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PROJECT REPORT

HAVENSTAD

DEVELOPMENT OF COEN- & VLOTHAVEN

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Museum Het Schip

Course :
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ABSTRACT

This report functions as an exploration of possibilities regarding the implementation of Compact Garden City principles in the spatial planning of Coen- and Vlothaven, a neighbourhood which will be developed in the North-Western part of Amsterdam from 2040 onwards. It focuses on the query of whether the compact city and garden city ideals, encompassing both greenery and a strong sense of community, can be implemented into the urban development of this to-be-developed neighbourhood without compromising its housing capacity and simultaneously ensuring a pleasant environment for its future residents. Following the structure of Design Thinking, a prototype for a spatial plan was constructed using SketchUp. Herein was concluded that multifunctional designs and terraced high-rise construction make it possible to meet the targets of the municipality regarding housing, workplaces, sports fields, and institutional buildings while still leaving room for plenty of greenery, leisure activity, and community spaces. Hence, this report states that the described and conceptualised vision for Coen- and Vlothaven, the heart of Haven-Stad, could ensure high quality of living standards by encompassing the Compact Garden City ideals in terms of greenery and community sense without compromising housing capacity.

Keywords: design thinking—urban green space—compact garden city—urban development.

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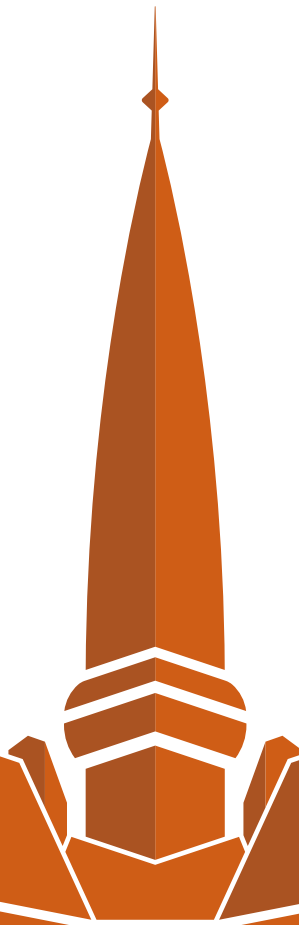
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1. INTRODUCTION

1.1. PROBLEM DESCRIPTION

The Netherlands' housing sector is currently undergoing its most substantial crisis in decades, marked by a shortage of 390,000 residential units in 2023. Consequently, a considerable proportion of the population finds the prospect of purchasing or leasing a dwelling financially prohibitive. Notably, the incidence of both housing scarcity and unaffordability continues to escalate. The Amsterdam region is particularly affected, exhibiting the highest degree of housing shortage within the country (48,990). (Mouissie & Kraniotis, 2023) Het Parool (2024) desperately questions itself and the public whether the housing sector in the city has surpassed its lowest point, as the biggest paper of the capital city states that housing prices are relatively high and rising, housing supply is shrinking and, despite all this, there is a significant number of unoccupied residencies as well.

To combat the current situation and to prevent further escalation of the crisis, the municipality of Amsterdam plans to literally broaden its territories in the coming decades by the implementation of large scale new construction projects. Haven-Stad is one of these prospective urban planning projects. The municipality envisions building 'a complete city within the city', which should become a place of residence for 200,000 citizens in the coming two decades (Gemeente Amsterdam, 2024). Twelve districts in the North-Western part of Amsterdam should provide spaces where residents can fulfill all of their needs. This way, according to municipal plans, Haven-Stad will contain multiple schools, sporting associations, health-care institutions, (grocery) shops and places of labour. Furthermore, green spaces, car-free zones and renewable energy networks are supposed to turn the neighborhood into a sustainable area (Gemeente Amsterdam, 2024).

The most centrally located district is called Coen- en Vlothaven, or, also regarded as "the heart of Haven-Stad" (Gemeente Amsterdam, 2024). This report will take this specific district within Haven-Stad as its main point of focus, especially due to its centrality in terms of location and concept.

1.2. RESEARCH RELEVANCE

The pressure of the housing crisis incentivises sprawl and the conversion of city-adjacent lands into new residential areas. Such development often takes place in areas with little to no prior infrastructure allowing for a strategic design of new neighborhoods with a clear vision in mind. In the case of Coen- and Vlothaven, the neighbourhood is covered with largely empty built-up land and old industrial infrastructure, which provides a nearly blank slate for visionary development.

Within a stone's throw from this soon-to-be-developed area, Museum Het Schip actively monitors the plans regarding the urban metamorphosis. The museum is considered to be at the top of the Amsterdam school movement, creating a space where art, architecture, and social housing come together (Museum Het Schip, n.d.). Experts at Het Schip have a vision for the development of Haven-Stad in a Garden City style mixed with the Amsterdam School movement aiming to construct green and sustainable neighbourhoods with a strong sense of community among its residents. In line with the ideals of the Garden City movement, they envision Haven-Stad as a green and healthy environment built cohesively at a humane scale with cooperative management across sectors in a way that encourages community involvement.

Processes of urban sprawl and densification aiming to provide people with sufficient housing have been associated with decreased quality of life and impaired social and emotional well-being (Sturm & Cohen, 2004; Skrede & Andersen, 2022), stressing the need for Garden City-inspired initiatives focusing on human-scale development and pleasant living environments. Finding ingenious ways of infusing green infrastructure and community spaces into dense cities is thus vital. Apart from enhancing biodiversity in larger cities, urban greenery and larger parks are also considered effective solutions for various health impacts of urbanization such as by limiting air pollution (Nowak et al., 2006), mitigating urban heat islands and summertime heat stress (Rafiee et al., 2016), and improving resident's physical and mental wellbeing through the provision of a pleasant living environment and the encouragement of outdoor activities (Konijnendijk, 2022). Putting a greenery-focussed vision such as the Garden City into practice, however, runs into major challenges in compact cities where usable land is scarce and much attention is given to vigorous high-rise construction. While urban greenspace requires substantial areas potentially limiting housing development, densification decreases the quality and connectivity of green spaces putting the two in a seemingly paradoxical situation (Balikçi et al., 2021).

Addressing the aforementioned challenges, this report focuses on how the compact and garden city ideals, encompassing both greenery and a strong sense of community, can be implemented into the urban development of Coen- en Vlothaven (Haven-Stad), without compromising the housing capacity and while ensuring a pleasant environment for the future residents.



2. THEORETICAL FRAMEWORK

2.1. COMPACT NEIGHBORHOOD IN A GARDEN

Urban planning theories have been further developed in the past decades in response to changing socio-economic and ecological contexts. Subsequently, urban planning is increasingly taking climate change into account (Blakely, 2007, p. 1; Jiang et al., 2017, p. 1; Wamsler et al., 2013, p. 68), and urban planners are taking a more participatory approach (Amado et al., 2010, p. 102; Bonakdar & Audirac, 2020, p. 147). Two outstanding concepts that have shaped discussions about urban development are the Garden City and Compact City models, with the former being “perhaps one of the most important in the history of urban planning” (Hall & Barrett, 2018, p. 128).

2.1.1. Garden City

Firstly, the Garden City concept was developed by Ebenezer Howard in the late 19th century (Batchelor, 1969, p. 185). In response to the dire conditions in industrial cities for the working class (Livesey, 2011, p. 271), the British journalist had a vision of how urban areas could be redesigned. The main objective of a Garden City was “to raise the standard of health and comfort of all true workers of whatever grade [...] [while combining] town and country life, and this on land owned by the municipality” (Howard, 1965, p. 2). As shown in Figure 1, the population growth of a garden city is limited to 32,000 inhabitants and the creation of a permanent agricultural belt around the city functions both as a barrier to further growth and as an agricultural hinterland for the city (Batchelor, 1969, p. 185; Gatarić et al., 2019, p. 35). However, the aim is not to create only ‘small’ cities, but rather to develop a network of similar garden cities “with road and rapid transit linkages to a central city of 58,000 persons” (Batchelor, 1969, p. 185). Batchelor (1969, p. 190) also emphasises that “parks and gardens had been the privilege of the wealthy up to this point in history”, a problem that Howard addressed by also designing a social city through offering both private and public green space (Falk, 2017, p. 92; Livesey, 2011, p. 275). As Fainstein & DeFilippis (2016, p. 35) explain, every garden city consists of two types of centres. Namely, a single civic

centre established in the middle, which is then surrounded by several ‘wards’—each representing a complete neighbourhood of 5,000 inhabitants. The main distinction between the central garden city and the six clustered ones surrounding it is its size. Meaning that the centrally located one can offer more functions, and consists of more wards as well.

Moreover, it is important to understand that the previously described Garden City model is based on ‘The Three Magnets’ principle—consisting of town, country and town-country as illustrated in Figure 2. The town has the advantageous character of, for instance, high wages and employment opportunities, where the repulsive force is caused by high rents and overcrowding. In contrast, the countryside draws its appeal from beauty and low rental rates, while the disadvantages include low wages and simply a “lack of society” (Howard, 2003, p. 101). This ultimately creates a competition to attract residents between the town and the country; a problem that does not seem to arise with the third magnet (Clark, 2003, p. 91). Although an oversimplification of reality, this principle demonstrates that there is an interest in synthesising both the town and the country, as the advantages here are “free from the disadvantages of either” (Howard, 2003, p. 101). This last magnet represents what Howard (2003, p. 102) calls the ‘marriage’ between human society and nature.

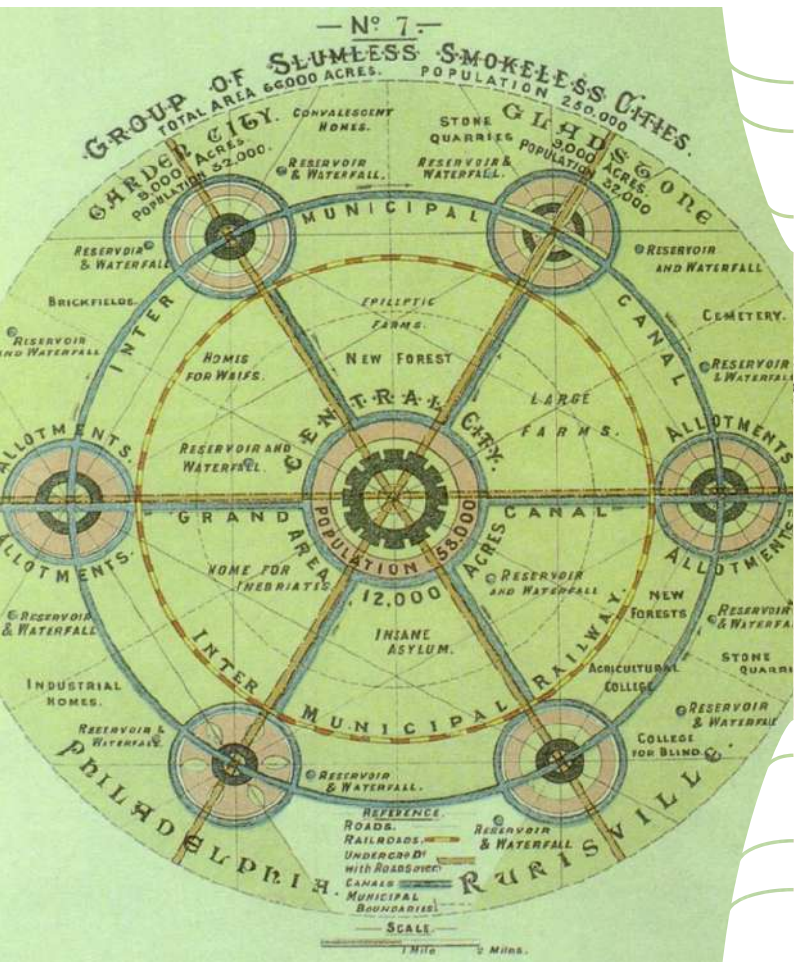


Figure 1: ground plan of the whole municipal area, showing the town in the center (Howard, 1965, p. 3).

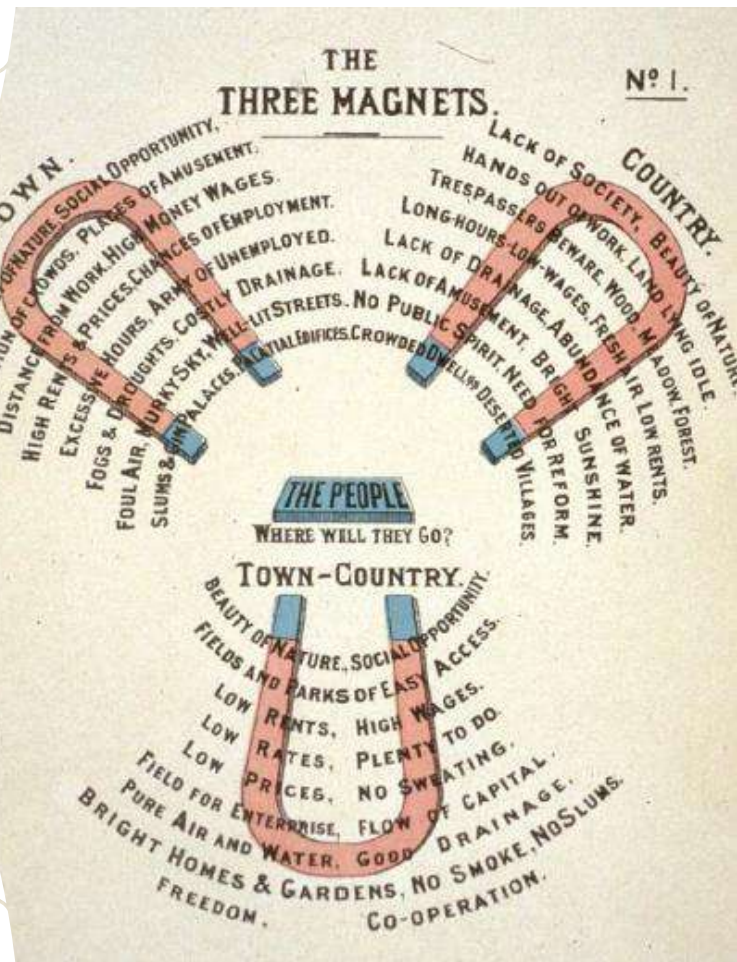


Figure 2: The three magnets principle connected to the Garden City model (Howard, 1965, p. 2).

Thus, the model emphasises a harmonious integration of urban and rural elements. The central tenet of the Garden City is the creation of self-contained and self-sufficient communities surrounded by greenbelts (Fainstein & DeFilippis, 2016, p. 29; Hardy, 2005, p. 384; Livesey, 2011, p. 276). Furthermore, it is characterised by low-density development, extensive urban green spaces, and the separation of residential, industrial, commercial and neighbouring areas (Fainstein & DeFilippis, 2016, p. 112; Hardy, 2005, p. 385). One key aspect of the Garden City concept is its focus on designing for cooperation and harmony (Fainstein & DeFilippis, 2016, p. 35). Howard envisioned well-planned communities and cooperative ownership (Hall & Barrett, 2018, p. 131). According to Lewis (2015, p. 160), this is the core of the Garden City model, namely a “social model of capturing value created within the town and then reinvesting it back into the town for the benefit of the local community”. The emphasis on green spaces and a connection to nature was intended to enhance residents' well-being and quality of life. This was thought to provide a basis for addressing problems such as congestion, pollution and social inequality that were prevalent in rapidly industrialising cities during Howard's time. Times have changed, however, and new perspectives have emerged on the 126-year-old concept. The general importance of nature is not doubted in urban planning, yet the debate is still open as to whether ‘nature’ exists and whether cities are (not) part of it (Benton-Short & Short, 2013, p. 19). As Duvall et al. (2018, p. 495) explain, the conception of the relationship between nature and urbanity is not fixed and changes along with the problems that are relevant at a given time. The same authors state, that “over the course of the past century, the idea of nature in the city has become increasingly intricate, evolving from being viewed as a refuge separate from the city to being understood as an essential component of dynamic urban systems” (Duvall et al., 2018, p. 480). This is reflected in the findings of Narh et al. (2020, p. 11), who claim that a garden city can never exist without urban parks. The current climate problem requires planners to design cities differently in order to provide future residents a safe living environment. Nikologianni & Larkham (2022, p. 13-14) explain that water is also integrated into modern garden city models, as garden cities in the 21st century must be able to cope with heavy precipitation and flooding as well. A further development is the fact that the contemporary conception of garden cities focuses even more on the community and participatory aspect of the landscape (Nikologianni & Larkham, 2022, p. 16; Ross, 2015, p. 182; Swart et al., 2021, p. 5). In other words, the experience of the lived space and its equal distribution has taken on a more central role (Ross, 2015, p. 24). In addition, the term ‘garden’ has taken on a more comprehensive meaning. Although the original concept did not only include gardens, nowadays it includes “existing natural woodlands [...], meadows, wetlands and farmlands, hedges, gardens, parks, boulevards, streams, rivers, canals, highways and railways, and street plantings” (Swensen & Berg, 2020, p. 806).

It is important to understand that the original Garden City model laid the foundation for urban designs that today focus more on nature-based solutions, to address the need for sustainable urban development (Nikologianni & Larkham, 2022, p. 3). Such concepts are circular cities and eco-urbanism, which emphasise reducing the ecological footprint, integrating nature into urban areas, and promoting ecological and cultural diversity (Jarabeen,

2006, p. 48; Liaros, 2022, p. 3; Sharifi, 2016, p. 10). Since these concepts consider the metabolism of the urban area, it can be observed that a more qualitative approach (Vernet & Coste, 2017, p. 54) has broadened the scope of garden cities. It is also possible to go conceptually one step further. For instance, Singapore is known as the city in a garden and even has the ambition to become a city in nature. The main principles are comparable to the modern garden city philosophy. Namely, making buildings energy efficient, improving public transport, expanding and connecting urban greenery, and protecting ecosystems and biodiversity (Han, 2017, p. 15-17). Putting nature first creates an ideological shift, in which urban infrastructure and buildings should adapt to the (existing) greenery and not the other way around. Criticism of the city in a garden seems to focus on the greenwash character of this form of urban development because it seems to be about the beautification of the city rather than the actual protection of ‘nature’ (Han, 2017, p.18; Velegrinis & Weller, 2007, p. 30). Singapore “recognizes that most future growth will by necessity happen in high-rise buildings”, making this city a forerunner in vertical greening (Beatley, 2012, p. 15).

However, the garden city concept, despite its widespread adoption, has faced significant challenges and criticism. This mainly concerns scalability, economic viability and the risk of creating exclusive communities (Johansson, 2012, p. 3618; Sharifi, 2016, p. 5). According to Hall & Barrett (2018, p. 130), this can be explained by the fact that the Garden City concept promotes an anti-urban vision of small, low-density cities. In addition, Nikologianni & Larkham (2022, p. 3) question the feasibility of Howard’s model in today’s urban centres, where each city in a cluster of garden cities may not exceed a total population of 58,000. This is in line with Hall (2014, p. 91), as this author states that cities with a high population density necessitate high-rise buildings, making the next main concept all the more relevant.

2.1.2. Compact City

Secondly, the other main concept of this research report is the Compact City. It is a centuries-old form of urban development (Conticelli, 2020, p. 101), and became known in urban planning through Le Corbusier’s Radiant City model (Haarstad et al., 2023, p. 7). The compact city has re-emerged as a response to the challenges posed by urban sprawl, and the increasing demands on resources and infrastructure (Burgess, 2002, p. 20; Dieleman & Wegener, 2004, p. 308). The OECD defines a compact city as a “spatial urban form characterized by compactness”, where compactness is an umbrella term for densely populated and easily accessible urban development (Ahfeldt & Pietrostefani, 2017, p. 5; Conticelli, 2020, p. 100). Although there is often a certain visual idea of a compact city, there is no such thing as ‘the’ compact city, because this model allows room for variation (Ahfeldt & Pietrostefani, 2017; Westerink et al., 2013, p. 493). Yet, urban development in a compact city revolves around “street network connectivity, density, land use mix, accessibility, and pedestrian walkability” (Song, 2005, p. 239). These five elements are also reflected in more recent approaches such as in new urbanism, smart growth, and the 15-minute city (Conticelli, 2020, p. 103; Jarabeen, 2006, p. 48). Although the Compact City model initially took a monocentric

form, contemporary understandings are more focused on polycentric variants as these are considered more advantageous (Kain et al., 2022, p. 135). Especially with the current climate crisis, this model has gained more traction in the literature (Kjærås, 2021, p. 1177). The focus on efficiency within compact city building makes this concept attractive for reducing the ecological footprint on various aspects—such as mobility, energy use and multi-functional land usage (Bibri et al., 2020).

Logically, criticism of the concept exists as well. This concerns the “affordability, social and environmental sustainability, the political economy of urban models, just and inclusive city-making and the carbon footprint of compact urban developments” (Kjærås, 2021, p. 1177). The second is particularly interesting for this research report because there is no consensus in the literature about the ‘sustainability’ of compact urban development. For example, proponents of the model state that compact cities reduce dependence on cars, reduce air and environmental pollution, and protect (agricultural) land from impervious surfaces (Song, 2005, p. 241). For that reason, it can be said that a “compact city is a far more sustainable model for living than are low-density” cities (Bishop et al., 2020, p. 77; Neuman, 2005, p. 16).

However, this does not mean that simply using compact form strategies is sufficient to make a city sustainable, it can even become counterproductive (Neuman, 2005, p. 23). Although less land is required for construction, more infrastructure is needed for high-rise buildings, resulting in an ambivalent character of compact cities (Conticelli, 2020, p. 100). Despite often claims to the contrary, the literature points to the absence of a true sense of community in such environments (Afheldt & Pietrostefani, 2017, p. 10; Lennon, 2021, p. 3). Opponents such as Afheldt & Pietrostefani (2017, p. 2-3) identify problems with the model in the form of reduced affordability of both house prices and office rents, increased traffic congestion, high concentrated pollution levels, and a loss of open and recreational spaces. Nevertheless, it is important to understand that this concept is not inherently against urban greenery nor does it encourage its integration, but is merely a different view of how the available space should be filled in (Bibri et al., 2020, p. 13; Duvall et al., 2018, p. 484). In addition, Nabielek (2012, p. 9) claims that the Netherlands has no alternative but to focus on urban densification. Wherein the future of the Compact City model lies in changing its scale, resulting in a compact neighbourhood with “high-density urban blocks in a polycentric form set around green and public spaces” (Dempsey & Jenks, 2010, p. 110).

2.1.3. Modern Urban Form

In contrast, the compact city paradox exposes the complexity of the two main concepts. On the one hand, sustainability requires a high population density, and on the other hand, livability requires the dispersion of residents and services (Neuman, 2005, p. 16; van der Waals, 2000, p. 116). Interestingly, Balikçi et al. (2022, p. 2405) found that Amsterdam has a clear compact city policy tradition, reflected in loss of greenery and increase in urban density.

This confirms the power the paradox holds because urban densification affects “the quantity, connectivity and average size of greenspaces” (Balikçi et al., 2022, p. 2405), but also the quality of both public and private green areas (Haaland & van den Bosch, 2015, p. 766). Thus, densification processes put pressure on the “ability of UGS policy to compensate for the land-use change” (Giezen et al., 2018, p. 11).

Table 1. Operationalisation of Compact Neighborhood in a Garden (with the use of conceptual integration).

| Concepts | Dimensions | Indicators | Variables |
|------------------|----------------------|----------------------------|--|
| Garden City [1] | Magnet Principle [2] | Country | - Implement diverse urban green spaces (9-50 m ² / capita) [4] - Affordable & mixed social housing (max. €879,66 / month) [5] |
| | | Town | - High wages (≥ €13,27 / hour) [6] - Diverse range of services (e.g. recreation, health, education) |
| | | Country-town | - Accessibility of both greenery and jobs - Providing sufficient facilities - Low population density (~32,000 inhabitants) |
| | Harmony [3] | Community | - Civic cooperation in urban development plans - Socially mixed population (degree of polarisation or cohesion) - Wealth (measured by happiness) [7] |
| | | Social equality | - Public or shared ownership of land |
| Compact City [8] | Intensity [9] | Economic density [10] | - Employment density (e.g. number of shops or workers/ hectare) - Social and cultural activities (e.g. events, dance, theatre, etc.) [11] |
| | | Morphological density [10] | - Population density (e.g. number of residents/hectare) - Street connectivity - High ratio of building footprint to parcel size ratio |
| | Access [9] | Mobility | - Possibility to reach services within 15 minutes (walkability) - Diversity and quality of transport (e.g. public & shared) |
| | | Social equity | - Employment opportunity (e.g. transparent local labour market) - Limiting segregation (e.g. due to high rent or ethnicity) - Distribution of land uses, activities and infrastructure [12] |
| | Diversity [9] | Mixed land-use [10] | - Horizontal and vertical co-location (e.g. employment, housing, shops & recreational amenities) |
| | Form [9] | Environmental structure | - Land capacity (amount of floors within high-rise buildings) - Green structures (variation, maintenance & coherent design) [13] - Size (not a fixed population, urban sprawl should be contained) |

[1] Howard (1965). [2] Clark (2003); Howard (2003). [3] Fainstein & DeFilippis (2016, p. 35). [4] Russo & Cirella (2018, p. 4). [5] Ministerie van Algemene Zaken (2024a). [6] Ministerie van Algemene Zaken (2024b). [7] Ross (2015). [8] Newman (2005, p. 14). [9] Kain et al. (2022, p. 134-136). [10] Afheldt & Pietrostefani (2017, p. 6-7). [11] Burgess (2002, p. 18); Conticelli (2020, p. 100). [12] Dieleman & Wegener (2004, p. 310). [13] Russo & Cirella (2018, p. 11); Whitten (2022, p. 487).

Finally, while the Garden City and Compact City models differ significantly in their design philosophies, there exist some shared common objectives related to the liveability and social equity. Both models strive to address the challenges associated with urban sprawl, albeit through different approaches. The Garden City model seeks a balance between urban and rural elements, aiming to create holistic communities that integrate nature into the urban fabric. In contrast, the Compact City model prioritises efficiency and environmental sustainability through high-density, mixed-use development. As cities continue to grapple with the complexities of urbanisation (Jim, 2004, p. 317), this research report proposes to do something similar to what Ebenezer Howard once did; namely the marriage of the garden city and compact city models. The compact city actually seems to be a concentrated representation of the town magnet from the Garden City model. This makes it possible to synthesise the concepts rather than contrast them (see Table 1). An urban environment can be both compact and green (Russo & Cirella, 2018, p. 11), which, according to Swensen & Berg (2020, p. 810), will strengthen the urban character. This results in the following seven elements of *compact neighbourhoods in a garden*, based on Falk (2017, p. 98-105):

1. *Locate* new development close to the city centre, jobs and services.
2. Build at *densities* that support rapid transit.
3. Provide *recreational* facilities to attract brain workers with families, resulting in a stronger community.
4. *Finance* local infrastructure from land value uplift, in combination with raising private finance.
5. Build where public *transport* allows, to address congestion.
6. Avoid flood plains and areas of natural beauty, i.e. design with *nature* and not against it.
7. Create balanced places with a mix of uses that complement what exists, to create a *diverse* character.

Thus, it becomes clear that “compaction must be done together with high-quality green space planning and implementation” (Haaland & van den Bosch, 2015, p. 768), because of the ecosystem services that greenery provides (Jansson, 2014, p. 149). One point of criticism is that the implementation of greening is only a partial solution to the sustainability issue, on its own it will be insufficient (Jim, 2004, p. 317)—the same holds for compactness (Tappert et al., 2018, p. 76). Nonetheless, in order “to give the citizens of Dutch cities a garden within the confines of the existing city, vertical garden cities are needed” (Bezuijen, 2020, p. 2). Although Table 1 provides an overview of the elements of both concepts, the compact city is still not an ‘implementable blueprint’. Thus, the literature advises planners to carefully develop tailor-made strategies for the sustainable development of the region in question (Haaland & van den Bosch, 2015, p. 768; Westerink et al., 2013, p. 493). This is precisely the purpose of this research report and will be further elaborated in Chapter 4.


2.2. CIVIC PARTICIPATION

An increased citizens' participation is an observable change in governance in recent years. Citizens gain more power to participate, influence decision-making processes and consequently shape their communities (Meijeren et al., 2023). The recent trend in public participation in the Netherlands—'do – democracy'—is developed on the principle that the citizens not only engage in negotiations and voting but rather pursue various community projects themselves. Guided by these principles, local authorities actively encourage citizens to participate and execute the projects that best suit their needs. The government's role is then limited to providing funding and administrative support (Visser et al., 2023). A disadvantage of this change in public participation models is that local governments shift responsibility for public initiatives to the citizens, in a way that they conduct public tasks on their own (Dekker, 2019). Nevertheless, the trend of 'do-democracy' seems to be suitable for the context of the Netherlands, as the country is characterized by a high degree of civic engagement and participation (Meijeren et al., 2023).

One step further in forms of civic participation is 'self-organization'. This form of civic engagement is rooted in the failure of centralised government to provide basic services and cover the needs of the citizens. As a response to the dissatisfaction with government service provisions, citizens engage in different forms of small-scale community services, focusing on providing what has been lacking in public services. This form of civic engagement is unique as it aims to move away from the current paradigm that citizens' initiatives must be affiliated with the government to various extents, instead focusing on being unrelated to governments. In this model of public participation, citizens engage in various initiatives based on the principle of initiating and ownership of collective-based services (Nederhand et al., 2019).

However, studies show that residents of disadvantaged neighbourhoods also remain underrepresented in the generally high score of civic participation in the Netherlands. To combat this unequal representation, it is important to reach and activate citizens from such deprived areas. Involvement of front-line workers—social workers directly involved with citizens, skilled to provide professional support—is one of the strategies to increase civic participation among those not involved (Tolkens & Verhoeven, 2019).

Moreover, studies also show that less-educated citizens remain underrepresented in public decision-making processes. This is attributed to a general feeling of lower political trust and avoidant voting participation (Dekker, 2019; Noordzij et al., 2019). Visser et al. (2023) challenge these assumptions and distinguish four ideal types of (non) participation that provide a deeper understanding factor that shapes the underrepresentation of less-educated people in public participation. Firstly, retreating non-participation is characterized by a strong feeling of not being allowed to participate because of one's education level. Less-educated people often feel that they are not entitled to engage in political affairs and would not be taken seriously while participating, as they lack sophisticated language and geopolitical expertise.



Further, rebellious participation is a second ideal type of non-participation. It is characterized by a strong aversion towards political affairs and provides room for those rebelling against the system. The third type of non-participation—potentially cooperating participation—indicates that the individuals might engage in political affairs in the future, and they are not completely indifferent towards politics. Nonetheless, currently, they perceive the government officials to not represent the less educated group of citizens adequately, therefore the individuals do not feel fully entitled to participate. The last type of non-participation distinguished by Visser et al. (2023) is pragmatic non-participation. This discourse is based on perceived unequal power dynamics within politics that demoralize citizens and thus limit their participation.

2.3. DESIGN THINKING

Design thinking is a solution-based approach suitable for solving complex problems. The core of this framework is to understand the human needs of the people involved and, therefore, approach the problem from a human-centred perspective. Applying the design thinking principles to solving complex problems also requires creating numerous ideas that should be further prototyped and tested, to ensure the best possible outcome in tackling the needs of real people experiencing that issue (van Wieringen, 2020).

There are five stages in the design thinking process, namely: empathize, define, ideate, prototype and test. The following section of the paper will focus on elaborating on these five stages. The first step in this user-centric research process focuses on an empathetic understanding of the problem and the needs of the people involved. Once a deep understanding of a problem is acquired, one may proceed to define the problem. This must be done in a human-centred manner that reflects the user's needs in response to the problem. The third step in the design thinking process—ideating, involves challenging assumptions and the researcher's perception of the problem and creating ideas suitable for users' needs. Further, having stated a clear problem definition, and users' needs and finally created initial ideas for solving the problem, it is time to prototype. This step involves identifying the best solutions to tackle the problem. The last step of the design thinking process is testing the final outcome, evaluating if it addresses both the identified problem and the users' needs (Dam, 2023).

The application of design thinking in public organizations' practices is challenging. Although the framework facilitates an in-depth engagement with various problems and people involved, it indicates a certain degree of flexibility and uncertainty—qualities not particularly appreciated within public organizations. Therefore, a shift from linear, calculable, and rational problem-solving-oriented practices to design thinking principles requires additional efforts within public organizations (Brickman et al., 2023).

In response to this issue, Brickman et al. (2023) introduced key strategies that public organizations can implement to facilitate the change to design thinking. Firstly, it is crucial to build confidence among employees. This can be done by providing training and education on design thinking principles so that the employees have an in-depth knowledge and understanding of this problem-solving tool. Secondly, it is important to establish partnerships between public organizations and agencies specializing in design thinking, providing access to external expertise, guidance and resources. This stage also allows for interdisciplinary collaboration and teamwork that might enhance the outcomes of solutions created based on design thinking principles. Another step that might facilitate implementing design thinking in public organizations, is clearly communicating the values and benefits of design thinking. This will facilitate gradually gaining support from organizational leaders, policymakers and stakeholders involved. The last key step to a successful shift to design thinking practises is ensuring that organizational structures, processes and cultures are compatible with the practises guided by design thinking (Brickman et al., 2023).

Even though the design thinking framework offers a comprehensive approach to problem-solving, it has its limitations. Firstly, it is important to acknowledge that the direct involvement of people experiencing a particular issue might put them in a very vulnerable position—one must engage with various ethical considerations before entering such a collaboration. Another issue with such an involvement of users is their limited availability and willingness to participate, which might result in prolongation of the whole process. Furthermore, the fact that design thinking is not a linear process, but rather a complex and ambiguous one at times, might be perceived as a large limitation of the method. Design thinking might also require intense resources to complete the prototype and test stages (Mintrom & Luetjens, 2016).

In contrast, the iterative character of design thinking outweighs the aforementioned critiques (Lane, 2018; Tschimmel, 2012). It not only allows restarting the process after newly discovered insights, it provides as well an opportunity to deviate from the original order of the five stages. Thus, the flexibility of the non-linear nature of design thinking, makes this approach so valuable and useful for this research.



3. METHODOLOGY

3.1. RESEARCH AREA

This research has a limited timeframe, and the report therefore does not focus on Haven-Stad as a whole. Instead, it narrows the scope to the sub-neighbourhoods Coenhaven and Vlothaven in the centre of Haven-Stad (see Figure 3). Coen- and Vlothaven currently have no permanent residents and it mainly consists of industrial and port areas, as well as empty plots. Starting in 2040, the City of Amsterdam (2017, p. 19) is planning to increase the number of workplaces from the current 869 to over 10,300 and build 15,400 new homes for future residents.

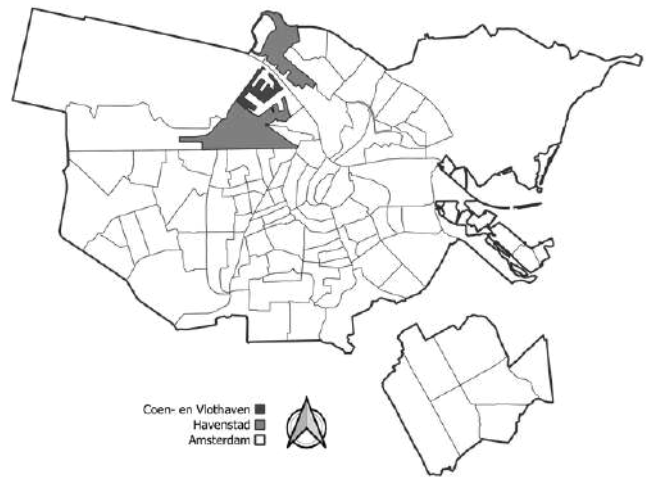


Figure 3. Location of the research area.

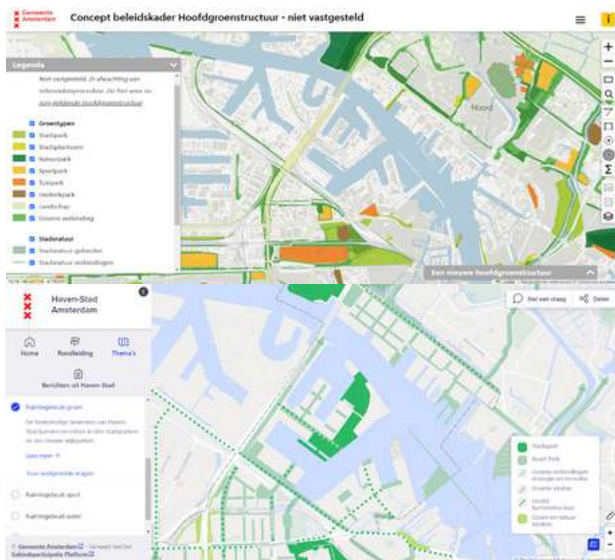


Figure 4. The current state of urban green infrastructure in the North-West of Amsterdam (top) and the planned city park in Coen- and Vlothaven (bottom) by the City of Amsterdam (n.d.).

Additional planned facilities include schools, care centres, and sports fields (City of Amsterdam, n.d.). Apart from a few green corridors along the major streets and railways, there is hardly any significant green infrastructure in the neighbourhood and much of its surface is sealed. Filling that gap, the municipality is planning a large city park (see Figure 4) in Coen- and Vlothaven along with several smaller neighbourhood parks throughout Haven-Stad (City of Amsterdam, 2021, p. 86-101). To avoid conflicting plans, this report takes inspiration from the general structure of the municipality's targets, adapting them to better fit Garden City ideals.

The municipality seems to be committed to the compact city ideals, as can be seen in the sketches of figure 5. And although the municipality already seems to have a vision for Haven-stad, the visualisation of Coen- and Vlothaven seems to be underdeveloped or even missing. Furthermore, because there are currently no residents, urban development from 2040 onwards will not involve the displacement of residents and companies will have the opportunity to take a different form. It is precisely this blank and underdeveloped nature of Coen- and Vlothaven, that gives this research report the opportunity to show a contrast between existing ideas and the more garden city centralised vision.



Finally, since there are currently only companies and offices in Coen- and Vlothaven, this waterfront area has an industrial character that has a lot of potential. This area has a comparative history with the NDSM site, and can therefore also be transformed with creative elements.



Figure 5. Sketches of a future vision of Haven-Stad, in which Coen- & Vlothaven have already been 'redesigned' (City of Amsterdam, 2017, p. 59-60).

3.2. STAKEHOLDER ANALYSIS

In contemporary society, spatial planners are often forced to treat their to-be-planned (urban) spaces as complex systems, in which multiple stakeholders hold different needs, values and interests (Fernandez Güell, 2017). Newcombe (2003, p. 842) defines project stakeholders as “groups or individuals who have a stake in, or expectation of, the project’s performance and include clients, project managers, designers, subcontractors, suppliers, funding bodies, users and the community at large”. Analyzing the power and interest of key stakeholders in advance of conceptualising a spatial project has become an often-used technique in large construction operations, allowing for effective mapping of the stakeholders in attendance (Newcombe, 2003).

Following this logic, we conducted a stakeholder analysis for the Coen- and Vlothaven neighbourhood. Figure 6 shows the eventual outcome of this analysis, as fifteen identified stakeholders are placed in a stakeholder matrix, which classifies stakeholders in relation to the power that they possess and their level of interest in the project. Furthermore, all fifteen stakeholders are arranged into one of four different stakeholder groups. One could argue that these groups speak for themselves, as they represent People (‘regular’ citizens), planners (individuals or organisations that plan the spatial area), Public (public organisations) and Private (private enterprises). The stakeholder groups could be referred to as “the 4 P’s”.



Figure 6: Stakeholder map

It is important to note that this analysis is not based on thorough literature research or field studies, but rather on our own assumptions and experiences. In general, we presume that the parties that possess the most financial wealth also are the most wealthy in terms of power. Besides, organisations that are part of the dominant institutions in society are placed high on the y-axis as well. For the x-axis, we used the conceptualisation of ‘interest’ by Newcombe (2003), who states that it can be determined by the likeliness of each stakeholder to enforce its expectations on the project. As one could see in Figure 6, public organisations, as well as future residents and the municipality are considered to have the highest interest in the development of Coen- and Vlothaven, as these stakeholders feel most connected to the area, as it is the place they will live or work in from 2040 onwards.

3.3. RESEARCH METHODS

To present our vision for Coen- and Vlothaven, we took a visualisation approach and used SketchUp as a prototype tool. We used the design thinking principles to guide the development process of our vision. Firstly, to empathise with the needs of our users—future residents of Coen- and Vlothaven, we created an empathy map—a useful tool to illustrate (potential) users’ attitudes and behaviour.



Figure 7: Empathy map

Further, in the defined stage of the process, we defined the problem in a human-centred way. Therefore, the rapport aimed to tackle the challenge of implementing the compact and garden city principles to the development of Coen- and Vlothaven, ensuring both a large housing availability and a pleasant environment for future residents. The next step in our rapport focused on creating various ideas and plans for the area to further decide which ones match both our client's and users' needs. The ideas were further prototyped using the visualisation approach. This was executed in SketchUp—a 3D graphic design software. Finally, the outcome of our vision for the area was reflected in the presentation of our product in Museum Het Ship.

Besides following the 5 stages approach under the principles of the design thinking approach, we decided to gather and analyse primary data by conducting a survey and incorporating the results from a secondary data collection process. Following the first stage of the design thinking approach to get a better understanding of the needs of potential users of the Coen- and Vlothaven area, we used 2 surveys as a method of primary data collection. The surveys were conducted in two relatively newly constructed neighbourhoods in Amsterdam Noord, the Distelweg (survey 1) and the NDSM area (survey 2).

We decided to collaborate with another group of students from the Future Societies Lab course that is conducting research on another part of Haven-Stad in collaboration with Museum Het Schip as well. Upon mutual agreement, both groups decided that conducting two surveys (each group conducted one) and sharing the gathered data would enrich our expertise regarding the experience of people living in newly built neighbourhoods and thus would largely benefit our research process. Each group created their own questionnaire (see Appendix I: Primary Data) that best suited their research interests. Our group created a survey and collected data in the Distelweg neighbourhood, whereas the other group focused on the NDSM area. Such a division was established given that a member of each group could access the residents of the assigned neighbourhood easily.

These neighbourhoods were chosen as valuable data collection environments to get a better understanding of the potential users' needs, as they are both (relatively) newly developed. Survey 1 (Distelweg area) was conducted among residents of a building put into service in March 2023, whereas the location in which survey 2 (NDSM) was conducted has been open for the residents since 2021. Moreover, both areas consist of high- and mid-rise buildings, similar to the ones planned to be constructed in Coen- and Vlothaven. Given these characteristics, we decided that Coen- and Vlothaven might be considered a comparable environment to the Distelweg and NDSM areas.

Survey 1 conducted in the Distelweg area was sent to a WhatsApp group chat of residents of a specific building. One of our group members is a member of that group chat herself, therefore, had direct access to share the questionnaire with a brief description of our research. The survey consisted of a total of 7 questions (see Appendix I for more details). The questions were structured with the aim of providing us with a deeper understanding of the needs that residents of this newly built neighbourhood might have to further incorporate into our design of Coen- and Vlothaven. The next section of the rapport will present the results of our project.

4. RESULTS

4.1. SURVEY OUTCOMES

In this merged survey, a total sample size of 26 respondents provided valuable insights into residents' perspectives on their living environment. The study comprised two sets of data: primary data from a sample size of twelve (survey 1) and second-hand data from a sample size of fourteen (Survey 2). The analysis extends to both the outcomes of the surveys and the empathize phase, shedding light on residents' satisfaction, concerns and desires regarding their neighbourhood.

The analysis of responses to survey 1 (Distelweg area) indicated that respondents, when assessing their own neighbourhood, assigned an average score of 6.3, with a median of 7, showing a generally positive sentiment. As Figure 8 demonstrates, residents seem reasonably satisfied with their living environment, emphasizing the calm, clean, and safe character of the neighbourhood. Accessibility by bicycle and ferry, as well as proximity to the city centre, were also highlighted as positive aspects.

However, the evaluation of public facilities in the area garnered a lower average score of 5.1, with the median also at 7. This suggests that there is room for improvement in the quantity and quality of services provided by the neighbourhood. Respondents expressed a desire for more public greenery, with 91.7% wanting additional grocery stores and 75% advocating for increased public transportation options (as seen in Figure 9). Furthermore, the survey brought to the fore elements valued by the residents, including a sense of community, accessible green spaces and good public transport options. Conversely, areas of dissatisfaction included the cycling network, perceived as chaotic, and public transport connections to other parts of Amsterdam, receiving an average score of 5.5, indicating discontent. Notably, one-third of the respondents chose to live in a particular neighborhood due to greater apartment availability, while a quarter were drawn by the attractiveness of the place itself. Over 40% mentioned a combination of these reasons, and additional factors such as the acceptance of students as residents and the location's accessibility contributed to their decision.

The second-hand data gathered in survey 2 (NDSM areas) based on a sample size of fourteen respondents, delves into the importance of a sense of community in their living environment. More than 85% considered a sense of community important, with over 70% emphasizing the significance of people in fostering this community. Activities such as getting to know neighbors, greeting each other on the street and helping one another were highlighted. Places also played a crucial role, with respondents valuing locations for socializing and undertaking activities together.

Community building, as revealed by the data, requires an investment of time, as mentioned by one respondent and implicitly indicated by the nature of the activities involved. The survey identified key elements respondents find important in their neighbourhood, including socializing opportunities, urban green space and good public transport options. Shops, a drug store, a cheese shop, a butcher and parking spots featured prominently in the respondents' priorities as well.

In summary, this survey provides a contemporary understanding of residents' perspectives on their living environment, encompassing their satisfaction, desires for improvement and the crucial role of community in shaping their neighbourhood experience. Applying this to our research on Haven-Stad, the insight gathered through both surveys will be used to ensure a high implementation of potential users' needs in Coen- and Vlothaven.

Are you satisfied with the area in general?
12 respondents

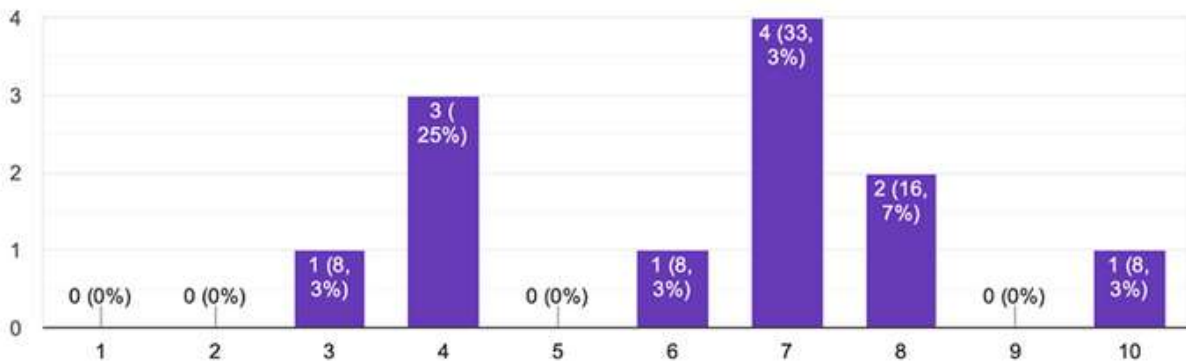


Figure 8: General satisfaction with Distelweg area.

What facilities would you like to see more in the area:
12 respondents

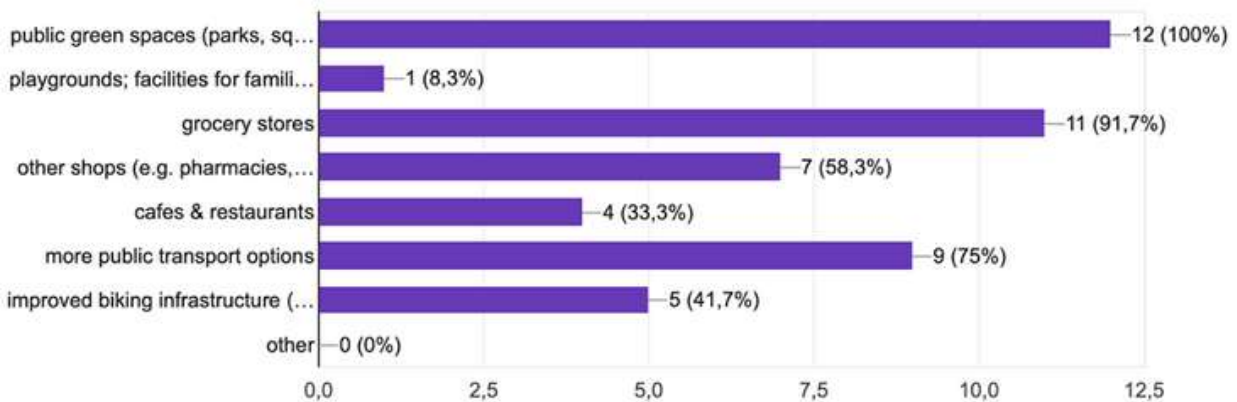


Figure 9: Indication of facilities respondents would like to see in Distelweg area.

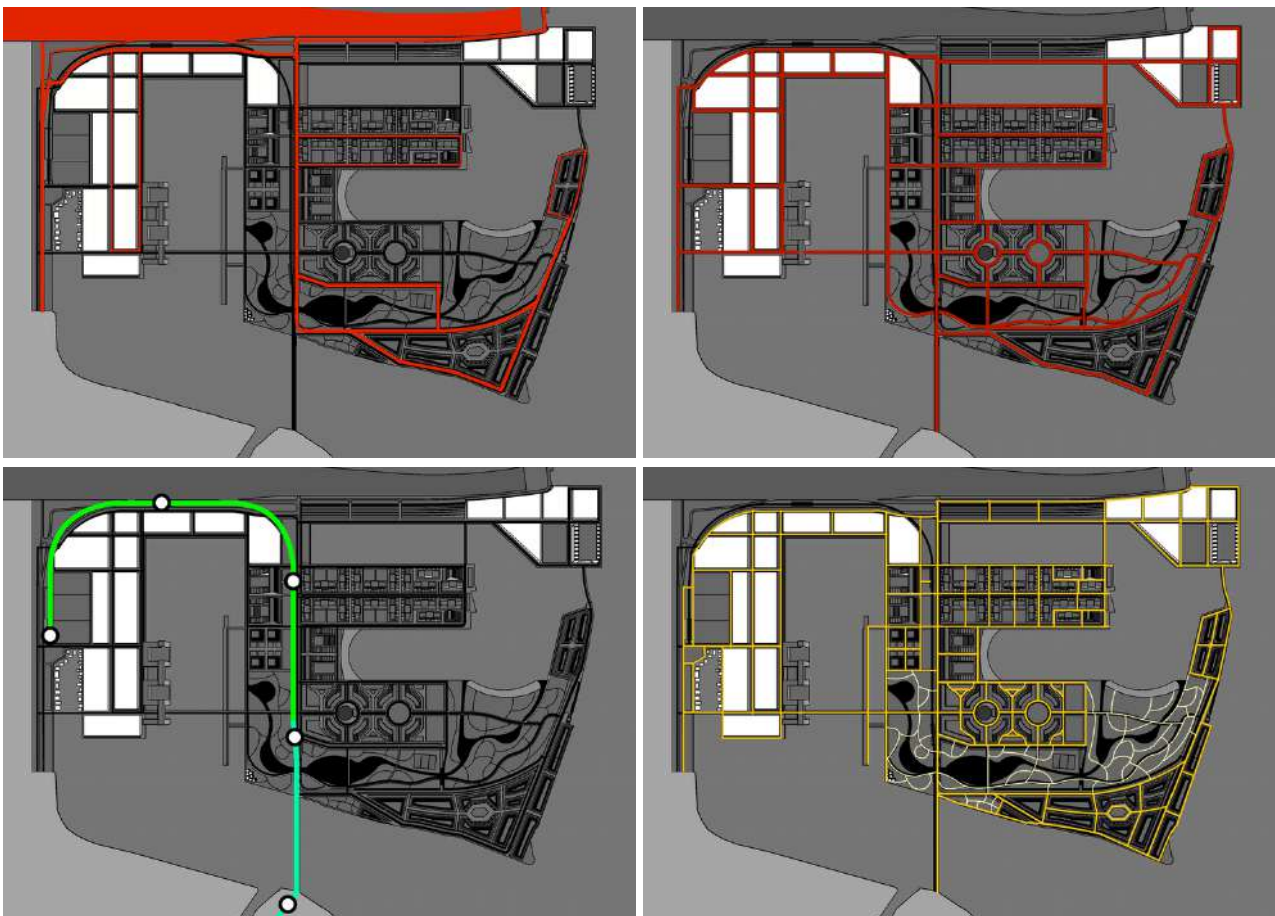
4.2. DESIGNING COEN- & VLOTHAVEN

The figure below represents an overview of our proposed plan and a number of elements to be added including four new bridges, public spaces, large swaths of greenery, and more. In response to the survey, we envision essential services to be implemented first such as schools, supermarkets, healthcare, as well as necessary transportation infrastructure. This is done to ensure that the first residents of Coen- & Vlothaven have their minimum needs met by the built environment and are able to lead dignified lives from day one. Appendix II presents specific areas of the design in greater detail.



4.2.1. Transportation

The proposed transportation network of Coen- & Vlohaven is designed to prioritize walking, cycling, and transit within and beyond the neighbourhood. Personal automobiles are given little space, with limited parking provided off the street within the core of residential buildings. A study by Appleyard (1980) found that residents of low-traffic streets have a significantly higher degree of social interaction within their neighbourhoods when compared to similar streets with higher traffic volumes. As a result and in order to further encourage community, much of Coen- & Vlohaven has been designed as car-free. Emergency services would be provided access to these areas via a dense network of cycle paths that would serve as the neighbourhood's arterial connectors. For the handful of streets with vehicle traffic, pedestrians and cyclists are separated from the noise and danger of cars by strips of trees and other greenery. Our plan for pedestrian infrastructure is by far the most extensive, with walkways of at least four metres on both sides of each street which will provide ample room for street furniture, planters, and other visually appealing and useful elements conducive to community and gathering.

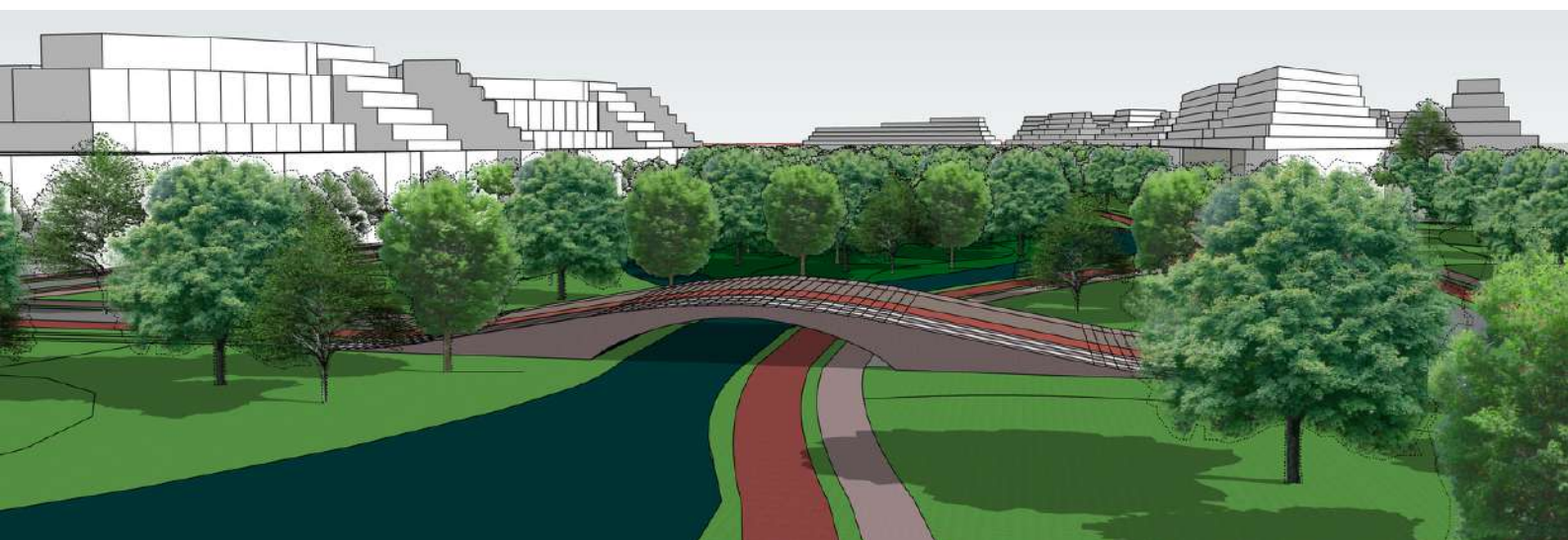


Structure of roadways (top left), cycle network (top right), public transit (tram) (bottom left), and pedestrian network (bottom right).

4.2.2. Neighbourhood Design

Greenery and Community Space

The presence of green areas is not only an impactful landscape feature for enhancing urban biodiversity (Beninde et al., 2015) but also valuable for improving the mental and physical well-being of residents (Konijnendijk, 2022). A large city park established in Coen- and Vlothaven would act as a green heart in the centre of Haven-Stad. Guided by the already existing plans of the City of Amsterdam (2021), and inspired by the layout of Vondelpark, Coen- and Vlotpark could provide a vibrant habitat for city-dwelling animals and an aesthetic and relaxing environment for various recreational activities and sports. An uninterrupted bike path and walking route reaching across the whole length of the park would ensure easy access to other parts of Amsterdam, entirely undisturbed by vehicle traffic. The completed park would extend beyond the currently existing surface of the neighbourhood requiring the reclamation of about 3 hectares from the river IJ where further greenery and a public beach would be established. Stretching across the central region of the neighbourhood, this park alone would provide a major portion of residents with sufficient green view, access to green space, and overall green coverage that is associated with improved mental and physical health (Konijnendijk, 2022). Establishing a winding connected waterway along Coen- and Vlotpark and green corridors across the neighbourhood connecting the park to other greenspaces, this city park would contribute to several factors supporting a rich diversity of species (Beninde et al., 2015). At over 15 hectares, the park would be sufficiently large to foster a diverse urban flora and fauna (Lepczyk et al., 2017). Given the importance of large undisturbed green areas for a healthy urban biodiversity (Ikin et al., 2015), the park would include dense forested areas with minimal human access acting as hotspots of biodiversity in the region.



Our vision of uninterrupted bike and pedestrian access through Coen- and Vlotpark

Throughout Amsterdam, there are dozens of community gardens and school gardens where local residents and pupils can come together to grow various fruits and vegetables. Nature education through school gardens has an over 100-year tradition in Amsterdam, initially intended to let children become familiar with healthy foods which were scarce following periods of war (Keim, 2022). Today, these gardens help educate elementary school children on gardening, ecology, nutrition, and sustainable thinking (Keim, 2022). To complement general education in the newly planned schools of Coen- and Vlothaven and to encourage community involvement among adult residents, the neighbourhood development would include the establishment of community gardens and school gardens near residential areas and educational institutions.



Schooltuin Vink, Amsterdam (image source: www.bestwelbewust.nl)

Buildings and Architecture

The architectural design of Coen- and Vlothaven would be a mixture of traditional Dutch as well as modern sustainable and green architecture. Prominent features in the neighbourhood would include the emblematic facades of traditional Amsterdam houses, buildings designed in the Amsterdam School style paying tribute to Michel de Klerk and Museum Het Schip, and high-rise terraced buildings similar to the designs of the Valley in Amsterdam Zuidas and the Alterlaa social housing in Vienna. Following Garden City ideals, building construction would be kept at a humane scale infused with greenery and plenty of community spaces. The terraced structure and circular layout of buildings would allow for the establishment of green balconies and inner courtyards with foliage and community gardens coming together in an aesthetic and community-centred design. When designed with sufficient weight-bearing, rooftops of residential buildings can be used for solar panels to produce clean energy or blue-green roofs, such as those of the RESILIO Project contributing to urban biodiversity and stormwater management. Further contribution to sustainable architecture could come from eco-design features making the best possible use of natural light and ventilation similar to the design of the Solaris building in Singapore (Beatley, 2012, p. 15).



Museum Het Schip (top left), Alterlaa (top right), RESILIO green roof (bottom left), and Solaris (bottom right)
(image sources: www.hetschip.nl; hiddenarchitecture.net/allt-erlaal/; resilio.amsterdam.nl/; Beatley, 2012, p. 15)

Multifunctional Design

The compact development of growing cities prompts a multidimensional design strategy resulting in mixed use of land, economies, and social life (Bibri et al., 2020). Given the limited space for construction, multifunctionality will be a central characteristic of buildings in Coen- and Vlohaven. Keeping that sentiment in mind, buildings in the neighbourhood would provide a space for various sectors including housing, work, sports, commercial activity, and greenspace simultaneously. Inspired by the design of Markthal in Rotterdam, a high-rise office building constructed with a tunnel running through it can accommodate a large market for businesses and people selling their own produce. The rooftop of such a building, if wide enough, could be used as sports fields for local clubs, schools, and sports centres. Similar to The Wall in Utrecht, high-rise residential buildings or business centres constructed along the A10 highway could act as a sound barrier, shielding the neighbourhood from the noise of the traffic while accommodating residents, businesses, or spaces for leisure activity.



Markthal in Rotterdam (top left), rooftop sports field in Guandzhou (top right), and The Wall in Utrecht (bottom) (image sources: www.scia.net; www.xinhuanet.com; windsidedigital.nl)

Making use of the port features of the neighbourhood, the waterfront could serve a variety of purposes for the residents. Floating neighbourhoods following the design of Schoonschip in Amsterdam as well as houseboats running along the edge of the water could extend the housing capacity of the neighbourhood saving space on land for greenery and community spaces. Combined with public beaches, riverside restaurants, and event spaces similar to that of NDSM, this water-based neighbourhood design could create a welcoming island characteristic for Coen- and Vlothaven.



Schoonschip, Amsterdam (image source: www.spaceandmatter.nl/work/schoonschip)



With a multifunctional design and terraced high-rise construction, it is possible to meet the targets of the municipality regarding housing, workplaces, sports fields, and institutional buildings while still leaving room for plenty of greenery, leisure activity, and community spaces (see Table 1). The vision modelled in SketchUp can be broken down into a set of categories roughly following those of the municipality. Relying on high-rise construction up to 15 floors (each approx. 3-4 meters) using an average apartment size of 75 m² and assuming that 15% of a building's area is non-rentable space, the design outlined in the vision can accommodate the expected 15,400 homes and 10,100 workplaces on a land area of about 31 hectares. Walkways, bike paths, and roadways together are estimated to take up another 32 hectares (including the segment of A10 running through the neighbourhood). Sports fields of 4.5 hectares would be available for the residents in various locations throughout the neighbourhood. Not including green roofs, balconies, and tree cover along streets and railways, a total of 20 hectares of urban green space and community gardens would aid the realisation of the Garden City vision, of which the central Coen- and Vlotpark would constitute a connected 15 hectares of land. To ensure that all of these elements can be fit into the neighbourhood, an additional 11.5 hectares would be claimed from the river increasing the total land area of Coen- and Vlothaven to about 100 hectares.


Table 2. Comparison of land cover and number of rentable space before and after the project (with the use of GIS).

| | Current | Future | Current | Future |
|------------------------------|------------------------|----------------------------|---------|--------|
| Residences | 0 m ² | 188,929 m ² | 0 | 15,400 |
| Workplaces | 204,810 m ² | 123,921 m ² | 869 | 10,101 |
| Roads | Unknown | *326,067 m ² | | |
| Sports fields | 0 m ² | 45,439 m ² | | |
| Inland water | 0 m ² | 24,148 m ² | | |
| Greenspace | 114,657 m ² | **198,518 m ² | | |
| Remaining space | 562,443 m ² | ***90,234 m ² | | |
| Coen- & Vlothaven | 881,910 m ² | ****997,257 m ² | | |

*including a segment of A10
**Coen- en Vlotpark 15 ha alone
***used for potential other categories
****additional land claimed from the IJ

4.2.3. Feasibility

The redevelopment of the Coen- and Vlothaven area will face a multitude of challenges, intertwining socio-economic, financial and aesthetic considerations. Building a new home for social housing, as indicated by Housing Associations (n.d.), requires a considerable financial outlay, averaging €161,315 for residences between 40-80m² in 2019. Moreover, it necessitates extensive preparatory work involving planning, permits and local authority agreements. The



financial aspect is further complicated by the high building costs per square metre for construction in the Netherlands, which range between €1,250 and €1,750 (Verbouwkosten, 2024).

Most importantly, the higher the buildings, the more expensive the process becomes. For instance, “the investment costs per square metre of a 150-metre building are no less than 50 per cent higher than a 50-metre tower. But also a tower of 50 metres is already 10 per cent more expensive than stacked construction up to five storeys” (NUL20, 2004).

Thus, the redevelopment process must address the need for strategic land acquisition as emphasised by Falk (2017, p. 96), who highlights the indispensability of accessing the right land at the right price to realise visions such as the Garden City. In addition, the project requires a keen focus on fostering community spirit and social capital as well; this is essential for overcoming isolation and ensuring the success of co-housing and custom-building projects (Falk, 2017, p. 109). The literature further emphasises the importance of maintaining high building standards and incorporating aesthetics, to create successful and appealing places (Fainstein & DeFilippis, 2016, p. 71; Lewis, 2015, p. 162). Given the estimated municipal costs exceeding 1.2 billion euros for the Coen- and Vlothaven redevelopment (Pliakis, 2019, p. 6), it is clear that achieving a balance between financial feasibility, social inclusivity, aesthetic appeal and high-quality standards is paramount for the project's success. This multifaceted approach is crucial in ensuring that the redevelopment not only meets current housing and community needs but also lays a foundation for a sustainable and cohesive urban future.

5. DISCUSSION

5.1. ANALYSIS

The results of the surveys and design tool make it possible to answer the following research question:

“How can the compact and garden city ideals, encompassing both greenery and a strong sense of community, be implemented into the urban development of Haven-Stad, without compromising the housing capacity and while ensuring a pleasant environment for the future residents”?

The literature review has shown that the future of Dutch cities lies in the combination of high-rise buildings and urban greenery. To realise the so-called ‘compact neighbourhoods in a garden’ in Haven-Stad, a mixed land-use approach is emphasised.

Firstly, the design strategy includes the vertical layering of greenery, with for instance roof gardens, vertical green walls and balcony planting; which not only increase biodiversity, but also mitigate the urban heat island effect. This approach makes it possible to maximise housing capacity without sacrificing public and private green spaces. In addition, the waterfront location of Coen- and Vlothaven allows applying more Blue-Green Infrastructure (BGI). This is reflected in the form of a green row connected to the city beaches.

Secondly, the integration of shared community gardens and parks within walking distance, encourages social interaction and promotes a stronger sense of community. These spaces serve as communal hubs that facilitate various activities (such as sports, meeting and gardening). However, there are concerns about the inclusiveness of the urban environment, as it can lead to green gentrification and therefore exclude certain minority groups.

Third, planning the Coen- and Vlothaven area requires an emphasis on pedestrian-friendly zones with reduced car dependency, integrating cycle lanes and efficient public transport networks to encourage accessible mobility. This not only contributes to a healthier lifestyle, but also provides easier access to facilities and green spaces. This then makes it possible to strengthen the community fabric. Mixed-use developments are strategically placed to ensure that residential areas are close to shops, schools and workplaces, reducing the need for long commutes and improving residents’ quality of life.

Finally, through careful planning and design, Haven-Stad can become a role model for future urban development. Wherein high-density living coexists harmoniously with green spaces and a vibrant community life. This offers the potential to pragmatically demonstrate that urban density and garden city ideals are not mutually exclusive, but can rather be synergistic.

5.2. LIMITATIONS & RECOMMENDATIONS


Naturally, the above-outlined vision and the research and design process behind it has its limitations that must be acknowledged. Firstly, as discussed in earlier sections, Coen- and Vlothaven has no permanent residents yet, making it challenging to find a representative sample for an accurate assessment of the characteristics and needs of future residents. The total of 26 responses from residents in two similarly developed neighbourhoods provides some general ideas of users' needs, but the sample size is not large or diverse enough to make definitive conclusions. It is clear that in the absence of normally distributed primary data according to the central limit theorem, no general statements can be made. Rather, the collected data serves as a setup to better understand future residents and their needs. Further research is encouraged to explore the roots of commonly mentioned problems in recently developed neighbourhoods and the drivers behind residents' decision-making to move in.

Secondly, our vision for the development of Coen- and Vlothaven was designed and evaluated using SketchUp with rough initial assumptions and estimations, some of which were based on academic literature while others on educated guesses. Therefore, the confidence in the parameters used in the design may not be sufficient to move further with the plans yet. There is a need for expert opinion and more precise calculations considering all relevant aspects of the development plans.

Thirdly, we understand that this is an ambitious vision with several innovative projects involved that drive up the costs of development. Constructing attractive high-rise neighbourhoods for social housing is hardly a cheap ambition on its own, and the preparation of buildings for climate-proof infrastructure such as blue-green roofs along with their installation requires further engineering and material costs. Finding supporters and investors for the project will therefore be crucial.

It is also important to recognise the justice implication this visionary development might have, as gentrification tends to be a major concern when urban development aims to improve the attractiveness of a neighbourhood. The absence of permanent residents in Coen- and Vlothaven is a promising sign in that respect as there would be no risk of displacement involved in the neighbourhood. Nonetheless, the impact on neighbouring districts would be valuable to research further. A key aim of the project providing good quality social housing in a green and community-centred environment which requires regulations to reserve the most attractive areas for social housing rather than allowing luxury homes to take over.

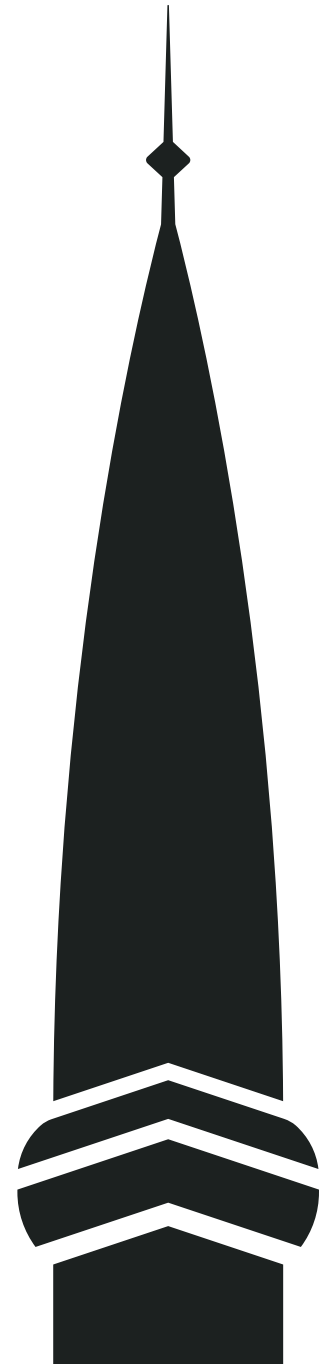
Keeping these limitations and implications in mind, we recommend acknowledging that the planning project itself will have an impact on the future demographic of the area, and therefore, identifying the target populations and understanding their context is vital. The incorporation of expert opinion is valued greatly, especially for sustainability implications



but the concerns and needs of future residents must not be overlooked. It is therefore recommended that throughout the planning process, a close collaboration is maintained with potential future residents and the municipality to avoid clashing interests.

Furthermore, comparing this research report with other projects in Haven-stad can help explore potential applications in other neighbourhoods as well. Cross-neighbourhood collaboration between these different areas would facilitate a mutual learning experience and overall more likely success across this new residential district. If this vision is successful, it could become an inspiration for several other projects aiming to create attractive and green high-rise residential districts and could popularise a modern urban form in line with both Compact City and Garden City ideals.

Moving forward, considering the possibility of cooperation between architects with a similar vision is greatly encouraged. Initiating further conversation through the upcoming exhibitions of Museum Het Schip on the “workers’ paradise” would be the first key milestone for this long-term urban development project.



6. CONCLUSION

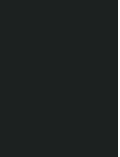
The Netherlands, and its capital city in particular is facing its biggest housing crises in decades, mainly marked by a significant housing shortage in combination with a growing population. In preventing this crisis from further escalation, the municipality of Amsterdam plans to create a completely new ‘city within a city’ in the North-Western part of its territories, called Haven-Stad. In a few decades, this neighbourhood should become a home for 200,000 people, living up to high standards regarding quality of life, sustainability and labour opportunities. The centre of the soon-to-be-developed borough will be named Coen- and Vlothaven also referred to as the heart of Haven-Stad.

This report functions as an exploration of possibilities regarding the implementation of compact garden city principles in the spatial planning of Coen- en Vlothaven. During this process of research and creation, one particular question functioned as guidance in our work: how can the compact and garden city ideals, encompassing both greenery and a strong sense of community, be implemented into the urban development of Coen- and Vlothaven (Haven-Stad), without compromising the housing capacity and while ensuring a pleasant environment for the future residents?

In answering this question, design thinking methods played a crucial role. Hence, empathising with potential users was the first step of the process. To get a better understanding of their needs, we used 2 surveys as a method of primary data collection. As Coen- and Vlothaven has no residents yet, the surveys were conducted in two other relatively newly constructed neighbourhoods in Amsterdam-Noord, the Distelweg (survey 1) and the NDSM area (survey 2). The 26 respondents provided useful perspectives on their living environment. Enhancement of community sense, public green spaces and access to essential needs were themes that are not only core concepts regarding compact garden city theories, but also highly valued by the majority of these respondents. The empathising phase was finalised by the creation of an empathy map, which gives an overview of the desires of potential residents.

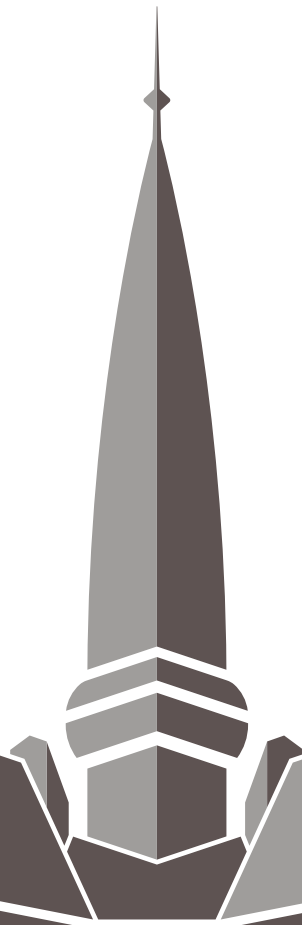
Furthermore, these potential residents were part of a conducted stakeholder analysis, which functioned as an additional method to the design thinking process. The goal of this particular analysis was to map possible key players to their possession of power and interest regarding the development of Coen- en Vlothaven. In essence, this stakeholder map, which was mainly guided by our assumptions, contributed to the ‘defining’ part in our design thinking process.

Ideating our vision was destined to be a core concept of the report. Inspired by multifunctional compact garden city designs from all over the world and architectural styles that resonate with traditional Dutch and Amsterdamse School principles, our own imaginaries were made visible with the use of Sketch-Up. Although the eventual designs



were developed using rough initial assumptions and estimations, we can dare to confirm that multifunctional designs and terraced high-rise constructions make it possible to meet the targets of the municipality regarding housing, workplaces, sports fields, and institutional buildings while still leaving room for plenty of greenery, leisure activity, and community spaces. Hence, we believe that our developed vision for Coen- en Vlothaven, the heart of Haven-Stad, ensures high quality of life standards by encompassing the compact garden city ideals in terms of greenery and community sense, without compromising the housing capacity.


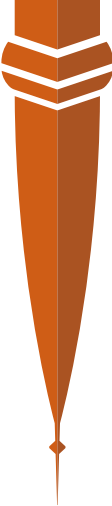
In realising the last phase of the design thinking methodology, the testing phase, Museum het Schip could play an important role. In case our client approves our work, they have the means to test whether our prototype would be feasible and desirable following the opinions of other experts and visitors of their upcoming exhibition. To conclude, the fact that the museum will generate both academical and public attention to this particular spatial planning theory, could eventually result in the future realisation of what once was characterized as a prosperous utopia.




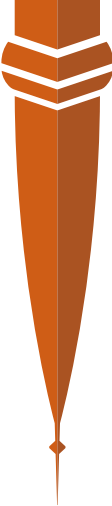
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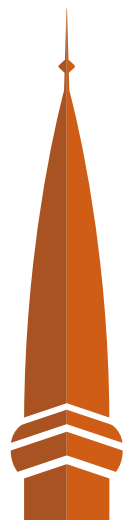
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APPENDIX

I. PRIMARY DATA

Survey 1 - Distelweg area

1. Are you satisfied with the area in general? (*Likert scale 1-10*)
2. Are you satisfied with the facilities available in the area? (*Likert scale 1-10*)
3. What facilities would you like to see more in the area? (*multiple choice*)
 - a. Public green spaces (parks, squares)
 - b. Playgrounds; facilities for families with children
 - c. Grocery stores
 - d. Other shops (e.g. pharmacies, clothing stores, convenience stores, drugstores)
 - e. Cafes & restaurants
 - f. More public transport options
 - g. Improved biking infrastructure (e.g. more bike lanes, better street lighting)
 - h. Otherwise, namely:
4. What do you appreciate about the area and/or what are you in particular satisfied with? (*open Q*)
5. What do you miss in the area and/or what are you in particular not satisfied with? (*open Q*)
6. Are you satisfied with public transport connections to other parts of Amsterdam? (*Likert scale 1-10*)
7. Why did you decide to live in the area? (*multiple choice*)
 - a. Greater availability of apartments
 - b. The area seemed like an attractive place to live
 - c. Combination of factors in answer 1 and answer 2
 - d. Otherwise, namely:

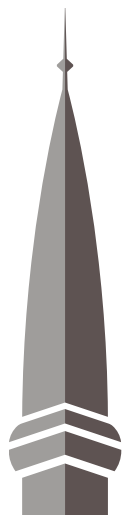
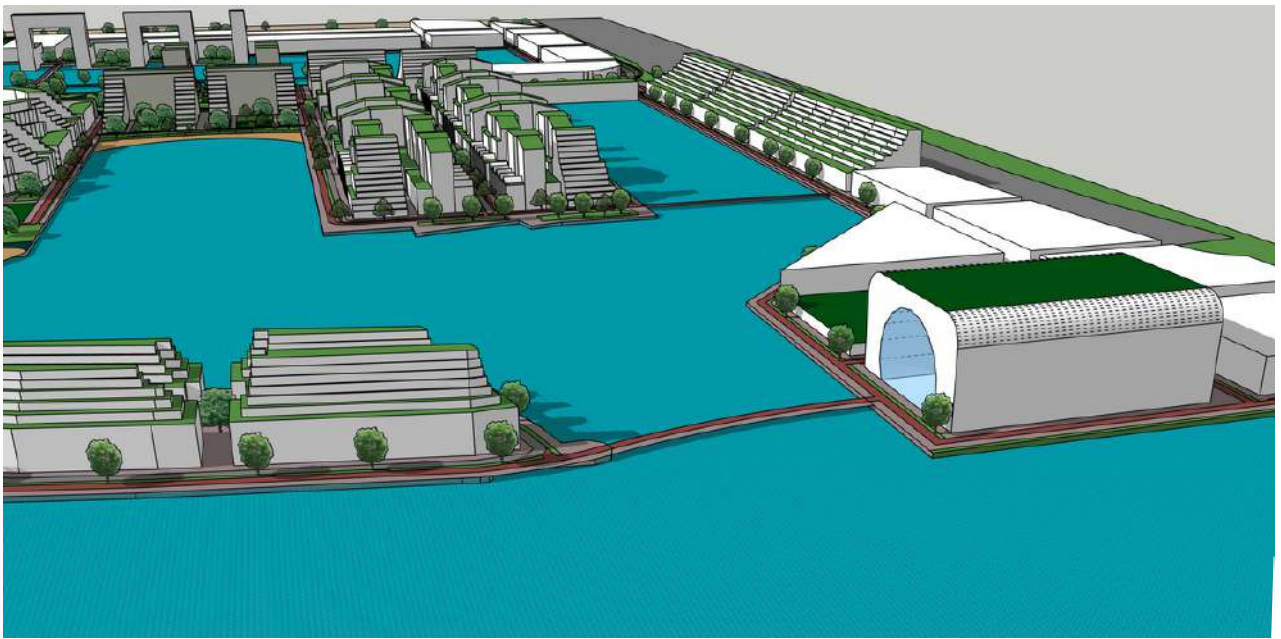
Survey 2 - NDSM area

1. Is a sense of community important to you in your living environment? (*yes or no question*)
2. What does a sense of community mean to you? (*open question*)
3. What do you think is important for creating a strong sense of community in your living environment? (*open question*)
4. Which of the following do you think is most important to have in your residential area? Select no more than three. (*multiple choice*)
 - a. That there is at least 50% green space in the district
 - b. That the housing options differ: social rental, mid-rental and owner-occupied homes
 - c. That there is diverse architecture, buildings in different styles and different heights
 - d. Many options for travelling by public transport
 - e. Social opportunities: public spaces to meet others and other accessible/affordable meeting places
 - f. Health and community: local opportunities for (physical) activities and for pursuing hobbies
 - g. Parking options for the car: there should be a parking space for every household
 - h. Otherwise, namely:
5. Is there another option missing from the previous question? (*open question*)

II. SKETCH UP







III. ASSIGNMENT DETAILS

There is no strict word limit, you can aim between 4000 to 8000 words (excl. references and appendix). Information should be concise, to the point and relevant. Remember it is both a product for the client as it is a product for the university. It should therefore include adequate literature as well. You will be assessed on the basis of the criteria in the rubric below. Take these into consideration when producing the final product. The final report should at least include, although it does not need to be called that way or be in this order:

- Introduction
- Methodology (explain your approach)
- Results
- Discussion (reflect on the process, limitations & future directions) (Can also be in the university report but not the public report)
- ONLY in University Report: Reflection on group work and each individual's contribution to the work and an indication of the distribution of the grade among the group members (see course manual for explanation)

IV. RUBRIC

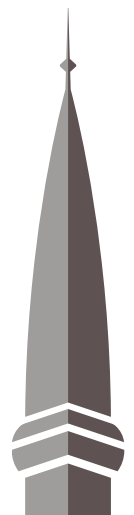
- Empathise → 10 pts.
 - Students incorporated clients and user perspectives in the project. They provide a clear problem statement that is logically linked to their clients' needs.
- Recommendations → 20 pts.
 - The ideation and visioning of the plan shows creativity, diligence, and an understanding of how the vision addresses the client needs, user's needs and the problem definition.
- Product & Analysis Quality → 40 pts.
 - Students made use of existing data (e.g. maps, statistics, reports, grey data), international cases, and new data (e.g. interviews, new maps, etc). They also make use of academic literature to support both their understanding of the issue and use them to support their results. There is a clear link between case studies, analysis and results and the results fit the client's project description. The product is written to the point and no unnecessary information is given. A critical analysis of their own research is given. Strong methodology.
- Client Satisfaction → 15 pts.
 - Filled in by client.
 - To what extent are the recommendations applicable, and are they both well-substantiated but easy to obtain from the document?
- Presentation → 15 pts.
 - The final product shows creativity in design. Design supports the usability of the report. Does not contain grammar or spelling mistakes and is well written. It is nicely formatted.

V. ACTION PLAN

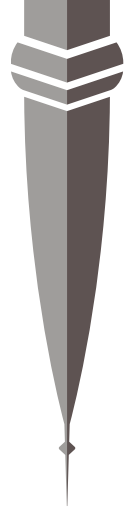
| Task | Who? | Components | Date |
|---|--|---|--|
| Layout | Kristof | Coherent & consistent format of document | 01-02-24 |
| Abstract | Patrick | Short summary of all six chapters as overview | 01-02-24 |
| Introduction 1.1) Problem Description 1.2) Research Relevance | Gideon Kristof | Introducing Haven-Stad & housing problem Research gap/opportunity + research questions | 18-01-24 18-01-24 |
| Theoretical Framework 2.1) Compact Garden City 2.2) Civic Participation 2.3) Design Thinking | Patrick Aleksandra Aleksandra | Explain the two concepts, merge & critique Elaborate on participation Introduce approach, 5 stages & critique | 21-01-24 24-01-24 21-01-24 |
| Methodology 3.1) Case Selection 3.2) Methods | Kristof Aleksandra | Elaborate on why this location was chosen Explain in what way(s) the RQs are addressed | 19-01-24 19-01-24 |
| 4) Results 4.1) Survey Outcomes 4.2.1) Designing Coen- & Vlothaven 4.2.2) Neighbourhood Design 4.2.3) Feasibility | Aleksandra & Patrick Trey Kristof Patrick | Work out survey answers → descriptive data Sketch-up screenshots + short descriptions Elaboration on features and justification Estimated costs and timeframe of the project | 25-01-24 31-01-24 31-01-24 31-01-24 |
| Discussion 5.1) Analysis 5.2) Limitations & Recommendations | Trey Kristof | Implications of the results, answering RQs Shortcomings of findings & research | 29-01-24 30-01-24 |
| 6) Conclusions | Gideon | Summarise logically based on findings | 31-01-24 |

Group Structure

- Strengths
 - Trey: creative problem-solving + sociability
 - Kristof: rationality + workload management
 - Gideon: mediator + capacity to think outside-the-box
 - Aleksandra: organising ability
 - Patrick: organising ability + capacity for finding useful people and promising ideas
- Allowable Weaknesses
 - Trey: procrastination, perfectionism
 - Kristof: overthinking + prone to lose interest if results are underwhelming
 - Gideon: tendency postpone workload, this never negatively affects eventual outcome
 - Aleksandra: liable to lose interests once the initial fascination has passed
 - Patrick: resistance to unproven ideas + tendency to “worry” about small things



VI. PITCHES & PRESENTATION



Pitch 1

- Content of PowerPoint
 - Stakeholder map: who is involved? And how?
 - Empathy map: what are the 'user needs' in your project?
 - Problem definition: what is the problem? (defined in a human-centred manner)
 - Action plan: how are you shaping your collaboration as a group? (structure, qualities, tasks, see for instance Belbin test)
- Feedback
 - Great empathy map, try to link this with interviews + start with compact garden city
 - Look into the demographics for the empathise part
 - Stakeholders (subdivide these)
 - Government: city planners, national government, public transport services, waternet,
 - Partners: housing associations, electricity & heat grid providers (Liander, Westpoort Warmte, Amsterdam Rainproof, Port of Amsterdam,
 - : future business, housing developers, current business, local organisations
 - : tourists, future residents & neighbouring residents, nature
 - How can we ensure city development in Haven-Stad is inclusive, fosters long-lasting community sense, and has inclusive / collaborative green spaces? → this is more a RQ than the problem description

Pitch 2

- Content of Poster
 - On your poster and in your pitch you can address your divergent to convergent thinking (see Sam Kaner's model). You can think of the following questions:
 - Did you revise your problem statement or not? And why?
 - Did you edit your user/client needs? And why?
 - What recommendations/interventions did you come up with, and how did you sort out the ones you deemed best?
 - For instance, think of feasibility, impact, effort, user value. What steps did you take in week 2?
- Feedback
 - Mini-map of Amsterdam so the reader has more recognition / context
 - Pollution highways could be a challenge for sporting fields → Electric cars in 2040...
 - Typing out international examples of Garden City as well, what options already exist
 - Think of gentrification when implementing that much greenery as a limitation
 - Positive reactions about having a concrete and visualised plan at this stage of project
 - Though, the visuals can be quite overwhelming for people outside the project

Client Contact

- In our project we asked potential future residents what they experience as problems in new housing estates, this was very insightful. However, we are also curious about the problem definition that Museum Het Schip envisions when developing Port City (such as the housing shortage as stated in your assignment description).
 - It is very good that you focus on the residents based on design thinking, because ultimately they are of course the most important users of the area. Our problem definition is mainly how we can translate the garden city ideals (after all, a sense of community and living in greenery are valuable elements in public housing) into a contemporary, more vertical city (due to the housing shortage and space is scarce). So we have to be creative. How can we achieve this?
- We are also curious about what will be done with our plan after the project, such as publishing it on your website, for example. This raises the question of whether it would be more convenient for you and Museum het Schip to (also) receive a Dutch version of the report.
 - With your permission, we would like to publish your report on our website. We can then use this as a reference point and provide us with ideas for new discussions! As far as I am concerned, only an English report is sufficient.
- We would like to know (again) what exactly the role of Museum Het Schip is in the Port City project.
 - Museum Het Schip, as a museum about the Amsterdam School and public housing, is involved in the future development of the adjacent area and we will pay much more attention to the port city in the coming years. Our role in port city development is to facilitate discussions and ideas. In June, for example, we are organising a garden city conference for public housing professionals and focusing on port city.
 - The museum is, as it were, a clubhouse for public housing (organisations such as the municipality of Amsterdam, AEDES (housing association trade association in NLD), the Amsterdam Federation of Housing Associations (AFWC), housing associations such as Eigen Haard and Rochdale) can often be found in the museum for meetings, workshop or conferences, for example.
- We are currently in the process of designing and furnishing Coen and Vlothaven themselves, in order to gain a more visual picture of the possibilities of applying Garden City principles. To what extent do you expect a style like that of Museum het Schip itself to be maintained? What expectations do you have of the solutions from our project? We ask you this because we have tried to look critically at the projects from previous years on your website. These were very theoretical, which is good in principle, but we felt that they lacked concrete proposals.
 - In previous years the focus was indeed quite theoretical. I encourage you to continue designing and organising, so that you can come up with solutions or new insights with (concrete or conceptual) examples. My expectation is that you come up with a combination of concepts, visual ideas or designs or with other reference projects (from other urban developments that you believe are inspiring and meet the conditions) for the design of the neighbourhood.
 - For example: what existing greenery is there and how are you going to create greenery in a new mid/high-rise neighbourhood? Hoven? Roof gardens (where do you put the solar panels, etc.)? Facade gardens? Use the water? Something else? Be creative!
 - How are you going to stimulate a sense of community in a mid/high-rise neighbourhood? Squares, parks, courtyard feeling, roof gardens? Use existing heritage? Community areas? Sharing and exchanging tools? You can decide this yourself. You can choose whether you focus on one of the topics or both.

- What expectations do you have of us for the final presentation? By this we mean, are there elements that you would like to see in this project?
 - Combination of some theory with your detailed design(s) / best practices of urban planning.

Presentation Rubric

- Content (20 pts.)
 - The information included is accurate and completely addresses each component of the assigned topic or research question.
- Delivery (20 pts.)
 - Effectively and creatively delivers the information while staying on topic and considering the audience. Excellent use of voice, posture, eye contact, gestures, and pace. Interesting and vivid to hear.
- Quality (30 pts.)
 - Effective use of templates or designs which make the slides visually appealing. Excellent use of high-quality photographs, graphs, images, etc. that support and enhance the presentation.
- Readability (10 pts.)
 - All words and text are large, bold, and easy to read. Statements are brief and concise. No misspellings. Excellent grammar.
- Client Satisfaction (20 pts.)
- Structure

| | |
|---|------------------------|
| 1. Front page | ⇒ Trey (½ min.) |
| 2. Table of contents | ⇒ Trey (½ min.) |
| 3. Introduction of Haven-Stad (+map) | ⇒ Gideon (2 min.) |
| 4. Methods (design thinking + survey approach) | ⇒ Aleksandra (1½ min.) |
| 5. Compact Garden City concept (critique & possibilities) | ⇒ Patrick (2 min.) |
| 6. Transportation Map | ⇒ Trey (2 min.) |
| 7. Labelled map | ⇒ Gideon (4 min.) |
| 8. Multiple screen records | ⇒ Trey (5 min.) |
| 9. Implications, role of the client & recommendations | ⇒ Kristof (2 min.) |
| 10. End slide + Q&A | ⇒ Kristof (½ min.) |
- Feedback
 - Explain why a car free neighbourhood is chosen. Cars could be attractive and electric in the future
 - What type of people do we want to attract?
 - Where to place social housing? → prioritising them at the waterfront for instance
 - Be critical on the compact city paradox
 - Really nice and positive reactions on the visual parts ⇒ possibility to cooperate with architects
 - Put an emphasis on the problem & stakeholder analysis → “not all problems, are real occurring problems”
 - Think even more about Blue-Green Infrastructure (BGI) + harbour functions
 - How to address the ‘no soul’ character of the area caused by the fact that the area doesn’t have a historical heritage (just like Flevoland)?
 - “Workers paradise” ⇒ exhibition in october gives possibility to collaborate



VII. GROUP REFLECTION

Looking back on the efforts of this group to complete the assigned project, it is clear that the joint effort not only improved the quality of the work but also provided a rich learning experience in dividing various tasks and responsibilities. The division of tasks, as outlined in Table 3, ensured that each member's preferences and strengths were optimally utilised, resulting in great collaboration. For instance, it can be said that everyone has a great appreciation for Trey's design skills in the Sketch-up Program. To support him in this, everyone has taken on tasks to ease and simplify this prototype process. In addition, the feedback notes from the three presentations (see Appendix VI) provided guidance for the iterative process of this report.

As for the distribution of grades, given the effort and quality of work contributed by each member, a relatively equal distribution would be fair. This would result in a five-time 20 percent division of the final grade. This project has highlighted the importance of teamwork, effective communication via WhatsApp and physical/online meetings, and the integration of individual strengths to achieve the common goal of getting a high grade. The process was as enriching as the outcome, with the dedication of each member contributing to the success of this research report.