



Technical Brief No.2

Development Growth of Køge, Denmark

Zealands New Centre of Development

The Board members of The International Federation of Municipal Engineering (IFME) were invited to visit the Municipality of Køge Denmark to understand the Municipalities economical development drive within a modern European municipality.

The Members were ably assisted in this understanding by Torben Nohr, a past IFME board member who is the Technical and Environmental Director of Køge Municipality. Torben gave a number of presentations and an escorted site tour.

The ambitious strategy is to substantially enhance the existing Køge area and increase its relevance and importance to Denmark overall within a 23 Billion Krona (£2.3Bn) investment over 20 years. The economic Development is spearheaded through the redevelopment of the existing harbour area, enhanced residential and transport infrastructure provision as well as commercial, education and health provision upgrades. This tremendous development is anticipated to generate growth by adding 10,000 new jobs and welfare to the entire local area.



The Municipality of Køge is strategically located just south of Copenhagen for efficient and effective transport links within Denmark but also to wider northern Europe. Therefore, it was argued, over many years that developing the port and related infrastructure will enhance the greater Zealand areas prospects.

A key ambition of Køge is to expand the present population of 59,285 to 63,000 by 2025 thereby taking advantage of the way Køge is considered for future commercial decisions.

The range of projects, with an estimated budget of 23 billion Krona, (£2.3bn), are initiated in conjunction by contributions from the State, Regional and Municipal authorities and In close cooperation with private and public partners consist of:

- New Commercial port
- Expansion of the Scandinavian Transport Hub
- New University Hospital of Køge
- New railroad - Copenhagen to Ringstead, now via Koge
- Expansion of the Køge - Bugt Motorway
- New urban area Køge Kyst (Koge coast - the harbour area)
- New urban area in Køge North
- New educational centre campus Køge.



A major advantage is that the Køge municipality have ownership of the developable land and as such direct what is to be constructed there for the grater benefit of the community.

Additional land that is required to develop the industrial areas were purchased by the Municipality in advance enhancing development control.

The existing port facilities are being redeveloped to residential and commercial areas.

New urban area Køge Kyst (Koge coast - the harbour area)

Køge Municipality identified a new town area, referred to as Køge Kyst, which is located between the historic city centre and the waterfront, and mostly used as in industrial area currently. Koge was historically planned as a new town and this aspect is considered when deriving the new urban layout which extends to some 240,000 m2. The focus is to retaining the existing town centre by increasing population density rather than expanding into sprawl over farmlands and connect the centre to the waterfront.



The Køge Kyst development consists of 3 distinct areas, The Station area; the South Harbour and the Collstrop site.

Key requirements for each site varied, for instance:

Station strip; Coherent pedestrian area, accommodate larger volume retail stores on the ground floor, roof gardens offices and homes on top, 3 floor development.



South Harbour: open blocks with variations in shape and facade, preservation of some existing buildings, 3 - 7 floors.

Collistrop site: business park adjacent to the station, pedestrian streets between station and the port, 5-7 floors.



In the South Harbour development, the Blocked layout was selected as it addresses a range of urban benefits such as integrating parking, provides shelter from wind and enhances the community benefits associated with higher density housing whilst maintaining a feeling of quality

The Municipality considered that it was critically important that the Koge area should have an entirely different character and role. Consequently, a range of social activities such as an out-door movie theatre, raised herbal allotments and a barbecue area were successfully introduced to the South Harbour area which ironically is the current industrial port area.

A land strip adjacent to the rail line is currently used as a car parking area. Since the Municipality have control over the land,

The land forming the Collistrop and Station strips are on land the municipality have control over and has been predominantly used for surface car parking. However, by setting requirements of retaining and enhancing car parking through the development contract, underground car parking can be positioned to retaining (possibly enhancing) existing parking capacity as well as providing all the anticipated offices, shops and residencies on that land. This is another example of a Municipality achieving added land value.



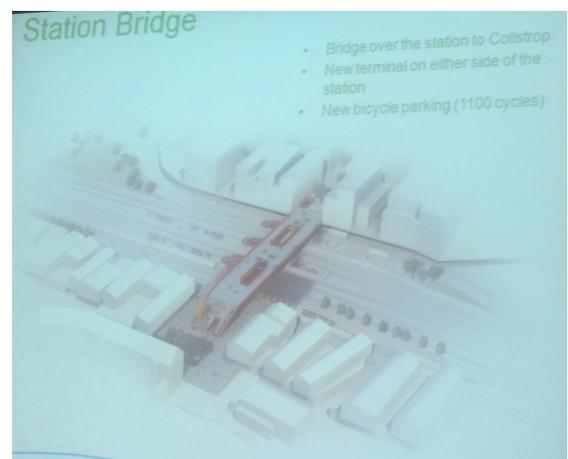


Accordingly, the contract states that Parking must be tentatively distribute as follows: 20 % parking at ground level, 30 % in multi-storey car parks and 50 % in underground car parks. Parking norms must be assessed in light of the close proximity to the station and the possibilities of using parking spaces for both residential and non-residential users. Having just recently introduced car parking charges, the parking solutions are assumed to be economically neutral to Køge Kyst thus reflecting the recovery of the construction costs.

The Køge Kyst development's close proximity permits easy walking connection routes to Køge centre and is reflected in the developments parking allocation. The road widths are none standard and are agreed individually as each section is developed. Importantly to connect and enhance the new developments function a range of new connections over the existing main road and railway lines is required, this is done by constructing a number of bridges and underpasses.

The intention is to make Køge one of the most attractive residential and business towns in the region. The new development consists of 1,500 new residencies, 100 new shops and approximately 4000 new jobs within the office area for knowledge, service and creative professionals. This area is to be developed over the next 20-25 years.

The Municipality of Koge entered into an agreement with Realdania Arealudvikling. to raise the town development project on a mutual vision. The development plan was the result of inter-disciplinary,



international design competition. As the masterplanned development is taken forward, stages will be sold off to investors and developers to construct. The station area is the first stage and constructed started in 2014.

The Køge Municipality considered it very important to generate a change of activity and life to the Køge Kyst area before development commences, therefore citizens and partners have introduced a range of community activities such as outdoor cinema, allotments and picnic areas in a trial project they entitled: *Life before town - Town for Life*.

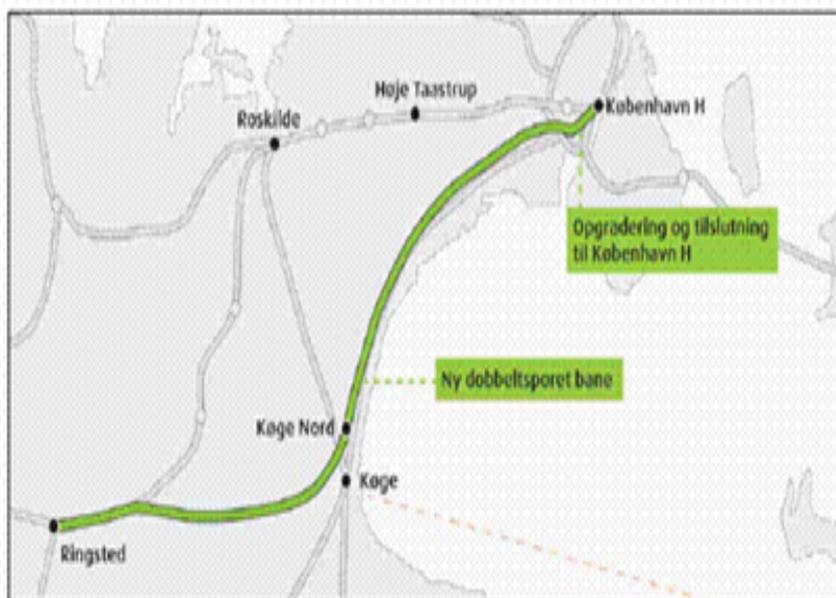
New urban area in Køge North

An additional 80 Ha urban area is being developed north of Køge centre which consists of housing, offices and industry. This is taking advantage of the transport hub and the new Køge North railway station proximity and will evolve into an industrial city for Køge companies, transportation and logistics. Housing construction commences in 2017. The Køge North railway station and surrounding area is expected to accommodate 2,700 park and travel spaces, 6-7000 workplaces and 800-1000 homes.

The new and redirected Railroad, Copenhagen - Køge - Ringsted is being constructed by Banedanmark. This is a dual track railroad high speed route designed for 250km/h trains with 20 min journey times to Copenhagen (today -38mins) and direct international connections to Hamburg and the rest of Europe. This railroad is due to open in 2018.

This new 60km railroad will relieve existing rail pressure on the existing Copenhagen - Ringsted via Roskilde route which is currently one of the most used stretches in Denmark.

With the new railroad comes a new station, Køge North, the subject of an architectural competition. It is located near the STC and includes a park-and-ride facility which facilitates easy transfer from car to train by being located near the motorway.



New Soil Deposit

As a part of the strategy in managing the overall masterplan and address contaminated material issues found in the existing port, a soil deposit for contaminated soil at 40 Ha is established, which eventually should become a new modern Køge Harbour? An additional 120,000m² of clean soil is shared between Køge harbour and Køge Marina. This programmed for completion in 2020.

A new modern commercial port is currently being constructed and due to complete in 2022. This ambitious harbour relocates the existing port northwards, thereby making room for the new urban development's there. The new port consists of a 1200metre quay with water depth of 8.5 meters. This doubles the port facilities with a total new harbour area of 925,000m². Due to concerns relating to cancer inducing, 4 new wind turbines due to be located on the new quay have been deferred by local politicians' long term pending completion of this investigation. On enquiry, this concern was raised in relation to frequency waves emitted by rotating turbine blades. IFME board members asked to be updated on the outcome of this university research project.

The expansion of the Køge - Bugt Motorway system is considered critical to the area. This carries about 100,000 vehicles per day, resulting in extensive traffic congestion. The existing Motorway is being expanded from 6 to 8 lanes wide. In addition, it includes a 4 metre noise screen and sound reducing road surface to lessen noise nuisances for motorway neighbours. This work is due to open in stages in 2016 and 2018. - The IFME members witnessed this ongoing construction work during their journeys. This motorway was last expanded in 2008 with the addition of an extra lanes confirming the ongoing development of this area.

The expansion of the Scandinavian Transport Centre (STC) is the fastest growing industrial area in Northern Europe - and one of Zealand's largest combined business and transport parks. Uniquely located close to 3 motorways, rail connections and a harbour, STC has dynamically expanded since 2001 and the current 1,300,000 m² is to be expanded by 500.000m² to meet demand. Care is taken to screen the area with trees and bushes and this manages new building heights. This industrial enterprise has driven the economic development of the Koge area. Contrary to traditional industry, STC has maintained a positive growth in occupation and production value, resulting the community of Køge taking a pro-active approach in meeting related challenges. Currently more than 1,000 people work at the transport centre.

The New University Hospital will provide emergency care for 290,000. The construction comprises of 176,435m² floor space, over 11 floors with 900 beds, in addition this hospital will provide for 4000 - 5000 new local jobs. The construction of this project is already committed with work starting in 2015 with completion expected in 2020.

New Educational Central Campus Køge 11 Schools, 6,000+ students, 700 employees to be developed over the next 5-10 years

Plans for a new Football stadium have not been progressed pending a private benefactor.

As the extensive projects take shape towards 2020, the Køge area will have an entirely different character and role.

CO2 emissions in Koge Municipality

Koge community used 480,900 tonnes of CO₂ in 2008. the target is to reduce this by 20% by 2020. To assist achieve this target Koge has undertaken 2 projects, this first is to connect up properties to the district heating scheme and second to develop electricity through wind turbines at Koge harbour.

The district heating system is in partnership with 12 municipalities consisting of 350,000 taxpayers, 150,000 end users and provides 2,500 GWh. The intention is to connect the Koge system to the

greater Copenhagen District Heating system which consists of 19 municipalities, 4 integrated systems, 500,000 end users generating 9,600 GWh. This is currently programmed for completion by 2020

The wind turbines were intended to be 4 turbines of 3Mw each, these are 150m high with 112m rotor however this has been suspended pending the completion of a report following concerns raised about health concern from the turbine frequency emissions. The IFME board will be keen to have the results of this report once it is complete.

Further information can be found at: <http://uk.koegekyst.dk/en.aspx>

John Thomson C.Eng C.Env. FICE FIAT

Vice President

The International Federation of Municipal Engineering

Project Design Brief is over page...

The Project Design Brief.

Selected requirement.

Shared visions for the urban development:

- Cultural activities and initiatives to be the driving force behind the urban development
- Retail trade to highlight Køge as an attractive commercial town
- Infrastructure to be developed into an asset for the town as a whole
- Urban renewal, architecture and construction to be distinguished by creativity and high quality
- The citizens of Køge and other players to participate actively in urban development and renewal
- Sustainability in the broadest sense of the word to constitute an overriding principle for urban development and renewal

Density

The agreement applies plot ratios of 130 at Søndre Havn and the Station Area and 150 at the Collstrop Site. This has been agreed to support the urban experience and urban life and the principle of sustainable development by making existing urban areas denser.

Parking

Parking must tentatively distribute as follows: 20 % parking at ground level, 30 % in multi-storey car parks and 50 % in underground car parks. Parking norms must be assessed in light of the close proximity to the station and the possibilities of using parking spaces for both residential and non-residential users. The parking solutions are assumed to be economically neutral to Køge Kyst P/S.

Urban space

Urban spaces must support the use of the spaces and encourage activity. The possibility of art in the public space should be considered actively.

(Temporary) cultural activities

The idea is to continue the development of and highlight existing cultural activities at Søndre Havn and to invite new players to provide both temporary and permanent cultural activities.

Sustainability

The majority of the project area is located close to the station and must provide optimum conditions for pedestrians and cyclists to reduce the need for cars as much as possible. Even sustainability in construction must be considered focusing on energy consumption, building materials and water consumption, etc.

Diversity

The following instruments must be applied to support diverse urban life:

- mix of urban functions
- mix of housing types, sizes and forms of ownership
- requirements of a certain number of publicly accessible functions at the ground or
- interesting urban spaces scattered all over the area
- (temporary) cultural activities

Culture, quality and marketing pool

A culture, quality and marketing pool will be set up to stimulate the possibilities of realising temporary cultural activities and special quality initiatives (e.g. early establishment of urban spaces). DKK 30 million has been earmarked for the first five-year period. This pool can be used for both physical facilities and development and activity-oriented purposes.

Organisation

Køge Kyst P/S needs the optimum organisational framework to realise the vision mentioned above. The Board of Directors employs a manager (project manager), who must work closely with the Municipality of Køge and Realdania Arealudvikling.

Economic aspects

The parties want Køge Kyst P/S to show good business sense to ensure a reasonable return to its shareholders; however, this must not affect the realisation of the project visions.

The goals of the Municipality of Køge are:

- to create a new urban district in Søndre Havn with residential units, trade and industry, cultural activities and recreational facilities
- to extend retail trade in Køge town centre, allowing Køge to become an increasingly attractive commercial town with modern types of shops
- to ensure creative solutions and high-quality building technology
- to ensure architectural coherence between new buildings and the historical town centre
- to develop a new urban district perceived by citizens and tourists alike as a safe and accessible area at all times

The high quality is to be supported by:

- improving the availability of parking spaces, thereby increasing accessibility by car without burdening the historical town centre with additional traffic
- eliminating traffic bottlenecks in Køge town centre, primarily across the railway line, thereby ensuring coherence between the existing town centre and the project area

The overall goals of the Traffic and Environmental Plan are, among others, to:

- ensure adequate public transport in and to and from the municipal area, making it an even better alternative to individual transport
- promote the bicycle as a means of transport
- ensure improved interaction between public and individual transport
- ensure a close interaction between the existing town centre, the Station Area and Søndre Havn
- ensure high accessibility to Køge town centre without increasing congestion in the historical part of the town
- contribute to reducing CO2 emissions
- The projects to be completed in 2009-2010 include a diversion of bus routes and the establishment of more covered bicycle parking areas at Køge and Ølby stations.

Further information can be found at <http://uk.koegekyst.dk/en.aspx>