SPECIAL ISSUE

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High-rise developments in the Baltic and Nordic capitals

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Baltic high-rise and UNESCO

Harmony or conflict? In the foreground Tallinn's old town showcasing the town hall tower. Behind it is the Maakri Quarter, the area defined as 'most suitable' for high-rise development in the city. Photo: Scanpix - Wojtek Buss

Contents

This special issue of the Journal of Nordregio is a collection of the articles on Baltic and Nordic high-rise city densification. They have previously been published in Journal No 2-2009 or No 2-2010. The issue is prepared in connection with the 4th Baltic Sea Regional Cultural Heritage Forum.

Front-page: The old town of Riga in front with the new area for high-rise developments behind and to the left of the Swedbank tower across the river. Photo: Radius/Scanpix

Back-page: The new Opera House in Oslo with the emerging Barcode-project in the distance. Photo: Odd Iglebaek

On skyscrapers and desires

The first time Helsinki saw the construction of a high-rise building in the city centre was in 1931. It is a slim tower – the *Hotel Torni* - 60 metres or 13 floors in height standing on a small rise in the city centre. The architectural features are sublimely expressed. A rooftop balcony bar open to the general public completes this historic Helsinki landmark with views to all parts of the city, and it is said, all the way to Tallinn on a clear day. In many ways this is a very popular building. Since its construction no new high-rise buildings have been erected in the centre of Finland's capital.

The *Postgirobygget* building - 110 metres and 26 floors - in Oslo is perhaps the least successfully implemented Nordic high-rise building design. Firstly, it has a relatively dark brownish metal-cladding-type facade. Secondly, the building is rather voluminous and thirdly it is inauspiciously positioned in the lowest part of what is called the Oslo 'amphitheatre', the green hills which surround the city at the end of the Oslofjord.

The building is therefore very visible to anyone living or working on the hills around the city centre as well as to many in the city-centre. The fantastic view from the top of the *Postgirobygget* is however enjoyed only by those working in the building.

Oslo and Stockholm very eager

In the Nordic context Oslo is clearly edging ahead in the field of high-rise development in the established city centres. This conclusion is amplified by the fact that they are currently in the process of adding ten relatively high and voluminous buildings in a ribbon several hundred metres long - the Barcode-project - close to the two already existing rather massive constructions *Postgirobygget* and the *Oslo Plaza Hotel* (117 metres and 37 floors). The effect, seen from the sea, is to portray a dark and brooding wall rising up behind the light, playful and very popular new shore front opera building designed by *Snøhetta.*

In Stockholm developers are pushing to build more extensively around the Central Railway Station as well as in other parts of the commercial city centre. For example a 16 storey high new hotel and large conference facility is currently under construction just south of the station rendering the famous profile of the City Hall (*Stadshuset*) much less visible. In a few years we might see a 100 metre (30+ floors) high hotel just across from the main entrance to the Station. The spire of the Klara church will get a real visual competitor if this comes to fruition.

Stockholm has something unusual to boast in this regard, namely, as a skyscrapers' interest-group fighting to launch new high-rises and arguing that. More than anything, sheer height, or simple magnitude, is important. Close to Nortull, a couple of kilometres north of the Central Station area, plans exist for two new 140 metre-high towers called *Tors torn*. This is similar to what is planned for Copenhagen's northern harbour Marmormolen. One difference here however is that a connecting bridge between the two towers is planned which will be accessible to both bicycles and pedestrians. Large ships can even sail underneath.

Who is behind the push for more high-rise development?

The driving force behind many of the new densification projects in Stockholm is *Jernhusen*, the property-company of the state-owned *SJ* (Swedish Railways). Similarly, in Oslo it is primarily *HAV* (owned by the city's Port Authority), *ROM* (owned by the Norwegian State Railways) and *Entra* (owned by the Ministry of Trade and Industry).

Slower high-rise growth in Helsinki and Copenhagen

Copenhagen did not participate in the international trend which began in the 1920s to build higher. In this city it has long been a major building principle that new structures should relate to their surroundings. This is similar to Helsinki where no centrally-located building, except the *Hotel Torni*, is more than eight floors high.

There have however been a few exceptions in the Danish capital, like the *SAS Royal Hotel*. This rather famous building was completed in 1960 and designed by the renowned architect Arne Jacobsen. It rises 77 metres or 22 floors in height. Since the building has a light and almost dull grey/green finish the contrast against the sky is rather smooth.

Metro potentials and public protest

Recent years have seen strong forces wanting to build high "dead" in the centre of Copenhagen. One example is the 130 metre high *Scala Tower* close to the Tivoli. Thus far, it seems unlikely that it will be built. The reason is twofold; strong public protest against "skyscrapers" in the city centre and secondly the fact that the authorities have already invested heavily in a new metro system.

The most sensible course of action then it is argued is to utilise the potentials inherent in such transport facilities before increasing the height of buildings in the historic centre of the city. This is also what is happening. The ´new town` Ørestaden between five and eight kilometres from the centre – on the way to Copenhagen International Airport – is rapidly growing and will soon have tens of thousands of new homes and workplaces. Later other large developments will follow.

Helsinki invested in its first metro-line almost thirty years ago (opened 1982) and it is currently in the process of being extended to cover the west of the city and the neighbouring municipality of Espoo. As with Copenhagen this has opened the way for large new developments to be planned up to 15 kilometres from the city centre.

Some 70% of all land in the Finnish capital is owned by the municipality itself. If they sell or rent land to property developments it is not necessarily to those who are willing to pay most. Rather it is generally to whose who have the best solutions to the requirements attached to the utilisation of the actual plot. Such demands are again decided upon by the City Council based on proposals from the planners.

Currently there are, in addition to the *Hotel Torni* in the centre of town, there are only three high-rises in the Greater Helsinki area, the *Nokia* and *Fortum* buildings in Espoo and *Cirrus* in Vuosaari. All three are however 10 kilometres or more from the city centre. In a not too distant future we could however conceivably envisage the first 30-storey building less than five kilometres from the centre. At the old rail-yard in Pasila, such structures were included in the winning scheme for the site-transformation by the architect office of *Gino Zucci*.

Worldwide participation
Reykjavik with its surrounding communities has approximately 200 000 inhabitants. In the heyday of the economic boom fuelled by the liquidity of the Icelandic banks the new bourgeoisie in the Icelandic capital readied themselves to move into new flats in housing-towers of up to 20 floors by the waterfront. It particular the *Skuggaverfi* project offered such opportunities. However with the financial collapse after 2007 many of these projects were abandoned. People living behind the *Skuggaverfi* development however remain physically of not metaphorically 'in the shade' due to the fact that the towers block the sun's rays, particularly as the summer solstice rises to only to 50° at most while in winter the sun rises to only 3° here at 64°N.

In many if not most of the capitals and bigger cities of the world strong political, economic and ideological forces exist exhorting the need to build high. In January this year the 828 metre and 160 floor high *Burj Khalifa* opened in Dubai after six years under construction. It is the tallest building in the world and was designed by *Skidmore, Owings & Merrill*, the Chicago based architects who have been in the skyscraper business since 1936.

In Paris one of the ideas for the future of the city, launched by President Nicolay Sakorzy, is to build a 40 kilometre long wall of skyscrapers around the French capital.

The Baltic challenges
Estonia, Latvia and Lithuania achieved their independence from the Soviet Union in 1991. The capital city of each country fortunately retained its historic 'old town' centre more or less intact. Characterising each was the medieval layout with narrow, winding streets, open-air markets and other public spaces and buildings of most types, styles and ages, all of which were low with a maximum of, at most, six floors.

The exception was usually a large city centre hotel approximately twenty-stories high built in the 1960s or 1970s. For the rest, modern buildings were primarily housing with flats in the so-called *Krutsjov* or *Bresjev* style further away from the city centres and sometimes reaching eight or ten floors in height. In Riga the 'Stalinist` Palace of the Collective Farmers, later the Academy of Science, the broadcasting house, the press centre and the television tower could all be added to the skyscraper endowment of the Soviet inheritance.

It would however be fair to say that 'high-rise' construction – at least in terms of building height - in these cities has historically meant the church, its bell tower or the watch tower of the castle. For Vilnius it is the 68 metre high bell tower of St. John's church (1571). For Riga it is the 123 metre high St. Peter's church spire (rebuilt with a steel skeleton between 1967 and 1983 after it was destroyed during World War II) and for Tallinn the 124 metre tall church of St. Olav's.

Old town centres represent history, tradition and also a greater potential to generate income from tourists and local residents. (Just check the prices to buy or rent apartments in such locations). Vilnius' 'Old Town' joined the UNESCO list of world heritage sites in 1994. Three years later Riga and Tallinn were also accepted into this prestigious group.

The charming structures make all three locations unmissable tourist destinations. Developers however are also attracted to these unique settings. In Vilnius this fascination began in 2000-01 with the first 33 floor commercial building began construction. Almost 129 metres high the building was almost double the height of the previous highest in the locale, the church-tower of St. John's.

In the same year Riga saw the construction of the *Hansa Bank* (now *Swed Bank*) headquarters rising to 121 metres in height. In 2006 the 113 metre high *Tomimae commercial centre* was erected in Tallinn. Common to all is the possibility for the occupants to look down on the magnificent roofscapes of the historic buildings nearby.

Protection Zones Ignored?
Since all of these new "skyscrapers" were located in or very close to the so-called 'protection' or 'buffer-zones' allotted to the heritage sites, the new structures naturally generated a significant amount of discussion. Local grassroots activists and sections of the professional communities protested. UNESCO was, moreover, far from happy with this haphazard modernity. In particular, they were concerned about the impact on the skylines of the old town centres.

In December 2006 an international conference was convened to discuss the issues in Vilnius. It was organised by city authorities and attracted key representatives from Riga and Tallinn as well as from UNESCO. A number of common conclusions were reached for all three cities.

The advice given was that more detailed studies of the various skylines and of possible building-profiles, more openness in the processes together with planning decisions to increase the density of the already emerging high-rise zones, should be combined in a bid to halt the move towards 'eclecticism' across the entire skyline of each city. Vilnius and Riga have more or less followed these recommendations while Tallinn it would appear has not.

Who will win?
St. Petersburg has for several years seen a heated debate over *Gazprom's* plan to build its new headquarters called the *Oktha Tower*, a structure some 403 metres high in the city. These plans have been met with consistent resistance from local and international architect's organisations, patriots as well as representatives of UNESCO's World Heritage Committee. In Moscow, President Dmitry Medvedev has recently joined the groups of opponents while Prime Minister Vladimir Putin remains a supporter of this "symbol of progress". What the final result will be remains at present unclear.

A little further down the Gulf of Finland, in Tallinn, they may soon be able to take the lead in the unofficial Baltic-Nordic tall building race. As is well known, the highest building in the Baltic-Nordic area is currently the "Turning Torso" in Malmö, a twisted white tower structure, rising 190 metres towards the sky on the shores of the Øresund. But in Estonia's capital this is soon to be beaten by some 20 metres. The point is that permission has already been given to build as high as 210 metres, however only for one building!

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Map and photo of Tallinn´s famous silhouette with the 'old town' and the high-rise area Maakri Quarter ('Urban Hills') to the left. The high-rise in the centre of the photo is the 'Viru' hotel from 1972. Montage: Svein Gangsø, Osigraf

Tallinn: Just outside the protection area

Tallinn is an old and historic city. Probably its most prosperous times were during the 15th and 16th centuries when it was an important centre of commerce for the Hanseatic League. Around 1500 AD the church of St Olaf (Oleviste) was completed with a tower 159 metres high. At the time it was probably the highest church tower in the world.

In 1997 the 'old town' of Tallinn was accepted onto the UNESCO world heritage sites list. The skyline of the old town is instantly recognisable.

At the beginning of the new millennium the building boom following the privatisation of real estate presented us with developers wanting to erect high-rise buildings. The only existing high-rise buildings in the city at that time were the "Viru" hotel built in the 1970s as a hallmark to the success of the Soviet economy and the Hotel "Olümpia" built for the Olympic Sailing Regatta in 1980.

The first high-rise of the "new era" was the *SEB* (formerly *Ühispank*) headquarters in 1999. Many different opinions were aired - among ordinary people and the decision-makers alike. The conservative wing in the debate proposed that central Tallinn should follow Helsinki, namely, by having a maximum limit of eight storey high buildings.

My argument is that little public opposition currently exists in respect of the building of high-rises *per se*. It is, rather, the need to address local traffic problems, the necessity of meeting insulation requirements and the design of high-quality public spaces that primarily concerns people. For urban planners it is of course obvious that some regulation is needed to cope with the pressure from developers to maximise the building potentials of every single plot.

In 2005 I was appointed head of the newly formed Division of Comprehensive Planning of the Urban Planning Department of Tallinn. One of our first tasks was to make theme-plans for the preservation of the *milieu*-valuable areas of central Tallinn and for the position of high-rise buildings in the city more generally. The plans were adopted by the City Council in 2008 and also by the cultural heritage protection authorities at municipal and state level.

High-rise buildings were now defined as exceeding 45 metres. There are eleven areas in Tallinn were such high-rise buildings may be erected. The maximum height varies from 60 to 130 metres

with the exception of the Sitsi area where one building of 210 metres (approximately 70 floors) has been allowed.

The most suitable area to erect new high-rise buildings in Tallinn is in the Maakri Quarter. There are three reasons for this. Firstly it is in accordance with the protection requirements of the old town as a UNESCO world heritage site, secondly, it has an accessible location in the city centre and thirdly, some high-rise buildings already exist in the area. The maximum height in the Maakri Quarter is 130 metres and the degree of utilisation (maximum floor-area in relation to land-area per plot) is between 2.7:1 and 6.5:1.

All of the high-rise areas in Tallinn are situated beyond the protection and buffer zones of the old town world heritage site. The Maakri Quarter lies exactly just beyond the buffer zone to the south-east.

How has UNESCO reacted? On the 26th of March, 2010 a Technical Advisory Mission Report was issued. Their representative Ms. Margaretha Ehrström concluded:

"The strategies and objectives of the Thematic Plan are not in conformity with the preservation of the visual integrity of the World Heritage Site. There is a specific concern for the realisation of the Maakri area, which is situated on the border of the buffer zone. Plans have been approved for the construction of high-rise buildings of up to 130 metres here.

As the already realised high-rise buildings in this area already pose a threat to the visual integrity of Old Tallinn there should be no new construction of buildings of this extreme height. New constructions can be built at a lower height and more densely. The City Planning Office should also be part of the Management Committee of the World Heritage Site."

I agree that planning a dense quarter of high-rises has an additional level of urban complexity, and particularly in relation to the alteration of its skyline. The silhouette of the old town has acquired an almost symbolical value. It is, moreover, not just the artistic shape of the skyline, but also how it represents Tallinn as an historic city within a broader European context, that is important.

Adding a new "Urban Hill" – the Maakri Quarter – to Tallinn's skyline will not reduce the importance or magnificence of the silhouette of the old town, as I see it. The borders of the quarter are already defined by the existing high-rise structures. New buildings can be erected between these to complete the chaotic and broken shape of the skyline as it is at present. To get the best spatial composition an architectural contest should be arranged for the whole area.

In my view two "Urban Hills" could compliment each other expressing both the age and the vigour of the capital city of Estonia.

By Endrik Mänd
Chief Architect of Tallinn

St.Petersburg: Uncertainty over Gazprom's tower

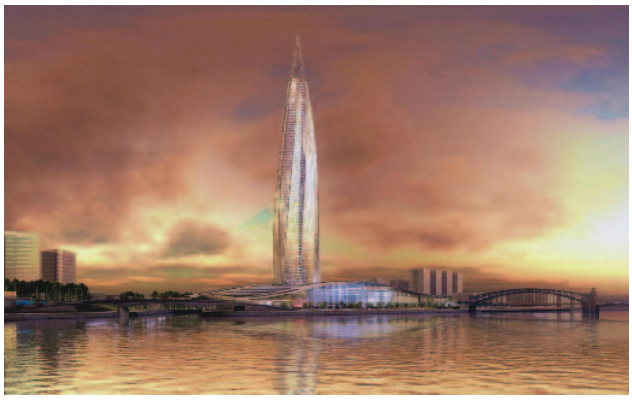
The construction of *Gazprom's* 403 metre Okhta tower in St. Petersburg has been dividing the city since 2006. Even Russia's ruling partnership is participating in the debate though each party seems to be starting from a rather different viewpoint. Earlier this year President Dmitry Medvedev came out publically calling for a halt to the construction since it could harm the city centre's position on the UNESCO World Heritage list. On the other hand Prime Minister Vladimir Putin has consistently supported the tower, saying it will help to revive the city's economy.

The tower's chief architect Philip Nikandrov's economic argument is that moving the head offices of *Gazprom-Neft* will bring the equivalent of $631 million annually in taxes to the city. In addition 60 billion roubles ($1.9 billion) will be invested in the building's construction. The architect also notes that: "There are 28 industrial structures in the city that are up to 310 metres in height and they do not have any historical value – so the city needs a dominant feature higher than them." (Moscow News 07/06/10) St. Peterburg's Governor Valentina Matviyenko also supports the tower.

Critics argue that the tower will have a ruinous impact on the view of the Tsarist-era monumental buildings and on the city's townscape more generally. Both the St. Petersburg Union of Architects and the International Union of Architects have also protested against the structure. The maximum permitted height of buildings at the proposed site is 48 metres or less than 1/8 of the planned building. The tower will therefore completely dwarf the historic Smolny Monastery on the opposite embankment, critics argue.

An interesting side issue here is that of tourism. Here the opposition argues that the tower might reduce the number of visitors to the historical city. Supporters on the other hand note that the tower will provide the possibility to really enjoy the beauty of the city – from a viewing platform high up in *Gazprom's* new "flame". The design of the building itself is in fact based on the image of the gas flame.

By Odd Iglebaek



Artist rendering of *Gazprom's* tower.

Model of Riga, the white areas are existing buildings while the light blue areas denote potential new developments. The white buildings in the foreground bordered by green areas highlight the 'old town'. On the other side of the river the light blue buildings indicate where, and to what extent, high-rise development can take place. The white tower on the the far side riverbank is the new *Swedbank* headquaters. Photo of model provided by the City of Riga.

Riga: New "high-rises" across the river

By 1991 and the establishment of the new Latvian state its capital Riga had, as a result of the mixture of Soviet ideology and the provincial adaptation of global trends, acquired four high buildings and two technical high-rises in its central part – thus, irretrievably losing the chance of being a humanely flat city with fragile church spires rising in its centre. The four buildings were the hotel "Latvia", the Ministry of Agriculture, the press tower /Publishing house/ and the TV centre.

In 1997 some 438.3 hectares of the historic centre of Riga were accepted onto the UNESCO World Heritage List. Surrounding the heritage site here is a further 1520 hectares of protected area or buffer zone, which includes part of the new high-rise development opposite the old town on the left bank of the River Daugava.

The beginning of the 21st century has seen many new challenges emerge for urban planners and politicians in Riga. The artificially created real estate market and the practice of speculation resulted in a euphoria of endless development and possibilities. Project developers required high and dense construction in almost all areas surrounding Riga city centre and actively used political lobbying to fulfil this desire. Urban planning started to resemble scheming and the liberal development plan adopted at the end of 2005 revealed several instances of spot zoning.

These densification and high-rise tendencies also affect the new centre of Riga in the areas adjoining the River Daugava, leading to a disjuncture between planning and scale. The planned group of high-rise buildings on the other side of the river directly opposite Old Riga, including a 121-metre tall office building constructed in 2004, resulted however in some disquiet and ultimately to further UNESCO involvement.

UNESCO threatened to exclude Riga from the endangered monuments list and in response Latvia promised to produce a silhouette concept for the left bank of the Daugava that would ensure a balanced approach and the preservation of the integrity of the complex monument that is the old centre of Riga.

Hard work and continual consultation between 2006 and 2009 resulted in a compromise which saw areas of high-rise buildings follow the main transport crossings over the Daugava thus retaining the pyramidal nature of Old Riga as well as the potential for compact urban development.

Discussion about the high-rise buildings located in the proximity of the historic centre of Riga created a remarkable level of public involvement leading even to the creation of a new non-governmental organisation, namely, *the Movement for the Left Bank of the Daugava*.

Public opinion tends to be poorly reasoned, emotional and favour financially lavish projects (such as the suggestion that the city of Riga purchases the area intended for high-rise development with a view to creating a city park there instead), yet the presence of strong public opinion certainly increased the level of responsibility of urban planners and project developers as well as the quality of spatial plans and projects.

The centre of Riga has always been "a violator of boundaries" particularly in respect of its surrounding medieval-origin fortification walls. In the mid-19th century the ramparts were pulled down, making it possible to create a green belt around the old town of Riga and a boulevard circle saturated in eclecticism.

In the late 19th century and early 20th century, development was both rapid and broad in scope. Riga was the main port of Tsarist Russia, starting in 1899 when the first *Art Nouveau* building was constructed the city centre was to acquire some five hundred of them by 1914. In only a few decades the population of Riga doubled reaching half a million people and the city centre area was spatially filled.

Construction in the centre of the capital city has always been and will remain a special focus of attention for politicians, architects and urban planners. In the years after the original Latvian state was founded in 1918, a period which saw the country acquire considerable wealth but lose its way in terms of democratic governance, the spatial environment of Riga was also transformed. By removing some of the medieval buildings in the centre of the old town Dome Square was created. Here a huge building for the Ministry of Finance was erected, and if it had not been for World War II, a town hall – a direct imitation of that in Stockholm - and a bulky building for the Post Office Savings Bank would have also been built at the expense of the city's medieval heritage.

Planning the development of Greater Riga the architect Eižens Laube in the 1920s and the architect Arnolds Lamze in 1932 intended to redirect development and architectural accents to the left bank of the Daugava. The reconstruction project for the centre of Riga in 1969, the spatial organisation scheme in 1980 (architect E. Fogelis) and the Riga Development Plan for 1995 also intended to do the same.

Notwithstanding this, the spatial composition of the centre of Riga has been, and will remain, a compromise with some features of good taste created by the inconsistencies of the planners of different periods, Soviet ideology and the political and economic lobbyism of recent periods.

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City Architect of Riga

The 121-metre high *Swedbank* building is the first new dominating high-rise on the left bank of the River Daugava.
Photo: Odd Iglebaek

A view to the centre of Riga from the south – the River Daugava forms the main axis of the spatial composition. Photo: Juris Kalniņš.

The classical tourist-image looking along Dawn Gate Street towards the high-rises at Snipiskes on the northern side of the River Neris.
Photo: Gediminas Rutkauskas

Vilnius: Heated debate produced new policy

Vilnius old town (some 359 *ha*) was placed on the UNESCO World Heritage List in December 1994. The site comprises a picturesque landscape and the old urban core of the city which survived the Second World War and the Soviet era without major damage. One high-rise building, the Hotel Lietuva (currently the *Radisson Blu Hotel Lietuva*), which is 22 floors high, was however built on the bank of the River Neris just opposite the old town.

Most of the intensive urban development undertaken during the Soviet era took place away from the old town and did not really impact on the city's unique and historic environment. The new housing districts of Zirmunai, Karoliniskes, Lazdynai built in the 1970s and 1980s were, as such, successfully and unobtrusively inserted into the natural landscape. These areas also came to be showcased as 'successful urban solutions' all over the Soviet countries and, as such, were highly prized by Moscow.

A distinctive planning tradition in Vilnius can be traced back to the early 19th century when the city was the major north-west regional centre of Tsarist Russia. Since then Master Plans for the city have been regularly adopted.

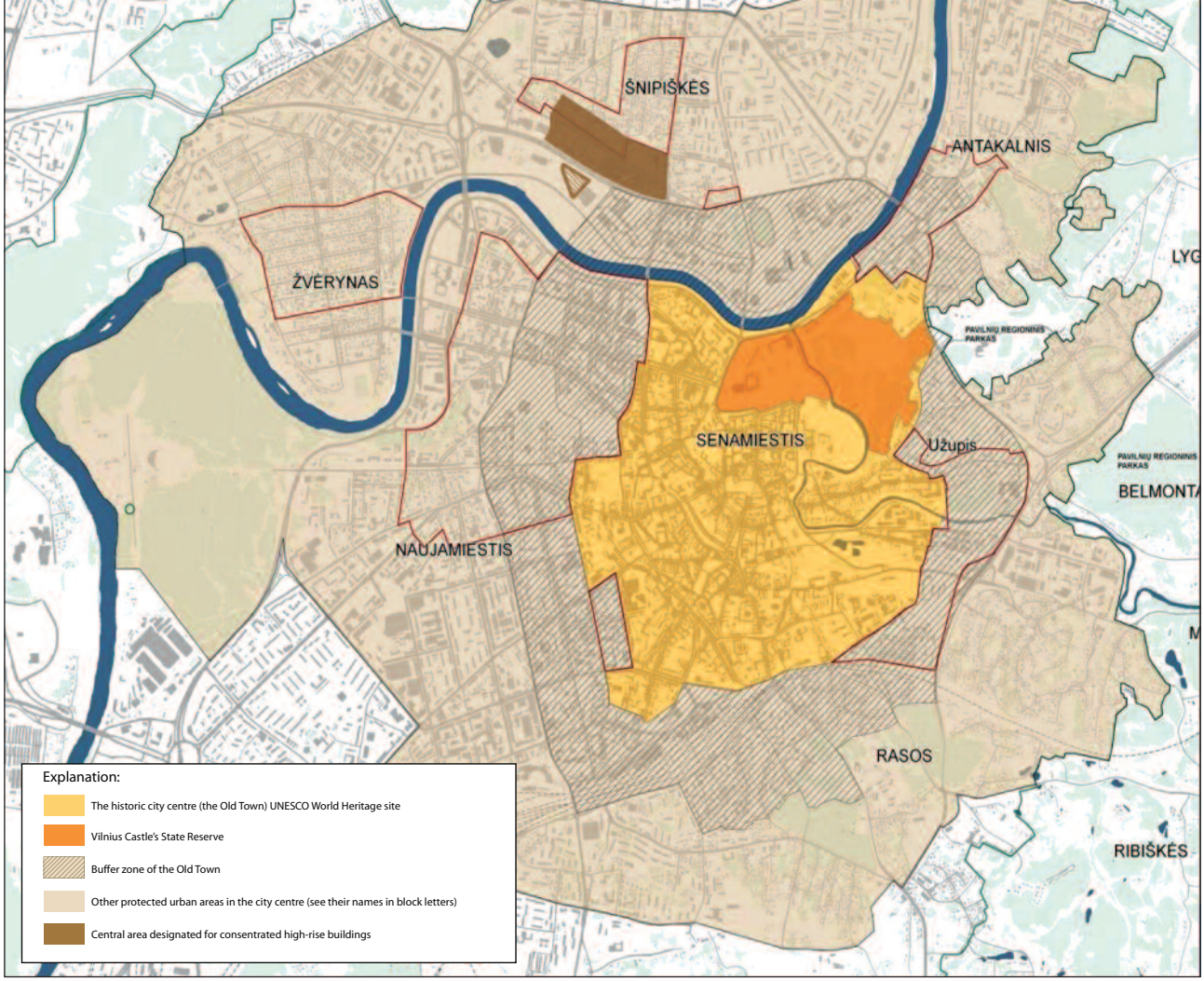
The notion of 'urban hills' launched in the early 1980s by local architect A. Nasvytis is also important in this respect. The concept reflects the fact that the height of the landscape of the historic centre of Vilnius varies from 76 to 230 metres above sea-level and has become an important tool in safeguarding the distinct character of the city.

The first master plan to be developed after Lithuania gained its independence from the Soviet Union in 1991 was approved by the City Council in 1998. This plan did not have any special regulations in respect of high-rise construction.

Only a few years later, however, the first of the new generation of high-rises buildings started to rise around the Hotel Lietuva, In parallel with this the Vilnius city government, headed by the young and ambitious Mayor Arturas Zuokas was at this time eagerly engaged in creating a new and 'modern' downtown area in the Lithuanian capital.

A heated debate began and soon articles in the press and features on TV and radio found their way into the public domain, relaying all of the political wheeling and dealing. The 'Building Height Regliament for Vilnius City Central Area' developed in 2002 by Vilnius Technical University should also be included as an integral part of this debate.

In 2006 a regional conference on high-rise and heritage was organised by Vilnius municipality and the Old Town Renewal Agency – a citizen's interest group. The conference was also attended by urban planning and heritage management experts from UNESCO and from neighbouring Riga and Tallinn. (For conclusions, see separate article.)



The historic city centre of Vilnius, its buffer zone and the protected urban areas

Eventually consensus was achieved between the experts, property-developers and citizens through the new plan "The Scheme for the High-rise Constructions in Vilnius' City Centre Area", adopted in 2006.

The key feature here is that high-rise buildings are allowed on only two sites. If additional new high-rise construction is envisaged then a special plan and a comprehensive impact assessment of the urban intervention must be developed by the initiator.

Operative planning implementation also includes monitoring of the city centre's panoramas. A 3D model, a GIS database as well as a physical model of the City Centre at 1:1000 are also employed to visualise projects for new development in the existing urban and natural landscape.

Thus far some 30% of the initially planned high-rise buildings have been built in one of the designated areas, the Snipiskes district on the right bank of the River Neris while only 10% have been constructed in the other area on the western edge of the city centre.

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Abird's eye view of the new 'downtown' are at Snipiskes
Photo:Linas Sinkevicius

Copenhagen city centre skyline seen from *Vor Frelsers Kirke* in Christianshavn. To the far left *SAS Scandinavian Hotel*, Amager, 26 storeys high. Just to the right of the centre of the picture is the tower of Copenhagen Townhall (*Rådhuset*). Photo: Rasmus Ole Rasmussen

Between verdigris spires and glass towers

Copenhageners appreciate the city's skyline with its verdigris green towers. The best view of the skyline is from the clover field of Amager where a spacious view of the city can be had including the 'bourgeois' manifestations such as the 105.6m town hall tower, the Christiansborg Parliament building 104m tall which towers above the churches: "*Vor Frelsers Kirke*" which has a twisted spire of 86.6m, "*Helligåndskirken*" and "*Christianskirken*". Christan IV built the stock exchange, *Børsen*, in order to turn Copenhagen into a European commercial centre and the Round Tower for scientists in order for them to be able to look out into the universe. All of the buildings are discrete yet visible as vantage points. A total of ten towers form the city skyline. When they were built there was no public debate on the pros and cons of tall buildings.

On the edge of the city centre we can see the *Hotel Europa* (1955), the *Royal Hotel* and the *SAS Hotel* (1960). Between the towers Copenhagen is characterised by a relatively unbroken flat profile. The city did not participate in the international trend in the construction of tall buildings which began in the 1920s. The general principle, adhered to since then by city planners, is that the size of new buildings should relate to their surroundings.

During the last economic boom tall building projects did however finally start to appear in the centre of Copenhagen. In particular controversy erupted because of six tall buildings planned for *Krøyers Plads* in Christianshavn. They were only 55m tall and were sketched by the Dutch architect Eric van Eferaat. The project was however terminated at the planning stage. If nothing else, what came out of this was that from this point on Copenhageners were seen to be ready to seriously discuss any suggestion for a new tall building project which emerged.

Tivoli and Scala

In November 2006, Tivoli initiated an architecture contest which was won by *Foster and Partners*. This caused heated debate, not least because the 102m tall tower would challenge the town hall tower and because the castle in Tivoli would have to be demolished.

In 2007 an architecture contest was issued for a tall building across from Tivoli, where a cinema, *Scala*, is located. Architects from the firm BIG won the contest with a 130m tall building swung with an exterior stairway sequence from Axeltorv halfway up the building.

In spring 2007, the Lord Mayor launched a debate on tall buildings in Copenhagen. In the discussion paper *Tall buildings in Copenhagen – strategy for the city's profile,* tall buildings are attributed many qualities: They create identity when big city regions are competing, they can serve as driving forces for urban development, they have great symbolic value, they create proximity, they express urban life, they create identity and are sustainable. These are just a few of the 'magical' qualities often assigned to tall buildings, which in reality however, remain rather dubious.

Desire for Landmarks

It seems then that, in Copenhagen at least, ambition in respect of tall buildings is driven by the desire to build landmarks and symbols. After all, Malmö has its 'Turning Torso'. Moreover, in the suggestion for the municipal plan 2009 a common argument in support of tall buildings is that they strengthen the image of Copenhagen as a dynamic metropolis and e.g. attract more international companies and tourists. Buildings can be used for a lot of things, but with this kind of objective such narratives rarely have a happy ending.

Copenhagen's tall buildings thus find themselves in the middle of an ongoing struggle between two rather different sets of interests. On the one side are, typically, the city's residents who want a relatively low city and who in any case want to maintain the medieval town ambiance represented by the verdigris towers. They believe that this is Copenhagen's distinctive feature and the city's strongest brand. A survey from 2007 showed that 7 out of 10 Copenhageners were against tall buildings within the embankments.

On the other side of the debate are the representatives of local government, developers and branding consultants. They believe that the city needs to show itself as a dominant modern metropolis and must therefore have tall buildings that visibly tower over the old city and serve as architectural showpieces.

Low city-centre zone

This spring, the municipality of Copenhagen presented a new suggestion for the municipal plan 2009. It was at this time that the debate on tall buildings was to be actualised in the binding plan. It is clear however that the recent public debate on tall buildings in Copenhagen has taken its toll. The main proposal however only forwards a single negative plan by marking out a zone where no tall buildings can be built. This zone comprises Christianshavn and the inner city to the lakes.

In addition no overview was made of where tall buildings could be built beyond this zone. Instead tall buildings are laid out half hidden in loose area plans and framework conditions. The tall buildings which for the moment have been laid out are placed in large new extension areas. Along the way however, more tall buildings will ultimately appear.

Ørestaden and Carlsberg

As an expansion area Ørestaden has come quite far. Here, south of *Fields*, which is the largest shopping centre in Scandinavia, tall buildings as high as 85m are being built. The *Copenhagen Towers* project, with hotel and office space, has to be completed before the COP15 meeting in December. The so-called 3rd generation office structures have been designed by the architects *Foster and Partners* in cooperation with *Dissling and Weitling.* Between *Fields* and the *Bella Center* tall buildings of 40-70m can be built. Ørestaden as well as the waterfronts of Marmormolen and Nordhavnen is owned by the municipality of Copenhagen and the state.

The area of Carlsberg used to be the site of a large brewery complex. Now labelled 'our new city' in the coming years it will be extensively transformed. The development of Carlsberg is managed by *Carlsberg Properties*. New buildings will be built between the large, attractive, production buildings.

In total, Carlsberg contains 600 000 m^2 of new floor space. Nine tall buildings can be placed here. The tallest may be up to 120m and the others between 50 and 100m. They will appear as scattered and pronounced towers in an area which will otherwise have the same character as the surrounding parts of the city.

Highest building in Denmark?

Marmormolen and Langelinie will be connected by an elevated walkway, designed by the architect Steven Holl, running between two tall buildings. They are quite distinct and it is hoped they will serve as a landmark for the new harbour development at Marmormolen, Kalkbrænderihaven and Nordhavn. This is the newest and largest urban development area where tall buildings may be constructed. The high-rise building at Marmormolen, at 148m, will be the tallest in Denmark.

A final urban development area which must be mentioned here is in Valby. Tall buildings can be built north of Torveporten and in the area of the old vegetable market which will be transformed into a dense new urban area.

Plans also exist to build nine slim, tall buildings of up to 21 storeys in the old industrial area at Krimsvej, which is located across the new Amager Strandpark. The tall buildings at Krimsvej appear to be a central ingredient in the transformation of the industrial area as was the case with Carlsberg. The outline for their suggested function is however somewhat strange.

The local plan, which was up for discussion until 30 September 2008, noted that: For the tall buildings it is important that they have slimness, limberness and an architectural quality which lives up to their function as the city's points of orientation along the coast.

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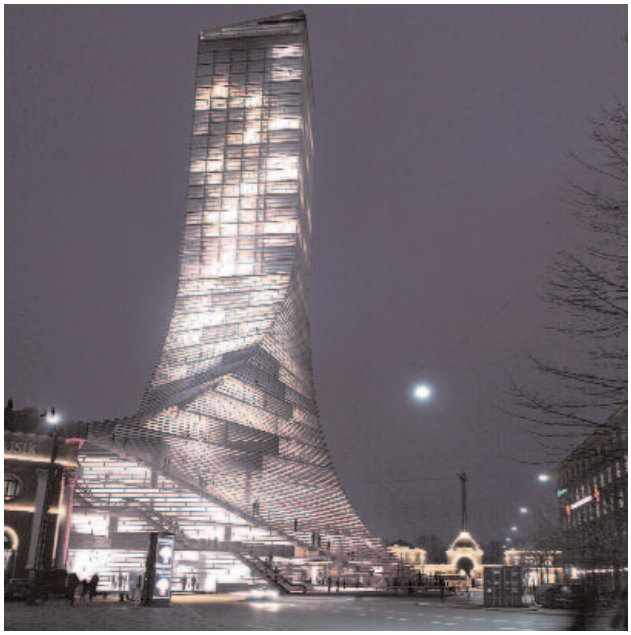
Copenhagen city centre with the new Opera house to to he right. The green dome is *Marmorkirken*. Part of Christianshavn in the foreground. Photo: Rasmus Ole Rasmussen

Who wants to live the 'high' life?

The municipality asks itself who wants to live in tall buildings: Tall buildings used for residential purposes can offer attractive living spaces with a panoramic view for people who would like to live in a place with a strong urban identity. Surveys point to the fact that such residences are especially desired by people with a modern, urban lifestyle who give high priority to work life, urban life and proximity to cultural opportunities. Meanwhile, there is reason to believe that more people will be interested in living in such tall buildings in the future as lifestyles and consumption patterns change.

This may be the case, but the municipality itself however refers to an interview survey from Rotterdam which shows that only 1-2 percent of the population would like to live in a tall building.

The municipality's strategy for tall buildings thus remains problematic. It is as if they had not yet realised why tall buildings were necessary or what it is they actually contribute. The proximity which is spoken of can more easily be achieved by means of other settlement forms.



BIG's architects 130 metre high Scala project at near.

The role of the *Metro*

Copenhagen has recently built a number of new *metro* stations with even more on their way. This represents a radical change in the city's *modus operandi*. Without *metro* stations Copenhagen would have few centres where the construction of a concentration of tall buildings successfully exploited the increase in traffic capacity. Thus the *metro* stations provide the city with significant development opportunities giving rise to more fundamental discussions over the city's structural development and character.

There is not, as is sometimes suggested, an automatic affinity between popular and low construction. The advanced popular perception can definitely be expressed in tall buildings as a delicate way of building, if the problems that are connected to it, such as price, climate condition and the urban space at street level, are resolved.

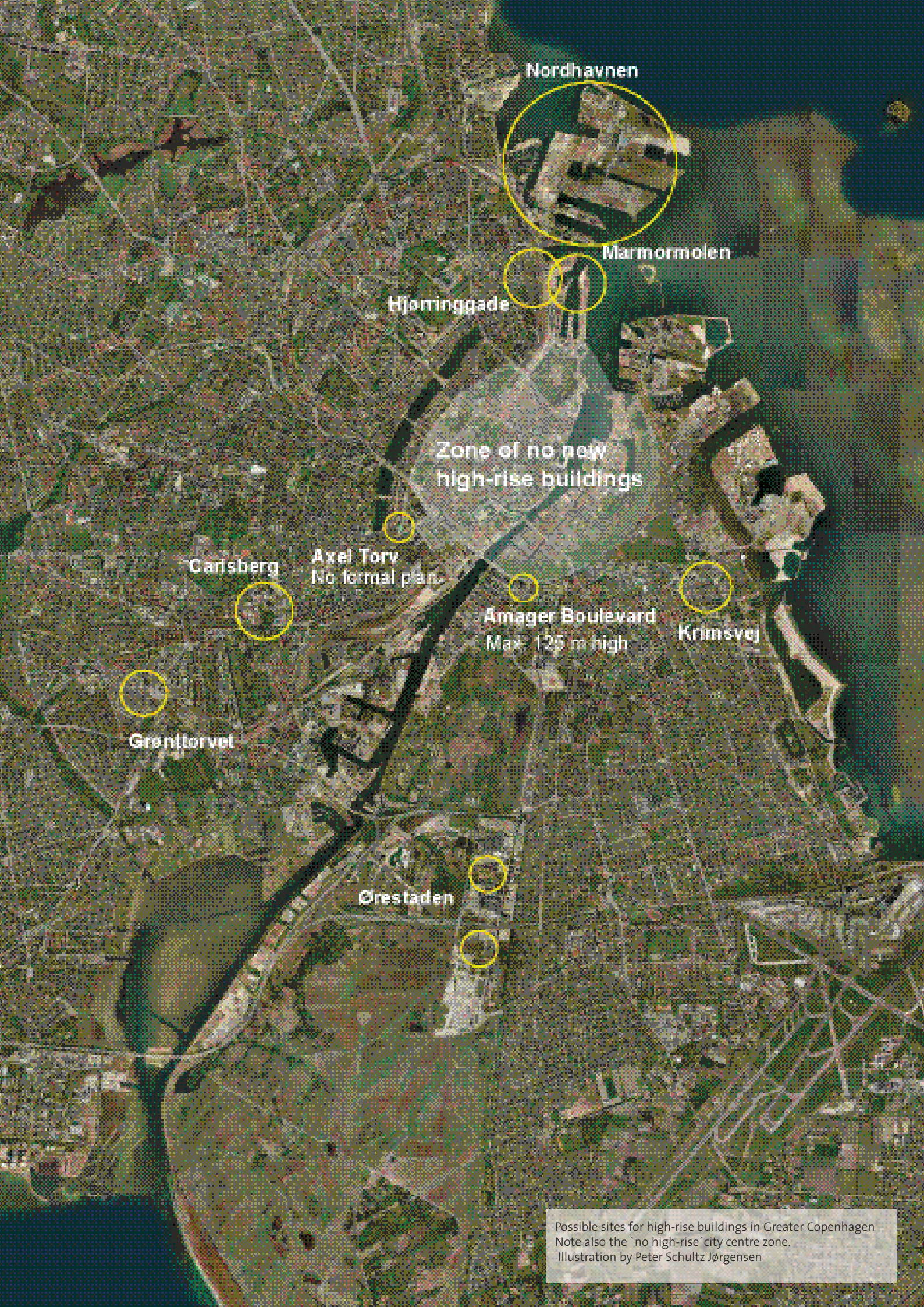
The ecological issue

By mixing functions in the building and by looking at the tall building as a completely new ecological type of construct it becomes, it is argued, an interesting type of building that seems well suited to Copenhagen. But we also see a lot of tall building projects which represent rather more the suggestion of a 'vision for the future of urban life' – created by the methods and ideals of the past – only more imaginatively than before. BIG's *Scala* project is an example of this. The 'mountain' on *Islands Brygge* however does seem to suggest the future.

There is nothing mysterious about tall buildings. New York has a lot of them, and there they have no debate. In Hong Kong there are more skyscrapers than in New York. Here the agenda is clear – forwards and upwards – but also here there is not much to discuss. In Copenhagen there are very few no tall buildings but there is a lot of debate. There is also a need for this. Why, how and where shall we build good tall buildings?

By Peter Schultz Jørgensen (psj@city.dk) architect and urban planner, currently works as a development consultant in the Culture Department in the municipality of Roskilde. In his spare time he has written extensively, in the Danish media, on Danish urbanism.

Translated by Lise Smed Olsen



Possible sites for high-rise buildings in Greater Copenhagen
Note also the `no high-rise´city centre zone.
Illustration by Peter Schultz Jørgensen

Aerial view of the new luxury flats at *Skuggahverfi*, Reykjavik seafront. Photo: Snorri Þór Tryggvason

Reykjavík Horizon

The landscape and natural setting of the Reykjavík capital area is characterised by a long coastline with many peninsulas, inlets and bays, the undulating topography of hills and valleys and the surrounding open sea and mountain range in the distance. Here, high-rise buildings are relatively few and far between. This is a low-rise and spread out city.

The historical town centre is located out on the main peninsula. In the area of the old town rises the city's most recognisable landmark, the church tower of *Hallgrímskirkja*. The church was designed by the renowned and prolific Icelandic architect Guðjón Samúelsson in the 1940s. It was designed to stand atop Skólavörðuholt hill which is 40m above sea level with a tower consisting of hundreds of basalt like columns to support it rising 75m above the surrounding low-rise buildings. As a recognisable urban landmark it towers above all other buildings in the capital area, unsurpassed in terms of visual impact since it was completed and consecrated in 1986.

While only a few thousand inhabitants lived in Reykjavik as recently as the early 20th century the city and its surrounding municipalities now host more than 200 000 inhabitants. During this last century Reykjavik and the surrounding towns grew more rapidly than many other European cities. This saw urban expansion extend inland away from the historic town centre, along the coast and up the hills leaving the old city centre on the periphery of the main urban trajectory.

High-rise buildings were to affect the city skyline much later here than in many other cities of Europe or the USA. The first systematic introduction of high-rise buildings came with the masterplans developed in the late 1950s and 1960s. Until then most of the prominent buildings on the skyline were either churches or other public buildings. The post-war years were however to see increasing housing needs for the ever growing population and a comprehensive plan was thus produced to put new land under construction. The strategy was to build higher on higher ground and to leave the valleys for parks and recreational areas. As a result numerous 8-14 storey high-rise housing developments were built on the hills across the city. Following this pattern most of the prominent new buildings introduced to the previously sparse urban landscape were for housing.

The whole of the capital urban area is characterised by extended growth and expansion escalating continuously from the middle of last century. The urban area covered is greater in relation to the number of inhabitants than that found in most other cities, with over 200 000 inhabitants occupying approximately 230 sq km of land. In this vast landscape urban development relies on the principle use of the private car resulting in a low density city, much open land, poor public transport, heavy traffic infrastructure (more than 40% of the land area is occupied by the road network and associated traffic infrastructure) and relatively few high-rise buildings.

To counteract this development a strategy of city densification emerged as a key issue within the Reykjavík planning office. An integrated urban strategy for the capital urban area and all seven connected municipalities has however traditionally been lacking with economic growth and urban expansion generally resulting in increasing competition between municipalities rather than cooperation towards an integrated urban whole. Following the

Skuggahverfi seen from Hallgrímskirkja. Photo: Snorri Þ. Tryggvason

need for general densification a number of high rise developments have been introduced, the most recent and tallest high-rise building being *Turninn* in the neighbouring municipality of Kópavogur, a 77m 19-storey office tower.

Today high-rise buildings, designed for either commercial or residential purposes, appear in a variety of settings and contexts. One noticeable high-rise cluster in Reykjavík is the luxury housing development by the coastline at *Skuggahverfi*, a northerly facing area in the shadow of the main hill of the old town. Numerous high-rise buildings can now be seen here in various states of completion, construction or renovation. This housing development has been underway since the late 1980s. This extended development was partly conceived as a response to increasing criticism in respect of urban sprawl and the call for the densification of the city. The extended development consists of a number of towers, the tallest (still under construction) being 16 storeys high and when completed the whole project will provide 425 luxury flats in downtown Reykjavík. Building here saw the redevelopment of an old industrial area. The project has however attracted significant criticism because of its lack of contextual integration with the existing endowment of low-rise historical buildings. The same concerns arise with the *Höfðatorg* high-rise development, by architect Pálmar Kristmundsson. *Höfðatorg* is currently under construction in the financial district some distance from the centre of town and will tower 70m and 19 storeys above the surrounding low-rise neighbourhood.

Densification is the leading topic in the current urban discourse. The planning strategy for Reykjavik has been to increase density and address the complex challenge of densifying and reshaping the urban landscape. The Reykjavik urban area has a history of expansion, particularly in the post-1945 period, and with the almost limitless land available for new building the increasingly acute need to address existing urban problems tends to get overlooked

With Reykjavík located at latitude 64°N experiencing a turbulent confluence of gulf stream winds and the northerly arctic storms, and where wind gusts can thus be difficult and strong, the issue of climate and high-rise development is an important one as any urban obstruction can escalate winds if not carefully planned and constructed. The sun at summer solstice rises to only 50° at most and at winter solstice to only 3° leaving long shadows all year around in the wake of any high-rise building. Consequently any high-rise development demands increased ground space to prevent the casting of shadows on the surrounding buildings.

The challenge ahead for the municipalities is then to address the need for densification while integrating new development with the existing urban sprawl. Due to the current economic crisis the opportunity now exists to halt the seemingly endless expansion of the city and to question how we wish it to develop in future. Central to this debate is the question of the need for further high-rise development. No clear strategy has emerged in recent years on this issue, either in terms of *where* to build or indeed *whether* to build at all, but with the recent appointment of Ólöf Örvarsdóttir as director of Reykjavik City Planning the necessary work is now under way towards the development of a strategy for the future.

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8-14 storey high-rise housing developments from the 1960s around the city centre. Photo: Odd Iglebaek

Helsinki skyline towards north and east. To the right the green dome at the white Helsinki cathedral on the Senate square. Photo: Odd Iglebaek

No skyscrapers yet in Helsinki

HELSINKI IN APRIL: *Hotel Torni* is the only tall building in downtown Helsinki, it is a slim tower rising some 14 storeys and buttressed by a *carré*-type building structure of approximately half that height. From the viewing balcony on the top you have a great view, several kilometres in all directions – there are, however, no other ´skyscrapers` to be seen. Only the chimneys of the power stations and some church spires provide prominent definable landmarks. To the east the green and white dome of the capital's cathedral is clearly visible.

In the southerly direction the eye soon attains the horizon of the Baltic Sea. To the north lies the central business and retail district but this soon gives way to green areas. Glancing west I hope to catch a glimpse of the only two modern high-rise buildings in the greater Helsinki area. They are located in Espoo some 15 km away. Both are some thirty storeys high and are the headquarters of the mobile-company *Nokia* and the energy-company *Fortum*, respectively. There is also one tower, containing flats, approximately the same distance away in an easterly direction, more or less on the border of Helsinki municipality. It is not, however, possible to see any of these buildings with the naked eye even on a clear day as they are too far away.

Sensibility

-´Skyscrapers` have of course been discussed for a long time by planners and politicians in Helsinki but except for the *Hotel Torni*, built in the early 1920s, they have not materialized. Just before the outbreak of the war there were 5-6 projects under consideration but none subsequently came to fruition. This was also the case with the plans to build an office block of twenty storeys just after the war. In all cases what I call 'sensibility' won out, states Mikael Sundman.

Sundman is one of Helsinki municipality's senior public planners. He has been a long time follower of the development of Helsinki's cityscape and of the city more generally. At present he works, predominantly, as the project manager for the

It is quiet at Pasila after the railway freight-terminal moved to the new Helsinki harbour. Photo: Odd Iglebaek

Gino Zucci´s award winning scheme for Pasila with 30-storey high buildings. Montage by Helsinki municipal urban planning office.

transformation of the city's Kalasatama (Fisherman's Wharf) area an old harbour district in the eastern part of the city.

- Many companies would of course like to have the advertising exposure that a high-rise development brings, but that is not enough to gain permission to build. What you really need is public acceptance that such a structure could be a benefit to society more generally. If you can generate that, I guess that you could also gain official acceptance here in Helsinki, Sundman continues. He adds that he is surprised by the high-rise developments in other Nordic capitals, particularly in Oslo and to some extent in Stockholm: - Do they really need these structures, he asks.

Thirty storeys high in Pasila?

- Plans remain on the table for multi-storey buildings in Helsinki. For example in Kalasatama plans exist for two towers each of 16 storeys. In Pasila, 3 km to the north of the city centre in the old railway yard, Gino Zucci he winners of an architectural competition showed buildings rising thirty-plus storeys high. Here we are talking about the potential to develop a new business centre, something like La Défence in Paris, Sundman explains.

New harbour

A few months ago Helsinki opened a completely new cargo harbour at Vuosaari some 20km from the city centre. Vuosaari is a medium-sized European harbour handling 12 million tonnes of goods yearly, more or less all container-based. By this movement prime development areas in both the western (Länsisatama) and the eastern (Kalasatama) parts of town became available. The development of a new facility at Vuosaari also released much of the land formerly occupied by the railways in Pasila.

3 million m²

With an exploitation-rate (floor-area relative to land-area) of 1.5-2.0 it is possible to build more than three million square metres

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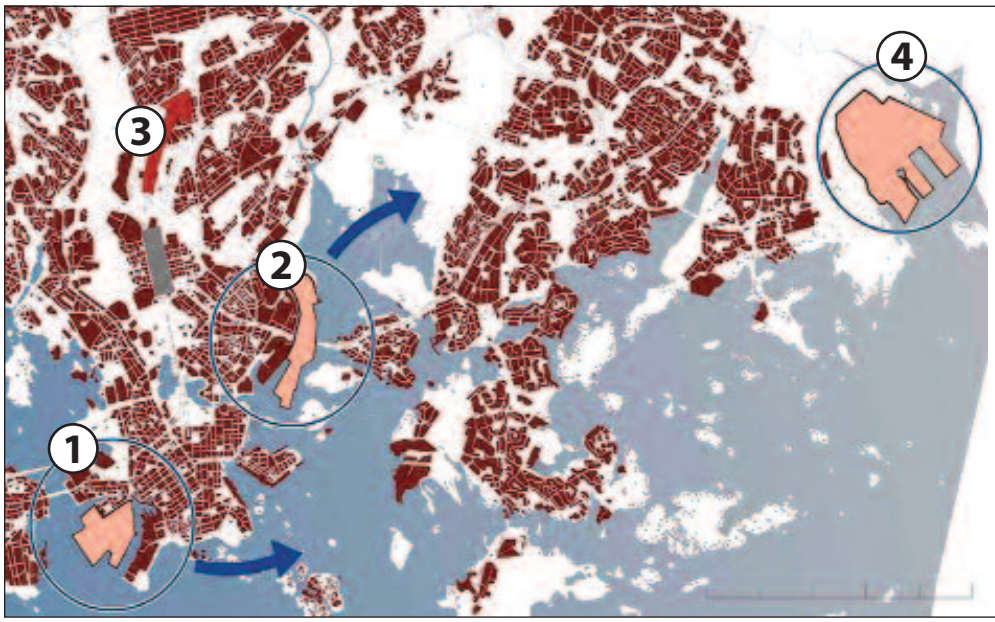

Map of Helsinki showing the relocation of the western harbour (1), the eastern harbour (2) and the railway freight-terminal at Pasila (3) to the new harbour (4). Map provided by Helsinki municipal urban planning office.

Helsinki skyline to the south (The Baltic Sea) and west. Photo: Odd Iglebaek

of new floor-space in the inner city. - That is equivalent to providing 40 000 new houses and 30 000 workspaces, quite significant figures for a city with just over half million inhabitants, says Mikael Sundman who adds: - I think we are talking of a development potential equivalent to that of Nordhavnen in Copenhagen or the old harbour area of Hamburg, some of the largest central city-sites in northern Europe.

New underground extension

Helsinki has also begun construction on the expansion of the underground passenger transport system. Thus far the trains run along a system some 10-15 km long, generally in an east-west direction following the city structure which over the decades has developed along the coast. The plans are to expand the line by some 10-15 km in each direction. This will make it possible to commute by underground for 40 km or more.

The new subway extension opens up the potential for huge property developments along the line. Through densification and urban high-rise development the greater Helsinki area could, potentially, double its population. Some are already thinking along these lines and for example in Espoo, which except for its central area, is characterised by villas and private car transport, property developers have launched plans to build four new towers of thirty storeys each. These developments are designed to create housing within walking distance of the new underground station, when it finally arrives.

Municipal mergers

- It remains uncertain however whether Espoo municipality will give the green light to the development, explains architect Fredrik Lindberg, who is also a local politician in the municipality. He also notes that the plan to merge the municipality of Helsinki with Espoo in the east and Vantaa (with the international airport) to the north remains of major importance for the future of the Finnish capital-region.

- I am not certain how this will develop, but I know that in "my municipality" there is quite a bit of resistance. Many of the inhabitants are not particularly interested in joining with Helsinki. They are afraid that this will make it more difficult to maintain their present lifestyle, he explains.

Municipality as landowner

In Helsinki the municipality owns some 70 percent of all land. Around 20 percent is owned by private developers, while the state is the owner of the remaining 10 percent. – On municipally owned land it is, relatively speaking, much easier to ensure high

Current Kalasatama (Fisherman's Wharf) site with power-station. Photo provided by Helsinki Municipal Planning Office.

New Kalasatama (Fisherman's Wharf) site with reduced power-station. Illustration by Helsinki Municipal Planning Office.

standards and the architectural quality of developments in comparison with development undertaken on privately controlled land, notes Sundman:

- The municipality does however also sell land to private developers. Usually the principle here is that it is not the highest bidder who gets the site. Rather we fix the price in advance and the plot goes to those companies with the best projects. In this way we ensure developments of good quality, he adds. At present, land for such schemes in central Helsinki is sold for 900€ per square meter. Often four-to-five companies bid for these sites, but this number can rise to as many as a dozen.

Public involvement

On a Sunday afternoon there are few people in the new underground station at Kalasatama (Fisherman's Wharf). Therefore the large photos highlighting a possible future development scenario for the area are easy to view. The posters were provided by the municipal planning authorities of Helsinki.

In fact, the town-planning office of Helsinki has, since 2000, provided each of the approximately 200 000 households of the city, annually, with a major publication detailing all significant ongoing planning projects. The brochure also lists the planner-in-chief for each programme, including direct telephone numbers for that person. Each project also has a separate website where anyone interested can discuss the various proposals.

- The law obliges us to inform the public and this is the way Helsinki has decided to do it, explains Sundman: - Of course we receive a number of not so sensible comments or questions but for the most part they are relevant. So yes, I would definitely say it is worth it, even though it costs quiet a lot of money to keep everybody updated in this manner.

By Odd Iglebaek

Mikael Sundman
Senior Planner

The tower of Hotel Torni in downtown Helsinki

Housing and offices in east-cetral Helsinki. M=Metro.

The focus of the recent high-rise debate in Oslo has been the Barcode-project. The excavations indicate the length of the first phase of the project. Behind: The *Postgirobygget* (left) and *Oslo Plaza Hotel* (right). Photo: Odd Iglbaek

Bruising high-rise debates in Oslo

For almost a decade now Oslo has experienced a series of very bruising public debates over the question of high-rise buildings. The *Barcode project* in particular – a 350-metre long row of new office buildings, 45 to 70 metres high – has acted as the focal point for much of this debate. This project is part of the Bjørvika-development in the centre of Oslo. It is designed by the Norwegian architects *DARK* and their Dutch *MVRDV* partners. The real-estate company and property developer *Oslo S Utvikling AS (OSU)* is the owner of the project site.

Opponents of the project claim that construction will block access to, and views of, the sea for many inhabitants in the eastern part of the city. They call the project "the wall" or "the loopholes" (the embrasures). Supporters however suggest that the project represents "progress and modernity". It is perhaps more correct to see it as a set of railings rather than a massive fence, notes Erling Lae, conservative politician and for a decade leader of Oslo City Council. Other supporters have argued that the final collection of the new Barcode-buildings will "look like a comb".

Majority support for the project existed in the city council from the outset. Debate has however been long and hard, and from time to time some Council representatives, particular the social-democrates, have even called for the planning-process to be restarted. This question emerged as a particular theme during the election in 2007.

Local residents have organised numerous hearings and debates and have made proposals to the effect that the whole concept should be completely redesigned. Instead of building high, the widening of the site was proposed in addition to building over the railway lines. In this way they argued that the height of the buildings could be reduced to a maximum of 25 meters and 8 floors. In 2006, 30 000 people signed a petition in protest against the *Barcode project*. A public opinion poll in December of the same year showed that 71% of Oslo's inhabitants were against it while only 10% were in favour. Erling Lae, head of the City Council, however suggested that people had simply not been provided with adequate information about the advantages of the project.

In reality however not much has come of these protests. In late February 2008 the city council finally brought the debate to a close. The result was a reduction in the floor-space equivalent of 5-6% plus some minor adjustments in respect of heights towards the east. Thereafter opposition has been relatively quiet. Most likely they now acknowledge that the battle has been lost.

The merits, or otherwise, of high-rise buildings have of course been discussed for decades in Oslo. In the 1940s the debate concentrated on the new city-hall. In the 1960s protest stopped a high rise block initiated by *Det norske teateret* on Oslo's Karl Johan Street, the city's main parade-street. This was also the decade when *Selskabet for Oslo Bys Vel,* an NGO with the task of looking after the historical and architectural heritage of the city, initiated an architectural competition focusing on the future of the then working-class tenement housing area Grünerløkka. This proved to be a rather interesting exercise as the winners suggested flattening at least one square-kilometre of the existing three or four floor storey high buildings and replacing it with high-rise *Le Corbusier*-inspired living-machines and motorways.

This probably never came to anything because neither the politicians nor the building-entrepreneurs were really interested. They were already at full capacity building new houses in the suburbs. The 197Os saw new inroads made into the eastern working-class areas of Oslo. This time the interested tenement owners joined forces with entrepreneurs and managed – often

with the help of the police - to pull down a few blocks here and there. In their place they built "modern" flats - however no skyscrapers or urban motorways were constructed.

Many politicians, architects, planners and others also wanted to tear down the three wooden villages in Oslo - Kampen, Rodeløkka and Vålerenga - but had to give in. The protests against such plans were too well coordinated. However, a decade earlier a similar project at Enerhaugen was successful. Up in their place went three rather high new housing-complexes. Something of a memorial to the small wooden houses can now be seen at the *Folkemuseet*, the national museum for Norwegian folklore.

Parallel to these rather gruelling political fights over the future of Oslo in the eastern part of the city, in 1975 the 80 metre and 19 storey high *Postgirobygget* was erected in the centre of the city. Nobody, probably not even the architect, has ever argued that it is a nice looking building.

Some ten years later, the *LPO-architects* launched the idea of building "a slim needle" just beside the massive green-brownish *Postgirobygget.* The argument was that this would create a new *milieu.* "The needle" should be a hotel – today the *Radisson Oslo Plaza Hotel*. However, when introduced, no hotel-company would accept the needle-concept. It afforded too few rooms per floor to make it profitable to operate, they argued. The city council listened and soon the building was broadened and became like any other massive high-rise box. To maintain the needle-concept the top floors were sharpened into a broad chisel. By 1990 construction was complete and Oslo had the highest (117 metres and 37 storeys) building in the Nordic countries. Oslo held this record until the Kista-tower was erected in 2002 in the northern outskirts of Stockholm

By 2003 Oslo had a total of 100 buildings of more than 40 metres (13 floors) in height.

The writer would like to thank architect Arne Sødal, the staff of *Oslo S Utvikling AS (OSU)* and the Municipal Agency for Planning and Building Services in Oslo for their help in providing the background material for the articles about high-rise policies in Oslo contained in this issue of JoN.

- Happy to have a high-rise strategy

- Of course, we do not have to build high to express modernity, says Ellen de Vibe. She is the head of the municipal Agency for Planning and Building Services in Oslo.

The reason for asking pointedly about modernity is double-edged. Firstly, when Oslo City Council adopted their strategy for high-rise buildings in 2004, they reiterated that "high-rise buildings are an important symbol of modernity". Secondly, one of the key arguments forwarded by the planning agency is that: "Today high-rise buildings are being constructed with growing enthusiasm across Europe." In other words both the political and professional authorities argue strongly for 'building high' in Oslo.

– And now it seems like Norway's capital has edged ahead, in a Nordic sense at least, on height-concentration – particularly related to densification in the city-centres?

- The point is that we have in Oslo for a long time faced significant pressure to build high in many parts of the city. Therefore it became important to develop clear policies for high buildings. This proved to be a long process and the conclusion was that, except for Bjørvika and one other single slim building of 24 floors in the northern outskirts of the city, no buildings should be higher than twelve floors. An additional exception is also made for tower-like, sculptural buildings, notes de Vibe, the chief town-planner of the city.

- When high-rise buildings were discussed in 1991 Oslo City Council advised against building high. They argued then that the city should maintain its traditional character as "a carpet" at the bottom of the huge green amphitheatre created by the natural landscape. The same argument was subsequently deployed again and again by the city and the planning authorities in later reports and analyses, but with the *Barcode-project* it seems like this principle has been dropped and that the city will now gain a new visual expression in particular when viewed from the fjord?

- Much of this debate is linked to the fact that Bjørvika has for many years been a very open area with hardly any buildings at all. In other words it is impossible to build a town equal in size to Lillehammer without it being visible in the landscape. What we are doing now is securing commons/public spaces or "fingers" as we call them, to maintain the relationship between the sea and the hinterland. In addition we will create ample open spaces and green areas and establish several good urban spaces for people to pursue recreational activities. This is a clear and well thought out strategy for planning and I think it will be successful.

- The CEO of *OSU* Mr. Paul Lødøen has argued that the high-rise buildings in the *Barcode-project* provide an excellent approach to climate adaptation. In fact, he thinks that even higher constructions the should be allowed?

- I think the most important argument is that it is very beneficial to have a high concentration of jobs here because of Bjørvika's location with regard to public transport, says Ellen de Vibe.

She also explains the decision to build 960 000 m² of new floor-space in the Bjørvika area was taken based on an urban design feasibility studies that showed this amount was appropriate for the area.

By Odd Iglebæk

Ellen de Vibe, head of planning in Oslo. Photo: Odd Iglebaek

Aerial view of Oslo with the fjord and the `amphitheatre-landscape´. Right of the white new opera house the start of the *Barcode-project*. When finished it will stretch towards the right almost to the lake. Photo provided by *Oslo S Utvikling AS (OSU).*

Ownership and opportunities in Bjørvika

Bjørvika lies at the bottom of the Oslofjord. It is also the home of the already internationally famous, in an architectural sense, new Opera house. Located in the eastern part of the city of Oslo it is also the most important hub for passenger transport in Norway.

Oslo central railway station, including the Gardermoen airport express-train terminal and the intercity bus station are located here. Most of the Oslo-region bus-, tram- and underground transport systems also interconnect in Bjørvika. Several major hotels and shopping-centres are located close by while the area is also home to many thousands of office workers.

The new development area currently under construction is located primarily between Oslo's central railway-station and the sea. Previously large parts of this area functioned as a mixture of harbours, storage-facilities and access roads. When the transformation is complete in some 10-15 years time, 7-8000 new people will be housed here. Probably more than double the number that will work there. Close to one million square-metres of new floor-space will by then have been constructed.

The area has, over many decades, been the recipient of significant levels of public investment. This, combined with its direct access to the sea and its central location, ensured that property-values in Bjørvika remain among the highest in Norway.

Most built land in Oslo is, in ownership terms, divided into relatively small plots. Contrary to patterns across the rest of the city however Bjørvika is owned by a small number of large landowners. According to their web pages, 66% of the land is, at present, owned by the Oslo Port Authority through their company *HAV Eiendom AS* while 34% is owned by the real-estate company and property developer *Oslo S Utvikling AS (OSU).* (See: www.osu.no).

OSU is a company specifically established for the development of the *Barcode project* in Bjørvika and is owned by three of the initiating landowners in the area*; ROM Eiendom AS*, *Linstow AS* and *Entra Eiendom AS,* each holding one third of the stock in *OSU*. *Linstow* is a privately owned company, while *ROM* (Norwegian State Railways) and *Entra* (Ministry for Trade and Development) are publicly owned. From 2000 onwards the Norwegian Parliament decided that public land in Norway should be developed by ordinary (publicly owned) profit-making companies.

Their landownership status makes *OSU* and *HAV* the key economic actors in Bjørvika. Through their jointly owned company *Bjørvika Utvikling AS (BU)* - owned 66% by *HAV* and 34% by *OSU* - they claim the "potential exists to construct approximately 900 000m² of permitted floor-space […] within the zoning plan". OSU alone has the capability to produce 350 000m². These figures should be compared with those issued by Oslo City Council which has granted permission to build a total of 960 000 m² of new floor-space in Bjørvika.

This new infrastructure investment in Bjørvika is estimated to cost 2 billion NOK. The City of Oslo will pay 15% (300 million NOK) while the remaining 1.7 billion will be covered by the property-developers. The deal is that they shall contribute 2 500 NOK per m² of new floor-space constructed. The less they are allowed to build, the less they will contribute. If political decisions are taken which reduce the potential for new construction by more than 60 000 m² the infrastructure agreement will lose its validity. The total level of investment in all new structures in Bjørvika is calculated to be around 30 billion NOK. Total sales-values are estimated at between 36 and 50 billion NOK (4.0 to 5.5 billion €). In other words the project displays potential returns of 20-66%.

HAV could probably sell individual building-plots for 3.5 billion NOK in Bjørvika though *HAV* and the Port Authority also own land in Filipstad on the western side of the city where they could perhaps make another 3.4 billion NOK (*Aftenposten* 09/07/07).
The sale of Sørenga, the real prime lot in the site, with regard to proximity to the sea, saw *HAV* reap 940 million NOK. The particular lot is 35 000 m² or approximately one tenth of the

total Björvika site. Oslo City Council gave permission to build 100 000 m² of housing on the lot.

100 000 m² of the 960 000 m² total of the new floor-space planned for Bjørvika has been set aside for culture. Norway's new national opera is already situated in the area. In addition the new Deichman Library and the new Edvard Munch museum as well as a historical museum are all likely to be situated there also.

For the remaining 860 000 m² approximately half will be made up of housing with 4500–5000 new flats constructed. Some 10% of these may be set aside for social housing. The other half will be used for offices with workplaces for 15 000–20 000 people.

The total land area in Bjørvika is approximately 700 000 m². 40% of this will be used for covered with buildings, 20% will be for roads, tramlines and pavements and the remaining 40% will be parks and various other open spaces. The total length of the seashore will be some 3 km.

Formally speaking it is the elected City Council of Oslo that will make the final decisions on planning and building in Bjørvika while the municipal Agency for Planning and Building Services is tasked with preparing the plans and tabling the proposals.

From Barcode to *gullrekke* (the golden row)

The *Barcode-project* consists of around 10 high-rise buildings each 45-70 metres high, maximum 17 office-floors or 22 floors if housing, stretching a total length of 350 metres east-west between Oslo's Central railway station and the waterfront where the new Opera house is situated. Thus far three of the ten planned buildings have either been built or are now under construction.

The area of the *Barcode-project* is three times that of the opera-building. The total floor-area is 196 000 m² of which 150 000 m² is above ground-level. The area of the site is however 18 000 m² or 1/11 of the total new floor-space.

By late 2008 the design of seven of these buildings was more or less finalized. The first building, the *PCC* headquarters (12 floors and 46 metres high) was completed in May 2008. The next, the *KLP* headquarters will be finished in summer 2010 – housing office space and 54 luxury apartments – (18 floors). Next in line is the *Isfjellet* office-building designed by *Snøhetta* (16 floors and 67 metres high), the *Visma*-building (67 metres and 17 storeys) and *DnB NORs* headquarters, with three towers of 15, 16 and 17 floors respectively.

One feature of interest in respect of this project is perhaps the debate on energy-reduction. In general, modern glass and steel buildings - always a popular choice for office developments – often draw heavily on energy, both for heating and cooling. To pioneer something of a counter-movement in 2005 *OSU* the site-owners, together with *NAL*, the Architectural Association of Norway, and *Enova* the Norwegian state's authority for energy-consumption reduction, organised a competition for the most energy-conscious new office building as a part of the *Barcode-project* with the added proviso that the winner should provide an example of good practice for the whole of Europe.

In the end however they appointed two winners: Norwegian architects *Lund Hagem* who won due to their fulfilment of the actual challenges posed but in addition the Danish architects TRANSFORM were also awarded first prize – not for their energy-solutions *per se* - but rather for their spectacular glass-box design! It currently remains unclear however whether either of these buildings will actually be constructed.

Sale of the first *Barcode*-buildings indicates that a return of up to 25% on invested capital is possible. If prices remain at this level, this could see, on the finalisation of the *Barcode project,* generated profits totalling 1.5 billion NOK - to be shared between the three partners in *OSU* namely: *Entra, Linstow* and *ROM* (*Aften* 11/01/07).

- Officially the *Barcode-project* has recently undergone a name change and should now be referred to as the '*Opera-kvarteret*', explains Ellen de Vibe, head of the Municipal Planning Office.

However, when later attempting to call *OSU* to ask for a particular photo-montage of the *Barcode-project*, the receptionist replied: - Oh, you mean *gullrekka* - that's what we call it!

By Odd Iglebaek

Properties "in gold" reflect the 350 000 m² which *Oslo S Utvikling AS* can develop.
Photo-montage provided by *Oslo S Utvikling AS (OSU).*

The famous *Stadshuset*, the Town Hall of Stockholm in front. Behind the start of the new hotel- and congress-centre. To the right, the "regrets of Stockholm city planning" the five *Hötorgskraparne* built 1955-1966. Photo: Odd Iglebaek

Stockholm's famous skyline is changing

There is significant pressure to build higher in Stockholm. Already the city's famous skyline is changing. Will we soon once again see the construction of high-rise buildings in the inner-city?

Shaped by its particular topography at the meeting point of Lake Mälaren and the inner waters of the Baltic Sea, the City of Stockholm is situated within a unique natural landscape - characterized by islands and water - and thus by dramatic elevation level changes throughout the city.

The urban silhouette is particularly distinctive with a smooth horizon of buildings conforming to the natural contours of the landscape. Areas of higher altitude and abrupt elevation changes are accentuated by taller and more elaborate buildings though churches and other public buildings still dominate the skyline. In previous centuries, these features have been highlighted on the skyline and refined through deliberate planning and the rational use of these natural conditions. It seems unlikely however that such an approach will continue.

A thirty year hiatus

In Stockholm's inner city only a few older high-rise buildings, built between 1924 and 1964, are currently identifiable. For example, Europe's first skyscrapers, the *Kungstornen*, are two seventeen storey (60m) buildings constructed in 1920. A considerably taller intervention into Stockholm's urban landscape, the *Hötorgskrapor* is five identical high-rise buildings, each nineteen stories high (72m), and the twenty-five storey *Skatteskraparan* in Södermalm. Each of these projects was constructed during the 1950s.

Around the same time, a series of other high-rises were built on the outskirts of the inner-city, including the *Wenner Gren Center* (82m), the *Folksam* building in Södermalm, the *Dagens Nyheter* building (84m) in Fredhäll, built in 1964, and somewhat later, *Foahuset*. Thereafter there was something of a hiatus in high-rise building for a period of some thirty years until the *Söder Torn* was completed 1997.

The modern suburban districts at the time were characterized by somewhat dense, horizontally-orientated apartment buildings in green surroundings. Their centres usually received a tall building as a landmark, generally however not exceeding ten storeys (30m). The most well known example is Vällingby, but others include Bagarmossen, Björkhagen, Fruängen, Gubbängen, Hagsätra, Kärrtorp, Västertorp, Alvik and Blackeberg. In the same way as in central Stockholm the more elevated parts of the landscape were often further accentuated with the tallest buildings.

More recent developments however identify a trend towards still taller buildings also in the outer districts of the city. The landmark *Kista Tower* (see p 20) constructed in 2002 stands 156 metres high and is currently being followed by a neighbouring tower, as well as a high-rise building at the *Älvsjö Conference Centre* in southern Stockholm.

For many years, the planning principle was to restrict the further development of high-rise buildings in central Stockholm. However, the economic boom that began in 2000, made it easier to finance luxury residential and commercial high-rise developments in desirable locations across all parts of the city.

Building higher than 100 metres in the city?

Currently then we can see that there are several high-rise projects in the planning phase close to the inner-city – those in Alvikstrand, North West Kungsholmen, Norrtull and the harbour area are all examples of this. These buildings are expected to be significantly taller than previous high-rise constructions in Stockholm.

Current city plans include the construction of a high-rise tower exceeding 100 metres next to Stockholm's Central Station and another proximate to the City Terminal. Both buildings will be higher than the '*Tre Kronor*' pinnacle at City Hall and the *Klara* Church crown, and will clearly disrupt the overall experience of

these monuments as the defining points of Stockholm's skyline. Another is planned in the middle of Kungsholmen. Whether or not these developments will come to fruition however remains to be seen.

The development proximate to the Central Station, called '*Western City*', will entail a significantly higher building envelope than the surrounding community. The project's first phase includes a 16-storey hotel as part of the new waterfront conference facility and is already under construction despite vociferous objections prior to development. This however highlights an all too common trend of political manoeuvring within Stockholm's planning process as it is currently laid out with the city first binding itself to development contracts and once they are in place only then attempting to implement a 'democratic' planning process.

For and against

Organizations that have voiced their opposition to high-rise buildings include the Stockholm Beauty Council, the Stockholm City Museum, and the S:t Erik Association.

From a political perspective, the spectrum of support for high-rise development in Stockholm is extremely varied. At one end, the Conservatives and the Center Party are favourable to the notion of high-rise buildings in the inner city, while the Liberal Party and Green Party are strongly opposed. Between these poles are the Social Democrats and the Christian Democrats. Similarly, The City of Stockholm's Planning Department has publicly expressed caution regarding high-rise development and remarked that further feasibility and public acceptance studies are required.

Lack of plans for the skyline

With the construction of the new *Western City* hotel we find ourselves at the limit regarding damage to the public interest. The municipal plans lack a clear understanding in respect of how the city intends to care for Stockholm's skyline, commented Stockholm County's Land Secretary Carl-Gustaf Hagander in an interview.

He continued: - As for the commercial and residential high-rises in the peripheral zone that are now under discussion, it is difficult to assess the impact they will have on the suburban built environment. However, examples of isolated buildings penetrating the skyline, such as the *Dagens Nyheter* building in Kungsholmen, behind the Old City seen from the sea, urge caution about the potential impact.

Costly and not environmental

Given the well-reasoned arguments of regional planners who favour an emphasis on multiple cores of medium density development, one must wonder why some politicians are so persistent in their ambition to build a dense, vertically-oriented urban core. What is more, representatives of the construction industry also warn of the excessive costs associated with high-rise buildings because of the complicated foundations, heightened fire safety requirements, complex structural engineering, and costly future maintenance they necessitate.

If high-rise development is an attempt to accentuate an environmental building approach to help position Stockholm as an environmental capital, it is in all likelihood a terrible mistake. In contrast to their perceived environmental benefits, high-rise buildings are, in fact, expensive solutions requiring more not less building materials and technology when compared to other typical structures in Stockholm.

Furthermore, they generate uncomfortable wind corridors through the city and restrict sunlight from reaching the street level. In light of these factors, it is clear that the drawbacks of high-rise developments far outweigh the potential benefits of urban concentration in the inner city.

Densification and the suburbs

The clear answer to the question then, in respect of the merits of the further densification of the inner city, is that Stockholm entails more than just the inner city. Consequently, we must accommodate the pressing need for new apartments and architecture drawing attention to suburban centres and thus signalling the status and future prospects of these important locations.

This demands that significant investment is made in suburban locales to make them attractive spaces through the creation of urban values with a variety of residential choices, creative meeting places, greater densities and short travel distances. Only then will dynamic living arrangements that depart from a traditional core and periphery urban arrangement be created.

Manhattan as the vision?

From some politicians we often hear the expression "we must plan to benefit a metropolis" or "it is outdated to allow church towers to dominate our skyline." In this view, cities like Manhattan become a guiding vision of what, moving forward, we should aspire to.

Some of the original followers of the vertical paradigm are however losing interest in high-rise buildings. What is clear is that if Stockholm decides to follow the trend of high-rise development in the inner-city it will certainly be unable to compete with those cities that have been building vertically for decades. Accordingly, any attempt to oversee a transition of inner Stockholm towards high-rise development would show that we are unable to create our *own* vision for the future of Stockholm.

▶▶

New buildings south and west of Stockholm Central Station. The three crowns on the bell-tower of *Stadshuset* to the right.

Preserve the skyline for business
The world famous skyline of Stockholm's inner city enriched by views of landmarks such as the City Hall, the City Library and Slussen Ridge prick us with nostalgia and should be preserved as such. Even so, while the emotional value of Stockholm's historical urban environment is clear to most, its contribution to overall economic success and employment is less well understood.

Research shows that economic benefits penetrate far beyond the tourism industry, as culturally and historically rich built environments are vital in attracting businesses and a prized highly educated workforce. This is evidenced by major efforts to preserve the historic environment in depressed industrial cities such as Glasgow, Barcelona, Birmingham and Singapore.

When viewed in this way, the previously mentioned high-rise development around Central Station presents a major threat to Stockholm's skyline. The focal aspects of the City Hall and the surrounding church towers will inevitably be weakened as new high-rises will obscure the gentle, varied and historic terms that characterize the current urban silhouette.

Brand on symbolism and history
Consequently, the increased level of high-rise density to the extent now being discussed in central Stockholm seems inadvisable. Instead, we must find a development plan based on Stockholm's own historic specificities, a plan that promotes the branding of Stockholm through its traditional silhouette to maintain its symbolism and history. In addition the fact that the necessity remains to preserve the city's ability to meet the unknown challenges of the future, not least, the issues of climate change and resource consumption, should not be forgotten.

Generate suburban centres
If Stockholm is to re-establish itself as a leader in urban planning then we must re-think our current development plans in respect of the inner city and its periphery. The ambition here must be to generate suburban centres with a big city 'pulse' and attractiveness that can compete with the desirability of the inner city.

To achieve this, built linkages must be developed between presently isolated suburban enclaves and greenery must be better integrated into the suburban environment instead of acting as a barrier. Furthermore, diverse housing options and a mixing of residential, commercial and recreational land-uses in suburban centres will provide pedestrian and bicycle options that can become viable transportation alternatives.

To now make major changes to Stockholm's urban silhouette, when, unlike most major cities, it has managed to maintain a relatively intact traditional character in the inner city, should be considered both arrogant and foolish. Stockholm's urban silhouette simply cannot tolerate new high-rise buildings and any attempt to build high in the inner city will come at a serious cost to its historical and cultural specificity.

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Translated by Ryan Weber

Baltic and Nordic high-rise summary

Some tendencies in high-rise city-centre developments in the Baltic and Nordic capitals. The paragraphs below are an attempt to summarise the main findings of the articles in this special issue of the Journal of Nordregio. By Odd Iglebaek, Editor.

1. Cities with the longest tradition for not building "high-rises" are most restrictive with regard to allowing building permits for such developments, e.g. Helsinki and Copenhagen.

2. Public ownership of the land is often an issue of significant importance. In Helsinki, for instance, where no high-rise buildings have been constructed in the city centre since 1931, the municipality owns 70% of all land in the city.

3. Population growth, on the other hand, does not seem to be particularly highly correlated to the extent to which high-rise developments actually take place. E.g. both Vilnius and Riga have more or less stable populations, or somewhat declining, but have nevertheless built several city centre towers since the late 1990s.

4. The ongoing development of rapid urban public transport, like metro/underground railway systems, is very expensive and is usually used to justify a significant expansion in a city's built-up areas.

5. Many of the tower projects seem to be initiated due to the profits that can be generated for real-estate developers. For others the justification is perhaps more influenced by individuals or companies who want to announce their presence through the creation of such a building. Rarely if ever, are there public movements to build such structures. In Stockholm, however, one finds a small group of skyscraper activists.

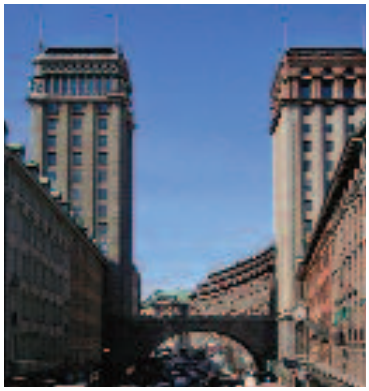
6. There is relatively little debate on the local climatic impact of high-rises in the Baltic and Nordic capitals. This is perhaps a little surprising given the level of shadow and wind potentially generated by such buildings. In Oslo however the densification of high-rise buildings around the Central Railway Station is used by the Planning authorities and others as an argument to save energy and reduce harmful climatic emissions in general.

7. The debate on skyline-impacts seems to be most engaged when "high-rises" are built in the vicinity of historical townscapes like the old towns of the Baltic capitals. Copenhagen, Stockholm and Oslo have however experienced such debates in the past. In cases relating to world heritage sites UNESCO naturally gets involved.

8. Generally there seems to be little debate on the more direct visual impacts like colours, building-shapes or the facades-textures (light-heavy) of the individual buildings or clusters of such buildings.

9. Architects, planners and other professionals seem to hold similar views on high-rise developments as the general public. Some are in favour, some are against and some are indifferent. Usually permits to build high are, in the end, decided on by the municipal councils. Most of the protests against such developments are by people living close to the potential development sites.

Highest Nordic buildings - 60 meters or more



Kungstornen 60m, Stockholm City

Cirrus 86m, Helsinki

Turning Torso 190m, Malmö

When	What and where	Metres	Floors
1924-1925	Kungstornen, Europe's first skyscrapers 2 buildings, Stockholm City	60	17
1931	Hotel Torni, Helsinki City	60	13
1950	Town Hall, Oslo City (height of highest tower)	66	-
1955-1966	Høtorgskraparane, Stockholm City 5 parallel office buildings	72	19
1957	Kongens Bryghus, Copenhagen, Vesterbro	70	21
1959	Skatteskrapan, Stockholm, Söder	84	26
1959	Folksam skrapan, Stockholm, Söder	79	24
1960	SAS Royal Hotel, Copenhagen City	77	22
1961	Carslberg Hovedkontor, Copenhagen, Valby	88	22
1962	Wenner-Gren Center, Stockholm, Nortull	82	25
1964	DN-skarpan, Stockholm, Kungsholmen	84	22
1964	Kronprinsen, Malmö (housing and shopping)	82	27
1969	Domus Vista, Copenhagen, Fredriksberg	102	30
1967	Codanhus, Copenhagen, Fredriksberg	66	21
1970	Rigshospitalet, Copenhagen, Østerbro	70	17
1971	Scandic Hotel, Copenhagen City	62	19
1973	SAS Scandinavian Hotel, Copenhagen, Amager	86	26
1975	Postgirobygget, Oslo City	80	19
1976	Fortum, Espoo (Helsinki-region)	84	20
1987	Maarmerkki, Helsinki east (housing)	82	19
1990	Plaza Hotel, Oslo City	117	37
1997	Söder Torn, Stockholm, Söder (housing)	86	24
2002	Ferring, Copenhagen, Amager	81	20
2002	Kista Science Tower, Stockholm, Kista	156	32
2003	Postgirobygget (org. 1975) Oslo City	110	26
2004	Koppertårnet, Copenhagen, Østerbro	62	16
2005	Turning Torso, Malmö (housing)	190	54
2006	Cirrus, Helsinki	86	26
2010	KLP-Barcode, Oslo City	64	18

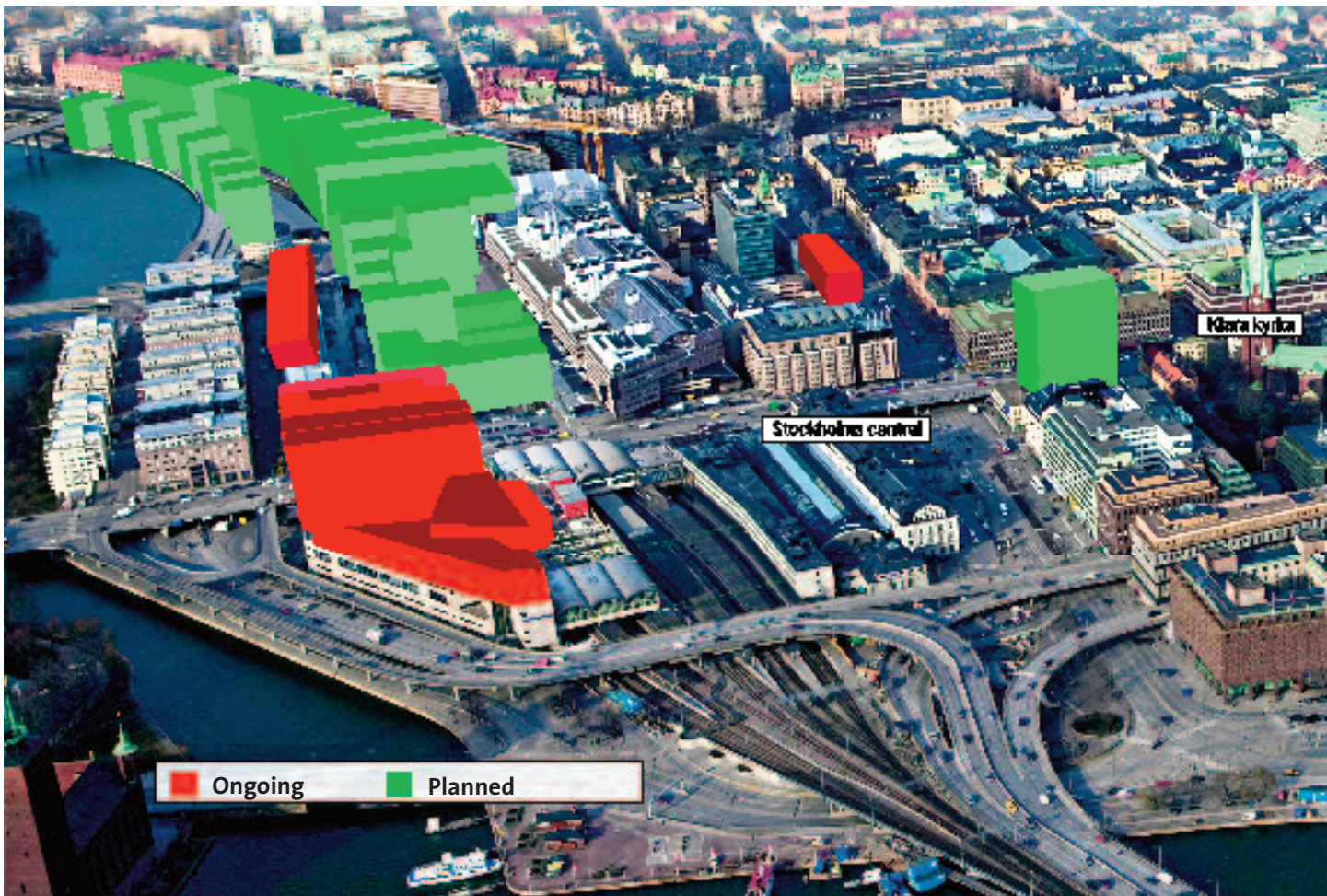
(Sources: Mostly *Wikipedia*, the list might not be complete or absolutely correct.)

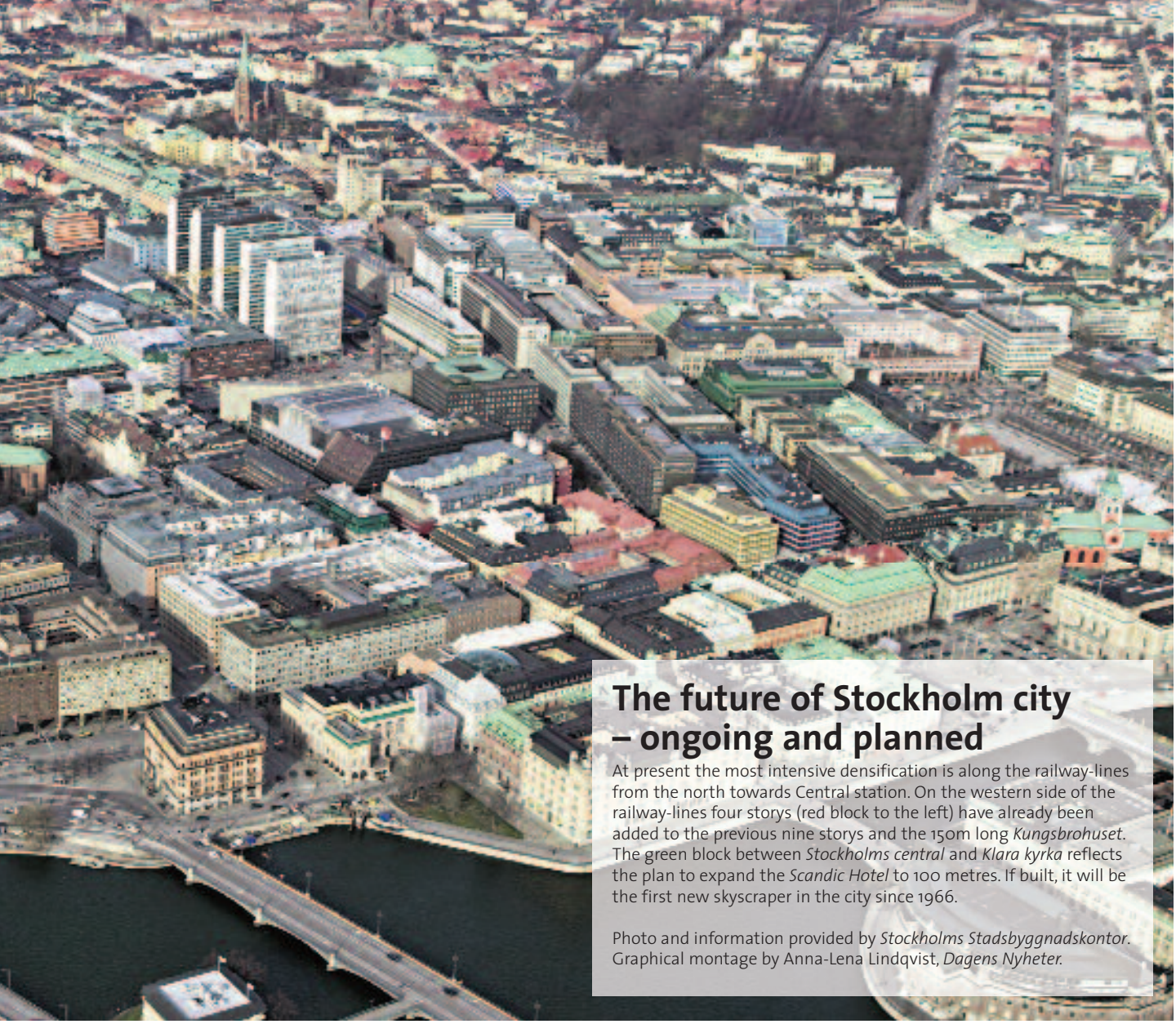
In the field of architecture there have been some, but not that many, studies of high-rise buildings in the Nordic countries. In Denmark *Århus Kommune* together with *Realdania* and *Arkitema AS* have produced what is called *Højhushåndbok – Et grundlag for planlægning, vurdering og 3D-visualisering af høje hus.*

Further information for Denmark can be found at:
http://www.plan09.dk/Inspiration/kommuneplan2009/tema_hoejhuse.htm

For Stockholm municipality (*Stadsbyggnadskontoret*) some information is available in what is called *Översiktsplan* (The overall plan) from 1999. ttp://www.sbk.stockholm.se/OPtext/PDF/Sid%2098-131.pdf

In Oslo the municipal planning authorities published a policy-analysis in 2002.
Plan- og bygningsetaten: Høyhus i Oslo – vurderinger av prinsipper for høyhusstrategi, Oslo.

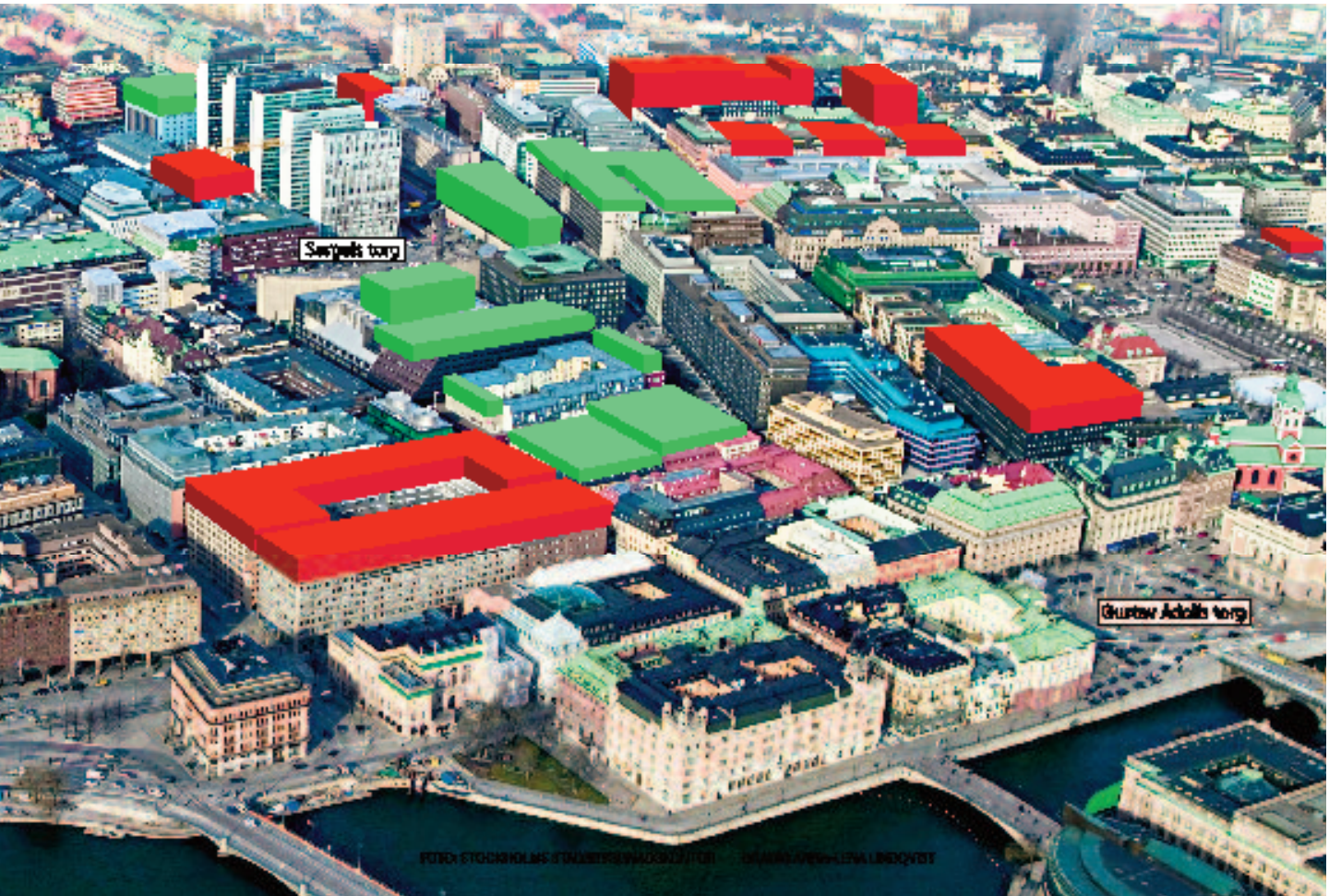

Klara kyrka
Stockholms central
Ongoing
Planned



The future of Stockholm city – ongoing and planned

At present the most intensive densification is along the railway-lines from the north towards Central station. On the western side of the railway-lines four storys (red block to the left) have already been added to the previous nine storys and the 150m long *Kungsbrohuset*. The green block between *Stockholms central* and *Klara kyrka* reflects the plan to expand the *Scandic Hotel* to 100 metres. If built, it will be the first new skyscraper in the city since 1966.

Photo and information provided by *Stockholms Stadsbyggnadskontor*. Graphical montage by Anna-Lena Lindqvist, *Dagens Nyheter*.



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