Connecting new housing areas with an exceptional scenic structure - Construction of Saaristokatu (Archipelago Avenue) in Kuopio Finland

Kuopio with over 90 000 inhabitants is the eighth biggest city in Finland and the capital of Northern Savo province, which surrounds Kuopio. Traditionally, Kuopio is known as a city of education and high quality services. Today Kuopio is also known for its rapidly developing industry areas and for health care technology and information technology in particular.

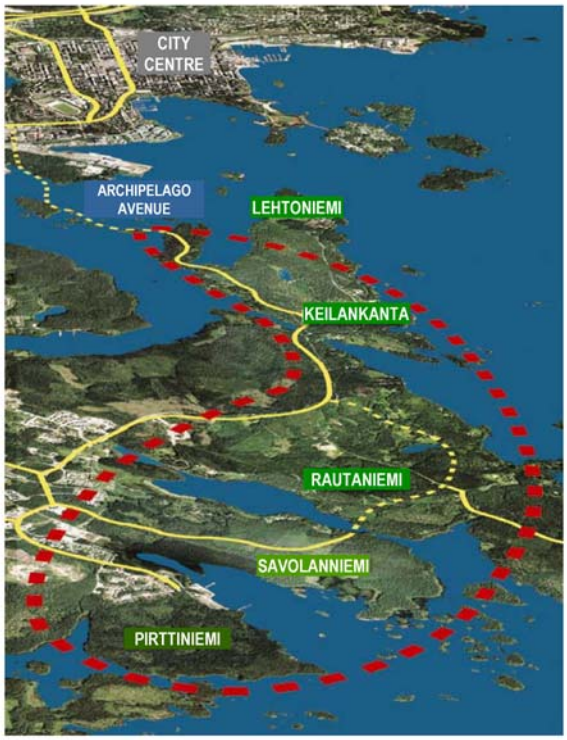
Kuopio offers a unique and pleasant environment in which to live. The cityscape is dominated by outstanding natural areas - Lake Kallavesi, leafy forests and varied terrain. The nature of Kuopio is characterised by extensive waterways with winding shorelines and luxuriant flora as well as a varied terrain with many hills.

The city is surrounded by Lake Kallavesi and the many-faced hills. Valuable deciduous forests and ponds in different parts of the city are among the best-known natural features Kuopio.

Saaristokaupunki – New Suburbs Close to Nature Provide a Beautiful Environment

If the word Saaristokaupunki could be directly translated from Finnish it would stand for "archipelago city". In these islands on Lake Kallavesi, a new neighbourhood will rise - an area that will make dreams come true for many of us: our own house located next to the city center, close to nature and right by the lake.

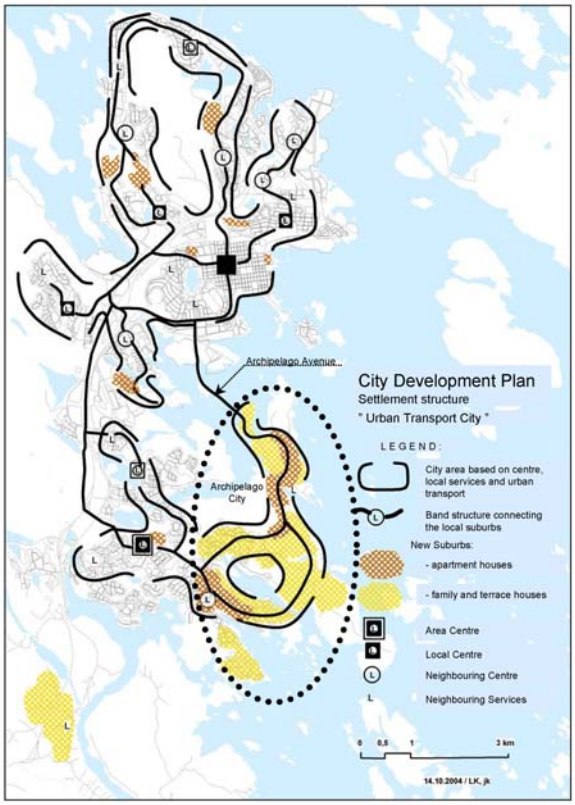
Saaristokaupunki, aims to create a new, unique element in the residential environment of Kuopio. Thanks to the programme started in autumn 2001, a new park-like residential area will be built on the islands and headlands of Lake Kallavesi. Constant planning of housing and developing living conditions ensure that Kuopio will be a pleasant place to live in the future, too. Since the city is planning focus has been on creating balanced residential areas, Kuopio has succeed in avoiding the development of problem suburbs.



New suburbs of Saaristokaupunki are connected with street over Lake Kallavesi to City centre.

The Archipelago city programme is needed for several reasons. The city is a regional centre with a population that grows by an average of 400 inhabitants annually. Among newcomers are all kinds of people - workers and their children, students in different educational system and elderly people who wish to move closer to the excellent services. At the same time housing density has become thinner due to a higher standard of living. About 600 new housing units are built every year inside the city. Kuopio needs new homes and new suburbs will take about half of the housing growth of the whole city.

Saaristokaupunki is actually series of new suburbs constructed on five peninsulas. The closest peninsulas will turn into islands, when they are separated from the continent with the construction of canals and bridges. As new suburbs are connected with Saaristokatu (the connector and main street to the city centre), distant and remote areas become supplementary construction areas between the old suburbs and the city centre. Similarly new suburbs will turn to substancial and attractive growth areas. The feature of this growth is the direction, which is towards the city.



City Development Plan of Saaristokaupunki shows new settlements have diversed habitation forms near the City centre.

New suburbs will have 4000-4500 new houses for approximately 14 000 new inhabitants. New houses will be built in the next ten to fifteen years. Saaristokaupunki represents new kind of housing world-wide: all the houses are situated no more than 500 meters away from the Lake Kallavesi. Total area of Saaristokaupunki is about 13 km^2 with approximately 40 km of shoreline.

The principles of high quality of living and housing are being taken into consideration in the first stage of the planning of the area. Saaristokaupunki will provide the best quality of living -yet at a reasonable price- and represent a good example of housing in the new millennium. All the construction will follow the latest know-how both in building and in environmental planning. The closeness of water and nature will be taken into consideration in the city planning as well as the high standard of housing as a whole.

Connection to city centre

Saaristokatu (a straight translation would be Archipelago Avenue) is a new main road connecting new suburbs to the city centre over Lake Kallavesi promoting pedestrian, bicycle and urban transport traffic and offering new recreational possibilities to neighbouring residents.

The length of the Saaristokatu will be approximately 5 km. It starts at one of present major intersections at the edge of the city centre and ends at Keilankanta, where the commercial and service centre of the new suburbs will be built. Saaristokatu is the major vessel for the new suburbs. Without this street the new housing areas would be too far outside the city and the area would attract only family housing units. With the new connection, new suburbs will attract diverse forms of habitation. Lehtoniemi, which is the closest large area, is just 3…5 km from the city centre and will consist of family, terraced and apartment houses both on and near the shores of Lake Kallavesi.

Construction of Saaristokatu and the other main streets of Saaristokaupunki is one of the major objectives for the City Department of Municipal Engineering over the next five-year period. Preparatory work for construction has been carried out in order to begin the project at the beginning of 2006.

The environment is particularly observed in this project. Preparatory studies included water studies and water stream models. The project has passed the Act of EIA (Environment Impact Analysis). With EIA and the studies followed by EIA Kuopio has proved the water rights in court and the project won't jeopardize the quality of water and the living milieu of vendace, pike and perch. Comprehensive water research programme during and after construction will guarantee the quality of water in the future.

The alignment of Archipelago Avenue gently touching Lake Kallavesi.

Features of Saaristokatu

The planning of the street environment is connected with the detailed street plans. One major objective in environmental planning is that Saaristokatu won't be recognised as a major contradict with the scenery or as seen from the water. Scenic views are taken into consideration by keeping the level of the street and as low as possible. The level of the street is lowered on the embankment sections to a minimum level and level rises only on the bridges to enable low boats to run below them. On the bridges strong scenery effects and exceptional street furniture is avoided. Light pollution is restricted targeting the street and pedestrian way users. Outside the street only waterway openings are illuminated. The street will be built partly on infill areas following the shoreline of the present continent. These areas are landscaped with natural-looking earth formations, where existing plant types are favoured. Naturality and easy of care are major objectives in the detailed environmental planning.

The Lake Kallavesi section of Saaristokatu is built as a combination of bridges and embankments. Here the street alignment is attached from the north-east to small existing islands, which brings the islands and their southern shores into recreational use. Connecting paths to these islands are to be built leading from the pedestrian and bicycle way. The embankment length of Saaristokatu will be approximately 900 metres. The total length of the four bridges will be over 500 metres. The longest bridge is 280 metres long with a five-meter clearance under the bridge.

Outside Saaristokatu on the opposite side of the lake, are large recreational areas. To ensure their harmonic use and to get best out of the use of the small islands at the chosen spot on each island noise protection barriers are constructed from stones and logs. Heightening the barriers is possible as number of vehicles rises.

Along with environmental values, traffic security is taken into special consideration as the street itself is planned. A separate pedestrian and bicycle lane with a variable width intermediate lane reserved for environmental structures is to be constructed on the western side of the carriageway. Design speed is to be limited to 40 km/h on the Lake Kallavesi section. The number of junctions proving access to Saaristokatu will be limited in order to offer undisturbed and secure traffic conditions for street users. To remind people about the speed limit and scenic views along the road, in several places on the Lake Kallavesi section of Saaristokatu high-class scenery gates are to be constructed.

Outlook from Saaristokatu, a virtual model gives a glimpse what the street is going to look like.

Street cross sections will have other elements related to the infrastructure. District heating, electric and telecommunication cables will be situated in the embankment under the pedestrian and bicycle way and below the bridges. Cables and pipelines are needed to ensure the infrastructure to provide services to the new suburbs.

Commercial centres to both ends of Saaristokatu

Business life has also played a part in this ambitious project. At the north end of Saaristokatu, near the Lake Kallavesi, an old industrial centre will be reconstructed with new offices, production units and commercial services. The old factory and warehouse area will be fitted into the street environment and almost totally rebuilt in a similar style giving a strong boost to the old industrial area.

At the southern end of Saaristokatu in Keilankanta a new centre including space for a school, a shopping centre, day-care centre and church hall is to be constructed. Near to the centre a new canal is to be built at Keilankanta by excavating present 160 m long isthmus. This will separate Lehtoniemi peninsula from the continent. The canal will offer an alternative waterway leading to water area west of Saaristokatu. Canal construction includes dredging of the new waterway and the construction for a pier. The new canal will enable taller boats and yachts to enter to western water area. A sixteen metres high bridge over the canal and present valley will connect Lehtoniemi and Rautaniemi suburbs in Saaristokaupunki and access the southern parts of Saaristokaupunki to city centre.

Panorama and model of Keilankanta, where new canal and local services will be situated.

Cost and schedule for new suburbs and main street

The total cost of the new suburbs is estimated to be 1,5 billion euros. Approximately 90 % of total costs relate to new housing. Infrastructure costs, which comprise not only street construction, water, sewerage and cable costs, but also costs relating the construction of public and recreational areas, amount to about 130 million euros. Saaristokaupunki is a huge investment both to new-settlers, construction companies and the city.

The construction costs of Saaristokatu between Keilankanta and the city centre is estimated to be around 20 million euros. Half of the total costs is reserved for bridges.

Saaristokatu embankments and bridges will be constructed between 2006 and 2008. The main streets in Lehtoniemi will be constructed during a similar period. A round-trip through Saaristokaupunki should be possible by the end of 2008.

Benefit – cost ratio of Saaristokatu is 3,5 (calculation base 30 years, the same method used by the Finnish National Road Admonistration) when compared to the constructing the city partly to the south-side of Kuopio. Vehicle operation costs, due to the shorter route to the city centre, comprises most of the profit. The AADT (average annual daily traffic) for Saaristokatu is assumed to be some 10 000 vehicles per day in 2020 when Saaristokaupunki (Archipelago City) is mainly completed.

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