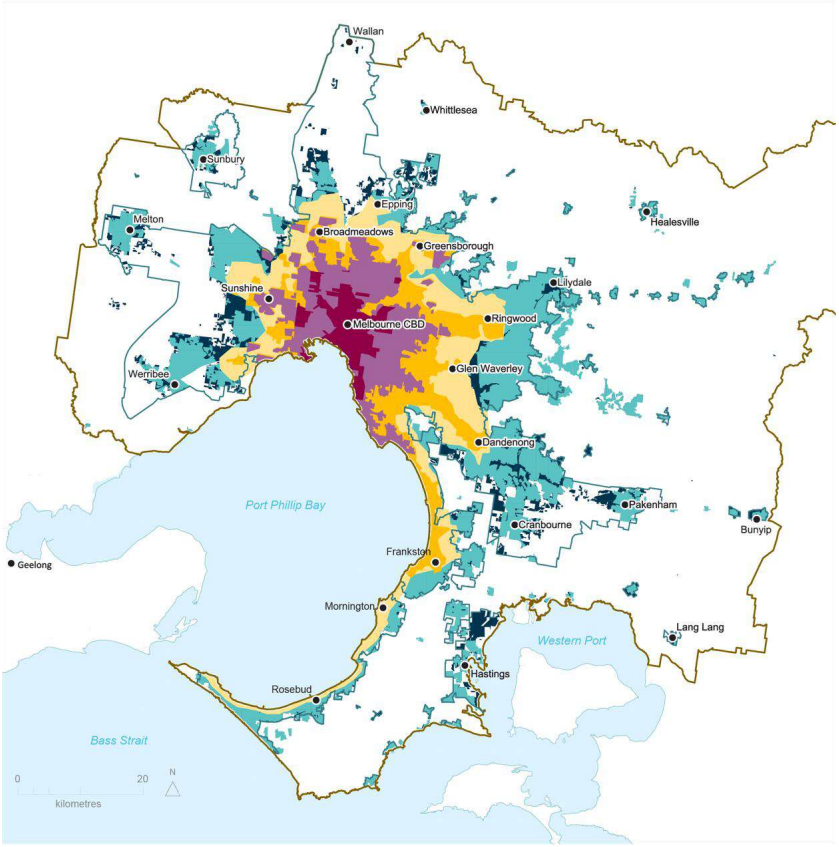

Fig. 2: Melbourne's urban growth

3.1.3 Strategic approaches to transforming urban peripheries

Urban form. Melbourne is a city of suburbs (DELWP, 2017, p. 5). Therefore the authors of Plan Melbourne intend to manage future population growth by urban planning and urban design in order to avoid sprawl and transform these suburbs into compact, walkable 20-minute neighbourhoods. Those are supported by a network of centres which has different levels of hierarchy: „Metropolitan activity centres are supported by a network of major and neighbourhood activity centres of varying size, role and function." (DELWP, 2017, p. 47). It is intended that Melbourne's growth is focussed around these existing functional cores and nodes which means introducing middle- and high-density housing, especially in middle-ring suburbs which are already well served with jobs and services (DELWP, 2017, p. 47). In other locations the value of existing infrastructures shall be optimised by increasing population density (DELWP, 2017, p. 49). For growth areas the authors seek to avoid to „[…] recreate the 'dormitory' suburbs of the post-war boom" (DELWP, 2017, p. 45). Therefore, "the guidelines support planning for local jobs, local town centres rather than car-based shopping centres, better access by walking and bikes, and a healthy environment." (DELWP, 2017, p.49). As the following quote reveals, inner and middle suburbs which already are compact and walkable neighbourhoods act as a role model for Melbourne's 20-minute neighbourhoods: „Planning will be undertaken to ensure that the best parts of Melbourne are maintained and the benefits experienced in established inner and middle suburbs of Melbourne from compact, walkable neighbourhoods can also be realised in middle and outer areas" (DELWP, 2017, p. 47). This also includes Transit-Oriented-Development (TOD) as well as offering mixed-use developments with density and greater housing diversity close to employment and transport which will create opportunity and choice for medium- and low-income households (DELWP, 2017, p. 47). One strategy which is also worth mentioning is densification of middle and outer suburbs by greyfield development which means replacing detached single-family homes on large lots with mixed-use multi-family buildings after they have reached their designated lifespan (DELWP, 2017, p. 51).

Mobility. One recurring strategy which repeatedly appears in different chapters of Plan Melbourne is reducing car-dependency (DELWP, 2017, p. 123) not only by transforming the urban structure, but also by improving infrastructure for walking, cycling and public transport (DELWP, 2017, p. 100).

Placemaking. The authors of Plan Melbourne do not solely address the promotion of walking and cycling on the level of infrastructure but also emphasise that „Streets are both places to pass through and destinations" (DELWP, 2017, p. 81) and thus, placemaking practices need to be integrated in road design practices (DELWP, 2017, p. 81). According to the authors, making walking and cycling more enjoyable by attaching importance to placemaking practices and the design quality of the built environment can improve social cohesion the local economy (DELWP, 2017, p. 99).

The concept of the 20-minute neighbourhood integrates these different strategies aiming at improving the inhabitants' quality of life and at reducing greenhouse gas emission: „The 20-minute neighbourhood is all about 'living locally'—giving people the ability to meet most of their everyday needs within a 20-minute walk, cycle or local public transport trip of their home. If 20-minute neighbourhoods existed across Melbourne, it could reduce travel by nine million passenger kilometres and cut Melbourne's daily greenhouse gas emissions by more than 370,000 tonnes." (DELWP, 2017, p. 98).

3.1.4 Alignment with the 15-minute city concept

Plan Melbourne includes several strategies which are part of the FMC concept: First, Plan Melbourne suggests the transformation of existing middle and outer suburbs into compact, walkable 20-minute neighbourhoods where most of the residents' daily needs can be met within 20 minutes of walking, cycling or public transport. This is a strong reference to the concept of hyper-proximity in the 15-minute city, although 20-minute neighbourhoods rather pursues a accessibility-based approach than a proximity-based approach. Second, Plan Melbourne intends to reduce car-dependency and make walking, cycling and riding public transport more enjoyable and safer by investing in the needed infrastructure. Promoting active mobility is likewise an important part of the FMC concept (Moreno, 2020, pp. 33, 70). Third, the authors of Plan Melbourne address placemaking and the design qualities of the built environment in order to improve social cohesion. This strategy aligns with a concept which Moreno calls „topophilie" (Moreno, 2020, pp. 116f., 123) which can be translated into *love for your city*.

It is worth mentioning that Plan Melbourne's 20-minute neighbourhood deviates from the 15-minute city concept in several respects: In Moreno's description of the FMC working is one of the six social urban functions which need to be accessible in 15 minutes by walking or cycling from where one lives (Moreno, 2020, p. 120). The authors of Plan Melbourne, on the other hand, make it very clear that „[due] to the specialised and diverse nature of many people's work, access to employment will often be outside the 20-minute neighbourhood." (DELWP, 2017, p. 99). They clearly point out that „[the] distribution of jobs across Melbourne is uneven" (DELWP, 2017, p. 36). Despite generally intending to provide more jobs closer to where people live (DELWP, 2017, p. 37) the strategy to resolve the uneven distribution of jobs across Melbourne is the decentral centralisation of jobs in so-called Metropolitan Activity Centres (DELWP, 2017, p. 14). This approach aligns with the strategy of creating a network of centres (DELWP, 2017, p. 10) and Transit-Oriented-Development (DELWP, 2017, p. 100). It is noteworthy that, concerning urban peripheries in the middle and outer suburbs, Plan Melbourne does not pursue a strategy of transforming urban peripheries into a continuous mixed-use urban fabric, but to create a network of centres whose mesh size is defined by a 20-minute isochrone. Future development and densification will primarily take place around existing centres and in established neighbourhoods (DELWP, 2017, p. 47). On the one hand, this can be an adequate strategy to avoid sprawl. On the other hand, focussing on existing centres and established neighbourhoods will not improve access to jobs and services in neighbourhoods which already are underserved. However, the plan identifies several hallmarks for 20-minute neighbourhoods: One of them is „A 20-minute neighbourhood must […] deliver housing/population at densities that make local services and transport viable" (DELWP, 2017, p. 98). This is interesting regarding urban peripheries, because the statement implies that there is minimum population density threshold under which providing local services and public transport is no longer viable. This means that, according to Plan Melbourne, transforming underserved neighbourhoods in urban peripheries into 20-minute neighbourhoods means increasing density until it exceeds the minimum density to make local services and public transport viable.

3.2 Portland 2035 Comprehensive Plan

In their second whitebook Moreno and his Team at Chaire ETI list several cities which are pioneers in implementing the 15-minute city concept. Portland is one of them (Chaire ETI, 2020, p. 29-31). Portland has started to implement the FMC concept in its urban planning policies by adopting the 2015 Climate Action Plan aiming at significantly reducing greenhouse gas emissions by transforming its urban form, promoting active mobility and creating vibrant 20-minute neighbourhoods (Chaire ETI, 2020, p. 29). Since then the city has updated the 2035 Comprehensive Plan (BPS, 2023a) and complemented it with an Urban

Design Direction (BPS, 2023b). In this subsection the 2035 Comprehensive Plan will be analysed.

3.2.1 Structure and main goals of Portland's 2035 Comprehensive Plan

The 2035 Comprehensive Plan is Portland's central planning strategy to manage growth by guiding land use development and public facility investment (BPS, 2023a, p. 41). It is based on five guiding principles (BPS, 2023a, p. 7) and divided in ten thematic chapters which include, among others, urban form, housing and transportation (BPS, 2023a, p. 5). Its main goal is to manage the expected growth in order to avoid sprawl and to „expand access to employment and great neighborhoods" (BPS, 2023a, p. 8). Another important goal of the plan is that by 2035, 80% of Portland's inhabitants live in so-called complete neighbourhoods (BPS, 2023a, p. 90). The Comprehensive Plan defines a complete neighbourhood as follows: „A neighborhood where people have safe and convenient access to the goods and services needed in daily life, which include a variety of housing options, grocery stores and other commercial services, high-quality public schools, and parks. Complete neighborhoods are also easily accessible by foot, wheelchair, bike, and transit for people of all ages and abilities." (BPS, 2023a, p. 296). As a tool to achieve that goal Portland's Bureau of Planning and Sustainability (BPS) has „developed the 20-minute neighborhood index to measure access to community amenities, products and services." (BPS, 2023a, p. 36). The strategies aimed at transforming Portland's neighbourhoods into complete 20-minute neighbourhoods are spread across the 10 chapters of the Comprehensive Plan.

3.2.2 Strategies related to urban peripheries

Portland's 2035 Comprehensive Plan does not directly address urban peripheries, but it defines five distinctive pattern areas including Rivers, Central City, Inner Neighbourhoods, Western Neighbourhoods and Eastern Neighbourhoods (BPS, 2023a, p. 110). Additionally, the authors point out that the urban structures inside the Inner Neighbourhoods Pattern Area already have the desired qualities of complete neighbourhoods (BPS, 2023a, p. 114). The Western neighbourhoods are largely shaped by the mountainous terrain (BPS, 2023a, pp. 115f.) whereas the Eastern Neighbourhoods are characterised as mainly suburban, a low building density, wide street corridors and gaps in the network of pedestrian and bicycle paths (BPS, 2023a, p. 115). For these reasons it can be assumed that the Eastern Neighbourhoods Pattern Area matches most with the characteristics of urban peripheries and this analysis will focus on strategies aiming at transforming the Eastern Neighbourhoods into complete neighbourhoods.

3.2.3 Strategic approaches to transforming urban peripheries

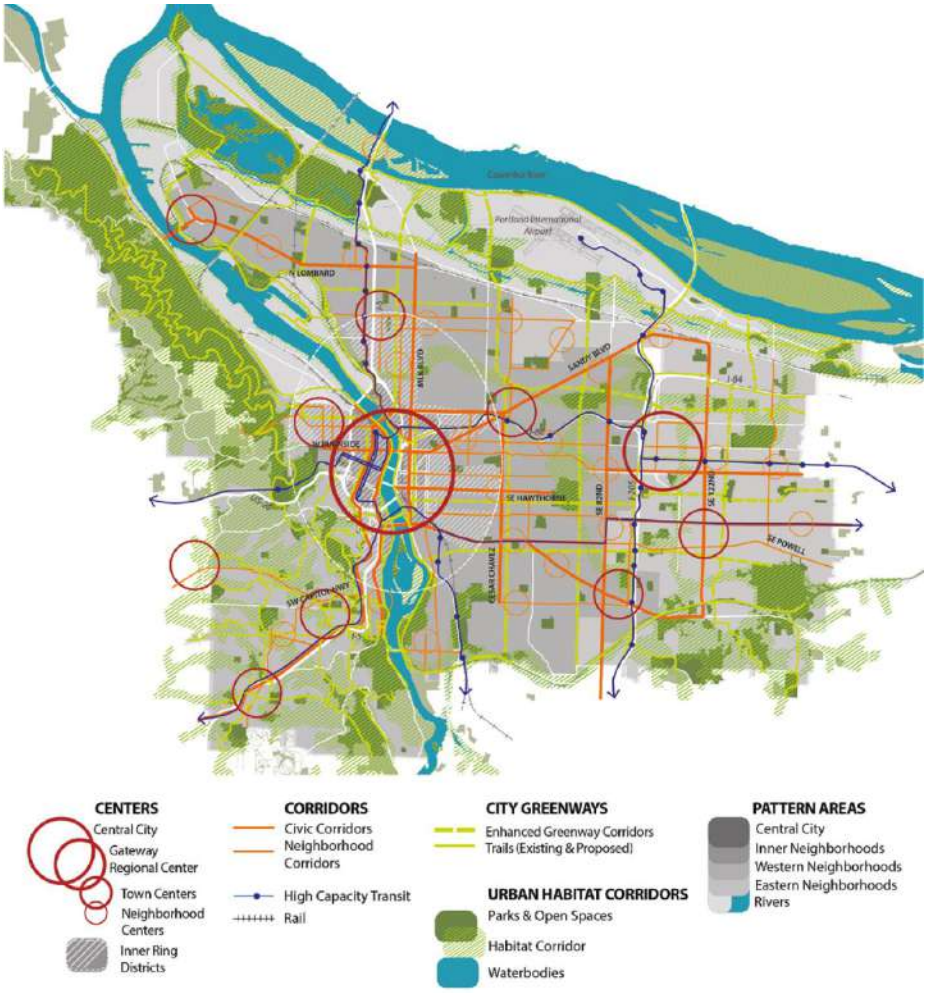

Fig. 3: Portland's urban development strategy depicting center, corridors and pattern areas

Urban form. The authors of the Comprehensive Plan assume that „[how] people live and get around is partly determined by the location of services and other destinations and the arrangement and design of buildings and connections provided by streets, trails, and other public spaces." (BPS, 2023a, p. 90). That is why a whole chapter of the document is dedicated to the topic of urban form. One superordinate strategy for all pattern areas is to create a network of centres on different hierarchical levels connected by corridors. Centres and corridors act as anchors for complete neighbourhoods (BPS, 2023a, p. 90). In general centres are described as „compact and pedestrian-oriented urban places [which] are connected to public transit and active transportation networks" (BPS, 2023a, p. 98). There are four types of centres which are Central City, Regional Center, Town Center and Neighbourhood Center (BPS, 2023a, p. 99). Regarding the transformation of the Eastern Neighbourhoods, mainly town centres and

neighbourhood centres are of increased interest. Additionally the Gateway Regional Center which shall act as a „an employment and community service hub within the area and region“ (BPS, 2023a, p. 295) in order to reduce pressure on the central city is located in the Eastern Neighbourhoods. High density housing and public places which enable vibrant public life shall be added here (BPS, 2023a, p. 101).

As the names imply, neighbourhood centres mainly serve the surrounding neighbourhood. They are characterised by multi-level, mixed-use buildings with up to four floors (BPS, 2023a, p. 102). Neighbourhood centres also act as local transportation hubs, but aren't necessarily connected to rapid transit (BPS, 2023a, p. 233). Town centres have a larger catchment area and „provide a full range of commercial and community services, high-density housing, mid-rise commercial and mid-rise mixed-use buildings (typically up to five to seven stories in height), are served by high-capacity transit connections, and have a substantial employment component“ (BPS, 2023a, p. 295). This means that town centres play an important role for decentralising work location and creating work locations closer to where people live. Neighbourhoods are connected among each other and to other parts of the city and central city by corridors. There are larger civic corridors and smaller neighbourhood corridors. The authors of the comprehensive plan intend to redevelop corridors order to cater to their surrounding neighbourhoods by providing public transit, stores, housing and office spaces (BPS, 2023a, p. 104). As linear centres they play an important role in covering peripheral areas without 20-minute access to a town- or neighbourhood centres with service and work locations. Therefore, they need to offer a minimum building and population density which makes public transport and services viable (BPS, 2023a, p. 104). A look on the map indicating the results of Portland's 20-minute neighbourhood index or completeness score reveal that the areas with the lowest score are primarily located in the western and eastern neighbourhoods which do not have a regular network of neighbourhood centres compared to the inner neighbourhoods. This is another indicator for the important role which corridors could play especially for transforming urban peripheries into complete neighbourhoods.

Mobility. The central idea of complete neighbourhoods is to reduce car dependency and the need for mobility in general by providing services and facility within a distance of a 20-minute walk. Furthermore, the authors clearly pursue a strategy of prioritising active mobility (BPS, 2023a, p. 234). This strategy also includes the redesign of streets and to „[encourage] walking as the most attractive mode of transportation for most short trips, within neighborhoods and to centers, corridors, and major destinations, and as a means for accessing transit.“ (BPS, 2023a, p. 237).

Placemaking. The authors of the Comprehensive Plan point out that streets are part of the transport infrastructure, but also places for social interactions and should, therefore, integrate both functions (BPS, 2023a, p. 236). Therefore, civic corridors shall be enhanced as distinctive place which offer an attractive pedestrian environment (BPS, 2023a, p. 105). In general, the comprehensive plan pursues a strategy of integrating strategies and measure related to the topics of active mobility, street design and placemaking in order to enhance the pedestrian experience (BPS, 2023a, p. 132). At the same time, it is questionable if the strategy of enhancing public life around civic and neighbourhood corridors which basically are major streets can be successful. Without a substantial reduction of car traffic the attractiveness of these places will be limited by noise and air pollution.

3.2.4 Alignment with the 15-minute city concept

Portland's 2035 Comprehensive Plan includes several strategies which are also part of the FMC concept: First, the authors of the Comprehensive Plan suggest to transform Portland's existing neighbourhoods into complete, walkable 20-minute neighbourhoods. Complete neighbourhoods or 20-minute neighbourhoods rely on accessibility to daily needs which is an important part of the FMC concept. Second, the Comprehensive Plan pursues the goal of reducing car-dependency and to promote walking as the most important mode of transport together with a prioritisation of active mobility including the redesign of streets and placemaking practices. The prioritisation of active mobility and especially walking as the main mode of transport is an important part of the FMC concept. Third, in the Comprehensive Plan strategies and measures related to the topics of mobility and placemaking heavily integrated. This can be seen as an interpretation of the term *topophilie* as part of the FMC concept.

However, there is a striking difference between complete neighbourhoods and the 15-minute city concept: Working which is one of the six essential functions which are part of the FMC is not necessarily a part of complete neighbourhoods. Although the plan pursues a strategy of decentralising work locations it does so by promoting decentral centralisation of work locations as new commercial spaces are concentrated in regional- and town centres. Based on the strategy of creating a network of centres and corridors in combination with transit-oriented development, densification and diversification around these corridors could be helpful to create jobs closer to where people live. The Comprehensive Plan does not suggest to create a continuous mixes-use urban fabric, but a network of centres and corridors. Future growth is concentrated around centres, corridors and transit stations.

3.3 Vancouver Plan 2050

The Vancouver City Council has approved the Vancouver Plan 2050 in 2022 as their „visionary long-range land use plan to guide growth and change over the next 30 years" (City of Vancouver, 2022, p. 7). One important goal of the Vancouver Plan is to develop complete, connected neighbourhoods „using the '15-minute city' principle" (City of Vancouver, n.d.). In this subsection the Vancouver Plan 2050 will be analysed.

3.3.1 Structure and main goals of the Vancouver Plan 2050

The Vancouver Plan outlines the long-range strategic vision for Vancouver's urban development for the next 30 years (City of Vancouver, 2022, p. 7). It is based on a vision and three foundational principles as well as three big ideas. Additionally, the plan presents vision statements for several policy areas, such as housing, transportation and public space, together with policy directions and policies to achieve the desired states for each policy area (City of Vancouver, 2022, p. 27). Another important part of the Vancouver Plan is the land-use strategy which show how the policy directions and policies of the plan can be realised in a spatial dimension (City of Vancouver, 2022, p. 27). Complete neighbourhoods are part of the vision and the three big ideas (City of Vancouver, 2022, pp. 22, 40) which makes them a core concept of the Vancouver Plan. The authors of the plan pick up on Vancouver's strategy to embrace „compact urban forms, walkable neighbourhoods, and sustainable transportation modes as critical solutions to combat climate change and maximize liveability" (City of Vancouver, 2022, p. 15). Further important topics which are addressed in the plan is the spatial mismatch between jobs and housing and the underutilisation of residential neighbourhoods with low building and population densities: More than half of Vancouver's jobs are located only on 10 percent of the land, but at the same time more than half of Vancouver's area is used for only 15 percent of its homes (City of Vancouver, 2022, p. 9).

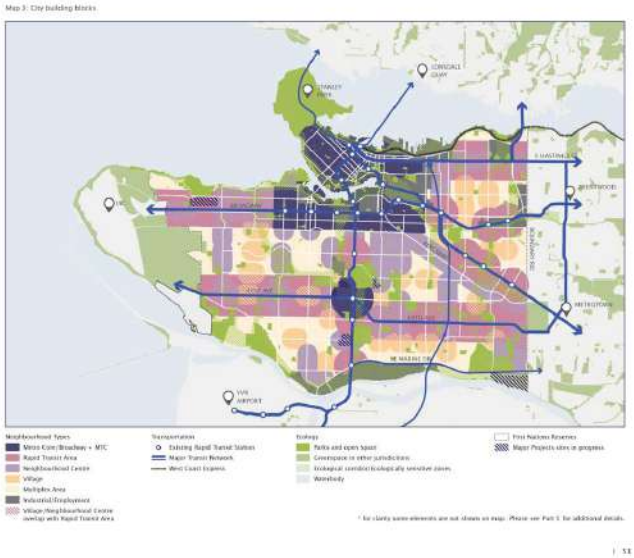

Fig. 4: Urban development strategy for Vancouver depicting different neighbourhood types

3.3.2 Strategies related to urban peripheries

The authors of the Vancouver Plan 2050 do not directly address the transformation of urban peripheries, but they point out several problems related to urban peripheries: „[more] than one-third of residential neighbourhoods do not have enough people living in them to support local businesses. Over half of Vancouver residents live in neighbourhoods without walkable access to daily needs such as food and services“ (City of Vancouver, 2022, p. 9).SEP Additionally, the plan lists different types of neighbourhoods such as rapid transit areas, neighbourhood centres and villages for which different strategies and policies apply. Although the term village might be misleading, because it is widely associated with rural life, the term refers to low-density neighbourhoods with a lack of public transport and services (City of Vancouver, 2022, p. 50). Therefore, this analysis will focus on strategies to transform these low-density neighbourhoods into complete neighbourhoods. For low-density neighbourhoods, the plan suggests a strategy of densification and diversification of housing choice.

3.3.3 Strategic approaches to transforming urban peripheries

Urban form. The main goal of the Vancouver Plan is to become a city of complete neighbourhoods. Therefore, the authors pursue a strategy to create a network of centres, each catering to a complete neighbourhood (City of Vancouver, 2022, p. 54). To achieve that goal, existing centres shall be strengthened by providing more opportunities for people to live close by. In underserved areas new neighbourhood centres shall be created by locating shops, amenities and public transport close together (City of Vancouver, 2022, p. 54). For that reason rapid-transit areas play an important role for creating new neighbourhood centres and „vibrant, mixed-use neighbourhoods providing more opportunities for purpose-built rental and social housing, childcare, community infrastructure, and arts and culture uses“ (City of Vancouver, 2022, p. 60).

The authors point out that a minimum building density is needed to provide for rental and social housing (City of Vancouver, 2022, p. 62). Therefore, the plan suggests to add so-called middle-housing around neighbourhood centres, rapid-transit areas and low-density neighbourhoods. Middle housing comprises ground oriented solutions such as multiplexes and townhouses as well as low-rise apartment buildings and mixed-use low-rise buildings (City of Vancouver, 2022, p. 60). The plan recommends multiplexes as a „new type of ground-oriented housing as a similar but more affordable and sustainable option to single-detached homes“ (City of Vancouver, 2022, p. 60). These are an effective measure to increase and diversify housing choice, but also to include small-scale mixed-use buildings to provide more job space, and local serving shops and services especially in low-density neighbourhoods labelled as villages in the land-use strategy (City of Vancouver, 2022, p. 62).

As already mentioned the authors of the plan also address the spatial mismatch between housing and jobs. Therefore the plan suggests to decentralise work locations by providing office space in neighbourhood centres (City of Vancouver, 2022, p. 54). Additionally and noteworthy, is the strategy to implement compatible light-industrial uses in rapid-transit areas and neighbourhood centres (City of Vancouver, 2022, p. 62). Examples for compatible light-industrial uses can be artist studios and maker spaces (City of Vancouver, 2022, p. 97). Furthermore the plan suggests to explore compatible uses to be added such as commercial and cultural facilities to industrial areas (City of Vancouver, 2022, p. 96).

Mobility. One core feature of Vancouver's complete neighbourhood is that they are walkable (City of Vancouver, 2022, p. 40). City-wide high-quality networks for walking, cycling and public transport are „the backbone of complete neighbourhoods“ (City of Vancouver, 2022, p. 47). Therefore, the Vancouver Plan suggests to „[create] people-first streets that are safe, attractive, and support people walking, rolling, biking, and taking transit“ (City of Vancouver, 2022, p. 45).

Placemaking. The authors of the Vancouver Plan emphasise that complete neighbourhoods „provide more opportunities for social interaction as people meet and connect on the street, at their favourite coffee shop, local playground, and during everyday activities like walking to get groceries“ (City of Vancouver, 2022, p. 52). For that reason the plan pursues a strategy of providing attractive public spaces to enhance public life as „[public] space is fundamental to participation in public life“ (City of Vancouver, 2022, p. 132).

3.3.4 Alignment with the 15-minute city concept

The Vancouver Plan 2050 includes several strategies which are also part of the FMC concept: First, at the core of the plan is a strategy to transform low-density residential suburbs into walkable complete neighbourhoods. The plan identifies several areas across the city which can be transformed into so-called multiplex areas. It is noteworthy that Vancouver's definition of a complete neighbourhood also includes „flexible work spaces“ (City of Vancouver, 2022, p. 154). This strategy relates to the concept of *hyper-proximity*, which is an important part of the FMC concept. Second, for the authors of the Vancouver Plan also pursue complete neighbourhoods to reduce car-dependency, and to prioritise active mobility in order to enhance public life and social cohesion as well as the health of its residents (City of Vancouver, 2022, p. 52). Third, the Vancouver Plan integrates topics related to mobility and placemaking as the authors emphasise the importance of walking, local services and public spaces in general for social interaction. This strategy relates to the term *topophilie* and

Moreno's emphasis on the meaning of public space for social interaction and urban culture (Moreno, 2020, p. 70).

The Vancouver Plan promotes a strategy of creating a city of complete neighbourhoods which are anchored to a network of centres which are connected by a high quality network for pedestrians, cyclists and public transport. It does not necessarily suggest to create a continuous mixed-use urban fabric, but the authors lay great emphasis on decentralising work. They pursue that goal not only with a strategy of decentral centralisation of work locations in town- or neighbourhood centres but suggest to add flexible work spaces and compatible light-industry to neighbourhoods and also to add compatible uses in industrial and commercial areas. Furthermore the authors developed an alternative typology to the now dominant single-family detached house: The multiplex which still offers ground-oriented housing, but at higher building and population densities that support local shops and services.

4. Discussion

The comparative analysis of the long-term strategic vision of Melbourne, Portland and Vancouver reveals that each city developed strategies which are to a great extent based on the 15-minute city concept developed by Carlos Moreno and his Team at Chaire ETI. The analysis further reveals that each city developed an own interpretation of the FMC concept based on its distinctive conditions. This also means that planners in Melbourne, Portland and Vancouver do not necessarily mean exactly the same when referring to the term *complete neighbourhoods* or *20-minute neighbourhoods*.

In section 2.3 three thematic pillars have been named as the analytical framework for the comparative study: *Urban form, mobility and placemaking*. *Fig. 5* shows strategies mentioned in the writings of Moreno and his team related to the four pillars or central topics as well as for the three cases.

Thematic Pillars and Strategies	FMC	Melbourne	Portland	Vancouver
Urban Form				
- spatial continuity and defragmentation	x			
- decentralisation of densities	x			
- avoid sprawl		x	x	x
- create a network of centres		x	x	x
- densification (housing + mixed-use) in and around existing functional cores and nodes		x		
- densification of low-density neighbourhoods				x
- transit-oriented development		x		
- decentralisation of work locations		x		
- create jobs closer to where people live	x	x		x
- add further functions to industrial and commercial zones				x
- add small scale commercial spaces in neighbourhoods				x
Mobility				
- reduce the need for mobility by providing everything needed in walking distance	x	x	x	x

- walking as the main mode of transport for short trips	x	x	x	x
- prioritisation of active mobility	x	x	x	x
- redesign of streets / reallocation of street space	x	x	x	x
- reduce car-dependency	x	x	x	x
Placemaking				
- enhance public life	x	x	x	x
- provide attractive public spaces and high design quality of the built environment in general	x	x	x	x
Climate Resilience				
- provide green spaces across the city	x	x	x	x

Fig. 5: Comparison of transformational strategies included in the FMC concept and the three samples

The table shows that there are some strategies with a great degree of agreement among the original FMC concept and its adaptations such as strategies concerning a mobility turn, placemaking and increasing climate resilience by providing green spaces across the city. Concerning urban form, the concept of complete- or 20-minute neighbourhoods differs from the original FMC concept: First, working is one of the six social urban functions of the FMC, but not necessarily of complete- or 20-minute neighbourhoods.

Second, in *Droit de cite* Moreno (2020, p. 51) relates to a continuous mixed-use urban fabric. The analysed examples, however, have a very different background and urban structure with extensive low-density residential suburbs. Therefore, their planners suggest to fight sprawl and create complete neighbourhoods by creating a network of centres and to strengthen existing centres with densification, and connections between those centres. In Portland these connections, referred to as corridors, play a more important role as in Melbourne and Vancouver. The Vancouver Plan lays more emphasis on the decentralisation of work as flexible work locations and small commercial spaces shall be provided in compact neighbourhoods. It is worth mentioning that in another paper, Moreno and his team refer to “different urban nodes [that] could be accessed within 15-minute walk or via cycling” (Allam et al., 2022, p. 2) which is closer to the network-of-centres-strategy than a continuous mixed-use fabric. It appears as if the promoters of the FMC haven’t agreed on the urban form for the 15-minute city, yet.

Third, another important difference between the three cases is that in Melbourne and Portland, planners suggest to create complete neighbourhoods by densification around existing centres and in order to profit from existing infrastructure. The Vancouver Plan, however suggests the comprehensive densification and functional diversification of low-density neighbourhoods by introducing a new typology called to multiplex. According to the Vancouver Plan, low-density urban peripheries shall be transformed into multiplex areas.

In all three cases the authors assumed that a minimum population density is needed to make local shops, public transport and services viable. This points in the direction that promoting an incremental redevelopment of urban peripheries by increasing building density, housing choice and introducing small, mixed-use buildings could be an efficient strategy for their sustainable transformation.

Furthermore, the case study reveals that not all long-term strategic visions which claim to build on the FMC, really implement all aspects of the FMC concept. Concerning the urban form of complete neighbourhoods and the allocation of workplaces there are significant deviations from the original concept. These strategies of Melbourne and Portland deviate from the original FMC concept to an extend which raises the question if their strategies truly are an application of the FMC concept or just established concepts and strategies such as the compact, walkable city and transit-oriented development assembled under a new label.

5. Conclusions

The 15-minute city has become a popular urban model and extensively discussed among planners and scholars. It is based on proximity and active mobility (Abbiasov, 2024, p. 445) while pursuing the goal of providing convenient access to the goods and services needed in daily life in a walkable distance (Moreno, 2021, p. 101) But in contrast to previous urban models based on the concept of accessibility by public transport, such as transit-oriented development or settlement axes, the FMC promotes an approach of physical proximity (Siedentop and Gerten, 2023, p. 2). This aligns with the assessment of Pozoukidou and Chatziyiannaki (2021, p. 3) that „the main difference in relation to other neighborhood centered approaches is that FMCs intend to bring activities to the neighborhoods and not people to the activities, restoring the urban planning concept of proximity“. Additionally, they emphasise the importance of the allocation of workplaces „[as] the trip from home to work comprises the main and most inelastic everyday trip, localizing workplaces appropriately is imperative“ (Pozoukidou and Chatziyiannaki, 2021, p. 4).

Despite the fact that Vancouver's vision is more elaborated when it comes to strategies for decentralising work places, Melbourne and Portland do not include working into the urban functions which should be accessible within a 20-minute walking distance, at all. In another comparative study of *Plan Melbourne*, *Portland's 2035 Comprehensive Plan* and *Paris en Commun*, Pozoukidou and Chatziyiannaki (2021, p. 21) came to the conclusion that they adopt a mentality that is closer to the notion of accessibility rather than proximity which can be confirmed by this comparative study. The comparative study further reveals that operationalising the FMC concept into planning strategies, especially for the transformation of urban peripheries comes with certain difficulties: Pozoukidou and Chatziyiannaki (2021, p. 13) question if the required market range and threshold populations can be reached for all facilities included in the six social urban functions included in the FMC. According to them, these threshold populations and market ranges rather lead to a hierarchical system of centres with different centralities (Pozoukidou and Chatziyiannaki, 2021, p. 4). These findings align with a study of EIT Urban Mobility (2022) which identified several challenges that come with redesigning cities according to the FMC concept (Olivari et al., 2023, p. 3): Especially in suburban contexts the FMC concept faces morphological challenges as their density might be too low to make local shops as well as public transport and services viable (EIT Urban Mobility, 2022, pp. 21f.). Siedentop and Gerten (2023, p. 2) conclude that for disperse and low-density settlement-structures outside of established centres the promise of a *local lifestyle* will be hard to realise. The long-term strategic visions of Melbourne, Portland and Vancouver confirm this assessment.

6. Outlook

The success of the term *15-minute city* shows that catchy terms can increase public interest in strategies for sustainable urban planning and design. Providing proximity or accessibility to most everyday needs and promoting attractive environments for walking and cycling together with attractive public places are promising transformation goals for urban peripheries: Thomas Sieverts who initially promoted the term *Zwischenstadt* pointed out that walkability plays a key role in transforming urban peripheries (Sieverts, 2013, p. 39). A study investigating the correlation between the "accessibility of amenities within a 15-minute walk from home and the usage of these amenities" (Abbiasov et al., 2024, p. 451) found out that there is a strong positive correlation. This means that walking can only be the primary mode of transport if there are destinations to reach within a convenient timespan. Unfortunately, this goal is especially hard to achieve for urban peripheries with large monofunctional low-density residential neighbourhoods which poses a dilemma. For the sustainable transformation of urban peripheries this could lead towards two different conclusion: First, if urban peripheries cannot provide the population density needed to make most daily essentials viable inside the area of a 15-minute walk, proximity-based approaches such as the FMC should be let aside in favor of accessibility-based approaches aiming at making these amenities reachable by the use of different modes of transport in a certain timespan. Second, if the central quality of the FMC is not the physical proximity of most daily essential but merely the sufficient condition for walking and social cohesion, especially for urban peripheries new strategies to promote walking and improve social cohesion in low-density environments should be explored.

Further research on the 15-minute city and the 30-minute territory and the transformation of urban peripheries should therefore investigate: First, which existing settlement structures in urban peripheries already meet the criteria of the 15-minute city or 30-minute territory and by which morphological features the structures are characterised? Second, how public life and public space correlate with meeting the criteria and perhaps distinctive morphological features? Third, if and how European cities apply the FMC concept on urban peripheries. And fourth, which typologies can provide the building and population density needed to make local shops, public transport and service viable based on their different catchment area and population threshold?

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Fig. 4: Urban development strategy for Vancouver depicting different neighbourhood types.
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Fig. 5: Comparison of transformational strategies included in the FMC concept and the three samples. Source: own illustration.