



KRUUNUSILLAT



# Crown Bridges

## Tram Connection to Laajasalo

# Presentation

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- This presentation contains basic information about the Crown Bridges project and part of the material presented at The Construction Market Dialogue (24.11.2016), including the procurement entity options.

# Location of the Crown Bridges project in the metropolitan area

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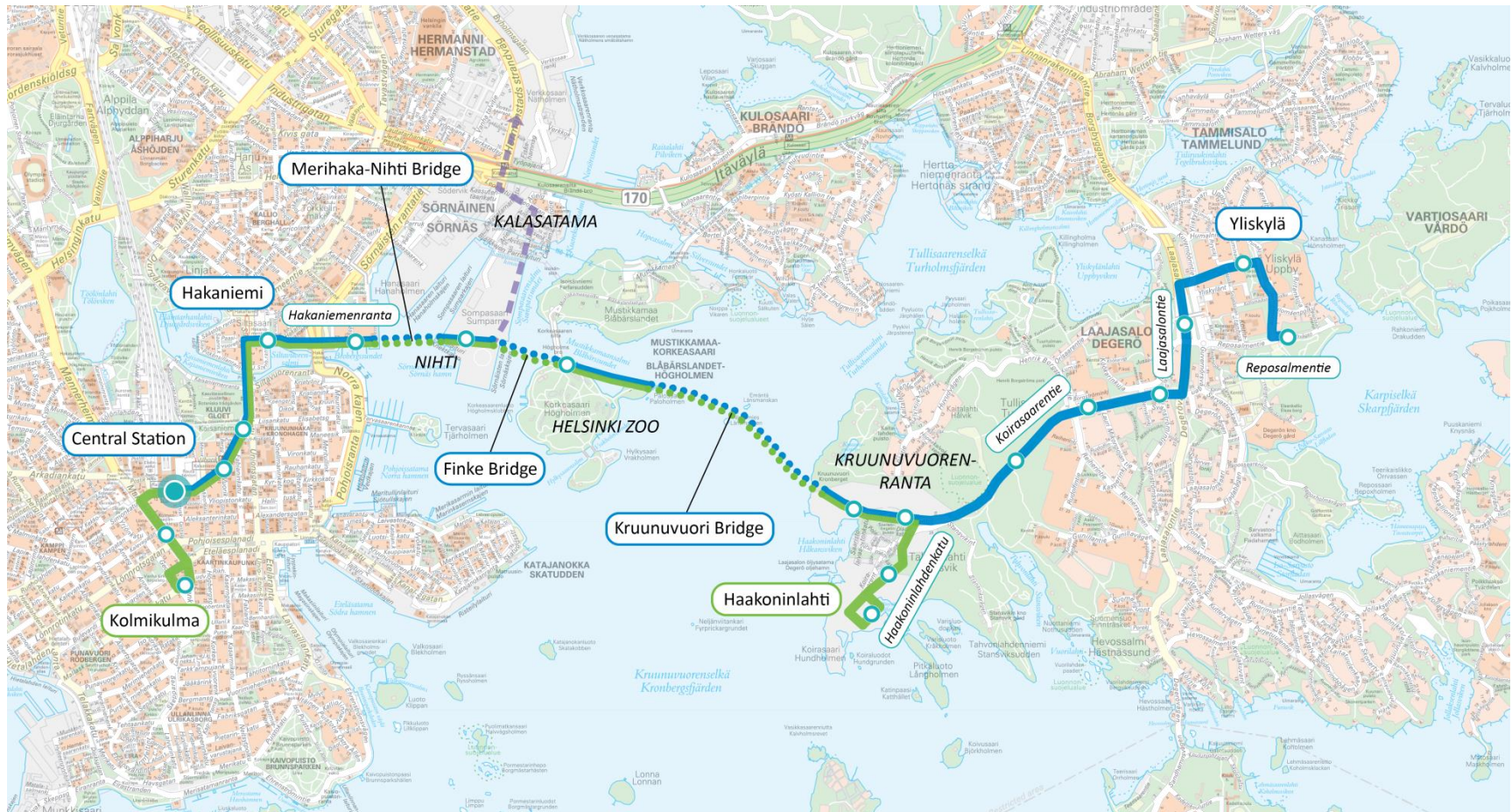


# Project background





# Crown Bridges, tram connection to Laajasalo



TRAM CONNECTION TO LAAJASALO

Line Central Station – Yliskylä  
Line Kolmikulma – Haakoninlahti



City centre terminal point

New bridge

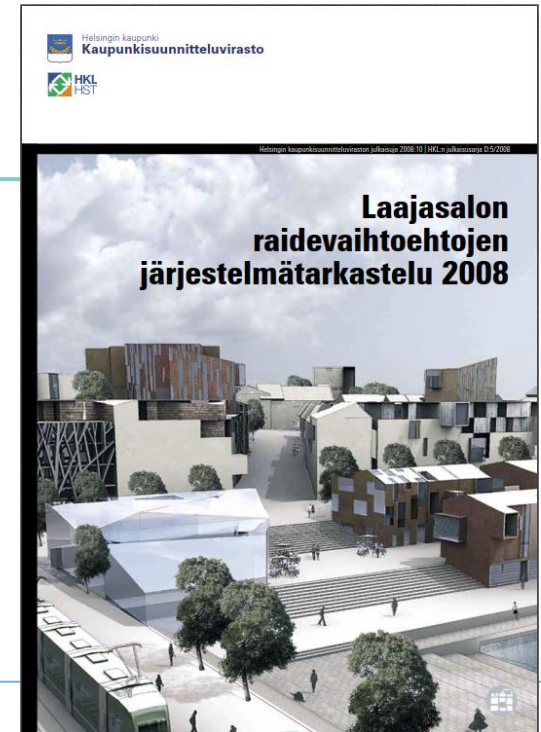
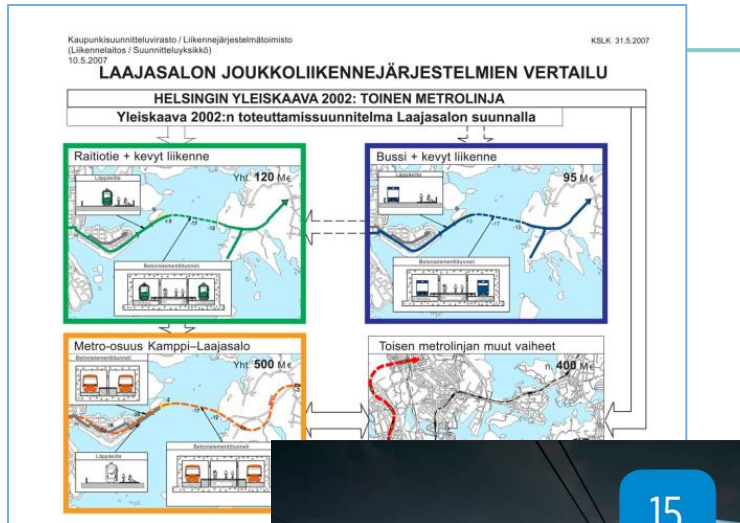
Kalasatama tram line



# Kruunuvuori Bridge



# Researched options





# Tram routes

Travel time  
Central Station –  
Kruunuvuorenranta



25 min



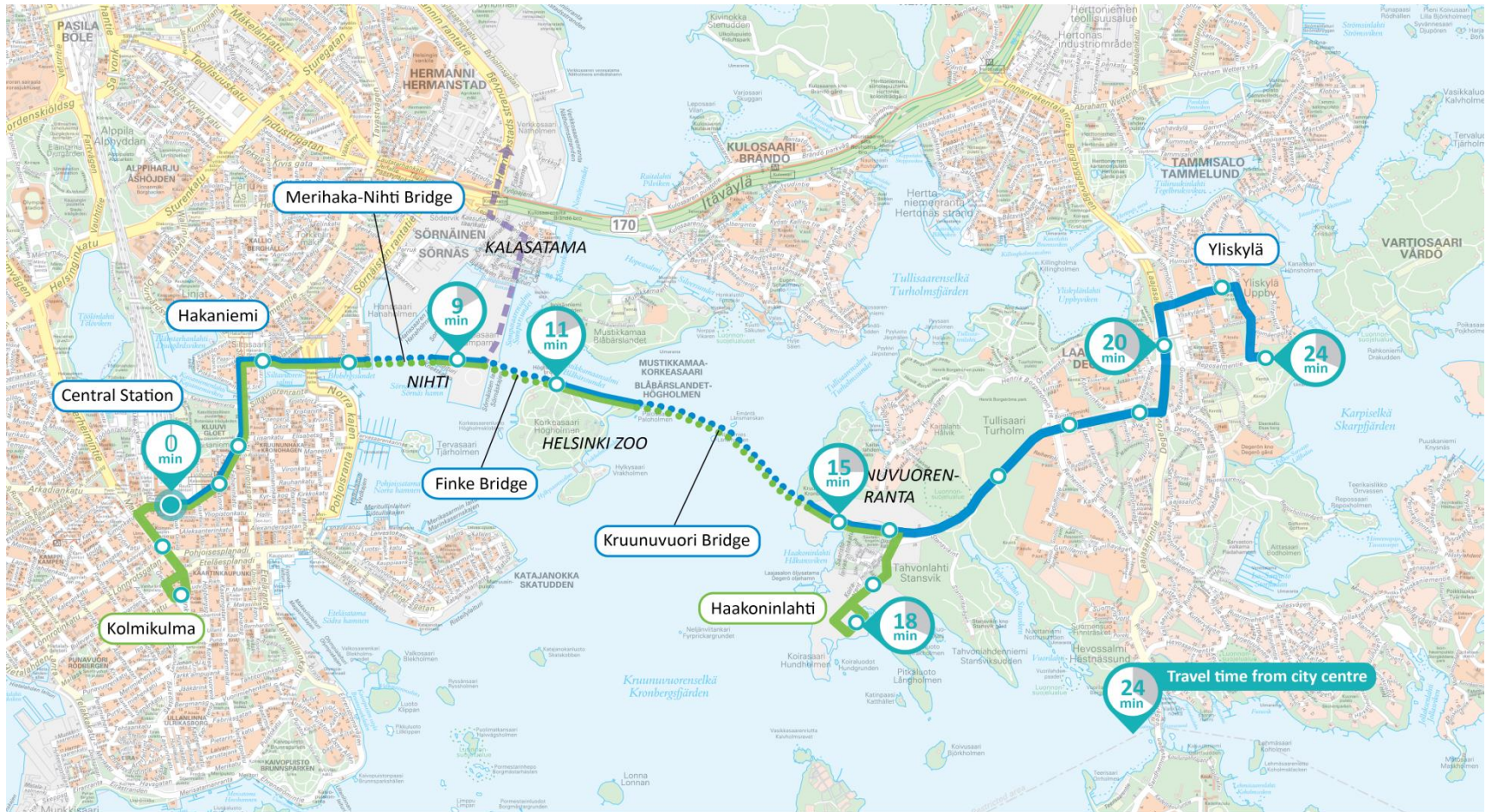
15 min



40 min



50 min → 20 min



## TRAM CONNECTION TO LAAJASALO

Line Central Station – Yliskylä

Line Kolmikulma – Haakoninlahti

Stop

City centre terminal point

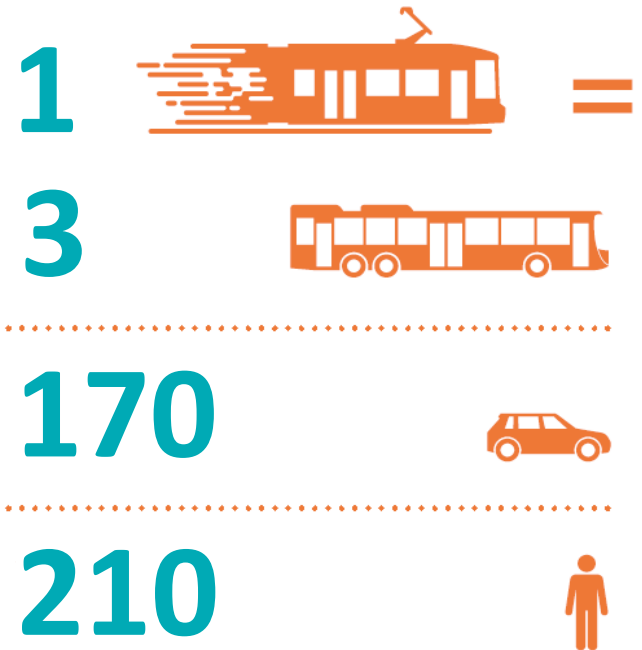
New bridge

Kalasatama tram line

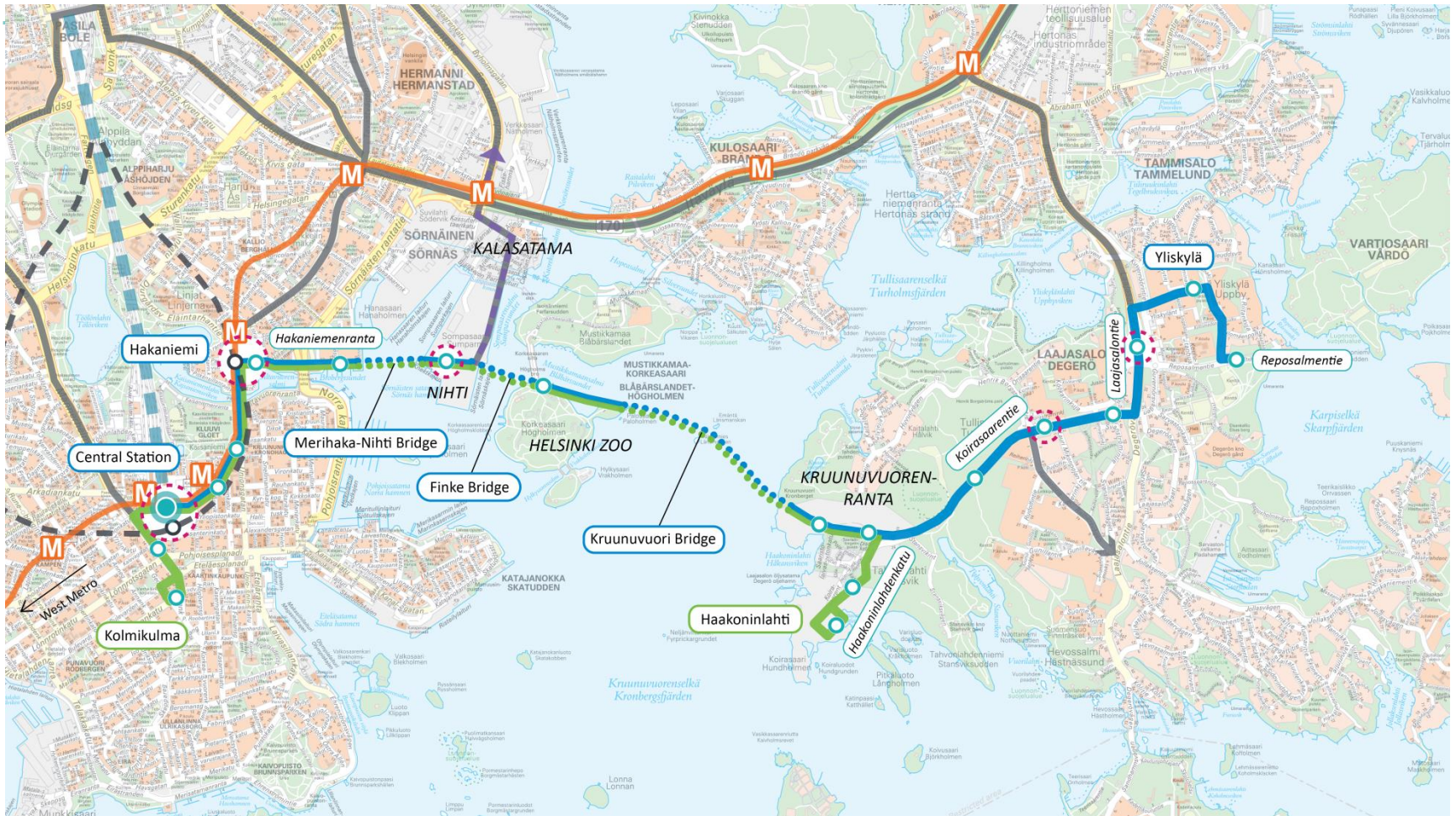


# Light rail enables quick and trouble-free operation

- The connection has been designed as a modern light rail line which is faster than the existing inner city trams, yet compatible with them.
- The average speed throughout the route will be 22 km/h. The fastest sections are operated at 60 km/h.
- Mostly dedicated lanes for the tram.
- The new tram cars are up to 45 metres long.



# Interchange stations connect to the network



## TRAM CONNECTION TO LAAJASALO

- Line Central Station – Yliskylä
- Line Kolmikulma–Haakoninlahti
- Other trunk line for public transport

- Stop
- City centre terminal point
- Significant transfer stop

- New bridge
- Kalasatama tram line
- Metro, stop

- Railway main line
- City Rail Loop under planning



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Helsingin kaupunki

Public transport network map 13 December 2016 / Sita



# Public transport users to increase

- The project implements the objectives of the **city plan** currently (2016) being prepared and the City of Helsinki's **Strategy Programme (2013–2016)** to promote sustainable modes of transport.
- The project will increase the number of public transport users. In Laajasalo, the proportion of public transport out of all means of travel will be 62 % during rush hours. Currently (2016) the proportion is approximately 50 %.
- Of all public transport trips of Laajasalo, 2/3 will be directed by tram via the Crown Bridges towards the inner city and 1/3 will be directed by bus towards Herttoniemi.



# Cost estimate

PROJECT SECTION	COST MEUR
City centre terminal point	4.4
Telematics of the project area	3.3
Inner city	10.2
The Merihaka–Nihti bridge	27.0
Changes to marinas	1.1
Nihti	3.8
Finke Bridge	22.0
Helsinki Zoo	25.8
Kruunuvuori Bridge	131.4
Kruunuvuorenranta–Yliskylä, Laajasalo	30.2
<b>TOTAL</b>	<b>259.2 MEUR</b>

**TOTAL**  
**259.2**  
**MEUR**

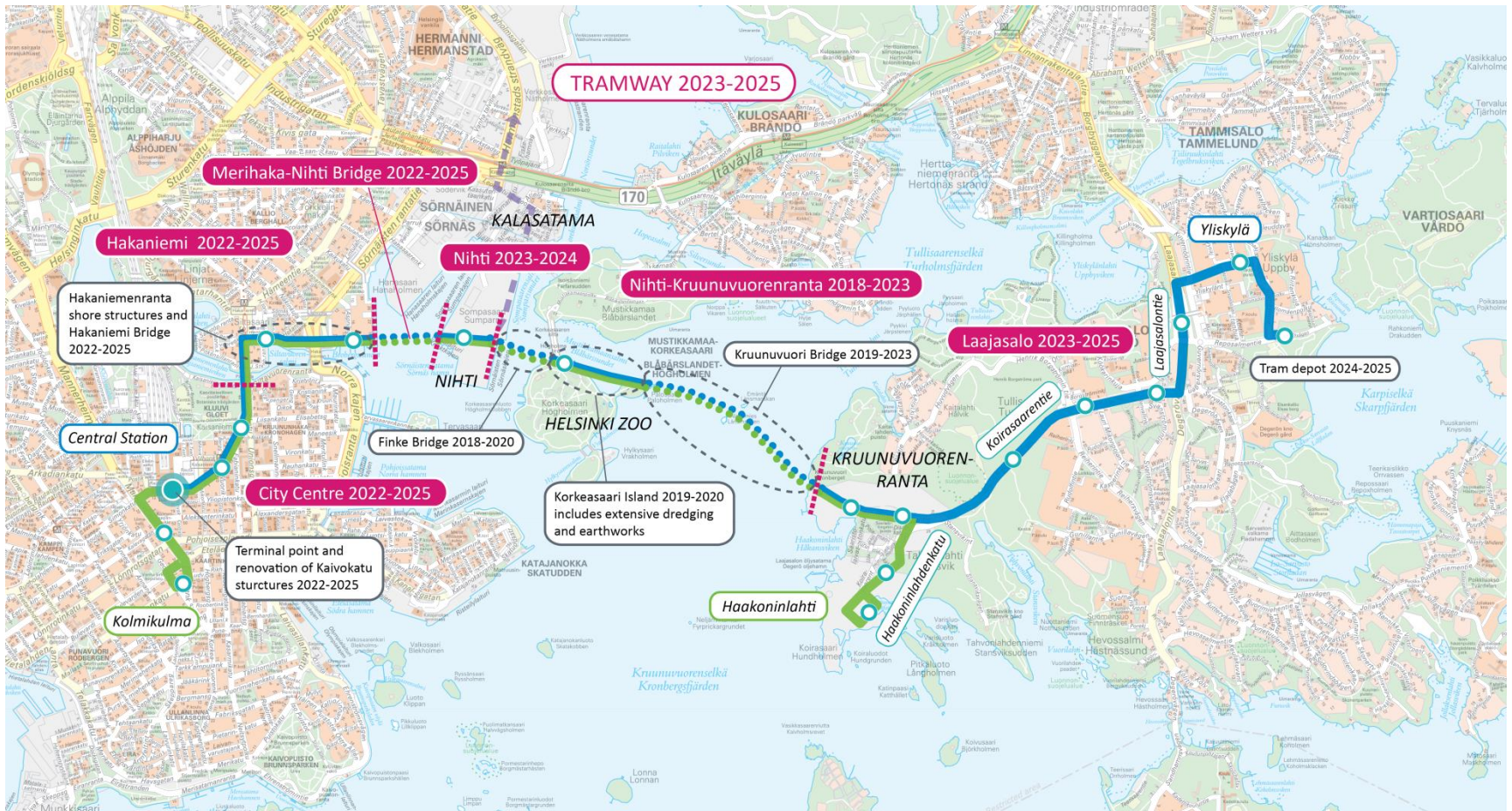
In addition to the necessary tram investments

- Tram depot  
20–25 MEUR
- Tram vehicles  
93 MEUR

Maku = cost index of civil engineering works  
i = 110,6 April 2015, 2010 = 100



# Construction schedule



## TRAM CONNECTION TO LAAJASALO

- Line Central Station – Yliskylä
- Line Kolmikulma – Haakoninlahti
- Stop
- City centre terminal point
- New bridge
- Area limit
- Kalasatama tram line



# Objectives of the Crown Bridges project implementation

An aerial photograph of a large bridge under construction over a wide river. The bridge has a prominent pylon and cables, and a curved approach ramp. The surrounding area is lush with green trees and vegetation. The water is calm, reflecting the sky and the bridge structure.

Parties will commit to the investment budget.

The overall schedule will be clear and controlled.

Traffic disturbances will be avoided and the smoothness of the everyday life of the residents and companies will be ensured during the implementation.

The project will be implemented with respect towards the environment, in accordance with the principles of sustainable development.

The different project parties, stakeholder groups and citizens will be satisfied with project communications.



# Project key figures



## Tram traffic

- Length of tram tracks approx. 10 km, two new routes
- Frequency 5–10 min
- Travel time from city centre to Kruunuvuorenranta 15 min and from city centre to Yliskylä 20 min
- Tram line riders 37,000/day (in 2040)



## Cycling and walking

- Cycling route from city centre to Laajasalo, connected to the Baana cycling network
- Travel time by bicycle from city centre to Kruunuvuorenranta 20 min and from city centre to Yliskylä 30 min
- Route users 3,000/day (in 2040)



## Bridges

- |                      |               |
|----------------------|---------------|
| • Merihaka–Nihti     | 400 m         |
| • Finke Bridge       | 300 m         |
| • Kruunuvuori Bridge | 1,200 m       |
| • <b>Total</b>       | <b>1.9 km</b> |



# Procurement entity options

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The procurement entity options have been formed for the preparation of the implementation report. The procurement entity options as described in this presentation are theoretical and only describe the principle. The procurements are most likely going to be variations of the entity options described below.

- **One procurement entity:** the procurement is carried out as one entity as extensively as possible and with only one contract.
- **Four procurement entities:** consisting of four compact entities that are based on the preliminary schedule.
- **Procurement entities based on technical structures:** similar technical structures are acquired in the same procurements as extensively as possible.
- **Procurement entities based on area subdivision:** the procurements are carried out in smaller subprojects in designated areas.



# Procurement entity options: One procurement entity

	City centre	Hakaniemi	Nihti	Nihti-Kruunuvuorenranta	Laajasalo
	Telematics of the project area MEUR 3.3				
Tram line	Tram lines, end stop and traffic control MEUR 3.4	Tram lines and stop MEUR 5.0	Tram line MEUR 1.9	Tram line MEUR 7.1	Tram line MEUR 29.2
Bridges		Tram line on a bridge MEUR 2.5 The Merihaka-Nihti bridge MEUR 24.0 Street structures on a bridge MEUR 0.5	Tram line on a bridge MEUR 3.3 Finke Bridge MEUR 17.1 Street structures on a bridge MEUR 0.9 Other structures, cables and lighting MEUR 0.7	Tram line on a bridge MEUR 13.4 Kruunuvuori Bridge MEUR 116.2 Other structures, cables and lighting MEUR 1.8	
Street, street environment shore structures	Streets and street environment MEUR 1.0	Support walls and streets MEUR 5.2	Shore structures and a plaza MEUR 1.9	Korkeasaari street and street environment MEUR 5.7 (includes a share of the reception building MEUR 2) Other structures, cables and lighting of Korkeasaari MEUR 4.1	
Other infrastructure construction		Changes to marinas MEUR 1.1		Foundation engineering of Korkeasaari (includes dredging and landfill) MEUR 8.9	Foundation reinforcements MEUR 1.0
Connected projects (costs not included in the project)	Renovation of Kaivokatu pavement MEUR 5 Pedestrian city centre Renovation of Erottaja	Renewal of Hakaniemi Bridge and related works MEUR 38 Works related to the area development of Hakaniemi, MEUR xx	Road connection MEUR Preconstruction, street construction Kalasatama tram line	Changes to buildings and traffic arrangements	Depot 20–25 MEUR Changes to the street environment MEUR 4

The estimated total cost of the project includes, in addition to the contract price, the project duties of the orderer, which include construction and design costs and options. These costs are not directly presented in the unit prices, but, instead, as percentages of the contract price.

# Procurement entity options: Four procurement entities

	City centre	Hakaniemi	Nihti	Nihti-Kruunuvuorenranta	Laajasalo
	Telematics of the project area MEUR 3.3				
Tram line	Tram lines, end stop and traffic control MEUR 3.4	Tram lines and stop MEUR 5.0	Tram line MEUR 1.9	Tram line MEUR 7.1	Tram line MEUR 29.2
		Tram line on a bridge MEUR 2.5	Tram line on a bridge MEUR 3.3		Tram line on a bridge MEUR 13.4
Bridges		The Merihaka-Nihti bridge MEUR 24.0	Finke Bridge MEUR 17.1		Kruunuvuori Bridge MEUR 116.2
		Street structures on a bridge MEUR 0.5	Street structures on a bridge MEUR 0.9		Other structures, cables and lighting MEUR 1.8
Street, street environment shore structures	Streets and street environment MEUR 1.0	Support walls and streets MEUR 5.2	Shore structures and a plaza MEUR 1.9	Korkeasaari street and street environment MEUR 5.7 (includes a share of the reception building MEUR 2)	
				Other structures, cables and lighting of Korkeasaari MEUR 4.1	
Other infrastructure construction		Changes to marinas MEUR 1.1		Foundation engineering of Korkeasaari (includes dredging and landfill) MEUR 8.9	Foundation reinforcements MEUR 1.0
Connected projects (costs not included in the project)	Renovation of Kaivokatu pavement MEUR 5 Pedestrian city centre Renovation of Erottaja	Renewal of Hakaniemi Bridge and related works MEUR 38 Works related to the area development of Hakaniemi, MEUR xx	Road connection MEUR Preconstruction, street construction Kalasatama tram line	Changes to buildings and traffic arrangements	Depot 20–25 MEUR Changes to the street environment MEUR 4

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# Procurement entity options: Procurement entities of technical structures

	City centre	Hakaniemi	Nihti	Nihti-Kruunuvuorenranta	Laajasalo
	Telematics of the project area MEUR 3.3				
Tram line	Tram lines, end stop and traffic control MEUR 3.4	Tram lines and stop MEUR 5.0	Tram line MEUR 1.9	Tram line MEUR 7.1	Tram line MEUR 29.2
		Tram line on a bridge MEUR 2.5	Tram line on a bridge MEUR 3.3		Tram line on a bridge MEUR 13.4
Bridges		The Merihaka-Nihti bridge MEUR 24.0 Street structures on a bridge MEUR 0.5	Finke Bridge MEUR 17.1 Street structures on a bridge MEUR 0.9 Other structures, cables and lighting MEUR 0.7		Kruunuvuori Bridge MEUR 116.2 Other structures, cables and lighting MEUR 1.8
Street, street environment shore structures	Streets and street environment MEUR 1.0	Support walls and streets MEUR 5.2	Shore structures and a plaza MEUR 1.9	Korkeasaari street and street environment MEUR 5.7 (includes a share of the reception building MEUR 2) Other structures, cables and lighting of Korkeasaari MEUR 4.1	
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The estimated total cost of the project includes, in addition to the contract price, the project duties of the orderer, which include construction and design costs and options. These costs are not directly presented in the unit prices, but, instead, as percentages of the contract price.

# Procurement entity options: Procurement entities based on regional division

	City centre	Hakaniemi	Nihti	Nihti-Kruunuvuorenranta	Laajasalo
	Telematics of the project area MEUR 3.3				
Tram line	Tram lines, end stop and traffic control MEUR 3.4	Tram lines and stop MEUR 5.0	Tram line MEUR 1.9	Tram line MEUR 7.1	Tram line MEUR 29.2
Bridges		Tram line on a bridge MEUR 2.5 The Merihaka-Nihti bridge MEUR 24.0 Street structures on a bridge MEUR 0.5	Tram line on a bridge MEUR 3.3 Finke Bridge MEUR 11.1 Street structures on a bridge MEUR 0.9 Other structures, cables and lighting MEUR 0.7	Tram line on a bridge MEUR 13.4 Kruunuvuori Bridge MEUR 116.2 Other structures, cables and lighting MEUR 1.8	
Street, street environment shore structures	Streets and street environment MEUR 1.0	Support walls and streets MEUR 5.2	Shore structures and a plaza MEUR 1.9	Korkeasaari street and street environment MEUR 5.7 (includes a share of the reception building MEUR 2) Other structures, cables and lighting of Korkeasaari MEUR 4.1	
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