Accessibility and Urban Life

Aspects on Social Segregation

Ref 064

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Abstract

In the metropolitan areas of Sweden and in similar European cities, social and ethnic segregation, unequal living conditions, and unequal availability to services and labour market are commonplace and considered major social problems. Several national and local initiatives aim to decrease social and ethnic segregation, but so far only with marginal success. It is established that neighbourhoods provide unequal living conditions for their residents and from an urban design perspective a relevant question is how urban form influences these conditions. It has come to light that different urban design ideas are related to certain preconditions for sociability which highlights the need for a better understanding of the relation between spatial and social phenomena. This paper explores if a reasoning where segregation is discussed in terms of accessibility, or rather, a lack of accessibility, could be a way forward for urban design practice and policies. If configuration of public space influences what an area can afford its users in terms of accessibility this could increase the understanding for the role of urban form in this matter. The configurational approach applied in this paper is also investigating what a focus on other perspectives besides housing segregation could imply. For example, the potential for urban life is explored which is related to interplay segregation which is argued to be equally important for social segregation as housing segregation. The space syntax approach, including place syntax tool, has the ability to illustrate the consequences of segregation in public space and provides logical descriptions from a user's perspective. The results illustrate essential differences between neighbourhoods, indicating that areas afford different spatial advantages. Some inequalities regarding living conditions are made visible and it is possible to verify that urban form has a very direct influence on these conditions. It is argued that such knowledge has the ability to support and contribute to a more effective urban design practice regarding issues related to social segregation.

1. Introduction

The problems related to social segregation in Sweden is politically a highly prioritised issue. However, urban design and spatial planning is not addressed in anti-segregation initiatives to any larger extent; rather, actions related to the architectural field have been confined to housing policies, focusing on house types or forms of letting and ownership. There is reason to question if the prevailing definition of urban segregation, i.e. housing segregation, might be too one-sided and therefore misleading for urban design issues. In this paper, urban form and its possible influences on social segregation is in focus. To get a better understanding of how urban form influences social outcomes, a complementary configurational approach is applied with the attempt to be logical from a user's perspective; characterized as an experiential description. This includes highlighting another concept of segregation that is argued to be neglected in the debate and in national investigations, namely interplay segregation, which is about integration processes in public space through public life (Olsson 2005; Olsson, Ohlander and Sondén 2004).

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The role of public space has mostly been neglected in discussions on segregation and this paper is written from the view that it has been underrated. It is explored if a reasoning where segregation is discussed in terms of accessibility, or rather, a lack of accessibility, could be a way forward for urban design practice and policies related to anti-segregation initiatives. If segregation in public space influences accessibility to other people, movement flows, co-presence in public space, as well as accessibility to important functions, then spatial segregation has a very direct influence on people's everyday lives (Olsson 1998, 4; Schulz 2004, 205). Segregation in public space therefore appears as a far more urgent issue than earlier recognised. Such insight opens for possibilities to address social segregation from an urban design perspective and policies in urban design and planning may be considered as possible tools in anti-segregation initiatives.

Considering how the goals are formulated in the recently launched Urban Development Policy – fewer individuals living in exclusion in urban districts characterised by exclusion, and fewer urban districts characterized by exclusion (SOU 2007) – an accessibility approach based on spatial relations seems to be highly relevant. To describe differences between neighbourhoods in terms of accessibility can increase the understanding for the spatial impact beside the impact of the residents' social profile. (The word "exclusion" has lately replaced "segregation" in the political context but has more or less still the same meaning and is defined through similar criteria).

2. Approaches on segregation

Most of the segregation research describes the state and the processes of segregation, often in quantitative terms. Although Andersson, Borgegård, and Fransson (2001, 83) stress the necessity of this work, they also suggest that it is time to combine different methodological concepts and by doing so increase the possibilities for a deepened discussion of what segregation means for everyday life for different groups. Such an approach, they believe, will lead to a stronger focus on the consequences of segregation. Unequal living conditions in different geographical areas have increased during the 1990s (SOU 1997). Such statement is highly relevant for the field of architecture since how resources are distributed in cities is to a large extent influenced by urban design and land use decisions. The issue becomes particularly urgent since it is established that the living conditions are worse in areas where people with the least resources are living (Socialstyrelsen 2001).

Within housing segregation, neighbourhoods are described through the composition of the residents and their social profile, while other aspects, for example what happens in public space when people leave their homes are not primary objects of interest. Such descriptions, with a strong focus on the residents, are argued to give weak guidance for urban design and planning practice. Although a lot of everyday activities circle around where people live, people also leave their homes, reside and move in public space on their way to work, school or entertainment etc. contributing to urban life. When discussing equality it is also relevant to illustrate how common resources are distributed in the city and to what extent people are benefited by them, an aspect that rarely is investigated, especially not in a comparative manner. Such widened approach to the spatial side of segregation is argued to be fruitful for urban design.

The notion of interplay segregation represents a different approach on segregation which is focusing on urban life and the interplay among people in public space; co-presence, co-awareness, and/or interaction. For social segregation in society, interplay segregation is argued to be as important as housing segregation. Co-presence among people with different background encourages tolerance and integrating processes that are important aspects in the discussion on segregation and exclusion. The notion acknowledges the need people have to be seen and see others (Olsson 2005). To some extent housing segregation and interplay segregation are interrelated and describe two sides of the matter. One is whether or not one has neighbours from different groups in society; the other, which is perhaps even more important, is whether different groups in society are able to share public space. Is there a public life to share and how does this distinguish between different neighbourhoods? Empirically, the potential for urban life with reference to density could be within reach described as accessible people.

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3. Society and space relations

A general problem is how to understand the relationship between society and space and how spatiality could be defined empirically (Franzén 1992, 37). Franzén argues that it is obvious that space has significance for everyday life; surprisingly, however, this rarely has been documented; in historical and sociological studies of everyday life the spatial dimension is generally missing or at best is taken for granted (Franzén 1992, 39). To study the relationship between society and space the city needs to be recognized as both a physical and a social entity and urban theory and practice need to connect these (Hiller and Vaughan 2007; Franzén 1992; Olsson 1998). According to Franzén, society could be studied spatially through the buildings of the city. The buildings include most of the important activities in society and through the buildings and the activities some of the basic foundations of the societal structuring of space become salient in a concrete, materialized form. It is argued that space affects the structure and character of the daily life as well as political-economical outcomes (Franzén 1992, 38).

There is a need to link social theories to design level theories. According to Hillier, little is known about how patterns of living and working can be affected, for good or ill, by the physical and spatial forms we impose on them. In the absence of scientifically tested propositions, built environment professionals are argued to make use of theory-like propositions that link the social outcomes to the built environment (Hillier 2008). These conventional, theory-like propositions are ideas that have powerfully influenced design and planning and might even be viewed as paradigms. For example, it was widely believed that breaking large residential developments into small inward looking courtyards would promote stronger local communi¬ties, that lower population densities would lessen crime and social malaise, and that public open spaces with good enclosures would be successful and frequently used. However, these ideas seem to have been more part of the problem than the solution (Hillier 1988). These quasi-theoretical ideas are not based on evidence and the experience suggests that they are probably wrong. Space has an active and structured engagement with social life, and without understanding this it is impossible to fully realise the theoretical promise of the social study of space (Hillier 2008).

4. Urban life

Jane Jacobs argues in *The Death and Life of Great American Cities*, that the urban layout plays an important role in generating urban life, heterogeneity, and urban qualities. She was one of the first to acknowledge the specific spatial articulation of the block city (the grid structure), highlighting its sharp contrast to modern layouts. Jacobs delivers strong critique towards modern urban design principles as it imperils both liveliness and diversity. In areas that lack urban life, people need to enlarge their private lives if they are to have anything approaching equivalent contact with their neighbours or else they must settle for lack of contact (Jacobs 1989, 62), which also could be described as an exposure of the private sphere. A functioning public urban life however, makes it possible to choose a certain level of contact (Franzén 2004, 38). In qualitative studies of segregated suburbs in Sweden it is found that especially people who feel excluded from society at large appreciate the opportunity to have an urban life to interact in (Lilja 2002).

Urban life could be described as an unintended by-product of a number of frequently and rather anonymous encounters in connection to everyday life activities. Here the shortcomings of the Swedish urban landscape prove to be quite troublesome since the late urbanisation, materialized in enclaves of large housing estates, resulted in more of an infrastructure construction than a space for a diverse and lively urban life (Franzén 2004, 33). These design ideas implied a rationalization of everyday life to make it easier. But, one undesired consequence of the rationalized every day life was that all occasional, accidental, and unintended actions were lost and with that, the public urban life that earlier was taken more or less for granted (Franzén 2004, 40). This phenomenon has been acknowledged by many other urban thinkers, for example, Richard Sennett (1974) and Hans Paul Bahrdt (in Habermas 1984).

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5. Isolation built into the layout

Layouts characterized as enclosures or clusters are not the answers to the urban problem, but the problem itself according to Hillier. Its indiscriminate use has been responsible for the creation of the fragmentary, unintelligible, and largely under-used spaces that form a significant proportion of our urban environment today (Hillier 1988, 64). Encountering, congregating, avoiding, interacting, and dwelling: there are not attributes of individuals, but patterns or configurations formed by groups or collections of people that depend on patterns of co-presence or co-absence (Hillier 1996, 29). In a study of morphological changes in London, it is illustrated that design ideas are related to specific preconditions for sociability. The shift in design paradigms over time is described as a development going from an "all-neighbour-area" to a "no-neighbour-area" (Hanson 2000). It is found that the conditions for urban life and interaction are prominently poorer in areas where the originating design ideas were govern by high social ambitions. A person in an "all neighbours-area" has the option to disengage because the decision to participate or not lay with the householder while a person in the "no-neighbours-area" has no such choice because the decision to minimise social contact was built into the layout itself. Hanson summarizes the effects: "The disabling effects of the urban transformation had the greatest impact on the weakest and least powerful people socially; those who depended on their local environment the most to support them in their everyday life, like children, elders, the sick and disabled, the unemployed" (Hanson 2000, 117). The results support the reasoning stated by Jacobs, that such estate layouts have isolated people from each other, both on a neighbour level as well as on a neighbourhood level. The spatial explanations look to the properties of the urban layouts; accessibility and permeability.

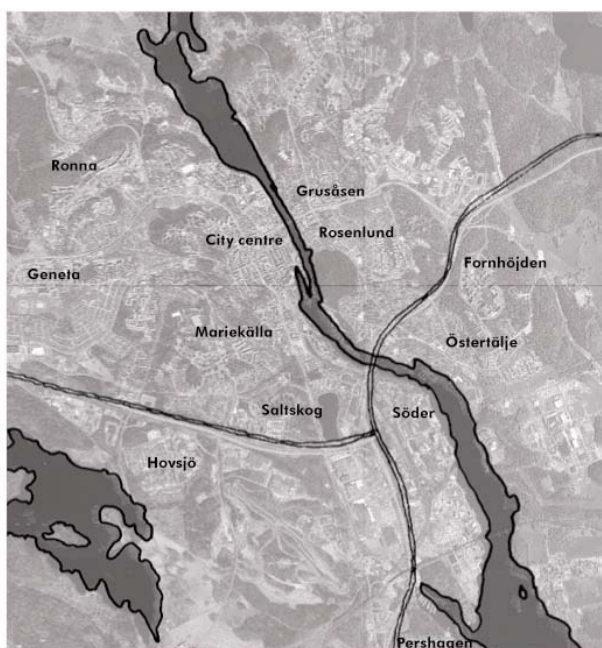## 6. Empirical study – accessibility in the city of Södertälje

Figure 1
Södertälje.

Södertälje in the Stockholm region has 84 000 inhabitants of which 40% have foreign background [1]. The city developed rapidly after the Second World War and the urban landscape is strongly influenced by the neighbourhood planning ideas (Franzén and Sandstedt 1981). The empirical study investigates the consequences of segregation in public space for the population in terms of accessibility to key features such as other people (residential and working population), as well as some common resources. In many other studies based on statistical data, social phenomena are taken out of real space and placed into an abstract space that is no longer related to the world of real space and materiality (Hillier and Vaughan 2007). However, this study is conducted from the view that an area is always to some extent influenced by its surrounding which is essential to capture for the question in point. A better understanding about complex urban structures can only

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be achieved if the spatial relations are considered, and hence, social data is integrated with the spatial model (the axial map), distributed on address points, and analysed with Place syntax tool (Ståhle, Marcus and Karlström 2005). Accessibility to some common resources is analysed, but it is not distribution in space of these resources that is primarily interesting for people in their everyday life; rather it is the accessibility to these resources. Four large housing estates are included in the national anti-segregation initiative: Ronna, Geneta, Hovsjö, and Fornhöjden, and in this paper, these areas will primarily be highlighted together with the city centre.

6.1 Accessibility to residents

Population density is analysed in the meaning of accessible residents from every address point. Not surprisingly, the highest values are found in the city centre. But it is clear that it is not the number of people living in different areas that alone determines the outcome. The city core has 4421 residents and Hovsjö 5033, and the average number of accessible residents within three axial lines is 1500 in the city core compared to 428 in Hovsjö, and within seven axial lines it is 6504 and 3610 respectively. This is explained partly by the configuration within the area and partly on its integration with other residential areas. When comparing the four housing estates included in anti-segregation initiatives, large differences appear. This is important to highlight since these areas, originating from the Million Programme [2], generally are ascribed similar architectural properties and features. Regarding accessible people, it is possible to reach 21% of the population in Fornhöjden (within three axial lines) but only 9% in Hovsjö, and 5% in Ronna. Thus, configuration of space is playing a significant role in providing access to one's neighbours, and it is not only depending on for example house types or number of storeys.
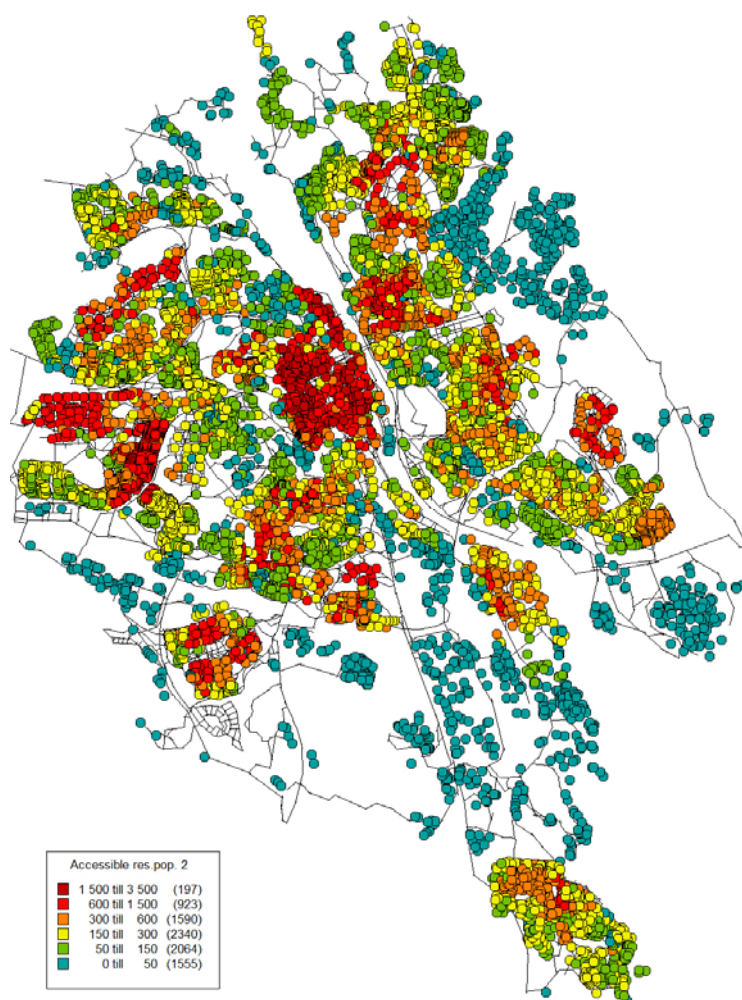

Figure 2
Accessibility to residents within a radius of 3 axial lines

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Neighbourhood	Residents	Accessible residential population, 2 turns	Accessible residential population, 6 turns	Accessible residential population, 1000m
City centre	4421	1500 (34%)	6504 (147%)	6232 (141%)
Fornhöjden	2925	619 (21%)	3088 (106%)	3353 (115%)
Geneta	4584	474 (10%)	3800 (83%)	3889 (85%)
Hovsjö	5033	428 (9%)	3610 (72%)	5072 (101%)
Ronna	6696	349 (5%)	3812 (57%)	5461 (82%)

Table 1
Accessibility to other residents within a radius of two and six axial turns, and within 1000 metres.

If comparing accessibility measured in topological distance (a kind of mental distance) with metric distance (a kind of physical distance), it is only in two out of ten studied areas that the share increase. Hence, the urban form in all other neighbourhoods has properties that decrease accessibility and these areas have lower potential to let people share public space. This implies that the possibility to see other people in public space is lower which most likely also has an impact on how safe and secure they are perceived. However, to get a more realistic picture of these conditions, one also needs to take the number of accessible working population into account.

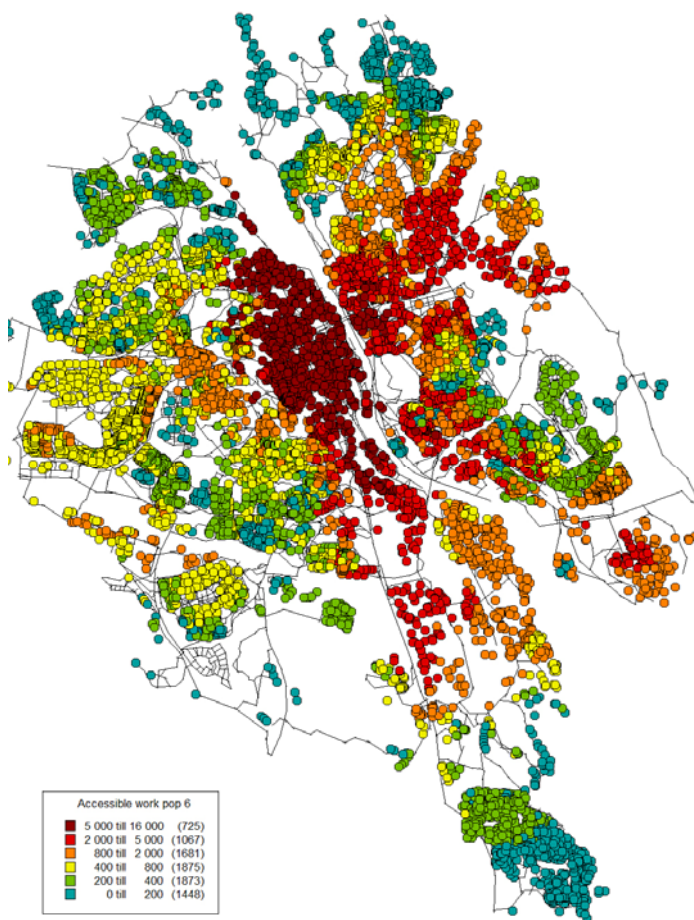## 6.2 Accessibility to the working population

Figure 3
Accessibility to working population within a radius of six axial turns.

The accessibility to working population (or to workplaces) gives an idea how many people are likely to spend time in an area during daytime that among other things influence urban life. The result reveals

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large differences within Södertälje, where the city centre clearly has the highest accessibility. Already the statistical data prove that this area has many workplaces but the analysis illustrates that urban form reinforces the accessibility. The four housing estates in focus have comparatively very low access to working population/workplaces, see table 2. This implies firstly, that inflow from other parts of the city is likely to be low, and secondly, that people in these areas to a higher degree depend on mobility to get to the workplaces, e.g. public or private transportation.

Neighbourhood	Working population	Accessible working population, 2 turns	Accessible working population, 6 turns	Accessible working population, 1000 m
City centre	9865	3353	11990	9134
Fornhöjden	195	50	216	240
Geneta	587	59	648	593
Hovsjö	514	51	450	720
Ronna	639	37	413	567

Table 2
Accessibility to working population within a radius of two and six axial turns, and within 1000 metres.

The potential for urban life depends on both the density of the local (residential) population and the density of people spending time there during daytime and/or coming from other parts of the city (e.g. working population). As the two densities are added, the city centre shows the highest values. A few other areas show an accessible mix even though the density is only a third compared with the city centre. In most neighbourhoods however, the density is low and there is a very little inflow of a working population, for example in the four housing estates, and in Pershagen, one of the more affluent areas in Södertälje. Figure 4 illustrates the accessible working and residential population in transformed figures; 100 people in the city centre correspond to lower figures in other areas.
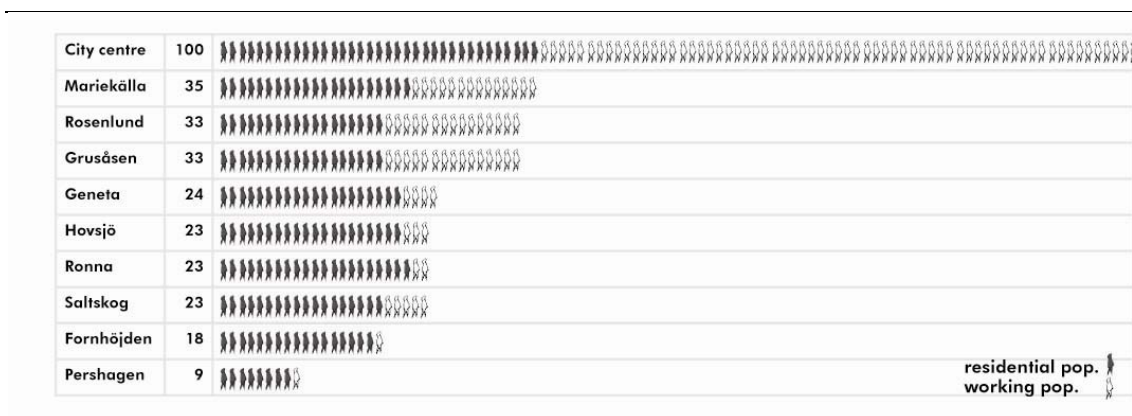

Figure 4
A comparison of accessible residents and working population. A 100 people visible on a street in the city centre corresponds to lower numbers in other neighbourhoods.

6.3 Adding social information
Social data is superimposed the spatial model which reflects a kind of potential for accessible diversity (that also could be related to so called neighbourhood effects). In fact, any available information may be added but in this paper some of the parameters frequently used in housing segregation studies are selected; employment, unemployment as well as ethnic background.

The analysis reveals that half of the accessible residential population in the city centre has work. Still the number is only a quarter compared to accessible working population, which means that

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even if there would have been few residents with work it would still be a strong influence by working people in the city centre and in public space. In areas as Fornhöjden and Hovsjö, quite a different picture appears: the accessible working population in these areas is quite low which means that the possibility to find people with work in public space is more directly dependent on the residents' situation and in Hovsjö only a third of the accessible residential population have work and 5% are in search for work. In Fornhöjden four out of ten have work and 3% are in search for work. The large housing estates clearly distinguish from other neighbourhoods in this respect. When it comes to analysing ethnic background the differences between neighbourhoods within Södertälje becomes more distinct. The analysis shows that on average in Södertälje 27% of the accessible residents have foreign background and 61% have Swedish background. In the city centre there is a predominance of residents with Swedish background but the spatial configuration is to some extent reducing the effect of this. The four housing estates clearly diverge from other areas as well as from the average, see table 3. It is possible to see that spatially more segregated areas are more dependent on the composition within the area, while areas that are spatially integrated also have a larger influence area, and hence, the composition in the neighbouring areas also influences the outcome.

Neighbourhood	With work	Search for work		Foreign background	Swedish background
City centre	52%	2%		19%	74%
Fornhöjden	**39%**	**3%**		**49%**	**37%**
Geneta	**36%**	**4%**		**42%**	**36%**
Grusåsen	51%	3%		22%	69%
Hovsjö	**29%**	**5%**		**62%**	**18%**
Mariekälla	52%	2%		23%	69%
Pershagen	52%	0,5%		9%	86%
Ronna	**30%**	**5%**		**52%**	**23%**
Rosenlund	54%	2%		18%	75%
Saltskog	47%	2%		30%	56%
Average of Söd.	*46%*	*3%*		*27%*	*61%*

Table 3
Share of accessible residential population with work and in search for work. Share of accessible population with foreign and with Swedish background. Radius of six axial turns (The average of Södertälje includes 816 NYKO-areas in the municipality).

6.4 Accessibility to some common resources
Spatial advantages that different neighbourhoods afford are to some extent related to the accessibility to common facilities and the location of the facilities is highly governed by urban design and planning decisions. There are probably quite many resources that are of relevance for social segregation; public and private service, commercial service, recreation, culture, health care facilities, and work places etc. However, in this paper two features have been studied: bus stops and public playgrounds.

At large, the accessibility to bus stops is relatively similar throughout the city, especially if the results are presented on a neighbourhood level, see table 4. However, more detailed analysis reveals large differences within neighbourhoods and even within smaller geographical areas. This detailed information reflects to a higher extent an experiential level. For example, the minimum distance from every address point to bus stops in Hovsjö varies between 92 and 430 metres (or between two and five axial turns), and in Ronna between 111 and 723 metres (two and four axial turns). Regarding the accessibility to public playgrounds the analysis reveals significant differ-

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ences; Fornhöjden and Saltskog appear as the least favourable areas whereas the city centre, Hovsjö, and Geneta are considerable more advantageous. Again, it is when the result is presented on the address point level that the differences within areas clearly appear, see figure 5.

Neighbourhood	Bus stop		Public playground	
	metres	steps	metres	steps
City centre	207	1	282	2
Fornhöjden	247	3	1226	8
Geneta	276	2	447	3
Grusåsen	256	2	619	5
Hovsjö	229	3	330	3
Mariekälla	242	2	441	4
Pershagen	361	2	658	5
Ronna	281	3	628	5
Rosenlund	210	2	579	4
Saltskog	293	2	939	8

Table 4
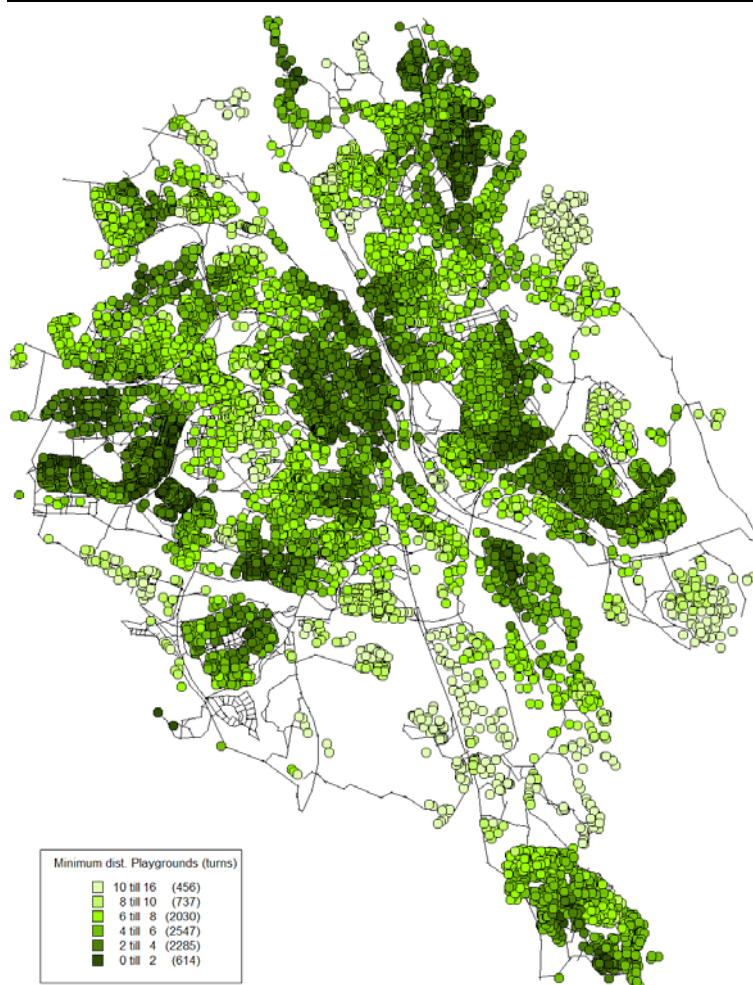*Minimum distance to stops for public transportation and minimum distance to public playgrounds.*

Figure 5
Minimum distance to public playgrounds from address points.

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7. Discussion and conclusions

Space in itself is found to have the possibility to both reinforce and mitigate certain outcomes regarding accessibility to key features depending on the configuration. Most important, the approach makes it possible to identify the impact from each of the factors studied; population or urban form. People in some neighbourhoods do not afford the same spatial advantages as others. Many of the post-war neighbourhoods are characterized by segregation in public space with the consequence that people are relatively isolated from other neighbours as well as from other neighbourhoods.

It is established that some areas have spatial properties that more efficiently enable accessibility to the neighbours while in other areas people are separated from each other through the spatial configuration, for example in Hovsjö, Ronna, and Pershagen. Regarding accessibility to working population/workplaces the city centre has the comparatively highest number due to the fact that this area has many workplaces but also as a consequence of high spatial integration. A primary interest for this paper has been to explore the conditions and potentials for urban life since interplay (co-presence, co-awareness, and/or interaction), in public space is pointed out as important as housing segregation for social segregation and isolation (Olsson 2005, Jacobs 1992). The preconditions for an urban life, in respect of potentially accessible people in public space, are considerably poorer in areas where accessibility at large is low but where also the accessibility to the working population is low. The understanding for the potentials for urban life is argued to be increased as both accessible residential and working population is taken into account.

The accessibility to common features, such as bus stops and public playgrounds, varies considerable throughout the city. As the accessibility to public playgrounds is studied, significant inequalities are revealed. It is a fact that many real estate owners provide their tenants with such facilities, but these facilities are not "free", rather they are probably paid for by the tenants through their rental charged while public playgrounds are defrayed by taxes. Hence, the location of public playgrounds is a matter of equitable distribution of resources. The analyses about common resources have illustrated that from an urban design perspectives the results presented according to address points are much more informative; the aggregated results conceal important nuances that appear at the finer scale.

The analyses have shown that spatially segregated neighbourhoods are highly dependent on local resources and the local population, while integrated neighbourhoods can derive advantage from the surroundings. If social segregation is related to what living conditions are provided locally, this could give cause for promoting better conditions in areas where the population has less resources. For example, it could be motivated to have better accessibility to public transportation in areas with fewer workplaces or other service facilities at a short distance, poorer pedestrian networks, and where people have few vehicles. It is suggested that the spatial configuration has a discriminatory impact which is an ethical dilemma from a welfare perspective. It is likely that people with more resources (i.e. employment, higher education, income, and high mobility) have the possibilities to overcome spatial shortcomings and hence will not be affected negatively to the same extent. Also, that their inclusiveness in society is provided by other factors and therefore their dependence on the local environment is much lower. It could even be the case, that such spatial segregation turns out as beneficial for some selections of the population. Since the four areas included in anti-segregation initiatives are found to have different configurational advantages and shortcomings one can argue that there is no such thing as a "silver bullet" how to improve the physical environment in vulnerable or excluded areas as often indicated. If spatial modifications are to be considered the different spatial strengths and shortcomings of each area need to be identified through analyses that reveal nuances on a very detailed level. It would be false to argue that space by its own has the power to break segregation, but the insight is needed that integrated and street-oriented urban systems are more empowering than configurations in the spatially segregated city (Hanson 2000, 116).

Finally, the conclusion that urban form does play an important role for what spatial advantages and disadvantages different neighbourhoods afford opens for a more purposeful and active urban design practice as a complement and support to other interventions within anti-segregation initiatives.

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Notes

1 Stockholms Stads Utrednings- och Statistikkontor AB (USK). www.usk.stockholm.se
2 The Million Programme was a political project with the aim to build one million housing units within ten years (1965-1974) in order to put an end to the severe housing shortage in Sweden.

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