



KRUUNUSILLAT

BRIDGE DESIGN COMPETITION

COMPETITION PROGRAMME



KRUUNUSILLAT

BRIDGE DESIGN COMPETITION



City of Helsinki



WORLD DESIGN
CAPITAL
HELSINKI 2012

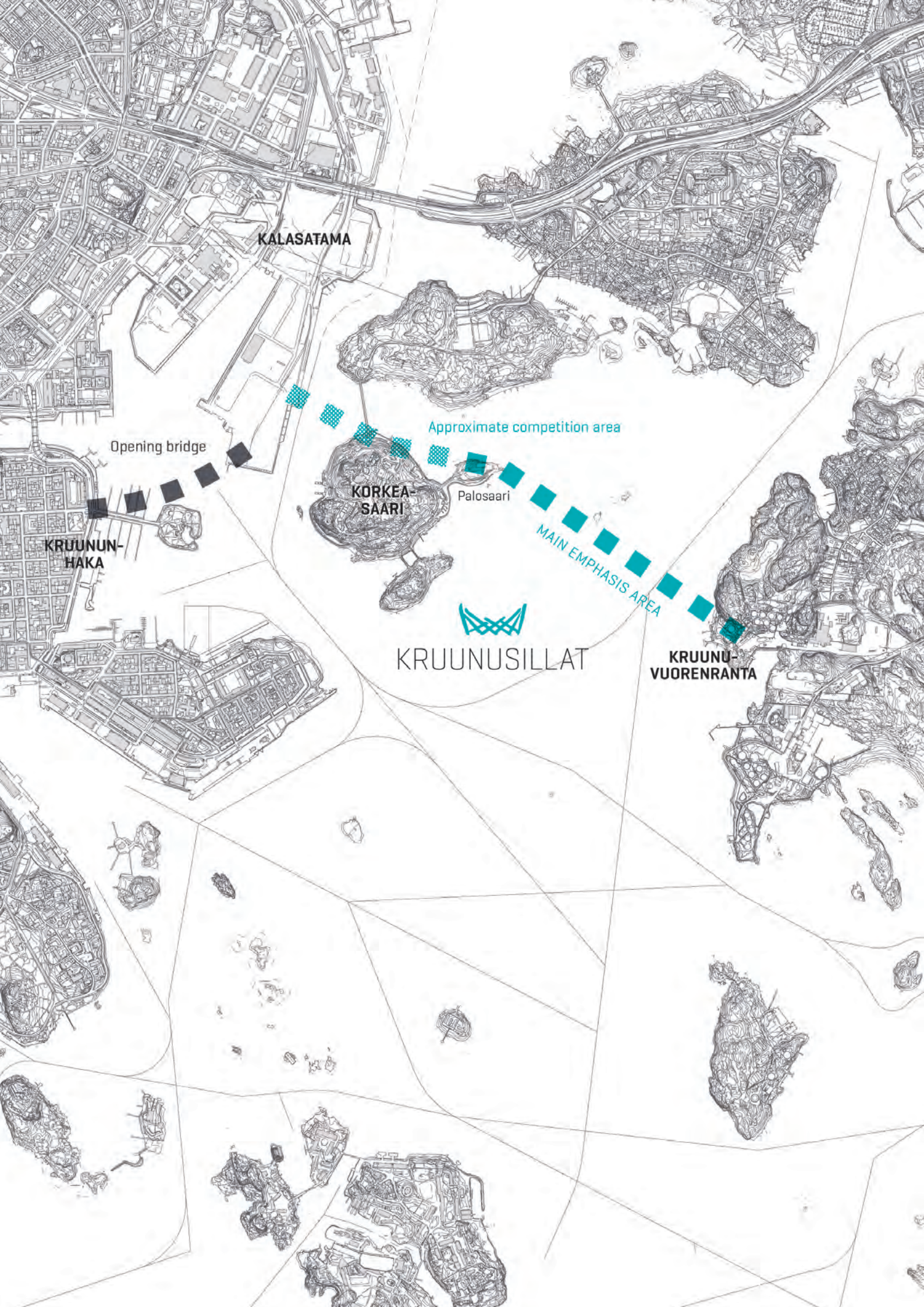
More Than Just Bridges

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1
General information
concerning the competition



KALASATAMA

Opening bridge

Approximate competition area

KRUUNUN-
HAKA

KORKEA-
SAARI

Palosaari

MAIN EMPHASIS AREA

KRUUNUSILLAT

KRUUNU-
VUORENRANTA

1.1 PROMOTER, NATURE AND PURPOSE OF THE COMPETITION

The City of Helsinki is organising an international design competition for **Kruunusillat (Crown Bridges)**.

Kruunusillat is a traffic connection currently being designed between Kruununuhaka and Kruunuvuorenranta in Helsinki, the capital city of Finland.

Kruunusillat consists primarily of bridges, parts of which are also built on earthfill embankments and land.

Kruununuhaka is an existing city district located on the eastern side of Helsinki's city centre; Kruunuvuorenranta is a residential area currently being designed three kilometres further to the east, behind the Kruunuvuorenselkä sea area.

The competition task includes the conceptualisation and investigation at the outline plan level of the Kalasatama - Korkeasaari island - Kruunuvuorenranta traffic connection. The connection between Kruununuhaka and Kalasatama is not part of the competition area. The main emphasis of the task is the design of the connection between Kruunuvuorenranta and Palosaari.

Behind the design of the bridge connection is the City of Helsinki's strategic programme aiming at the development of the traffic system with sustainable transport modes based primarily on rail traffic. The main users of Kruunusillat will be trams, cyclists and pedestrians. The traffic connection shall also accommodate service and emergency vehicles.

The purpose of the competition is to find in every respect a high-quality solution for an environment extremely demanding from the landscape and cultural-historical perspectives. Kruunusillat shall have a positive effect on Helsinki's image and shall be a worthy legacy for future generations.

Previous page: Location of Kruunusillat and approximate competition area (competition area in turquoise; see names of more locations on page 38 and specific scope of competition area in Appendix 1).

Page 6: View from Kruunuvuori to the city centre.

1.2 HELSINKI - WORLD DESIGN CAPITAL 2012

Helsinki has been selected as the World Design Capital 2012. The international design competition for Kruunusillat is one of Helsinki's World Design Capital projects that will generate considerable international attention.

1.3 COMPETITION FORM AND PARTICIPANTS

The competition is being organised as an international invited competition whose participants will be selected through an application procedure conforming to Finland's public procurements legislation.

Based on the "Application and Reference Documents" filled out by the candidates, 5-10 teams will be selected for the competition [see Section 1.6].

The selected teams shall each prepare at least one competition entry based on the competition documentation described in Section 2.1.

The competition will be a two-stage competition if necessary. The decision regarding the competition's possible second stage will be made by the competition jury based on its evaluation of the competition entries received.

For the competition's possible second stage, no less than two entries selected by the jury shall be developed further by the teams in question based on the jury's recommendations given in the first stage.

1.4 ELIGIBILITY

To be able to participate in the Kruunusillat design competition, all members of the teams shall have the expertise and be legally entitled to practise the profession required by this competition programme in their countries of residence. They shall also comply with the requirements presented in the “Application and Reference Document” [see Section 1.6].

Consulting work directly or indirectly related to the preparation of the design competition has been carried out in the following companies:

Pöyry CM Oy and Pöyry Finland Oy	Preparation of design competition
Ramboll Finland Oy	Cost estimates of bridge connection and consulting
Suunnittelukide Oy	Cost estimates of bridge connection
WSP Finland Oy	Cost estimates of bridge connection

Because the aforementioned companies are not seen as having obtained an essential competitive advantage from their preparatory tasks, Finnish legislation governing public procurements, as well as the competition rules specified in Section 1.9 governing this design competition, are here applied with the understanding that representatives of the companies in question can participate in the competition. A significant portion of the preparatory work has been carried out during the period when the competition’s advance notice has been viewable in the database for public procurements [beginning June 26th, 2009]; consequently a temporal advantage has also not been formed for the aforementioned companies.

If one or more of the aforementioned companies are selected for the competition, the following principles shall apply:

Here, Finnish legislation governing public procurements is interpreted with the understanding that the competition promoter will, to guarantee fairness, provide all teams participating in the competition with the same information that has been made available to the companies participating in the preparation of the competition. This arrangement consists of the competition documentation [Section 2.1], presentation seminar [Section 2.3], as well as the questioning procedure [Section 2.4]

These principles also apply to other possible companies in the same position.

1.5 SUBMISSION OF APPLICATION DOCUMENTS

The competition’s application documents in digital form are available on the competition’s website **www.kruunusillat.fi**, from May 2011.

1.6 SELECTION OF PARTICIPANTS

The minimum requirements and selection criteria set for the teams wishing to participate in the competition are described in the files “Instructions for Filling Out the Application and Reference Document” and “Application and Reference Document” contained in the competition documentation on the competition’s website.

Applicants shall fill out the electronic application form “Application and Reference Document”, in which the teams applying for the competition shall demonstrate their competencies as convincingly as possible.

The multi-disciplinary teams being sought for the competition are required to have expertise in at least the following areas: bridge design, aesthetics related to bridge and traffic structures, form and architecture, landscape design, geotechnical engineering, street and traffic design, cost calculations for bridges, environmental impact assessments and life cycle design. Each team shall designate a company to be principally responsible for the project, as well as a chief designer who shall be an experienced bridge designer employed by the aforementioned company.

A preparatory group will make a proposal to the competition jury regarding the teams to be invited to the competition based on the “Application and Reference Documents” filled out by the candidates. The jury will make the final decision regarding the selection. The preparatory group and the jury are described in Section 1.8.

The references of the candidates will be evaluated exclusively on the basis of the content of the “Application and Reference Documents”. Other materials will not be taken into account in the assessments.

For additional information concerning the competition application, please email kruunusillat@hel.fi.

1.7 DELIVERY OF APPLICATIONS

The “Application and Reference Document” file filled out with the required information, as well as an A3-sized [420 mm x 297 mm, landscape orientation] pdf file printed from it, shall be saved on a USB memory stick. The file shall also be printed out as an A3-sized [landscape orientation] printout bundle. The printout sheets shall not be bound together. Competitors shall retain the original versions of their applications.

The application package containing the USB memory stick and a single A3-sized printout bundle shall be received no later than 3 August 2011 by 15:00 [Finnish time zone, UTC+2] at the address listed below. The packages shall be marked with the text “Kruunusillat Bridge Design Competition”.

City of Helsinki Registry
Visiting address: City Hall, Pohjoisesplanadi 11-13, Helsinki 17
Postal address: City of Helsinki Registry
P.O. Box 10, 00099 City of Helsinki, Finland

1.8 COMPETITION JURY

A jury appointed by the competition promoter will perform the evaluation of the competition entries:

Jury members representing the City of Helsinki

- **Pekka Sauri**, D.Phil., M.A. [Psych.], Deputy Mayor, Public Works and Environmental Affairs, Chairman of the jury
- **Hannu Penttilä**, M. Sc. [Tech.], Deputy Mayor, City Planning and Real Estate, Vice-chairman of the jury
- **Jarmo Nieminen**, General Staff Officer, Lieutenant Colonel ret., Chairman of the Helsinki Public Works Committee
- **Tapio Korhonen**, LL.M., B.Sc. [Econ.] Finance Director, City of Helsinki Economic and Planning Centre
- **Maria Jaakkola**, M.Sc. [Landscape Architecture], Head of Office, Environmental Office, Helsinki City Planning Department
- **Raimo K Saarinen**, M.Sc. [Tech.], Helsinki City Engineer, Helsinki Public Works Department
- **Jukka Salo**, Professor, Adjunct Professor of Landscape Ecology, Director of Helsinki Zoo [Korkeasaari]
- **Juhani Tuuttila**, M.Sc. [Tech.], Head of Office, Real Estate Department

Jury members from outside the City's organisation:

- **Anne Stenros**, D.Tech, M.A. [Arch],
Vice President, Design, KONE Corporation
- **Pirjo Tulikukka**, M.A. [Applied arts], Executive
Director, Helsinki Neighbourhoods Association

Expert named by the Finnish Association of Civil Engineers RIL:

- **Ilkka Sinisalo**, M.Sc. [Eng.]

Expert named by the Finnish Association of Architects SAFA:

- **Ville Hara**, M.Sc. [Arch.]

Expert named by the Finnish Association of
Landscape Architects MARK:

- **Jyrki Sinkkilä**, M.Sc. [Arch.]

The secretary of the jury is **Ville Alajoki**, Project Manager
(bridges), Investment Office, Street and Park Division, Helsinki
Public Works Department.

Of the jury's members, over 60% are professional members; this means a person with the same or equivalent professional competence as required from those participating in the competition. This complies with the professional organisations' competition rules mentioned in Section 1.9.

The entire jury, excluding the secretary, can participate in the judging.

When necessary, the jury will solicit the opinions of specialists such as, for example, cost and LCC experts, experts experienced with carbon footprint calculations, and representatives of the Port of Helsinki and the National Board of Antiquities. The above-mentioned outside experts will not participate in the judging.

Members of the public, as well as interest groups such as local residents' organisations, boat clubs, and the area's entrepreneurs, will be given the opportunity to express their opinions concerning the competition entries during the assessment stage. A summary of these opinions, prepared by the Helsinki City Planning Department's Public Participation Coordinator, will then be presented to the jury.

A preparatory group appointed by the competition promoter will make proposals to the jury. The jury will make the final decisions.

Members of the preparatory group representing the City of Helsinki

- **Ville Vastamäki**, Project Engineer, Kruunuvuorenranta, Development Division, City of Helsinki Economic and Planning Centre
- **Hannu Asikainen**, Project Manager, Kalasatama, Development Division, City of Helsinki Economic and Planning Centre
- **Riitta Jalkanen**, Head of Project, Kruunuvuorenranta, Town Planning Division, Helsinki City Planning Department
- **Tuomas Hakala**, Head of Project, Kalasatama, Town Planning Division, Helsinki City Planning Department
- **Maria Jaakkola**, Head of Office, Environmental Office, Helsinki City Planning Department
- **Olli-Pekka Poutanen**, Director, Traffic Planning Division, Helsinki City Planning Department
- **Heikki Hälvä**, M.Sc. [Civ.Eng.], Transportation and Traffic Planning Division, Helsinki City Planning Department
- **Osmo Torvinen**, Head of Office, Investment Office, Street and Park Division, Helsinki Public Works Department
- **Peter Henny**, Project Manager [bridges], Investment Office, Street and Park Division, Helsinki Public Works Department
- **Ville Alajoki**, Project Manager [bridges], Investment Office, Street and Park Division, Helsinki Public Works Department

Members of the preparatory group from outside City's organisation

Expert named by the Finnish Association of Civil Engineers RIL:

- **Ilkka Sinisalo**, M.Sc. [Eng.]

Expert named by the Finnish Association of Architects SAFA:

- **Ville Hara**, M.Sc. [Arch.]

Expert named by the Finnish Association of
Landscape Architects MARK:

- **Jyrki Sinkkilä**, M.Sc. [Arch.]

The jury and the preparatory group will themselves decide on their own internal procedures and working arrangements.

1.9 LANGUAGE OF THE COMPETITION, RULES, APPLICABLE LEGISLATION AND REGULATIONS

The language of the competition is English, except for Appendices 12 and 18 [see Section 2.1]. The proposals shall be prepared in English.

The competition and its related activities shall comply with Finnish laws.

The preparation of the competition programme has taken into account the content of the document *Rakennusalan suunnittelukilpailun periaatteet* [Principles for Design Competitions in Real Estate and Construction] as well as the principles of the competition rules observed by the Finnish Association of Civil Engineers RIL, the Finnish Association of Architects SAFA, and the competition rules of the International Council of Societies of Industrial Design Icsid.

The following order of priority of laws and other documents shall be observed in the competition procedure:

1. Finnish laws and statutes.
2. This competition programme and the application documents "Application and Reference Document" and "Instructions for Filling Out the Application and Reference Document".
3. This competition programme's appendices.
4. The competition rules of the Association of Finnish Civil Engineers RIL and the Finnish Association of Architects SAFA.
5. The competition rules of the International Council of Societies of Industrial Design Icsid; when applicable

In possible rules-related conflict situations, and other special situations, the competition's jury will decide on the rules' applicability.

The competition programme and its appendices have been checked and approved by the competition promoter, the jury, the Finnish Association of Civil Engineers RIL's competition committee, the Finnish Association of Architects SAFA's Competition Secretary, and the International Design Foundation [World Design Capital Helsinki 2012].

Next page: Lane lined with deciduous trees in Stansvik, Kruunuvuorenranta.



1.10 QUANTITY OF COMPETITION ENTRIES

In the first stage of the competition, each team shall prepare **at least one** competition entry complying with the competition programme.

In a possible second stage, **only selected entries** will be accepted for further development, see Section 1.3.

1.11 COMPETITION COMPENSATION

Single-stage competition / first stage of two-stage competition

A compensation of EUR 50,000 (VAT 0%) will be paid to each approved and invited team submitting a competition entry complying with the competition programme for a single-stage competition / first stage of the competition. This compensation will be paid for one competition entry per team when the competition is resolved.

Besides the compensation, each team will be compensated for one actual scale model expenses against receipts, including shipping expenses, not however to exceed EUR 4,000 (VAT 0%).

The jury will check the competition entries' acceptability in connection with their evaluation [See also Section 3.5].

Possible second stage of two-stage competition

If the jury decides on the necessity for a second competition stage, and a second stage is organised, a second stage compensation of EUR 25,000 (VAT 0%) will be paid for each proposal, selected for the second stage, whose further development has been approved. In connection with the evaluation of the first stage, the jury will specify the minimum performance requirements for each entry accepted for further development.

Besides the compensation, each team selected to participate in a possible second stage will be compensated for actual expenses of each scale model against receipts, including shipping expenses, not however to exceed EUR 4,000 (VAT 0%).

Travel expenses

Additionally, each team will be compensated for a 3-person trip and if necessary, accommodation expenses, for their participation in the presentation seminar concerning the competition task. As well, a 2-person trip and accommodation expenses from outside the Helsinki Metropolitan Area (flight economy class, maximum accommodation payment EUR 160 per person per night) are compensated in connection with participation at the event where the competition results will be announced. The compensation shall be paid for actual expenses against receipts, however not to exceed EUR 5,000 (includes local VAT formed by costs) per team.

When the competition is resolved, all compensations and expenses will be paid to the company designated by each team to be principally responsible.

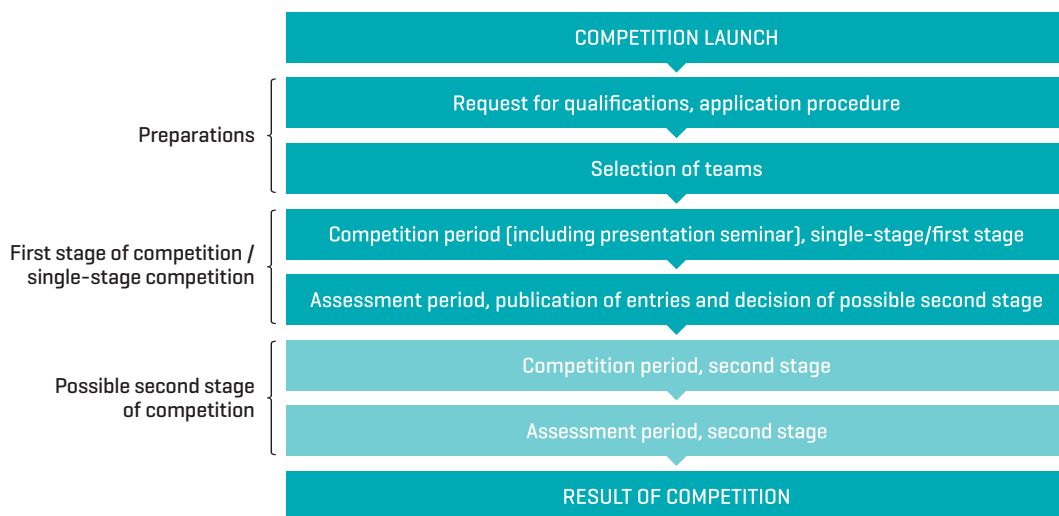
1.12 COMPETITION SCHEDULE

The competition period will begin on 19 September 2011 and conclude on 27 January 2012.

The jury will attempt to resolve the single-stage / first stage of the competition by the end of April 2012.

If the jury decides that a two-stage competition is necessary, the duration of the second competition period shall be approximately 4 months beginning from April / May 2012.

The possible second stage of the competition will be resolved during 2012.





Competition procedures

2.1 COMPETITION DOCUMENTATION

The competition documentation includes the competition programme [this document], the competition teams' application materials and instructions ["Instructions for Filling Out the Application and Reference Document", "Application and Reference Document", the aforementioned document filled out as a sample], and the following appendices:

Base documents for the preparation of drawings

1. Base map excerpt [current situation], indicating the competition area .dwg, .dgn, .pdf.
2. Illustration drawing combination and illustration drawings of areas currently being planned, .dwg, .dgn, .pdf.
3. Combination of 3D models of Kalasatama, Korkeasaari and Kruunuvuorenranta, .dwg and a visualisation-ready 3D model of the area for rendering the required animation .3DS, .3DM .DGN .dwg, into which the competitors shall import their designs [distributed only to teams selected for the competition]. Sample videos based on the 3D model will be available on the competition's website.
4. Design concerning bridges' junction area at Korkeasaari.
5. Checked alignments and grading work of the new connection.
6. Photographs as files with map of vantage points.

Technical information, regulations and instructions

7. Ground investigations.
8. Local climate conditions.
9. Eurocodes' National Annexes [EN 1991-1-4, EN 1991-1-5 and EN 1991-1-7 include annexes by two ministries]
 - National Annex EN 1990:2002/A1 [Appendix A2]. Basis of Structural Design. Amendment A1: Appendix A2: Application to Bridges, excerpts.
 - National Annex EN 1991-1-4/A1: Eurocode 1: Actions on Structures. Part 1-4: General Actions. Wind Actions.
 - National Annex EN 1991-1-5, Eurocode 1: Actions on Structures. Part 1-5: General actions. Thermal actions.
 - National Annex EN 1991-1-7, Actions on structures. Accidental Actions, excerpts.

Previous page: View over central Helsinki towards north. Market square in foreground. Kruunuvuorenranta, Tervasaari, Merihaka and Kalasatama in background.

- National Annex EN 1991-2, Actions on Structures. Traffic Loads on Bridges, excerpts.
10. Instructions for preparation of bridges' master drawings.
 11. Bridges' technical requirements.

Background information

12. Previous designs and appendices concerning the new connection [provided only in the Finnish language].
13. Visibility areas for two bridge types: beam and cable stayed bridges, excerpt from preliminary report *Korkeasaari-Kruunuvuorenranta – sillan kaupunkikuvalliset vaikutukset*, 30 March 2007, concerning the urban townscape effects of the Korkeasaari-Kruunuvuorenranta bridge.
14. Information of competition area, townscape and cultural starting points.
 - Urban Guide Helsinki [distributed only to teams selected for the competition].
 - Tailwind \ Helsinki Horizon 2030 [distributed only to teams selected for the competition].
 - Cultural history of Kruunuvuorenselkä.
 - Maps of Helsinki
15. Information about Helsinki Park.
16. Brochures of Kalasatama and Kruunuvuorenranta areas.
17. Evaluation report, Helsinki Zoo Ideas Competition

Other materials

18. At the competition's website and extranet, it will be possible to place information supplementing the above documents, either as requested by the competitors, or as materials that the competition promoter considers important. This material can be in the English or Finnish languages. The competition promoter will, if considered appropriate, provide English-language summaries of Finnish-language materials.

The information presented in competition appendices 1-18 supplements the competition programme. The regulations specified in the competition documentation shall be followed.



2.2 SUBMISSION OF COMPETITION DOCUMENTATION

Competition documentation in digital form is available on the competition's website **www.kruunusillat.fi**, from May 2011; other documents will be handed over at the presentation seminar concerning the competition task [see Section 2.3]. All information related to the competition will be placed on the competition website, which includes an extranet for non-public information.

2.3 PRESENTATION SEMINAR CONCERNING THE COMPETITION TASK

During September or October 2011, a one-day seminar presenting the competition task, its background and objectives, will be organised in Helsinki for competitors. The seminar also includes a tour through the competition area. The details of the seminar will be posted later on the competition's extranet.

The competition's practical arrangements, including the utilisation of an extranet, will be discussed at the seminar. It is also recommended that questions concerning the competition task and the competition be presented at the event.

The competition jury reserves the right, within the framework of the legislation governing public procurements, as well as the competition rules of the Finnish Association of Civil Engineers RIL and the Finnish Association of Architects SAFA, to modify the competition's arrangements and rules based on discussions conducted in the seminar.

A memo of the seminar will be prepared and placed on the extranet.

Previous page: The tank structures from the oil harbour period are now a part of Kruunuvuorenranta's history.



2.4 QUESTIONS AND ADDITIONAL INSTRUCTIONS

Questions

Competitors have the opportunity to submit competition-related questions, or requests for further information, to the jury at the presentation seminar, or afterwards through an extranet – whose utilisation will be explained at the seminar – organised by the competition promoter. **In the first stage**, questions concerning the competition shall be submitted by 28 October 2011, or by 2 December 2011 [questions will be answered in at least two stages].

Information regarding the question procedure for a possible second stage will be provided separately.

Questions shall be submitted anonymously through an extranet. The questions, as well as the official answers approved by the jury, will be placed on the extranet.

Experts

In the first stage, competitors also have the opportunity and obligation to consult with an expert obliged to observe professional secrecy, who is organised and financed by the promoter, with respect to:

- the applicability of structural and technical solutions to local conditions and design practices; see Appendix 11
- costs, see Section 3.4.12

The experts' contact information will be provided to the teams later. Each team shall reserve presentation and comment times with both experts by 10 October 2011. The communication with experts will take place through the extranet. More detailed procedures will be specified at the competition task's presentation seminar.

In the possible second stage of the competition, consulting procedures will be specified separately.



2.5 PUBLICATION OF ENTRIES DURING ASSESSMENT PERIOD AND AFTER FIRST STAGE, AND PUBLIC COMMENTS

Competition entries, to the degree allowed by the competitors [see Section 4.3], will be displayed at an exhibition facility during the assessment period immediately after the entries have been received. Additionally, the entries will be placed for public comments at a website reserved for this purpose.

In connection with the initialisation of a possible second stage, the selected entries will be displayed at the exhibition facility and on the Internet.

2.6 PUBLICATION OF ENTRIES DURING ASSESSMENT PERIOD OF POSSIBLE SECOND STAGE, AND PUBLIC COMMENTS

The entries in the possible second stage will be treated according to the same principles as in the first stage. The proposals selected for the second stage will be displayed so that they can be distinguished from the other entries.

2.7 SOLUTION, ANNOUNCEMENT OF RESULTS, AND DISPLAY OF COMPETITION ENTRIES

The teams will be informed immediately when the competition is resolved. The authors of the winning entry will be notified of the result of the competition.

The competitors will be invited to an event where the results of the competition will be announced. The competition entries and Report of the Competition Jury will be on view at the event. The Report of the Competition Jury will be delivered to all competitors.

The results of the competition will be placed on the competition's website (www.kruunusillat.fi), the Finnish Association of Civil Engineers RIL's website (www.ril.fi) and the Finnish Association of Architects SAFA's website (www.safa.fi) as well as in other media.

The competition entries, their authors' details, and the Report of the Competition Jury will be placed on view at an exhibition facility after the announcement of the results.

Any possible confidential information, presented as instructed in Section 4.3, will not be published.

2.8 COMPETITION ENTRIES' USE AND PUBLICATION RIGHTS

Competition entries will remain the property of the competition organiser and will not be returned. The competition promoter has the right to use and publish all of the competition entries' themes and materials according to Finnish copyright law and laws governing the publicity-related actions of public authorities.

The Finnish Association of Civil Engineers RIL, Finnish Association of Architects SAFA, and the International Design Foundation [World Design Capital Helsinki 2012] also hold the publishing rights for the competition entries.

Designers awarded a possible commission will have the right to use other entries' themes and ideas according to Finnish copyright law. The designs' copyrights shall reside with the authors of the proposals.

2.9 FURTHER ACTIONS AFTER COMPETITION

The jury will make a recommendation for further actions based on the results of the competition. The jury may also recommend that the task be divided among the participants.

The intent is that the commission for the further design will be awarded to the authors of the winning entry, assuming that the implementation alternative of the connection based on bridges proves feasible in various official processes, and a political decision is rendered for the bridges' implementation. The possible commission will be undertaken according to Chapter 1, Section 27, Paragraph 7 of the Public Procurement Act [Direct award of contracts].

The City of Helsinki has the right to decide on the further planning of Kruunusillat regardless of the outcome of the competition.

2.10 INSURANCE OF COMPETITION ENTRIES

The competition promoter will not insure competition entries or scale models.

The competitors will themselves be responsible for determining the way in which their competition entries, including the scale models, are delivered intact.

Next page: Winter view of the Suomenlinna maritime fortress located off the coast of Helsinki.



3

Competition task
and assessment principles

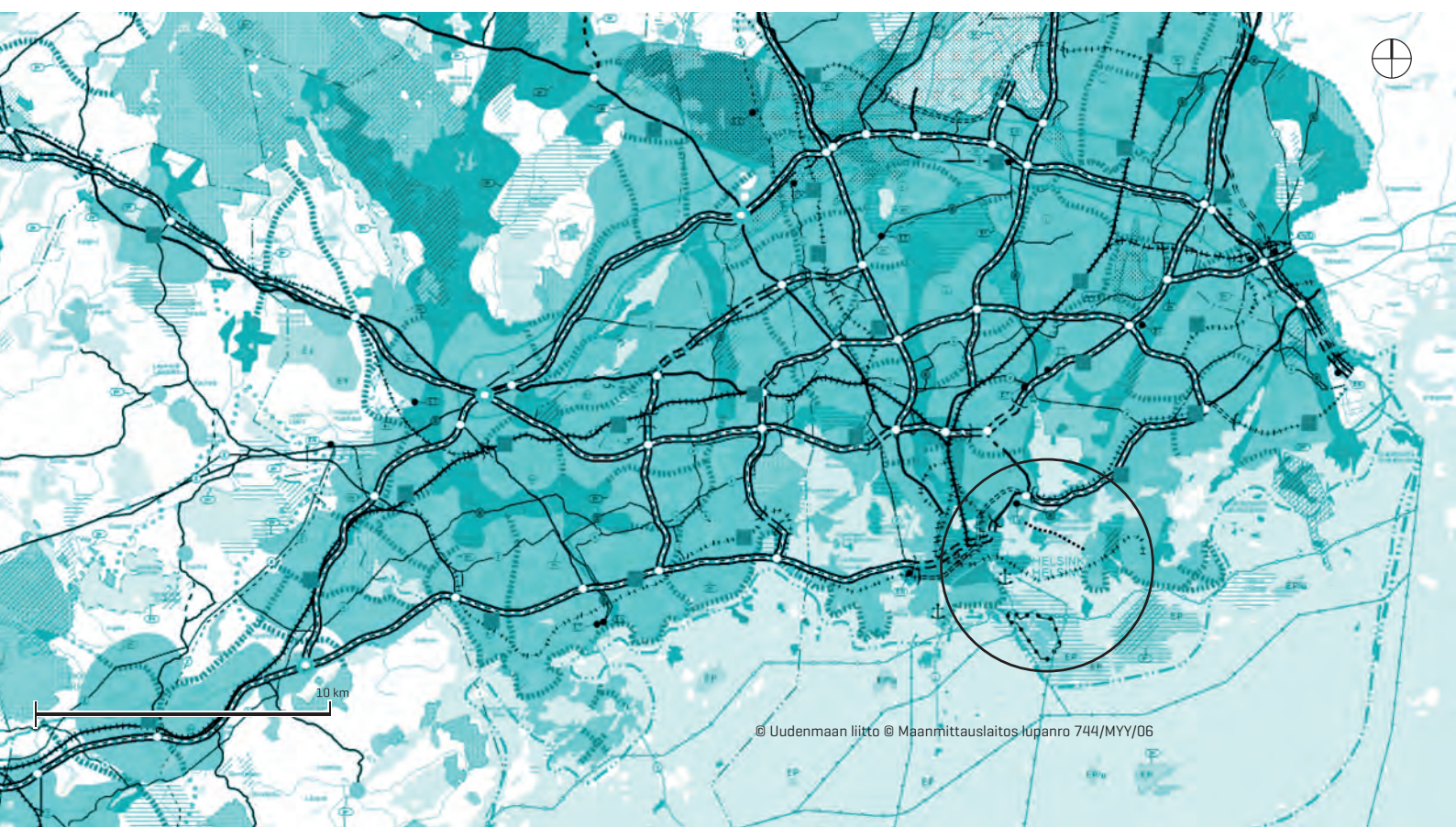
3.1 BACKGROUND OF COMPETITION TASK

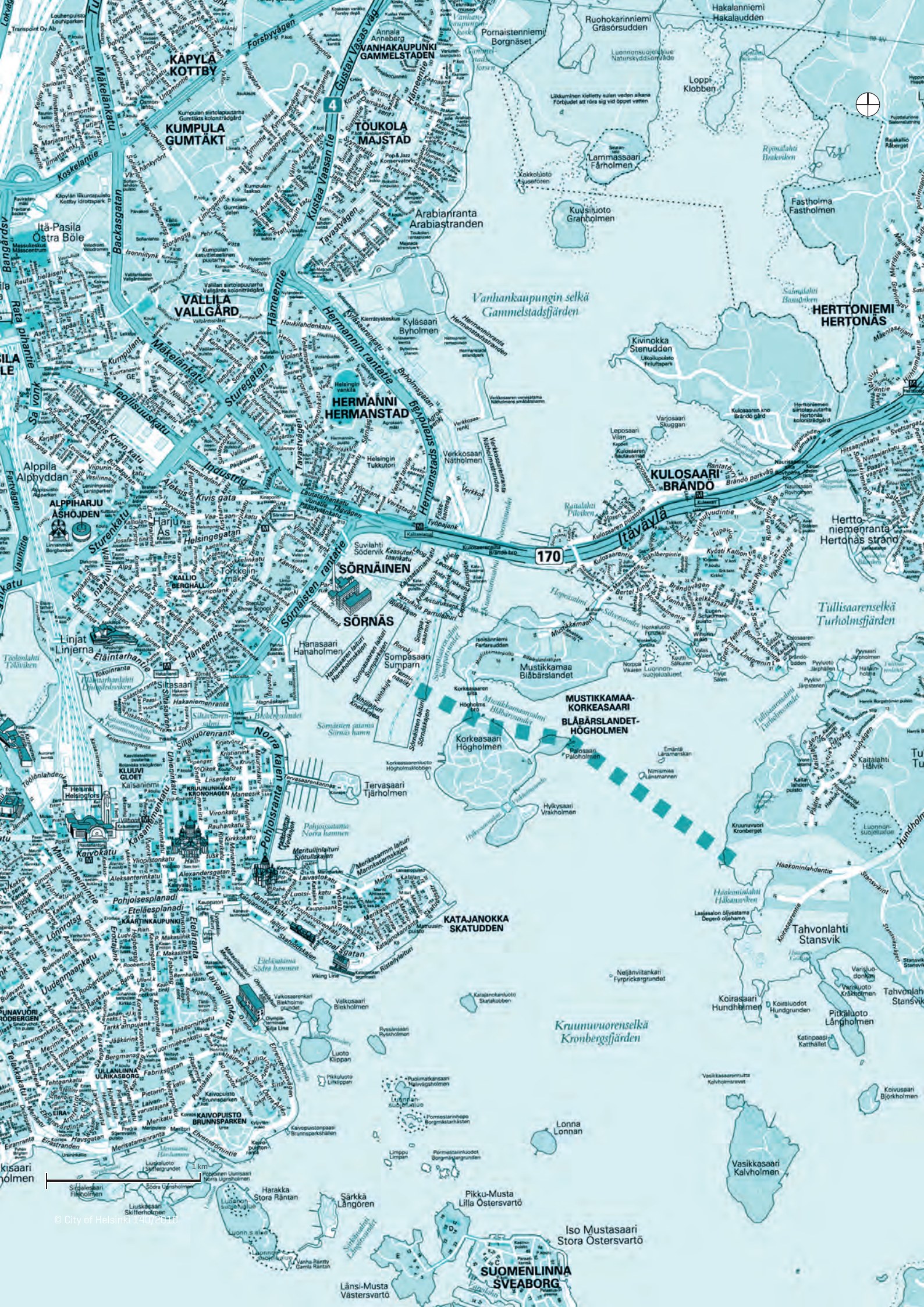
General

As a result of reorganised port functions, large, centrally located waterfront areas in the Helsinki area are being freed up for town planning and construction. One of them is Kruunuvuorenranta, located on the western part of the Laajasalo island, where a new, high quality residential area will be implemented. By water, Kruunuvuorenranta is located approximately three kilometres from the Helsinki city centre, but the current traffic connection from the area to the city centre runs through northern Herttoniemi and Kulosaari.

For many years, the City of Helsinki has studied the arrangement of a direct traffic connection between Kruunuvuorenranta and the city centre that would be led through the sea area. The new, direct connection would substantially shorten the distance and travel time between the centre of Helsinki and Kruunuvuorenranta, as well as generally improve the public transport, cycling and pedestrian connections between Laajasalo and the Helsinki peninsula. Along the route will be Kalasatama, a second projected high-quality residential and workplace area, as well as Korkeasaari, the site of the Helsinki Zoo.

The Helsinki strategy 2009-2012 programme states an objective for improving the city's traffic system with sustainable modes of transport by developing rail traffic, raising the service level of public transport, and increasing the possibilities for cycling and pedestrian traffic.





Comparison of traffic connection's implementation alternatives

Several implementation alternatives, some based on tunnels and others on bridges, have been studied for the direct public transport connection. At the same time, comparisons were made between different modes – bus, metro, tram – of public transport. According to forecasts, approximately 23,000 passengers would use tram connections over a 24-hour period when the Kruunuvuorenranta and Kalasatama developments have been built.

In connection with the comparisons of the modes of public transportation, a preliminary general structural engineering plan was drawn up for the bridge between Korkeasaari and Kruunuvuorenranta where two bridge types, a concrete beam bridge and cable-stayed bridge, were studied. With respect to the cable-stayed bridge, single and dual pylon solutions were studied. The design carried out was essentially a background clarification, and does not represent the official opinion or position of the City of Helsinki regarding the bridges' basic structural engineering solution.

A sketch-level design was drawn up for the bridge carrying tram, cyclist and pedestrian traffic between Kalasatama and Korkeasaari. It included a stop at Korkeasaari, as well as the general design of the related pedestrian, cycling, and service traffic connections. Subsequently, the bridges' preliminary alignments and elevation heights have changed to a certain extent. The previous bridge designs, as well as the checked alignments, are included in Appendices 12 and 5.

On 12 November 2008, the Helsinki City Council selected a solution based on tramlines and bridges with a reservation for a light rail connection as the basis for further development. The decision conformed to the policy of the City of Helsinki's strategy programme being prepared at the time. As the project is exceptional in terms of its significance, challenges and scale, it was decided to organise a design competition.

Next page: Combination of Kalasatama's and Kruunuvuorenranta's conceptual illustrations.

Previous page: Guide map excerpt of competition area and surroundings.

Page 34: Excerpt from regional plan.





Environmental Impact Assessment (EIA) of traffic connection

On 24 June 2009, the Uusimaa Environment Centre made the decision to apply environmental impact assessment procedures to the Helsinki City Planning Department's project with respect to its rail traffic alternatives to Laajasalo. Several alternative traffic solutions, one of which will be generated by the competition, will be compared in the EIA process. With respect to this competition, the most essential issues, arising in the EIA decision and requiring clarification, are included in the competition programme [see Section 3.4.11].

3.2 COMPETITION AREA AND SURROUNDINGS

The direct public transport, cycle, and pedestrian connection based on bridges now being planned extend from Kruununuhaka at the eastern section of the Helsinki peninsula to Kruunuvuorenranta on the western shore of Laajasalo. At Kruununuhaka, the connection will extend from the end of Liisankatu street, along Tervasaari to the southernmost part of Kalasatama called the Nihti area, from there onwards over an approximately 300 metre long bridge to Korkeasaari and from Korkeasaari through Palosaari to Kruunuvuorenranta. The planning area between Palosaari and Kruunuvuorenranta is situated at an approximately 1.3 km-wide portion of the Kruunuvuorenselkä water area.

The competition area covers the traffic connection between Kalasatama [Nihti area] and Kruunuvuorenranta, for which a general plan is to be presented. The main emphasis of the competition is the design of the long bridge connection between Kruunuvuorenranta and Palosaari. The boundary of the competition area is presented in the base map excerpt [Appendix 1].

At the Finnish scale, the total length of the traffic connection's longest bridge may be exceptional; Finland's longest bridge, in terms of its overall length, is currently the 1,045 metre long Raippaluoto Bridge at Mustasaari.

Previous page: Names of locations appearing in competition programme.

3.2.1 Cultural, historical, landscape and environmental values

Maritime-flavoured Helsinki is classified as one of Finland's 27 national landscapes. The views to Kruunuvuorenselkä, the South Harbour, Market Square, Katajanokka and Suomenlinna are the national landscape's main values, and Kruunuvuorenselkä's open quality plays a key role in Helsinki's landscape image. Kruunuvuorenselkä, where the planned traffic connection is located, is an emblem of Helsinki's maritime character.

Helsinki's navigation has been strongly associated with Kruunuvuorenselkä. Besides being one of Helsinki's more important routes for waterborne traffic, it also has substantial landscape, cultural and historical significance. In immediate proximity to the bridges and their spheres of influence are numerous cultural environments, also of national importance, whose landscape image will be significantly affected by the new connection:

- The old, culturally and historically valuable public park islands Mustikkamaa and Korkeasaari are located immediately adjacent to the bridges' alignment. Finland's oldest zoo functions on Korkeasaari.
- On the northern side of the bridge alignment, the prestigious Kulosaari villa district dominates the landscape.
- The villa district at Kruunuvuori hill's northern tip and the Tullisaari manor park entity located on its northeastern side are culturally and historically valuable.
- Forming the southern edge of Kruunuvuorenselkä is Suomenlinna, a maritime fortress complex dating from the 1750s and surrounded by sparsely built-up islands. Now on the UNESCO World Heritage List, Suomenlinna is a tourist attraction, recreational area, and an important monument to the Baltic Sea area's power politics and fortress-building skills, but it is also a city district with almost 900 residents and approximately 400 workplaces. An expansion of Suomenlinna's World Heritage List boundaries is in preparation, but the bridge connection will probably remain outside the specified buffer zone. Suomenlinna's fortress chain has also been declared a nationally significant landscape area.

Next page: Estates and their grounds form a part of Kruunuvuorenranta's rich scenery.

Page 42: View over Haakoninlahti, a part of Kruunuvuorenranta, to the centre of Helsinki [conceptual illustration].



Nimismies and Emäntä, two islets located along the bridge alignment, are important breeding grounds for archipelago birds. The number of bird species and breeding pairs varies from year to year.

A portion of the competition area [Korkeasaari as well as Kruunuvuorenselkä's water areas and islands] belong to the area, specified in the Helsinki Master Plan 2002, being developed as Helsinki Park, a waterway-related recreational entity that will bisect the entire city in the north-south direction. Additional information concerning Helsinki Park is found in Appendix 15.



3.2.2 Kruunuvuorenselkä

Kruunuvuorenselkä is also one of Helsinki's most important large-scale landscapes. Connecting the sea through narrow straits, the approximately 5-kilometre-long and approximately 3-kilometre-wide passage is a clearly defined space in terms of its character. To the south, it is bounded by the chain of islands between Santahamina and Helsinki peninsula, in the west the Helsinki peninsula and Katajanokka's built-up waterfront, Korkeasaari and Hylkysaari, in the north Mustikkamaa and Kulosaari. In the east, the Laajasalo and Santahamina islands define the landscape entity's eastern edge.

In terms of its character, the western landscape is fairly built-up and urban-flavoured; in the north the views are green. The character of the eastern shores is more natural, emphasised by the steep rocky cliffs of the Kruunuvuori hill. The future construction at Kruunuvuorenranta will make the eastern edge of the Kruunuvuorenselkä water area more urban-flavoured and more emphatically a part of the city's internal townscape than was previously the case.

Kruunuvuorenselkä's largest island is the wooded Vasikkasaari south of Kruunuvuorenranta. Numerous small rocky islands and islets are found between the city centre and Suomenlinna.



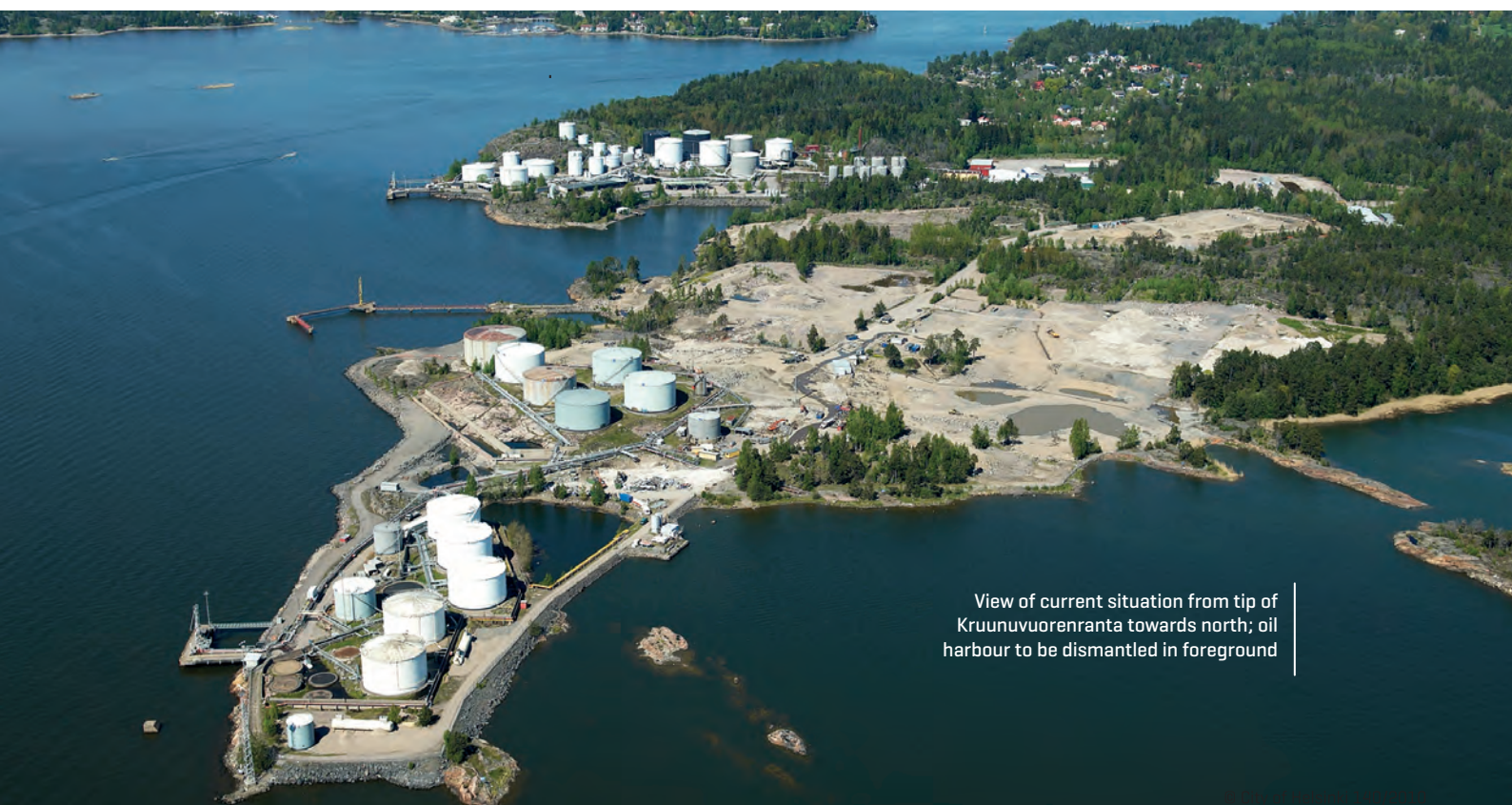
View of current situation from Kruunuvuorenselkä west of Kruunuvuorenranta. In distance Korkeasaari (foreground) and the Helsinki peninsula.

3.2.3 Kruunuvuorenranta

The competition area is bounded in the east by the rocky and topographically varied Kruunuvuori hill located on the Laajasalo island's western edge opposite the city centre. The new Kruunuvuorenranta residential area will be built on the land currently occupied by the Laajasalo oil harbour and its surroundings. The heavily built-up oil harbour is bounded by elegant natural areas, the archipelago and old country manor surroundings. The oil harbour will be completely dismantled by 2012.

By 2025, Kruunuvuorenranta will be built as a maritime-flavoured residential area with dwellings for approximately 10,000 residents, as well as services and office premises. The area is also being developed as a maritime-flavoured recreational centre for Helsinki that will provide the city's residents with a high-quality swimming beach, boat marinas, fishing docks, as well as other water-related fitness, cultural and recreational services. The competition documentation's Appendix 16 includes a brochure describing Kruunuvuorenranta.

The linking of Kruunuvuorenranta directly to the city centre with a tramline and cycle and pedestrian connection will enhance the area's attractiveness as a residential area, drawing the producers and users of recreational services. The bridge coming from Palosaari will be linked to the area in its northern section, on the southern side of Kruunuvuori hill so important to the landscape image.



View of current situation from tip of Kruunuvuorenranta towards north; oil harbour to be dismantled in foreground

3.2.4 Kalasatama

The competition area is bounded in the west by the Kalasatama area, formerly Helsinki's easternmost harbour, where a new large-scale expansion on the central city's eastern side is being developed. By 2030, dwellings for 18,000 new residents, as well as approximately 10,000 new workplaces, will be built in the area. Kalasatama is divided into smaller areas, the southernmost of which is called the Nihti area. The competition documentation's Appendix 16 includes a brochure describing Kalasatama.

The new connection has been aligned to pass through the centre of the Nihti area continuing from its north-east corner along the new bridge towards Korkeasaari (illustration drawing of Kalasatama in Appendix 2).

For Kalasatama, the new bridge between Kalasatama and Korkeasaari will be important particularly as a cycle and pedestrian connection to the Korkeasaari Zoo and as part of an extensive bicycle and pedestrian traffic network.

From the standpoint of the Kalasatama area, the most significant new bridge connection will be an opening bridge – for which a separate bridge competition may be organised later – connecting the Nihti area and the city centre.



View of current situation from tip of Kalasatama currently being designed (Nihti area in foreground) towards north-west

3.2.5 Korkeasaari and Palosaari

At the centre of the competition area are the Korkeasaari and Palosaari islands, site of the Helsinki Zoo, which currently occupies the islands in their entirety. The new traffic connection will alter the situation significantly, intersecting the existing zoo's northern shore as a street area. On the other hand, the convenience of the new connection and tramline stops will boost the zoo's visitor volumes, thereby enhancing the zoo's developmental possibilities.

A competition organised for the development of the Helsinki Zoo was resolved on 31 October 2008. Because the winning entry has not taken the new tram connection into account, the proposal will have to be subsequently revised to ensure the feasibility of building the connection along the northern shores of Korkeasaari and Palosaari. The competition's winning entry is not a binding point of departure, but a conceptual design illustrating how Korkeasaari could be developed during the next ten years. The evaluation report containing the competition's winning proposal is in Appendix 17.



View of current situation towards north,
in foreground Hylkysaari, Korkeasaari,
Palosaari and Mustikkamaa.



3.3 EFFECTS OF NEW CONNECTION

When implemented, the connection based on bridges between Kruunuvuorenselkä and the central city will exert substantial effects on the Kruunuvuorenselkä landscape and Helsinki Park. The bridge connection will narrow Kruunuvuorenselkä's landscape space and create more built-up views at its northern section. Kruunuvuori hill's importance as a distinguishing element in the landscape will most likely diminish.

Functionally, the new public transport, cycle, and pedestrian connection will link the Helsinki Park's shores, residential and green areas to each other and the Kruunuvuorenselkä environment, bringing Korkeasaari closer to the centre. This will create a new cycling and pedestrian traffic environment, waterfront, bridge and island entity between Kruunuhaka, Kalasatama and Katajanokka that can be developed as a vital functional centre. The bridge connection will also offer its users superb views to the surrounding landscape.

3.4 STARTING POINTS FOR DESIGN AND PLANNING GUIDELINES

It is hoped that the teams will approach the competition task comprehensively and open-mindedly.

The objective of the competition is to find an innovative and experientially rich solution that is, in terms of its landscape, architectural, technical, economic, and environmentally-related attributes, of high-quality, stands the test of time and is worthy of its unique location.

3.4.1 Aesthetics

The bridge connection shall be in all respects high-quality aesthetically.

3.4.2 Townscape image

The bridge connection shall harmonise with the Helsinki townscape entity in a natural and justifiable way.

3.4.3 Landscape

The solution for the bridge connections and its relationship to the landscape (whether it is by nature an impressive landmark

or blends unobtrusively with its surroundings or is something between the two] is left to the competitors' discretion. The objective is that the architectural, cultural and historical values of the unique maritime surroundings will be taken into account in the design of the bridge. A bridge connection of high quality will form a new historical layering for the environment and at its best bring new landscape values to the area.

3.4.4 Experiential and conceptual aspects

Besides being experientially rich for its users and its viewers, it is hoped that the bridges will convey an understanding of the philosophical meaning and symbolism associated with bridges, generally as well as locally.

It is hoped that competitors will consider the value added brought by the bridge connection solution more extensively – for its users, the area's residents, as well as, for example, the Helsinki Metropolitan Area tourism sector.

Competitors may also propose ideas – such as viewing platforms, cafes, and other similar amenities – that would enhance the bridge connection's use, experiential qualities and uniqueness of the location. It should however be possible for the overall entity to function without these additional features.

3.4.5 Functional attributes

The traffic connection being designed includes a tramline, as well as cycling and pedestrian routes. Service and emergency vehicles will also be using the connection.

Between Korkeasaari and Kruunuvuorenranta, there will be a reservation for a light rail connection. The light rail reservation will diverge at Korkeasaari and then be led through an underground tunnel to Katajanokka [see Appendix 5]. Aside from the technical and structural reserves, the design of the light rail reservation and the bridge's junction points is not included in the competition task.

The traffic connection being planned should be safe, and it should enable smoothly functioning, unrestricted access.

The design shall take the area's prevailing weather conditions into account. It is especially important, for example, that traffic lanes are easily cleared of snow.

3.4.6 User convenience

The user convenience of pedestrians and cyclists should be taken into account when planning the connection. It is hoped, that the competitors present ideas, in harmony with the aesthetic entity of the bridges, aimed at the attenuation of harsh weather conditions, especially windiness to which pedestrians and cyclists may be subjected.

3.4.7 Technical and structural requirements

The basic structural solutions, such as the types of the bridges, are left to the teams' discretion.

The bridges and related load-bearing structures will be designed according to Eurocode system with the specifications of national annexes. When preparing competition entries, there must be compliance with Appendix 9, a compilation of the matters requiring attention during the competition stage.

The presented technical solutions must be workable, durable and serviceable. The service life of the bridges is assumed to be 200 years.

The location of the new bridge connection is susceptible to harsh natural conditions. The design should consider the effects caused to the bridges by, for example, the long-term and short-term effects of water level changes and ice pressures, the freezing and melting of snow and ice, as well as the combined effects of frost and wind.

The possible effects of climate change in the future, to be taken into account in planning the bridge connection [such as increased windiness, storms and fluctuations in sea level heights] are, based on current studies, relatively minimal. They have been included in the planning guidelines and description of local climate conditions in Appendix 8.

The bridges' technical requirements are presented more precisely in Appendix 11.

Next page: Nature will also be accessible inside Kruunuvuorenranta's new city blocks [conceptual illustration].



3.4.8 Soil conditions and foundations

A ground investigation carried out for the competition area is attached as Appendix 7. Competitors shall submit a proposal for the foundation method of each support of the bridges.

3.4.9 Lighting of bridges

Owing to its geographical location, Helsinki is very luminous during the summer, almost around the clock. On the other hand, the long winter period is noticeably dim or dark. For that reason the seasonal luminosity changes in the Helsinki area should be familiar to competitors when designing the lighting of the bridges.

The Kruunuvuorenranta area currently being developed will be profiled as a city district lit artistically according to the principles of sustainable development. A significant part of the lighting will originate from Kruunuvuorenranta's western waterfront facade that can be seen from the centre of Helsinki. A design competition may be organised for the general design of the area's lighting. The character of the lighting solution for the bridge connection should enable it to be naturally linked to the aforementioned lighting strategy.

In particular, the lighting design must take into account the visibility of the illuminated bridge connection's landscape image over a wide area. The lighting of the bridge connection is a significant part of its essence as an element visible in the local and distant landscape. In terms of its technical characteristics, the lighting may not cause glare in the surroundings and must comply with the principles of sustainable development. The lighting solution must be energy-efficient (W/m) and light pollution shall be minimized.

The normative target value for the lighting of the bridges' traffic areas is ME4 + S2 [EN13201-2 Road Lighting, Part 2, Performance Requirements]. Rail traffic does not require particularly bright lighting, but the illumination of pedestrian and cycle lanes should be sufficient and provide a feeling of safety.

A principle solution for the lighting of the entire connection must be presented in the competition entries.

Next page: Night view over the centre of Helsinki to Kruunuvuorenranta [conceptual illustration].



3.4.10 Integration of traffic connections with terrain and landscape

The connection's points of contact at Kalasatama [Nihti area], Korkea-saari, Palosaari and Kruunuvuorenranta shall be designed principally according to the Appendices 2, 4 and 5. Competitors can deviate from the presented solutions for justifiable reasons.

Kalasatama-Korkeasaari-Palosaari

In Kalasatama [Nihti area], the bridge will be linked to the terrain at the level +4.0 within the boundaries of the competition area, as shown in the illustrative drawing [Appendix 2]. The basic elevation of the shore street is +3.0. Because the design of the Nihti area is still in a fairly preliminary phase, competitors can propose justified alterations to the urban structure depicted in the illustrative drawing.

Competitors should adhere to the basic principles of the sketch [Appendix 4] made for the Korkeasaari area's new connection. The connection's widths, height elevations and details are left to the competitors' discretion; proposals deviating from the presented solutions can be made for justifiable reasons. The positioning of the pedestrian and cycle route from Korkea-saari towards Kruunuvuorenranta can also differ from the route shown in Appendix 4, for example on both sides of the bridge. This issue will be discussed at the presentation seminar concerning the competition task, see Section 2.3.

Kruunuvuorenranta

The bridge from Palosaari will enter the Kruunuvuorenranta area at its northern section along Kruunuvuori hill, significant from the landscape point of view. The bridge meets the shore on the south side of the steep rock face on a gentle slope ramped towards the west. To avoid long retaining walls, it will be advantageous for the tramline to reach the ground surface close to the shore. The connection can be joined to the street network, for example according to the illustration drawing of Kruunuvuorenranta in Appendix 2. Passing under the bridge will be a cycle and pedestrian route running parallel to the shore. This path will pass by the almost vertical rock face, either partially excavated into the rock, cantilevered, or on a bridge. The design should indicate how the pedestrian and cycle path coming from the bridge can be joined workably and safely to Kruunuvuorenranta's

cycle and pedestrian network.

The bridge, as well as its related retaining walls and other similar structures, should be delicately integrated with Kruunuvuori hill's steep rock outcroppings, the terrain, and the urban environment. Unnecessary rock excavations at Kruunuvuori hill should be avoided.

3.4.11 Environmental impacts

When designing the traffic connection, the solution shall also take into account the principles of sustainable development. The factors affecting ecological sustainability include:

- the effects of the new connection on the environment's natural conditions [described below]
- the solutions' life cycle period's materials efficiency [in the proposals' assessment stage they will be calculated by the promoter as a carbon footprint based on the quantities provided by the competitors]
- the servicing and maintenance measures required by the solution, as well as the service life [See Section 3.4.7]
- the connection's lighting solution [see Section 3.4.9]

The design of the bridges' underwater construction should consider the effects on the area's water environment. The factors to be taken into consideration include sufficient water turnover, the changes in flows caused by the bridge, as well as the minimisation of sediment formations. Water flows will be affected by the bridges' foundation method and by the degree to which the bridge connection will act as a dam in the free water area.

From the standpoint of the natural environment, one of the main challenges will be to produce a solution that causes the minimum possible disturbances. From the perspective of the area's birdlife for example, factors causing essential disturbances can be the frightening effects resulting from noise, movement [public transport, pedestrians] as well as lighting solutions. Extensive highly reflective structures [such as large glazed surfaces] can increase birds' collision risks. Structural solutions can also cause other risks to wild animals such as the possibility to become trapped, collide, or otherwise be injured [for example by metal mesh construction, labyrinthine or sharp-edged structures, or by being unable to escape from inside a structure]. The

unnecessary disturbance of the birdlife at the Nimismies and Emäntä islets should be avoided [see also Section 3.2.1].

In the decision made by the Uusimaa Environment Centre regarding the project's EIA procedures [see Section 3.1] and its related hearing by the authorities, attention has been paid to the environmental effects of water flows, quality and turnover at Vanhankaupunginlahti, Kruunuvuorenselkä and Töölönlahti Bay.

3.4.12 Construction costs

The price ceiling for the competition area's traffic connection is EUR 86 million (VAT 0%). This includes all construction costs related to the bridges, possible embankments, and the overall entity's immediate junction areas, except for the expenses of the tram line and the reservation for the light rail connection. The price does not include design and construction management expenses. If implemented, the competition area's traffic connection shall be within the price ceiling. See also Section 3.5.

The competition entries shall contain a total cost estimate as well as an itemised cost estimate broken down by structural component (substructure by supporting line, cladding construction, as well as accessories and equipment). The cost estimate shall be based on the quantities estimated by the teams as well as unit prices applicable in Helsinki area. Quantities and unit prices shall be presented with a sufficient degree of accuracy and in a form that will enable the cost expert secured for the competition to check the feasibility of the calculations.

Competitors have the opportunity and obligation to consult with a cost expert, obliged to observe professional secrecy, who is provided and financed by the promoter, see Section 2.4.

Next page: Kruunuvuorenranta's Haakoninlahti and its townhouses [conceptual illustration].



3.5 COMPLIANCE WITH INSTRUCTIONS AND REGULATIONS GIVEN IN COMPETITION DOCUMENTATION AND APPROVAL OF COMPETITION ENTRIES

The jury will check the acceptability of the competition entries during the evaluation process in compliance with the principles in Section 1.9 and this section. The jury may reject a proposal that fails to comply with the requirements stated in the competition programme and its appendices.

Listed below are regulations requiring varying degrees of compliance. If a team participating in the competition is uncertain regarding the applicability of regulations not listed here, it is recommended that a question concerning the matter be submitted based on the principles specified in Section 2.4.

Regulations requiring absolute compliance:

- Boundaries of the competition area
- Vertical and horizontal clearances beneath bridges
- Valid load codes and regulations concerning bridges
- Minimum dimensions [horizontal and vertical clearances] of lanes for trams and other traffic
- Technical requirements for trams
- Municipal engineering installed on bridges

Significant regulations whose lack of compliance will not lead to disqualification if the entry can be developed, without compromising its basic concept, in a direction where the regulation could be implemented:

- Price ceiling

Regulations where deviations are allowed for justifiable reasons:

- Height elevations at bridges' junction points
- Width of bridges [see Appendix 11]
- Routes and locations of cycle and pedestrian paths on bridges [see Section 3.4.10 and Appendices 4, 5 and 11].

3.6 PRINCIPLES FOR EVALUATING ENTRIES

The assessment of the competition jury will focus on the connection between Kruunuvuorenranta and Palosaari. According to the stated goals, particular attention will be paid to the following considerations in the assessment of the competition entries:

Usability

- functional attributes such as fluency and safety of tram, cycle, and pedestrian traffic.
- consideration of physical environmental factors [conditions, usability, convenience]
- social attributes of usability
- feasibility [economical and technical feasibility].

Durability

- structural quality factors
- life cycle costs [technical workability, durability, serviceability, maintainability]
- compliance with principles of sustainable development

Aesthetics

- suitability to demanding environment and overall landscape
- architectonic quality, design, and aesthetics
- integration of bridgeheads with terrain and local landscape, particularly adaptation to Kruunuvuorenranta and Korkeasaari
- experiential quality, comprehension of the philosophical meaning and significance of the bridge

Section 3.4 presents the objectives, viewpoints and focuses related to the traffic connections' common quality criteria and significant details.

The essential point is the solution's overall economy and innovativeness; so that the above-presented characteristics and utilised economic and other resources are in a mutually optimised relationship. The merits of the overall solution and entry's development potential will be considered more important than the faultlessness of details.



4

Instructions
for preparing entries

4.1 REQUIRED DOCUMENTATION AND PRESENTATION TECHNIQUE

Competition entries shall be presented with a degree of accuracy that will enable the competition jury to assess the proposed solutions' qualities and performance.

Drawings shall be publishable, capable of withstanding handling, and they shall, except for the master drawings [Subsection 7] be mounted on A0-sized [1189 x 841 mm] stiff cardboard oriented horizontally. Drawings longer than this size shall be divided vertically or horizontally into adjoining sections so that the entire drawing can be assembled by placing the boards end-to-end. The boards may not be covered with protective plastic. The drawings shall be reasonably positioned to minimise the total number of boards.

The master drawings shall be submitted as separate printouts with a maximum size of 891 mm [height] x 1680 mm [length] folded into the A4 size suiting the drawing scale.



The SI System shall be used in drawings and calculations. The unit of measurement of length is m or mm.

Materials submitted as files shall be in a format that can be opened on a computer running with the Windows XP Professional operating system, Microsoft Office 2007 software and Adobe Acrobat Reader 8.0. Animations shall be viewable with the aforementioned operating system's Windows Media Player.

Competition's first stage

In the competition's first stage, the entry shall include the following documents:

1. Outline plan [taking into account the plans for the Kalasatama and Kruunuvuorenranta areas] presenting:

- plan drawing presenting traffic connection between Kalasatama – Kruunuvuorenranta 1:1000.
- facades, with backgrounds on both sides, of traffic connection between Kalasatama – Kruunuvuorenranta, 1:1000.

2. Design of connection between Palosaari – Kruunuvuorenranta

The design should present the placement of equipment required for technical servicing, the drainage of surface water, and a proposal for the lighting of bridge connection.

- partial facades 1:200 [includes bridges' connections to terrain]
- partial plans 1:200
- cross sections 1:50, where necessary 1:20

3. Design of connection between Kalasatama – Korkeasaari – Palosaari

- At their discretion, competitors shall present illustrative materials, for example partial facades 1:200 showing the connection to the terrain, partial plans 1:200 and cross sections 1:50, that they consider necessary to clarify their competition entries.

4. Drawings, illustrating the competition entry, of supplementary construction such as railings, paving and substructures so that the costs of the connection can be estimated.

Previous page: Five blocks of terrace housing for approximately 2,000 residents are planned for Hanasaari in Kalasatama [conceptual illustration].

Page 62: In foreground, the northern part of Kruunuvuori hill [as a fascinating detail, the ruins of the Villa Kissinge's gazebo can be seen at the top of the hill. The villa culture is part of the area's history].

5. Photographic simulations using the photographs in the Appendix 6, one of which is a night view (showing main principle of lighting). The night view can be produced based on either the day or the night photographs in Appendix 6.

- connection between Kalasatama – Kruunuvuorenranta (picture 03); day **and** night view
- stretch between Kalasatama – Palo-saari (picture 07); day view
- stretch between Palosaari – Kruunuvuorenranta (picture 04); day view
- ground-level photographic simulations, one from the Mustikkamaa shore looking towards Korkeasaari (picture 09) and one from the bridge's point of contact looking towards Kruunuvuori hill (picture 01); day view

6. Integration of the bridgeheads' with their routes to the immediate surroundings and their adaptation to the terrain presented in the competition boundary area shown in the base map:

- integration of all ends (including Palosaari) of the connection between Korkeasaari, Palosaari and Kruunuvuorenranta in the terrain, and environmental treatment at 1:500; the drawing should show the basic solution of the connection with the terrain and altitude contours.
- sections and detail drawings illustrating the solution should be included.

7. Master drawings of the bridges between Kalasatama-Kruunuvuorenranta

- bridges' master drawings prepared according to Appendix 10.
- master drawings shall include a proposal for the foundation method of each bridge support.

8. Written design summary (illustrated where necessary) printed on A4/A3-documents, presenting the solution's main principles with justifications and the following clarifications of the Kalasatama – Kruunuvuorenranta connection:

- structure and construction method (all structures) to a sufficient degree
- possible risks associated with the proposal's implementation.

- preliminary structural engineering calculations to the extent that the estimates of the feasibility and materials consumption of the bridges can be evaluated
- preliminary clarification of structure's ability to withstand the dynamic effects caused by traffic or wind.
- estimated servicing and maintenance measures over 50 years
- service life estimate and major technical and structural risks related to service life [typical maintenance risks related to aging and climate conditions, **not** including unlikely natural events in Finland such as earthquakes] with suggested solutions to minimize and manage risks.
- bill of quantities and construction costs calculated according to principles outlined in Section 3.4.12 [submitted also as a file; see the section "**Both stages of the competition**" on page 69]. Also based on the quantities, the solutions' carbon footprints will be calculated by the promoter, see Section 3.4.11.

9. 3D animation

The 3D animation shall include at least:

- a full circuit around the longest bridge with the "camera" aimed at the centre point of the bridge; the bridge shall be visible in its entirety during the entire circuit; the "cruising altitude" is free.
- At least 30 sec on the longest bridge: a drive from both ends of the bridge [at least 15 sec per end] from the viewpoint of a tram driver; viewing height approximately 2 metres from the bridge deck.
- The maximum duration of the animation shall be 180 sec.

The 3D animation shall be made using the visualisation-ready 3D model of the area in Appendix 3. The lighting, sky, surface materials, and bridgeheads' immediate surroundings of the visualisation-ready 3D model can be adjusted. Details such as trees, vehicles, boats, and people may also be added and adjusted.

10. Scale model 1:500

The base / terrain of the scale model shall be made according to a separate projection drawing that the promoter will deliver to the competitors.



The promoter will commission a model of the surroundings into which the competitor's scale model will be inserted during the evaluation process. The competitors will be informed of the details [surface colours and materials] of the scale model of the surroundings.

11. Other documents

If desired, competitors can include other illustrative materials with their entries.

Competition's possible second stage

In the possible second stage of the competition, the entry shall contain the documents 1-10 corresponding to the first stage documents, supplemented and developed further according to the recommendations provided by the jury.

Both stages of the competition

An A3-sized [420 mm x 297 mm, landscape orientation] set of coloured, copyable reductions of all documents contained in both competition stages, including the written summary, shall also be submitted. The reductions shall be marked with the scale and pseudonym [see Section 4.2] and should not be bound together.

All documents [drawing materials in A3-size] shall be submitted in .pdf format [images 200 dpi and drawings 300 dpi] on a USB memory stick. The bill of quantities and construction costs described in Section 4.1, Subsection 8, shall also be saved as an Excel chart file on the USB memory stick.

The entire 3D model used as the basis for the animation [described in Section 4.1] shall be saved on the USB memory stick. Competitors shall retain the original versions of their entries.

4.2 ANONYMITY OF ENTRANTS

As the competition will be judged anonymously, each document shall be marked with a pseudonym. **The competitor shall remove any identifiers from all competition materials and their electronic versions.**

Included with the entry shall be a sealed, non-transparent envelope, containing the authors' details: company principally

Previous page: View from Kalasatama to Mustikkamaa and Korkeasaari. Kruunuvuorentanta in background [conceptual illustration].

responsible, chief designer, other authors and experts, the holder of the copyright, as well as the contact person's contact information [telephone number, E-mail address, street address]. The authors' details, as listed in the name envelope, will be published after the competition. The name envelope shall be marked with the pseudonym and text "NAME ENVELOPE".

4.3 CONFIDENTIAL INFORMATION

The competition materials will be displayed to the public according to Sections 2.5 – 2.7.

The design teams shall provide a notification of any trade secrets or elements related to inventiveness contained in a portion of the competition materials that they feel should not be published. These aspects shall be presented as a separate document, at the end of the written design summary [Document 8], noted in Section 4.1.

Possible confidentiality instructions shall be provided in a sealed envelope marked with the text "CONFIDENTIALITY INSTRUCTIONS".

4.4 DELIVERY OF COMPETITION ENTRIES

Competition entries shall be delivered no later than 27 January 2012 by 15:00 [Finnish time zone, UTC+2] to the visiting address listed below or submitted with proof that they were handed over to the post office or other courier service for transportation on or before closing date. Competition entries sent by mail or courier service must be received no later than 10 February 2012. The packages shall be marked with the text "Kruunusillat Bridge Design Competition".

The competitors are strongly advised to ensure the acceptance of large size packages by the delivery companies in advance.

City of Helsinki Registry
Visiting address: City Hall, Pohjoisesplanadi 11-13, Helsinki 17
Postal address: City of Helsinki Registry
P.O. Box 10, 00099 City of Helsinki, Finland

Helsinki 7 February 2011

Competition Jury

Next page: Kalasatama's maritime milieu, conceptual illustration.



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